

IBM Intelligent Operations Center
Version 1 Release 6

*IBM Intelligent Operations Center
Product Documentation*



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Note

Before using this information and the product it supports, read the information in "Notices" on page 477.

This edition applies to IBM Intelligent Operations Center version 1, release 6, modification 0. This edition applies to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Solution overview

Many organizations and endeavors require efficient operational supervision and coordination. All have in common the need for the right information to be brought together so that the right people can make fast, accurate decisions and track the effect of those decisions. IBM® Intelligent Operations Center is a software solution that is designed to facilitate effective supervision and coordination of operations.

Authorities face common challenges in their core systems and in making improvements to systems that are interconnected. Authorities that are forward-looking want to use the improvements in efficiency and effectiveness of smarter core systems. They adopt new ways of thinking about and using these systems. The application of advanced information technology can help authorities better understand, predict, and intelligently respond to patterns of behavior and events.

For example, IBM defines an intelligent city in terms of the improvements in quality of life and economic well-being that are achieved through applying information technologies (IT) to plan, design, build, and operate the city infrastructure. An intelligent city is not primarily about "the latest technology." It is about finding ways to use technology to make the most effective use of the existing resources, to improve the life of the citizens of the city.

IBM Intelligent Operations Center uses the power of the real-world data that is generated by computer systems by performing the following tasks:

- Collecting and managing the right data
- Integrating and analyzing that data
- Facilitating easy and timely access to information
- Presenting related information in a coherent way

The benefits of this solution are to:

- Adjust systems to achieve results that are based on the insights that are gained
- Optimize planned and unplanned operations by using a holistic reporting and monitoring approach
- Build convergence of domains in an organization by facilitating communication and collaboration
- Improve quality of service and reduce expense by coordinating events

An operation can be divided into individual domains, which generally match with the organization structure and the expertise of the people involved. In a city, the expertise is held in departments, for example, in transportation, water, and public safety.

As the complexity of operations in a domain increases, a more customized solution is required. IBM Intelligent Operations Center has a number of different integration points where customization can take place. These integration points and the infrastructure that is included give IBM Business Partners, service providers, and customers the flexibility to build a broad and powerful solution.

Intended audience

This product documentation is intended for people who are using, installing, administering, and maintaining IBM Intelligent Operations Center. It also contains implementation documentation for configuring the solution and integrating the external underlying systems that IBM Intelligent Operations Center requires.

This product documentation is based on the assumption that users have prior knowledge of or proficiency in using the component products that are included in this solution. The product documentation is also based on the assumption that users have a basic knowledge of the Red Hat

Enterprise Linux operating system. Training for the component products or the operating system is outside the scope of this product documentation. If you require training for these products, ask your systems integrator or IBM representative where you can obtain information about base component training opportunities.

Features

IBM Intelligent Operations Center provides measuring, monitoring, and modeling facilities that can integrate underlying systems into one solution to improve operational efficiency, planning, and coordination.

IBM Intelligent Operations Center is a product within the IBM Smarter Cities® Software Solutions product family. IBM Intelligent Operations Center can be installed on existing hardware (on premises) or it can be deployed in the cloud. IBM Intelligent Operations Center can be installed by itself, or you can install it with other products from the IBM Smarter Cities Software Solutions product family.

IBM Intelligent Operations Center is a GUI-based product that provides role-based access to data for an organization and underlying domains. It has event management and integrated mapping capabilities. The solution can supply and track the appropriate procedures and activities in preparation for and response to events. It also has key performance indicator (KPI), reporting, and collaboration capabilities for improved effectiveness. These features provide authorities with the ability to integrate domains for improved cooperation and decision-making.

Event and data management

IBM Intelligent Operations Center provides an event reporting and data tracking mechanism to enable identification and understanding across underlying domains. You can manage predicted events, planned events, and current events as they evolve. For example, replacing pipes that run under a road is a planned event or work order that involves both water and traffic operations. A severe weather event that is forecast to arrive in the next 24 hours is a predicted event. A traffic jam is a current event that is affected by both the road works and weather.

An integrated geographic information system (GIS) or location plan maps events visually. You can gauge the impact of events through interactive mapping and scenario analysis. You can filter information about events that are based on date and time, location, and other categories that you define. You can view the filtered information either highlighted on a map, or listed in a table. The information is easy to access when and where you need it.

Response and activity management

IBM Intelligent Operations Center provides a system for storing appropriate procedures and activities that are associated with events. You can track the progress of procedures, and monitor or update the status of activities that are assigned to you.

Status monitoring

IBM Intelligent Operations Center provides a tool for creating and displaying KPIs. The KPIs can be updated as underlying data changes. You can accomplish the following tasks:

- Summarize executive-level status for a single domain or across domains
- Highlight issues and identify problems
- Investigate further by drilling down into the KPI details

Instant notification and messaging

IBM Intelligent Operations Center provides a workspace where you can maintain notifications for matters that need attention. You can use this workspace to monitor KPIs.

IBM Lotus® Sametime® provides an integrated collaboration and communication tool that you can use for instant messages where and when it is needed.

Viewing reports

In IBM Intelligent Operations Center you can view reports of events as graphs, tables, or pie charts. You can filter the information that is displayed in the reports that are based on date and time, location, and other categories that you define. You can use this facility to collect and present the information that is most useful to you on an up-to-date and regular basis. This facility gives you all the advantages of tailored summaries and graphical presentation.

Users and benefits

IBM Intelligent Operations Center is designed for personnel who are involved with operational control in organizations, government departments, and local or city authorities: executives, supervisors, and operators.

The following table describes the users and benefits that are associated with using IBM Intelligent Operations Center.

Table 1. IBM Intelligent Operations Center users and benefits

If you are a...	This software can help you...
Executive	<ul style="list-style-type: none">• Gain an executive level summary of events through maps, dashboards, and notifications• Determine measures of organizational success with key performance indicators (KPIs)• Identify and track issues through reports• Direct priorities and implementation of policy that is based on data that is provided
Supervisor	<ul style="list-style-type: none">• Identify and act on conflicts and issues that are shown on maps, dashboards, and notifications• Manage events by adding new events, editing existing events, and canceling events• Store and manage the execution of procedures and activities that are associated with events• Monitor KPIs• Communicate quickly and easily on matters of importance• View filtered data in reports
Operator	<ul style="list-style-type: none">• Create, edit, and monitor events that are displayed in maps and lists• Receive and update status on assigned activities• Run regular and up-to-date reports• Communicate quickly and easily in emergencies and other situations that require a response

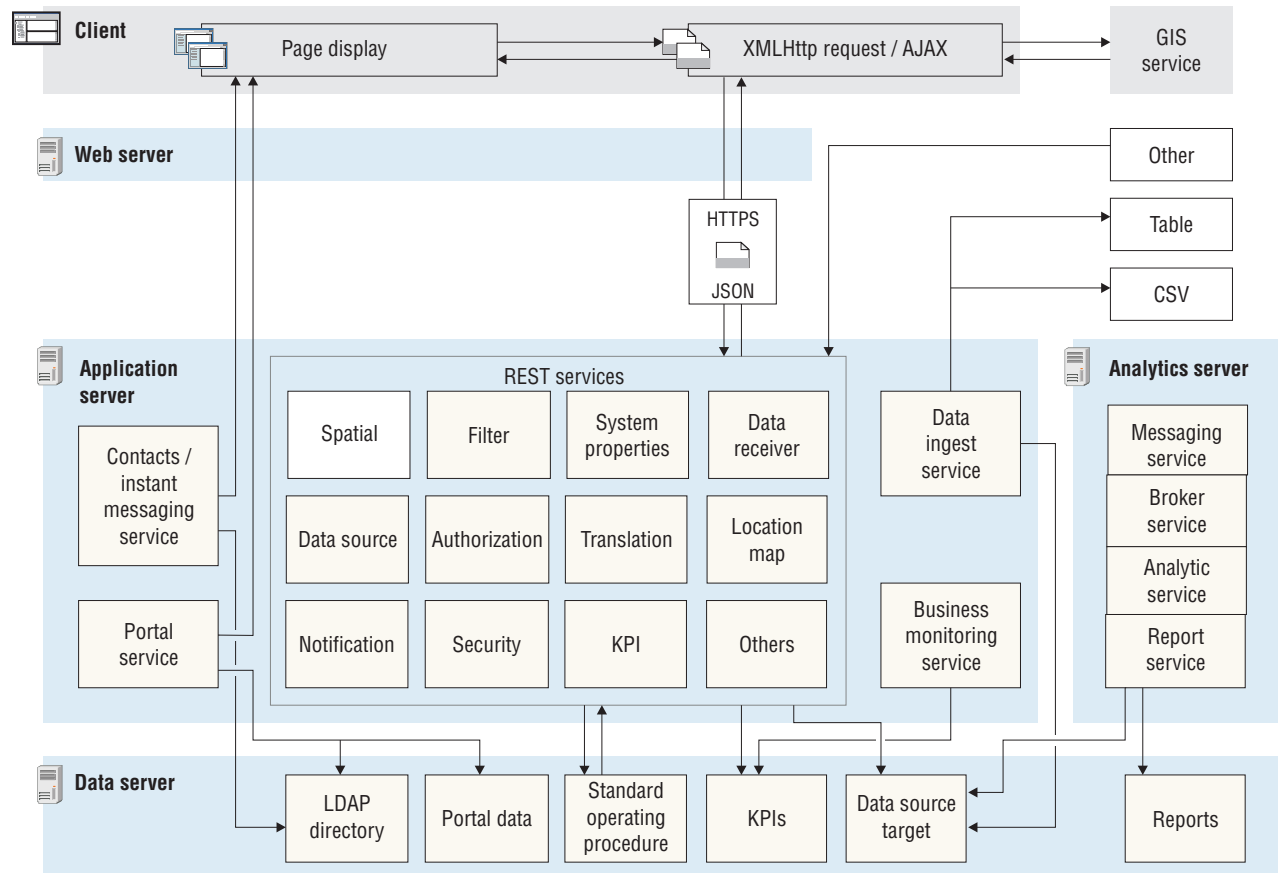
Table 1. IBM Intelligent Operations Center users and benefits (continued)

If you are a...	This software can help you...
Solution administrator	<ul style="list-style-type: none"> • Create, update, and delete data sources • Configure the filter options that are displayed to users • Configure the geospatial map, and the location maps • Manage KPI relationships, and configure how KPIs are displayed to users • Create and edit standard operating procedure definitions
System administrator	<ul style="list-style-type: none"> • Administer individual components of the system through administration consoles • Verify components of the system by running the system verification check tool • Add, modify, and delete system properties • Add new users and assign them to the appropriate role-based authorization group • Ensure data security by assigning permissions to access data sources to the appropriate users and groups • Set up permissions that are appropriate to the required areas of expertise and required access to data sources • Customize pages to suit the organization

Components

At a high level, the structure of IBM Intelligent Operations Center can be divided into major components, subsystems, and services.

The following diagram shows a high-level view of IBM Intelligent Operations Center.



Client

IBM Intelligent Operations Center provides web-based, one-stop portals to event information, overall status, and details. The user interface (UI) presents customized information in various preconfigured views in common formats. All information is displayed through easy-to-use dashboards.

Web server

The web server manages client requests to IBM Intelligent Operations Center.

Application server

The application server provides a set of services for accessing and visualizing data that is managed by IBM Intelligent Operations Center. The data ingest service is used to import data from disparate external sources, such as databases and files. Because of the variety of data that can be supplied from these external sources, the data is normalized into a common format that can be used to calculate key performance indicators, trigger standard operating procedures and notifications, and provide spatial-temporal data.

The contacts and instant messaging service provides capabilities that enable effective, real-time communication.

The business monitoring service monitors incoming data records, and uses the information that is contained in the data records to generate key performance indicators. In the user interface layer, that is provided by the Portal service, users can view key performance indicators, standard operating procedures, notifications, and reports. Users can also view spatial-temporal data on a geospatial map, or they can view specific details that represent a building or a stadium either on a location map, or in a list view.

The application server provides security services that ensure only authorized users and groups can access data.

Data server

The data server stores all the databases that are used in IBM Intelligent Operations Center.

Analytics server

The analytics server contains the following components that might be used by either custom solutions, or by other domain applications:

Messaging service and broker service

The messaging service that is provided by WebSphere® MQ, and the broker service that is provided by WebSphere Message Broker, can be used to receive and transform data in formats that IBM Intelligent Operations Center does not support. When the data is transformed, it can be written either to a database table, or to a CSV file that IBM Intelligent Operations Center can process.

Analytic service

The analytic service contains IBMSPSS® WebSphere Business Modeler and IBM ILOG® CPLEX® Optimization Studio.

Report service

You can use the report service that is provided by IBM Cognos® Report Studio to generate reports.

Related concepts:

“Administering the services” on page 187

Use the Administration Consoles to administer the services that are provided by the solution.

Related tasks:

“Verifying the installation” on page 87

After installing IBM Intelligent Operations Center, verify that the product has been correctly installed. Verification ensures all components are started and operating as expected.

Event management

IBM Intelligent Operations Center focuses on the integration and optimization of information within and across multiple domains in a central operations hub, in real time and over long periods. Event data management enables IBM Intelligent Operations Center to assimilate data from multiple systems to constantly predict and react to significant events and trends.

Event messages are self-contained data items that contain basic but complete information to which recipients can respond. The IBM Intelligent Operations Center data receiver component pulls data items from CSV files and database tables. In addition, data items can be sent to IBM Intelligent Operations Center through a REST API.

Events come into IBM Intelligent Operations Center in different forms, which are based on the nature of the operations and domains in the central operations hub. Some examples of the forms of event are triggers, thresholds, complex events, and manually generated events.

Triggers are events that are generated by something that happens and usually require an action to be taken by the recipient. The following list contains some examples of triggers:

- Fire or smoke alarms that are set off
- Information technology systems that go down
- Intrusion detectors that are tripped
- Natural events that are picked up by sensors, such as earth tremors

IBM Intelligent Operations Center can receive information about such events from external systems and route it to the appropriate action. For example, the appropriate action might be to trigger a procedure, or to route the information to an integration point. In general, it is likely that lower-level indicators would be summarized and only passed to the IBM Intelligent Operations Center if they merited wider attention. For example, all fires might not be reported as events. However, a fire that involves multiple divisions of the fire service and environmental protection expertise, because of hazardous material, would merit reporting to the operations center.

Threshold events help you determine when the measurements that are obtained from a sensor or other source have moved outside the normal range. Basic threshold events are comparisons that compare two or more measures and report a trend. More sophisticated threshold events can compare measures against a threshold that is created by historical information. The following events are examples of threshold events:

- Over and under temperature alarms
- High and low water levels
- Air quality and water purity that breaches environmental standards
- Excessive power consumption

IBM Intelligent Operations Center can manage such events in the form of key performance indicators (KPIs).

Complex events bring together information from multiple systems to determine whether a group of related events should be reported. For example, the toll road authority receives a trigger event from its monitoring system that indicates that the computer link for credit card authorization is down, followed shortly by a threshold event from the financial system warning that they are close to their credit limit for unauthorized payments. The combination of the two issues is much more serious than either in isolation, so a complex event is generated to raise awareness and coordinate a resolution.

Events that are entered manually are especially important to cities. Some of the events are observed incidents, such as crimes and traffic accidents. Other examples of events that are entered manually are those events that are generated from emergency calls from citizens, from reports that are made by city officials, or from management systems that report on city status. The following events are the most common types of event that are entered manually:




- Severe weather warnings
- Crime reports
- Fires
- Road traffic incidents – accidents, congestion, unusual loads
- Upcoming events – rock concerts, road races, parades

Complex event processing allows a city to easily identify exceptions to city systems, occasionally to identify trends from unrelated data, and to predict future issues.

What's new in version 1.6

IBM Intelligent Operations Center 1.6 introduces useful new features for the administrator and the user.

In the documentation, the following icons are used:

-  Features that are available if you install interim fix PO01443 are indicated by a green plus icon. Interim fix PO01443 provides Common Alerting Protocol (CAP) event support for IBM Intelligent Operations Center version 1.6. CAP event support is included automatically in IBM Intelligent Operations Center version 1.6.0.1.
-  Features that are available in IBM Intelligent Operations Center version 1.6.0.1 are indicated by an icon that contains the text "1.6.0.1".
-  Features that are available in IBM Intelligent Operations Center version 1.6.0.2 are indicated by an icon that contains the text "1.6.0.2".

Related information:

 [Interim fix download for CAP event support for IBM Intelligent Operations Center V1.6](#)

What's new for the user

In IBM Intelligent Operations Center 1.6, you can use the new filter panel to filter the data that is displayed on a map, or in reports.

Filtering data on the maps and in the list

Use the new filter panel to filter data:

- Displayed either on a geospatial map, on a location map, or in a list.
- Based on date and time, location, and other categories such as the type or source of the event.
- Save your current filter settings so that you easily reapply them later.

 To learn more about the filter panel, see the link at the end of the topic.

Viewing the maps with added detail

Location map markers indicators indicate positions on the map where one or more detailed maps are available with information on that location.

You can add your own data items to geospatial maps, to location maps, or to the list of data item details.

 To learn more about viewing maps and list, see the link at the end of the topic.

Filtering data in reports

You can view reports of events as either graphs, tables, or bar charts. You can customize the data that is displayed in the reports by setting the appropriate options in the filter panel.

 To learn more about viewing reports, see the link at the end of the topic.

Related concepts:

"Filtering data on the maps and list" on page 378

In the appropriate operations view, use the filter panel to define what data is displayed in the content panel. The content panel contains the Map tab, the Location Map tab, and the List tab.

“Viewing data on the maps and list” on page 369

In the content panel of the operations view, you can view data on a geospatial map, on a location map, or in list format.

“Viewing reports” on page 382

Use the supporting content panel to view reports of events as graphs, tables, or pie charts. The reports that are displayed are dependent on specific data source outputs and specific events that you can select from the filter panel and that are visible in the current view of the map only. View data source results by time, either in bar chart or tabular format. You can also view results by data source, either in pie chart or tabular format. Toggle between the chart and tabular format by clicking the **Chart** and **List** tabs in the Data Source Results By Time and Total Results By Data Source reports. These reports help you to identify trends and plan responses to current and future events.

What's new for the administrator

In version 1.6, the Solution Administration view provides new configuration wizards for configuring data sources, and standard operating procedures. You can also configure the maps and associated filter options, and key performance indicators (KPIs).

Configuring data sources

Use the Data Sources tool to configure a data source that supplies data to IBM Intelligent Operations Center

- Give basic instructions about how the data is processed, for example, how often to check for new data.
- Choose the geometry format and how to supply information about position to represent the data item on the map.
- Assign the appropriate access to data and authorization privileges for your data source to portal groups or users.
- From the available actions, select a set of allowable actions that can be performed on the data items that are associated with the data source.


Data can be acquired either from a CSV file or from a database.

 Data can be acquired from CAP messages.

1.6.0.1 **1.6.0.2** Solution administrators can create a data source that can be used to supply data items through only either the user interface, or the REST API. This type of data source is not connected to an external source.

Data can be routed to the solution as a whole, to key performance indicators (KPIs), to a selected standard operating procedure, or to a predefined integration topic.

1.6.0.1 **1.6.0.2** Data can also be routed to a correlation topic.

 To learn more about configuring data sources, see the link at the end of the topic.

Defining standard operating procedures and activities

Use the wizard to define standard operating procedures and activities:

- Define and assign different types of activities to standard operating procedure definitions; examples of activity types include a conditional activity for which you specify if-then-else conditions, or a REST activity that sends a call to a REST service.
- Assign owners and monitors to the activities; if an instance of a standard operating procedure is launched, the activities are automatically assigned to the owners that you specify in the definition.

- Launch an instance of a standard operating procedure; also, in a data source definition, you can specify that a standard operating procedure is launched automatically in response to an event.

 To learn more about defining standard operating procedures and activities, see the link at the end of the topic.

Configuring the geospatial map and location maps

You can use a graphical user interface to configure the base map, pan, and zoom for the geospatial maps display.

When you are configuring a location map, you assign it to a collection and a position on the geospatial map. The collection is then represented by a marker on the geospatial map.

 To learn more about configuring the geospatial map and location maps, see the link at the end of the topic.

Customizing the filter panel


Customize the filter panel to make it easier for your users to view the data that is relevant to them:

- Add date and time ranges, and holiday ranges, to the Date & Time pane.
- Add your own filter panes to organize and group data sources for more efficient filter selections.
- Reorder filter panes, and reorder the data sources that they contain.

 To learn more about customizing the filter panel, see the link at the end of the topic.

Customizing key performance indicators

When you customize KPIs, there is an extra option available to edit the KPI permissions. You can specify who is authorized to see specific KPIs.

 To learn more about customizing key performance indicator hierarchies, see the link at the end of the topic.

Working with system properties

In the Solution Administration view, you can see all the IBM Intelligent Operations Center system properties at a glance:

- Create, modify, and delete system properties.
- Assign system properties to groups, for easier retrieval through the REST service.

 To learn more about creating and editing system properties, see the link at the end of the topic.

Translating field text

Use the translation wizard to specify translated versions of fields that are displayed in the user interface. The language that is displayed depends on the locale that is selected in either the user profile, or in the browser.

 To learn more about translating field text, see the link at the end of the topic.

REST APIs

IBM Intelligent Operations Center provides a set of APIs that are implemented using Representational State Transfer (REST) Services. The REST services provide a set of uniform resource identifiers (URIs) that you can use to access and edit data in IBM Intelligent Operations Center components, such as data sources, the filter panel, KPIs, and system properties.



To learn more about using the REST APIs, see the link at the end of the topic.

Related concepts:

“Configuring a data source” on page 99

Use the Data Sources tool to configure a data source that supplies data to IBM Intelligent Operations Center.

“Configuring standard operating procedures” on page 136

A standard operating procedure is a set of instructions that describes all the relevant steps and activities of a process or procedure. Standard operating procedures are essential to an organization to deliver consistent, measured, high-quality responses to complex and unpredictable events.

“Configuring geospatial maps” on page 117

In the Solution Administration view, you can configure the maps that are available to the user, the initial map center point, and the map zoom level.

“Configuring location maps” on page 132

In the System Administration view, you can customize location maps for display on the Location Map tab. The Location Map tab is part of the content panel on the operations views.

“Configuring the filter panel” on page 114

In the Solution Administration view, you can decide how you want to group data sources. Then, for each group, you can configure a pane that is displayed in the filter panel. The data sources that you select are listed in the pane.

“Configuring KPIs” on page 120

In the Solution Administration view, you can configure Key Performance Indicators (KPIs) and their hierarchical display in the user interface. The KPIs are displayed on the status views in IBM Intelligent Operations Center.

Related tasks:

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

“Translating field text” on page 171

Use the translation wizard to enter a translation for any field where you can enter text. Translated fields are displayed in the user interface according to the locale that is selected in either the user profile, or in the browser.

Related reference:

“IBM Intelligent Operations Center REST interface” on page 455

IBM Intelligent Operations Center provides a set of APIs that are implemented by using Representational State Transfer (REST) Services. The REST services provide a set of uniform resource identifiers (URIs) that access data in IBM Intelligent Operations Center components, such as system properties and key performance indicators (KPIs).

What's new for the installer

IBM Intelligent Operations Center 1.6 provides installation enhancements and additional environment support.

High availability environment configuration

IBM Intelligent Operations Center 1.6 can be installed in a standard or high availability environment. The high availability environment provides failover support to standby servers. Failover improves the reliability of the overall IBM Intelligent Operations Center system.

Installation options

IBM Intelligent Operations Center 1.6 provides four installation options: two for a standard environment and two for a high availability environment. For each environment a GUI installer and command line installer are provided.

The GUI installer installs a predefined IBM Intelligent Operations Center configuration allowing minimal customization during the installation progress.

The command line installer provides greater configuration flexibility during the installation process and should be used where the GUI installer does not meet environment requirements.

What's new in version 1.6.0.1

1.6.0.1

IBM Intelligent Operations Center version 1.6.0.1 provides several new features, and provides updates to existing features. New features include support for data filtering by area on the map, data analysis, and data correlation.

Named areas

Solution administrators can configure data sources to be available as named area types. In the operations views, users can then filter data based on boundaries that are defined by named areas. The named areas are defined in data items that are received from named area type data sources.

Users can also use area status views to obtain a view of key performance indicators (KPIs) that highlights key data for specific named areas.



To learn more about named areas and filtering by boundary, see the links.

Area data items

Users can create a data item that contains a new area that is drawn by the user on a geospatial map. The data item is displayed on the maps and in the list.



To learn more about creating a data item that contains a new area, see the link.

Data analysis

Data analysis can be used to highlight patterns of data in relation to time and position by generating hotspots on the geospatial map. Solution administrators can use the Hotspots tool to configure hotspot analysis definitions.

Users can run hotspot analysis to identify patterns of data on the map that can increase their understanding of the data and help decision-making.



To learn more about data analysis and hotspots, see the link.

Data source acquisition

Solution administrators can now create a data source that can be used to supply data items through either the user interface entry, or the REST API methods only. This type of data source is not connected to an external source, and all the data source properties are preassigned.

If a database is used to acquire data, data can now be acquired from SQL Server databases, or from DB2® databases.

Data can also now be acquired from CAP messages.

 To learn more about data source acquisition methods, see the link.

CAP event support

CAP event support is included automatically in IBM Intelligent Operations Center version 1.6.0.1. Interim fix PO01443 provides Common Alerting Protocol (CAP) event support for IBM Intelligent Operations Center version 1.6.

 To learn more about CAP event support, see the link.


Data correlation

A solution administrator can configure a data source to be available for correlation. A solution administrator can also configure routing criteria to route data items from a data source to a correlation topic. The correlation process sends notifications when correlations occur.

 To learn more about data correlation, see the link.

Linking data items to standard operating procedures

Through the preview card, users can either associate a data item to an instance of a standard operating procedure that is already running, or users can launch a new instance of a standard operating procedure.

 To learn more about linking data items to standard operating procedures, see the link.

Notifications

Notifications now displays errors that result from background processes. The Notifications list also indicates the severity of each notification.

 To learn more about Notifications, see the link.

Cognos reports

Solution administrators can use a new theme to create reports pages, and a new reports portlet for displaying Cognos reports. Reports pages are displayed as views in the IBM Intelligent Operations Center interface.

 To learn more about displaying Cognos reports, see the link.

Related concepts:

“Area status with KPIs” on page 367

Use the area status views to obtain a view of key performance indicators (KPIs) that highlights key data for specific named areas. Users can monitor, manage, and respond to status changes in relation to organizational performance in specific areas of the map.

“Analyzing data hotspots” on page 385

Use the Map tab to analyze data, for the areas that you select on the map, in the form of hotspots that are generated by a predefined analysis. The hotspots view assists you in monitoring, managing, and responding to key issues.

“Configuring hotspot analysis” on page 128

Use the Hotspots tool to configure hotspot analysis definitions for the solution. Hotspot analysis can highlight patterns of data in relation to time and position on the geospatial map. As an administrator you can create a hotspot analysis definition, update an analysis that is already listed, or delete a hotspot analysis definition from the solution.

“Integrating with the CAP” on page 166

You can use the Common Alerting Protocol (CAP) to exchange data between IBM Intelligent Operations Center and external systems.

“Data item correlation” on page 155

A solution administrator can configure a data source to be available for correlation. A solution administrator can also configure routing criteria to route data items from a data source to a correlation topic. When a data item is routed to a correlation topic, the correlation process assesses whether the data item is correlated with other correlation data items. The correlation process sends notifications when correlations occur.

“Viewing notifications” on page 387

Click Notifications to view a dynamic list of your notifications and their details.

Related tasks:

“Filtering by boundary” on page 379

In the Boundary pane, define the boundary for which you want data to be displayed in the content panel.

“Adding an area or a line data item” on page 373

You can create a data item that is associated with an area on a geospatial map and added to a data source. The data item is added to the Map and List tabs at the same time.

“Creating a data source” on page 101

As an administrator, you can use the data sources tool to add and configure a data source.

“Linking data items to standard operating procedures” on page 391

Through the preview card, you can either associate a data item to an instance of a standard operating procedure that is already running, or you can launch a new instance of a standard operating procedure.

“Displaying Cognos reports” on page 183

IBM Intelligent Operations Center provides a theme for creating reports pages and a reports portlet for displaying Cognos reports. When you create a reports page, the page is displayed as a view in the IBM Intelligent Operations Center interface.

Related information:

 [Interim fix download for CAP event support for IBM Intelligent Operations Center V1.6](#)

What's new in version 1.6.0.2

1.6.0.2

IBM Intelligent Operations Center version 1.6.0.2 provides several new features, and provides updates to existing features. New features include enhanced user profile management, where users can customize notification settings. Solution administrators can use a new component customization tool to create customized user interface components. For KPIs, solution administrators can map KPIs to reports.

User profile

Users can configure what notifications they receive, and how they receive them. Users can choose whether a dark theme, or a new gray theme, is applied to their views.



To learn more about editing user profiles, see the links.

Notifications

The Notifications window has been enhanced to provide more information about notifications. Color-coded icons indicate the severity of notifications at a glance, and system errors from background processes are included in notifications.

Users can now configure their notifications settings in their user profile. Users can choose to receive KPI notifications, and to receive system error notifications that relate to the import of data. In addition to system notifications that are displayed in the Notifications window, users can also receive SMS and email notifications, if they are configured by an administrator.



To learn more about notifications, see the links.

Map

Users can create a data item that is associated with an area on a geospatial map and added to a data source. The categories of areas that users can now draw on the map include multi-points, lines, multi-lines, and multi-areas.

Through the **More Actions** menu, users can now browse and upload, directly from any location, a CSV file that supplies data for the selected data source.

Administrators can set the maximum number of data items that are rendered on the map by configuring the **MaxFeaturesToRenderOnMap** system property. Limiting the number of data items that are rendered on the map can help to improve performance.



To learn more about updates to the map, see the links.

Customizing components

Solution administrators can use a new component customization tool that is in the Solution Administration view to extend and customize the functionality of the solution. Administrators can create customized components that they can add to the user interface. They can also replace an existing component with a customized component. Administrators can customize the preview cards and full properties windows that are displayed for data items in the maps, and in the list. For data sources, administrators can assign customized actions that are displayed in the **More Actions** menu. Finally, administrators can also customize how data items, and hotspots, are rendered on the map by configuring the advanced visualization component type.



To learn more about customizing components, see the links.

KPIs

Solution administrators can map KPIs to reports that are displayed in the status views, and that users can view to analyze trends in KPIs.

Administrators can create, import, and export hierarchies of KPIs that are associated with IBM Intelligent Operations Center.


 To learn more about KPI reports and KPI hierarchies, see the links.

Data sources

In the data sources tool that is in the Solution Administration view, if you acquire data from a CSV file, you can now browse and upload a CSV file directly from any location.

You can use a new area mapping minimal property to determine whether incoming data items are contained within the boundary of any data item from one of a list of specified named area type data sources.

If you route data to a standard operating procedure, you can choose whether, for every matching record, to launch a new instance of the standard operating procedure. Alternatively, you can choose to update an existing instance of an active standard operating procedure.

 To learn more about updates to the data sources tool, see the links.

Installed products

The products installed with IBM Intelligent Operations Center have been updated to more current release levels:

- WebSphere Application Server Network Deployment 7.0.0.27 to 7.0.0.31.
- WebSphere Application Server Network Deployment 8.0.0.6 to 8.0.0.8 .
- IBM HTTP Server (and the WebSphere Application Server plug-in) 8.0.0.6 to 8.0.0.8 .
- WebSphere Portal Enable 8.0.0.1 CF 05 to 8.0.0.1 CF 08 (including GSKit fix IFPI05309).
- IBM Java™ 1.7.0.4.2 to 1.7.0.6.1.
- DB2 Enterprise Server Edition 10.1.0.1 to 10.1.0.3.
- Tivoli® Directory Integrator 7.1.1.2 to 7.1.1.3.
- Tivoli Directory Server 6.3.0.18 to 6.3.0.26 (including the GSKit 8.0.50.16).
- IBM Security Identity Manager 6.0 to 6.0.0.2.
- IBM Message Broker 8.0.0.1 to 8.0.0.3.
- IBM ILOG CPLEX Optimization Studio 12.5 to 12.6.

 To learn more about the products installed with IBM Intelligent Operations Center 1.6.0.2, see the links.

Newly installed SDK

The IBM Cognos Business Intelligence 10.2 SDK is installed with IBM Intelligent Operations Center 1.6.0.2.

Platform control tool

The following updates have been implemented in the platform control tool:

- The IOCControl tool syntax has been simplified using the same syntax for the standard and high availability environments.
- A standard component naming scheme has been implemented for both the standard and high availability environments to simplify starting, stopping, and querying components.

- High availability disaster recovery (HADR) start and stop functionality has been improved.



To learn more about the platform control tool, see the links.

Installation precheck

The following updates have been implemented to the installation precheck step:

- Checks added to determine if enough disk space is available on each server.
- Checks added for new RPM requirements.
- Checks added to ensure passwords in properties files are correct for their user IDs.

Related concepts:

“Localizing the user interface” on page 171

To change the locale and time zone that are displayed in the solution portal, edit your user profile. If you do not configure specific locale settings in your user profile, the browser settings are applied. The locale and time zone settings that you configure in your user profile override your browser settings.

“Viewing notifications” on page 387

Click Notifications to view a dynamic list of your notifications and their details.

“Starting, stopping, and querying status in a standard environment” on page 190

The platform control tool allows a user to stop, start, and query IBM Intelligent Operations Center components running in a standard environment. A platform control tool tool is also available for IBM Intelligent Operations Center running in a high availability environment.

“Starting, stopping, and querying status in a high availability environment” on page 198

The platform control tool allows a user to stop, start, and query IBM Intelligent Operations Center services running in a high availability environment. A platform control tool tool is also available for IBM Intelligent Operations Center running in a standard environment.

Related tasks:

“Adding an area or a line data item” on page 373

You can create a data item that is associated with an area on a geospatial map and added to a data source. The data item is added to the Map and List tabs at the same time.

“Adding a point data item” on page 372

Create a data item that is associated with a point on the map. The data item is added to the Map and List tabs at the same time.

“Exporting or importing KPI hierarchies” on page 122

You can create a hierarchy of KPIs that are associated with the IBM Intelligent Operations Center solution. As an administrator, you can import an existing KPI hierarchy as a JavaScript Object Notation (JSON) file, or export the existing KPI hierarchy to a JSON file.

“Mapping KPIs to reports” on page 125

As an administrator, you can map KPIs to reports that are displayed in the status views. You can map the same report to more than one KPI. Optionally, you can add a set of parameters to each report that might modify the data that is displayed by the report. The parameter values are used to generate a Cognos reports query, and the parameter values are also displayed as a label on the instance of the generated report.

“Viewing reports from KPI preview cards” on page 385

From the KPI preview cards in the status views, you can view reports that are mapped to KPIs.

“Viewing or editing your user profile” on page 169

You can view and edit the information in your solution user profile. Edit your user profile to set your time zone, language preference, and notification settings. You can also reset your password and modify your personal details.

“Setting displayed and returned data item limits” on page 118

You can set the maximum number of data items that are returned to the map and the list, and that are rendered on the map.

“Customizing components” on page 174

To extend and customize the functionality of your solution, you can create customized components that you can add to the user interface. You can also replace an existing component with a customized component. For example, for a particular system component, you can replace an existing preview card with a new, customized preview card.

“Creating a data source” on page 101

As an administrator, you can use the data sources tool to add and configure a data source.

“Routing data from your data source” on page 111

For the data that is received from your data source, set routing expressions that define how the data is processed by the solution. Data items that match the required expression or combination of expressions are routed to the selected destination.

Related reference:

“Data source minimal property settings” on page 105

Assign properties from your data source to each minimal property and choose the settings that are appropriate for your data.

“Products and components installed with IBM Intelligent Operations Center in a standard topology” on page 456

The IBM Intelligent Operations Center solution installs a number of software products and components for the standard topology.

“Products and components installed with IBM Intelligent Operations Center in a high availability topology” on page 460

The IBM Intelligent Operations Center solution installs a number of software products and components for the high availability topology.

“Products included, but not installed, with IBM Intelligent Operations Center” on page 462

The IBM Intelligent Operations Center package includes products that are not installed when IBM Intelligent Operations Center is installed. If required for specific use cases, these products can be installed after IBM Intelligent Operations Center is installed.

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Chapter 2. Installing the solution

IBM Intelligent Operations Center provides installation options to install the IBM Intelligent Operations Center environment and application. After installing IBM Intelligent Operations Center, some additional configuration is required.

Preparing for installation

Before deploying IBM Intelligent Operations Center, understand the IBM Intelligent Operations Center system configuration and ensure that the prerequisites are met for the environment.

IBM Intelligent Operations Center system services

IBM Intelligent Operations Center servers provide a number of services.

Analytics services

Provides data analysis, presentation, and reporting services.

Application build quality assurance services

Provides collaboration, automation and governance services for project information and status updates throughout the development lifecycle.

Application design and development services

Provides services for work-items, project activities, build, team progress dashboards and reports, planning, advanced source control and software configuration management.

Application deployment and management services

Provides services for software assembly, deployment and management.

Application services

Provides Java Enterprise Edition services supporting the solution.

Authentication and authorization services

Provides authentication and authorization services to the solution, applications, and other services.

Business monitoring services

Provides aggregation, analysis, and presentation of business process and activity information in real-time.

Collaboration services

Provides services to enable real-time collaboration for users and applications.

Configuration services

Manages the product configuration including inventory and change management.

Database services

Provides the database services for the solution and applications.

Event ingestion services

Provides services to collect, aggregate, present, and handle system events.

Identity management services

Provides services to manage the IBM Intelligent Operations Center application and end user IDs.

Installation services

Provides services to install IBM Intelligent Operations Center.

KPI services

Provides services to handle key performance indicators and associated actions.

Messaging services

Provides message and workflow services.

Mobile services

Provides services enabling mobile users.

Password management services

Provides services to manage solution passwords.

Platform management services

Provides runtime management services including the ability to start, stop, and query the status of IBM Intelligent Operations Center services and components.

Platform usage services

Provides services to analyze solution usage.

Standard operating procedure services

Provides services handling the processing of standard operating procedures.

Usage analysis services

Provides logging of usage data such as user log on, log out, timeout, and log in failures.

User directory integration - password synchronization plug-in services

Provides password synchronization where password changes are intercepted at the end points and redirected to the identity management services.

User interface services

Provides services supporting user interaction with the product.

User directory and user directory integration services

Provides mapping between user and group names and values and integration with additional directories.

Web services

Provides HTTP, HTTPS, and other web services to the solution.

The following service is only available if the optional semantic model server is installed.

Semantic model services

Provides services allowing applications to model real world objects and relationships.

The following service is only available if the optional Data Studio tool is installed.

Data design services

Provides data design capabilities to application builders.

IBM Intelligent Operations Center servers in the standard topology

IBM Intelligent Operations Center is installed on four servers in a standard topology.

Application server

This server provides the following services:

- Application services
- Business monitoring services
- User Interface services
- Collaboration services
- Mobile services
- Identity management services
- Authentication services
- Password management services
- Platform usage services

- KPI services
- Event ingestion services
- Standard operating procedure services
- Usage analysis services
- User directory integration - password synchronization plug-in services

Data server

This server provides the following services:

- Database services
- Data design services
- User directory services
- User directory integration services
- User directory integration - password synchronization plug-in services

Analytics server

This server provides the following services:

- Installation services
- Messaging services
- Analytics services
- Platform management services
- Messaging services
- Reporting services
- User directory integration - password synchronization plug-in services

Web server

This server provides the following service:

- Web server services
- User directory integration - password synchronization plug-in services

Semantic model server (optional)

This server provides the following service:

- Semantic model services

IBM Intelligent Operations Center servers in the high availability topology

IBM Intelligent Operations Center is installed on eight servers in a high availability topology environment.

Application server 1

This server provides the following services:

- Application services
- Business monitoring services
- User Interface services
- Collaboration services
- Mobile services
- Identity management services
- Authentication services
- Password management services
- Platform usage services
- KPI services

- Event ingestion services
- Standard operating procedure services
- Usage analysis services
- User directory integration - password synchronization plug-in services

Application server 2

This server provides the following services:

- Application services
- Business monitoring services
- User Interface services
- Mobile services
- Authentication services
- Platform usage services
- KPI services
- Event ingestion services
- Standard operating procedure services
- Usage analysis services
- User directory integration - password synchronization plug-in services

Data server 1

This server provides the following services:

- Database services
- Data design services
- User directory services
- User directory integration services
- User directory integration - password synchronization plug-in services

Data server 2

This server provides the following services:

- Database services
- Data design services
- User directory services
- User directory integration - password synchronization plug-in services

Analytics server 1

This server provides the following services:

- Installation services
- Messaging services
- Analytics services
- Platform management services
- Reporting services
- User directory integration - password synchronization plug-in services

Analytics server 2

This server provides the following services:

- Installation services
- Messaging services
- Analytics services
- Platform management services
- Reporting services

- User directory integration - password synchronization plug-in services

Web server 1

This server provides the following service:

- Web server services
- User directory integration - password synchronization plug-in services

Web server 2

This server provides the following service:

- Web server services
- User directory integration - password synchronization plug-in services

Semantic model server (optional)

This server provides the following service:

- Semantic model services

Installation server

The server used when installing IBM Intelligent Operations Center depends on whether IBM Intelligent Operations Center is being installed in a standard or high availability environment.

For a standard environment, the installation server is the analytics server.

For a high availability environment, the installation server is analytics server 1.

IBM Intelligent Operations Center hardware requirements for a standard environment

Four servers meeting minimum requirements are required to install IBM Intelligent Operations Center using the standard topology. An optional semantic model server is required if semantic model services are required. The analytics server also serves as the installation server.

The servers must have Intel x86-64 or AMD x86-64 processors.

The minimum requirements for servers used by IBM Intelligent Operations Center are shown in Table 2. The recommended minimum disk space does not include space for boot and swap partitions. These directories should be defined before IBM Intelligent Operations Center is installed.

Table 2. Minimum hardware requirements

Resource	Application server	Analytics server	Data server	Web server	Semantic model server (optional)
CPUs	4	4	4	2	4
Memory	16 GB	16 GB	16 GB	2 GB	16 GB
Network adapters	1	1	1	1	1
Disk space	90 GB	112 GB	112 GB	65 GB	90 GB
Additional disk space required during installation	70 GB	139 GB (189 GB if the download media is to be stored on the server)	17 GB	27 GB	10 GB

The minimum requirements for the directories on each server, excluding space required for the boot and swap partitions is shown in Table 3 on page 26.

Table 3. Minimum space requirements for each directory

Directory	Minimum space	Notes
/	8 GB	
/opt	7 GB or 32 GB	7 GB is required for the web server, 32 GB is required for all other servers.
/usr	8 GB	
/home	5 GB	
/tmp	12 GB	
/chroot	1 GB	
/datahome	22 GB	Only required on the analytics server and data server.
/loghome	8 GB	Only required on the analytics server.
/installMedia	10 GB, 17 GB, 27 GB, 37 GB, or 70 GB	<p>This directory can have a different name. However, if the directory is given a different name, the directory must be defined in the installation property file or in the GUI installation panels. This directory can be deleted after installation.</p> <p>The amount of space required is dependent on the server.</p> <ul style="list-style-type: none"> • Semantic model server (optional): 10 GB • Data server: 17 GB • Web server: 27 GB • Analytics server: 37 GB • Application server: 70 GB
/distributionMedia	102 GB	This directory can have a different name. However, if the directory is given a different name, the directory must be defined in the installation property file or in the GUI installation panels. This directory is only required on the installation server
/var	8 GB	
/SWAP	8 GB	

Related tasks:

“Preparing the servers” on page 34

Before installing IBM Intelligent Operations Center, all servers, including the optional semantic model server (if used), must be correctly prepared or the installation will fail. The precheck step will verify that many of these requirements have been implemented for all servers except the semantic model server.

Related information:



System requirements

IBM Intelligent Operations Center hardware requirements for a high availability environment

Eight servers meeting minimum requirements are required to install IBM Intelligent Operations Center using the high availability topology. An optional semantic model server is required if semantic model services are required. Analytics server 1 also serves as the installation server.

The servers must have Intel x86-64 or AMD x86-64 processors.

The minimum requirements for servers used by IBM Intelligent Operations Center are shown in Table 4 on page 27. The recommended minimum disk space does not include space for boot and swap partitions.

Important: The configuration of data server 1 and data server 2 should be virtually identical. The configuration includes the hardware, operating system level and patches, network devices, and database versions. Having these servers as identical as possible will help with a smooth database failover process should one be required.

Table 4. Minimum hardware requirements

Resource	Application server 1	Application server 2	Analytics server 1	Analytics server 2	Data server 1	Data server 2	Web server 1	Web server 2	Semantic model server (optional)
CPUs	4	4	4	4	4	4	2	2	4
Memory	16 GB	16 GB	16 GB	16 GB	16 GB	16 GB	2 GB	2 GB	16 GB
Network adapters	1	1	1	1	1	1	1	1	1
Disk space	90 GB	90 GB	112 GB	112 GB	112 GB	112 GB	65 GB	65 GB	90 GB
Additional disk space required during installation	70 GB	70 GB	139 GB (189 GB if the download media is to be stored on the server)	37 GB	17 GB	17 GB	27 GB	27 GB	10 GB

The minimum requirements for the directories on each server, excluding space required for the boot and swap partitions is shown in Table 5.

Table 5. Minimum space requirements for each directory

Directory	Minimum space	Notes
/	8 GB	
/opt	7 GB or 32 GB	7 GB is required for the web server 1 and web server 2, 32 GB is required for all other servers.
/usr	8 GB	
/home	5 GB	
/tmp	12 GB	
/chroot	1 GB	
/datahome	22 GB	Only required on analytics server 1, analytics server 2, data server 1, and data server 2.
/loghome	8 GB	Only required on analytics server 1 and analytics server 2.
/installMedia	10 GB, 17 GB, 27 GB, 37 GB, or 70 GB	<p>This directory can have a different name. However, if the directory is given a different name, the directory must be defined in the installation property file or in the GUI installation panels. This directory can be deleted after installation.</p> <p>The amount of space required is dependent on the server.</p> <ul style="list-style-type: none"> Semantic model server (optional): 10 GB Data server 1 and data server 2: 17 GB Web server 1 and web server 2: 27 GB Analytics server 1 and analytics server 2: 37 GB Application server 1 and application server 2: 70 GB
/distributionMedia	102 GB	This directory can have a different name. However, if the directory is given a different name, the directory must be defined in the installation property file or in the GUI installation panels. This directory is only required on the installation server
/var	8 GB	
/SWAP	8 GB	

In addition, a customer-provided load balancer infrastructure is required to connect to the web server.

Related tasks:

“Preparing the servers” on page 34

Before installing IBM Intelligent Operations Center, all servers, including the optional semantic model server (if used), must be correctly prepared or the installation will fail. The precheck step will verify that many of these requirements have been implemented for all servers except the semantic model server.

Related information:

 System requirements

Prerequisite software requirements

Before installing IBM Intelligent Operations Center, all servers must have the appropriate software installed.

IBM Intelligent Operations Center requires Red Hat Enterprise Server Linux version 6 at release 6.3 or higher. Specific Linux RPM packages must be installed as part of the steps to prepare the servers.

A workstation with Windows is also required to configure single sign-on for collaboration services.

It is recommended that the servers only have the prerequisite software installed. Any installation of IBM Intelligent Operations Center installed on the servers must be removed before installing IBM Intelligent Operations Center.

Related tasks:

“Installing Linux packages for the standard environment” on page 40

Before installing IBM Intelligent Operations Center, Linux packages need to be installed on the servers.

“Installing Linux packages for the high availability environment” on page 44

Before installing IBM Intelligent Operations Center, Linux packages need to be installed on the servers.

“Configuring single sign-on for collaboration services” on page 69

Import the WebSphere Portal SSO LTPA token into the application server to allow users to access collaboration services without having to reenter their credentials.

“Preparing the servers” on page 34

Before installing IBM Intelligent Operations Center, all servers, including the optional semantic model server (if used), must be correctly prepared or the installation will fail. The precheck step will verify that many of these requirements have been implemented for all servers except the semantic model server.

Related information:

 System requirements

Supported browsers

The IBM Intelligent Operations Center solutions interface supports a number of browsers. Some browsers can be used with limitations.

IBM Intelligent Operations Center has been tested, and is supported, on the following browsers:

- Microsoft Internet Explorer 9.x (32-bit only)
- Mozilla Firefox 17 ESR
- Chrome V23
- Safari 6.0 for Mac OS X
- Safari 5.1 for Windows

Internet Explorer Compatibility View

IBM Intelligent Operations Center does not support Internet Explorer 9 Compatibility View.

Minimum screen resolution

IBM Intelligent Operations Center is designed to run at a minimum 1280 x 800 screen resolution.

Media packaging

IBM Intelligent Operations Center can be ordered as a package of DVDs or can be obtained through Passport Advantage.

The product number is 5725-D69.

Related information:

 Passport Advantage

Installation options

IBM Intelligent Operations Center provides four different installation options.

Options are provided for a standard environment and a high availability environment. For each of these environments two installers are provided.

The graphical installer provides a simplified installation with minimal options to configure the installed system.

The command line installer provides greater flexibility in configuring the installed system.

Installation checklists

Installation checklists are available for the installation options for IBM Intelligent Operations Center. These checklists provide an overview of the installation steps and can be used to track the installation progress.

Checklist - installing the standard topology using the command line installer

Use this checklist to track the installation steps when installing the IBM Intelligent Operations Center standard topology using the command line installer.

Procedure

- ___ 1. Review the IBM Intelligent Operations Center preventive service planning technote for changes to the product documentation that might affect the installation and usage of IBM Intelligent Operations Center.
- ___ 2. Make sure you have the necessary hardware.
- ___ 3. Make sure the required software is installed on the hardware.
- ___ 4. Optional: Use the kickstart file to prepare Red Hat Enterprise Linux on the servers. Operating system preparation can also be done manually as part of the Prepare the servers. steps.
- ___ 5. Prepare the servers.
 - a. Set up TCP/IP networking.
 - b. Disable security settings.
 - c. Set up ssh services.
 - d. Configure users requiring ssh access and passwords.
 - e. Install required Linux packages.
 - f. Set other pre-installation requirements.

- g. Prepare the installation server
- ___ 6. Verify and customize the installation properties as required.
- ___ 7. Define the topology for the installation by editing the topology properties file.
- ___ 8. Run the command line installer.

Important: Make sure you record the topology password. The topology password is needed when running the password management tool and platform control tool. The default topology password is `ibmioc16`.

- ___ 9. Verify the installation prior to configuring IBM Intelligent Operations Center.
- ___ 10. Configure IBM Intelligent Operations Center.
 - ___ a. Configure collaboration services if you are using IPv6.
 - ___ b. Configure single sign-on for collaboration services.
 - ___ c. Remove HTTPOnly setting for IBM Business Monitor.
 - ___ d. Optional: Configure the session timeout.
 - ___ e. Optional: Configure the LTPA timeout.
- ___ 11. Verify that IBM Intelligent Operations Center is correctly installed.
- ___ 12. Optional: Install and configure semantic model services.
- ___ 13. Verify that IBM Intelligent Operations Center is correctly installed.
- ___ 14. Install any other applications.

Results

The IBM Intelligent Operations Center architecture and IBM Intelligent Operations Center application are installed and ready for use.

Checklist - installing the standard topology using the graphical installer

Use this checklist to track the installation steps when installing the IBM Intelligent Operations Center standard topology using the GUI installer.

Procedure

- ___ 1. Review the IBM Intelligent Operations Center preventive service planning technote for changes to the product documentation that might affect the installation and usage of IBM Intelligent Operations Center.
- ___ 2. Make sure you have the necessary hardware.
- ___ 3. Make sure the required software is installed on the hardware.
- ___ 4. Optional: Use the kickstart file to prepare Red Hat Enterprise Linux on the servers. Operating system preparation can also be done manually as part of the Prepare the servers. steps.
- ___ 5. Prepare the servers.
 - a. Set up TCP/IP networking.
 - b. Disable security settings.
 - c. Set up ssh services.
 - d. Configure users requiring ssh access and passwords.
 - e. Install required Linux packages.
 - f. Set other pre-installation requirements.
 - g. Prepare the installation server
- ___ 6. Run the standard environment GUI installer.

Important: Make sure you record the topology password. The topology password is needed when running the password management tool and platform control tool. The default topology password is `ibmioc16`.

- ___ 7. Verify the installation prior to configuring IBM Intelligent Operations Center.
- ___ 8. Configure IBM Intelligent Operations Center.
 - ___ a. Configure collaboration services if you are using IPv6.
 - ___ b. Configure single sign-on for collaboration services.
 - ___ c. Remove HTTPOnly setting for IBM Business Monitor.
 - ___ d. Optional: Configure the session timeout.
 - ___ e. Optional: Configure the LTPA timeout.
- ___ 9. Optional: Install and configure semantic model services.
- ___ 10. Verify that IBM Intelligent Operations Center is correctly installed.
- ___ 11. Install any other applications.

Results

The IBM Intelligent Operations Center architecture and IBM Intelligent Operations Center application are installed and ready for use.

Checklist - installing the high availability topology using the command line installer

Use this checklist to track the installation steps when installing the IBM Intelligent Operations Center standard topology using the command line installer.

Procedure

- ___ 1. Review the IBM Intelligent Operations Center preventive service planning technote for changes to the product documentation that might affect the installation and usage of IBM Intelligent Operations Center.
- ___ 2. Make sure you have the necessary hardware.
- ___ 3. Make sure the required software is installed on the hardware.
- ___ 4. Optional: Use the kickstart file to prepare Red Hat Enterprise Linux on the servers. Operating system preparation can also be done manually as part of the Prepare the servers. steps.
- ___ 5. Prepare the servers.
 - a. Set up TCP/IP networking.
 - b. Disable security settings.
 - c. Set up ssh services.
 - d. Configure users requiring ssh access and passwords.
 - e. Install required Linux packages.
 - f. Set other pre-installation requirements.
 - g. Prepare the servers to run in a high availability environment.
 - h. Prepare the installation server
- ___ 6. Verify and customize the installation properties as required.
- ___ 7. Define the topology for the installation by editing the topology properties file.
- ___ 8. Run the command line installer.

Important: Make sure you record the topology password. The topology password is needed when running the password management tool and platform control tool. The default topology password is `ibmioc16`.

- ___ 9. Verify the installation prior to configuring IBM Intelligent Operations Center.
- ___ 10. Configure IBM Intelligent Operations Center.
 - ___ a. Configure collaboration services if you are using IPv6.
 - ___ b. Configure single sign-on for collaboration services.
 - ___ c. Remove HTTPOnly setting for IBM Business Monitor.
 - ___ d. Configure additional cluster manager relationships.
 - ___ e. Optional: Configure the session timeout.
 - ___ f. Optional: Configure the LTPA timeout.
 - ___ g. Optional: Configure an optional external network file system.
 - ___ h. Optional: Configure the Cognos model in a high availability environment
- ___ 11. Verify that IBM Intelligent Operations Center is correctly installed.
- ___ 12. Optional: Install and configure semantic model services.
- ___ 13. Verify that IBM Intelligent Operations Center is correctly installed.
- ___ 14. Install any other applications.

Results

The IBM Intelligent Operations Center architecture and IBM Intelligent Operations Center application are installed and ready for use.

Checklist - installing the high availability topology using the graphical installer

Use this checklist to track the installation steps when installing the IBM Intelligent Operations Center high availability topology using the graphical installer.

Procedure

- ___ 1. Review the IBM Intelligent Operations Center preventive service planning technote for changes to the product documentation that might affect the installation and usage of IBM Intelligent Operations Center.
- ___ 2. Make sure you have the necessary hardware.
- ___ 3. Make sure the required software is installed on the hardware.
- ___ 4. Optional: Use the kickstart file to prepare Red Hat Enterprise Linux on the servers. Operating system preparation can also be done manually as part of the Prepare the servers. steps.
- ___ 5. Prepare the servers.
 - a. Set up TCP/IP networking.
 - b. Disable security settings.
 - c. Set up ssh services.
 - d. Configure users requiring ssh access and passwords.
 - e. Install required Linux packages.
 - f. Set other pre-installation requirements.
 - g. Prepare the servers to run in a high availability environment.
 - h. Prepare the installation server
- ___ 6. Run the high availability environment GUI installer.

Important: Make sure you record the topology password. The topology password is needed when running the password management tool and platform control tool. The default topology password is `ibmioc16`.

- ___ 7. Verify the installation prior to configuring IBM Intelligent Operations Center.

- ___ 8. Configure IBM Intelligent Operations Center.
 - ___ a. Configure collaboration services if you are using IPv6.
 - ___ b. Configure single sign-on for collaboration services.
 - ___ c. Configure additional cluster manager relationships.
 - ___ d. Remove HTTPOnly setting for IBM Business Monitor.
 - ___ e. Optional: Configure the session timeout.
 - ___ f. Optional: Configure the LTPA timeout.
 - ___ g. Optional: Configure an optional external network file system.
 - ___ h. Optional: Configure the Cognos model in a high availability environment
- ___ 9. Optional: Install and configure semantic model services.
- ___ 10. Verify that IBM Intelligent Operations Center is correctly installed.
- ___ 11. Install any other applications.

Results

The IBM Intelligent Operations Center architecture and IBM Intelligent Operations Center application are installed and ready for use.

Using kickstart files to prepare Red Hat Enterprise Linux

IBM Intelligent Operations Center includes sample Red Hat Enterprise Linux V6 kickstart files to prepare the operating system for standard and high availability environments on virtual or hardware servers.

About this task

IBM Intelligent Operations Center server requirements assume that the `minimal` installation option is selected during the installation of Red Hat Enterprise Linux. The `minimal` option provides only the `@core` and `@server-policy` packages essential to run Red Hat Enterprise Linux. The `@core` and `@server-policy` packages provide the required Linux rpm packages for a single-purpose server or desktop appliance and maximizes performance and security for the installation. The kickstart files included with IBM Intelligent Operations Center includes all packages needed for IBM Intelligent Operations Center and can be used to prepare the servers for installation.

The kickstart files can be found in the `/rhel-kickstart` directory in the installation media.

The kickstart files provided for a standard environment are:

- `std_ks-iopana-min.cfg` - kickstart file for the analytics server
- `std_ks-iopapp-min.cfg` - kickstart file for the application server
- `std_ks-iopdb-min.cfg` - kickstart file for the data server
- `std_ks-iopdmz-min.cfg` - kickstart file for the web server
- `std_ks-iopmdl-min.cfg` - kickstart file for the semantic model server

The kickstart files provided for a high availability environment are:

- `ha_ks-iopana1-min.cfg` - kickstart file for the analytics server 1
- `ha_ks-iopana2-min.cfg` - kickstart file for the analytics server 2
- `ha_ks-iopapp1-min.cfg` - kickstart file for the application server 1
- `ha_ks-iopapp2-min.cfg` - kickstart file for the application server 2
- `ha_ks-iopdb1-min.cfg` - kickstart file for the data server 1
- `ha_ks-iopdb2-min.cfg` - kickstart file for the data server 2
- `ha_ks-iopdmz1-min.cfg` - kickstart file for the web server 1

- `ha_ks-iopdmz2-min.cfg` - kickstart file for the web server 2
- `ha_ks-iopmdl1-min.cfg` - kickstart file for the semantic model server

Procedure

Setup each kickstart file.

1. Edit the kickstart file.
2. Change the `lang` value to the language for your installation. The default is `en_US.UTF-8`.
3. Change the `rootpw` value to the root password for the system. The default is `ibmioc16`.
4. Change the `timezone` value to the time zone for your installation. The default is `America/New_York`.
5. Change the network information for the target system. The default is different for each server.
6. Optional: Change the file system partition layout. In the default configuration, all file system partitions are created under one disk.

Use the kickstart file to configure the server or virtual machine.

7. Complete the pre-install steps in the kickstart file.
8. Use the kickstart file to install and configure Red Hat Enterprise Linux on the hardware server or virtual machine.
9. Complete the post-install steps in the kickstart file.
10. Create a snapshot of the virtual machine or a backup of the hardware server.

What to do next

After the operating system is configured on all hardware servers or virtual machines using the kickstart files, continue with the other server preparation steps. The kickstart files install the required Linux packages, so those steps can be skipped. After the servers are prepared, install IBM Intelligent Operations Center.

Related tasks:

“Preparing the servers”

Before installing IBM Intelligent Operations Center, all servers, including the optional semantic model server (if used), must be correctly prepared or the installation will fail. The precheck step will verify that many of these requirements have been implemented for all servers except the semantic model server.

“Installing Linux packages for the standard environment” on page 40

Before installing IBM Intelligent Operations Center, Linux packages need to be installed on the servers.

“Installing Linux packages for the high availability environment” on page 44

Before installing IBM Intelligent Operations Center, Linux packages need to be installed on the servers.

Preparing the servers

Before installing IBM Intelligent Operations Center, all servers, including the optional semantic model server (if used), must be correctly prepared or the installation will fail. The precheck step will verify that many of these requirements have been implemented for all servers except the semantic model server.

About this task

If running in a virtual environment, using a template for these steps can help reduce setup time. Follow the steps in each section for each server or create a RHEL template with these steps.

Related concepts:

“Prerequisite software requirements” on page 28

Before installing IBM Intelligent Operations Center, all servers must have the appropriate software installed.

“IBM Intelligent Operations Center hardware requirements for a standard environment” on page 25
Four servers meeting minimum requirements are required to install IBM Intelligent Operations Center using the standard topology. An optional semantic model server is required if semantic model services are required. The analytics server also serves as the installation server.

“IBM Intelligent Operations Center hardware requirements for a high availability environment” on page 26

Eight servers meeting minimum requirements are required to install IBM Intelligent Operations Center using the high availability topology. An optional semantic model server is required if semantic model services are required. Analytics server 1 also serves as the installation server.

Setting up TCP/IP networking

Before installing IBM Intelligent Operations Center, TCP/IP networking needs to be set up on the servers.

About this task

If you are installing IBM Intelligent Operations Center for a high availability environment, you must use IPV4. High availability server clustering does not support IPV6.

Procedure

1. Define a fully-qualified name and short host name using a DNS server or by definition in the `/etc/hosts` file.
2. Make sure that the `HOSTNAME` set in `/etc/sysconfig/network` is set to the short host name and not the fully qualified host name. For example, set `HOSTNAME=xyz` instead of `HOSTNAME=xyz.yourco.com`.
3. Verify the hostname, fully qualified hostname, and domain names are configured on all servers. The servers are correctly configured if the following tests complete successfully.
 - a. The `hostname -s` command returns the defined short host name for the server.
 - b. The `hostname -f` command returns the fully qualified domain and host name for the server.
 - c. The `hostname -d` command returns the domain name of the server.
 - d. The results of a `ping` command, or `ping6` command for IPV6 environments, with the short host name for each server indicates that the server is accessible.
 - e. The results of a `ping` command, or `ping6` command for IPV6 environments, with the fully-qualified name for each server indicates that the server is accessible.
4. Enable local loopback addressing for each server in the `/etc/hosts` file.
5. Verify local loopback addressing. The servers are correctly configured if the following tests complete successfully.
 - a. The `ping -n localhost` command returns the address `127.0.0.1`.
 - b. The `ping -n localhost.localdomain` command returns the address `127.0.0.1`.
 - c. The `ping6 -n localhost6` command in an IPV6 environment returns the address `::1`.
 - d. The `ping6 -n localhost6.localdomain6` command in an IPV6 environment returns the address `::1`.
6. Add or update the `net.ipv4.tcp_fin_timeout=15` parameter in the `/etc/sysctl.conf` file for the following servers:
 - Application server
 - Analytics server
 - Data server
 - Web server
 - Semantic model server (if used)

Restart the server after changing the `/etc/sysctl.conf` file.

If this step is not done when the servers are prepared, the IBM Intelligent Operations Center installation program will correct the setting for all servers except the semantic model server.

TCP/IP networking

Prior to installing IBM Intelligent Operations Center, TCP/IP networking between the servers must be correctly configured.

If you are installing IBM Intelligent Operations Center for a high availability environment, you must use IPV4. High availability server clustering does not support IPV6.

All servers used by IBM Intelligent Operations Center must be configured with a short host name and a fully-qualified host name. The host names must resolve on each server to the correct IP address. Configuration can be done using a DNS server or by adding definitions to the `/etc/hosts` file.

The fully-qualified host name for each server must have at least three components. For example: `myhost.mydomain.com` where the top level domain is a standard Internet top-level domain.

Important: Short host names and fully-qualified host names must be specified in the correct case. For example, `MyCompany.MyDomain.com` cannot be specified as `mycompany.mydomain.com`.

IPv6 networking is supported by IBM Intelligent Operations Center, but IPv4 must be installed and configured as well. IPv4 addresses do not need to be assigned to the servers, but the IPv4 loopback address (`127.0.0.1`) must be enabled and the `localhost` host name must resolve to `127.0.0.1`.

Configuration changes are shown in Table 6 on page 37. These are guidelines for setting up TCP/IP networking on the IBM Intelligent Operations Center installation server and target servers by editing the Linux network configuration files. The configuration notes in Table 6 on page 37 are only guidelines. Any network setup conforming to the requirements described previously should work.

Table 6. TCP/IP configuration guidelines

File	Notes
/etc/hosts	<p>The hosts file resolves TCP/IP names to IP addresses. If the configuration does not have a DNS server, all servers and their IP addresses, short host names, and fully-qualified names must be defined in this file. Local loopback addresses and host names are also defined in this file.</p> <p>If a DNS server is being used, hosts which are resolved by the DNS do not need to be included in this file.</p> <p>Important: When using IPv4, the local loopback address 127.0.0.1 must be mapped to the localhost and localhost.localdomain host names.</p> <p>The following is a sample /etc/hosts file using IPv4 addresses.</p> <pre># local loopback definitions -- do not remove # or alter these! 127.0.0.1 localhost.localdomain localhost # use the following if IPv6 is enabled in your # network definitions ::1 localhost6.localdomain localhost6 # target runtime servers for the standard topology 192.168.0.210 iocweb.ioc16.com iocweb 192.168.0.211 iocapp.ioc16.com iocapp 192.168.0.212 iocdb.ioc16.com iocdb 192.168.0.213 iocana.ioc16.com iocana # target runtime servers for the high availability topology 192.168.0.210 iocweb1.ioc16.com iocweb1 192.168.0.211 iocweb2.ioc16.com iocweb2 192.168.0.212 iocapp1.ioc16.com iocapp1 192.168.0.213 iocapp2.ioc16.com iocapp2 192.168.0.214 iocdb1.ioc16.com iocdb1 192.168.0.215 iocdb2.ioc16.com iocdb2 192.168.0.216 iocana1.ioc16.com iocana1 192.168.0.217 iocana2.ioc16.com iocana2</pre> <p>Use IPv6 address notation to assign IPv6 static addresses</p> <pre>.</pre> <p>Both IPv6 and IPv4 addresses can be defined on the same server.</p>

Table 6. TCP/IP configuration guidelines (continued)

File	Notes
<p>/etc/sysconfig/network-scripts/ifcfg-<i>adapter_name</i></p>	<p>The <i>ifcfg-adapter_name</i> file defines the basic network settings for the specified network adapter. The Linux assigned name for the network adapter is specified by <i>adapter_name</i>. The typical value for <i>adapter_name</i> is <i>eth0</i> but might be different for your environment.</p> <p>For IPv4 networking the following parameters should be defined.</p> <p>IPADDR Specify the IPv4 IP address of the server being configured.</p> <p>NETMASK Specify the IPv4 network mask of the server being configured.</p> <p>GATEWAY Specify the IPv4 default network IP address of the server being configured.</p> <p>BOOTPROTO If static IP addressing is being used, specify <i>none</i>.</p> <p>NM_CONTROLLED Specify <i>no</i> to disable the Network Management service from modifying the <i>ifcfg-adapter_name</i> file.</p> <p>ONBOOT Specify <i>yes</i> to start the adapter automatically.</p> <p>IPV6INIT Specify <i>yes</i> if the adapter is to use IPv6 networking.</p> <p>IPV6ADDR Specify the server IPv6 IP address if <i>IPV6INIT=yes</i> is specified.</p> <p>IPV6_DEFAULTGW Specify the server IPv6 default network gateway IP address if <i>IPV6INIT=yes</i> is specified.</p>
<p>/etc/sysconfig/network</p>	<p>The network file specifies general networking parameters.</p> <p>For IPv4 networking the following parameters should be defined:</p> <p>NETWORKING Specify <i>yes</i> to enable IPv4 networking.</p> <p>NETWORKING_IPV6 Specify <i>yes</i> if IPv6 networking is also desired.</p> <p>HOSTNAME Specify the server short host name.</p> <p>Hostname configuration changes made by editing the <i>/etc/sysconfig/network</i> file will not take affect until the server is restarted. If a restart isn't desired, change the hostname for the current shell session by running the hostname <i>new_host_name</i> command. For example, to change the hostname of the server to <i>iocweb</i>, run the hostname <i>iocweb</i> command.</p>

Table 6. TCP/IP configuration guidelines (continued)

File	Notes
/etc/resolv.conf	<p>The <code>resolv.conf</code> file is used to define DNS servers for the network and a default search domain. If DNS servers are not being used, this file should be empty.</p> <p>If a DNS server is used, the <code>resolv.conf</code> should contain the following lines:</p> <pre>search domain_name nameserver first_DNS_server nameserver second_DNS_server</pre> <p>For example:</p> <pre>search yourcompany.com nameserver 10.75.20.10 nameserver 10.75.20.11</pre> <p>The search value specifies the default search domain. The first <code>nameserver</code> value is the IP address of the DNS server. A second <code>nameserver</code> value can be used to specify a secondary DNS server. The second <code>nameserver</code> specification is optional.</p>

When correctly configured, each server must successfully pass the following tests:

1. The `hostname -s` command returns the defined short host name for the server.
2. The `hostname -f` command returns the fully qualified domain and host name for the server.
3. The `hostname -d` command returns the domain name of the server.
4. The results of a `ping` command, or `ping6` command for IPV6 environments, with the short host name for each server indicates that the server is accessible.
5. The results of a `ping` command, or `ping6` command for IPV6 environments, with the fully-qualified name for each server indicates that the server is accessible.

Related tasks:

“Preparing the servers” on page 34

Before installing IBM Intelligent Operations Center, all servers, including the optional semantic model server (if used), must be correctly prepared or the installation will fail. The precheck step will verify that many of these requirements have been implemented for all servers except the semantic model server.

Disabling security settings

Before installing IBM Intelligent Operations Center, certain security settings must be disabled. These can be re-enabled after IBM Intelligent Operations Center is installed.

About this task

If the following steps are not done prior to installing IBM Intelligent Operations Center, the installer will disable any firewalls. SELinux will also be disabled unless set to "permissive". If set to "permissive" the setting will be retained. In all cases the installation will proceed successfully. The installer will not make these changes for the semantic model server.

Procedure

1. Disable SELinux (Security Enforcing Linux) by editing the `/etc/selinux/config` file and changing SELINUX to disabled. After changing the configuration, restart the server.
2. Disable all Linux firewalls.

Setting up SSH services

Before installing IBM Intelligent Operations Center, ssh services need to be set up on the servers. The service needs to be enabled for root login with password authentication.

About this task

TCP/IP port 22 must be configured in the operating system as an available ssh access port for use during installation processing. The TCP/IP port number for platform control tool ssh access is specified in the topology properties file. Only the platform control tool uses the configured port.

Procedure

1. Edit the `/etc/ssh/sshd_config` file.
2. Make sure the following lines are specified as follows. Make sure there is no # sign at the start of these lines.

```
PermitRootLogin yes  
PasswordAuthentication yes
```
3. Save the changed file.
4. Start, or restart, the sshd service on each server by running the **service sshd restart** command.

Updating the SSH configuration

IBM Intelligent Operations Center installation requires SSH configuration changes to successfully run.

About this task

On each IBM Intelligent Operations Center server review the contents of the `/etc/ssh/sshd_config` file and change the file as required.

Procedure

1. Make a backup copy of the file by running the following command: `cp /etc/ssh/sshd_config /etc/ssh/sshd_config.orig`
2. Edit the `/etc/ssh/sshd_config` file.
3. Comment out any `AllowUsers` statements.
4. Comment out any `AllowGroups` statements.
5. Set any `PermitRootLogin` statement to `yes` until IBM Intelligent Operations Center installation is complete. If there isn't a `PermitRootLogin` statement in the file, don't add one.
6. Set any `PasswordAuthentication` statement to `yes` until IBM Intelligent Operations Center installation is complete. If there is no `PasswordAuthentication` statement, do not add one.
7. Save the changes.
8. Make a backup copy of the changed file by running the following command: `cp /etc/ssh/sshd_config /etc/ssh/sshd_config.ioc_maintenance`
9. If you changed the `sshd_config` file, run the following to activate the changes: `service sshd restart`

What to do next

After IBM Intelligent Operations Center has been successfully installed, return the `/etc/ssh/sshd_config` to its original state and run the following command to activate the changes: `service sshd restart`

Installing Linux packages for the standard environment

Before installing IBM Intelligent Operations Center, Linux packages need to be installed on the servers.

About this task

Linux package requirements assumes that the Minimal option is selected during Red Hat installation. The Minimal option provides only the @core and @server-policy packages which are essential to run Red Hat Enterprise Linux. A minimal installation provides the base for a single-purpose server or desktop appliance and maximizes performance and security for the installation.

The Linux packages in following table must be installed on the IBM Intelligent Operations Center servers. The redhat-lsb package is required on the analytics server if the GUI installer will be used. These packages are available from Red Hat.

Table 7. Required Linux packages for IBM Intelligent Operations Center servers

Application server	Analytics server	Data server	Web server	Semantic model server (optional)
bc.x86_64 compat-db.i686 compat-db.x86_64 compat-glibc.x86_64 compat-glibc-headers.x86_64 compat-libstdc++i686 dos2unix.x86_64 elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64 gtk2-engines.i686 gtk2-engines.x86_64 libaio.i686 libaio.x86_64 libgcc.i686 libgcc.x86_64 libXmu.i686 libXmu.x86_64 libXp.i686 libXpm.x86_64 libXtst.i686 libXtst.x86_64 nfs-utils.x86_64 nfs-utils-lib.x86_64 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openmotif22.i686 openmotif22.x86_64 openssl-clients.x86_64 pam_passwdqc.x86_64 rpm-build.x86_64 tcsh.x86_64 unzip.x86_64 zip.x86_64 zlib.i686 zlib.x86_64 <div style="background-color: #0056b3; color: white; padding: 2px; display: inline-block;">1.6.0.2</div> pam.i686 pam-devel.i686	compat-db.i686 compat-db.x86_64 compat-glibc.x86_64 compat-glibc-headers.x86_64 compat-libstdc++i686 dos2unix.x86_64 elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64 gettext-libs.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64 gtk2-engines.i686 gtk2-engines.x86_64 libaio.i686 libaio.x86_64 libgcc.i686 libgcc.x86_64 libXft.x86_64 libXmu.i686 libXmu.x86_64 libXtst.i686 libXtst.x86_64 nfs-utils.x86_64 nfs-utils-lib.x86_64 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openmotif22.i686 openmotif22.x86_64 openssl-clients.x86_64 pam_passwdqc.x86_64 redhat-lsb.x86_64 rpm-build.x86_64 tcsh.x86_64 unzip.x86_64 zlib.i686 zlib.x86_64 <div style="background-color: #0056b3; color: white; padding: 2px; display: inline-block;">1.6.0.2</div> pam.i686 pam-devel.i686	audit-libs.i686 audit-libs.x86_64 compat-libstdc++i686 compat-libstdc++x86_64 dos2unix.x86_64 gettext.x86_64 glibc.i686 glibc.x86_64 ksh.x86_64 libaio.i686 libaio.x86_64 libgcc.i686 libgcc.x86_64 libstdc++.i686 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openssl-clients.x86_64 pam.i686 pam-devel.i686 pam_passwdqc.x86_64 tcsh.x86_64 unzip.x86_64 xorg-x11-xauth.x86_64 zlib.i686 zlib.x86_64	compat-db.i686 compat-db.x86_64 dos2unix.x86_64 elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64 gtk2-engines.i686 gtk2-engines.x86_64 ksh.x86_64 libgcc.i686 libgcc.x86_64 libXp.i686 libXpm.i686 libXpm.x86_64 libXpm-devel.i686 libXpm-devel.x86_64 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openssl-clients.x86_64 pam_passwdqc.x86_64 rpm-build.x86_64 tcsh.x86_64 unzip.x86_64 zlib.i686 zlib.x86_64	audit-libs.i686 audit-libs.x86_64 bc.x86_64 compat-db.i686 compat-db.x86_64 compat-glibc.x86_64 compat-glibc-headers.x86_64 compat-libstdc++i686 compat-libstdc++x86_64 dos2unix.x86_64 elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64 gettext-libs.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64 gtk2-engines.i686 gtk2-engines.x86_64 ksh.x86_64 libaio.i686 libaio.x86_64 libcanberra.x86_64 libgcc.i686 libgcc.x86_64 libstdc++.i686 libstdc++x86_64 libXft.i686 libXft.x86_64 libXmu.i686 libXmu.x86_64 libXp.i686 libXpm.i686 libXpm.x86_64 libXpm-devel.i686 libXpm-devel.x86_64 libXtst.i686 libXtst.x86_64 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openmotif22.i686 openmotif22.x86_64 openssl-clients.x86_64 pam.i686 pam-devel.i686 pam_passwdqc.x86_64 rpm-build.x86_64 tcsh.x86_64 unzip.x86_64 xorg-x11-xauth.x86_64 zip.x86_64 zlib.i686 zlib.x86_64

Procedure

1. All required Linux packages can be installed in all servers, or, only the packages required for each server can be installed.

- To install all packages on all servers, run the following commands on each server. Each **yum** command needs to be specified as a single line.

```

yum install -y audit-libs.i686 audit-libs.x86_64 bc.x86_64
compat-db.i686 compat-db.x86_64 compat-glibc.x86_64
compat-glibc-headers.x86_64 compat-libstdc++i686
compat-libstdc++x86_64 dos2unix.x86_64 elfutils.x86_64
elfutils-libs.i686 elfutils-libs.x86_64

```

```

gettext.x86_64
gettext-libs.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64
gtk2-engines.i686 gtk2-engines.x86_64 ksh.x86_64
libaio.i686
libaio.x86_64 libgcc.i686 libgcc.x86_64 libstdc++.i686 libXft.i686
libXft.x86_64 libXmu.i686 libXmu.x86_64 libXp.i686 libXpm.i686
libXpm.x86_64 libXpm-devel.i686 libXpm-devel.x86_64 libXtst.i686
libXtst.x86_64 nfs-utils.x86_64 nfs-utils-lib.x86_64
nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64
openmotif22.i686 openmotif22.x86_64 openssh-clients.x86_64
pam.i686 pam-devel.i686 redhat-lsb.x86_64 rpm-build.x86_64
unzip.x86_64 xorg-x11-xauth.x86_64 zip.x86_64 zlib.i686 zlib.x86_64
pam_passwdqc.x86_64 tcsh.x86_64

```

```
yum -y update
```

- To install only the packages required by each server, run the following commands. Each **yum** command needs to be specified as a single line.

On the application server:

```

yum install -y bc.x86_64 compat-db.i686 compat-db.x86_64
compat-glibc.x86_64 compat-glibc-headers.x86_64
compat-libstdc++i686 dos2unix.x86_64 elfutils.x86_64
elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64
glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64 gtk2-engines.i686
gtk2-engines.x86_64 libaio.i686
libaio.x86_64 libgcc.i686
libgcc.x86_64 libXmu.i686 libXmu.x86_64 libXp.i686 libXpm.x86_64
libXtst.i686 libXtst.x86_64 nfs-utils.x86_64 nfs-utils-lib.x86_64
nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64
openmotif22.i686 openmotif22.x86_64 openssh-clients.x86_64
pam.i686 pam-devel.i686
rpm-build.x86_64 unzip.x86_64 zip.x86_64 zlib.i686 zlib.x86_64
pam_passwdqc.x86_64 tcsh.x86_64

```

```
yum -y update
```

On the analytics server:

```

yum install -y compat-db.i686 compat-db.x86_64 compat-glibc.x86_64
compat-glibc-headers.x86_64 compat-libstdc++i686 dos2unix.x86_64
elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64
gettext.x86_64 gettext-libs.x86_64 glibc.i686 glibc.x86_64
gtk2.i686 gtk2.x86_64 gtk2-engines.i686 gtk2-engines.x86_64

```

```

libaio.i686 libaio.x86_64 libgcc.i686 libgcc.x86_64 libXft.i686
libXft.x86_64 libXmu.i686 libXtst.i686 libXtst.x86_64
nfs-utils.x86_64 nfs-utils-lib.x86_64 nss-softokn-freebl.i686
nss-softokn-freebl.x86_64 ntp.x86_64 openmotif22.i686
openmotif22.x86_64 openssh-clients.x86_64
pam.i686 pam-devel.i686 redhat-lsb.x86_64
rpm-build.x86_64 unzip.x86_64 zlib.i686 zlib.x86_64
pam_passwdqc.x86_64 tcsh.x86_64

```

```
yum -y update
```

On the data server:

```

yum install -y audit-libs.i686 audit-libs.x86_64
compat-libstdc++i686 compat-libstdc++x86_64 dos2unix.x86_64
gettext.x86_64 glibc.i686 glibc.x86_64 ksh.x86_64 libaio.i686
libaio.x86_64 libgcc.i686 libgcc.x86_64 libstdc++.i686
nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64
openssh-clients.x86_64 pam.i686 pam-devel.i686 unzip.x86_64
xorg-x11-xauth.x86_64 zlib.i686 zlib.x86_64
pam_passwdqc.x86_64 tcsh.x86_64

```

```
yum -y update
```

On the web server:

```
yum install -y compat-db.i686 compat-db.x86_64 dos2unix.x86_64
elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64
gettext.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64
gtk2-engines.i686 gtk2-engines.x86_64 ksh.x86_64 libgcc.i686
libgcc.x86_64 libXp.i686 libXpm.i686 libXpm.x86_64
libXpm-devel.i686 libXpm-devel.x86_64 nss-softokn-freebl.i686
nss-softokn-freebl.x86_64 ntp.x86_64 openssh-clients.x86_64
rpm-build.x86_64 unzip.x86_64 zlib.i686
zlib.x86_64 pam_passwdqc.x86_64 tcsh.x86_64
```

```
yum -y update
```

On the semantic model server:

```
yum install -y audit-libs.i686 audit-libs.x86_64 bc.x86_64
compat-db.i686 compat-db.x86_64 compat-glibc.x86_64
compat-glibc-headers.x86_64 compat-libstdc++i686
compat-libstdc++x86_64 dos2unix.x86_64 elfutils.x86_64
elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64
gettext-libs.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64
gtk2-engines.i686 gtk2-engines.x86_64 ksh.x86_64 libaio.i686
libaio.x86_64 libcanberra.x86_64 libgcc.i686 libgcc.x86_64
libstdc++.i686 libXft.i686 libXft.x86_64 libXmu.i686 libXmu.x86_64
libXp.i686 libXpm.i686 libXpm.x86_64 libXpm-devel.i686
libXpm-devel.x86_64 libXtst.i686 libXtst.x86_64
nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64
openmotif22.i686 openmotif22.x86_64 openssh-clients.x86_64 pam.i686
pam-devel.i686 rpm-build.x86_64 unzip.x86_64 xorg-x11-xauth.x86_64
zip.x86_64 zlib.i686 zlib.x86_64
pam_passwdqc.x86_64 tcsh.x86_64
```

```
yum -y update
```

2. Optional: Install the Linux packages for the X Window System on the installation server. These packages are required if the GUI installer will be used.
 - a. Install the packages for the GNOME or KDE desktop.
To install the GNOME desktop run:

```
yum -y groupinstall "X Window System" Desktop
```


To install the KDE desktop run:

```
yum -y groupinstall "X Window System" "KDE Desktop"
```
 - b. Run `yum -y update`
 - c. Start the desktop by running `init 5`. To make the GUI desktop the default desktop, do the following.
 - 1) Edit the `/etc/inittab` file.
 - 2) Change the `initdefault` property from 3 to 5. The updated line should be as follows.

```
id:5:initdefault:
```
 - 3) Save the changes.
 - 4) Restart the server.
3. Optional: Install the Linux packages for the X Window System on the application server. These packages are required if the password management tool will be used.
 - a. Install the packages for the GNOME or KDE desktop.
To install the GNOME desktop run:

```
yum -y groupinstall "X Window System" Desktop
```


To install the KDE desktop run:

```
yum -y groupinstall "X Window System" "KDE Desktop"
```
 - b. Run `yum -y update`

- c. Start the desktop by running `init 5`. To make the GUI desktop the default desktop, do the following.
 - 1) Edit the `/etc/inittab` file.
 - 2) Change the `initdefault` property from 3 to 5. The updated line should be as follows.
`id:5:initdefault:`
 - 3) Save the changes.
 - 4) Restart the server.
4. If the graphical installer is to be used in Chinese, Japanese, or Korean, run the appropriate command.

Language	Command
Chinese	<code>yum install -y "@Chinese Support"</code>
Japanese	<code>yum install -y "@japanese Support"</code>
Korean	<code>yum install -y "@Korean Support"</code>

Related information:

 <http://www.redhat.com/>

Installing Linux packages for the high availability environment

Before installing IBM Intelligent Operations Center, Linux packages need to be installed on the servers.

About this task

Linux package requirements assumes that the `Minimal` option is selected during Red Hat installation. The `Minimal` option provides only the `@core` and `@server-policy` packages which are essential to run Red Hat Enterprise Linux. A minimal installation provides the base for a single-purpose server or desktop appliance and maximizes performance and security for the installation.

The Linux packages in following table must be installed on the IBM Intelligent Operations Center servers. The `redhat-lsb` package is required on the analytics server if the GUI installer will be used. These packages are available from Red Hat.

Table 8. Required Linux packages for primary IBM Intelligent Operations Center servers

Application server 1	Analytics server 1	Data server 1	Web server 1	Semantic model server (optional)
bc.x86_64 compat-db.i686 compat-db.x86_64 compat-glibc.x86_64 compat-glibc-headers.x86_64 compat-libstdc++i686 dos2unix.x86_64 elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64 gtk2-engines.i686 gtk2-engines.x86_64 libaio.i686 libaio.x86_64 libgcc.i686 libgcc.x86_64 libXmu.i686 libXmu.x86_64 libXp.i686 libXpm.x86_64 libXtst.i686 libXtst.x86_64 nfs-utils.x86_64 nfs-utils-lib.x86_64 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openmotif22.i686 openmotif22.x86_64 openssh-clients.x86_64 pam_passwdqc.x86_64 rpm-build.x86_64 tcsh.x86_64 unzip.x86_64 zip.x86_64 zlib.i686 zlib.x86_64 <div style="background-color: #0056b3; color: white; padding: 2px; display: inline-block;">1.6.0.2</div> pam.i686 pam-devel.i686	compat-db.i686 compat-db.x86_64 compat-glibc.x86_64 compat-glibc-headers.x86_64 compat-libstdc++i686 dos2unix.x86_64 elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64 gettext-libs.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64 gtk2-engines.i686 gtk2-engines.x86_64 libaio.i686 libaio.x86_64 libgcc.i686 libgcc.x86_64 libXft.i686 libXft.x86_64 libXmu.i686 libXmu.x86_64 libXtst.i686 libXtst.x86_64 nfs-utils.x86_64 nfs-utils-lib.x86_64 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openmotif22.i686 openmotif22.x86_64 openssh-clients.x86_64 pam_passwdqc.x86_64 redhat-lsb.x86_64 rpm-build.x86_64 tcsh.x86_64 unzip.x86_64 zip.i686 zip.x86_64 The following is required for the high availability environment only. ksh.x86_64 <div style="background-color: #0056b3; color: white; padding: 2px; display: inline-block;">1.6.0.2</div> pam.i686 pam-devel.i686	audit-libs.i686 audit-libs.x86_64 compat-libstdc++i686 compat-libstdc++x86_64 dos2unix.x86_64 gettext.x86_64 glibc.i686 glibc.x86_64 ksh.x86_64 libaio.i686 libaio.x86_64 libgcc.i686 libgcc.x86_64 libstdc++.i686 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openssh-clients.x86_64 pam.i686 pam-devel.i686 pam_passwdqc.x86_64 tcsh.x86_64 unzip.x86_64 xorg-x11-xauth.x86_64 zlib.i686 zlib.x86_64 The following is required for the high availability environment only. zip.x86_64	compat-db.i686 compat-db.x86_64 dos2unix.x86_64 elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64 gtk2-engines.i686 gtk2-engines.x86_64 ksh.x86_64 libgcc.i686 libgcc.x86_64 libXp.i686 libXpm.i686 libXpm.x86_64 libXpm-devel.i686 libXpm-devel.x86_64 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openssh-clients.x86_64 pam_passwdqc.x86_64 rpm-build.x86_64 tcsh.x86_64 unzip.x86_64 zip.i686 zip.x86_64	audit-libs.i686 audit-libs.x86_64 bc.x86_64 compat-db.i686 compat-db.x86_64 compat-glibc.x86_64 compat-glibc-headers.x86_64 compat-libstdc++i686 dos2unix.x86_64 elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 libaio.i686 libaio.x86_64 libcanberra.x86_64 libgcc.i686 libgcc.x86_64 libstdc++.i686 libXft.i686 libXft.x86_64 libXmu.i686 libXmu.x86_64 libXp.i686 libXpm.i686 libXpm-devel.i686 libXpm-devel.x86_64 libXtst.i686 libXtst.x86_64 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openmotif22.i686 openmotif22.x86_64 openssh-clients.x86_64 pam.i686 pam-devel.i686 pam_passwdqc.x86_64 rpm-build.x86_64 tcsh.x86_64 unzip.x86_64 xorg-x11-xauth.x86_64 zip.x86_64 zlib.i686 zlib.x86_64

Table 9. Required Linux packages for standby IBM Intelligent Operations Center servers

Application server 2	Analytics server 2	Data server 2	Web server 2
bc.x86_64 compat-db.i686 compat-db.x86_64 compat-glibc.x86_64 compat-glibc-headers.x86_64 compat-libstdc++i686 compat-libstdc++i686 dos2unix.x86_64 elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64 gtk2-engines.i686 gtk2-engines.x86_64 libaio.i686 libaio.x86_64 libgcc.i686 libgcc.x86_64 libXmu.i686 libXmu.x86_64 libXp.i686 libXpm.x86_64 libXtst.i686 libXtst.x86_64 nfs-utils.x86_64 nfs-utils-lib.x86_64 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openmotif22.i686 openmotif22.x86_64 openssl-clients.x86_64 pam_passwdqc.x86_64 rpm-build.x86_64 tcsh.x86_64 unzip.x86_64 zip.x86_64 zlib.i686 zlib.x86_64 <div style="background-color: #0056b3; color: white; padding: 2px; display: inline-block;">1.6.0.2</div> pam.i686 pam-devel.i686	compat-db.i686 compat-db.x86_64 compat-glibc.x86_64 compat-glibc-headers.x86_64 compat-libstdc++i686 dos2unix.x86_64 elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64 gettext-libs.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64 gtk2-engines.i686 gtk2-engines.x86_64 libaio.i686 libaio.x86_64 libgcc.i686 libgcc.x86_64 libXft.i686 libXft.x86_64 libXmu.i686 libXmu.x86_64 libXtst.i686 libXtst.x86_64 nfs-utils.x86_64 nfs-utils-lib.x86_64 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openmotif22.i686 openmotif22.x86_64 openssl-clients.x86_64 pam_passwdqc.x86_64 redhat-lsb.x86_64 rpm-build.x86_64 tcsh.x86_64 unzip.x86_64 zip.x86_64 zlib.i686 zlib.x86_64 The following is required for the high availability environment only. ksh.x86_64 <div style="background-color: #0056b3; color: white; padding: 2px; display: inline-block;">1.6.0.2</div> pam.i686 pam-devel.i686	audit-libs.i686 audit-libs.x86_64 compat-libstdc++i686 compat-libstdc++x86_64 dos2unix.x86_64 gettext.x86_64 glibc.i686 glibc.x86_64 ksh.x86_64 libaio.i686 libaio.x86_64 libgcc.i686 libgcc.x86_64 libstdc++.i686 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openssl-clients.x86_64 pam.i686 pam-devel.i686 pam_passwdqc.x86_64 tcsh.x86_64 unzip.x86_64 xorg-x11-xauth.x86_64 zlib.i686 zlib.x86_64 The following is required for the high availability environment only. zip.x86_64	compat-db.i686 compat-db.x86_64 dos2unix.x86_64 elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2-engines.i686 gtk2-engines.x86_64 ksh.x86_64 libgcc.i686 libgcc.x86_64 libXp.i686 libXpm.i686 libXpm.x86_64 libXpm-devel.i686 libXpm-devel.x86_64 nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64 openssl-clients.x86_64 pam_passwdqc.x86_64 rpm-build.x86_64 tcsh.x86_64 unzip.x86_64 zlib.i686 zlib.x86_64

Procedure

1. All required Linux packages can be installed in all servers, or, only the packages required for each server can be installed.

- To install all packages on all servers, run the following commands on each server. Each **yum** command needs to be specified as a single line.

```

yum install -y audit-libs.i686 audit-libs.x86_64 bc.x86_64
compat-db.i686 compat-db.x86_64 compat-glibc.x86_64
compat-glibc-headers.x86_64 compat-libstdc++i686
compat-libstdc++x86_64 dos2unix.x86_64 elfutils.x86_64
elfutils-libs.i686 elfutils-libs.x86_64
gettext.x86_64
gettext-libs.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64
gtk2-engines.i686 gtk2-engines.x86_64 ksh.x86_64
libaio.i686
libaio.x86_64 libgcc.i686 libgcc.x86_64 libstdc++.i686 libXft.i686
libXft.x86_64 libXmu.i686 libXmu.x86_64 libXp.i686 libXpm.i686
libXpm.x86_64 libXpm-devel.i686 libXpm-devel.x86_64 libXtst.i686
libXtst.x86_64 nfs-utils.x86_64 nfs-utils-lib.x86_64
nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64
openmotif22.i686 openmotif22.x86_64 openssl-clients.x86_64
pam.i686 pam-devel.i686 redhat-lsb.x86_64 rpm-build.x86_64
unzip.x86_64 xorg-x11-xauth.x86_64 zip.x86_64 zlib.i686 zlib.x86_64
pam_passwdqc.x86_64 tcsh.x86_64

```

```

yum -y update

```

- To install only the packages required by each server, run the following commands. Each **yum** command needs to be specified as a single line.

On application server 1 and application server 2:

```
yum install -y bc.x86_64 compat-db.i686 compat-db.x86_64
compat-glibc.x86_64 compat-glibc-headers.x86_64
compat-libstdc++i686 dos2unix.x86_64 elfutils.x86_64
elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64
glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64 gtk2-engines.i686
gtk2-engines.x86_64 libaio.i686
libaio.x86_64 libgcc.i686
libgcc.x86_64 libXmu.i686 libXmu.x86_64 libXp.i686 libXpm.x86_64
libXtst.i686 libXtst.x86_64 nfs-utils.x86_64 nfs-utils-lib.x86_64
nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64
openmotif22.i686 openmotif22.x86_64 openssh-clients.x86_64
pam.i686 pam-devel.i686
rpm-build.x86_64 unzip.x86_64 zip.x86_64 zlib.i686 zlib.x86_64
pam_passwdqc.x86_64 tcsh.x86_64
```

```
yum -y update
```

On analytics server 1 and analytics server 2:

```
yum install -y ksh* unzip ksh.x86_64
yum install -y compat-db.i686 compat-db.x86_64 compat-glibc.x86_64
compat-glibc-headers.x86_64 compat-libstdc++i686 dos2unix.x86_64
elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64
gettext.x86_64 gettext-libs.x86_64 glibc.i686 glibc.x86_64
gtk2.i686 gtk2.x86_64 gtk2-engines.i686 gtk2-engines.x86_64
```

```
libaio.i686 libaio.x86_64 libgcc.i686 libgcc.x86_64 libXft.i686
libXft.x86_64 libXmu.i686 libXtst.i686 libXtst.x86_64
nfs-utils.x86_64 nfs-utils-lib.x86_64 nss-softokn-freebl.i686
nss-softokn-freebl.x86_64 ntp.x86_64 openmotif22.i686
openmotif22.x86_64 openssh-clients.x86_64
pam.i686 pam-devel.i686 redhat-lsb.x86_64
rpm-build.x86_64 unzip.x86_64 zlib.i686 zlib.x86_64
pam_passwdqc.x86_64 tcsh.x86_64
```

```
yum -y update
```

On data server 1 and data server 2:

```
yum install -y zip.x86_64
yum install -y audit-libs.i686 audit-libs.x86_64
compat-libstdc++i686 compat-libstdc++x86_64 dos2unix.x86_64
gettext.x86_64 glibc.i686 glibc.x86_64 ksh.x86_64 libaio.i686
libaio.x86_64 libgcc.i686 libgcc.x86_64 libstdc++.i686
nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64
openssh-clients.x86_64 pam.i686 pam-devel.i686 unzip.x86_64
xorg-x11-xauth.x86_64 zlib.i686 zlib.x86_64
pam_passwdqc.x86_64 tcsh.x86_64
```

```
yum -y update
```

On web server 1 and web server 2:

```
yum install -y compat-db.i686 compat-db.x86_64 dos2unix.x86_64
elfutils.x86_64 elfutils-libs.i686 elfutils-libs.x86_64
gettext.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64
gtk2-engines.i686 gtk2-engines.x86_64 ksh.x86_64 libgcc.i686
libgcc.x86_64 libXp.i686 libXpm.i686 libXpm.x86_64
libXpm-devel.i686 libXpm-devel.x86_64 nss-softokn-freebl.i686
nss-softokn-freebl.x86_64 ntp.x86_64 openssh-clients.x86_64
rpm-build.x86_64 unzip.x86_64 zlib.i686
zlib.x86_64 pam_passwdqc.x86_64 tcsh.x86_64
```

```
yum -y update
```

On the semantic model server:

```
yum install -y audit-libs.i686 audit-libs.x86_64 bc.x86_64
compat-db.i686 compat-db.x86_64 compat-glibc.x86_64
compat-glibc-headers.x86_64 compat-libstdc++i686
compat-libstdc++x86_64 dos2unix.x86_64 elfutils.x86_64
elfutils-libs.i686 elfutils-libs.x86_64 gettext.x86_64
gettext-libs.x86_64 glibc.i686 glibc.x86_64 gtk2.i686 gtk2.x86_64
gtk2-engines.i686 gtk2-engines.x86_64 ksh.x86_64 libaio.i686
libaio.x86_64 libcanberra.x86_64 libgcc.i686 libgcc.x86_64
libstdc++.i686 libXft.i686 libXft.x86_64 libXmu.i686 libXmu.x86_64
libXp.i686 libXpm.i686 libXpm.x86_64 libXpm-devel.i686
libXpm-devel.x86_64 libXtst.i686 libXtst.x86_64
nss-softokn-freebl.i686 nss-softokn-freebl.x86_64 ntp.x86_64
openmotif22.i686 openmotif22.x86_64 openssh-clients.x86_64 pam.i686
pam-devel.i686 rpm-build.x86_64 unzip.x86_64 xorg-x11-xauth.x86_64
zip.x86_64 zlib.i686 zlib.x86_64
pam_passwdqc.x86_64 tcsh.x86_64
```

```
yum -y update
```

2. Optional: Install the Linux packages for the X Window System on the installation server. These packages are required if the GUI installer will be used.
 - a. Install the packages for the GNOME or KDE desktop.

To install the GNOME desktop run:

```
yum -y groupinstall "X Window System" Desktop
```

To install the KDE desktop run:

```
yum -y groupinstall "X Window System" "KDE Desktop"
```
 - b. Run `yum -y update`
 - c. Start the desktop by running `init 5`. To make the GUI desktop the default desktop, do the following.
 - 1) Edit the `/etc/inittab` file.
 - 2) Change the `initdefault` property from 3 to 5. The updated line should be as follows.

```
id:5:initdefault:
```
 - 3) Save the changes.
 - 4) Restart the server.
3. Optional: Install the Linux packages for the X Window System on the application server. These packages are required if the password management tool will be used.
 - a. Install the packages for the GNOME or KDE desktop.

To install the GNOME desktop run:

```
yum -y groupinstall "X Window System" Desktop
```

To install the KDE desktop run:

```
yum -y groupinstall "X Window System" "KDE Desktop"
```
 - b. Run `yum -y update`
 - c. Start the desktop by running `init 5`. To make the GUI desktop the default desktop, do the following.
 - 1) Edit the `/etc/inittab` file.
 - 2) Change the `initdefault` property from 3 to 5. The updated line should be as follows.

```
id:5:initdefault:
```
 - 3) Save the changes.
 - 4) Restart the server.
4. If the graphical installer is to be used in Chinese, Japanese, or Korean, run the appropriate command.

Language	Command
Chinese	<code>yum install -y "@Chinese Support"</code>
Japanese	<code>yum install -y "@japanese Support"</code>
Korean	<code>yum install -y "@Korean Support"</code>

5. **1.6.0.2** The `nfs-utils` rpm package must be at the 1.2.3-36 level on analytics server 1 and analytics server 2. Update the package using the following steps:
 - a. Download `nfs-utils-1.2.3-36.el6.x86_64.rpm` from a Linux support server.
 - b. Run `rpm -qa nfs_utils*` as the root user. The installed `nfs-utils` packages will be returned. The `nfs-utils-lib` level can be ignored. If `nfs-utils-1.2.3-39.el6.x86_64` is returned, no further action is required.
 - c. If a value other than `nfs-utils-1.2.3-39.el6.x86_64` is returned, as the root user run `rpm -e --nodeps nfs-utils-n.n.n-nn.el6.x86_64` where `n.n.n-nn` is the value displayed by the `rpm -qa` command.
 - d. Run the `rpm -ivh your_download_location/nfs-utils-1.2.3-36.el6.x86_64.rpm` command as the root user where `your_download_location` is the directory where `nfs-utils-1.2.3-36.el6.x86_64.rpm` was downloaded.

Related information:

 <http://www.redhat.com/>

Setting other pre-installation requirements

Before installing IBM Intelligent Operations Center, additional server setup is required.

Procedure

1. Ensure that all servers have the same time and date set as indicated by the Linux operating system. A time synchronization service can be used.
2. Make sure no version of IBM Java is installed on any of the servers.
3. Set **UMASK** to 022.
4. Add the following lines to the `/etc/security/limits.conf` file on all servers to set the maximum open file descriptors to 20480.

```
* soft nfile 20480
* hard nfile 20480
```

This will set the default (soft) limit of the number of open files for all users to 20480 and the maximum (hard) limit for all users to 20480. If other applications require more than 20480 open files, increase the hard limit as required.

If these settings are not made when the servers are prepared, the IBM Intelligent Operations Center installation program will configure the required settings.

The configured open file descriptors can be displayed by running the `ulimit -n` command.

5. Add the following lines to the `/etc/security/limits.d/90-nproc.conf` file on all servers to set the maximum number of user processes to 16384.

```
* soft nproc 16384
root soft nproc unlimited
* hard nproc 16384
root hard nproc 16384
```

This will set the default (soft) limit of the number of user processes for all users to 16384 and the maximum (hard) limit for all users to 16384. If other applications require more than 16384 user processes, increase the hard limit as required.

If these settings are not made when the servers are prepared, the IBM Intelligent Operations Center installation program will configure the required settings.

The configured user process limits can be displayed by running the `ulimit -u` command.

Preparing the servers for high availability

Before installing IBM Intelligent Operations Center in a high availability environment, additional server setup is required. These steps are not required on the optional semantic model server.

Procedure

1. Ensure that your network is running IPV4. High availability server clustering does not support IPV6.
2. Ensure that the following is configured correctly so Tivoli System Automation clustering technology can be successfully installed.
 - a. Ensure hostnames are specified correctly.
 - b. Ensure values contained in the `TSA.*` configuration properties in the topology properties file are correctly configured. For example, make sure the NIC specified in the `TSA.PRIMARY.USERNIC` property exists and is active during installation.
 - c. Ensure the DB2 High-Availability Disaster Recovery (HADR) ports are available. These ports are used to replicate information from the primary databases to the standby databases. By default these ports are in the 55000 range.
3. On analytics server 1 and analytics server 2, ensure the `rpcidmapd`, `nfs` and `rpcbind` services are set to start automatically and that the services are started. The command to change the startup information for a specified service is `chkconfig service_name on`, where `service_name` is the name of the service. The command to start a specified service is `/etc/init.d/service_name start`, where `service_name` is the name of the service.

Related tasks:

Configuring hostnames

Before installing IBM Intelligent Operations Center, TCP/IP networking needs to be set up on the servers.

Preparing the installation server

The installation server must be prepared before IBM Intelligent Operations Center can be installed.

About this task

In a standard environment, the analytics server is used as the installation server. In a high availability environment, analytics server 1 is used as the installation server

Procedure

1. Obtain the IBM Intelligent Operations Center installation package by ordering the package of DVDs or by obtaining the images from Passport Advantage.
2. On the installation server, create a directory named `/distributionMedia`, if the directory does not already exist. If you want to use a directory other than `/distributionMedia`, make note of the directory name. You will need to specify the different directory name during installation. In the following steps, `/distributionMedia` is used in the examples.
3. If using physical DVDs, copy the installation images to the installation server.
 - a. Mount a DVD.
 - b. Copy the DVD contents to the `/distributionMedia` directory, or the directory you created.
 - c. Unmount the DVD.
 - d. Repeat until the contents of all DVDs are copied to the directory on the installation server.
4. If using ISO images from Passport Advantage, copy the installation images to the installation server.
 - a. Create a `/distributionMedia/iso` directory or an `/iso` subdirectory under the directory you created in step 2. The following instructions will use `/distributionMedia/iso` in the examples.

- b. Download or copy each ISO image from Passport Advantage to the /iso subdirectory.
 - c. Create a directory to mount the ISO image. This can be done by running the following command: **mkdir /mnt/ioc16**. The following instructions will use /mnt/ioc16 in the examples.
 - d. Mount the ISO image by running the following command: **mount -o loop /distributionMedia/iso/iso_filename /mnt/ioc16** where *iso_filename* is the name of one of the ISO image files.
 - e. Copy the ISO contents to /distributionMedia by running the following command: **cp -r /mnt/ioc16/* /distributionMedia**.
 - f. Repeat mounting and copying ISO contents until all ISO image files have been processed.
 - g. Delete the /distributionMedia/iso directory unless you want to archive the original ISO images.
5. If the command line installer is to be used to install IBM Intelligent Operations Center, unpack the installation package. This step is not required if the GUI installer will be used.
 - a. Change to the /installHome directory, or the directory you created.
 - b. Run the **tar -zxvf ioc.tar.gz** command.

Topology properties files

The topology properties file defines the customer-customizable properties for the deployment of IBM Intelligent Operations Center. This file must be edited to meet the needs of the customer's environment. Any properties in the provided topology properties file not documented should not be changed.

After modifying the topology properties file, save a copy to a secure location. The file contains security-sensitive information, such as user names and passwords for the system, in clear text. Default access rights to the topology properties file will disclose system administration passwords to anyone on the system. If an unauthorized person has access to this file, they will have full access to the system. The file should not remain on the production servers.

The topology properties file can be used after installation in the following ways:

- As a repository of password information if a password is forgotten.
- As a repository for passwords when they are changed in the system. The modified topology properties file can be used to update the passwords used by the platform control tool.
- As a backup of installation information if the system needs to be reinstalled. The topology properties file can be used without having to redefine all the installation parameters.

IBM Intelligent Operations Center provides the following topology files:

File name	Purpose	Used in
<i>install_home/ioc16/resource/custom.properties</i>	Defines the location of the installation media, working directories, and other properties. This file can be edited to meet the needs of the customer's environment.	Standard environment and high availability environment
<i>install_home/ioc16/topology/iop.std.properties</i>	Defines the customer-customizable properties for the deployment including host names and passwords. This file can be edited to meet the needs of the customer's environment.	Standard environment
<i>install_home/ioc16/topology/iop.ha.properties</i>	Defines the customer-customizable properties for the deployment including host names and passwords. This file can be edited to meet the needs of the customer's environment.	High availability environment

Customizing the installation properties

The installation properties file provides definitions required by the installation scripts. These properties can be modified when using the command line installation options.

About this task

On the installation server, go to the directory where the IBM Intelligent Operations Center installation package was copied. In these steps, this directory is referred to as *install_home*. The installation server is the analytics server. In a high availability topology, analytics server 1 is the installation server.

Procedure

Optional: Edit the *install_home/ioc16/resource/custom.properties* file and change the following property values if desired. Any properties values in the file not listed in Table 10 should not be changed. For those installing IBM Intelligent Operations Center for the first time, it is recommended that the default values be used.

Table 10. IBM Intelligent Operations Center installation properties

Property	Description	Default value
image.basedir.local	The name of the directory on the installation server containing the IBM Intelligent Operations Center installation files. This is the directory where the installation media files were copied before running the installation tool. This directory is referred to as <i>install_media</i> in other installation instructions.	/distributionMedia
image.tmpdir.local	The directory on the installation server used to store temporary files during the installation.	/tmp/ioc/images
backup.local	This directory is for internal use only.	/tmp/ioc/backup
Unix.image.basedir.remote	The directory on the target servers where the packages to be installed on that server will be copied.	/installMedia/ioc/image
Unix.script.basedir.remote	The directory on the target servers where the installation scripts to be run on that server will be copied.	/installMedia/ioc/script
connection.timeout	Time (in milliseconds) to wait for a connection to the target servers before failing.	15000
waiting.time	Time (in milliseconds) to wait before retrying a failed connection	20000
retry.count	Number of times to retry a failed connection before failing the installation	12

If unchanged, the default values will be used.

Related concepts:

“Password information for a standard environment” on page 56

Passwords for various user IDs used in the IBM Intelligent Operations Center solution are defined in the topology properties file. For security reasons the default passwords shipped with IBM Intelligent Operations Center should be changed.

Target server information for a standard environment

The SERVERS section of the topology properties file defines properties for the target servers.

Table 11 shows the server property values that must be specified in the topology properties file for your environment.

Table 11. Target server properties

Property	Description
DB.1.HOST	The fully-qualified host name of the data server
DB.1.ACCOUNT.PWD	The password for the root user on the data server
DB.1.SSH_PORT	The port number for ssh access to the data server
APP.1.HOST	The fully-qualified host name of the application server
APP.1.ACCOUNT.PWD	The password for the root user on the application server
APP.1.SSH_PORT	The port number for ssh access to the application server
ANA.1.HOST	The fully-qualified host name of the analytics server
ANA.1.ACCOUNT.PWD	The password for the root user on the analytics server
ANA.1.SSH_PORT	The port number for ssh access to the analytics server
WEB.1.HOST	The fully-qualified host name of the web server
WEB.1.ACCOUNT.PWD	The password for the root user on the web server
WEB.1.SSH_PORT	The port number for ssh access to the web server

Important: Host name values must be fully-qualified host names entered in the case defined. For example, IOC16App.IOC16.com is not the same as ioc16app.ioc16.com.

An ssh port number can be set for each server. However, the configured port numbers will only be used by the platform control tool. Port 22 must be enabled for ssh access on each server. Port 22 is required for ssh access by IBM Intelligent Operations Center during installation.

Target server information for a high availability environment

The SERVERS section of the topology properties file defines properties for the target servers.

Table 12 shows the server property values that must be specified in the topology properties file for your environment.

Table 12. Target server properties

Property	Description
DB.1.HOST	The fully-qualified host name of the data server 1
DB.1.ACCOUNT.PWD	The password for the root user on the data server 1
DB.1.SSH_PORT	The port number for ssh access to the data server 1
DB.2.HOST	The fully-qualified host name of the data server 2
DB.2.ACCOUNT.PWD	The password for the root user on the data server 2
DB.2.SSH_PORT	The port number for ssh access to the data server 2
APP.1.HOST	The fully-qualified host name of the application server 1
APP.1.ACCOUNT.PWD	The password for the root user on the application server 1
APP.1.SSH_PORT	The port number for ssh access to the application server 1

Table 12. Target server properties (continued)

Property	Description
APP.2.HOST	The fully-qualified host name of the application server 2
APP.2.ACCOUNT.PWD	The password for the root user on the application server 2
APP.2.SSH_PORT	The port number for ssh access to the application server 2
ANA.1.HOST	The fully-qualified host name of the analytics server 1
ANA.1.ACCOUNT.PWD	The password for the root user on the analytics server 1
ANA.1.SSH_PORT	The port number for ssh access to the analytics server 1
ANA.2.HOST	The fully-qualified host name of the analytics server 2
ANA.2.ACCOUNT.PWD	The password for the root user on the analytics server 2
ANA.2.SSH_PORT	The port number for ssh access to the analytics server 2
WEB.1.HOST	The fully-qualified host name of the web server 1
WEB.1.ACCOUNT.PWD	The password for the root user on the web server 1
WEB.1.SSH_PORT	The port number for ssh access to the web server 1
WEB.2.HOST	The fully-qualified host name of the web server 2
WEB.2.ACCOUNT.PWD	The password for the root user on the web server 2
WEB.2.SSH_PORT	The port number for ssh access to the web server 2

Important: Host name values must be fully-qualified host names entered in the case defined. For example, IOC16App.IOC16.com is not the same as ioc16app.ioc16.com.

An ssh port number can be set for each server. However, the configured port numbers will only be used by the platform control tool. Port 22 must be enabled for ssh access on each server. Port 22 is required for ssh access by IBM Intelligent Operations Center during installation.

Directory services information

The topology properties file defines values used to encrypt user passwords and other sensitive data within the directory.

Encryption is based on two values: LDAP.SEED and LDAP.SALT.

Values must be printable ASCII characters. Printable ASCII characters are characters with code point values from 33 to 126. A blank space cannot be used.

Table 13. Directory services properties

Property	Description
LDAP.SEED	<p>A 12 to 1016 character string, consisting of printable ASCII characters, between code points 33 through 126.</p> <p>A cryptographically-strong string should be used. For example, a long string comprised of mixed-case letters, number and special characters without common words or phrases.</p>

Table 13. Directory services properties (continued)

Property	Description
LDAP.SALT	A 12 character string, consisting of printable ASCII characters, between code points 33 and 126. Important: LDAP.SALT must be exactly 12 characters in length. A value of more or less characters will cause the installation to fail.

Record the LDAP.SEED and LDAP.SALT values outside of the system. The values will be needed if you need to export or replicate directory entries.

LDAP suffix

The LDAP suffix information used in IBM Intelligent Operations Center is defined in the topology properties file.

Only the ou, o, and c LDAP parameters can be changed. The parameters must meet the requirements shown in Table 14.

Table 14. LDAP parameter syntax rules

Parameter	Rules
c	Must be exactly two characters in length containing only the following: <ul style="list-style-type: none"> • Lowercase letters (a-z) • Uppercase letters (A-Z)
o	Must be 1-30 characters in length containing only the following: <ul style="list-style-type: none"> • Lowercase letters (a-z) • Uppercase letters (A-Z) • Numbers (0-9) • Dash (-) • Underscore (_)
ou	Must be 1-30 characters in length containing only the following: <ul style="list-style-type: none"> • Lowercase letters (a-z) • Uppercase letters (A-Z) • Numbers (0-9) • Dash (-) • Underscore (_)

The values of ou, o, and c must match when specified for the following properties:

- LDAP.SUFFIX
- LDAP.BASE.ENTRY
- LDAP.USER.ENTRY
- LDAP.GROUP.ENTRY
- LDAP.PROXY.DN

For example:

```
LDAP.SUFFIX ou=SWG,o=IBM,c=US
LDAP.BASE.ENTRY ou=SWG,o=IBM,c=US
LDAP.USER.ENTRY ou=USERS,ou=SWG,o=IBM,c=US
LDAP.GROUP.ENTRY ou=GROUPS,ou=SWG,o=IBM,c=US
LDAP.PROXY.DN ou=SWG,o=IBM,c=US
```

Lightweight Third-Party Authentication domain

IBM Intelligent Operations Center uses a Lightweight Third-Party Authentication (LTPA) token to enable single sign-on across many services. The LTPA domain name must be specified in the topology properties file.

Specify the LTPA domain name for your environment in the `WAS.LTPA.DOMAIN` property. The appropriate value can be obtained by running the `hostname -d` command on application server in a standard environment or on application server 1 in a high availability environment.

In a standard environment the value should be the same on the following servers:

- application server
- analytics server

In a high availability environment the value should be the same on the following servers:

- application server 1
- application server 2
- analytics server 1
- analytics server 2

The LTPA domain name is the parent portion of the fully qualified hostname of the servers. For example, if the fully-qualified hostname is `server.yourco.com` then the LTPA domain is `yourco.com`.

Clustering properties

Properties configuring the clustering topology components must be defined before installing IBM Intelligent Operations Center in a high availability environment.

Table 15. Clustering properties

Property	Description
<code>TSA.NETWORK.SUBNET</code>	The subnet mask for the network hosting the data servers. This is the subnet mask for the network interface cards (NIC) on both data servers.
<code>TSA.PRIMARY.USENIC</code>	The name of the network interface card (NIC) on data server 1. The NIC name can be found by running the <code>ifconfig</code> command on data server 1.
<code>TSA.STANDBY.USENIC</code>	The name of the network interface card (NIC) on data server 2. The NIC name can be found by running the <code>ifconfig</code> command on data server 2.
<code>TSA.QUORUM.IP</code>	An IP address for a highly available system that is not part of the IBM Intelligent Operations Center environment. This IP address must be reachable from both IBM Intelligent Operations Center data server 1 and data server 2. No software will be installed at this location. The only requirement is that the system be available during installation and at runtime.

Password information for a standard environment

Passwords for various user IDs used in the IBM Intelligent Operations Center solution are defined in the topology properties file. For security reasons the default passwords shipped with IBM Intelligent Operations Center should be changed.

Passwords can only contain the following characters:

- Lowercase letters (a-z)
- Uppercase letters (A-Z)
- Numbers (0-9)
- Dash (-)
- Period (.)
- Underscore (_)
- Tilde (~)

Dash and period cannot be used as the first character in a password.

Unless otherwise noted, passwords must be 30 characters or less.

Table 16. Password properties

Property	Associated user name	Description
WEB.1.ACCOUNT.PWD	root	Root password for the web server
DB.1.ACCOUNT.PWD	root	Root password for the data server
APP.1.ACCOUNT.PWD	root	Root password for the application server
ANA.1.ACCOUNT.PWD	root	Root password for the analytics server
MDL.1.ACCOUNT.PWD	root	Root password for the semantic model server
LDAP.DB.PWD	dsrdbm01	LDAP directory database
LDAP.ADMIN.DN.PWD	cn=root	LDAP administrator bind
LDAP.BIND.DN.PWD	cn=bind	LDAP bind
LDAP.PROXY.INSTANCE.PWD	tdsproxy	LDAP proxy instance
LDAP.PROXY.ADMIN.DN.PWD	cn=root	LDAP proxy administrator bind
LDAP.PROXY.BIND.DN.PWD	cn=bind	LDAP proxy bind
LDAP.REPLICA.BIND.DN.PWD	cn=master	LDAP replica bind
ISIM.KEYSTORE.PWD	none	Keystore password
ISIM.POSIX.LINUX.PWD	posixagent	POSIX Linux user
WBM.DB.USER.PWD	db2ibm	Business activity monitoring service database
IHS.KEYSTORE.PWD	none	HTTP server keystore
WORKLIGHT.DB.USER.PWD	db2wrklt	IBM Worklight database user ID
WORKLIGHT.APPCNTR.USER.PWD	appcenteradmin	IBM Worklight appcenter user ID
WAS.ADMIN.ACCOUNT.PWD	waswebadmin	Application services administrator. This password must be the same as PORTAL.ADMIN.ACCOUNT.PWD.
WAS.LTPA.PWD	none	LTPA token
PORTAL.ADMIN.ACCOUNT.PWD	waswebadmin	Administrator for the WebSphere Application Server console for the WebSphere Portal server. This password must be the same as WAS.ADMIN.ACCOUNT.PWD.

Table 16. Password properties (continued)

Property	Associated user name	Description
PORTAL.ADMIN.UID.PWD	wpsadmin	Administrator for the WebSphere Portal server. This password must be the same as DOMINO.ST.ADMIN.PWD.
PORTAL.DB.USER.PWD	db2port1	WebSphere Portal database
DOMINO.USER.PWD	notes	Collaboration user
DOMINO.ORG.PWD	IBM	Collaboration organization
DOMINO.ADMIN.PWD	notes admin	Collaboration administrator
DOMINO.ST.ADMIN.PWD	wpsadmin	Collaboration portal administrator. This password must be the same as PORTAL.ADMIN.UID.PWD.
DOMINO.ST.BIND.PWD	wpsbind	Collaboration LDAP bind
DEFAULT.PWD.DAS	dausr1	Database services administrative server
DEFAULT.PWD.DB2	db2inst1, db2inst2	Database services data server
DEFAULT.PWD.IHS	ihsadmin	HTTP server
DEFAULT.PWD.MQM	mqm	Messaging services user
MQM.CONN.USER.PWD	mqmconn	Messaging services connection
IOP.ADMIN.USER.PWD	ibmadmin	System administration tools This user is granted privileges equivalent to the root user on the target servers. The platform control tool runs under this user name. Because of the access afforded this user, make sure this password is a long value, is different from other passwords, and is kept secure.
IOP.USER.USER.PWD	ibmuser	System general user

Important: The following passwords should not be changed: ISIM.ADMIN.USER.PWD and ISIM.SYSTEM.USER.PWD.

Related concepts:

Chapter 3, “Securing the solution,” on page 89

Security is important within the IBM Intelligent Operations Center because the solution is central to essential operations. To ensure security, it is important that you are aware of the default settings and that you manage users of the solution to give all users the correct level of access.

Related tasks:

“Customizing the installation properties” on page 52

The installation properties file provides definitions required by the installation scripts. These properties can be modified when using the command line installation options.

Related reference:

“Sample users” on page 91

During the deployment of IBM Intelligent Operations Center, sample users are created.

Password information for a high availability environment

Passwords for various user IDs used in the IBM Intelligent Operations Center solution are defined in the topology properties file. For security reasons the default passwords shipped with IBM Intelligent Operations Center should be changed.

Passwords can only contain the following characters:

- Lowercase letters (a-z)
- Uppercase letters (A-Z)
- Numbers (0-9)
- Dash (-)
- Period (.)
- Underscore (_)
- Tilde (~)

Dash and period cannot be used as the first character in a password.

Unless otherwise noted, passwords must be 30 characters or less.

Table 17. Password properties

Property	Associated user name	Description
WEB.1.ACCOUNT.PWD	root	Root password for the web server 1
WEB.2.ACCOUNT.PWD	root	Root password for the web server 2
DB.1.ACCOUNT.PWD	root	Root password for the data server 1
DB.2.ACCOUNT.PWD	root	Root password for the data server 2
APP.1.ACCOUNT.PWD	root	Root password for the application server 1
APP.2.ACCOUNT.PWD	root	Root password for the application server 2
ANA.1.ACCOUNT.PWD	root	Root password for the analytics server 1
ANA.2.ACCOUNT.PWD	root	Root password for the analytics server 2
MDL.1.ACCOUNT.PWD	root	Root password for the semantic model server
LDAP.DB.PWD	dsrdbm01	LDAP directory database
LDAP.ADMIN.DN.PWD	cn=root	LDAP administrator bind
LDAP.BIND.DN.PWD	cn=bind	LDAP bind
LDAP.PROXY.INSTANCE.PWD	tdsproxy	LDAP proxy instance
LDAP.PROXY.ADMIN.DN.PWD	cn=root	LDAP proxy administrator bind
LDAP.PROXY.BIND.DN.PWD	cn=bind	LDAP proxy bind
LDAP.REPLICA.BIND.DN.PWD	cn=master	LDAP replica bind
ISIM.KEYSTORE.PWD	none	Keystore password
ISIM.POSIX.LINUX.PWD	posixagent	POSIX Linux user
WBM.DB.USER.PWD	db2ibm	Business activity monitoring service database
IHS.KEYSTORE.PWD	none	HTTP server keystore
WORKLIGHT.DB.USER.PWD	db2wrklt	IBM Worklight database user ID

Table 17. Password properties (continued)

Property	Associated user name	Description
WORKLIGHT.APPCNTR.USER.PWD	appcenteradmin	IBM Worklight appcenter user ID
WAS.ADMIN.ACCOUNT.PWD	waswebadmin	Application services administrator
WAS.LTPA.PWD	none	LTPA token
PORTAL.ADMIN.ACCOUNT.PWD	waswebadmin	Administrator for the WebSphere Application Server console for the WebSphere Portal server
PORTAL.ADMIN.UID.PWD	wpsadmin	Administrator for the WebSphere Portal server
PORTAL.DB.USER.PWD	db2port1	WebSphere Portal database
DOMINO.USER.PWD	notes	Collaboration user
DOMINO.ORG.PWD	IBM	Collaboration organization
DOMINO.ADMIN.PWD	notes admin	Collaboration administrator
DOMINO.ST.ADMIN.PWD	wpsadmin	Collaboration portal administrator
DOMINO.ST.BIND.PWD	wpsbind	Collaboration LDAP bind
DEFAULT.PWD.DAS	dausr1	Database services administrative server
DEFAULT.PWD.DB2	db2inst1, db2inst2	Database services data server
DEFAULT.PWD.IHS	ihsadmin	HTTP server
DEFAULT.PWD.MQM	mqm	Messaging services user
MQM.CONN.USER.PWD	mqmconn	Messaging services connection
IOP.ADMIN.USER.PWD	ibmadmin	System administration tools This user is granted privileges equivalent to the root user on the target servers. The platform control tool runs under this user name. Because of the access afforded this user, make sure this password is a long value, is different from other passwords, and is kept secure.
IOP.USER.USER.PWD	ibmuser	System general user

Important: The following passwords should not be changed: ISIM.ADMIN.USER.PWD and ISIM.SYSTEM.USER.PWD.

Preinstall server validation

IBM Intelligent Operations Center validates the server environment before installing to make sure that the servers meet hardware and software requirements.

Table 18 summarizes the server validation done prior to installing IBM Intelligent Operations Center. No validation is done for the optional semantic model server.

Table 18. IBM Intelligent Operations Center server validation

Resource	Application server	Analytics server	Data server	Web server
Linux distribution	Red Hat Enterprise Server	Red Hat Enterprise Server	Red Hat Enterprise Server	Red Hat Enterprise Server

Table 18. IBM Intelligent Operations Center server validation (continued)

Resource	Application server	Analytics server	Data server	Web server
Linux release	Version 6, release 6.3 or higher	Version 6, release 6.3 or higher	Version 6, release 6.3 or higher	Version 6, release 6.3 or higher
CPUs	4	4	4	2
Free space in /datahome	not applicable	not applicable	22 GB	not applicable
Free space in /opt	32 GB	7 GB	7 GB	7 GB
Free space in /tmp	12 GB	12 GB	12 GB	12 GB
SELinux	disabled	disabled	disabled	disabled
Firewall	disabled	disabled	disabled	disabled
DNS (if configured)	The following commands are used to validate that the DNS is properly configured: nslookup -ip nslookup -name	The following commands are used to validate that the DNS is properly configured: nslookup -ip nslookup -name	The following commands are used to validate that the DNS is properly configured: nslookup -ip nslookup -name	The following commands are used to validate that the DNS is properly configured: nslookup -ip nslookup -name
IPv6 Required even if IPv6 is not used in the environment.	Verifies that the IPv6 module is loaded.	Verifies that the IPv6 module is loaded.	Verifies that the IPv6 module is loaded.	Verifies that the IPv6 module is loaded.
SSH configuration	<ul style="list-style-type: none"> Allow remote ssh log in. Allow the root user to login using ssh. Allow password authentication. 	<ul style="list-style-type: none"> Allow remote ssh log in. Allow the root user to login using ssh. Allow password authentication. 	<ul style="list-style-type: none"> Allow remote ssh log in. Allow the root user to login using ssh. Allow password authentication. 	<ul style="list-style-type: none"> Allow remote ssh log in. Allow the root user to login using ssh. Allow password authentication.
Available ports for the high availability topology	9060 9080	9060 9080	55002 55003 55004 55005 55006 55007 55008 55009 55010 55011 55012 55013 55014 55015 55016	not applicable
Available ports for the standard topology	9060 9080	9060 9080	50000 50001 50002	not applicable
File handle limit	20480	20480	20480	20480
nprof limit (ulimit)	16384	16384	16384	16384
Memory	16 GB	16 GB	16 GB	2 GB

Table 18. IBM Intelligent Operations Center server validation (continued)

Resource	Application server	Analytics server	Data server	Web server
Hostname	<ul style="list-style-type: none"> Defined hostname is valid. Defined short hostname is valid. Defined short host name is the same as the value returned by the hostname command Defined hostname meets internet standards RFC-1123 and RFC-952 	<ul style="list-style-type: none"> Defined hostname is valid. Defined short hostname is valid. Defined short host name is the same as the value returned by the hostname command Defined hostname meets internet standards RFC-1123 and RFC-952 	<ul style="list-style-type: none"> Defined hostname is valid. Defined short hostname is valid. Defined short host name is the same as the value returned by the hostname command Defined hostname meets internet standards RFC-1123 and RFC-952 	<ul style="list-style-type: none"> Defined hostname is valid. Defined short hostname is valid. Defined short host name is the same as the value returned by the hostname command Defined hostname meets internet standards RFC-1123 and RFC-952
Connectivity	Ping command sent to other nodes returns successfully.	Ping command sent to other nodes returns successfully.	Ping command sent to other nodes returns successfully.	Ping command sent to other nodes returns successfully.
UMASK	022	022	022	022

The following additional tests are run.

- Each server is checked to ensure the required Linux packages are installed.
- Network speed is checked by uploading the file identified in the `precheck.network.reffile` property in the `resources/custom.properties` file. If the upload speed is greater than the value specified in the `precheck.network.KBSec` property in the `resources/custom.properties` file, the test will fail. The reason for the network speed test is that slow networks can result in installation failures due to timeouts.

Running the standard environment command line installer

IBM Intelligent Operations Center is installed using a script that prepares and checks the servers, installs IBM Intelligent Operations Center and associated tools in a standard environment.

Procedure

- Log on to the installation server as the root user.
For a standard environment, the installation server is the analytics server.
- Change to the `/install_home/ioc16/bin` directory.
- Run the `./ioc-env.sh` command.
- Run the `./iop.std.install.sh -p topology_password` command. The `topology_password` is used to provide security to the topology defined for IBM Intelligent Operations Center. The password is required to make changes to the IBM Intelligent Operations Center installation and is the initial password for the IBM Intelligent Operations Center tools.

Passwords can only contain the following characters:

- Lowercase letters (a-z)
- Uppercase letters (A-Z)
- Numbers (0-9)
- Dash (-)
- Period (.)
- Underscore (_)
- Tilde (~)

Dash and period cannot be used as the first character in a password.

If a *topology_password* is not specified during the step to create the topology keystore, the *topology_password* will be set to *ibmioc16*. A menu of install steps is displayed.

5. A license agreement is presented. Accepting the license is required before the installation can proceed.
6. Select an option from the menu.

Table 19. Installation options

Selection	Installation Phase	Step Description	Average run time
1	Precheck	Validate installation media checksums	15 minutes
2	Prepare	Copy templates to the topology directory	2 minutes
3	Prepare	Create topology keystore	1 minute
4	Prepare	Parameterize all topologies	2 minutes2 minutes
5	Prepare	(Optional) Encrypt all topologies	1 minute
6	Prepare	Run "Setup/Target" topology	5 minutes
7	Prepare	Run environmental prerequisite checks	15 minutes
8	Install	(Optional) Upload media to target servers If the media is not uploaded using this step it will be uploaded in the next step. By uploading the media as a separate step, a checkpoint can be taken after uploading the media.	1 hour
9	Install	Run 'standard' base product installation topology	2 hours 30 minutes
10	Install	Run 'standard' product configuration topology	5 hours
11	Install	Install Identity Manager component	1 hour 15 minutes
12	Install	(Optional) Install Data Studio tool	15 minutes
13	Install	Install platform control tool	15 minutes
14	Install	Install system verification check tool tool	1 hour 15 minutes
15	Install	Install IBM Intelligent Operations Center application	2 hours

7. Continue from step 4 on page 62 selecting installation steps in order. Do not select the next step until the previous installation step has completed. Do not restart any servers until all steps have completed successfully. The installation step can also be specified on the command. For example:

```
./iop.std.install.sh -p topology_password 1.
```

Note: If installing on virtual machines, take a snapshot of all virtual machines before installing the IBM Intelligent Operations Center application. This will allow you to restore the snapshots if the application installation fails. Without the snapshots the entire installation must be restarted. Do the following to take the snapshot:

- a. Log on to the analytics server as the root user and enter the following commands in a terminal window:

```
su - ibmadmin
cd /opt/IBM/ISP/mgmt/scripts
./IOCControl -a stop -c all -p topology_password
```

- b. Take a snapshot of all virtual machines.
- c. Run the following command to restart the base architecture processes:

```
./IOCControl -a start -c all -p topology_password
```

Results

Installation progress is displayed and written to logs located in the `/install_home/ioc16/log` directory on the installation server.

Running the high availability environment command line installer

IBM Intelligent Operations Center is installed using a script that prepares and checks the servers, installs IBM Intelligent Operations Center and associated tools in a high availability environment.

Procedure

1. Log on to the installation server as the root user.
For a high availability environment, the installation server is analytics server 1.
2. Change to the `/install_home/ioc16/bin` directory.
3. Run the `./ioc-env.sh` command.
4. Run the `./iop.ha.install.sh -p topology_password` command. The `topology_password` is used to provide security to the topology defined for IBM Intelligent Operations Center. The password is required to make changes to the IBM Intelligent Operations Center installation and is the initial password for the IBM Intelligent Operations Center tools.

Passwords can only contain the following characters:

- Lowercase letters (a-z)
- Uppercase letters (A-Z)
- Numbers (0-9)
- Dash (-)
- Period (.)
- Underscore (_)
- Tilde (~)

Dash and period cannot be used as the first character in a password.

If a `topology_password` is not specified during the step to create the topology keystore, the `topology_password` will be set to `ibmioc16`. A menu of install steps is displayed.

5. A license agreement is presented. Accepting the license is required before the installation can proceed.
6. Select an option from the menu.

Table 20. Installation options

Selection	Installation Phase	Step Description	Average run time
1	Precheck	Validate installation media checksums	15 minutes
2	Prepare	Copy templates to the topology directory	2 minutes
3	Prepare	Create topology keystore	1 minute
4	Prepare	Parameterize all topologies	2 minutes
5	Prepare	(Optional) Encrypt all topologies	1 minutes
6	Prepare	Run "Setup/Target" topology	5 minutes
7	Prepare	Run environmental prerequisite checks	15 minutes
8	Install	(Optional) Upload media to target servers If the media is not uploaded using this step it will be uploaded in the next step. By uploading the media as a separate step, a checkpoint can be taken after uploading the media.	1 hour
9	Install	Run HA base product installation topology	3 hours 45 minutes

Table 20. Installation options (continued)

Selection	Installation Phase	Step Description	Average run time
10	Install	Run HA configure product topology	8 hours 15 minutes
11	Install	Install Identity Management component	1 hour 15 minutes
12	Install	Prepare and configure DB2 HADR Cluster Management	15 minutes
13	Install	(Optional) Install Data Studio tool	15 minutes
14	Install	Install platform control tool	15 minutes
15	Install	Install system verification check tool tool	1 hour 30 minutes
16	Install	Install IBM Intelligent Operations Center application	4 hours

7. Continue from step 4 on page 64 selecting installation steps in order. Do not select the next step until the previous installation step has completed. Do not restart any servers until all steps have completed successfully. The installation step can also be specified on the command. For example:
`./iop.ha.install.sh -p topology_password 1.`

Note: If installing on virtual machines, take a snapshot of all virtual machines before installing the IBM Intelligent Operations Center application. This will allow you to restore the snapshots if the application installation fails. Without the snapshots the entire installation must be restarted. Do the following to take the snapshot:

- a. Log on to the analytics server as the root user and enter the following commands in a terminal window:

```
su - ibmadmin
cd /opt/IBM/ISP/mgmt/scripts
./IOControl -a 091 -p topology_password
```

- b. Take a snapshot of all virtual machines.
- c. Run the following command to restart the base architecture processes:

```
./IOControl -a 001 -p topology_password
```

Results

Installation progress is displayed and written to logs located in the `/install_home/ioc16/log` directory on the installation server.

Running the standard environment GUI installer

IBM Intelligent Operations Center can be installed using a graphical installer. This installer limits the options provided during the installation process. If your environment requires configuration options not provided by the GUI installer, use the command line installer to install IBM Intelligent Operations Center and associated tools in a standard environment.

Procedure

1. On a graphical console, log on to the installation server.
2. Open a command line console.
3. Change to the the directory containing the `IntelligentOperationsCenter-install.bin` file. By default this is the `/installHome` directory.
4. Run the `./IntelligentOperationsCenter-install.bin` command as the root user. The GUI installer will be displayed.
5. Select your preferred language and click **OK**.
6. Review the welcome panel and click **Next**.

7. Read and accept the license agreement to continue the installation. If you do not accept the license agreement, the installation will be terminated.
8. Select the location where the installation media is stored. By default this is the `/distributionMedia` directory. Click **Next**.
9. If the installer detects a previously attempted installation of IBM Intelligent Operations Center, select whether to continue with the previous installation attempt or start a new installation. When a new installation is started, the previously attempted installation will be archived.
10. Select the installation directory. The default direction is `/opt/ibm/IOC16install`. Click **Next**. This folder will contain the installation scripts, tools, and other resources.
11. Select the type of topology to be installed. Click **Next**.
12. Specify the domain name. Click **Next**. The domain name is the DNS domain name of your company or organization. Typically it is the parent portion of the fully-qualified hostnames of the organization servers. For example, if the fully qualified hostname of a server is `server.us.co.com` the domain name would be `us.co.com`.
13. Specify the topology password. Click **Next**. Make note of this password. The topology password is used during the operation of IBM Intelligent Operations Center. For example, the topology password is used when running the platform control tool.
14. Specify the admin password. Click **Next**. Make note of this password. This password is required to administer products provided by IBM Intelligent Operations Center using those product's administration consoles or tools. For example, this password is required to log on to the WebSphere Application Server Integrated Solutions Console to administer WebSphere Application Server and to log on to WebSphere Portal as the portal administrator.
15. Specify the LDAP SALT and SEED keys. Click **Next**.
16. On the subsequent panels enter the fully-qualified hostname, root user name, root password, and ssh port for each of the servers. Click **Next** after entering the information for each server. The default ssh port is 22.
17. After all installation parameter values are entered, select to proceed or cancel the installation. Installation proceeds without further input. Installation progress is displayed in a terminal session and written to the `/opt/ibm/IOCinstall/install.log` on the installation server. When complete, the installer will display a panel indicating successful completion.
18. Click **Done**.
19. Close the terminal window displaying the installation log.

Results

IBM Intelligent Operations Center is installed and ready for post-installation configuration.

Running the high availability environment GUI installer

IBM Intelligent Operations Center can be installed using a graphical installer. This installer limits the options provided during the installation process. If your environment requires configuration options not provided by the GUI installer, use the command line installer to install IBM Intelligent Operations Center and associated tools in a high availability environment.

Procedure

1. On a graphical console, log on to the installation server.
 2. Open a command line console.
 3. Change to the the directory containing the `IntelligentOperationsCenter-install.bin` file. By default this is the `/installHome` directory.
 4. Run the `./IntelligentOperationsCenter-install.bin` command as the root user. The GUI installer will be displayed.
 5. Select your preferred language and click **OK**.
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6. Review the welcome panel and click **Next**.
7. Read and accept the license agreement to continue the installation. If you do not accept the license agreement, the installation will be terminated.
8. Select the location where the installation media is stored. By default this is the `/distributionMedia` directory. Click **Next**.
9. If the installer detects a previously attempted installation of IBM Intelligent Operations Center, select whether to continue with the previous installation attempt or start a new installation. When a new installation is started, the previously attempted installation will be archived.
10. Select the installation directory. The default direction is `/opt/ibm/IOCl6install`. Click **Next**. This folder will contain the installation scripts, tools, and other resources.
11. Select the type of topology to be installed. Click **Next**.
12. Specify the domain name. Click **Next**. The domain name is the DNS domain name of your company or organization. Typically it is the parent portion of the fully-qualified hostnames of the organization servers. For example, if the fully qualified hostname of a server is `server.us.co.com` the domain name would be `us.co.com`.
13. Specify the topology password. Click **Next**. Make note of this password. The topology password is used during the operation of IBM Intelligent Operations Center. For example, the topology password is used when running the platform control tool.
14. Specify the admin password. Click **Next**. Make note of this password. This password is required to administer products provided by IBM Intelligent Operations Center using those product's administration consoles or tools. For example, this password is required to log on to the WebSphere Application Server Integrated Solutions Console to administer WebSphere Application Server and to log on to WebSphere Portal as the portal administrator.
15. Specify the LDAP SALT and SEED keys. Click **Next**.
16. On the subsequent panels enter the fully-qualified hostname, root user name, root password, and ssh port for each of the servers. Click **Next** after entering the information for each server. The default ssh port is 22.
17. After all installation parameter values are entered, select to proceed or cancel the installation. Installation proceeds without further input. Installation progress is displayed in a terminal session and written to the `/opt/ibm/IOCl6install/install.log` on the installation server. When complete, the installer will display a panel indicating successful completion.
18. Click **Done**.
19. Close the terminal window displaying the installation log.

Results

IBM Intelligent Operations Center is installed and ready for post-installation configuration.

Verifying the installation prior to post-installation configuration

After running the installer, verify that IBM Intelligent Operations Center has been correctly installed before starting the post-installation configuration steps.

Procedure

1. Use the platform control tool to stop all components.
2. Check that all components have stopped successfully by reviewing the displayed messages.
3. Shut down the Linux operating system on all servers.
4. Power-down and power-up all runtime servers or reboot all servers.
5. Use the platform control tool to start all components.
6. Use the platform control tool to query the status of all components.
7. Check that you can access the IBM Intelligent Operations Center.

- a. In a browser go to `https://web_hostname/wps/portal` where `web_hostname` is the hostname of the web server.
- b. Log on as a IBM Intelligent Operations Center administrator, for example, `wpsadmin`. The `wpsadmin` password is defined in the topology property file `PORTAL.ADMIN.UID.PWD` property.

The Supervisor: Operations page will be displayed.

8. Run all the tests in the system verification check tool.
9. Check that all tests have run successfully.

What to do next

If any errors are noted, resolve the errors and rerun these steps.

Related tasks:

“How to use the system verification check tool” on page 209

The system verification check tool is used to determine the operational status of services comprising the IBM Intelligent Operations Center system.

“Querying the status of the components in a standard environment” on page 197

The platform control tool can be used to determine the status of the components running on IBM Intelligent Operations Center standard environment servers.

“Querying the status of the components in a high availability environment” on page 207

The platform control tool can be used to determine the status of the components running on IBM Intelligent Operations Center high availability environment servers.

“Starting the components in a standard environment” on page 191

The platform control tool can be used to start the components running on IBM Intelligent Operations Center standard environment servers.

“Starting the components in a high availability environment” on page 199

The platform control tool can be used to start the components running on IBM Intelligent Operations Center high availability environment servers.

“Stopping the components in a standard environment” on page 194

The platform control tool can be used to stop components running on IBM Intelligent Operations Center standard environment servers.

“Stopping the components in a high availability environment” on page 203

The platform control tool can be used to stop components running on IBM Intelligent Operations Center high availability servers.

Post-installation IBM Intelligent Operations Center configuration

After installing IBM Intelligent Operations Center, several post-installation configuration steps need to be done to complete the installation.

Configuring collaboration services for IPv6

If your installation uses IPv6 networking, configuration steps are required for collaboration services.

About this task




The IBM Intelligent Operations Center architecture needs to be installed before configuring IPv6 networking for collaboration services.

Procedure

1. Follow the steps in the Lotus Domino documentation to configure Lotus Domino for IPv6 addressing.
2. Follow the steps in the Lotus Sametime Standard documentation to configure Lotus Sametime Standard for IPv6 addressing.

3. Follow the steps in the WebSphere Portal documentation to configure trust for the Sametime Contact List portlet if you are not using an IPv4 network with an IPv4 address assigned to the application server.

Related information:

-  [Configuring Lotus Domino for IPv6 addressing](#)
-  [Configuring the Sametime Community Server to support IPv6](#)
-  [Configuring trust for the Sametime Contact List portlet](#)

Configuring single sign-on for collaboration services

Import the WebSphere Portal SSO LTPA token into the application server to allow users to access collaboration services without having to reenter their credentials.

Before you begin

To complete this task a Lotus Notes 8.5.x client is required. An existing Notes Client can be used or one can be installed on a Windows client using the `notes_designer_admin853_w32en.exe` file in the `/distributionMedia` folder on the installation server. The workstation must be able to connect to the application server over TCP/IP using the fully-qualified host name.

About this task

The IBM Intelligent Operations Center architecture needs to be installed before importing the Lightweight Third-Party Authentication (LTPA) token.

This token was created during the installation of the IBM Intelligent Operations Center architecture.

Procedure

1. Install a Lotus Notes 8.5.x client on a workstation. An existing installation can be used. The workstation must be able to connect to the application server over TCP/IP using the fully-qualified host name.
2. Copy the `/opt/IBM/ISP/stproxy.ltpa` file from the application server to the workstation running Lotus Notes. This is the LTPA token that will be imported into the collaboration service directory.
3. Copy the `/local/notesdata/admin.id` file from the application server to the workstation running Lotus Notes. This is the ID file for the collaboration service administrator. You will use this ID to login to the collaboration services directory.
4. On the workstation, start the Lotus Notes client and log on with the `admin.id` file.
 - a. On the Lotus Notes log on panel, click **User Name**.
 - b. Navigate to the directory where you copied that `admin.id` file and select it.
 - c. Enter the password defined in the topology properties file for the `DOMINO.ADMIN.PWD` property.
 - d. Click **Yes** if a security warning is displayed.
5. Open the `names.nsf` file.
 - a. Click **File > Open > Lotus Notes Application**.
 - b. Enter the fully-qualified host name of the application server in **Look In**.
 - c. Enter `names.nsf` in **File Name**.
 - d. Click **Open**.
6. Navigate to **Web > Web Configurations**.
7. Select Web SSO Configuration for LTPA Token and click **Edit Document**.

8. Click **Keys > Import WebSphere LTPA Keys**. Click **OK** if a warning is received about overwriting existing keys.
9. Enter the path to where the `stproxy.ltpa` file was copied. Click **OK**.
10. Enter the password for the LTPA token. The password is defined in the topology properties file `WAS.LTPA.PWD` property.
11. In **Token Format** select `LtpaToken2`.
12. Click **OK > Save and Close**.
13. In a standard environment, restart the collaboration service using the platform control tool.
 - a. Log on to the management server and open a terminal window.
 - b. Run `su -ibmadmin`.
 - c. Run `/opt/IBM/ISP/mgmt/scripts/IOCControl -a stop -c st -p password` where *password* is the password for the platform control tool defined when the platform control tool was installed.
 - d. Run `/opt/IBM/ISP/mgmt/scripts/IOCControl -a start -c st -p password` where *password* is the password for the platform control tool defined when the platform control tool was installed.
14. In a high availability environment, restart the collaboration service using the platform control tool.
 - a. Log on to the management server and open a terminal window.
 - b. Run `su -ibmadmin`.
 - c. Run `/opt/IBM/ISP/mgmt/scripts/IOCControl -a 611 -p password` where *password* is the password for the platform control tool defined when the platform control tool was installed.
 - d. Run `/opt/IBM/ISP/mgmt/scripts/IOCControl -a 261 -p password` where *password* is the password for the platform control tool defined when the platform control tool was installed.

Setting the session timeout

The session timeout determines the time a user can remain idle before the session is terminated and the user must log in again. The session time out includes administrators logged in through the portal service.

About this task

When IBM Intelligent Operations Center is installed, no session time out is defined. Users will stay logged in until they log out even if the session is idle.

If your organization has security policies requiring that sessions log out after a period of inactivity, use the following steps to define a session timeout for your IBM Intelligent Operations Center system.

Procedure

Configure server timeouts.

1. Using a web browser go to `http://application_server:9061/ibm/console` where *application_server* is the host name of the application server in a standard environment and application server 1 in a high availability environment.
2. Log on as the admin user with the password defined for `PORTAL.ADMIN.ACCOUNT.PWD` in the topology properties file.
3. Click **Servers > Server Type > WebSphere Application Servers > WebSphere Portal**.
4. Click **Container Settings > Session management > Set Timeout**.
5. Enter the desired timeout value in minutes.
6. Click **OK**.
7. Click **Save**.
8. Click **Servers > Server Type > WebSphere Application Servers > STProxyServer1**.
9. Click **Container Settings > Session management > Set Timeout**.

10. Enter the desired timeout value in minutes.
11. Click **OK**.
12. Click **Save**.
13. Click **Servers > Server Type > WebSphere Application Servers > CongnosX_GW1**.
14. Click **Container Settings > Session management > Set Timeout**.
15. Enter the desired timeout value in minutes.
16. Click **OK**.
17. Click **Save**.
18. Click **Servers > Server Type > WebSphere Application Servers > CongnosX_Displ**.
19. Click **Container Settings > Session management > Set Timeout**.
20. Enter the desired timeout value in minutes.
21. Click **OK**.
22. Click **Save**.

If running in a high availability environment, configure the following additional servers.

23. Click **Servers > Server Type > WebSphere Application Servers > CongnosX_Displ**.
24. Click **Container Settings > Session management > Set Timeout**.
25. Enter the desired timeout value in minutes.
26. Click **OK**.
27. Click **Save**.
28. Click **Servers > Server Type > WebSphere Application Servers > CongnosX_GW2**.
29. Click **Container Settings > Session management > Set Timeout**.
30. Enter the desired timeout value in minutes.
31. Click **OK**.
32. Click **Save**.
33. Click **Servers > Server Type > WebSphere Application Servers > WebSphere_Portal_PortalNode2**.
34. Click **Container Settings > Session management > Set Timeout**.
35. Enter the desired timeout value in minutes.
36. Click **OK**.
37. Click **Save**.

Set the Cognos inactivity timeout.

38. Log on to the analytics server in the standard environment and both analytics server 1 and analytics server 2 in the high availability environment as the root user.
39. Run `/opt/IBM/cognos/c10_64/bin64/cogconfig.sh`
40. Click **Security > Authentication**.
41. Specify the desired timeout value in seconds for **Inactivity timeout in seconds**.
42. Click **File > Save**.
43. Repeat for the second analytics server in the high availability environment.
Restart the server.
44. Stop and restart the application and analytic components using the platform control tool.

Setting the LTPA timeout

The Lightweight Third-Party Authentication (LTPA) timeout determines the time a user can remain logged on before the session is terminated and the user must log in again. The LTPA time out includes administrators logged in through the portal service.

About this task

When IBM Intelligent Operations Center is installed, an LTPA timeout of 150 minutes is configured. Users will stay logged in until they log out after 150 minutes have elapsed.

If your organization has security policies requiring that sessions log out after a different period of time, use the following steps to define the LTPA timeout for your IBM Intelligent Operations Center system.

Procedure

1. Using a web browser go to `http://application_server:9061/ibm/console` where *application_server* is the host name of the application server in a standard environment and application server 1 in a high availability environment.
2. Log on as the admin user with the password defined for `PORTAL.ADMIN.ACCOUNT.PWD` in the topology properties file.
3. Click **Security > Global security > LTPA**.
4. Enter the desired **LPTA timeout** value in minutes.
5. Click **Apply**.
6. Click **Save**.
7. Stop and restart all IBM Intelligent Operations Center components using the platform control tool. If IBM Intelligent Operations Center is still being installed, the servers will be restarted during installation full verification.

Configuring the IBM HTTP Server system administrator email address

Configure the system administrator email address that is included in system generated messages.

About this task

On the web server in a standard environment or web server 1 and web server 2 in a high availability environment, change the IBM HTTP Server configuration to reference the system administrator email address to be contacted for server issues.

Procedure

1. Edit the `/opt/IBM/HTTPServer/conf/httpd.conf` file.
2. Change the `ServerAdmin` value to the email address of the system administrator to be contacted for server issues.
3. Save the file.
4. Using the platform control tool restart the IBM HTTP Server.

Removing HTTPOnly setting for IBM Business Monitor

`HTTPOnly` must be disabled for IBM Business Monitor to function property.

Procedure

1. Using a web browser go to `http://application_server:9061/admin` where *application_server* is the host name of the application server in a standard environment and application server 1 in a high availability environment.
2. Log on as the admin user with the password defined for `WAS.ADMIN.ACCOUNT.PWD` in the topology properties file.
3. Click **Servers > Server Types > Websphere application servers**.
4. Click `WBM_DE.AppTarget.WBMNode1.0`.
5. In "Container Settings" click **Session Management**.
6. In "General Properties" click **Enable cookies**.

7. Clear the **Set session cookies to HTTPOnly to help prevent cross-site scripting attacks** checkbox.
8. Click **OK** and **Save**. The changes will be saved to the master configuration.
9. If running a high availability environment, repeat steps 3 on page 72 through 8 and make the same changes for `WBM_DE.AppTarget.WBMNode2.0`.
10. Click **Servers > Clusters > Websphere application server clusters**.
11. Select `WBM_DE.AppTarget` and click **Stop**. The IBM Business Monitor cluster will be stopped.
12. Click **System administration > Nodes**.
13. Select **WBM Nodes** and click **Full resynchronize**. The changes will be synchronized to all IBM Business Monitor nodes.
14. Click **Servers > Clusters > Websphere application server clusters**.
15. Select `WBM_DE.AppTarget` and click **Start**. The IBM Business Monitor cluster will be started.

Configuring a secondary collaboration services LDAP server in a high availability environment

A secondary LDAP server is required for collaboration services when running a high availability environment.

Procedure

1. Install a Lotus Notes 8.5.x client on a workstation. An existing installation can be used. The workstation must be able to connect to the application server 1 over TCP/IP using the fully-qualified host name.
2. Copy the `/local/notesdata/admin.id` file from application server 1 to the workstation running Lotus Notes. This is the ID file for the collaboration service administrator. You will use this ID to login to the collaboration services directory.
3. On the workstation, start the Lotus Notes client and log on with the `admin.id` file.
 - a. On the Lotus Notes log on panel, click **User Name**.
 - b. Navigate to the directory where you copied the `admin.id` file and select it.
 - c. Enter the password defined in the topology properties file for the `DOMINO.ADMIN.PWD` property.
 - d. Click **Yes** if a security warning is displayed.
4. Open the `names.nsf` file.
 - a. Click **File > Open > Lotus Notes Application**.
 - b. Enter the fully-qualified host name of the application server 1 in **Look In**.
 - c. Enter `names.nsf` in **File Name**.
 - d. Click **Open**.
5. Open the `da.nsf` file.
 - a. Click **File > Open > Lotus Notes Application**.
 - b. Enter the fully-qualified host name of application server 1 in **Look In**.
 - c. Enter `da.nsf` in **File Name**.
 - d. Click **Open**.
6. Duplicate the existing directory assistance entry.
7. Update the duplicate directory assistance entry.
 - a. On the **Basics** tab set **Group Authorization** to **No**.
 - b. For **Search Order** specify **2**.
 - c. On the **LDAP** tab change the **LDAP host** from your primary LDAP hostname to your secondary LDAP hostname.
8. Open the `stconfig.nsf` file.
 - a. Click **File > Open > Lotus Notes Application**.

- b. Enter the fully-qualified host name of application server 1 in **Look In**.
 - c. Enter `stconfig.nsf` in **File Name**.
 - d. Click **Open**.
9. Click **By Form**.
 10. Duplicate the LDAPServer form.
 11. Update the duplicated form.
 - a. For **LDAP Connection** specify the fully-qualified hostname of your secondary LDAP.
 - b. For **Search Order** specify 2.
 12. Restart collaboration services.
 - a. Log on to analytics server 1 or analytics server 2 as the `ibmadmin` user. If logged on as a different user, change to the `ibmadmin` user by running the `su - ibmadmin` command.
 - a. Run the following commands:


```
IOControl -a 611 -p password
IOControl -a 261 -p password
```

where *password* is the topology password defined when the IBM Intelligent Operations Center was installed.

Configuring additional cluster manager relationships in a high availability environment

After installing IBM Intelligent Operations Center in a high availability environment, cluster manager relationships need to be configured.

About this task

If this configuration is not done, an uncontrolled failure of the primary data server, or its network interface, will not switch the databases to the standby data server. When the failover fails, IBM Intelligent Operations Center will become inoperable.

Procedure

1. Log on to analytics server 1.
2. Open a terminal window.
3. If not logged on as the `root` user, run the `su - root` command to change to the root user.
4. Run `cd install_home/ioc16/bin` where *install_home* is the directory where the installation files were copied when installing IBM Intelligent Operations Center.
5. Run `./ioc-env.sh`
6. Run `./ba.sh installTopology -t iop.ha.tsapatch -p topology_password` where *topology_password* is the topology password defined when IBM Intelligent Operations Center was installed.

Configuring the optional external network file system in a high availability environment

The optional external network file system is configured using a script.

About this task

The external network file system is used to provide a more robust failover solution for messaging services.

Procedure

1. Log on to the installation server as the root user.
2. Change to the `/install_home/ioc16/bin` directory.
3. Run the `./ioc-env.sh` command.
4. Run the `./iop.ha.wmqextnfs.sh -p topology_password` command. The `topology_password` is the one specified when IBM Intelligent Operations Center was installed or was subsequently modified. If not specified, `topology_password` will default to `ibmioc16`. A menu of install steps is displayed.
5. Select an option from the menu.

Table 21. External network file system configuration options

Selection	Phase	Step Description	Average run time
1	Prepare	Copy template to topology directory	1 minute
2	Prepare	Parameterize topology	1 minute
3	Prepare	Encrypt topology	1 minute
4	Install	Setup the external network file system	7 minutes

6. Continue from step 4 selecting installation steps in order. Do not select the next step until the previous installation step has completed. The installation step can also be specified on the command. For example: `./iop.ha.wmqextnfs.sh -p topology_password 1`.

Results

Installation progress is displayed and written to logs located in the `/install_home/ioc16/log` directory on the installation server.

Configure the Cognos model in a high availability environment

IBM Intelligent Operations Center can publish a Cognos model when a data source is created or updated. In a high availability environment, you must configure Cognos to enable IBM Intelligent Operations Center to publish the Cognos model.

About this task

In a high availability environment, when IBM Intelligent Operations Center tries to publish a Cognos model, an error occurs if two dispatchers are running. The following error message is displayed in the log files:

```
BME-AS-0022 Model not open is obtained.
```

The following notification is sent to the solution administrator:

```
The Cognos models were not updated.
```

Use the following procedure to either stop one of the dispatchers, or to stop the `metadataService` for one of the dispatchers.

Procedure

1. Start IBM Cognos Administration.
2. Click the **Configuration** tab.
3. In the menu, click **Dispatchers and Services**. In a high availability environment, two dispatchers are listed.
4. Choose one of the following options:
 - To stop one of the dispatchers, click **More** next to the dispatcher and then click **Stop Immediately**.

- To stop the metadataService for one of the dispatchers, select the dispatcher. Next to the MetadataService, click **More** and then click **Stop Immediately**.

Results

With only one dispatcher service or MetadataService running, IBM Intelligent Operations Center can publish the Cognos model when a data source is created or updated. When the Cognos model is successfully published, a notification is sent to the administrator.

Defining the optimized interactive processes communication method

1.6.0.2

The Optimized Interactive Processes (OIP) Extreme Messaging (XM) component packaged with IBM Intelligent Operations Center must be configured to define the communication methods if email or SMS notifications are to be used. If email is to be used, the server SMTP services are used to deliver outgoing email. For SMS notifications an SMS gateway provided by a third party is required. If neither notification method is required, these steps are optional.

Procedure

1. Click **Administration > Solution Administration > Administration Consoles > OIP Administration**.
2. Copy the URL from the window that is displayed to a private window in the browser.

Note: To display a private window:

- in Firefox, click **New Private window**.
 - in Internet Explorer, click **Safety > InPrivate Browsing**.
3. Log on as the WebSphere Application Server *admin* user.

Note: Complete initialization steps 4 - 7 the first time that you run OIP.

4. Click **Configuration** and click **Stop** to stop the XM component.
5. Wait until **XM Server State** has a value of **Stopped**.
6. Click **init** and wait until **Save Changes** is displayed.
7. Click **Start** and wait until **XM Server State** has a value of **Started**.
8. Click **Accounts**.
9. Click the plus sign (+).
10. In **Add Account** enter `iocAccount` for **Name**.
11. Click **OK**.
12. Under **Accounts** click `iocAccount`.
13. Select **None** for **Report policy**.

Email configuration

14. In **Outgoing Channels** click the plus sign (+).
15. For **Communication Method** select **email**.
16. Click **Next**.
17. Provide the following information:

Title IOC Account Outgoing Email

Address

`iocAccount@EventServer_FQDN`

Session Name

IOC Account Outgoing Email

JNDI name

mail/iocAccount_out

Host Name

The fully qualified domain name of your SMTP server

Protocol

smtp

Port Your SMTP server port (default is 25)

User name

Your SMTP server user name used for sending email

Password

The password for **User name**

18. Click **Finish**.

SMS configuration

19. In **Outgoing Channels** click the plus sign (+).

20. For **Communication Method** select sms.

21. Select **mobileGateway**.

22. Click **Next**.

23. Provide the following information:

Title IOC Notification Outgoing SMS

SMS Mobile gateway hostname / IP

Enter the value appropriate for your SMS gateway configuration.

Mobile gateway port

Enter the value appropriate for your SMS gateway configuration.

24. If the gateway is secured, select **Secured** and provide the following information:

Username

Enter the value appropriate for your SMS gateway configuration.

Password

Enter the value appropriate for your SMS gateway configuration.

25. Click **Finish**.

Related tasks:

“Configuring notification settings” on page 388

You can configure the solution to notify you if a specific event occurs. There are three types of notifications: system, SMS, and email. You can view and edit your notification settings in your IBM Intelligent Operations Center user profile.

Configuring the optimized interactive process maintenance tasks

1.6.0.2

The optimized interactive processes extreme messaging component packaged with IBM Intelligent Operations Center must be configured to define how messages about maintenance tasks are to be sent and received.

Procedure

1. Go to http://AppServer_FQDN:10039/xm-admin/ and log on as the *WASAdmin* user.
2. Click **Configuration**.
3. Click **Maintenance Tasks**.
4. Adjust the settings according to your preferences.

Note: To receive alerts by SMTP or SMS, you must clear each of the **Use maintenance time window** check boxes.

Installing and configuring semantic model services

IBM Intelligent Operations Center provides a semantic model services application and sample model. This service needs to be installed and configured prior to use.

Installing the optional semantic model server in a standard environment

The optional IBM Intelligent Operations Center semantic model server is installed in a standard environment using a script.

Procedure

1. Log on to the data server as the root user.
2. Run the `su - db2inst1 -c "db2 update dbm cfg using NUMDB 24"` command.
3. Log on to the installation server as the root user.
4. Change to the `/install_home/ioc16/bin` directory.
5. Run the `./ioc-env.sh` command.
6. Run the `./iop.mdl.std.install.sh -p topology_password` command. The `topology_password` is the one specified when IBM Intelligent Operations Center was installed or was subsequently modified. If not specified, `topology_password` will default to `ibmioc16`. A menu of install steps is displayed.
7. Select an option from the menu.

Table 22. Semantic model server installation options

Selection	Installation Phase	Step Description	Average run time
1	Precheck	Validate installation media checksums	8 minutes
2	Prepare	Copy templates to the topology directory	1 minute
3	Prepare	Parameterize all topologies	1 minute
4	Prepare	Encrypt all topologies	1 minute
5	Install	Install semantic model server application	2 hours 10 minutes

8. Continue from step 6 selecting installation steps in order. Do not select the next step until the previous installation step has completed. The installation step can also be specified on the command. For example: `./iop.mdl.std.install.sh -p topology_password 1`.

Results

Installation progress is displayed and written to logs located in the `/install_home/ioc16/log` directory on the installation server.

Installing the optional semantic model server in a high availability environment

The optional IBM Intelligent Operations Center semantic model server is installed in a high availability environment using a script.

Procedure

1. Log on to data server 1 as the root user.
2. Run the `su - db2inst1 -c "db2 update dbm cfg using NUMDB 24"` command.
3. Log on to the installation server as the root user.
4. Change to the `/install_home/ioc16/bin` directory.
5. Run the `./ioc-env.sh` command.

6. Run the `./iop.mdl.ha.install.sh -p topology_password` command. The `topology_password` is the one specified when IBM Intelligent Operations Center was installed or was subsequently modified. If not specified, `topology_password` will default to `ibmioc16`. A menu of install steps is displayed.
7. Select an option from the menu.

Table 23. Semantic model server installation options

Selection	Installation Phase	Step Description	Average run time
1	Precheck	Validate installation media checksums	8 minutes
2	Prepare	Copy templates to the topology directory	1 minute
3	Prepare	Parameterize all topologies	1 minute
4	Prepare	Encrypt all topologies	1 minute
5	Install	Install semantic model server application	2 hours 10 minutes

8. Continue from step 6 selecting installation steps in order. Do not select the next step until the previous installation step has completed. The installation step can also be specified on the command. For example: `./iop.mdl.ha.install.sh -p topology_password 1`.

Results

Installation progress is displayed and written to logs located in the `/install_home/ioc16/log` directory on the installation server.

Configuring the Jazz team server

The IBM Intelligent Operations Center semantic model services is installed on a Jazz™ team server. The Jazz team server needs to be configured before the IBM Intelligent Operations Center semantic model services are installed.

About this task

The IBM Intelligent Operations Center architecture needs to be installed before configuring the Jazz team server.

Procedure

1. In a web browser go to `http://sms_host:82/jts/setup` where `sms_host` is the fully qualified host name of the semantic model server.
2. Log on with the user ID `iicsystemuser` and password `passw0rd`.
3. Click **Next**.
4. On the Configure Public URI page, provide a **Public URI Root** value in the form `https://sms_host:9448/jts` and select I understand that once the Public URI is set, it cannot be modified. Click **Next**.
5. Click **Test Connection**. A message should be displayed that the configuration test was successful.
6. Click **Next** to save the settings and continue.
7. Configure the database on the Configure Database page.
 - a. Select DB2 for **Database Vendor**.
 - b. Select JDBC for **Connection Type**.
 - c. Enter the DB2 database password defined as the `DEFAULT.PWD.DB2` property in the topology properties file for **JDBC Password**. Ignore the displayed password message.
 - d. For **JDBC Location** enter `//db_host:50001/JTS:user=db2inst1;password={password}`; where `db_host` is the host name of the data server. The `{password}` string must be entered as shown. Do not substitute with a password value.

- e. Click **Test Connection**. If an error occurs, check and correct any entries. If the entries are correct, make sure the database services are started on the data server using the platform control tool.
- f. After a message is displayed that no Jazz tables are present in the database, click **Create Tables**. Processing will take several minutes to complete.
- g. Click **Next**.
8. On the Enable E-mail Notification page set the value to **Disabled** and click **Next**.
9. The Register Applications page should display "No new applications detected." Click **Next**.
10. Select **LDAP** for the **User Registry Type** in Step 1 on the Setup User Registry page.
11. In Step 2 configure LDAP for the Jazz Team Server registry.
 - a. Enter `ldap://db_host:389` for **LDAP Registry Location** where *db_host* is the fully qualified host name of the data server in a standard environment or data server 1 in a high availability environment.
 - b. Enter `OU=USERS,OU=SWG,O=IBM,C=US` for **Base User DN**. If the LDAP suffix parameters were changed from the default values, the values for SWG, IBM, and US must match what was configured in the topology properties file.
 - c. Enter `userId=uid,name=cn,emailAddress=mail` for **User Property Names Mapping**.
 - d. Enter `OU=GROUPS,OU=SWG,O=IBM,C=US` for **Base Group DN**. If the LDAP suffix parameters were changed from the default values, the values for SWG, IBM, and US must match what was configured in the topology properties file.
 - e. For **Jazz to LDAP Group Mapping** make sure the value is set to `JazzAdmins=JazzAdmins, JazzUsers=JazzUsers, JazzDWAdmins=JazzDWAdmins, JazzProjectAdmins=JazzProjectAdmins, JazzGuests=JazzGuests`.
 - f. Enter `cn` for **Group Name Property**.
 - g. Enter `cn` for **Group Member Property**.
12. Click **Test Connection**. If a warning message is displayed, click **show details**. If the warning is about the mail property you can ignore the message.
13. For **Client Access License Type** select IBM Integrated Information Core - IIC Model Server.
14. Click **Next**.
15. For **Configure Data Warehouse** select the I do not wish to configure the data warehouse at this time checkbox.
16. Click **Finish** on the Summary page.

Results

The Jazz team server is operational.

Related concepts:

"LDAP suffix" on page 55

The LDAP suffix information used in IBM Intelligent Operations Center is defined in the topology properties file.

Installing semantic model services

The semantic model services and a sample application are provided with IBM Intelligent Operations Center.

About this task

Configuration of the Jazz Team Server on the semantic model server is required before using the semantic model services.

Procedure

1. In a web browser go to `http://sms_host:82/jts/admin` where *sms_host* is the fully-qualified host name of the semantic model server.
2. On the Server Administration page, click **Server > Configuration > Register Applications**.
3. Click **Add** on the Registered Applications page.
4. Add the Model Server application on the Add Application page.
 - a. Enter Model Server for **Application Name**.
 - b. Enter `http://sms_host:82/modelserver/scr`, where *sms_host* is the fully qualified host name of the semantic model server, for **Discovery URL**.
 - c. Enter a value of your choice for **Consumer Secret** This value will be used to provide access to the application. The value should be treated with the same security as a password.
 - d. Enter `iicsystemuser` for **Functional ID**

The **Application Type** will change to Model Server.
5. If there are no errors, click **Finish**.

Verifying semantic model services configuration

A semantic model services sample application is provided with IBM Intelligent Operations Center and can be used to verify the correct installation and configuration of the semantic model services.

Procedure

1. Prepare the sample model files.
 - a. On the installation server find the `iic15_2_stagebuiltdtoserver.xx.jar` file in the *install_media* directory.
 - b. Expand the `iic15_2_stagebuiltdtoserver.xx.jar` file into a directory of your choice. In the rest of these steps this directory is referred to as *model_home*.
2. Install the sample model.
 - a. In a web browser on the server where *model_home* is located, go to `http://sms_host:82/iic/console` where *sms_host* is the fully-qualified host name of the semantic model server.
 - b. Log on as the `iicsystemuser` user with `passwd` as the password.
 - c. Click **Model Manager > Ontologies > Browse**.
 - d. Navigate to the `install_media/ioc/image/IIC/install/modelServices/post_install/` directory.
 - e. Open the `rsm.owl` file.
 - f. Click **Load**. The file will be loaded.
 - g. Click **Model Manager > Ontologies > Browse**.
 - h. Navigate to the `install_media/ioc/image/IIC/install/modelServices/post_install/` directory.
 - i. Open the `modelServer.owl` file.
 - j. Click **Load**. The file will be loaded.
 - k. Click **Model Manager > Ontologies > Browse**.
 - l. Navigate to the `install_media/ioc/image/IIC/install/ktpRuntimeServices/post_install/` directory.
 - m. Open the `kpi.owl` file.
 - n. Click **Load**. The file will be loaded.
 - o. Click **Model Manager > Load > Browse**
 - p. Navigate to the `install_media/ioc/image/IIC/samples/rdf/rsm/` directory.
 - q. Open the `IBM011DownstreamSampleRDF.xml` file.
 - r. Click **Load**. The file will be loaded.
 - s. Click **Model Manager > Load > Browse**

- t. Navigate to the *install_media/ioc/image/IIC/samples/rdf/rsm/* directory.
 - u. Open the *IBMOilUpstreamSampleRDF.xml* file.
 - v. Click **Load**. The file will be loaded.
 - w. Click **Model Manager > Load > Browse**
 - x. Navigate to the *install_media/ioc/image/IIC/samples/rdf/rsm/* directory.
 - y. Open the *IBMOilDownstreamSampleReferenceRDF.xml* file.
 - z. Click **Load**. The file will be loaded.
 - aa. Click **Model Manager > Load > Browse**
 - ab. Navigate to the *install_media/ioc/image/IIC/samples/rdf/rsm/* directory.
 - ac. Open the *IBMOilUpstreamSampleReferenceRDF.xml* file.
 - ad. Click **Load**. The file will be loaded.
3. Verify that the sample model is correctly installed.
 - a. Click **Model Manager > Query > Query**. A predefined query will run. An XML structure will be displayed with the query results. The top level tag should be `spargl` and have secondary tags `head` and `results`.
 - b. Click **Model Explorer** and make sure you can browse the model.
 4. Use the model to verify the installation of model manager.
 - a. In a web browser on the semantic model server, go to `http://sms_host:82/iic/ibmoil` where *sms_host* is the fully-qualified host name of the semantic model server.
 - b. Click **IBM Oil Company > Variables**. Web service URLs are displayed.

Results

The semantic model services and IBMOil sample model are installed.

Improving semantic model services performance

Configure the semantic model services provided by IBM Intelligent Operations Center to improve performance when running queries against models.

Procedure

1. In a web browser go to `http://sms_host:82/iic/console` where *sms_host* is the fully-qualified host name of the semantic model server.
2. Add the property values in Table 24 to the **OPCWEBSERVICE** category.

Table 24. OPCWEBSERVICE properties

Property	Value
cache.browse.timetolive.second	3600
cache.timetolive.second	2592000
cache.wait.second.after.create.action	1

3. Update or add the following properties and values in Table 25 on page 83 in the RSM category.

Table 25. RSM properties

Property	Value
mvmViewPath.0	http://iec.ch/TC57/CIMgeneric# ISA95_Enterprise##http://iec.ch/TC57/CIMgeneric# RSM_OrganizationalEntity.ManagesAspectOf_PhysicalEntity ##iec.ch/TC57/CIMgeneric# ISA95_Site##http://iec.ch/TC57/CIMgeneric# RSM_PhysicalEntity.contains_PhysicalEntity##http:// iec.ch/TC57/CIMgeneric# ISA95_Area##http://iec.ch/TC57/CIMgeneric# RSM_PhysicalEntity.contains_PhysicalEntity##http:// iec.ch/TC57/CIMgeneric# ISA95_ProductionUnit##http:// iec.ch/TC57/CIMgeneric# RSM_PhysicalEntity.ManagedBy_OrganizationalEntity##http:// iec.ch/TC57/CIMgeneric# RSM_OrganizationalEntity##http:// iec.ch/TC57/CIMgeneric# RSM_OrganizationalEntity.has_measurement##http:// iec.ch/TC57/CIM-generic#RSM_Measurement##http:// iec.ch/TC57/CIMgeneric# RSM_Measurement.HasA_MeasurementValue##http:// iec.ch/TC57/CIM-generic#RSM_MeasurementValue
mvmViewPath.1	http://iec.ch/TC57/CIMgeneric# ISA95_Enterprise##http://iec.ch/TC57/CIMgeneric# RSM_OrganizationalEntity.ManagesAspectOf_PhysicalEntity ##iec.ch/TC57/CIMgeneric# ISA95_Area##http://iec.ch/TC57/CIMgeneric# RSM_PhysicalEntity.contains_PhysicalEntity##http:// iec.ch/TC57/CIMgeneric# ISA95_ProductionUnit##http://iec.ch/TC57/CIMgeneric# ISA95_WorkCenter.Contains_Equipment##http:// iec.ch/TC57/CIMgeneric# RSM_WorkEquipment##http:// iec.ch/TC57/CIMgeneric# RSM_PhysicalEntity.has_measurement##http:// iec.ch/TC57/CIM-generic#RSM_Measurement##http:// iec.ch/TC57/CIMgeneric# RSM_Measurement.HasA_MeasurementValue##http:// iec.ch/TC57/CIM-generic#RSM_MeasurementValue
mvmDownLevelPreRequest	3
mvmCacheProperty.0	cim:RSM_IdentifiedObject.name
mvmMaxQueryURI	500
mvmMaxSparqlEntry	4000

4. Click **Publish**. The new and modified properties will be saved.
5. Restart the semantic model services using the platform control tool.
6. In a web browser go to `http://sms_host:82/iic/console` where `sms_host` is the fully-qualified host name of the semantic model server.
7. Make any solution or application-specific changes as needed. If changes are required, the changes will be identified in the product or solution documentation.

Installing tools provided with the solution

Toolkits and development tools are included with the IBM Intelligent Operations Center. These are used when customizing IBM Intelligent Operations Center.

With the exception of Rational Application Developer, these are provided on the IBM Intelligent Operations Center Developer's Toolkit DVD or image. Rational Application Developer is included with IBM Intelligent Operations Center on separate DVDs or images.

Lotus Sametime Client

For information on installing and using the Lotus Sametime Client , see the Lotus Domino and Lotus Notes product documentation.

WebSphere Message Broker Toolkit

For information on installing and using the WebSphere Message Broker Toolkit, see the WebSphere Message Broker product documentation.

IBM Business Monitor Development Toolkit

For information on installing and using the IBM Business Monitor Development Toolkit, see the IBM Business Monitor product documentation.

Rational Application Developer

Rational Application Developer is only to be used with the IBM Business Monitor Development Toolkit to create KPI models.

For information on installing and using Rational Application Developer, see the Rational Application Developer product documentation.

Related concepts:

“Creating and integrating KPIs” on page 156

Key performance indicator (KPI) models can be created and modified using a business monitoring development toolkit and the Key Performance Indicators configuration tool.

Related information:

 Lotus Domino and Lotus Notes product documentation

 WebSphere Message Broker product documentation

 IBM Business Monitor product documentation

 Rational Application Developer product documentation

Deleting sample users

IBM Intelligent Operations Center is shipped with sample users. For security reasons these users should be deleted after IBM Intelligent Operations Center is installed in a production environment.

About this task

To delete the predefined users, complete the following steps:

Procedure

1. On the application server, sign into WebSphere Portal.
2. On the **Administration** portal, click **Access > Users and Groups > All Authenticated Portal Users**.
3. Click the delete icon for the following users:
 - tdelorne
 - scollins
 - akelly
 - ballen

Important: Do not delete the following required users. If you delete them, IBM Intelligent Operations Center will not operate properly.

- admin
- wpsadmin

- isimsystem
- ITIM Manager
- appcenteradmin
- wpsbind
- notesadmin

Related reference:

“Sample users” on page 91

During the deployment of IBM Intelligent Operations Center, sample users are created.

Removing sample data

IBM Intelligent Operations Center supplies sample data by default. For example, sample KPIs or sample monitor models might be supplied. The sample KPIs are designed to provide guidance for implementing different types of KPI with the IBM Business Monitor Development Toolkit. Sample monitor models are provided for water, transportation, and public safety. You can remove the sample data if required, either by using the solution interface or by using DB2 commands.

Removing sample KPIs by using the solution interface

About this task

You can delete the following sample KPIs:

- Public Safety
- Transportation
- Water

Procedure

1. Log on to IBM Intelligent Operations Center as *wpsadmin*.
2. In the Solution Administration view, click **Key Performance Indicators**.
3. Right-click on the sample KPI that you want to remove, and then select **Remove**.
4. Click **Save**.

Removing sample KPIs by using DB2 commands

About this task

You can delete all of the sample KPIs by using DB2 commands.

Procedure

1. Log on to the IBM Intelligent Operations Center data server as *wpsadmin*.
2. At the command prompt, enter the following commands:


```
su db2inst2
db2 connect to IOCD
db2 "delete from IOC.KPI_Hierarchy WHERE MODELID like 'ioc_sample_%'"
```

Related concepts:

“Sample KPIs” on page 179

Sample KPIs are provided with the IBM Intelligent Operations Center. The sample KPIs are designed to provide guidance for implementing different types of KPI with the IBM Business Monitor Development Toolkit. Sample monitor models are provided for water, transportation, and public safety.

Removing the sample monitor models

About this task

Use the following procedure to delete sample monitor models in IBM Intelligent Operations Center. You can delete the following sample monitor models:

- `ioc_sample_public_safety_model`
- `ioc_sample_transportation_model`
- `ioc_sample_water_model`

Procedure

1. Click **Applications > Monitor Models**.
2. Click the version for the sample monitor model that you want to delete, for example, **`ioc_sample_public_safety_model`**.
3. Click **Manager Schema**.
4. Click **Run Delete Schema Script**, and then click **OK**.
5. Click **Applications > Monitor Models**.
6. Select the check box for the model that you want to delete, for example **`ioc_sample_public_safety_model`**, and then click **Stop**.
7. Click **Applications > Application Types > Websphere enterprise applications**.
8. Select the `model_to_deleteApplication.ear` check box
where: `model_to_delete` is the model that you want to delete, for example, **`ioc_sample_public_safety_modelApplication.ear`**.
9. Click **Uninstall**, and then save your changes.

What to do next

For further details, see *Sample KPIs* in the IBM Intelligent Operations Center product documentation.

Removing installation files from the production system

While installing IBM Intelligent Operations Center, the installation service configuration, installation media, and log files are written to the servers. After the installation completes and the installation has been verified, files that are only used in the installation process can be removed from the production system servers.

The following can be archived and removed from all servers:

- The directory defined by the `Unix.image.basedir.remote` property in the topology properties file. The default location is `/installMedia/ioc/image`.
- The directory defined by the `Unix.script.basedir.remote` property in the topology properties file. The default location is `/installMedia/ioc/script`.

The following can be archived and deleted from the installation server, which is the analytics server in a standard environment and analytics server 1 in a high availability environment.

- The directory defined by the `image.basedir.local` property in the `custom.properties` file. The default location is `/distributionMedia`.
- The directory defined by the `image.tempdir.local` property in the `custom.properties` file. The default location is `/tmp/ioc/images`.
- The directory defined by the `backup.local` property in the `custom.properties` file. The default location is `/tmp/ioc/backup`.

Since the topology properties file on the installation server contains passwords in clear text, this file should be stored in a secure location.

Verifying the installation

After installing IBM Intelligent Operations Center , verify that the product has been correctly installed. Verification ensures all components are started and operating as expected.

About this task

Two verification procedures are provided. The quick verification procedure can be used immediately after installing IBM Intelligent Operations Center and any time a quick verification of the overall system is desired. The full verification procedure take significantly more time, but should be done before IBM Intelligent Operations Center is considered fully-operational.

Procedure

Quick verification

1. Check that you can access the IBM Intelligent Operations Center.
 - a. In a browser go to `https://web_hostname/wps/portal` where `web_hostname` is the hostname of the web server.
 - b. Log on as a IBM Intelligent Operations Center administrator, for example, `wpsadmin`. The `wpsadmin` password is defined in the topology property file `PORTAL.ADMIN.UID.PWD` property.

The Supervisor: Operations page will be displayed.

2. Run all the tests in the system verification check tool.
3. Check that all tests have run successfully.
4. Use the platform control tool to start any components that need to be started.

Full verification

5. Use the platform control tool to stop all components.
6. Check that all components have stopped successfully by reviewing the displayed messages.
7. Shut down the Linux operating system on all servers.
8. Power-down and power-up all runtime servers or reboot all servers.
9. Use the platform control tool to start all components.
10. Use the platform control tool to query the status of all components.
11. Check that you can access the IBM Intelligent Operations Center.
 - a. In a browser go to `https://web_hostname/wps/portal` where `web_hostname` is the hostname of the web server.
 - b. Log on as a IBM Intelligent Operations Center administrator, for example, `wpsadmin`. The `wpsadmin` password is defined in the topology property file `PORTAL.ADMIN.UID.PWD` property.

The Supervisor: Operations page will be displayed.

12. Run all the tests in the system verification check tool.
13. Check that all tests have run successfully.

What to do next

If any errors are noted, resolve the errors and rerun these steps.

Related concepts:

“Components” on page 5

At a high level, the structure of IBM Intelligent Operations Center can be divided into major components, subsystems, and services.

“Viewing product version details” on page 187

In the Solution Administration view, you can view details of the version of IBM Intelligent Operations Center and the integrated IBM Smarter Cities Software Solutions that you installed. You can also view details of any updates that you applied since installation.

Related tasks:

“How to use the system verification check tool” on page 209

The system verification check tool is used to determine the operational status of services comprising the IBM Intelligent Operations Center system.

“Querying the status of the components in a standard environment” on page 197

The platform control tool can be used to determine the status of the components running on IBM Intelligent Operations Center standard environment servers.

“Querying the status of the components in a high availability environment” on page 207

The platform control tool can be used to determine the status of the components running on IBM Intelligent Operations Center high availability environment servers.

“Starting the components in a standard environment” on page 191

The platform control tool can be used to start the components running on IBM Intelligent Operations Center standard environment servers.

“Starting the components in a high availability environment” on page 199

The platform control tool can be used to start the components running on IBM Intelligent Operations Center high availability environment servers.

“Stopping the components in a standard environment” on page 194

The platform control tool can be used to stop components running on IBM Intelligent Operations Center standard environment servers.

“Stopping the components in a high availability environment” on page 203

The platform control tool can be used to stop components running on IBM Intelligent Operations Center high availability servers.

Chapter 3. Securing the solution

Security is important within the IBM Intelligent Operations Center because the solution is central to essential operations. To ensure security, it is important that you are aware of the default settings and that you manage users of the solution to give all users the correct level of access.

Default passwords

Your first task in securing the solution is to ensure that all default passwords are changed. For more information about the default passwords, see the link at the end of the topic.

Secure connection

The IBM Intelligent Operations Center is HTTPS enabled by default. You can change HTTPS settings for the business monitoring service that processes key performance indicators (KPIs).

Any change to the HTTPS setting for an individual service must be accompanied by an update to the corresponding port setting. For more details on changing the settings in the system properties, see the link at the end of the topic.

User authentication

User authentication is associated with authorization rights that give the user access to the appropriate features. IBM Intelligent Operations Center supports integration to the existing security infrastructure for single sign-on.

IBM Intelligent Operations Center user permissions are managed through WebSphere Portal users and groups. WebSphere Portal uses the Lightweight Directory Access Protocol (LDAP) database that is provided by the Tivoli Directory Server, which runs on the data server.

The security system that is provided with the IBM Intelligent Operations Center can accommodate many user groups, roles, and permissions. Accommodating many user groups, roles, and permissions can lead to a security regime that is difficult to manage. It is recommended that administrators restrict the number of groups and permissions.

User roles and permissions

Membership of a role-based user group provides a way of controlling access to the IBM Intelligent Operations Center. The users in a group have access only to the features of the solution that correspond to their role. Being a member of a role-based user group also helps users to focus on the appropriate tasks. The standard roles are CityWideSupervisor, CityWideOperator, CityWideExecutive, and CityWideAdmin.

To add a user to IBM Intelligent Operations Center:

1. Choose a group that is appropriate to the role of the user in the organization, and make the user a member of that group.
2. Complete a profile for the user and include at least the user ID, name, and password.

Data sources and permissions

Access to a feature in IBM Intelligent Operations Center does not mean that a user can view all the data sources that it contains. To ensure that users see only the appropriate data, access is determined during

the configuration of individual data sources. An administrator can assign access to a data source to both user groups, and to individual users.

WebSphere Portal Enable

WebSphere Portal Enable provides a platform that can be scaled to accommodate the required set of users. It also provides role-based access that can be adjusted to reflect the required organization structure. You can view, create, and delete users or user groups with the **Manage Users and Groups** portlet. You can also change group memberships. For more information about this portlet, see the link at the end of the topic to the WebSphere Portal product documentation.

Related concepts:

“Password information for a standard environment” on page 56

Passwords for various user IDs used in the IBM Intelligent Operations Center solution are defined in the topology properties file. For security reasons the default passwords shipped with IBM Intelligent Operations Center should be changed.

Related tasks:

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

Related information:

 [IBM WebSphere Portal 8 product documentation](#)

User roles and access

IBM Intelligent Operations Center implements security by limiting access to features based on user roles.

To use a specific feature of IBM Intelligent Operations Center, a user must be a member of the user role group that provides the required access to that feature. A user is made a member of a user role group by an administrator. The following table shows how real-life roles might map to the user role groups with login access levels in IBM Intelligent Operations Center.

Table 26. Job roles and IBM Intelligent Operations Center user role groups

Job role	Responsibilities	User role group
Executive	<ul style="list-style-type: none"> Reviews status for the executive's area of responsibility by monitoring key performance indicators (KPIs) Looks for trends or groupings of where things are happening to make strategic decisions on how to improve situations Communicates with staff and constituents about what insights they have derived and how they can address problems 	CityWideExecutive
Supervisor or manager	<ul style="list-style-type: none"> Reviews status for the supervisor's or manager's area of responsibility and drills into details for areas of concern Responds to notifications when status changes negatively Supervises day-to-day operations and directs work of staff Decides on short-term corrective measures 	CityWideSupervisor

Table 26. Job roles and IBM Intelligent Operations Center user role groups (continued)

Job role	Responsibilities	User role group
Operator	<ul style="list-style-type: none"> Monitors incoming data updates and views details Responds to requests to address a situation Keeps information about an event or item that is in progress current by updating information Looks for trends or areas of concern where correctional short-term actions are required 	CityWideOperator
Solution administrator	Configures IBM Intelligent Operations Center components, including data sources, filter options, maps, key performance indicators, and standard operating procedures.	CityWideAdmin
System administrator	Administers all aspects of users including defining groups, assigning permissions to groups, and assigning users to groups. Provides users with the correct access level. Access level is assigned based on group membership. A system administrator can also configure all the IBM Intelligent Operations Center components, similar to a solution administrator.	wpsadmins

Before customizing roles and defining users for your organization, familiarize yourself with the IBM Intelligent Operations Center security system.

Sample users

During the deployment of IBM Intelligent Operations Center, sample users are created.

Generic sample users are defined with user role groups and corresponding access permissions. These sample users are defined as examples only, and are listed in the following table. Other users are required for administration of the solution. For a complete list of users, see the link, "Deleting sample users", at the end of the topic.

Table 27. Users defined in the IBM Intelligent Operations Center

User ID	User role group
Sample users	
tdelorne	CityWideExecutive
scollins	CityWideSupervisor
akelly	CityWideOperator
ballen	CityWideAdmin
Required user	
wpsadmin	wpsadmins

When you are ready to define users for your organization, delete only the sample users. You must not delete the wpsadmin user. The wpsadmin user is essential for administration tasks that are associated with IBM Intelligent Operations Center.

Important: Replace the default password of the wpsadmin user with a new password. For information about updating portal administrator user IDs and passwords, see the WebSphere Portal documentation.

Related concepts:

“Password information for a standard environment” on page 56

Passwords for various user IDs used in the IBM Intelligent Operations Center solution are defined in the topology properties file. For security reasons the default passwords shipped with IBM Intelligent Operations Center should be changed.

Related tasks:

“Deleting sample users” on page 84

IBM Intelligent Operations Center is shipped with sample users. For security reasons these users should be deleted after IBM Intelligent Operations Center is installed in a production environment.

Related information:

 IBM WebSphere Portal 8 product documentation

User role groups and authorization permissions

In IBM Intelligent Operations Center, a set of permissions for accessing views and the features that they contain is associated with each user role group.

An administrator assigns a role to a user by making the user a member of the corresponding user role group. Each user is assigned membership of one or more user role groups.

The following table lists the permissions for each user role group that is supplied with IBM Intelligent Operations Center. For each user role group, an authorization permission is granted for each sample view that is provided in IBM Intelligent Operations Center. A user who is authorized to access a view is authorized to access all the features that the view contains. However, if a view contains a filter panel, in the panes that contain data sources, a user can view only the data sources for which they have been assigned either read, or read and write access. An administrator can assign a user access to a data source either as an individual, or by making the user a member of a group that has access to the data source.

Table 28. IBM Intelligent Operations Center sample views and associated user role group permissions

Sample view	CityWideExecutive	CityWideSupervisor	CityWideOperator	CityWideAdmin	wpsadmins
Supervisor: Operations	None	User permission	None	Solution administrator permission	System administrator permission
Supervisor: Status	None	User permission	None	Solution administrator permission	System administrator permission
Operator: Operations	None	None	User permission	Solution administrator permission	System administrator permission
Executive: Operations	User permission	None	None	Solution administrator permission	System administrator permission
Executive: Status	User permission	None	None	Solution administrator permission	System administrator permission
Portal Administration	None	None	None	None	System administrator permission
Solution Administration, System Administration	None	None	None	None	System administrator permission
Solution Administration, Configuration Tools	None	None	None	Solution administrator permission	System administrator permission

IBM Intelligent Operations Center authorization permissions are assigned based on Lightweight Directory Access Protocol (LDAP) groups. The following definitions apply to the authorization permissions:

- User permission is the authority that is granted to a user that gives the user access to view and work with features.
- Administrator permission is the authority that is granted to an administrator that gives the administrator access to do the following tasks:
 - Configure features
 - Create, modify, or delete users and user groups

Related tasks:

“Securing your data source” on page 111

For your data source, assign users or groups the appropriate access to data and authorization privileges.

Adding a user

You can add users to IBM Intelligent Operations Center.

Procedure

1. Log on to the solution portal as a portal administrator. For example, *wpsadmin*, or another user who is a member of the *wpsadmins* portal group.
2. On the main navigation bar at the top of the view, click **Administration > Portal Administration**.
3. On the sidebar menu, click **Access > Users and Groups**.
4. Click **All Portal User Groups**. The list of role groups for IBM Intelligent Operations Center, and any other IBM Smarter Cities Software Solutions that are installed in this environment, are displayed.
5. Scroll through the list to find the user role group that you want to assign to your users.
6. Select a role group for IBM Intelligent Operations Center. The IDs of the existing group members are listed.
7. Add a user by using one of the following steps:
 - To add a new user, click **New User** and complete the required **Profile Management** fields.

Note: To save time, you can duplicate group assignments for a new user that is based on an existing user. Select the new user, and then click the **Duplicate group assignments** icon. Select the existing user from whom you want to duplicate group membership.
 - To add an existing user or group of users, click **Add Member**, and select one or more users or groups from the list.
8. Click **OK**.

Results

A message confirms if the submission is successful. If you added a new user, a user profile is created and displayed on the group list. The new user is authorized to access IBM Intelligent Operations Center according to the permissions that are assigned to the selected role group.

Related tasks:

“Viewing or editing your user profile” on page 169

You can view and edit the information in your solution user profile. Edit your user profile to set your time zone, language preference, and notification settings. You can also reset your password and modify your personal details.

Adding a group

You can add groups to IBM Intelligent Operations Center.

Procedure

1. Log on to the solution portal as a portal administrator. For example, *wpsadmin*, or another user who is a member of the *wpsadmins* portal group.
2. On the main navigation bar at the top of the view, click **Administration > Portal Administration**.
3. On the sidebar menu, click **Access > Users and Groups**.
4. To add a new group, click **New Group**, and enter a name for the user group.
5. Click **OK**.

Results

A message confirms if the submission is successful. Click **All Portal User Groups** to see the new group displayed in the list.

What to do next

- Add the group to the WebSphere Application Server Network Deployment junction ACL.
- Set authorization permissions for the group. For information about assigning access to pages, see the IBM WebSphere Portal 7 product documentation.

Related information:

 [IBM WebSphere Portal 8 product documentation](#)

Viewing or modifying group membership

View or modify group membership to manage the access permissions of users in IBM Intelligent Operations Center.

About this task

Select the group that corresponds to the role for which you want to view or change membership. Membership of a role group gives users access to the parts of the solution that are appropriate to that role.

Hover over an icon to view hover help that indicates the purpose of the icon.

Procedure

1. Log on to the solution portal as a portal administrator. For example, *wpsadmin*, or another user who is a member of the *wpsadmins* portal group.
2. On the main navigation bar at the top of the view, click **Administration > Portal Administration**.
3. On the sidebar menu, click **Access > Users and Groups**.
4. Click **All Portal User Groups**. The list of role groups for IBM Intelligent Operations Center, and any other IBM Smarter Cities Software Solutions that are installed in this environment, are displayed.
5. Select a role group for IBM Intelligent Operations Center. The IDs of the existing group members are listed.
6. You can do the following actions in relation to group membership:
 - View membership of other groups by clicking the **View membership** icon for the user ID.
 - Add a user or users to the group by clicking **Add member**, and then selecting the user or users to be added.
 - Remove a user from the group by clicking the **Remove** icon for the user ID.

Viewing or editing a user profile

View or edit the profile of a user to set or reset any of the user profile attributes, including the password. You cannot change the user ID.

About this task

Select the user from the authenticated portal users list to open the user profile and change profile details. Each user can also change the user's own profile.

Hover over an icon to view hover help that indicates the purpose of the icon.

Procedure

1. Log on to the solution portal as a portal administrator. For example, *wpsadmin*, or another user who is a member of the *wpsadmins* portal group.
2. On the main navigation bar at the top of the view, click **Administration > Portal Administration**.
3. On the sidebar menu, click **Access > Users and Groups**.
4. Click **All Portal User Groups**. The list of role groups for IBM Intelligent Operations Center, and any other IBM Smarter Cities Software Solutions that are installed in this environment, are displayed.
5. For a user ID, click the edit icon to display the user profile attributes.
6. If you want to change the password, enter a new password for **New password** and **Confirm password**.
7. You can enter, edit, or delete information in any of the remaining fields.
8. Click **OK** to submit the changes that you have made.

Results

The user profile is updated with the changes that you submit.

Note: For a user to see data in a specific time zone, select that time zone in the user profile. When a time zone is not selected in the user profile, the system uses the WebSphere Portal time zone.

Related tasks:

“Viewing or editing your user profile” on page 169

You can view and edit the information in your solution user profile. Edit your user profile to set your time zone, language preference, and notification settings. You can also reset your password and modify your personal details.

Deleting a user or group

You can delete a user or group from IBM Intelligent Operations Center.

About this task

Deleting a user from IBM Intelligent Operations Center also removes the user's access to other solutions in IBM Smarter Cities Software Solutions. Deleting a group also removes that group from other solutions.

Hover over an icon to view hover help that indicates the purpose of the icon.

Procedure

1. Log on to the solution portal as a portal administrator. For example, *wpsadmin*, or another user who is a member of the *wpsadmins* portal group.
2. On the main navigation bar at the top of the view, click **Administration > Portal Administration**.
3. On the sidebar menu, click **Access > Users and Groups**.
4. Choose one of the following options:
 - Click **All Portal User Groups** to display a list of groups.
 - Click **All Authenticated Portal Users** to display a list of users.
5. Click the **Remove** icon for the user or group that you want to delete.

Results

The user or group that you delete no longer exists in IBM Smarter Cities Software Solutions. Deleting a group does not delete members of the group.

Importing users and groups

You can import users in bulk into IBM Intelligent Operations Center through the portal administration console.

About this task

The XML file that is required for this task is on the application server: `/opt/IBM/WebSphere/PortalServer/doc/xml-samples/CreateUser.xml`. You can modify the XML file to add users to IBM Intelligent Operations Center.

When you add multiple users, add all the users first, before adding the users to groups. See the example at the end of the topic.

As an alternative to the following procedure, you can run the `xmlaccess.sh` script from the command line. The script is on the application server.

Procedure

1. Add new users and the groups to which they belong to the `CreateUser.xml` file.
2. Log on to the solution portal as a portal administrator. For example, *wpsadmin*, or another user who is a member of the *wpsadmins* portal group.
3. On the main navigation bar at the top of the view, click **Administration > Portal Administration**.
4. On the sidebar menu, click **Portal Settings > Import XML**.
5. Click **Browse**, and then locate your updated XML file.
6. Click **Import**.

Results

WebSphere Portal Server automatically creates the associated entries in the directory on the Tivoli Directory Server.

Example

The following example modifies the XML file to add two users to IBM Intelligent Operations Center, and to add each user to one role group:

```
<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="PortalConfig_8.0.0.xsd" type="update"
create-oids="true"
<portal action="locate">
  <user action="update" name="cityuser001" firstname="City"
lastname="user001" password="passwd">
  <parameter name="preferredLanguage" type="string"
update="set">en_US</parameter>
  <parameter name="cn" type="string" update="set">City user001</parameter>
</user>
  <user action="update" name="cityuser002" firstname="City"
lastname="user002" password="passwd">
  <parameter name="preferredLanguage" type="string"
update="set">en_US</parameter>
  <parameter name="cn" type="string" update="set">City user002</parameter>
</user>
  <group action="update" name="CityWideExecutive">
  <member-user update="set" id="cityuser001">
</group>
  <group action="update" name="ioc_base_fire">
  <member-user update="set" id="cityuser001">
</group action="update" name="CityWideOperator">
```

```

    <member-user update="set" id="cityuser002">
  </group>
</portal>
</request>

```

Related concepts:

“Administering the services” on page 187

Use the Administration Consoles to administer the services that are provided by the solution.

Related information:

 [IBM WebSphere Portal 8 product documentation](#)

 [Tivoli Directory Server product documentation](#)

Defining standard operating procedure roles

The standard operating procedure component obtains the current authentication credentials to determine what actions each user is authorized to do. Each user is authorized to do standard operating procedure actions that are based on the LDAP Roles that the user is assigned to, and must match the distinguished name (DN) that is used in association with the standard operating procedure objects.

The following table outlines which roles can do what actions in relation to standard operating procedures.

Table 29. Standard operating procedure actions and required roles

Action	Role required
Create a standard operating procedure	<ul style="list-style-type: none"> Users who are listed in either the SopAdminRoles system property, or in the SopAuthorRoles system property.
Read a standard operating procedure definition	<ul style="list-style-type: none"> Users who are listed in either the SopAdminRoles system property, or in the SopAuthorRoles system property. Any role that is granted read access either by the creator, or by an editor of the definition.
Update or delete a standard operating procedure definition	<ul style="list-style-type: none"> Users who are listed in the SopAdminRoles system property. Any role that is granted write access either by the creator, or by an editor of the definition.
Launch an instance of a standard operating procedure	<ul style="list-style-type: none"> Users who are listed in the SopAdminRoles system property. Any role that is granted write access in the standard operating procedure definition, either by the creator or by an editor.
Read the details for an instance of a standard operating procedure	<ul style="list-style-type: none"> Users who are listed in the SopAdminRoles system property. Any role that is granted read access in the standard operating procedure definition, either by the creator or by an editor. Any role that is granted read access in the activity definition, either by the creator or by an editor.
Update or delete an instance of a standard operating procedure	<ul style="list-style-type: none"> Users who are listed in the SopAdminRoles system property. Any role that is granted write access in the standard operating procedure definition, either by the creator or by an editor. Any role that is granted write access in the activity definition, either by the creator or by an editor.

Table 29. Standard operating procedure actions and required roles (continued)

Action	Role required
Read the details for an activity	<ul style="list-style-type: none"> • Users who are listed in the SopAdminRoles system property. • Any role that is granted read access in the standard operating procedure definition, either by the creator or by an editor. • Any role that is granted read access in the activity definition, either by the creator or by an editor.
Update an activity	<ul style="list-style-type: none"> • Users who are listed in the SopAdminRoles system property. • Any role that is granted write access in the standard operating procedure definition, either by the creator or by an editor. • Any role that is granted write access in the activity definition, either by the creator or by an editor.
Create references in the library	<p>Users who are listed in the following system properties:</p> <ul style="list-style-type: none"> • ReferenceLibrarianRoles • SopAdminRoles • SopAuthorRoles <p>Note: Only ReferenceLibrarianRoles users can create shared references.</p>
Edit and delete references in the library	<ul style="list-style-type: none"> • Users who are listed in the ReferenceLibrarianRoles system property. • Users who are listed in the SopAdminRoles system property and the SopAuthorRoles system property can edit and delete only references that they have created.

Related tasks:

“Configuring standard operating procedure definitions” on page 136

When you define a standard operating procedure, you define activities that are included in the standard operating procedure. You can specify the order in which some or all of the activities in a standard operating procedure are executed. For example, you can specify that a particular activity is not started until the previous activity is completed or skipped. You also assign owners and monitors to the standard operating procedure.

Chapter 4. Configuring the solution

Configure IBM Intelligent Operations Center in the Solution Administration view.

Configuring a data source

Use the Data Sources tool to configure a data source that supplies data to IBM Intelligent Operations Center.

You can also update some configuration parameters for a data source that is already in the solution, or you can delete a data source from the solution.




After you create a data source, use the filter panel tool to assign your data source to a filter pane in the filter panel. You can group data sources under a category and display them together on a filter pane. Users can then select the data source in the filter panel in the operations views. The combination of options that users select in the filter panel determines what data items are displayed on the maps and in the list.

When you configure a data source, you can assign an icon to represent it. To configure a filter pane, select a color that is used in map markers that represent all the data sources in a data group. A data source is identifiable on the map by a combination of the icon symbol and the color of the group that the data source belongs to.

You can configure the following items for a data source:

1. Acquisition method

Select the method for acquiring data from the data source. When you select the method, you are prompted for the information that is required to connect to that type of data source and acquire the data. The following acquisition types are supported:

- CSV file
- Database
-  Common Alerting Protocol (CAP)
-   User interface entry, for injecting data items through either the maps, list, or REST API only

This step is mandatory for the creation of a data source.

2. Basic information

Supply basic information about how your data is to be used by the solution. Give your data source a name to be used throughout the solution user interface. Give basic instructions about how the data is processed, for example, how often to check for new data. This step is mandatory for the creation of a data source.

3. Minimal properties

Map properties from your data source to the minimal set of properties that are required and that are common to all data sources in the solution. By default, minimal properties are assigned common labels in the user interface. You can view the minimal properties either on a preview card, or in a row of the table on the List tab. Set minimal properties to receive the data formats that you require in relation to time and representation on a map. Choose the geometry format and how to supply information about position to represent the data item on the map. For example, representation on the map can be in the form of a single point, multiple points, lines, multiple lines, or a polygon. This step is mandatory for the creation of a data source.

4. Key and full properties

Define extra details for individual properties of your data source. A property that is not defined as either a minimal property, or a key property, is treated as a full property by default. Key properties are displayed with the minimal properties on a preview card or List tab in the user interface. Full properties are displayed in a full property window when you request more information. You can assign a property a label for the user interface. You can provide instructions about how the data that is associated with a property is processed and presented. This step is mandatory for the creation of a data source.

5. Security

Assign the appropriate access to data and authorization privileges for your data source to portal groups or users. For example, to allow a specific user, or a group of users, to view items that come from your data source, define read-only access.

6. Routing

Assign the routing instructions for processing the data that is received by the solution based on individual properties in your data source. Data can be routed to the solution as a whole, to key performance indicators (KPIs), to a selected standard operating procedure, or to a predefined integration topic.

1.6.0.1 **1.6.0.2** You can also route data to a correlation topic.

7. Actions

1.6 **1.6.0.1** From the available actions, select a set of allowable actions that can be performed on the data items that are associated with the data source.

1.6.0.2 You can assign actions to data sources by using the component customization tool that is in the Solution Administration view. For more information, see the *Customizing components* section.

The actions are displayed in the **More Actions** menu on the preview card for associated data items.

8. Appearance

To represent the data from your data source on a map, assign an icon to represent point positions on a map. Assign a color style for geometry formats other than point representation. The color style is used in association with the geometric format information that you selected with your minimal properties. You can also use expressions to change the style of appearance that is assigned to the data source based on individual properties from your data source. To enable data items to be displayed on a map as required, complete this step by entering information about the appearance of the items. This assignment depends on the settings for map position and geometry format that you choose at step 3. Icons are not affected by the shape color setting as icon color is set by filter panel configuration.

Related concepts:

“Guidelines on preparing data for the solution” on page 146

To view and filter the data that you require on the maps and list in IBM Intelligent Operations Center, prepare the data in your data source. Then, configure your data source in the Solution Administration view.

“Data item routing” on page 150

IBM Intelligent Operations Center processes incoming data items to determine how information is displayed.

“Integrating with data sources” on page 145

A data source is used to exchange information between the IBM Intelligent Operations Center and external systems.

Related tasks:

“Customizing components” on page 174

To extend and customize the functionality of your solution, you can create customized components that you can add to the user interface. You can also replace an existing component with a customized component. For example, for a particular system component, you can replace an existing preview card with a new, customized preview card.

Creating a data source

As an administrator, you can use the data sources tool to add and configure a data source.

Before you begin


Ensure that your data source contains data in a format that can be received by the system and that can be processed and updated as required.

About this task

In the data sources tool, the first four tabs only are mandatory for the creation of a data source. The remaining tabs are optional for the creation of a data source in the system and can be completed later. If you do decide to complete your data source configuration later, note the information at the end of step 11 on page 102.

Fields that are marked with an asterisk in the data sources tool are always required. Defaults are provided by the system for most fields except for a few fields where user input is mandatory.

You can specify translated text options for any field that contains text to be displayed as a label in the user interface. Enter the default text for the label. Then, enter text for any language you require from the languages that are supported. The language that is displayed depends on the locale that is selected either in the user profile, or in the browser. If a language preference is set, the user profile setting overrides the browser language setting.

 If you select the Common Alerting Protocol (CAP) as the format for acquiring data, you can specify that CAP messages that are received through the data source are displayed either on the geospatial map, or on the location map. The elements that are defined in the CAP specification are mapped to data source properties. Some data source options are preselected, and some data source properties are mapped to CAP elements automatically. You cannot change these automatic settings.

Procedure

For more information about the following steps, see the subsequent topics in the section.

1. To access the data sources configuration tool, click **Administration > Solution Administration > Configuration Tools > Data Sources**.
2. To start the data sources tool that guides you through the steps to create a data source, click **Create**.
3. On the **Acquire** tab, choose one of the following data source acquisition methods, and enter the information that is required to connect to the data source.

Upload a CSV file

1.6 **1.6.0.1** For the directory path, enter `/opt/IBM/ioc/csv`. Before you can upload a CSV file, you must copy the CSV file to the `/opt/IBM/ioc/csv` directory that is on the application server.

1.6.0.2 Browse to the location of the CSV file that you want to upload. The CSV file that you select is copied to the appropriate directory on the application server.

Connect to a database

Enter either the host name or IP address, port, user ID, password, database name, and database table.

+ Common Alerting Protocol (CAP)

To create a data source that receives CAP messages, select the appropriate option to be able to display the CAP messages either on the geospatial map, or on the location map.

1.6.0.1

1.6.0.2

User interface entry

To create a data source that can be used to inject data items through either the maps, list, or REST API only, select one of these options. If you select one of these options, all the data source properties are preassigned. A data source is created that is not connected to an external source.

- If you want to display injected data items on the geospatial map, select **User interface entry for geospatial maps**. The location is contained in a well-known text (WKT) format string.
- If you want to display injected data items on the location map, select **User interface entry for location maps**. An area property is assigned to the data source.

4. Click **Next** to go to the **Basics** tab.
5. Supply the basic information that is required for your data source. You must enter a name and a unique identifier. A description is optional. Accept the defaults, or change the settings in the general information fields.
6. Click **Next** to go to the **Minimal Properties** tab.
7. In each of the minimal property fields, select a property from your data source to assign to the minimal property that is required by the system. Change the default settings as appropriate for your data source.
8. Click **Next** to go to the **Key & Full Properties** tab.
9. From your data source properties list, select the properties that you want to define as key properties. Define other property characteristics as appropriate for your data source.
10. Complete the fields in the **Property Details** box as required, or accept the defaults.
11. Optional: From the remaining tabs, select the fields that you want to change. You can provide input to fields on the following tabs.
 - **Security**
 - **Routing**
 - **1.6** **1.6.0.1** **Actions**
 - **Appearance**

Note: If you do not configure security for your data source, the default is that only you have access to view the data items. If you select a point geometry format for your data source and you do not configure appearance, data items from your data source cannot be displayed in the user interface.

1.6.0.2

You can assign actions to data sources by using the component customization tool that is in the Solution Administration view. For more information, see the *Customizing components* section.

12. To add your data source to the solution, click **OK**.

Results

In the administration view, you can see the data source that you added on the list of data sources. This list is available for data source configuration and for filter panel configuration.

What to do next

You can update or complete the configuration of a data source later. To enable data items to be displayed on a map, configure your data source for display on the filter panel in the operations views. Click **Configuration Tools > filter panel**. For more information about filter panel configuration options, see the link at the end of the topic.

Related concepts:

“Integrating with data sources” on page 145

A data source is used to exchange information between the IBM Intelligent Operations Center and external systems.

“Configuring the filter panel” on page 114

In the Solution Administration view, you can decide how you want to group data sources. Then, for each group, you can configure a pane that is displayed in the filter panel. The data sources that you select are listed in the pane.

Related tasks:

“Customizing components” on page 174

To extend and customize the functionality of your solution, you can create customized components that you can add to the user interface. You can also replace an existing component with a customized component. For example, for a particular system component, you can replace an existing preview card with a new, customized preview card.

Related information:



OASIS Common Alerting Protocol Version 1.2

Updating data source configuration

As an administrator you can update the settings for a data source.

About this task

Existing data sources are listed in the side panel of the Data Sources configuration view. You can select a data source and complete the tabs and fields that are available for update. You cannot edit fields that are related to the parts of an existing data source that cannot be changed. On the **Acquire** tab, you can edit only the source database password for the data receiver when applicable. On the **Minimal Properties** tab, the fields that you can edit depend on the version of IBM Intelligent Operations Center that is installed.



On the **Key & Full Properties** tab, you can edit only the translated values for the labels.

Procedure

For more information about updating data source configuration, see the subsequent topics in the section.

1. Click **Administration > Solution Administration > Configuration Tools > Data Sources**.
2. Select the data source that you want to change.
3. Select the tab and fields that you want to change. You can provide input to fields on the following tabs:
 - **Basics**
 - **Minimal Properties**
 - **Security**
 - **Routing**
 - **1.6** **1.6.0.1** **Actions**
 - **Appearance**

1.6.0.2 You can assign actions to data sources by using the component customization tool that is in the Solution Administration view. For more information, see the *Customizing components* section.

4. Save your updated data source configuration.

Results

In the administration view, you can access the updated data source on the list of data sources. This list is available for data source configuration and for filter panel configuration. When the data source is configured to be displayed on the filter panel, you can access the updated data source on the filter panel after a browser refresh. For more information about filter panel configuration, see the link at the end of the topic.

Related concepts:

“Configuring the filter panel” on page 114

In the Solution Administration view, you can decide how you want to group data sources. Then, for each group, you can configure a pane that is displayed in the filter panel. The data sources that you select are listed in the pane.

Data source basic settings


Choose settings on the **Basics** tab to provide the basic input and selections that are appropriate for your data source.

Depending on the options that you select, only the relevant fields are displayed.

Table 30. Description of the fields on the Basics tab

Field	Description
Data source label	A name for your data source. This name is the default label that is attached to the data source throughout the user interface.
Data source unique text identifier	A text string that is unique to this data source. This string can be the same as the string that you entered in the Data source label field.
Description	A description of your data source. Completion of this field is optional.
Data for analysis	Indicates whether the data is to be used in an analysis process. Refer to the documentation that is specific to your solution for more detail. Note: This option applies to IBM Intelligent City Planning and Operations.
1.6.0.1 1.6.0.2 Data for boundary	Select Yes for this option if you want the data source to be available as a named area type. The value of this option is preselected to No for either Common Alerting Protocol (CAP) data sources, or for location map data sources. If you want to import named area data from an SQL file, you must insert the named area data into the SQL file before you create the data source. A named area type data source is not polled for updated data after the data source is created. For more information, see the <i>Defining named areas by using SQL</i> topic.
Asset or resource data	Indicates whether the data is to be used in an asset or resource-related process. Refer to the documentation that is specific to your solution for more detail. Note: This option applies to IBM Intelligent City Planning and Operations.

Table 30. Description of the fields on the Basics tab (continued)

Field	Description
1.6.0.1 1.6.0.2 Data for correlation	Indicates whether you want to use data from the data source for correlation.
1.6.0.1 1.6.0.2 Report model	Indicates whether you want the data source to be included in the Cognos Framework report model.
Polling interval	<p>The polling interval of your data source which ensures that you receive updates. This setting indicates how often the system polls the database for new data. Set a value of 0 to take initial details and never poll for updates.</p> <p> The polling interval value is not used for CAP data sources.</p> <p>1.6.0.1 1.6.0.2 The polling interval value is not used for user interface entry data sources.</p>
Archive interval	The archive interval of your data source that indicates the period that the data is stored in the system. At the end of this period a database script is run to remove and back up the data.

Related tasks:

1.6.0.1 **1.6.0.2** “Defining named areas by using SQL” on page 149

You might want to define a named area type data source that has many named areas. Instead of drawing each named area polygon individually on the map, you can define the named area polygons by using an SQL table. Then, create a data source that connects to a database to acquire the named area data from the SQL table.

Data source minimal property settings

Assign properties from your data source to each minimal property and choose the settings that are appropriate for your data.

Depending on the options that you selected in previous tabs, you might be able to edit only some of the properties, and some values might be either predefined, or preselected.

1.6.0.1 **1.6.0.2** For user interface entry data sources, all the properties are preassigned.

Table 31. Description of the fields on the Minimal Properties tab


Field	Description
Name	<p>The property to supply the name of the data item for display in the user interface. If you do not select a property, the system generates a name.</p> <p> For Common Alerting Protocol (CAP) data sources, the property is mapped to the headline CAP element.</p>

Table 31. Description of the fields on the Minimal Properties tab (continued)




Field	Description
Area name	<p>The property to supply the area name, if you want a data item to be displayed on a location map. When you select a property in this field, your data items are not displayed on the geospatial map.</p> <p> For CAP for location maps only, the property is mapped to the areaId value, which is in the CAP geocode element that is within the area element.</p>
1.6.0.2 Area mapping	<p>Area mapping determines whether incoming data items are contained within the boundary of any data item from one of the named area type data sources. Assign one or more data sources from data sources that are available as named area types.</p>
Start date and time, End date and time	<p>The properties that supply the values that indicate the start and end times for a data item. The start date and time value can be used to filter data items in accordance with the filter panel.</p> <p>You can select time stamp or string format. The system default is to expect time and date in the standard relational database time stamp format. If you set the field type to String, you must supply the string format on the Timezone & Other tab. For more information about setting these formats, see the Time format and Date format field descriptions. For some data source types, the Timestamp option is preselected for the value of Field type.</p> <p> For CAP data sources, the value of Start date and time is mapped to the onset CAP element, and the value of End date and time is mapped to the expires CAP element.</p>
Last update date and time	<p>The property that contains the time that a data item is updated. An update to the data that is already stored in the system is triggered when the value of this property in your data source is more recent than the value that is stored by the system.</p> <p> For CAP data sources, a synthetic value from the data receiver is assigned.</p>

Table 31. Description of the fields on the Minimal Properties tab (continued)









Field	Description
<p>Location format</p>	<p>The format in which your data source supplies the data for a map marker:</p> <ul style="list-style-type: none"> • Select Latitude and longitude to supply coordinates for a single point marker. • Select Shape to supply data for any of the geometry format options that are listed on the Timezone & Other tab. <p> For CAP data sources, the Shape option is preselected for the value of Location format.</p> <p>  If you selected the Data for boundary option on the Basics tab, the value of Location format is preassigned to Shape.</p>
<p>Shape</p>	<p>The property in your data source that stores the shape data. Input is required here when you select the shape option in the Location format field. If the shape data is stored in a separate data source, in this field select the property in your data source that contains a lookup value. This value is intended to provide a match for the value of the property in the Lookup name field.</p> <p> For CAP data sources, the value of Shape is set to location, and location is mapped to the area CAP element. However, a location is not required. If an area value is not supplied in the CAP message, the location value is set to null, and the CAP message is not displayed on the map. If the CAP message matches any routing expressions that you define on the Routing tab, it is still routed to the appropriate destinations.</p>
<p>Lookup location, Lookup name</p>	<p>The database table and property name that are required when the shape data is stored in a separate lookup data source.</p> <ul style="list-style-type: none"> • In the Lookup name field, enter the property that contains a value to match the Shape field value. • In the Lookup location field, enter the corresponding database table name. <p>The property that contains the matching value identifies a row of the database table. The system looks at that row, in a property that is called Location, to find the shape data. The database information that you supply on the Acquire tab is applied to the lookup data source, except for the database table information that you supply here.</p>

Table 31. Description of the fields on the Minimal Properties tab (continued)

Field	Description
Geometry format	<p>The format for the marker on the map. Based on your choice in the Location format, select the appropriate geometry here. Depending on what you select in this field, assign either an icon or a color style on the Appearance tab:</p> <ul style="list-style-type: none"> • Select a point marker and assign an icon. • Select a shape marker and assign a color style. <p> For CAP data sources, select All. The geometry format is determined by the content of the CAP message. CAP messages can contain either points, or polygons.</p> <p>  If you selected Yes for the Data for boundary option on the Basics tab, the value of Geometry format is preassigned to Polygon.</p>
Assessment date	<p>The date a data item is due for assessment. Some solution applications incorporate a data assessment. Refer to the documentation that is specific to your solution for more detail.</p>
Time zone offset	<p>The property that contains an adjustment to be applied when your data source is in a timezone that is different from the system timezone. The unit of measure for the value is minutes. The value must be divisible by 30, for example, 30, 60, or 90. The adjustment is applied only to time values in the Start date and time and End date and time properties. In a sample scenario, you want to adjust for the following requirements:</p> <ul style="list-style-type: none"> • Your data source staging table properties contain start and end time values that are expressed in GMT+5 hours • The solution's target table properties contain time values that are expressed in GMT+1 hour <p>Enter a value of 240 to apply an adjustment in time of 240 minutes (4 hours).</p> <p> For CAP data sources, you cannot edit the Time zone offset property, which is predefined.</p>
Time format, Date format	<p>The format in which time and date string values are supplied by your data source. The format must be compliant with the standard contained in the link at the end of the topic. If you set the date and time field type to String on the Time & Date tab, enter the format here.</p>

Related concepts:

“Data source time stamp synchronization” on page 156

When the data receiver receives updated information for a data source, a time stamp is applied to the updated data source. The method that is used to determine the time stamp depends on several factors.

Related information:


 Supported date and time format

Data source key and full property settings

On the **Key & Full Properties** tab, set the optional parameters for specific properties that are appropriate for your data source.

Minimal and key properties are displayed automatically in the user interface on the **List** tab and map preview cards. By default, each of your data source properties is a full property if it is not assigned to a minimal or key property in the solution. Full properties are shown only when you click the preview card for more information.

On the **Key & Full Properties** tab, select a property from your data source and, in the fields that are provided, set the parameters that you require for that property. Depending on the options that you selected in previous tabs, you might be able to edit only some of the properties, and some values might be either predefined, or preselected.

 For Common Alerting Protocol (CAP) data sources, all the CAP elements that are included in the specification are listed as data source properties. However, for each property, you can edit the value of the **User interface label** field only. The properties that are in the following list are key properties, and the remaining properties are full properties:

- areaId (CAP for location maps only)
- category
- certainty
- event
- msgType
- sender
- severity
- urgency

1.6.0.1 **1.6.0.2** For user interface entry data sources, all the properties are preassigned, except for the value of **User interface label**.

Table 32. Description of the fields on the Key & Full Properties tab

Field	Description
User interface label	The name that is assigned to a key or full property for use throughout the user interface. The name of a minimal property that is displayed on the List tab and preview card is set by the system and cannot be changed. However, you can provide a label for a minimal property to be used for another application. Refer to the documentation that is specific to your solution for more detail.
Key property	An option to assign key status to a full property. A key property is displayed automatically in the user interface on the List tab and map preview cards. You cannot assign key status to a minimal property.
Data type	The format in which the data value of the property is stored. Select from a list of allowed options. Ensure that the format selected is compatible with the type of property. For example, a property that contains a priority number is assigned a data type of Integer.

Table 32. Description of the fields on the Key & Full Properties tab (continued)

Field	Description
Length	The maximum length that is allowed for the string value of a property with a data type of Character. The system has an upper limit of 32704 characters. This field is displayed only when you select Character in the Data type field.
Precision, Decimal places	The precision and decimal places that are allowed for the value of a property with a data type of Decimal. For example, a value of 123.45 has three precision digits, 123, and two decimal places, 45. The total length of the property value is equal to the number of precision digits plus the number of decimal places, where the total length must be in the range 1-31 digits. There can be 0 - 31 decimal places in the value, where a valid value is a number with 0 precision digits and 31 decimal places. The Precision and Decimal places fields are displayed only when you select Decimal in the Data type field.
Optimize for filtering	An option to specify the property is optimized for efficient filtering of data items in relation to the property. If you select Yes, a database index is created. This optimization is useful for a property that is frequently used for sorting or searching, for example, a name.
Distribute on charts	An option to indicate that the property value is used in charts. Refer to the documentation that is specific to your solution for more detail. Note: This option applies to IBM Intelligent City Planning and Operations.
Used as an index ID	An option to assign the property value to be part or all of a unique key ID for a data item. A data source can be defined with one or more properties that are used as an index ID. An update from your data source must match this ID to update a data item in the system. Note: If a data source is defined without any property that is used as an index ID, all updates to the data source are stored as new data items in the system.
Updatable	An option to specify that the property data can be updated by the system. You cannot select this option if the property is selected as an index ID.
Filter enumerated values	An option to provide the user with extra data item filters based on the values of this property that are received at run time. If the field is set to Yes, the filter panel displays these values as filter options. If this field is set to the default No, the values of this property are not provided to the user as filter options.

Table 32. Description of the fields on the Key & Full Properties tab (continued)

Field	Description
Allowed values	<p>Enter the values that the user can select as extra filter criteria. The filter panel displays the values that you enter as filter options. Enter values that are separated by commas and ensure any spaces that are used match the values as you intended. You can enter allowed values at configuration time only when Filter enumerated values is set to No.</p> <p>Note: If Filter enumerated values is No for all properties and no allowed values are entered here for your data source, the user does not see the More option on the filter panel. There are no extra filter criteria available for selection on the data source pane.</p>

Related information:

 OASIS Common Alerting Protocol Version 1.2

Securing your data source

For your data source, assign users or groups the appropriate access to data and authorization privileges.

About this task

To allow a user access to data items from your data source on a map or list in the user interface, assign the required access level. The list that is provided contains the users and groups that are defined by the administrator for the system. The default access is read and write access for the creator of the data source only, and no access for other users.

1.6.0.1

1.6.0.2

Administrators have read and write access to every data source.

Users or groups who have read-only access can view data items, and can update data items in fields that can be updated. Users or groups who have read and write access have the same access as users with read-only access, but they can also configure the data source if they have access to the **Solution Administration** view.

Procedure

1. To access the data sources configuration tool, click **Administration > Solution Administration > Configuration Tools > Data Sources**.
2. On the **Security** tab, select a user or group from the list of names.
3. Select the appropriate access level for the user or group.
4. In the data sources tool, move to another tab, or click **OK** to save your data source for use in the system.
5. Click **Save** to apply updates to an existing data source.

Related reference:

“User role groups and authorization permissions” on page 92

In IBM Intelligent Operations Center, a set of permissions for accessing views and the features that they contain is associated with each user role group.

Routing data from your data source

For the data that is received from your data source, set routing expressions that define how the data is processed by the solution. Data items that match the required expression or combination of expressions are routed to the selected destination.

About this task

You can route your data items by defining an expression that is selected for a specific criterion. Then, you can route the data to one of the following destination options:

- Select **Intelligent Operations Center** to route the data to the system as a whole.
- Select **Key Performance Indicators** to route the data to KPI processing, depending on the value and KPI configuration.
- Select **Standard Operating Procedures** to route the data to a standard operating procedure that is defined in the solution. **1.6.0.2** You can choose whether to launch a new instance of the standard operating procedure for every matching record.
- Select **Integration Topic** to route the data to a WebSphere Application Server integration topic that has been previously defined.
- **1.6.0.1** **1.6.0.2** Select **Correlation Topic** to route the data to a topic where it is used for correlation. If you want to route data to a correlation topic, you must select Yes for the **Data for correlation** option on the **Basics** tab.

Procedure

1. To access the data sources configuration tool, click **Administration > Solution Administration > Configuration Tools > Data Sources**.
2. On the **Routing** tab, to add routing details for a property from your data source, do the following substeps. Repeat the substeps for each routing expression that you want to add.
 - a. Click **Add Routing Expression**.
 - b. Complete the **Property**, **Operation**, and **Criteria** fields to define an expression. The resulting condition selects the data to be routed.
 - c. Select the **Route to** option for data to be routed and processed by the system.
3. If you have multiple expressions that are routed to the same target, check that the overall expression logic that is defined in the **Expression logic** field is correct. The system uses the expression logic when it processes your data:
 - Choose **All expressions must be true** to apply a logical AND operation to the combination of expressions.
 - Choose **Any expression must be true** to apply a logical OR operation to the combination of expressions.
4. In the data sources tool, move to another tab, or click **OK** to save your data source for use in the system.
5. Click **Save** to apply updates to an existing data source.

Note: There is a delete button at the side of each routing expression. To delete an expression, click the delete button and then save.

Related concepts:

“Data item routing” on page 150

IBM Intelligent Operations Center processes incoming data items to determine how information is displayed.

“Data source routing updates not reflected in filtered results” on page 447

If you edit the routing criteria for a data source, it might take several refresh cycles before data items that match the updated routing criteria are displayed.

“Configuring KPIs” on page 120

In the Solution Administration view, you can configure Key Performance Indicators (KPIs) and their hierarchical display in the user interface. The KPIs are displayed on the status views in IBM Intelligent Operations Center.

“Configuring standard operating procedures” on page 136

A standard operating procedure is a set of instructions that describes all the relevant steps and activities of a process or procedure. Standard operating procedures are essential to an organization to deliver consistent, measured, high-quality responses to complex and unpredictable events.

Assigning actions to your data source

1.6

1.6.0.1

You can choose which user actions to apply to data items that are received from your data source. Some actions are applied by default.

About this task

From the default list of actions that are supplied, select the actions that you require as options for the user interface. The selected actions are offered on the **More Actions** menu of the preview card.

1.6.0.2

You can assign actions to data sources by using the component customization tool that is in the Solution Administration view. For more information, see the *Customizing components* section.

Procedure

1. To access the data sources configuration tool, click **Administration > Solution Administration > Configuration Tools > Data Sources**.
2. On the **Actions** tab, change the availability of actions that are on the **Available Action** list by selecting the appropriate **Use?** option. Select **Yes** to make an action available.
3. In the data sources tool, move to another tab, or click **OK** to save your data source for use in the system.
4. Click **Save** to apply updates to an existing data source.

Related tasks:

“Defining custom actions for data sources” on page 182

You can define custom actions that are displayed as available actions on the **Actions** tab in the data source configuration tool. If you assign a custom action to a data source, it is displayed in the **More Actions** menu that is on the preview card for the data source.

“Customizing components” on page 174

To extend and customize the functionality of your solution, you can create customized components that you can add to the user interface. You can also replace an existing component with a customized component. For example, for a particular system component, you can replace an existing preview card with a new, customized preview card.

Configuring the appearance of your data on the map

Assign either an icon or a color to map markers to represent the data items from your data source. You can set conditions to change the appearance of the map marker according to the value of a property that is within your data source.

Before you begin

A data item can be represented by either an icon at a point on the map, or multiple icons at points on a map. Alternatively, a data item can be represented by one of a range of other geometrical formats: a line, multiple lines, a shape, or multiple shapes. On the **Minimal Properties** tab, specify the geometric format of the marker that you want to represent your data on the map. On the **Minimal Properties** tab, you can also specify a lookup location for shape data values.

About this task

Configure appearance to define how data items from your data source are displayed on the map. You can either select an icon, or define a color depending on the geometry format that you choose.

You can assign an icon to a marker that is in point format. You can assign a color style to a marker that is in any geometrical format other than a point. The color of an icon is controlled by the category that is assigned to the data source in the filter panel configuration. If you want to upload your own icon into the solution, the icon must be in Portable Network Graphics (PNG) format.

Procedure

1. To access the data sources configuration tool, click **Administration > Solution Administration > Configuration Tools > Data Sources**.
2. On the **Appearance** tab, click either **Icons** or **Styles**, depending on whether you want to assign an icon or a color style to the map marker that represents your data.

Icons

To assign an icon as a map marker, select the icon of your choice in the **Available icons** field, or upload your own icons by clicking **Upload Dark Icon** and **Upload Light Icon**.

Note: You must upload both dark and light versions of your icon so that the icon can be seen throughout the solution interface.

Styles

To assign a color for the entire data source, in the **Style for data source** fields, select a color. Select a color either for **Line color** or for **Fill color**, depending on the geometrical format that you chose on the **Minimal Properties** tab.

Note: The color style that is applied here overrides the color that is selected in the filter panel configuration. The color that is selected in the filter panel configuration applies to point data only.

3. Optional: To assign a style to a specific property in your data source:
 - a. On the **Styles** tab, click **Add a style**.
 - b. Enter a name.
 - c. Select a color.
 - d. To create an expression to control where the color style is used, click **Assign style to an expression**.
4. In the data sources tool, move to another tab, or click **OK** to save your data source for use in the system. Click **Save** to apply the updates to an existing data source.

Related concepts:

"Data item icons" on page 183

You can design your own icons and upload image files to represent data items in the operations views, the status views, and the Solution Administration view. The image files that you upload must meet certain requirements.

Configuring the filter panel

In the Solution Administration view, you can decide how you want to group data sources. Then, for each group, you can configure a pane that is displayed in the filter panel. The data sources that you select are listed in the pane.

You can assign a color to each pane, and change the order in which the filter panes are displayed. You can also define the date and time ranges, and the holidays that are displayed in the Date & Time pane.

Related tasks:

“Creating a data source” on page 101

As an administrator, you can use the data sources tool to add and configure a data source.

“Updating data source configuration” on page 103

As an administrator you can update the settings for a data source.

“Creating an analysis definition” on page 131

Configure the parameters for a data analysis definition that can be associated with geographical areas on the map. The analysis has the potential to indicate patterns of data by displaying hotspots on the map.

Creating a pane

Use the following procedure to create a pane that is displayed in the filter panel. Then, select the data sources that are displayed in the pane.

Procedure

1. Click **Configuration Tools > Filter Panel**.
2. Click **Create**.
3. In the Create a Pane window, specify the details for the pane:
 - a. Enter a value for **Pane name**.
 - b. Select a color to associate with the pane from the **Color to use** palette. When you filter data from this pane, the data item markers are displayed in this color. However, if the data source is not represented by point locations on the map, the color settings that an administrator configures in the **Appearance** tab of the data sources configuration wizard override the color that you specify here.
 - c. In the **Available data sources** list, click each data source that you want to include in the pane, and then click the **Add selected available data source to this pane** icon to move it to the **Data sources included on this pane** list.
 - d. To reorder data sources that are in the **Data sources included on this pane** list, click a data source, and then click either the **Move selected data source down** icon, or the **Move selected data source up** icon.
 - e. Click **OK**. The pane is created and the pane name is displayed at the end of the list of panes.
4. To reposition a pane in the filter panel, click its name in the list, and then click either the **Move selected pane down** icon, or the **Move selected pane up** icon.

Related tasks:

“Configuring the appearance of your data on the map” on page 113

Assign either an icon or a color to map markers to represent the data items from your data source. You can set conditions to change the appearance of the map marker according to the value of a property that is within your data source.

Modifying a pane

Use the following procedure to modify a pane that is displayed in the filter panel. You can change the title and the data sources that are displayed in the pane, and change the color that is associated with the data source group.

Procedure

1. Click **Configuration Tools > Filter Panel**.
2. Click the name of the pane that you want to modify.
3. Modify the details for the pane as appropriate:
 - Edit the value of **Pane name**.
 - Select a color to associate with the pane from the **Color to use** palette. When you filter data from this pane, the data item markers are displayed in this color. However, if the data source is not

represented by point locations on the map, the color settings that an administrator configures in the **Appearance** tab of the data sources configuration wizard override the color that you specify here.

- To add a data source to the pane, click it in the **Available data sources** list, and then click the **Add selected available data source to this pane** icon to move it to the **Data sources included on this pane** list.
 - To remove a data source from the pane, click it in the **Data sources included on this pane** list, and then click the **Remove selected data source from this pane** icon to move it back to the **Available data sources** list.
 - To reorder data sources that are in the **Data sources included on this pane** list, click a data source, and then click either the **Move selected data source down** icon, or the **Move selected data source up** icon.
4. Click **Save**.
 5. To reposition a pane in the filter panel, click its name in the list, and then click either the **Move selected pane down** icon, or the **Move selected pane up** icon.

Deleting a pane

Use the following procedure to delete a pane from the filter panel.

Procedure

1. Click **Configuration Tools > Filter Panel**.
2. Click the name of the pane that you want to delete.
3. Click **Delete**, and then in the confirmation window, click **OK**. A message is displayed that confirms that the pane has been deleted.

Editing the Saved Filters pane or the Favorites pane

Use the following procedure to edit either the Saved Filters pane, or the Favorites pane, that is displayed in the filter panel. You can delete saved filters or favorites.

About this task

Depending on which version of IBM Intelligent Operations Center is installed, the name of the pane might be either **Saved Filters**, or **Favorites**.

Procedure

1. Click **Configuration Tools > Filter Panel**.
2. Click either **Saved Filters**, or **Favorites**.
3. To delete either a saved filter, or a favorite, click the **Delete** icon.
4. Click **Save**.

Defining date and time and holiday ranges

Use the following procedure to define date and time range options, and holiday options that are displayed in the Date & Time pane in the filter panel. For example, you can specify options that make it easy to filter data based on weekends, rush hour, opening hours, and public holidays.

Procedure

1. Click **Configuration Tools > Filter Panel**.
2. To specify date and time range options, click the **Date & Time** tab:
 - a. To add a date and time option, click **Add**.
 - b. In the row that is added, specify the following details:
 - Enter a value for **Name**, for example, **Weekends**.

- Select a value from the **From Day(s)** list, for example, Friday.
 - Select a value from the **From Time(s)** list, for example, 05:00pm.
 - Select a value from the **To Day(s)** list, for example, Sunday.
 - Select a value from the **To Time(s)** list, for example, 09:00pm.
3. To specify holiday options, click the **Holidays** tab:
 - a. To add a holiday option, click **Add**.
 - b. In the row that is added, specify the following details:
 - Enter a value for **Name**, for example, 4th July 2012.
 - For **Date**, either enter a value, or select a date from the calendar, for example, 07/04/2012.
 4. To delete either a date and time, or a holiday option, click the **Delete** icon at the end of the row.
 5. When you finish adding, editing, and deleting rows, click **Save**.

Configuring geospatial maps

In the Solution Administration view, you can configure the maps that are available to the user, the initial map center point, and the map zoom level.

As a user, on the Map tab in the operations view, you can change the base map that is displayed by selecting from the options that are listed in the **More Actions** menu. You can control the location and zoom level of the selected map with the pan and zoom controls on the map.

As an administrator, in the Solution Administration view, you can customize geospatial maps:

- Default base map, map menu, and maps that are available for display on the Map tab
- Default pan and zoom level for each available map

Related concepts:

“Map tab” on page 370

Use the Map tab to see current information that is represented on a geospatial map. You can obtain information from data items marked on the map. Select your data sources on the filter panel and your base map from the list of maps available in the solution.

Managing base maps

As an administrator, you can create, edit, or delete base maps in the solution.

About this task

The Geospatial Map tool provides you with a menu of actions to create, edit, or delete a map for display on the Map tab. To create a base map in the solution, follow the procedure.

Procedure

1. Click **Administration > Solution Administration > Configuration Tools > Geospatial Map**.
2. Click **Create**.
3. Enter the name to be attached to the map in the user interface.
4. Select the type for the base map provider and complete the fields that are required for that provider.
 - XYZ** Enter the URL for your own web map tile service and, optionally, an appropriate attribution for the map.
 - OpenStreetMap** Enter the URL or the OpenStreetMap web map tile service and, optionally, an appropriate attribution for the map.

Google

Enter the layer type that you require for Google, for example, Terrain, Satellite, or Hybrid.

5. To assign this map as the default map for the Map tab, select the check box.
6. Click **Save**.

Results

In the operations view, on the Map tab, you can see the new map in the list of maps that are available in the solution. You can select the map for display on the Map tab.

If you assign a map as the default map, it is displayed by default on the Map tab. Select the default map for display by clicking **Reset** in the **More Actions** menu on the Map tab.

What to do next

You can edit or delete maps in the list. To edit a map, highlight the required map name and click **Edit**. **Base Map Properties** window is similar to the **Create New Base Map** window and you can edit the fields as required.

Related tasks:

“Setting the map center and zoom”

As an administrator, you can set the center point coordinates and the zoom level of any geospatial base map in the solution.

Setting the map center and zoom

As an administrator, you can set the center point coordinates and the zoom level of any geospatial base map in the solution.

Procedure

1. Click **Administration > Solution Administration > Configuration Tools > Geospatial Map**.
2. On the **Base Maps** tab, select the map that you want to work with and click **Map Location**.
3. Set the required center point coordinates and zoom level by using the map controls. You can see the current settings in the **Latitude**, **Longitude**, and **Zoom level** fields beside the map.
4. Click **Save**.

Results

In the operations view, on the Map tab, the center point coordinates and the zoom level that you set are the initial defaults for that base map.

Related concepts:

“Controlling the map” on page 369

You can move the cursor around the map by using your mouse or keyboard.

Related tasks:

“Managing base maps” on page 117

As an administrator, you can create, edit, or delete base maps in the solution.

Setting displayed and returned data item limits

1.6.0.2

You can set the maximum number of data items that are returned to the map and the list, and that are rendered on the map.

Procedure

Do the following steps in the Solution Administration view:

- To set the maximum number of data items that are rendered on the map, configure the **MaxFeaturesToRenderOnMap** system property.
- To set the maximum number of data items that are returned to the map and the list, configure the **StatMaxAllowedFeaturesInResponse** system property.

Related tasks:

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

Adding KML overlays

1.6.0.2

A KML file contains layers and collections of features that you can add onto an IBM Intelligent Operations Center map. If you have data in XML format, you can use the KML schema to add features onto a map without requiring a data source. As an administrator, you can add KML overlays to base maps.

About this task

To add KML overlays to a map, configure the IBM Intelligent Operations Center **KmlUr1s** system property. The order in which the layers are displayed in the **Map Overlays** pane within the filter panel depends on the order that they are defined in the **KmlUr1s** system property. To add a KML overlay to the map in the solution, follow the procedure.

Procedure

1. Log on to the application server as *ibmadmin* and create the following directory:
`/opt/IBM/WebSphere/wp_profile/installedApps/cell1/ioc_theme_ear.ear/ioc_theme_static_js_web.war/js/com/ibm/ioc/kml/`
2. Copy your KML files to the directory that you created in the step 1.
3. Edit the **KmlUr1s** system property to display the KML overlays that you require. For example, to configure two overlays simultaneously, modify the system property with the following values:

```
[{"label": {"group": "KMLLayer", "key": "layer1"},  
"url": "/ibm/ioc/theme/static/js/js/com/ibm/ioc/kml/UpdateKMLFile.kml"},  
{"label": {"group": "KMLLayer", "key": "layer2"},  
"url": "/ibm/ioc/theme/static/js/js/com/ibm/ioc/kml/KMLSAMPLE.kml"}]
```

where:

- *label* is the KML overlay label.
- *group* and *key* are the values that are used to look up the label for the layer in the I18N resource service.

Note: An administrator must add the relevant values to the *ioc.i18n_resource* table.

- *URL* is the URL of the KML layer file.

4. Save your changes.

Results

In the operations views, all of the selectable KML layers are displayed in the **Map Overlays** pane in the filter panel.

What to do next

For more information, see the *Configuring system properties* topic. Also, for more information, see the *context root* information in the WebSphere Application Server product documentation.

Related tasks:

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

“Viewing KML overlays” on page 374

If an administrator configures one or more KML overlays for the map, the **Map Overlays** pane is displayed in the filter panel. A KML overlay contains extra information about data items that can be displayed on the map, for example, locations and icons.

Configuring KPIs

In the Solution Administration view, you can configure Key Performance Indicators (KPIs) and their hierarchical display in the user interface. The KPIs are displayed on the status views in IBM Intelligent Operations Center.

You can customize the navigation tree of KPI hierarchies that is displayed on the status views of the user interface. You can also view, change, copy, create, and delete KPIs from the KPI models that are available within the solution.

KPI navigation tree

In the **Key Performance Indicators** window, you can see the KPI hierarchies of parent and child KPIs. These are the KPI hierarchies that are displayed in the KPI navigation tree on the status views of the user interface. The root level nodes correspond to KPI models. On the status views, KPIs are represented by colored cells. The color indicates the status of the KPI.

On the **Relationships and Display** tab, the information that is described in the following table is available for each root level node.

Name	title of the root level node
Type	type of root level node or owning organization for KPIs
Model ID	identifier for the corresponding KPI model
Icon	icon that represents the root level node, owning organization or data source

KPI model

In the **Key Performance Indicators** window, you can see details of the KPI models that you are authorized to view. You can find details of all the KPIs in each model.

On the **KPI Definition** tab, the information that is described in the following table is available for each KPI in the KPI models.

KPI Name	Title of the KPI. You can click the KPI name to see the properties.
Model	ID of the model the KPI belongs to.

Created	<p>Method of creation of the KPI:</p> <ul style="list-style-type: none"> • A modeled KPI is a KPI created at the model level using IBM WebSphere Business Monitor. • A dashboard KPI is a KPI created using the Key Performance Indicators tool.
Type	<p>Type of KPI:</p> <ul style="list-style-type: none"> • An aggregate KPI has a value that is based on the metric and aggregation method you select. • An expression KPI has a value that is based on other KPIs or user-defined functions, using an XPath expression that you define.
Access	<p>Access level of a KPI:</p> <ul style="list-style-type: none"> • A shared KPI is a KPI that other users have access to view. • A private KPI is a KPI that cannot be shared with users other than the owner.

Related concepts:

“Data item routing” on page 150

IBM Intelligent Operations Center processes incoming data items to determine how information is displayed.

“Monitoring status through KPIs” on page 384

Use the status view to see the status of key performance indicators (KPIs) in summary or in detail format.

Related tasks:

“Routing data from your data source” on page 111

For the data that is received from your data source, set routing expressions that define how the data is processed by the solution. Data items that match the required expression or combination of expressions are routed to the selected destination.

Sample KPIs

A set of sample KPIs is provided with the solution. These KPIs are designed to provide guidance for planning and implementing different types of KPIs to suit your organization. Examples are provided in the areas of water, transportation, and public safety.

Viewing or changing KPI hierarchies

As an administrator, you can view, change, or remove KPI models as they are displayed on the status views.

Procedure

1. Click **Administration > Solution Administration > Configuration Tools > Key Performance Indicators**.
2. On the **Relationships and Display** tab, expand a root level node to see lower levels of the model tree you want to view.
3. Click a root level node title to preview its details.
4. Click a KPI to preview its details on the **Relationships and Display** window.
5. In the **Relationships and Display** tab, you can move, add, change, or remove existing items, as follows:
 - To move subitems within a tree, drag the item to the position you require. Green or red indicators indicate whether a move is allowed or not.

- To add to a tree from the list of existing subitems for a KPI model, right-click on the item to contain the subitem and click **Add KPI**.
 - To go to the **KPI Properties** window and change a subitem, right-click on the item and click **Edit**.
 - To remove a root level node or a subitem from a tree, right-click the item and click **Remove**. Removing a root node item removes all of the subitems it contains.
6. Click **Save** to save any changes you made, or cancel if you did not make any changes.

Note: It is not possible here to edit the details of an owning organization or root level node.

1.6.0.2 This is apart from the name and the icon. If you want to change an owning organization, remove it and replace it with another.

Exporting or importing KPI hierarchies

1.6.0.2

You can create a hierarchy of KPIs that are associated with the IBM Intelligent Operations Center solution. As an administrator, you can import an existing KPI hierarchy as a JavaScript Object Notation (JSON) file, or export the existing KPI hierarchy to a JSON file.

About this task

To avoid reconstructing a KPI hierarchy, you can import an existing KPI hierarchy JSON file that was exported from a different instance of IBM Intelligent Operations Center. The KPI hierarchy import imports the existing KPI hierarchy into the solution, and then replaces the hierarchy that is already in the solution with the imported KPI hierarchy.

To generate a copy of an existing IBM Intelligent Operations Center KPI hierarchy, you can export the hierarchy to a JSON file. The KPI hierarchy export exports the entire KPI hierarchy. If you export a KPI hierarchy, links to reports, named areas, or authorizations are not maintained as the hierarchy must be transferable between IBM Intelligent Operations Center installations. To display the replacement KPI in the status view, edit your permissions.

Procedure

1. Click **Administration > Solution Administration > Configuration Tools > Key Performance Indicators**.
2. In the **Relationships and Display** tab, complete one of the following steps.
 - To export the full KPI hierarchy for the solution, do the following substeps:
 - a. Click **Export KPI Hierarchy**.
 - b. Use the file explorer to select the location to export the KPI hierarchy JSON file to.
 - To import a KPI hierarchy into the solution, do the following substeps:
 - a. Click **Import KPI Hierarchy**.
 - b. Use the file explorer to locate the KPI hierarchy JSON file that you import.

Results

The KPI hierarchy that you selected is either exported from the solution or imported into the solution.

Adding, editing, or deleting an owning organization

As an administrator, you can add an owning organization as a root level node to be displayed on the status views. You can edit the details of an existing owning organization at root level. **1.6.0.2** However, you cannot edit the model detail. You can also delete an owning organization at root level and its associated sublevel nodes are deleted also.

About this task

To add a root level node, follow the procedure.

Procedure

1. Click **Administration > Solution Administration > Configuration Tools > Key Performance Indicators**.
2. At the top of the **Relationships and Display** tab, click **Add Owing Organization**.
3. Enter the name of the owning organization to be displayed in the solution interface.
4. From the drop-down list of the **Model** field, select the KPI model for the root level node to be added.
5. From the drop-down list of the **Icon** field, select the file name for the icon to represent the root level node.
6. Click **OK** to add the root level node to the tree on the **Relationships and Display** window.
7. Click **Save** to update the display in the status view.

Results

The root level node that you added is displayed in the tree hierarchy and is available for display on the status views in the user interface.

What to do next

To edit the details of an owning organization, select the name from the tree on the **Relationships and Display** window, right-click, and change the details as directed in the procedure.

To delete an owning organization, select the name from the tree on the **Relationships and Display** window, right-click, select **Remove** from the drop-down menu, and click **Save**.

Changing the KPI legend

As an administrator, you can change the KPI legend at the top of the status views.

Procedure

1. Click **Administration > Solution Administration > Configuration Tools > Key Performance Indicators**.
2. On the **Relationships and Display** tab, click **Update KPI Legend**.
3. Change the display for the KPI legend as follows:
 - To add a range, click **Add Row**.
 - To change a range, edit the fields under **Range Name, Color, Icon**.
 - To delete a range, click the delete icon.
4. Click **OK** and **Save** to confirm and update the legend displayed on the status views.

Validating KPI ranges

You can validate the range that is assigned to each KPI in the navigation tree.

About this task

The validation program ensures that the ranges assigned to each KPI match the ranges that are defined in the legend and are logical. For example, the validation check ensures that ranges are concurrent and do not overlap.

Procedure

1. Click **Administration > Solution Administration > Configuration Tools > Key Performance Indicators**.
2. On the **Relationships and Display** tab, click **Update KPI Legend**.
3. In the **Validate KPI Ranges** window, click **Run Validation**. The result of the validation check for each KPI is listed in a table, see example.
4. Click **Cancel** to close the window.

Example

This example shows the format and part of a table that results from a validation check.

KPI	Validation
Firefighter Injuries Fire Station One	Valid
Fire Department	Valid
Crime Response Time	Valid
Delayed Flights Airport Two	Valid
Public Safety Budget	Valid

Editing KPI permissions

Assign to users or groups, the appropriate access to KPIs and associated authorization privileges.

About this task

To allow a user access to KPIs from a model on a status view in the user interface, assign the required access level. The list that is provided contains the users, groups, and default access levels that are defined by the administrator. The access level you set for a KPI applies to that KPI and any child KPIs that it has.

Procedure

1. To access the KPI configuration tool, click **Administration > Solution Administration > Configuration Tools > Key Performance Indicators**
2. On the **Relationships and Display** tab, select a KPI in the KPI tree hierarchy.
3. At the top of the **Relationships and Display** tab, click **Edit Permissions**.
4. Select a user or group from the list of names.
5. Select the appropriate access level for the user or group in relation to your KPI.
6. Click **OK** and **Save** to confirm the update.

Mapping KPIs to named areas

1.6.0.1

1.6.0.2

As an administrator, you can map KPIs to named areas for display on the area status views in the user interface.

Procedure

1. Click **Administration > Solution Administration > Configuration Tools > Key Performance Indicators**.
2. Select the KPI you want to associate with one or more named areas. You can select only top-level KPIs for this purpose.
3. At the top of the **Relationships and Display** tab, click **Map KPI to Named Area**.

4. In the **Choose the named area data source** field, select from the list of available named area data sources.

Note: Only data sources that are assigned the named area data type are available for KPI mapping. To assign named area type to a data source, set the field **Data for Boundary** to Yes when you configure the data source.

5. Select one or more of the check boxes for the available named area data items that are listed.
6. Click **OK** to map the KPI to the named areas you selected.
7. Click **Save** to update the named areas available for selection in the area status view.

Results

The named areas that you selected are mapped to the appropriate KPI. As a user, you can select one or more of these named areas on the map or list of the area status views and the relevant KPIs are displayed.

Example

For monitoring crime in specific areas of a major city, you might want to map KPIs to a data source with data on police precincts that are represented by the named areas drawn on the map.

Mapping KPIs to reports

1.6.0.2

As an administrator, you can map KPIs to reports that are displayed in the status views. You can map the same report to more than one KPI. Optionally, you can add a set of parameters to each report that might modify the data that is displayed by the report. The parameter values are used to generate a Cognos reports query, and the parameter values are also displayed as a label on the instance of the generated report.

About this task

You can add parameters that apply only to the selected report for the selected KPI; for example, the parameters might refer to the name and identifier for a report that contains data for a subregion of a larger municipal region. You can specify any parameters when you generate a Cognos reports query. However, the result of your query depends on whether the report requires the parameters that you supply. If the report does not require the parameters that you supply, the parameters are not processed by the solution.

Procedure

1. Click **Administration > Solution Administration > Configuration Tools > Key Performance Indicators**.
2. Select the KPI that you want to associate with one or more reports.
3. At the top of the **Relationships and Display** tab, click **Map KPI to reports**.
4. Under **Available reports**, select one or more check boxes from the list of available reports and click **OK**. The associated reports are displayed in the **Reports** field for each KPI.
5. Optional: Under **Add parameters**, for each selected report, enter alphanumeric values for **Type** and **Value**, and then click **Add**.

Results

The reports that you selected are mapped to the appropriate KPI. As a user, you can select one or more of the reports from the KPI preview card on either the map or the list in the status views. The relevant KPIs are displayed in the reports.

Example

You might want to create a report for monitoring crime in specific areas of a major city. To create the report, you map KPIs to the report that contains data from police precincts during a specified time frame.

What to do next

To disable report headers in the report that you display, configure the following report parameters with a value of **false**:

- **cv.toolbar**
- **cv.header**

For more information about generating a Cognos reports query URL with parameters, and configurable report parameters, see the IBM Cognos Business Intelligence product documentation.

Related tasks:

“Viewing reports from KPI preview cards” on page 385

From the KPI preview cards in the status views, you can view reports that are mapped to KPIs.

Related information:

 [IBM Cognos Business Intelligence 10.2.0 information center](#)

Viewing or changing a KPI model

As an administrator, you can use the **KPI Definition** tab to view or change the KPI models available within the solution.

The **Filter by model** field contains a drop-down list of business process models that you are authorized to view. Select **All models** to see all models and all KPIs. Select the name of a specific model to focus on and only the KPIs belonging to that model are displayed. The KPIs are sorted and displayed in alphabetical order.

Related concepts:

“Creating and integrating KPIs” on page 156

Key performance indicator (KPI) models can be created and modified using a business monitoring development toolkit and the Key Performance Indicators configuration tool.

Copying or creating a KPI

As an administrator, you can use the **KPI Definition** tab to create KPIs belonging to the KPI models available within the solution.

You can create a new KPI for an existing model in the solution. Alternatively, you can select from the list of KPIs displayed, a KPI to copy, and edit.

Copying a KPI

Make a copy of an existing KPI from a model in the solution.

Procedure

1. Click **Administration > Solution Administration > Configuration Tools > Key Performance Indicators > KPI Definition**.

2. Select a KPI. On the action bar, click **More Actions** > **Copy**. The **KPI properties** window opens.
3. Type a new KPI name in the **KPI Name** field.
4. To change the KPI, edit the fields on the tabs of the properties window. For more details about editing these fields to create an aggregate or expression KPI, click the link at the end of the topic.

Note: The KPI that you create within the solution is defined as a dashboard KPI.

5. To save and exit from the updated **KPI properties** window, click **OK**. To save and continue changing the copied KPI, click **Apply**. To exit without saving, click **Cancel**.

Creating a KPI

Create a KPI for one of the KPI models in the solution.

Procedure

1. Click **Administration** > **Solution Administration** > **Configuration Tools** > **Key Performance Indicators** > **KPI Definition**.
2. On the action bar, click **Create**.
3. Click **New Aggregate KPI** or **New Expression KPI**. The **KPI Properties** window opens.
4. To change the KPI, edit the fields on the tabs of the properties window. For more details about editing these fields to create an aggregate or expression KPI, click the link at the end of the topic.

Note: The KPI that you create within the solution is defined as a dashboard KPI.

Changing or deleting a KPI

As an administrator, you can use the **KPI Definition** tab to view, change or delete KPIs belonging to the KPI models available within the solution.

You can create a new KPI for an existing model in the solution. Alternatively, you can select from the list of KPIs displayed, a KPI to copy, and edit.

Viewing or changing a KPI

View or change an existing KPI belonging to a model in the solution.

Procedure

1. Click **Administration** > **Solution Administration** > **Configuration Tools** > **Key Performance Indicators** > **KPI Definition**.
2. Select a KPI. On the action bar, click **Edit**. The **KPI Properties** window opens.
3. To change the KPI, edit the fields on the tabs of the properties window. **1.6.0.2** In the **KPI Properties** window, you cannot change the model of a dashboard KPI.

Note: In the **KPI Properties** window, you cannot change the definition or the model of a modeled KPI.

4. To save and exit from the updated **KPI properties** window, click **OK**. To exit without saving, click **Cancel**.

Deleting a KPI

Delete an existing KPI belonging to a model in the solution.

Procedure

1. Click **Administration** > **Solution Administration** > **Configuration Tools** > **Key Performance Indicators** > **KPI Definition**.
2. Select a KPI.
3. On the action bar, click **Delete**.

Note: In the **KPI Definition** window, you cannot delete a modeled KPI. Within the solution, you can delete only dashboard KPIs.

Configuring hotspot analysis

1.6.0.1

1.6.0.2

Use the Hotspots tool to configure hotspot analysis definitions for the solution. Hotspot analysis can highlight patterns of data in relation to time and position on the geospatial map. As an administrator you can create a hotspot analysis definition, update an analysis that is already listed, or delete a hotspot analysis definition from the solution.

A hotspot is a colored circle on a geospatial map that represents a cluster of data items that are collected and analyzed based on criteria that you define. The properties that can be analyzed are the source, the map position, and the start time of the data items. The data items that are selected for a hotspot are given a percentage score that is based on the result of the analysis and a corresponding color in the range yellow to red.

When you create a hotspot analysis definition, use the **Filter Panel** tool to assign that analysis to a filter pane. That analysis is then available for selection on the filter panel in the user interface. The settings on the filter panel, with the hotspot analysis definition, control the data analyzed and the generation of hotspots on the map.

You can configure the following criteria for the data analysis and view the result in the form of hotspots on the map.

Data sources

Select the data sources that you want to analyze from the available list. In general, to maximize efficiency and ease of interpretation of the analysis result, select no more than two or three data sources.

Analysis type

Select the type of analysis to be carried out on the data sources that you specified. The analysis type is defined by distance and correlation rules. The rules are applied by matching data according to the source, the position, and the start time of the data items. A score is then calculated for the collected data items. The basis for the analysis is detailed in Table 33 on page 130.

Distance limit

Define the maximum distance that governs the analysis of the data items for a hotspot. Each data item that is added to a cluster has at least one other item in the cluster that is within the maximum distance. The center and location of the cluster is the position at the center of the clustered items. The radius of the cluster is the distance from the center to the position of data item most distant from the center point.

Time limit

An extra option to narrow the criteria is to define the time period that governs the analysis of the data items for a hotspot. Each data item selected is within the maximum distance and time interval when tested against at least one other data item from each of the specified data sources.

Number of data items

Define a threshold for the minimum number of data items that are required to generate a hotspot on the map.

Note: Data items can overlap in time, but it is only the interval between the start date and time of each that is used to determine whether they are related and in a hotspot.

Analysis type

The analysis type defines how data items are collected in a cluster and represented by a hotspot on the geospatial map. The type of analysis to be carried out is defined by the time, distance, and the data source relationship rule that is applied to the data items. A cluster of data items accumulates until it reaches the point at which no other items are found according to the rules applied.

A score is calculated for the collected data items in the cluster. The score is awarded based on the proportion of data items in the cluster that adhere to the relationship rule. The ratio of the related data items in the cluster to the number of data items collected in the cluster is expressed as a percentage that ranges from 0% to 100%. The percentage score is represented by the color of the hotspot on the map. The color range is from yellow to red representing the scores from 0% to 100%.

Note: The relationship rule is that a data item is within the maximum distance (and the time interval, if applicable) of either:

- Another item from each data source in the analysis, or
- One other item that is within the maximum distance of an item from each of the other data sources in the analysis

The following table shows, for each analysis type, what criteria must be met for items to be clustered, and how the scores are awarded.

Table 33. The criteria for data item collection and testing in each type of analysis

Analysis type	Step 1: Clustering data items	Step 2: Generating a hotspot on the map	Step 3: Scoring a hotspot
A. Cluster by distance	<ol style="list-style-type: none"> 1. From one of the specified data sources 2. With a property that contains a point map position 3. Within the specified distance when tested against at least one other data item 	No further testing required	The percentage is calculated from the proportion of data items in the cluster that are related based on the distance between them. The score in this analysis type is always 100% and so the color of the hotspot is always red.
B. Cluster by distance and correlate data sources	<ol style="list-style-type: none"> 4. Within the threshold for the minimum number of data items 	Within the specified distance when tested against at least one data item from each of the specified data sources	The percentage is calculated from the proportion of data items in the cluster from different data sources that are related based on the distance between them. The score must be greater than 0% to display a hotspot on the map, otherwise the cluster is hidden. The score can be up to maximum of 100% for a single hotspot.
C. Cluster by distance and correlate data sources with time		Within the specified distance <i>and time interval</i> when tested against at least one other data item from each of the specified data sources	The percentage is calculated from the proportion of data items from different data sources that are related based on the distance and time between them. The score must be greater than 0% to display a hotspot on the map, otherwise the cluster is hidden. The score can be up to maximum of 100% for a single hotspot.

Hotspot score

The following table shows an example of how the score is calculated when a hotspot analysis definition of **Cluster by distance and correlate data sources** is run with the **Boundary** set to a city area on the map. The **Date & Time** filter is set to cover a one week period. The data items that are represented on the map are street light outages and petty crime reports. Three of the hotspots that are generated by the analysis are examined in the table.

Table 34. Example of hotspot scoring

City area data item analysis	Hotspot 1	Hotspot 2	Hotspot 3
Total number of data items collected in the cluster	40	20	20
Number of related data items from different data sources in the cluster	30	10	4

Table 34. Example of hotspot scoring (continued)

City area data item analysis	Hotspot 1	Hotspot 2	Hotspot 3
Calculation	$30/40 * 100 = 75$	$10/20 * 100 = 50$	$4/20 * 100 = 20$
Score per cluster	75%= Red	50% = Orange	20% = Yellow

In this example, you can first observe the position of the data items on the map, representing reports of street light outage and petty crime. Then, run the data analysis. You can see that there is a significant number of related data items that are collected in clusters. You can identify where these related items occur in hotspots on the map. You can also see that hotspot 1 has the highest number of related items when compared with hotspots 2 and 3. The data indicates that a high level of petty crime occurs near to street light outage at the location of hotspot 1. You might want to act based on this data to prioritize street light repairs at that location.

Related concepts:

“Analyzing data hotspots” on page 385

Use the Map tab to analyze data, for the areas that you select on the map, in the form of hotspots that are generated by a predefined analysis. The hotspots view assists you in monitoring, managing, and responding to key issues.

Creating an analysis definition

1.6.0.1

1.6.0.2

Configure the parameters for a data analysis definition that can be associated with geographical areas on the map. The analysis has the potential to indicate patterns of data by displaying hotspots on the map.

About this task

To create an analysis definition, complete the form according to the procedure.

Procedure

1. To access the Hotspots configuration tool, click **Administration > Solution Administration > Configuration Tools > Hotspots**.
2. Click **Create**.
3. Enter a name for your analysis definition and optionally a brief description.

Note: Only the name of the analysis is displayed in the user interface, not the description. To assist users, enter a name that reflects the purpose of the analysis.

4. To choose the data sources that are required for your analysis, in the **Available data sources** field, select one or more check boxes.
5. To select a threshold for the number of items that are required to form a hotspot, in the **Minimum data items** field, enter the number of data items.
6. Select an analysis from the list in the **Analysis type** field.

Note: The data sources that you select must comply with the required specifications of the analysis type that you select.

Option	Description
Cluster by distance	<ul style="list-style-type: none"> • At least one data source • Maximum distance between data items

Option	Description
Cluster by distance and correlate type	<ul style="list-style-type: none"> At least two data sources Maximum distance between data items of different data sources
Cluster by distance and correlate type with time	<ul style="list-style-type: none"> At least two data sources Maximum distance between data items of different data sources Maximum time interval between data items of different data sources

- Enter a distance and unit of measurement in the **Maximum distance** fields.
- If the analysis type that you selected requires a time interval specification, enter a time interval and unit of measurement in the **Maximum time interval** fields.
- Click **OK**.

Results

The analysis view that you defined is displayed in the list of analyses and can be selected for edit or deleted from the solution. All the analyses in the list are also available for configuration in the **Filter Panel** configuration tool.

What to do next

To run the analysis in the user interface, configure the analysis for display on the filter panel in the operations view. Click **Configuration Tools > Filter Panel**. For more information about filter panel configuration, see the link at the end of the topic.

Related concepts:

“Configuring the filter panel” on page 114

In the Solution Administration view, you can decide how you want to group data sources. Then, for each group, you can configure a pane that is displayed in the filter panel. The data sources that you select are listed in the pane.

Configuring location maps

In the System Administration view, you can customize location maps for display on the Location Map tab. The Location Map tab is part of the content panel on the operations views.

On the Location Map tab, you can select a specific location map from the menu. On the Map tab of the content panel, a marker indicates where location maps are available.

You can customize on the Location Map tab:

- A map, diagram, or plan to display on the Location Map tab.
- Areas within location maps to enable data items that are associated with those areas to be displayed on location maps.
- A hierarchy of location maps to enable a menu on the Location Map tab and markers on the Map tab. Menu items are displayed in alphabetical order. Location maps are divided by:
 - Collection depending on where on the geospatial map the location maps occur
 - Category depending on the type of location map in the collection

In the Location Maps tool, you can easily create, view, update, and delete location maps, collections, and areas. You can create new categories. You can delete existing categories, but you cannot update existing categories. Categories, collections, location maps, and areas are hierarchical as detailed in the following definitions.

Category

A category contains one or more collections of location maps. A category assists the user by organizing the menu so that location maps can be found easily. For example, a category that is called Police Stations contains collections of location maps that represent police stations in a city.

Collection

A collection contains one or more location maps. A collection usually consists of a set of maps and is represented by a marker at a position on a geospatial map. A collection must be assigned location coordinates and a category. For example, a collection that is called Fourth Precinct contains location maps that are associated with a police station in the fourth precinct of a city.

Location Map

A location map is any image that represents a location in the required detail. A location map must be assigned to a collection. For example, Floor 1 is a location map of the first floor of a building. This location map is assigned to a collection of maps for the Fourth Precinct police station within a category called Police Stations.

Area An area is a user-defined shape, a polygon, that outlines a portion of a location map. An area must be assigned a name and description. The name is a unique identifier that represents that portion of the location map. Any data item with an area identifier that is received by the solution, is displayed on all location maps that have that area that is defined. For example, the Fourth Precinct map collection has an area that is called Staircase on the Floor 1 and Floor 2 location maps. There is also an option to assign a parent identifier to an area.

Use the parent identifier on more than one location map to create a hierarchy of areas. For example, create areas to represent the seating stands on the first floor of a sports stadium. Each seating stand is defined on the detailed location map of the first floor of the stadium. Additionally, give each seating stand a parent identifier to indicate that it is on the first floor of the stadium. A data item with an area identifier for one of the seating stands is displayed on the detailed seating map of the first floor. This data item is also displayed on an overview location map of the stadium. The first floor area on the overview map has the same area identifier as the parent identifier that is used for the seating stand areas.

For more information about configuring location maps, see the link at the end of the topic.

Related concepts:

“Location Map tab” on page 375

Use the Location Map tab to obtain current information about what is happening at a specific location. You can obtain information from data items marked on the location map. Select your data sources on the filter panel and your location map from the list of maps available in the solution. A location map in IBM Intelligent Operations Center is a map, diagram, or plan with predefined areas for interaction, for example, seating areas in a major sports stadium.

Viewing and uploading map images

As an administrator, you can view or upload map images that are available to use when you are creating location maps in the solution.

About this task

You can create a map that is displayed on the Location Map tab. As a precursor to that task you can upload map images. Any images that you upload are then available to use when you create a new location map.

Procedure

1. Click **Administration > Solution Administration > Configuration Tools > Location Maps**.
2. Click **Location Map Images**. All available images are displayed.
3. Click **Upload**.

Note: The accepted formats for location map images are PNG, JPG, GIF, and SVG.

4. Locate your map image file and click **Open**.

Results

The image is added to the available images displayed when you click **Location Map Images**.

Related tasks:

“Creating, updating, or deleting a location map”

As an administrator, you can create, update, or delete a location map in the solution.

Creating, updating, or deleting a location map

As an administrator, you can create, update, or delete a location map in the solution.

About this task

You can create, edit, or delete a map for display on the Location Map tab.

To create a location map in the solution, use the wizard as described in the procedure. To create a location map, complete the first two tabs. Completion of the third tab is optional and can be done at a later stage. On any tab, you can cancel, or move back to a previous tab.

Procedure

1. Click **Administration > Solution Administration > Configuration Tools > Location Maps**.
2. Click **Create**.
3. Choose your map name and image.
 - a. In the **Map Title** field, enter a name for your map.
 - b. Beside the **Map Image** field, click **Browse**.
 - c. Select the map image from the pictures of available images. The image file name that you select is entered automatically in the **Map Image** field and the map image is displayed on the tab.
 - d. To move to the next step, click **Next**.
4. Choose your map collection and category.
 - a. Click **Choose Existing Category**, and in the **Category** list, choose an existing category for your location map. Alternatively, click **Create New Category**, and in the **Category Name** field, enter the name of a new category.
 - b. Click **Choose Existing Collection**, and in the **Collection** list, choose an existing collection for your location map. Alternatively, click **Create New Collection**, enter the name of a new collection and its latitude and longitude coordinates.
5. Optional: Click **Next** to create the named areas for your location map. For more information about configuring areas on a location map, see the link at the end of the topic.
6. To complete creation of your new location map and exit the wizard, click **OK**.
7. To save your new location map for display on the Location Map tab, click **Save**.

Results

After a browser refresh, your changes are displayed on the Location Map tab on the content panel of the operations views.

What to do next

Click a name on the menu to highlight it. You have the following options:

- To update a location map, edit the appropriate fields on the configuration tabs as described in the procedure.
- To update a collection name and position coordinates, enter your changes on the Update Collection window and click **Save**.
- To delete a location map, or collection, click **Delete**.

Related tasks:

“Viewing and uploading map images” on page 133

As an administrator, you can view or upload map images that are available to use when you are creating location maps in the solution.

“Creating, updating, or deleting areas on a location map”

As an administrator you can create, update, or delete areas for display on your location map.

Creating, updating, or deleting areas on a location map

As an administrator you can create, update, or delete areas for display on your location map.

Before you begin

To create areas when you are creating a location map with the wizard, click **Next** to move to the **Create Named Areas** tab.

To update existing areas on a location map, click **Administration > Solution Administration > Configuration Tools > Location Maps > Create Named Areas**.

Procedure

1. To draw an area on the map, activate the drawing tool by clicking the polygon symbol in the corner of the window. Click the required start position on the map and then click each corner of a polygon to draw your shape on the map. Double-click to finish the polygon. Click the hand symbol to exit the drawing tool. A new area is displayed on the map, by default it is highlighted in blue.
2. Enter a name and description for your new area.

Note:

To create an area on the location map, the limit for the name is 64 characters. For data sources whose data items are displayed on the location map, a property in your data source contains a value for the area name. The maximum length of the area name property must be long enough to accommodate the area name.

3. Optional: To assign a parent area to the area, select from the list of names in the **Parent area name** field.
4. To keep your new area, click **Add**, or to delete the new area, click **Cancel**.
5. To save the new area for display on the Location Map tab, click **Save**.

Results

After a browser refresh, your changes are displayed on the Location Map tab on the content panel of the operations views.

What to do next

To update the name, description or parent identifier details for an area, click the name of the area to be updated. You have the following options:

- To confirm an update to an area on the map, click **Update**
- To undo an update to an area on the map, click **Cancel**

To delete an area, click the delete icon beside the area name. To save and see your confirmed update or deletion on the Location Map tab, click **Save**.

Related tasks:

“Creating, updating, or deleting a location map” on page 134

As an administrator, you can create, update, or delete a location map in the solution.

Configuring standard operating procedures

A standard operating procedure is a set of instructions that describes all the relevant steps and activities of a process or procedure. Standard operating procedures are essential to an organization to deliver consistent, measured, high-quality responses to complex and unpredictable events.

The following list outlines how standard operating procedures are created and used:

1. A list is created of all the issues that might occur in a target environment and need a managed response. The list is created based on previous experience and applied knowledge.
2. A subject matter expert writes a procedure to manage the issue, for example:
 - Who is involved?
 - When are they involved?
 - How are they involved?
 - What supplies the updated data or receives an action?
3. When the response procedure is defined, a standard operating procedure administrator configures a standard operating procedure definition.
4. Standard operating procedures can be started manually or automatically during run time.
5. Standard operating procedure activities can be tracked and integrated in the IBM Intelligent Operations Center user interface.

Related tasks:

“Routing data from your data source” on page 111

For the data that is received from your data source, set routing expressions that define how the data is processed by the solution. Data items that match the required expression or combination of expressions are routed to the selected destination.

Configuring standard operating procedure definitions

When you define a standard operating procedure, you define activities that are included in the standard operating procedure. You can specify the order in which some or all of the activities in a standard operating procedure are executed. For example, you can specify that a particular activity is not started until the previous activity is completed or skipped. You also assign owners and monitors to the standard operating procedure.

About this task

Only authorized standard operating procedure authors and administrators can configure standard operating procedure definitions. Authorized standard operating procedure authors are listed in the SopAuthorRoles system property. Authorized standard operating procedure administrators are listed in the SopAdminRoles system property.

You have the option of saving a draft and not sending it for approval until a later date. A standard operating procedure cannot be launched until it has been approved.

Procedure

1. In the Solution Administration view, click **Configuration Tools > Standard Operating Procedures > Definition**.
2. Click **Create**.
3. On the **Basics** tab, enter a **Name** and a **Description** for the standard operating procedure definition.
4. For General Settings, if you want the activities that are associated with the standard operating procedure to be completed in the specified order, select **Activities are done in order**.
5. For References, to add a reference to the standard operating procedure, use the following substeps:
 - a. Click **Add Reference**.
 - b. From the **Reference** list, either select a reference that has already been added to the library, or to add a reference to the library, do the following substeps:
 - 1) Select **Add New**, and then click **Add**.
 - 2) Enter values for **Name**, and for **URI**. You must enter a fully qualified URI.
 - 3) Optionally, enter a description.
 - 4) Click **Add**.

The reference is added and automatically marked as private.

The References table lists the references that you have added. To delete a reference, click the **Delete** icon next to the reference.

6. Click **Next**.
7. Optional: On the **Roles** tab, specify the owners that you want to be responsible for monitoring the standard operating procedure:
 - a. Select the appropriate role names from the Available Roles list, and then either drag the names to the Selected Roles list, or click **Add**.
 - b. For each selected role, select an option to specify what access they have:
 - If you want a role to be able to monitor activities that are associated with the standard operating procedure, select **Reader**.
 - If you want a role to be able to monitor and complete activities that are associated with the standard operating procedure, select **Owner**.
 - c. To remove role names from the Selected Roles list, select the appropriate role names, and then either drag the names to the Available Roles list, or click **Remove**.

The users that are defined in the SopAdminRoles system property are default owners and readers.

8. Click **Next**.
9. On the **Activities** tab, to add an activity to the standard operating procedure, click **Add**.
10. To create an activity definition, in the Create Activity Definition window, do the following substeps:
 - a. If the activity is mandatory to the standard operating procedure, select the **Required** check box.
 - b. **1.6.0.2** If you want the activity to start automatically, select the **Autostart** check box.
 - c. For **Name**, either enter a name to add an activity, or select a name from the list to add a copy of an activity that has already been defined. If you select an existing activity, the remaining fields are populated with values from that activity's definition.
 - d. Optional: For Roles, select an activity owner from the **Owners** list, and select an activity monitor from the **Readers** list. Alternatively, enter a comma separated list of user names for either one or both of the role types. The users that are defined in the SopAdminRoles system property are default owners and readers.
 - e. Optional: For **Duration**, enter a numerical value, and select a measurement unit from the list.
 - f. Optional: For **Description**, enter a description of the activity.
 - g. Select the type of activity from the **Activity Type** list:

Manual Activity	An activity that is done manually by the owner. Provide details in the Description field.
Automation Activity	An activity that initiates and tracks a particular work order in IBM SmartCloud® Control Desk 7.5.1. Select a predefined work order from the list.
If-Then-Else Activity	A conditional activity that allows branching based on specific criteria. Select values for Then and Else .
Notification Activity	An activity that displays a notification window that contains an email template for the activity owner to complete, and then sends an email notification. Notification templates are stored as references in the reference library. To select the email template that will be displayed to the owner, select a reference from Reference name . To preview the email template, click Preview .
REST Service Activity	An activity that creates a REST service call: <ul style="list-style-type: none"> • For REST service, enter or select a REST service URL. • For USER ID, enter a user ID to access the REST service. • For Password, enter a password to access the REST service.
SOP Activity	An activity that launches another standard operating procedure. From the SOP list, select the name of a standard operating procedure.

- h. Optional: To add a reference to the activity, follow the substeps that are given in Step 5 on page 137.
- i. Click **Add**.

The activity is appended to the list of activities.

11. Edit the activities in the list:
 - To view a summary of the details for an activity, expand the name of the activity.
 - If you selected the **Activities are done in order** option for the standard operating procedure, to reorder the activities, click and drag the activity names.
 - To edit an activity, click its name, and then click **Edit**. Edit the activity as required, and then click **Save**.
 - To delete an activity, click its name, and then click **Delete**.
12. Click **Next**.
13. On the **Summary** tab, review the summary information for the standard operating procedure, and then click **Save**. The standard operating procedure definition is displayed in the list.
14. Optional: To submit the standard operating procedure definition for approval, click its name in the list, and then select **Submit for Approval** from the **Submit for Approval** list. Alternatively, to delete the draft standard operating procedure definition, select **Discard Draft** from the list.

Related concepts:

“Defining standard operating procedure roles” on page 97

The standard operating procedure component obtains the current authentication credentials to determine what actions each user is authorized to do. Each user is authorized to do standard operating procedure actions that are based on the LDAP Roles that the user is assigned to, and must match the distinguished name (DN) that is used in association with the standard operating procedure objects.

Related tasks:

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

Related information:

 IBM SmartCloud Control Desk Version 7.5.1 product documentation

Copying, deleting, and refreshing definitions

Instead of creating a new standard operating procedure definition each time, you can copy an existing standard operating procedure definition, and then use it as the starting point for creating another definition. You can also delete and refresh definitions.

Procedure

In the Solution Administration view, click **Configuration Tools > Standard Operating Procedures > Definition**.

- To copy a standard operating procedure definition, click its name in the list, and then click **Copy**. A copy of the definition is added to the list. For example, if the name of the original definition is SOP1, the copy is automatically named Copy of SOP1. You can edit the copied definition, and rename it.
- To delete a standard operating procedure definition, click its name in the list, and then click **Delete**.

Note: All versions of the standard operating procedure definition, and any instances of the standard operating procedure that have been triggered and are running, are deleted.

- To refresh all the standard operating procedure definitions in the list, click **Refresh**. The definitions are refreshed with updates that have been made by other administrators.

Working with drafts and approvals

When you create a standard operating procedure definition, a draft version is saved initially. When you submit a draft version for approval, a version of the standard operating procedure definition is saved, where the version name is the approval time stamp value. You can create another draft that is based on an approved version.

About this task

After you select a standard operating procedure definition, select the version of the definition that you want to work with from the **Version** list:

- If you select **Draft** from the **Version** list and the draft has not been submitted for approval, the **Submit for Approval** list is displayed.
- If you select **Draft** from the **Version** list and the draft has been submitted for approval, the **Approve** list is displayed.
- If you select an approved time stamp value from the **Version** list, the **Create Draft** list is displayed. You can have a maximum of only one draft version in progress for each standard operating procedure definition. If a draft version exists already, the **Create Draft** list is not displayed.

Procedure

Working with drafts that have not been submitted for approval:

- To submit a draft for approval, select **Submit for Approval** from the **Submit for Approval** list.
- To discard a draft, select **Discard Draft** from the **Submit for Approval** list.

Working with drafts that have been submitted for approval:

- To approve a draft, select **Approve** from the **Approve** list.
- To disapprove a draft, select **Disapprove** from the **Approve** list. The version name is changed from the time stamp value back to Draft.

Working with an approved version:

- To create a draft that is based on an approved version, select the version name from the **Version** list, and then select **Create Draft** from the **Create Draft** list.

Viewing and editing definitions

Use the following procedure to view and edit standard operating procedure definitions.

About this task

You can edit only a draft version of a standard operating procedure definition. For more details about specifying definition settings, see the topic about configuring standard operating procedure definitions in this section.

Procedure

1. In the Solution Administration view, click **Configuration Tools > Standard Operating Procedures > Definition**.
2. Click the name of the standard operating procedure definition that you want to view or edit.
3. From the **Version** list, select a version. If you want to edit the standard operating procedure definition and the **Version** list contains only approved versions, you must create a draft version; select the version that you want to edit, and then click **Create Draft**.
4. Choose one of the following options:
 - To view basic information about the standard operating procedure definition, expand **Details**.
 - To edit basic information for the standard operating procedure definition, click **Edit**, and then make your changes. To save your changes to the basic information, click **Save**. Alternatively, to cancel your changes and close the definition, click **Cancel**.
 - To either view or edit activities, roles, and references, or to view the change log and instances for the standard operating procedure definition, click the following tabs:

Activities	<p>A list of the activities that are associated with the definition is displayed.</p> <ul style="list-style-type: none"> • To view details for the activity, expand the name of an activity. • To add an activity, click Add. • To edit an activity, click the name of the activity, and then click Edit. • To delete an activity, click the name of the activity, and then click Delete.
Roles	<p>A list of roles and associated access types is displayed. To edit the roles, click Edit.</p>
References	<p>A list of the references that are associated with the definition is displayed.</p> <ul style="list-style-type: none"> • To view details for the reference, expand the name of a reference. • To add a reference, click Add. • To edit a reference, click the name of the reference, and then click Edit. • To delete a reference, click the name of the reference, and then click Delete.
Change Log	<p>The change history of the standard operating procedure definition is displayed.</p>

Instances	A list of the instances of the standard operating procedure that are running or have completed is displayed in a table. For more information about instance status and editing instances, see the link at the end of the topic.
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Related tasks:

“Viewing and editing instances of a standard operating procedure”

For a standard operating procedure definition, you can review the instances of the standard operating procedure that have been launched. You can view an instance in the Standard Operating Procedure Details window, where you can edit an instance, or change the status of an instance.

Launching standard operating procedures

You can manually launch an instance of a standard operating procedures in the Solution Administration view.

About this task

When you launch a standard operating procedure, the most recently approved version is launched.

Procedure

1. In the Solution Administration view, click **Configuration Tools > Standard Operating Procedures > Definition**.
2. Click the name of the standard operating procedure definition for which you want to launch an instance.
3. From the **Definition Actions** drop-down list, select **Launch**. A message is displayed that confirms that an instance of the standard operating procedure has been created.

Viewing and editing instances of a standard operating procedure

For a standard operating procedure definition, you can review the instances of the standard operating procedure that have been launched. You can view an instance in the Standard Operating Procedure Details window, where you can edit an instance, or change the status of an instance.

About this task

You can view the previous and current instances of a standard operating procedure definition. An instance of a standard operating procedure is created each time that the standard operating procedure is launched, whether automatically or manually.

Procedure

1. In the Solution Administration view, click **Configuration Tools > Standard Operating Procedures > Definition**.
2. Click the name of the standard operating procedure for which you want to view the instances.
3. From the **Version** list, select a version.
4. Click the **Instances** tab. The table indicates the status of each instance, where the status can be active, started, completed, or stopped. For each instance, the table also indicates the start time, the end time, and the activity status. For the activity status, each column is headed by a status icon. The column indicates the number of activities in the instance with that status. The icons indicate the following status values:
 - Completed status indicates the number of activities that have been completed.
 - Active status indicates that the standard operating procedure has been launched and the instance is active.

- Waiting status indicates the number of activities that are waiting to be started.
 - Skipped status indicates the number of activities that have been skipped by the owner.
 - Automation exception status indicates that a problem occurred in IBM SmartCloud Control Desk 7.5.1 with the number of automated activities that are indicated.
5. In the table, double-click an instance.
 6. In the Standard Operating Procedure Details window, choose from the following options:
 - To edit basic information for the standard operating procedure instance, from the list, select **Edit**. To save your changes to the basic information, click **Save**. Alternatively, to cancel your changes, click **Cancel**.
 - To either view or edit activities, references, and roles, or to view the comments and change log for the standard operating procedure instance, click the tabs. **1.6.0.2** You can also view or edit events.
 - To stop the instance, if it has been started, select **Stop**.
 - To start the instance, if it has been stopped, select **Start**.
 - To export details of the standard operating procedure instance, from the list, select **Export**.
 - To add a comment to the instance of the standard operating procedure, from the list, select **Add Comment**.

Exporting and importing standard operating procedure definitions

You can export your standard operating procedure definitions as an XML file, and import a previously exported standard operating procedure definitions file.

Procedure

In the Solution Administration view, click **Configuration Tools > Standard Operating Procedures > Definition**.

- To export your standard operating procedure definitions to an XML file, do the following substeps:
 1. From the **Definition Actions** drop-down list, select **Export All**.
 2. In the window that is displayed, click **Save File**, and then browse to a location to save the exported standard operating procedure definitions.
- To import standard operating procedure definitions from a previously exported XML file, do the following substeps:
 1. From the **Definition Actions** drop-down list, select **Import**.
 2. In the Import Standard Operating Procedures window, choose a file to upload. The imported definitions are displayed in the list of standard operating procedure definitions. You can import a standard operating procedure definition that has the same name as an existing standard operating procedure definition. In this case, the existing standard operating procedure definition is not overwritten. Instead, two standard operating procedure definitions with the same name are displayed in the list of definitions.

Working with references

The reference library contains links that are useful and easily accessible for completing standard operating procedures; for example, phone lists, email addresses, forms, and notification templates. You can add, edit, delete, and launch references in the standard operating procedure reference library.

About this task

Only authorized reference librarians can edit the reference library. Authorized reference librarians are listed in the ReferenceLibrarianRoles system property.

Procedure

In the Solution Administration view, click **Configuration Tools > Standard Operating Procedures > References**.

- To add a reference to the library, do the following substeps:
 1. Click **Add**.
 2. Enter values for **Name**, and for **URI**. You must enter a fully qualified URI.
 3. Optional: Enter a description.
 4. If you want the reference to be private, select the **Private** check box.
 5. Click **Add**. The reference is displayed in the table.

Note: Private references are not displayed in the table unless you select the **Show Private** check box.

- To view private references, from the drop-down list at the top of the table, select the **Show Private** check box.
- To view archived references, from the drop-down list at the top of the table, select the **Show Archived** check box.
- To edit a reference in the library, do the following substeps:
 1. Select the reference.
 2. Click **Edit**, and then edit the values.
 3. Either select or clear the **Private** check box as required. Private references are not displayed in the table unless you select the **Show Private** check box.
 4. Either select or clear the **Archive** check box as required. Archived references are not displayed in the table unless you select the **Show Archived** check box.
 5. Click **Save**.
- To delete references from the library, select the references that you want to delete, and then click **Delete**.
- To open a reference in the library, select the reference, and then click **Launch URI**. The reference URI is opened in a new browser window.

Related tasks:

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

Creating notification templates

You can add a notification template to the reference library that can be used to send an email; for example, in a notification activity.

Procedure

1. Create a text file that contains the email template, and then post the text file to a website. An example email template is shown below: The following text shows example template text:

```
To:  
Subject:This is a test notification  
Body:This is some text to show how  
you can add multiple lines for  
the body.
```

The To, Subject, and Body fields are all optional.

2. In the Solution Administration view, click **Configuration Tools > Standard Operating Procedures > References**.
3. Click **Add**.

4. Enter a **Name** for the notification template.
5. Enter the **URI** to the text file that contains the notification template.
6. Enter a description. Ensure that the first line of the description contains only the keyword NOTIFICATION. You can add further description details to subsequent lines.
7. Click **Add**.

Chapter 5. Integrating the solution

Products and services can be integrated with the IBM Intelligent Operations Center. The IBM Intelligent Operations Center can incorporate the relevant data and updates.

Incoming data items can be related to key performance indicators (KPI) that are monitored by the IBM Intelligent Operations Center. Data coming into IBM Intelligent Operations Center can also be related to standard operating procedures.

Examples of systems that can be integrated

Products and services can be integrated with the IBM Intelligent Operations Center.

Examples of systems and services:

- Systems reporting on public safety issues.
- Systems reporting on traffic events.
- Systems reporting on water quality and usage.
- Systems providing data on outages and status of related work orders.

These systems must be able to communicate with the IBM Intelligent Operations Center and send data items and measurements in the supported data format to the IBM Intelligent Operations Center.

Integrating with data sources

A data source is used to exchange information between the IBM Intelligent Operations Center and external systems.

In IBM Intelligent Operations Center, data sources provide a generic format for exchanging data. Data source configuration is compatible with emerging techniques, such as web services, while offering enhanced capabilities. Data sources provide the following capabilities:

- Flexible geographic targeting using latitude and longitude shapes and other geospatial representations in three dimensions
- Multilingual and multi-audience messaging
- Phased and delayed effective times and expirations
- Enhanced message update and cancellation features
- Digital encryption and signature compatibility
- Digital images and audio facilities

Data items are self-contained data messages that can be sent or used by components of the solution. Data items can be published to topic queues and read by all potentially interested subscribing IT systems. Data source configuration standardizes content so multiple domains can send and receive events in a common format using common conventions. The standard defines the mandatory and optional fields in the data item and the acceptable values for those fields. Data item processing management can mediate between earlier formats and the standardized format. Data sources can be configured to handle day-to-day operations in addition to emergency situations. For more information about the configuration of data items, see the link at the end of the topic.

The data source configuration helps minimize data exchange per item. Because data items are formatted in XML, the data format can be written and read by various systems, thereby preventing the exchange of meaningless data or data creating dangerous confusion.

IBM Intelligent Operations Center provides persistent storage of data items and a standard interface for presenting them.

While the entire data item is accepted by the IBM Intelligent Operations Center, some data can be used to calculate key performance indicators (KPI), to activate standard operating procedures, or other customized applications.

IBM Intelligent Operations Center uses the WebSphere Message Broker to integrate data items.

Related concepts:

“Configuring a data source” on page 99

Use the Data Sources tool to configure a data source that supplies data to IBM Intelligent Operations Center.

Guidelines on preparing data for the solution

To view and filter the data that you require on the maps and list in IBM Intelligent Operations Center, prepare the data in your data source. Then, configure your data source in the Solution Administration view.

Prepare in your data source the data that you want to be received by IBM Intelligent Operations Center. To enable IBM Intelligent Operations Center to receive the data, include the minimal property values that are required by the system and the key properties values that suit your operation. The following list highlights important considerations on acquiring data and in relation to the minimal and key property values. For more detailed information about configuring your data source in IBM Intelligent Operations Center, see the related link.

Configure the data source correctly

If all of the following conditions are met, the data import process fails, and an error is displayed:

- You import data from a data source into the solution where the start and end date columns for the solution are configured as string values.
- The data source start and end date columns are not string values.
- The data source time column contains values that are not time type values.

To prevent the import process from failing, configure the data source so that the start date and end date columns are string data types. Also, leave the time column in the data source empty. The data import process correctly assigns the default time values.

Acquire the data

1.6.0.1 **1.6.0.2** If you want the system to acquire data from an SQL Server database, install a Microsoft JDBC driver to create the data source. This driver is not supplied with IBM Intelligent Operations Center.

1.6.0.1 **1.6.0.2** **Data for boundary**

If you have a data source that contains data for named areas to be marked on the geospatial map, you can set the area boundary conditions for the data that you want to view. The solution can filter data for display in relation to areas as follows:

- Data that is used for display on the geospatial map in an operations view
- Data that is used for generating hotspots that are displayed on the geospatial map in an operations view
- Data that is used for the KPIs that are displayed in an area status view

Polling interval

Set the polling interval of your data source to ensure that the system receives updates according to the time interval that you require. This setting indicates how often the system checks for new data. Set a value of 0, if you want to receive the initial data and never look for updates. Otherwise, set the time interval for receipt of updates.

Area name

If you assign a property in your data source to hold area names from the location map, the data from that data source cannot be displayed on the geospatial map. Data from the data source can be displayed on the location map only.

Note: The database property must be able to contain the maximum number of characters that occur in location map area names.

Last update date and time

The last update date and time property is a required property for database data sources if you want to receive updates. For CSV files, the time stamp of the CSV file is the value that is used automatically for this property.

Time zone offset

The time zone offset value is required for all data sources and affects the start and end time values. Set the value to 0 if your data source is in the same time zone as the system. The value is measured in minutes but must be divisible by 30.

Shape If the position of your data item is in well-known text (WKT) format, select the shape option under location properties. You must also map the property from your data source that supplies the position value.

Note: To represent the data with points or shapes on the map, coordinates must be in WKT format. Data that is received for the points or shapes that are supported must be in a valid WKT format. This requirement applies to all the supported methods of data input: database tables, CSV files, and user input through the user interface.

Latitude and longitude

Latitude and longitude can be supplied as separate properties when data is received from database tables or CSV files.

Key & full properties

Assign your data source properties to be key properties if you want to see the data in the list and preview card format in the operations and status views. Latitude and longitude can also be supplied as separate properties when data is received from database tables or CSV files.

Filter enumerated values

Property values that are received at run time, which are known as 'enumerated values', can be used for filtering data on the map or list tab. To use values for this purpose, when you configure the data source, set the **Key property** field to Yes and the **Filter enumerated values** field to Yes.

Allowed values

Property values that are entered at data source configuration time, which are known as 'allowed values', can be used for filtering data on the map or list tab. To use values for this purpose, enter the values in the **Allowed values** field when you configure the data source. You must also set the **Key property** field to Yes and the **Filter enumerated values** field to No.

Note: This configuration also restricts the values that a user can enter when a new data item is added on the map or list tab.

Used as an index ID

If you want data updates in the source to update existing data in the solution, set a value in the ID field. If you do not provide a value for this field, each data item is considered a new data item when the source is updated. The ID value must be unique in your source. If the last update date and time fields and fields other than this ID are modified at source, the item is updated.

Note: In this case, the source is the system of record and changes that are made in IBM Intelligent Operations Center are overwritten by source updates.

The following guidelines apply to CSV files only:

- The first line of the CSV file must contain a list of the property names, which are separated by commas.
- Each line after the first line of the CSV file must contain an identical number of values to match the property names in the first line.
- There must be no extra commas at the end of any line and the number of commas on each line must be the same.
- Apostrophes, single quotation marks, or double quotation marks are not supported.
- When a CSV file is processed by the system, the name is changed, for example, Test3_processed_123.csv.
- To update an existing CSV file data source, place a file with the original name in the directory on the application server. Every line of the CSV file is processed for each file that is received, so you might want to remove existing entries to avoid duplication.

Related concepts:

“Configuring a data source” on page 99

Use the Data Sources tool to configure a data source that supplies data to IBM Intelligent Operations Center.

DB2 data source

There are some conditions to consider when you are preparing a DB2 database data source.

Big integer and decimal data types

Some DB2 number data types are subject to rounding in the IBM Intelligent Operations Center user interface. For example, decimal and big integer data type values are rounded to numbers of 16 digits or decimals with 17 digits.

The IBM Intelligent Operations Center uses JavaScript, which has double-precision 64-bit format IEEE 754 values to represent numbers. This method provides 53-bit precision. Some DB2 data types, for example decimal and big integer data types, allow higher levels of precision, up to 63 bits. The REST API services can avail of the full range of possible values. However, when these values are displayed or submitted through the user interface, they might be rounded to fit the lower precision limit of the JavaScript.

Elements of the user interface can be affected by this limit in the following ways:

- Viewing the data property value on the List tab, you see a different value to the value stored in the DB2 database.
- Viewing the data property value on the preview card, you see a different value to the value stored in the DB2 database.
- Entering data for the property in the **New Item** dialog cannot be completed and results in an error.

Character data type

If you have the character data type in your source DB2 database, it might result in unexpected behavior when the data source is configured to use a routing expression. This behavior can occur because extra spaces are incorporated in the message sent to WebSphere Business Monitor as result of data source routing expression processing.

The character data type in DB2 is a fixed-length column. For example, declare a name property, CHAR(20), and input a name that is shorter than 20 characters, "IBM". DB2 adds spaces to this value. When the data is processed by the data import logic, an expression is evaluated. The data receiver sends the characters "IBM" plus 17 empty character spaces to the routing destination and to the DB2 target table for storage in the IBM Intelligent Operations Center. The result is that your data is not routed as you expected.

Defining named areas by using SQL

1.6.0.1

1.6.0.2

You might want to define a named area type data source that has many named areas. Instead of drawing each named area polygon individually on the map, you can define the named area polygons by using an SQL table. Then, create a data source that connects to a database to acquire the named area data from the SQL table.

About this task

For the named areas to be created successfully, you must do the following steps in order. You must insert the named area polygon data into the SQL table before you create the data source that acquires the data from the SQL table. SQL data for a named area type data source is acquired only when the data source is created. A named area type data source is not polled for updated data after the data source is created.

Procedure

1. Log on to the IBM Intelligent Operations Center data server, and then connect to a database.
2. Create a named area data source table. Ensure that the lengths of the properties in the table are large enough to contain the values of the well-known text (WKT) format for the polygons that define your named areas. If the properties are not large enough to contain the polygon values, the named areas will not be created. For example, the following SQL commands create a table that is named `SAMPLE.NAMED_AREA`.

```
drop table SAMPLE.NAMED_AREA;
create table SAMPLE.NAMED_AREA (
  StartDateTime TIMESTAMP,
  EndDateTime TIMESTAMP,
  LOCATION VARCHAR(500),
  NAME VARCHAR(30),
  LastUpdateDateTime  TIMESTAMP,
  TIMEZONEOFFSET  INTEGER,
  INCIDENT_NUMBER VARCHAR(100),
  PROBLEM VARCHAR(100),
  CALL_DISPOSITION VARCHAR(100),
  PRIORITY_NUMBER  INTEGER
)
DATA CAPTURE NONE;
```

3. Insert the named area data into the named area table. The following example inserts a single polygon into the table:

```
INSERT INTO SAMPLE.NAMED_AREA (
  STARTDATETIME,
  ENDDATETIME,
  LOCATION,
  NAME,
  LASTUPDATEDATETIME,
  TIMEZONEOFFSET,
  INCIDENT_NUMBER,
  PROBLEM,
  CALL_DISPOSITION,
  PRIORITY_NUMBER)
VALUES (
  CURRENT_TIMESTAMP,
  CURRENT_TIMESTAMP,
  'POLYGON((-93.64833644901181 45.07616323264413,-93.54259304081118
  45.0732538434894,-93.55083278690229 45.012607882373146,
  -93.64970974003148 45.02037415319953,-93.64833644901181
  45.07616323264413))',
  'Polygon_001',
  CURRENT_TIMESTAMP,
```

```
0,'10021',  
'problem',  
'call_dispostion',  
'2');
```

4. Log on to IBM Intelligent Operations Center, and create a data source by following the instructions in the *Configuring a data source* section. Note the following points:
 - On the **Acquire** tab, for the data source acquisition method, select **Connect to a database**.
 - On the **Basics** tab, for **Data for boundary**, select **Yes**.

Results

In the operations views, in the Boundary pane on the filter panel, the named area that you defined in the SQL file is displayed in the list of named areas for the data source.

Related concepts:

“Configuring a data source” on page 99

Use the Data Sources tool to configure a data source that supplies data to IBM Intelligent Operations Center.

Related reference:

“Data source basic settings” on page 104

Choose settings on the **Basics** tab to provide the basic input and selections that are appropriate for your data source.

Data item routing

IBM Intelligent Operations Center processes incoming data items to determine how information is displayed.

Other products and services can be integrated with the IBM Intelligent Operations Center through the message bus service. KPIs are monitored by the business monitoring service.

Data items are received by the IBM Intelligent Operations Center. The data items can be displayed on a list, and can affect what is displayed in the user interface either on a geospatial map, or on a location map. Data items that do not have corresponding KPI or standard operating procedure routing are displayed according to the information that is received about the data item.

The configuration of the corresponding data source determines how data items are routed when they are received into the system. The Data Sources configuration tool provides the following destination and processing options:

- IBM Intelligent Operations Center
- Key performance indicator
- Standard operating procedure
- Integration topic

You can create multiple routing expressions that route data items to multiple destinations. However, take care if one of the routing expressions has IBM Intelligent Operations Center as the destination. The other routing expressions are evaluated only if the routing expression that routes the data items to IBM Intelligent Operations Center evaluates to true.

Therefore, if you use the same property to route data items to multiple destinations, where one of the destinations is IBM Intelligent Operations Center, the property must have the same value in each routing expression. Otherwise, if the routing expression that routes the data items to IBM Intelligent Operations Center evaluates to false, then none of the other routing expressions are evaluated. For example, consider the scenario where you define the following routing expressions:

- If the value of property A equals ABC, route the data items to IBM Intelligent Operations Center.

- If the value of property A equals DEF, route the data items to KPI processing.

In the previous scenario, data items are never sent to KPI processing. For a data item, if the value of A equals ABC, the data item is imported into IBM Intelligent Operations Center. If the value of A equals DEF, the data item is not imported into IBM Intelligent Operations Center at all and the second expression is not evaluated.

For more information about the Data Sources configuration tool and data routing, see the link at the end of the topic.

Key performance indicator

When you configure a data source, you can route data items to KPI processing by IBM Business Monitor, so that they are incorporated into the calculation of KPI values. The definition of KPIs in a KPI model determines how KPIs are displayed on the status views in the user interface, and also determines how information from data items is processed. For example, if a KPI threshold is exceeded, the data item might be flagged with a higher urgency or severity. An administrator can use the Key Performance Indicators configuration tool to change or extend existing KPI models in IBM Intelligent Operations Center. KPI models are initially created in IBM Business Monitor. For more information about configuring and integrating KPIs, see the links at the end of the topic.

Standard operating procedure

When you configure a data source, you can route data items to a specific standard operating procedure. If a data item matches the routing expression, a new instance of a standard operating procedure is created that is based on the selected standard operating procedure definition. If an instance of the standard operating procedure is already running, the data item is associated with the active standard operating procedure instance. For more information about configuring and viewing standard operating procedures definitions, see the link at the end of the topic.

Integration topic

You can add your own routing destination to the solution. You can create a WebSphere Application Server integration topic and add it to the solution.

If you update the routing schema file with the custom properties for the data source that you want to route to the integration topic, the routing schema file can be used to generate a set of Java JAXB classes. Applications that are listening to the integration topic can use the routing schema file to convert an incoming XML message to Java classes that the applications can then process.

Related concepts:

“Configuring a data source” on page 99

Use the Data Sources tool to configure a data source that supplies data to IBM Intelligent Operations Center.

“Configuring KPIs” on page 120

In the Solution Administration view, you can configure Key Performance Indicators (KPIs) and their hierarchical display in the user interface. The KPIs are displayed on the status views in IBM Intelligent Operations Center.

“Creating and integrating KPIs” on page 156

Key performance indicator (KPI) models can be created and modified using a business monitoring development toolkit and the Key Performance Indicators configuration tool.

“Configuring standard operating procedures” on page 136

A standard operating procedure is a set of instructions that describes all the relevant steps and activities of a process or procedure. Standard operating procedures are essential to an organization to deliver consistent, measured, high-quality responses to complex and unpredictable events.

Related tasks:

“Routing data from your data source” on page 111

For the data that is received from your data source, set routing expressions that define how the data is processed by the solution. Data items that match the required expression or combination of expressions are routed to the selected destination.

Routing schema file

The base IBM Intelligent Operations Center routing schema file contains elements for the properties that are common to all data sources. Update the routing schema file to also include the properties that are unique to the data sources. The updated schema file is used to route data to KPIs. The updated schema file can also be used when applications are created that process records that are routed to integration topics.

Base routing schema file

XML messages that are routed to KPIs are based on the following IOC-routing-v1.6.xsd base routing schema file. The IOC-routing-v1.6.xsd file is included in the sample monitor models.

```
<complexType>
  <all>
    <!-- * Minimal properties */ -->
    <element name="DATASOURCEID" type="integer" minOccurs="1" maxOccurs="1" />
    <element name="OBJECTID" type="integer" minOccurs="1" maxOccurs="1" />
    <element name="STARTDATETIME" type="dateTime" minOccurs="1" maxOccurs="1" />
    <element name="ENDDATETIME" type="dateTime" minOccurs="1" maxOccurs="1" />
    <element name="LASTUPDATETIME" type="dateTime" minOccurs="1" maxOccurs="1" />
    <element name="ASSESSMENTDATETIME" type="dateTime" minOccurs="1" maxOccurs="1" />
    <element name="TIMEZONEOFFSET" type="integer" minOccurs="1" maxOccurs="1" />
    <element name="LOCATION" type="string" minOccurs="1" maxOccurs="1" />
    <element name="NAME" type="string" minOccurs="1" maxOccurs="1" />
    <!-- * Key/Full properties */ -->
  </all>
</complexType>
```

Sample modified routing schema file

To make the base routing schema file work for `ioc_sample_monitor_models`, the `IOC-routing-v1.6.xsd` base routing schema file must be modified to match the following example. Depending on how the data source is configured, all the following key and full properties might, or might not, be included in the routed XML message.

```
<complexType>
  <all>
    <!-- * Minimal properties */ -->
    <element name="DATASOURCEID" type="integer" minOccurs="1" maxOccurs="1" />
    <element name="OBJECTID" type="integer" minOccurs="1" maxOccurs="1" />
    <element name="STARTDATETIME" type="dateTime" minOccurs="1" maxOccurs="1" />
    <element name="ENDDATETIME" type="dateTime" minOccurs="1" maxOccurs="1" />
    <element name="LASTUPDATETIME" type="dateTime" minOccurs="1" maxOccurs="1" />
    <element name="ASSESSMENTDATETIME" type="dateTime" minOccurs="1" maxOccurs="1" />
    <element name="TIMEZONEOFFSET" type="integer" minOccurs="1" maxOccurs="1" />
    <element name="LOCATION" type="string" minOccurs="1" maxOccurs="1" />
    <element name="NAME" type="string" minOccurs="1" maxOccurs="1" />
    <!-- * Key/Full properties */ -->
    <element name="SUPPLY" type="string" minOccurs="0" maxOccurs="1" />
    <element name="DEMAND" type="string" minOccurs="0" maxOccurs="1" />
    <element name="REVENUE" type="string" minOccurs="0" maxOccurs="1" />
    <element name="PROJECTED_REVENUE" type="string" minOccurs="0" maxOccurs="1" />
    <element name="BUDGET" type="string" minOccurs="0" maxOccurs="1" />
    <element name="EXPENSES" type="string" minOccurs="0" maxOccurs="1" />
    <element name="AIRPORT" type="string" minOccurs="0" maxOccurs="1" />
    <element name="DELAYS" type="string" minOccurs="0" maxOccurs="1" />
    <element name="INCIDENT_NUMBER" type="string" minOccurs="1" maxOccurs="1" />
    <element name="STATION" type="string" minOccurs="0" maxOccurs="1" />
    <element name="SOURCE" type="string" minOccurs="0" maxOccurs="1" />
  </all>
</complexType>
```

```

<element name="DISCHARGE" type="string" minOccurs="0" maxOccurs="1" />
<element name="PRECINCT" type="string" minOccurs="0" maxOccurs="1" />
<element name="PROBLEM" type="string" minOccurs="0" maxOccurs="1" />
<element name="SEVERITY" type="string" minOccurs="0" maxOccurs="1" />
<element name="LEAKAGE" type="string" minOccurs="0" maxOccurs="1" />
<element name="LEVEL" type="string" minOccurs="0" maxOccurs="1" />
<element name="PH" type="string" minOccurs="0" maxOccurs="1" />
<element name="TURBIDITY" type="string" minOccurs="0" maxOccurs="1" />
<element name="DEPARTMENT" type="string" minOccurs="0" maxOccurs="1" />
</all>
</complexType>

```

Data source routing for KPI updates

IBM Intelligent Operations Center can determine whether an incoming data item must be routed to a KPI.

If a data item arrives from a data source that is configured for KPI routing, the system generates a KPI XML message that it sends to be processed by the monitor model in IBM Business Monitor. You must add the properties that are unique to the data source to the routing schema file, so that the monitor model can extract the properties from the incoming XML message. For more information about editing the routing schema file, see the link to the topic about modeling KPIs.

The following sample XML message updates a KPI that is associated with `ioc_sample_monitor_models`:

```

<iocrt:record xsi:schemaLocation="urn:ibm:industry:solutions:ioc:routing:1.6
  IOC-routing-v1.6.xsd " >
  <iocrt:AIRPORT> null</iocrt:AIRPORT>
  <iocrt:BUDGET> null</iocrt:BUDGET>
  <iocrt:LEAKAGE> null</iocrt:LEAKAGE>
  <iocrt:DELAYS> null</iocrt:DELAYS>
  <iocrt:LEVEL> null</iocrt:LEVEL>
  <iocrt:DEMAND> null</iocrt:DEMAND>
  <iocrt:DEPARTMENT> null</iocrt:DEPARTMENT>
  <iocrt:NAME> water quality</iocrt:NAME>
  <iocrt:PH> Take Action</iocrt:PH>
  <iocrt:TIMEZONEOFFSET> 0</iocrt:TIMEZONEOFFSET>
  <iocrt:DISCHARGE> null</iocrt:DISCHARGE>
  <iocrt:PRECINCT> null</iocrt:PRECINCT>
  <iocrt:EXPENSES> null</iocrt:EXPENSES>
  <iocrt:PROBLEM> null</iocrt:PROBLEM>
  <iocrt:ID> 26</iocrt:ID>
  <iocrt:PROJECTED_REVENUE> null</iocrt:PROJECTED_REVENUE>
  <iocrt:INCIDENT_NUMBER> null</iocrt:INCIDENT_NUMBER>
  <iocrt:REVENUE> null</iocrt:REVENUE>
  <iocrt:SEVERITY> null</iocrt:SEVERITY>
  <iocrt:SOURCE> null</iocrt:SOURCE>
  <iocrt:STATION> null</iocrt:STATION>
  <iocrt:OBJECTID> 1974</iocrt:OBJECTID>
  <iocrt:LASTUPDATEDATETIME> 2013-07-29T08:36:30+00:00</iocrt:LASTUPDATEDATETIME>
  <iocrt:DATASOURCEID> 28</iocrt:DATASOURCEID>
  <iocrt:SUPPLY> null</iocrt:SUPPLY>
  <iocrt:TURBIDITY> Caution</iocrt:TURBIDITY>
  <iocrt:LOCATION> POINT(-93.3047103742181 45.00458169489491)</iocrt:LOCATION>
  <iocrt:ENDDATETIME> 2013-07-29T08:36:30+00:00</iocrt:ENDDATETIME>
  <iocrt:ASSESSMENTDATETIME> 2013-07-26T16:20:12+00:00</iocrt:ASSESSMENTDATETIME>
  <iocrt:STARTDATETIME> 2013-07-26T16:20:12+00:00</iocrt:STARTDATETIME>
</iocrt:record>

```

Related concepts:

“Configuring KPIs” on page 120

In the Solution Administration view, you can configure Key Performance Indicators (KPIs) and their hierarchical display in the user interface. The KPIs are displayed on the status views in IBM Intelligent Operations Center.

“Viewing notifications” on page 387

Click Notifications to view a dynamic list of your notifications and their details.

Related tasks:

“Modeling KPIs” on page 158

Model KPIs with Rational Application Developer or WebSphere Integration Developer, with the IBM Business Monitor development toolkit installed.

Routing data to an integration topic

IBM Intelligent Operations Center can determine whether an incoming data item must be routed to an integration topic, and then send the data for processing to a predefined WebSphere Application Server integration topic.

Before you begin

- Create an integration topic for the processing application that you require.
- If you want to convert incoming XML messages from your data source to Java classes that can be processed by your application, update the routing schema file with the custom properties for the data source.

About this task

If a data item is from a data source that is configured to be routed to an integration topic, the system sends an XML message to the WebSphere Application Server integration topic for processing. Follow the procedure to define the WebSphere Application Server integration topic.

Procedure

1. Click **Solution Administration > System Administration > Administration Consoles**.
2. Click **Application Server**.
3. Log in with your administration user ID and password.
4. Add your new application to the application server by stepping through the **New Enterprise Application** wizard.
 - a. Click **Applications > New Application > New Enterprise Application**.
 - b. Select the path to the new application on a local or remote file system and browse the system to locate and upload the file
 - c. Choose the fast path option to install.
 - d. At the **Map modules to servers** step, select the existing server.
 - e. Select PortalCluster from the list, and click **Apply**.
 - f. Click **Next** until you reach the summary step and click **Finish**.
5. Click **Resources > JMS > Activation Specification**.
6. Click **New** to add an activation specification.
 - a. To accept the default scope of cell=cell1 and the default message provider, click **OK**.
7. On the **Configuration** tab, complete the general properties form for the activation specification.
 - a. Enter the display name; for example, topicTestAS.
 - b. Enter the JNDI name; for example, eis/topicTestAS.
 - c. In the **Destination type** field, select Topic.
 - d. Enter the JNDI name of the destination, jms/iocIntegration.
 - e. In the **Bus name** field, select IOC.cell1.BUS.
8. Click **Servers > Clusters > Websphere application server clusters**, select PortalCluster and click **Start**.
9. Log out of WebSphere Application Server

Results

When a data source contains a data item that fulfills a routing expression condition with a destination of Integration Topic, the data is directed to the integration topic.

What to do next

For information about how to route data from a data source to an integration topic, see the link at the end of the topic.

Related tasks:

“Routing data from your data source” on page 111

For the data that is received from your data source, set routing expressions that define how the data is processed by the solution. Data items that match the required expression or combination of expressions are routed to the selected destination.

Data item correlation

1.6.0.1

1.6.0.2

A solution administrator can configure a data source to be available for correlation. A solution administrator can also configure routing criteria to route data items from a data source to a correlation topic. When a data item is routed to a correlation topic, the correlation process assesses whether the data item is correlated with other correlation data items. The correlation process sends notifications when correlations occur.

The correlation process includes the following steps:

1. The correlation topic reads the following correlation settings from the system properties table:

radius The maximum distance between the routed data item and correlated data items. The default value is 200.

distanceUnit

The unit that the distance between data items is measured in, which can be either meters, kilometers, or statute miles. The default value is METER. The other valid values are KILOMETER and STATUTE_MILE.

minutesBefore, minutesAfter

The maximum time difference between the routed data item and correlated data items. The time difference is measured in minutes and is relative to the start date of each data item. The default value is 120 for both minutesBefore and minutesAfter.

notificationSummaryThreshold

If the number of correlations for a particular data item exceeds the notification summary threshold, a summary notification is sent instead of individual notifications. The default value is 10.

targetGroups

The user groups to whom correlation notifications are sent. The default value is ["CityWideOperator", "CityWideSupervisor", "wpsadmins"].

2. Within data sources that are activated for correlation, the correlation topic searches for data items that match all of the following conditions. The conditions are based on the correlation settings, and are assessed relative to the routed data item.
 - The data items are within the predefined spatial distance for correlation.
 - The data items are within the predefined time distance for correlation.

3. If the correlation topic finds correlations, it either sends individual correlation notifications, or a summary notification. The correlation topic sends a summary notification if the notification summary threshold is exceeded. The notifications are sent to the groups that are defined in the target groups system property.

Note: The distance and time values that are included in notifications are the maximum distance and time values that are defined in the correlation settings. Therefore, the values do not represent the exact distance and time between correlated data items.

Sample individual notification

An individual notification might contain a headline that is similar to the following example:

Source Name in *Emergency Services data source* might be related to *Target Name* in *Police data source*.

The notification body might contain text that is similar to the following example:

Target Name is located less than 13.2m away and started between 4 minutes before and 15 minutes after *Source Name*.

Sample summary notification

A summary notification might contain a headline that is similar to the following example:

Source Name in *Emergency Services data source* might be related to 23 data items in *Police data source*.

The notification body might contain text that is similar to the following example:

23 data items are located less than 13.2m away and started between 4 minutes before and 15 minutes after *Source Name*.

Data source time stamp synchronization

When the data receiver receives updated information for a data source, a time stamp is applied to the updated data source. The method that is used to determine the time stamp depends on several factors.

The time stamp that is applied to an updated data source is determined depending on the following conditions:

- If the last updated time stamp is not mapped for the data source, at each refresh interval the data receiver refreshes the target database table with the data that is in the source database table.
- If a timezone offset is not supplied, all time stamps are stored in the target database table as GMT time stamps.
- If a timezone offset is supplied, the timezone offset is applied to the incoming time stamp, and the time stamp is then stored in the target database table as a GMT time stamp.
- If the time is not synchronized between the source system and the target system, the time stamp that is applied to a data source cannot be predicted. For example, if the time stamp that is on the source system is ahead of the time stamp that is on the target system, items might be duplicated in the target system.

Related reference:

“Data source minimal property settings” on page 105

Assign properties from your data source to each minimal property and choose the settings that are appropriate for your data.

Creating and integrating KPIs

Key performance indicator (KPI) models can be created and modified using a business monitoring development toolkit and the Key Performance Indicators configuration tool.

The IBM Business Monitor development toolkit can be installed with Rational Application Developer, both products are supplied with IBM Intelligent Operations Center. The IBM Business Monitor development toolkit can also be installed with WebSphere Integration Developer.

Before defining or modifying a KPI you must understand the data source and the XML schema that the KPI is based on. For example, if you are defining a KPI that tracks the level of a water source, you need to know what schema corresponds to the data item properties that need to be tracked, such as the name of the water source and the water depth in feet. After a KPI is added or modified in this way it must be deployed to the IBM Business Monitor server.

For additional information about the IBM Business Monitor and the IBM Business Monitor development toolkit, see the IBM Business Monitor product documentation.

When you have established KPI models and metrics through IBM Business Monitor, you can develop and modify the KPIs with the Key Performance Indicators configuration tool in IBM Intelligent Operations Center.

Related concepts:

“Data item routing” on page 150

IBM Intelligent Operations Center processes incoming data items to determine how information is displayed.

“Configuring KPIs” on page 120

In the Solution Administration view, you can configure Key Performance Indicators (KPIs) and their hierarchical display in the user interface. The KPIs are displayed on the status views in IBM Intelligent Operations Center.

“Viewing or changing a KPI model” on page 126

As an administrator, you can use the **KPI Definition** tab to view or change the KPI models available within the solution.

“Customizing KPIs” on page 178

In IBM Intelligent Operations Center, you can customize key performance indicator (KPI) models to suit your business processes.

“Sample KPIs” on page 179

Sample KPIs are provided with the IBM Intelligent Operations Center. The sample KPIs are designed to provide guidance for implementing different types of KPI with the IBM Business Monitor Development Toolkit. Sample monitor models are provided for water, transportation, and public safety.

Related reference:

“Installing tools provided with the solution” on page 83

Toolkits and development tools are included with the IBM Intelligent Operations Center. These are used when customizing IBM Intelligent Operations Center.

Related information:



IBM Business Monitor product documentation

Monitor models and KPIs

A business monitor model defines key performance indicators (KPIs) and associated metrics, dependencies that are related to inbound events, conditions that require business actions, and the outbound events that report conditions that might trigger business actions.

An IBM Business Monitor monitor model can contain the following submodels:

- Monitor details model
- KPI model
- Dimensional model
- Visual model

- Event model

The monitor details model contains most of the monitor model information.

The sample monitor models that are provided with the IBM Intelligent Operations Center do not use the visual or dimensional models.

The monitor details model defines one or more monitoring contexts. A monitoring context defines the information that is to be collected and monitored from one or more inbound events. For the IBM Intelligent Operations Center, the monitored entities are routing messages. A routing message is an XML message that is generated from a data item that is received by IBM Intelligent Operations Center from a data source. The information that is collected from the XML messages is used to calculate a KPI.

The KPI model contains one or more KPI contexts. The contexts define the KPIs, and their associated triggers and events. KPI contexts can process inbound events, evaluate recurring wait-time triggers, and send outbound events. For example, the context can specify that an XML notification should be sent when a KPI is out of the defined range.

The event model refers to all event inbound and outbound definitions that are used in the monitor model. It refers to XML schemas that describe the structure of individual event parts.

Monitoring context instances

A monitoring context instance is information that is collected at a specific point in time within a monitoring context.

For IBM Intelligent Operations Center, a monitoring context instance corresponds to a routing message. A routing message is an XML message that is generated by the IBM Intelligent Operations Center each time that a data item is received from a data source. When such an XML message is received by IBM Business Monitor, a monitoring context instance is created or reused. The metrics within that context instance are populated with the XML message values that are based on the monitoring context.

A monitoring context can be defined to either create a new instance for each routing message, or to reuse an existing instance. For example, if you want a KPI to calculate the average weekly water level at a specific location with the water level sampled daily, you would create a new monitoring context instance for each routing message. Each instance would contain the daily water level and the KPI would average the measurements over the seven day period.

KPIs are calculated with the metrics that are defined for a monitoring context. When you are defining an aggregation KPI, you specify the monitoring context and metric that are used as input to the KPI aggregation function. When the KPI is evaluated, the metric values for the monitoring context instances are used by the aggregation function to calculate the KPI value.

Modeling KPIs

Model KPIs with Rational Application Developer or WebSphere Integration Developer, with the IBM Business Monitor development toolkit installed.

About this task

KPIs are modeled using either Rational Application Developer or WebSphere Integration Developer, with the IBM Business Monitor development toolkit. Rational Application Developer and the IBM Business Monitor development toolkit are supplied with IBM Intelligent Operations Center. For more information about these tools, see the product documentation link at the end of the topic.

Monitoring models are contained within business monitoring projects. Models and projects are created using the Rational Application Developer business monitor wizards that are provided by the IBM Business Monitor development toolkit.

To model a KPI, complete the procedure.

Procedure

1. Understand your data source and the data items that are to be received by IBM Intelligent Operations Center.
2. Understand the purpose of the KPI. For example, KPIs can be used in the following ways:
 - If a limit is reached or exceeded, the KPI indicates that action should be taken.
 - The KPI is used to calculate historical or statistical data.
3. Determine the name for the monitoring context. The IBM Intelligent Operations Center naming convention is to use the data item name as the monitoring context name. Each data item that is received by IBM Intelligent Operations Center generates a routing message with the data in XML format. The sample models that are provided with IBM Intelligent Operations Center generate a separate monitoring context instance for each routing message that is sent to IBM Business Monitor.
4. In either Rational Application Developer or WebSphere Integration Developer, with the IBM Business Monitor development toolkit installed, define the inbound event for the monitoring context. The inbound event definition specifies the structure of the routing message that is monitored by the context, a key that uniquely defines the context, and the metrics that define the information that is extracted from the message.
 - a. Create the XML schema. The schema defines the structure of the inbound event to IBM Business Monitor
 - b. Specify the name and ID for the IBM Business Monitor inbound event. IDs cannot contain spaces or special characters. By default, the ID is created from the name with underscores substituted for spaces. All the sample models that are provided by IBM Intelligent Operations Center use the default IDs.
 - c. Specify the XML schema that you created that is to be used for the data item. The schema must exist in the modeling project. The IBM Intelligent Operations Center provides a copy of the schema in the sample `ioc_sample_monitor_models` modeling project.
 - d. Define any required filtering of routing messages. For example, limit monitoring to data items with specific property values that represent a specific level of severity.
 - e. Specify the metrics that are to be extracted from the XML message.
 - f. Define a context key to uniquely identify the monitoring context instance. Key values are specified by an inbound event when the monitoring context instance is generated.
 - g. Specify whether inbound events are correlated.
5. Specify the KPI context. A KPI context is a container for KPIs and their associated triggers and events. Unlike a monitoring context, a KPI context contains no keys or metrics. Before you create any KPIs, you must create a KPI context as a container.
6. Create the KPI within the previously defined KPI context.
7. Specify the type of KPI: **Decimal** or **Duration**.
8. Define the KPI ranges, values, and color indicators. Most of the sample IBM Intelligent Operations Center KPIs define three ranges and associated colors.

Table 35. Sample KPI range and color definitions

Name	Color	RGB
Acceptable	green	699037
Caution	yellow	FDBA1A
Critical	red	C32E14

9. Define how the KPI value is calculated. KPI values are determined in one of two ways. If the value comes from a metric that uses an aggregation function, the KPI is referred to as an aggregate KPI. If the value is calculated based on other KPIs or user-defined XPath functions, the KPI is referred to as an expression KPI.

In the IBM Intelligent Operations Center samples, the lowest level KPIs, those KPIs without child KPIs, are defined as aggregate KPIs. The higher level KPIs, those KPIs with child KPIs, are defined as expression KPIs.

Aggregate KPI values are calculated from metrics that are populated with data sent in XML messages sent to the IBM Business Monitor server. An aggregation function is then run on this data. Aggregation functions include the following functions:

- average
- maximum
- minimum
- sum
- number of occurrences
- standard deviation

The values are expressed as quantifiable measurements. For example, average crime response time (5 minutes, 7 seconds) or average water level (100.5).

Expression KPI values are calculated from KPI ranges and calculations. In IBM Intelligent Operations Center samples, the parent KPIs have calculations that cause the KPI to evaluate to a value of 0, 1, or 2 depending on the values of their child KPIs. A value of 0 maps to the acceptable range, 1 to the caution range, and 2 to the critical range. The samples use calculation expressions to set the KPI value to the highest urgency level that exists among its child KPIs.

10. Optional: Specify the time filter for an aggregate KPI. Aggregation KPIs can have optional time filters that limit the time period for which the KPI value is calculated. The time period can be a repeating interval (for example, the last completed or current period), a rolling interval, or a fixed interval. All sample IBM Intelligent Operations Center aggregate KPIs have defined time filters.
11. Optional: Specify a data filter for the KPI. For example, if the average crime response time is to be calculated for Police Precinct One and no other precinct, a data filter can be used to remove all other monitoring contexts.
12. Define how the KPI values are updated, including triggers, inbound events to IBM Business Monitor server, and outbound events to IBM Intelligent Operations Center.
13. Test the KPI. IBM Business Monitor development toolkit has a test environment for testing the KPIs before deployment; for details see the link at the end of the topic.
14. Deploy the monitor model application.

Related concepts:

“Defining KPI hierarchies” on page 161

You can define parent-child relationships between KPIs and design how KPIs are displayed in IBM Intelligent Operations Center. Design your own KPI hierarchies so that you can look up KPIs in a way that suits your business process.

“KPI communication with IBM Business Monitor” on page 161

IBM Intelligent Operations Center communicates with IBM Business Monitor through specific monitoring or key performance indicator (KPI) contexts.

“Data source routing for KPI updates” on page 153

IBM Intelligent Operations Center can determine whether an incoming data item must be routed to a KPI.

Related tasks:

“Deploying monitor models” on page 164

After key performance indicators (KPIs) and their monitor models are defined, the monitor models must be deployed to IBM Business Monitor. IBM Business Monitor runs on the IBM Intelligent Operations

Center application server.

Related reference:

“Routing schema file” on page 152

The base IBM Intelligent Operations Center routing schema file contains elements for the properties that are common to all data sources. Update the routing schema file to also include the properties that are unique to the data sources. The updated schema file is used to route data to KPIs. The updated schema file can also be used when applications are created that process records that are routed to integration topics.

Related information:

 [IBM Business Monitor product documentation](#)

 [XML Path Language \(XPath\) 2.0 \(Second Edition\) documentation](#)

Defining KPI hierarchies

You can define parent-child relationships between KPIs and design how KPIs are displayed in IBM Intelligent Operations Center. Design your own KPI hierarchies so that you can look up KPIs in a way that suits your business process.

In IBM Business Monitor you can implement a KPI that is based on the value of another KPI. However, you cannot define a parent-child relationship between KPIs. To simplify this task, IBM Intelligent Operations Center provides a Key Performance Indicators configuration tool for the administrator. For information about this tool, see the link at the end of the topic.

The IBM Intelligent Operations Center sample KPIs define a series of Police Department KPIs with a hierarchical design as shown in the following example:

```
Police Department ----- level 1
  Crime Response Time ----- level 2
    Crime Response Time Precinct One ----- level 3
    Crime Response Time Precinct Two ----- level 3
```

In this case, Police Department has one child: Crime Response Time. Crime Response Time has two children: Crime Response Time Precinct One and Crime Response Time Precinct Two.

The two level 3 KPIs are defined in the KPI model as aggregate KPIs. That is, their values are calculated using a metric value and an aggregation function. All other KPIs in this set are expression KPIs with their values calculated from the values of the other KPIs. For example:

- Crime Response Time is based on the values of Crime Response Time Precinct One and Crime Response Time Precinct Two.
- Police Department is based on the value of Crime Response Time.

Related concepts:

“Configuring KPIs” on page 120

In the Solution Administration view, you can configure Key Performance Indicators (KPIs) and their hierarchical display in the user interface. The KPIs are displayed on the status views in IBM Intelligent Operations Center.

Related tasks:

“Modeling KPIs” on page 158

Model KPIs with Rational Application Developer or WebSphere Integration Developer, with the IBM Business Monitor development toolkit installed.

KPI communication with IBM Business Monitor

IBM Intelligent Operations Center communicates with IBM Business Monitor through specific monitoring or key performance indicator (KPI) contexts.

IBM Intelligent Operations Center data is contained in inbound events that are sent to IBM Business Monitor and outbound events that are received from IBM Business Monitor.

Outbound events from the IBM Business Monitor server are placed on an external message queue. IBM Intelligent Operations Center uses this mechanism to asynchronously receive KPI updates.

Note: Set the **MonitorServerSecurityEnabled** property to specify whether the connection to IBM Business Monitor uses SSL for secure connection. For more information about how to change this property in the system properties table, see the link at the end of the topic.

Related tasks:

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

“Modeling KPIs” on page 158

Model KPIs with Rational Application Developer or WebSphere Integration Developer, with the IBM Business Monitor development toolkit installed.

Triggers

IBM Business Monitor uses triggers to detect data that initiates extra processing. The KPI sample models that are provided with IBM Intelligent Operations Center define two types of trigger.

A trigger is fired when an XML routing message, also known as an inbound event, is received by IBM Business Monitor server for a defined KPI set.

A data item that is received by IBM Intelligent Operations Center generates a routing message that might result in a change to the KPI. IBM Intelligent Operations Center determines whether the KPI is changed when it receives notification from the IBM Business Monitor server. For outbound events, a trigger determines when a notification message is sent.

Message-based triggers can be used to send notifications to IBM Intelligent Operations Center when the input for a KPI calculation changes. However, message-based triggers cannot be used in the situation when a KPI value changes after a defined time period expires.

In the IBM Intelligent Operations Center samples, time-based triggers are used to send notifications to the IBM Intelligent Operations Center for those KPIs with short time period definitions. For example, the Severe Traffic Accidents KPI is defined to expire every hour. If the KPI has a value of 3 at 10:00, and no messages are received for that KPI during the next hour, then the time period expires and the KPI value is reset to 0.

Defining inbound events to IBM Business Monitor

In IBM Intelligent Operations Center samples, inbound events are used to determine when a trigger is fired. Inbound events for a KPI context are defined in a similar manner to inbound events for a monitoring context.

About this task

Inbound events are defined using either Rational Application Developer, or WebSphere Integration Developer with IBM Business Monitor. For more information about using these tools, see the product documentation for these products.

To define an inbound event, follow the procedure.

Procedure

1. Select the KPI context for the inbound event.
2. Create the inbound event and specify the event name and ID.

3. Specify the XML schema.
4. Specify the filter condition.
5. Select the KPI context and create a new inbound event.
6. Create a trigger for the inbound event.
7. Make sure that the trigger is repeatable; the trigger fires each time the trigger source is updated and the trigger condition is met.
8. Select the trigger source.
9. Define the trigger condition. When the trigger condition is met, the trigger fires.

Example

The sample monitor models are defined so that a trigger fires each time the IBM Business Monitor server receives an XML routing message from IBM Intelligent Operations Center.

Defining outbound events from IBM Business Monitor

Outbound events define the information that is sent from IBM Business Monitor to IBM Intelligent Operations Center when a trigger fires.

About this task

IBM Intelligent Operations Center uses the outbound notifications that are sent from the IBM Business Monitor server to determine if the KPI has changed. If the KPI has changed, IBM Intelligent Operations Center obtains the KPI data from the IBM Business Monitor server, updates the KPI cache information, and updates the IBM Intelligent Operations Center data.

Outbound events are defined using either Rational Application Developer, or WebSphere Integration Developer with the IBM Business Monitor development toolkit. For more information about using these tools, see the information centers for these products.

To define an outbound event, complete the following procedure.

Procedure

1. Select the KPI context for the outbound event.
2. Create the outbound event and specify the event name and ID.
3. Specify the notification schema. The `ioc-notification-v1.0.xsd` notification schema file is in the `ioc_sample_monitor-models` project.
4. Define the content of the outbound event. The content is based on the notification schema.
5. Under **notification**, for the value of **sentfrom**, enter Monitor.
6. Add the parameter elements to the event content, as defined in the following sub-steps:
 - a. For the first parameter, specify `modelID` for **parameterName** and the monitor model ID for **parameterValue**. For example, `ioc_sample_public_safety_model`.
 - b. For each KPI in the KPI set, add parameters to specify the KPI ID and KPI value. The KPI ID is specified using the **parameterName** element and the KPI value is specified using the `parameterValue` element. The KPI ID must be associated with a KPI in the KPI set. Use the `xs:string()` function to specify the KPI value as a string. For example, **parameterName** can be `Police_Department` and **parameterValue** can be `xs:string(Police_Department)`.

Example

The following is an example of a notification that is to be sent to IBM Intelligent Operations Center:

```
<ns1:notification>
  <ns1:notificationType> Alert</ns1:notificationType>
  <ns1:sentFrom> Monitor</ns1:sentFrom>
```

```

<ns1:headline> Police Department KPI Changed</ns1:headline>
<ns1:description> Police Department KPI Changed</ns1:description>
<ns1:kpiLink> Police Department</ns1:kpiLink>
<ns1:category> Safety</ns1:category>
<ns1:parameter>
  <ns1:parameterName> modelId</ns1:parameterName>
<ns1:parameterValue>
  ioc_sample_public_safety_model</ns1:parameterValue>
</ns1:parameter>
<ns1:parameter>
  <ns1:parameterName> Police_Department</ns1:parameterName>
  <ns1:parameterValue> 0</ns1:parameterValue>
</ns1:parameter>
<ns1:parameter>
  <ns1:parameterName> Crime_Response_Time</ns1:parameterName>
  <ns1:parameterValue> 0</ns1:parameterValue>
</ns1:parameter>
<ns1:parameter>
  <ns1:parameterName> Crime_Response_Time_Precinct_One</ns1:parameterName>
  <ns1:parameterValue> PT3M30.000S</ns1:parameterValue>
</ns1:parameter>
<ns1:parameter>
  <ns1:parameterName> Crime_Response_Time_Precinct_Two</ns1:parameterName>
  <ns1:parameterValue> PT3M30.000S</ns1:parameterValue>
</ns1:parameter>
</ns1:notification>

```

Deploying monitor models

After key performance indicators (KPIs) and their monitor models are defined, the monitor models must be deployed to IBM Business Monitor. IBM Business Monitor runs on the IBM Intelligent Operations Center application server.

About this task

To deploy a monitor model that is to be used by IBM Business Monitor, generate Java Platform, Enterprise Edition projects from the defined models. After the Java Platform, Enterprise Edition projects are generated, the model application can be exported as an EAR file. The EAR file can then be deployed into IBM Business Monitor running on the IBM Intelligent Operations Center application server.

Procedure

1. In either Rational Application Developer, or WebSphere Integration Developer with the IBM Business Monitor development toolkit installed, right-click the monitor model that requires project generation in the **Enterprise Explorer** tab. For example, `ioc_sample_public_safety_model`.
2. Click **Generate Monitor JEE Projects**. The following projects are created: `modelApplication`, `modelLogic`, and `modelModerator`.
3. Export the monitor model application by right-clicking the `modelApplication` project and clicking **Export > EAR**.
4. Before the EAR file is deployed into IBM Business Monitor, test the KPIs. Follow the instructions in the IBM Business Monitor product documentation.
5. Deploy the EAR file into the IBM Business Monitor server. Follow the instructions in the IBM Business Monitor product documentation.

Related tasks:

“Modeling KPIs” on page 158

Model KPIs with Rational Application Developer or WebSphere Integration Developer, with the IBM Business Monitor development toolkit installed.

Related information:

 [IBM Business Monitor product documentation](#)

KPI display labels and values

IBM Intelligent Operations Center provides a DB2 database table that can be used to provide alternative display labels from those labels that are provided by the IBM Business Monitor models.

KPI names and range names are defined in the sample IBM Business Monitor models that are provided with IBM Intelligent Operations Center. The following names are examples of KPI names:

- Water
- Water Quality

The following names are examples of range names:

- Acceptable
- Caution
- Critical

Each artifact, for example KPI range, that is defined in IBM Business Monitor has an ID that is associated with the display name. IDs cannot contain spaces while display names can contain spaces. The IDs are used as keys to look up labels in a database table. IBM Intelligent Operations Center uses the IDs to select KPI display labels. If no value is specified in the database table for an ID, the value that is specified in the IBM Business Monitor definition is used.

KPI display values are globalized by IBM Business Monitor with the ISO language and country codes of the IBM Business Monitor server. For example, a KPI percentage value is displayed in the format 12.61% when the locale is en_US and 12,61% when the locale is fr_FR. Database table definitions are not used for these values.

The default IBM Intelligent Operations Center properties database table is IOC.I18N_RESOURCE. The following example is an extract from the KPI group in that table:

GROUP	LOCALE	KEY	VALUE
KPI	default	kpiNoValue	There is no data available to determine the KPI value
KPI	default	kpiRangeUndetermined	Undetermined
KPI	default	kpiNoRangeDefined	There is no KPI range defined
KPI	default	Flood_Control	Flood Control
KPI	default	Water_Levels	Water Levels
KPI	default	Flow_Discharge_City_River	Flow Discharge City River
KPI	default	Water_Level_City_Lake	Water Level City Lake

The values of `kpiNoValue` and `kpiRangeUndetermined` are used by IBM Intelligent Operations Center when the IBM Business Monitor KPIs return a null value. For example, the Water Level City Lake KPI is defined with a repeating daily time period that is based on the last full period. If no updates are received for that KPI on a Sunday, and the KPI is requested on Monday, null is returned because no data is available for the previous day. The display value is set to No data to determine the KPI value and the range display name is set to undetermined.

The other entries in this sample extract, `Flood_Control`, `Water_Levels`, `Flow_Discharge_City_River`, and `Water_Level_City_Lake`, define the display labels for the KPI IDs. These IDs are defined in the `ioc_sample_water_model` sample monitor model that is provided by IBM Intelligent Operations Center. The entries can specify text to replace the text values that are specified in IBM Business Monitor. For example, the database table can be used to provide translated values instead of changing the model itself.

```
('KPI', 'default', 'Flow_Discharge_City_River', 'Flow Discharge City River')  
( 'KPI', 'de', 'Flow_Discharge_City_River', 'Durchfluss des Flusses')
```

Caching KPIs

IBM Intelligent Operations Center configuration settings determine when KPI values are retrieved from the IBM Business Monitor.

IBM Intelligent Operations Center maintains KPI values in a cache. By default, the KPIs are loaded from IBM Business Monitor into the cache and the cache is refreshed according to the time interval that is specified by the **KpiRefreshInterval** property in the system properties table. This refresh time can be altered depending on your requirements to deliver updated KPIs to IBM Intelligent Operations Center. For more information on changing properties in the system properties table, see the link at the end of the topic.

Note that when you create a KPI in the Key Performance Indicators configuration tool, updates to the KPI depend solely on the cache refresh. When a KPI is defined in IBM Business Monitor, a trigger mechanism can be defined to implement additional processing in response to changes in that KPI.

Related tasks:

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

Integrating with the CAP

You can use the Common Alerting Protocol (CAP) to exchange data between IBM Intelligent Operations Center and external systems.

When a solution administrator creates a data source, the solution administrator can select CAP as the format for acquiring data, and can specify that CAP messages that are received through the data source are displayed either on the geospatial map, or on the location map. The elements that are defined in the CAP specification are mapped to data source properties. For more information about the CAP specification, see the OASIS Common Alerting Protocol Version 1.2.

Related information:

 [OASIS Common Alerting Protocol Version 1.2](#)

CAP message routing

A solution administrator can define multiple Common Alerting Protocol (CAP) data sources. However, each data source sends all CAP messages that are received to all destinations, unless the solution administrator specifies that CAP messages are routed based on the values of message properties.

By default, the IOC V1.6 schema is used to route CAP messages. However, if you want to use a key performance indicator (KPI) model that was developed for IBM Intelligent Operations Center V1.5, with IBM Intelligent Operations Center V1.6, use the CAP schema to route CAP messages. To set up the routing of CAP messages to the KPI model if the value of the message code property is `kpi`, use the following configuration steps:

1. In the **Solution Administration** view, click **System Administration > System Properties** and set the value of the `RouteCAPXML` property to `true`.
2. In the CAP data source definition, define a routing expression that routes CAP messages to the **Key Performance Indicators** routing destination if the value of `code` equals `kpi`.

It is not possible to route CAP messages based on parameters that are in the CAP message.

CAP message publishing

Configure your publishing client to publish Common Alerting Protocol (CAP) messages either to the WebSphere Message Broker message queue, or to the WebSphere Application Server JMS resources.

WebSphere Message Broker message queue

To publish CAP messages to the WebSphere Message Broker message queue, use the following configuration settings:

Queue manager
IOC.MB.QM

Queue manager port number
1414

Queue manager host name
IBM Intelligent Operations Center analytics server host name

WebSphere Application Server JMS resources

To publish CAP messages to the WebSphere Application Server JMS resources, use the following configuration settings.

- Queue Connection Factory:

Name ioc.mb.con.factory

JNDI Name
jms/ioc.mb.con.factory

- Queue

Name cap.in.q

JNDI Name
jms/cap.in.q

Displaying CAP messages on the maps and in the list

A solution administrator can configure panes on the filter panel that users can use to filter Common Alerting Protocol (CAP) messages according to the values of the CAP message elements.

By selecting the appropriate options on the filter panel, you can view each CAP message that is received from a CAP data source as a data item on the appropriate map, and in the list. If you want to be able to display CAP messages on both the geospatial map, and on the location map, you must specify a separate data source for each map type. On the maps and in the list, you can view the content of the CAP message in the preview card, and in the Full Properties window.

The CAP specification defines enumerated values for some CAP message elements. Through the filter panel, you can also filter on the enumerated values of the following CAP message elements that are mapped to data source key properties:

- category
- certainty
- severity
- urgency

Updating and canceling CAP messages

For data ingestion, Common Alerting Protocol (CAP) messages are updated and canceled according to the CAP specification. There are two ways to update and cancel CAP messages.

You can update and cancel CAP message data items either by sending an update CAP message, or by sending a cancel CAP message. Alternatively, you can either update, or cancel, CAP messages by using the **More Actions** menu in the maps and in the list in the same way as for all other data items.

Chapter 6. Customizing the solution

You can customize the solution to suit your particular operation.

Use the Portal Administration view to customize the user interface. In the Solution Administration view, System Administration, you can customize system properties that affect the system-wide configuration of IBM Intelligent Operations Center. In the Solution Administration view, Configuration Tools, you have options to customize the main components of the IBM Intelligent Operations Center.

Customizing the solution to suit your particular operation or business includes the following tasks. Customizing is closely related to integrating the solution and the appropriate links are included.

Viewing or editing your user profile

1.6.0.2

You can view and edit the information in your solution user profile. Edit your user profile to set your time zone, language preference, and notification settings. You can also reset your password and modify your personal details.

About this task

Administrator Your system administrator can create new profiles and reset all attributes in existing user profiles.

Procedure

1. To modify your user profile, select **Edit Profile** from the list that is next to your user name at the top of the view. Modify some or all of the attributes of your user profile.
 - To modify general profile attributes, for example, name, email, and telephone number, click **My Profile**.
 - To modify display settings for the solution, click **Display Settings**. Modify the color scheme, the preferred language, or the time zone. The color scheme that you select modifies the colors that are displayed in the solution. You can also modify your locale and time zone settings in your browser.
 - To modify notification settings for the solution; for example, whether to display notifications, or the length of time to display notifications for, click **Notification Settings**.
 - To modify your profile password, click **Change Password**.
2. Refresh the browser page for the changes to take effect.

Related concepts:

“Localizing the user interface” on page 171

To change the locale and time zone that are displayed in the solution portal, edit your user profile. If you do not configure specific locale settings in your user profile, the browser settings are applied. The locale and time zone settings that you configure in your user profile override your browser settings.

Viewing or editing your user profile

1.6

1.6.0.1

You can view and edit the information in your solution user profile. An administrator creates a user profile for each new user.

About this task

The following table lists the attributes that your user profile contains. An administrator can edit all of the attributes. The attributes that users can edit are indicated in the table.

Table 36. Solution user profile attributes

Attribute	Description	User can edit?
User ID*	An administrator assigns a user ID to each new user for identification purposes.	No
Password*	An administrator assigns a password for security. The password must be unique and 5 - 60 characters in length. Valid passwords contain only the characters a-z, A-Z, period ".", dash "-", and underscore "_".	Yes
Given name	A given name, or first name.	Yes
Surname*	A surname, last name, or family name.	Yes
Email	An email address.	Yes
Profile image	A profile image; for example, a photograph.	Yes
Telephone number	A telephone number.	Yes
Job title	A job title.	Yes
Preferred language	A preferred language, can be selected from a list.	Yes
Time zone	A preferred time zone, can be selected from a list.	Yes
Notification display limit	Notification display time limit in days. If a notification is older than the number of days specified in this limit, it is not displayed in the Notifications window. The default value is 3.	Yes

Note: Attributes that are marked with an asterisk are required for the successful creation of a new user. Attributes that are not marked with an asterisk are optional.

Procedure

1. To view or edit your user profile, from the list that is next to your user name at the top of the view, select **Edit Profile**.
2. Optional: To change your password, do the following substeps:
 - a. Enter your **Current password**. The password that you enter is not displayed.
 - b. Enter your **New password**, and then enter it again in **Confirm password**.
3. Optional: Edit the information in the remaining fields.
4. To submit your changes, click **OK**.

Results

Your user profile is updated with any changes.

Configuring display settings

1.6.0.2

You can view and edit your display settings in your IBM Intelligent Operations Center user profile.

Procedure

1. To modify your user profile, select **Edit Profile** from the list that is next to your user name at the top of the view.
2. To modify display settings, click **Display Settings**.
 - Select a light or dark color scheme.
 - Select the language from the **Preferred language** list.
 - Select the time zone from the **Time zone** list.

Related tasks:

“Viewing or editing your user profile” on page 169

You can view and edit the information in your solution user profile. Edit your user profile to set your time zone, language preference, and notification settings. You can also reset your password and modify your personal details.

Localizing the user interface

To change the locale and time zone that are displayed in the solution portal, edit your user profile. If you do not configure specific locale settings in your user profile, the browser settings are applied. The locale and time zone settings that you configure in your user profile override your browser settings.

The locale setting determines the language that all text is displayed in. If a language is unavailable in the solution, the closest related language is used. For example, if French Canadian is unavailable, the system reverts to French, which in turn reverts to English, which is always available.

All dates and times are displayed according to your time zone setting in the format that is specified in the system properties database. If you are an administrator, you can customize the date and time formats.

Related tasks:

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

“Viewing or editing your user profile” on page 169

You can view and edit the information in your solution user profile. Edit your user profile to set your time zone, language preference, and notification settings. You can also reset your password and modify your personal details.

Translating field text

Use the translation wizard to enter a translation for any field where you can enter text. Translated fields are displayed in the user interface according to the locale that is selected in either the user profile, or in the browser.

About this task

You can specify the translated versions of any field where you can enter text. For fields that have translated versions, the language that is displayed in the user interface depends on the locale that is set in the user profile. If a preferred language is not set in the user profile, the language that is displayed depends on the locale that is selected in the browser.

Procedure

1. Either click the translation wizard icon, or click within a field where you can enter text.
2. Select the required language from the scrolling list of supported locales that is displayed in the window.

3. Enter the translated version of the field text in the appropriate supported locales fields. If you enter only a default value, then the default is always displayed. For example, if you are viewing the solution in Arabic and no Arabic translation is specified, then the default value is displayed.
4. Click **OK**.

Adding locales to the solution

You can add a locale to the solution by configuring the **SupportedLocales** system property.

Procedure

1. In the Solution Administration view, configure the **SupportedLocales** system property and insert the value for the new locale.
2. Log on to the data server as the root user.
3. Enter the following commands at the command line:

```
su - db2inst2
DB2 connect to iocdb
DB2 INSERT INTO IOC.I18N_RESOURCE ("GROUP", "LOCALE", "KEY", "VALUE")
VALUES ('group_value', 'locale_value', 'key_value', 'value');
```

Where

- *group_value* is the name of the resource collection.
- *locale_value* is the locale of the value.
- *key_value* is the name of the value. Do not include a period (.) character in the value.
- *value* is the translated value.

Example

The following example steps show how to add the Thai locale to the solution:

1. In the Solution Administration view, insert the value **th** for the Thai locale into the **SupportedLocales** system property. The following example shows the format of the **SupportedLocales** system property value:

```
["ar", "de", "en", "es", "fr", "it", "ko", "pt-br", "ru", "th", "zh", "zh-tw"]
```

2. Log on to the data server as the root user.
3. Enter the following commands at the command line:

```
su - db2inst2
DB2 connect to iocdb
DB2 INSERT INTO IOC.I18N_RESOURCE
("GROUP", "LOCALE", "KEY", "VALUE") VALUES
('I18nLocale', 'default', 'th', 'Thai'),
('I18nLocale', 'ar', 'th', '??????????'),
('I18nLocale', 'de', 'th', 'thailändisch'),
('I18nLocale', 'en', 'th', 'Thai'),
('I18nLocale', 'es', 'th', 'tailandés'),
('I18nLocale', 'fr', 'th', 'thailandes'),
('I18nLocale', 'it', 'th', 'tailandese'),
('I18nLocale', 'ko', 'th', '???''),
('I18nLocale', 'pt-br', 'th', 'tailandês'),
('I18nLocale', 'ru', 'th', '????????'),
('I18nLocale', 'th', 'th', '????????'),
('I18nLocale', 'zh', 'th', '??'),
('I18nLocale', 'zh-tw', 'th', '??')
```

Related tasks:

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

Customizing the user interface

You can customize elements of the IBM Intelligent Operations Center user interface to suit your operation.

In addition to customizing the layout and appearance of portlets, you can also create new pages. For more information, see the WebSphere Portal product documentation.

Related information:

 [IBM WebSphere Portal 8 product documentation](#)

Creating or customizing a page

If you are an administrator, you can create new pages to be included in IBM Intelligent Operations Center, and specify what content to display on those pages. You can customize the appearance and layout of the content that is included on each page.

About this task

Use the WebSphere Portal user interface to customize pages and portlets. If you create static content for a page, a page is displayed with four selectable vertical panels. To determine the content for the new page, click **Add Portlets** in the selected panel. The upper panel determines the content in the leading edge of the new page. The second panel down determines the content in the trailing edge of the new page. The third panel down determines the main content of the new page, and the lower panel determines the content at the bottom of the new page.

Procedure

1. Open WebSphere Portal, from any of the Operations or Status views.
2. In WebSphere Portal, click **Portal User Interface**.
3. To work with your pages or to create new pages, click **Manage Pages>Select Page**. Navigate to the page where you want to add a child page, and click **New Page**.
4. Complete the required fields. If you are working with solution pages or creating new solution pages, create or update the **Title** field and set the **Theme** value to IOC Portal 8 Theme. Ensure that the **Type of Page** value is set to Static Content; the setting means that the IBM Intelligent Operations Center page layout is used.
5. Click **Add Portlets** in the panels on the page and add content as detailed in the following steps.
 - Click the top panel to add an IBM Intelligent Operations Center filter panel to the leading edge of the new page.
Note: You can add only 0 or 1 filter panels per page.
 - Click the second panel down to add a supporting content panel to the trailing edge of the new page. Alternatively, you can add specialized content that uses the IBM Intelligent Operations Center API.
 - Click the third panel down to add a content panel to the page that includes the map, location map, and list data. You can also click the third panel down to add both a KPI navigation tree and KPI content pane to the page. Alternatively, you can add specialized content that uses the IBM Intelligent Operations Center API.
 - Click the bottom panel to add specialized content to the bottom of the new page; for example, a ticker tape application.
6. Complete the modifications you require. For more information about using WebSphere Portal to customize portlets, see the WebSphere Portal product documentation.

Note: When customizing a page, apart from the main content panel, any panels that are left empty are not displayed in the new page. The empty panels are removed dynamically from the solution.

Related information:

 [IBM WebSphere Portal 8 product documentation](#)

Customizing the content panel

You can customize the content panel in IBM Intelligent Operations Center, and specify which tabs and content to display. The content panel is implemented through a content viewer portlet, and an administrator can customize it through the WebSphere Portal administrative interface.

About this task

The administrator adds comma-separated values to the `ioc_ui_content_viewer_portlet` portlet that include a path, prefix, module name, and the order in which a new tab is displayed in the content panel. The comma-separated values load a JavaScript module that provides the tab functionality.

Procedure

1. In the Supervisor: Operations view, click **Portal Administration>Portlet Management>Portlets**.
2. To customize the content panel, from the list of installed portlets, select **ioc_ui_content_viewer_portlet**.
3. To configure the content panel settings, click **Configure portlet** and edit the required settings.
4. Enter the configuration parameter in the **New parameter** field with the prefix of `contentView-Tab-XXX`, where `XXX` is the parameter name.
5. Enter the parameter values in the **New value** field as shown in *Table 1*. The table describes the addition of two different example calendar components to the IBM Intelligent Operations Center content panel tabs. Replace the following variables in the parameter values with the appropriate values:
 - `PATH_LOCATION` is the absolute path to the new content.
 - `PATH_NAME` is the name of the path to the new content.
 - `MODULE` is the name of the module. The module implements functions that are described in the `ioc_theme_static_js_web\WebContent\js\com\ibm\ioc\contentviewer\View.js` file to respond to different filter panel events. For example, select a data source.
 - `TAB_ORDER` is the order in which the tab is displayed in the content panel. The order starts from 0, where 0 is the first tab that is displayed.

Note: Specify the path and prefix parameter values if the module is not an **Intelligent Operations Center** module.

Example

Table 37. Example settings for the addition of tabs to the content panel.

Parameter name	Parameter value
<code>contentView-Tab-Graph-Visualisation</code>	<code>PATH_LOCATION:/test_ioc_common_widgets/js/test,PATH_NAME:test,MODULE:test/com/bin/ioc/contentviewer/views/SampleVisualisation,TAB_ORDER:3</code>
<code>contentView-Tab-locMap</code>	<code>MODULE:ioc/com/ibm/map/MapViewWrapper,TAB_ORDER:0</code>

Customizing components

1.6.0.2

To extend and customize the functionality of your solution, you can create customized components that you can add to the user interface. You can also replace an existing component with a customized component. For example, for a particular system component, you can replace an existing preview card with a new, customized preview card.

About this task

You can replace the following types of component with custom components:

Preview card

You can use customized preview cards for data sources.

Action

You can assign customized actions to data sources.

Full properties window

You can display a customized full properties window for data source items.

Advanced visualization

You can also customize how data source items, and hotspots, are rendered on the map by configuring the advanced visualization component type.

Related tasks:

“Setting displayed and returned data item limits” on page 118

You can set the maximum number of data items that are returned to the map and the list, and that are rendered on the map.

Creating components

1.6.0.2

Use the component customization tool to create customized components that you can add to the user interface. For example, you can either create your own customized preview card, or you can create actions that you make available in the **More Actions** menu on the preview card. You can also create customized full properties windows and advanced visualization components.

Before you begin

Create and install a module that contains the code to implement the component. For example, to create a custom action, implement the action through a Dojo script that is in a JavaScript file. You can download sample custom modules that are packaged in a WAR file. For more information, see the *Defining custom modules* topic that is in this section.

Note the module name, the path location, and the path name for the module.

Procedure

1. In the Solution Administration view, click **Configuration Tools > Component Customization**.
2. Click **Create**.
3. In the Create Custom Component window, enter the details for your custom component. The details that you must enter include the following values:
 - Name** For example, if you are creating a custom component by using one of the samples, enter one of the following names:
 - Sample Action
 - Sample Map Visualization
 - Sample Preview
 - Type** Select the appropriate component type from the list. For example, if you are using the sample action, select **Action**.

Target The custom component is associated with the target value, for example, data source.

Path location

The path location value specifies the path to the module where the custom component is implemented. If you are using one of the sample modules, enter the following path:
/ioc_sample_extensions/js/test

Path name

The path name value specifies a name for the path location. If you are using one of the sample modules, enter the value sample.

Module name

The module name value specifies the name of the module where the custom component is implemented. If you are using one of the sample modules, enter the correct module name from the following list:

- sample/com/ibm/ioc/action/SampleCustomAction
- sample/com/ibm/ioc/previewcard/SampleCustomPropertiesPane
- sample/com/ibm/ioc/map/SampleCustomRenderer

Results

After you click **OK** in the Create Custom Component window, the name of the new component is listed in the appropriate component type submenu under **Configure Components**.

Example

For example, if you added an action component that has the name Cancel All, the **Configure Components > Action** submenu has a new **Cancel All** menu option.

What to do next

If you want to add the new component to the user interface, use the **Add Components to User Interface** menu option.

Defining custom modules: 1.6.0.2

Define custom modules through Dojo scripts that you can use in your customized components. For example, you can define custom modules to implement customized actions and preview cards. You can download sample custom modules that are packaged in a WAR file and are ready to install into IBM Intelligent Operations Center.

About this task

Do the following procedure on the data server. To view sample Dojo scripts that implement custom modules, see the related link. The sample Dojo scripts are packaged in a WAR file that you can download.

Procedure

1. To create and package custom modules, choose one of the following options:
 - From the related link, download a WAR file that contains sample custom modules.
 - Define each custom module through a Dojo script that is in a JavaScript file, and then create a WAR file that contains the JavaScript files.
2. Install the WAR file into WebSphere Application Server.
3. Map the module to both the web server, which is the IBM HTTP Server server, and the portal cluster:

Standard environment

```
WebSphere:cell=cell1,node=ihsnode1,server=ihsserver1  
WebSphere:cell=cell1,cluster=PortalCluster
```

High availability environment

```
WebSphere:cell=cell1,node=ihsnode2,server=ihsserver2  
WebSphere:cell=cell1,node=ihsnode1,server=ihsserver1  
WebSphere:cell=cell1,cluster=PortalCluster
```

4. Ensure that the WAR file starts correctly.
5. In a browser, verify that you can access the JavaScript files at `http://web_server/ioc_sample_extensions/js/test/com/ibm/ioc/action`. For example, verify that you can access the sample custom action JavaScript file at `http://web_server/ioc_sample_extensions/js/test/com/ibm/ioc/action/SampleCustomAction.js`.

Related information:



Sample custom modules

Configuring components

1.6.0.2

You can configure the settings for existing components that are in the system; for example, you can modify the path and module settings for customized components.

About this task

For each of the component types, default components are indicated by a circular icon that contains a diagonal line. For default components, you can edit only the name and description.

Procedure

1. In the Solution Administration view, click **Configuration Tools > Component Customization > Configure Components**.
2. Click the type, and then click the name, of the component that you want to configure. For example, if you want to edit the Update action component, click **Action > Update**.
3. Configure the component settings, and then click **Save**. For more information about the settings that you can configure for customized components, see the *Creating components* topic.

Adding components to the user interface

1.6.0.2

Choose the components that you want to display in the user interface. You can customize specific system components within a category of system components. For example, for data sources, you can specify that a customized preview card is displayed for data items that are received from a particular data source.

Procedure

1. In the Solution Administration view, click **Configuration Tools > Component Customization > Add Components to User Interface**.
2. Select the type of component that you want to either add, or replace. For example, if you want to replace the default preview card that is displayed for items from a data source, select **Preview Card**. If you want to add actions to the **More Actions** menu that is displayed for items from a data source, select **Action**.
3. Select a system component that you want to customize. Depending on the type of component that you selected, you can choose components from either **Data Sources**, or **Hotspots**.
4. Customize the system component by either adding or replacing components:
 - If you selected **Preview Card** for the component type, select a preview card from the list of available preview cards.

- If you selected **Action** for the component type, select the actions that you want to use from the list of available actions.
 - If you selected **Advanced Visualization** for the component type, select the advanced visualization that you want to use from the list.
 - If you selected **Full Properties Window** for the component type, select the full properties window that you want to use from the list.
5. Repeat the previous two steps for the other system components that you want to customize, and then click **Save**.

Customizing KPIs

In IBM Intelligent Operations Center, you can customize key performance indicator (KPI) models to suit your business processes.

KPIs are designed to supply statistical data that can be used to analyze trends or to indicate problem areas. KPI data is updated by data items coming into the system from your data source.

IBM Intelligent Operations Center provides a set of sample KPIs and events that can be used to update KPI status. There are three sample KPI models supplied with the IBM Intelligent Operations Center. The models are based on the sample monitoring and business processes related to public safety, transportation, and water supply. For more information about the sample KPIs, see the link.

Each solution follows a KPI creation and integration process to set up the KPIs required for the specific business environment. You can create your own KPI models with the IBM Business Monitor. For more information about creating and integrating KPIs with the IBM Intelligent Operations Center, see the link.

Use the Key Performance Indicators configuration tool to customize KPIs in the IBM Intelligent Operations Center. The Key Performance Indicators tool is provided for the administrator as one of the Solution Administration view options. For more information about configuring KPIs with the tool, see the link.

Using the tool, you can view KPI properties; create, copy, or modify KPIs; and view or change the hierarchical displays for KPI models.

Use the **KPI Definition** tab to define the KPIs associated with a specific KPI model in the IBM Intelligent Operations Center. The following list outlines the options available on the **KPI Definition** tab:

- View the current list of KPIs belonging to a KPI model.
- View the properties of an existing KPI.
- Update the properties of an existing KPI.
- Create a KPI for a KPI model:
 - An aggregate KPI has a value that is calculated with a defined metric
 - An Expression KPI has a value that is based on other KPIs
- Delete a KPI.

Your updates are saved to IBM Business Monitor models stored in the IBM Intelligent Operations Center database. Your updates are also reflected, at the next browser refresh, on the status views of the user interface.

Note: KPIs created in IBM Business Monitor are defined as "modeled". Any KPIs created or copied in IBM Intelligent Operations Center configuration tool are defined as "dashboard". Modeled KPIs cannot be deleted and have some limitations on updating within the configuration tool.

Use the **Relationships and Display** tab to update the KPI hierarchies that are displayed on the status views.

- View the existing KPI hierarchies.
- View the main properties of a KPI.
- Change the tree structure by moving or removing items in a KPI hierarchy.
- Add predefined KPIs to a hierarchy.

Your updates are reflected at the next refresh of the status views in the user interface.

Note: Any updates to the display hierarchy are independent of the KPI model. An understanding of the KPI model is necessary to ensure that the updates adhere to the logic of the KPI model.

Related concepts:

“Sample KPIs”

Sample KPIs are provided with the IBM Intelligent Operations Center. The sample KPIs are designed to provide guidance for implementing different types of KPI with the IBM Business Monitor Development Toolkit. Sample monitor models are provided for water, transportation, and public safety.

“Creating and integrating KPIs” on page 156

Key performance indicator (KPI) models can be created and modified using a business monitoring development toolkit and the Key Performance Indicators configuration tool.

“Configuring KPIs” on page 120

In the Solution Administration view, you can configure Key Performance Indicators (KPIs) and their hierarchical display in the user interface. The KPIs are displayed on the status views in IBM Intelligent Operations Center.

Sample KPIs

Sample KPIs are provided with the IBM Intelligent Operations Center. The sample KPIs are designed to provide guidance for implementing different types of KPI with the IBM Business Monitor Development Toolkit. Sample monitor models are provided for water, transportation, and public safety.

The lowest level KPIs are defined as aggregate KPIs. Aggregate KPIs are calculated from values that are contained in incoming data items and a function such as average, maximum, minimum, sum, number of occurrences, or standard deviation. Their values are expressed as quantifiable measurements. The data item properties that are routed to KPIs are identified in the data source configuration. The higher level KPIs are mapped to values that are based on the mapping that was defined when the sample KPI was created.

The value of a higher level sample KPI is a number that equates to a color and the level of response recommended. A value of 0 is acceptable. A value of 1 indicates caution or monitoring. A value of 2 indicates that action is required. The value of the lowest level KPI is a duration, a decimal, a percentage, or a currency that depends on the KPI it represents. The following values are examples of the lowest level KPI values:

- 15% is the actual value of a KPI representing the percentage of delayed flights at a particular airport over a period.
- 5 minutes, 7 seconds is the actual value of a KPI representing the average crime response time for a location over a period.

The source files for the sample models are provided in an archive file that can be imported into Rational Application Developer or WebSphere Integration Developer with the IBM Business Monitor Toolkit installed. The archive file can be modified to change, add, or delete KPI definitions. The definitions can then be regenerated and redeployed to the IBM Intelligent Operations Center. For more information about KPI integration, see the link.

The following sample models are supplied with the IBM Intelligent Operations Center:

- ioc_sample_public_safety_model
- ioc_sample_transportation_model
- ioc_sample_water_model

These models contain the following sample KPIs:

- Water
 - Flood Control
 - Water Levels
 - Flow Discharge City River
 - Water Level City Lake
 - Water Management
 - Strategical Planning
 - Water Leakage
 - Water Supply vs Demand
 - Water Quality
 - Physical Indicators
 - Turbidity
 - pH
- Transportation
 - Airports
 - Delayed Flights
 - Delayed Flights Airport One
 - Delayed Flights Airport Two
 - Roads and Traffic
 - Road Events
 - Severe Traffic Accidents
 - Transportation Management
 - Revenue
 - Bridges and Tunnel Tolls
 - Parking Facilities Revenue
- Public Safety
 - Fire Department
 - Firefighter Injuries
 - Firefighter Injuries Fire Station One
 - Firefighter Injuries Fire Station Two
 - Police Department
 - Crime Response Time
 - Crime Response Time Precinct One
 - Crime Response Time Precinct Two
 - Public Safety Management
 - Public Safety Budget
 - EMS Department Budget
 - Fire Department Budget
 - Police Department Budget

Related concepts:

“Customizing KPIs” on page 178

In IBM Intelligent Operations Center, you can customize key performance indicator (KPI) models to suit your business processes.

“Creating and integrating KPIs” on page 156

Key performance indicator (KPI) models can be created and modified using a business monitoring development toolkit and the Key Performance Indicators configuration tool.

Backing up before customizing KPIs

Before customizing KPIs, back up existing KPIs in the IBM Intelligent Operations Center. This advice applies to KPIs that created or modified with IBM Business Monitor, or with the Key Performance Indicators configuration tool in IBM Intelligent Operations Center.

About this task

Before you customize KPI models and modify KPIs, you might want to back up existing models. The procedure exports all KPIs from the specified model to the specified file, and imports KPIs from the specified file to the specified model.

Procedure

1. Log on to the application server.
2. Change to the bin directory of the IBM Business Monitor profile: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin`
3. To export KPIs, run the following command: `./wsadmin.sh -wsadmin_classpath "../../../../plugins/com.ibm.wbimonitor.lifecycle.spi.jar:../../../../plugins/com.ibm.wbimonitor.repository.jar" -lang jython -f "../../../../scripts/wbm/kpi/exportKpis.jy" "xml_file_path" model_ID model_version ALL`

The variable `xml_file_path` represents the name and path of the XML file to which you are exporting KPIs. The variables `model_ID` and `model_version` represent the ID and version of the KPI model from which you are exporting KPIs.

Note: You can see the `model_ID` and `model_version` on the **Relationships and Display** tab of the Key Performance Indicators tool. Click a KPI to see the KPI preview details.

4. To import KPIs, run the following command: `./wsadmin.sh -wsadmin_classpath "../../../../plugins/com.ibm.wbimonitor.lifecycle.spi.jar:../../../../plugins/com.ibm.wbimonitor.repository.jar" -lang jython -f "../../../../scripts/wbm/kpi/importKpis.jy" "xml_file_path"`

The variable `xml_file_path` represents the name and path of the XML file from which you are importing KPIs.

Example

To export all KPIs from the model, `ioc_sample_public_safety_model`, to `/tmp/kpis.xml`, run the following command. The value of `xml_file_path` is `/tmp/kpis.xml`. The value of `model_ID` is `ioc_sample_public_safety_model`. The value of `model_version` is `2011-02-18T10:49:46`.

```
./wsadmin.sh -wsadmin_classpath "../../../../plugins/com.ibm.wbimonitor.lifecycle.spi.jar:../../../../plugins/com.ibm.wbimonitor.repository.jar" -lang jython -f "../../../../scripts/wbm/kpi/exportKpis.jy" "/tmp/kpis.xml" ioc_sample_public_safety_model 2011-02-18T10:49:46 ALL
```

For more information about working with KPI models, see the link to the IBM Business Monitor product documentation.

Related information:

 [IBM Business Monitor product documentation](#)

Defining custom actions for data sources

1.6

1.6.0.1

You can define custom actions that are displayed as available actions on the **Actions** tab in the data source configuration tool. If you assign a custom action to a data source, it is displayed in the **More Actions** menu that is on the preview card for the data source.

About this task

In the following procedure, an action with the name Camera Feed is created as an example. Do the procedure on the data server.

Procedure

1. Define the custom action through a Dojo script that is in a JavaScript file. For example, implement the Dojo script in a JavaScript file that has the name CameraFeed.js. The Dojo script extends the BaseMoreAction script. The Dojo script overrides the performAction function that is triggered when a user selects an item in the **More Actions** menu. To view a sample Dojo script, see the related link.
2. Create a web module that contains the JavaScript file. Depending on how the web module is packaged, it might be either a WAR file, or an EAR file.
3. Install the web module into WebSphere Application Server.
4. Map the module to both the IBM HTTP Server server and the portal cluster:

Standard environment

```
WebSphere:cell=cell11,node=ihsnode1,server=ihserver1  
WebSphere:cell=cell11,cluster=PortalCluster
```

High availability environment

```
WebSphere:cell=cell11,node=ihsnode2,server=ihserver2  
WebSphere:cell=cell11,node=ihsnode1,server=ihserver1  
WebSphere:cell=cell11,cluster=PortalCluster
```

5. In a browser, verify that you can access the JavaScript file at `https://host:port/sample/custom/more/actions/js/test/CameraFeed.js`.
6. Define an entry for the custom action in the IOC.Available_Extensions database table. The following SQL query defines an entry for the Camera Feed action.

```
INSERT INTO IOC.Available_Extensions (Name, Type, Disabled, Multiple, PathLocation, PathName, Module)  
VALUES ('CameraFeed', 'ACTION', '1', '0', '/sample/custom/more/actions/js', 'exmp', 'exmp/test/CameraFeed');
```

The following list defines the parameters of the SQL query:

Name

The action name that is displayed in the available actions list in the data source configuration tool. Do not insert spaces into the name.

Type

The type of extension. For custom actions, specify a value of ACTION.

Disabled

Specifies whether the action is assigned to every data source by default. Specify a value of 0 to assign the action by default, otherwise specify a value of 1. In the available actions table in the data source configuration tool, the values Yes and No indicate whether an action is assigned to the data source.

Multiple

Specifies whether the action can be applied to multiple data items. To enable the action to be applied to only single data items, specify a value of 0. To enable the action to be applied to multiple data items, specify a value of 1.

PathLocation

The path location for the JavaScript file that runs the action.

PathName

The path name for the JavaScript file that runs the action.

Module

The JavaScript module that runs the action.

- To insert a globalization value for the Camera Feed action into the I18N_RESOURCE table in the IOC database, enter the following command:

```
INSERT INTO IOC.I18N_RESOURCE ("GROUP", "LOCALE", "KEY", "VALUE")
VALUES ('PreviewCard', 'default', 'action_CameraFeed', 'Camera Feed');
```

Note: The value of KEY must have the prefix `action_`, for example, `action_CameraFeed`.

The previous SQL query inserts a globalization value for the default locale. You can insert a globalization value for another locale: for LOCALE, enter the appropriate code, and for VALUE, enter an action name that is appropriate to the locale.

Related tasks:

“Assigning actions to your data source” on page 113

You can choose which user actions to apply to data items that are received from your data source. Some actions are applied by default.

Related information:

Sample Dojo scripts

Data item icons

You can design your own icons and upload image files to represent data items in the operations views, the status views, and the Solution Administration view. The image files that you upload must meet certain requirements.

The following list outlines the requirements that icon image files must satisfy:

- Store the icon in transparent PNG file format.
- Upload two image files for each icon, containing dark and light versions of the icon, so that the icon can be seen throughout the solution interface:
 - In the operations views, the light version of the icon is displayed when the color of the paddle is a dark color, and the dark version of the icon is displayed when the color of the paddle is a light color.
 - In the status views, the light version of the icon is displayed
 - In the administration views, the dark version of the icon is displayed.
- Both the dark version and the light version of the icon must be stored in an image file with the same file name. Therefore, when you create the dark and light icon image files, you must store each file in a separate directory to avoid one file overwriting the other.

Related tasks:

“Configuring the appearance of your data on the map” on page 113

Assign either an icon or a color to map markers to represent the data items from your data source. You can set conditions to change the appearance of the map marker according to the value of a property that is within your data source.

Displaying Cognos reports

1.6.0.1

1.6.0.2

IBM Intelligent Operations Center provides a theme for creating reports pages and a reports portlet for displaying Cognos reports. When you create a reports page, the page is displayed as a view in the IBM Intelligent Operations Center interface.

Before you begin

You can configure a data source to be available for inclusion in Cognos reports:

1. In the data source configuration tool, click the **Basics** tab.
2. For **Report model**, select **Yes**.

If you want to display Cognos reports in a high availability environment, you must complete the configuration that is described in the *Configure the Cognos model in a high availability environment* link.

For each report that you want to display, obtain the default action URL from the Cognos Connection console. Then, edit the default action URL before you use it to configure Cognos reports as described in the main procedure. To obtain and edit the default action URL, as a system administrator, complete the following steps:

1. To open the Cognos Connection console, in the Solution Administration view, click **System Administration > Administration Consoles > Report Administration**.
2. In the Cognos Connection console, expand the IOC directory.
3. In the reports portlet, locate the report that you want to display.
4. In the actions column for the report, click **Set properties**.
5. On the **General** tab, click **View the search path, ID and URL**.
6. Note the value of the Default Action URL.
7. In the IBM Intelligent Operations Center Solution Administration view, click **System Properties > AnalyticServerDispatchUrl**, and copy the host name and the port number from the **Value** field.
8. In the default action URL that you noted, replace the host name and the port number with the host name and the port number that you copied from the `AnalyticServerDispatchUrl` system property.
9. Ensure that the edited default action URL uses the HTTPS protocol.

Use the edited default action URL to configure a report as described in the main procedure.

About this task

The name of the reports theme is `IOC Portal 8 Reports Theme` and it contains two non-collapsible panes. The name of the reports portlet is `ioc_ui_reports_portlet`. You can use the reports theme to create a reports page and then position two reports portlets side by side in the reports page.

Because the preferences that you configure for a portlet are global, copy the reports portlet and then customize the copied reports portlet to display Cognos reports.

In the Portal Administration view, use the following procedure to create a reports page that contains up to two reports portlets. You can configure each reports portlet to contain up to three reports.

For more information about managing pages and portlets, see *Creating or customizing a page*, or the WebSphere Portal Server product documentation.

Procedure

1. In the IBM Intelligent Operations Center interface, click **Administration > Portal Administration**.
Configure reports portlets
2. Click **Portlet Management > Portlets**.
3. Configure a reports portlet for display in the reports page:
 - a. Locate `ioc_ui_reports_portlet` in the list of portlets, and then click the **Copy portlet** icon.

- b. Save the copy of the reports portlet with an appropriate name, for example, `ioc_ui_cognos1_portlet`.
 - c. Locate the new reports portlet in the list of portlets, and then click the **Configure portlet** icon.
 - d. Configure the height and URL of up to three reports to be displayed in the reports portlet. Obtain the URL for each report by using the steps that are in the previous *Before you begin* section.
 - e. To disable report headers and toolbars in the reports portlet that you display, add the following value to the end of the URL for each report:
 - **&cv.toolbar=false&cv.header=false**
4. Optional: Repeat the previous step to configure a second reports portlet for display in the reports page.
Configure reports page
 5. Click **Portal User Interface > Manage Pages**.
 6. Click **Content Root > City Name > Citywide**.
 7. Click **New Page**.
 8. Select or specify the appropriate options for the reports page. For **Theme**, select **IOC Portal 8 Reports Theme**.
 9. Configure the reports page to display the reports portlets that you created previously.
 10. To disable report headers in the report that you display, configure the following report parameters with a value of **false**:
 - **cv.toolbar**
 - **cv.header**

What to do next

For more information about configurable report parameters, see the IBM Cognos Business Intelligence product documentation.

Related tasks:

“Creating or customizing a page” on page 173

If you are an administrator, you can create new pages to be included in IBM Intelligent Operations Center, and specify what content to display on those pages. You can customize the appearance and layout of the content that is included on each page.

“Configure the Cognos model in a high availability environment” on page 75

IBM Intelligent Operations Center can publish a Cognos model when a data source is created or updated. In a high availability environment, you must configure Cognos to enable IBM Intelligent Operations Center to publish the Cognos model.

Related information:

 [IBM WebSphere Portal 8 product documentation](#)

Configuring IBM logos in the solution

You can modify the IBM titles and logos that are displayed in IBM Intelligent Operations Center.

Procedure

Note: If you have a high availability environment, edit the relevant logo files on both of the application servers in the cluster. If you modify the IBM Intelligent Operations Center file system, for example, if you replace a logo image file, recursively set the permissions on any changed files. Set the file owner value to `ibmadmin` and set the file group value to `ibmadmins`.

- To customize the title that is displayed in the banner of IBM Intelligent Operations Center views, for example, **City Name**, complete the following steps in the Portal Administration view:
 1. Click **Portal User Interface > Manage Pages > Content Root**.
 2. In the table, find the row that has the value *ioc.Home* for the **Unique name or Identifier**.
 3. Click the **Edit Page Properties** icon.
 4. Edit the value of the **Title** field.
- To customize the browser title in IBM Intelligent Operations Center views, complete the following steps:
 1. Log on to the database server as *db2inst2*.
 2. The *i18n_resource* table is in the *ioc* schema in the *iocdb* database. In the *i18n_resource* table, modify the value for all entries that have a group value of *Theme* and a key value of *theme_title*. To retrieve the entries, complete the following instructions:


```
db2 connect to iocdb
db2 select * from ioc.i18n_resource where group='Theme' and key='theme_title'
```
- You can customize the IBM logo that is displayed in the upper corner of the banner in IBM Intelligent Operations Center views, for example, the Solution Administration views. Log on to the application server as the *root* user and choose one of the following options.
 1. To change the IBM logo on either Solution Administration views, or white-themed views, replace the following PNG file:


```
/opt/IBM/WebSphere/wp_profile/installedApps/cell1/ioc_theme_ear.ear/
ioc_theme_static_js_web.war/compressedJS/idx/themes/oneui/idx/app/
images/headerLogo.png
```
 2. To change the IBM logo on dark-themed views, replace the following file:


```
/opt/IBM/WebSphere/wp_profile/installedApps/cell1/ioc_theme_ear.ear/
ioc_theme_static_js_web.war/compressedJS/idx/themes/oneuidark/idx/app/
images/headerLogo.png
```
 3. To change the IBM logo on gray-themed views, replace the following file:


```
/opt/IBM/WebSphere/wp_profile/installedApps/cell1/ioc_theme_ear.ear/
ioc_theme_static_js_web.war/compressedJS/idx/themes/oneuidarkgrey/idx/app/
images/headerLogo.png
```
- To change the IBM logo that is displayed in the banner on the login page for the solution, log on to the application server as the *root* user and complete the following steps:
 1. Edit the following *styles.css* file:


```
/opt/IBM/WebSphere/wp_profile/installedApps/cell1/ioc_theme_ear.ear/
ioc_theme_static_css_web.war/ioc/login.css
```
 2. At the end of the *styles.css* file, add custom CSS content that is similar to the following example code:


```
.wpthemeBanner .wpthemeBranding img {
    background-image: url("../images/custom_logo.jpg");
    background-position: 0 0;
    width:80px;
    height:80px;
}
```

where:
custom_logo.jpg is the custom logo file.
 3. In the *styles.css* file, edit the values of height and width for the logo as required.
 4. Copy the custom logo file, for example, *custom_logo.jpg*, to the following directory:


```
/opt/IBM/WebSphere/wp_profile/installedApps/cell1/ioc_portal_ear.ear/
ioc_ui_login_portlet.war/ioc_ui_login_portlet/images
```
- To customize the background image file for the login page, replace the following file:


```
/opt/IBM/WebSphere/wp_profile/installedApps/cell1/ioc_portal_ear.ear/
ioc_ui_login_portlet.war/images/ioc_login_background_19201280.jpg
```

Chapter 7. Administering the solution

Administer IBM Intelligent Operations Center in the Solution Administration view.

Logging on

Log on to access the IBM Intelligent Operations Center user interface.

Before you begin

Contact your local administrator to obtain your user ID and password. Your administrator is responsible for ensuring that you have the security access level that is appropriate to your role in your organization. Your administrator will also supply you with the web address URL for accessing the solution portal.

About this task

Use the following procedure to start a new browser session and access IBM Intelligent Operations Center. You can also access the solution from other IBM Smarter Cities Software Solutions that are installed in your environment. From the main navigation bar at the top of the portal, select IBM Intelligent Operations Center.

Procedure

1. Enter the URL into the address field of the browser.

Note: The fully qualified domain name is required in the URL, for example, `https://web_hostname/wps/portal` where `web_hostname` is the host name of the web server. If you use the IP address instead of the registered fully qualified domain name, some windows do not open correctly.

2. On the login page, enter your user ID and password.
3. Click **Log In**.

Results

Only the pages, features, and data that you have permission to access are displayed. Contact your administrator if you require more access.

Viewing product version details

In the Solution Administration view, you can view details of the version of IBM Intelligent Operations Center and the integrated IBM Smarter Cities Software Solutions that you installed. You can also view details of any updates that you applied since installation.

In the Solution Administration view, click **System Administration** > **About**. This page displays details about installed software, components, and fixes.

Note: The information that is displayed for each fix depends on the completion of the appropriate step in the installation instructions that are supplied with that fix.

Administering the services

Use the Administration Consoles to administer the services that are provided by the solution.

For each service, links in the Administration Consoles direct you either to an administration console, or to information about how to access administration.

You can customize the links through system properties; for example, you can specify whether an administration console link uses either the http protocol, or the https protocol. By default, the administration console links use the https protocol. For more information about system properties, see the link at the end of the topic.

Web server

Table 38. Administration on the web server

Console	Administration
Web server	To administer security on the web server, use the link to the WebSphere Application Server 8.0 Deployment Manager console for IBM HTTP Server.

Application server

Table 39. Administration on the application server

Console	Administration
Application server	To administer various services that are provided by IBM Intelligent Operations Center, use the links to the web-based consoles for WebSphere Application Server. You can control the servers, manage resources and service providers, change host settings and other environmental settings.
Contacts administration	For information about how to download and set up Domino Administration Client for Lotus Domino contacts administration, see the IBM Lotus Domino and Notes product documentation.
Security Identity Manager	Use the link to the web-based console for Security Identity Manager to centrally administer user and application IDs, and to manage passwords, user provisioning, and auditing capabilities. You can use LDAP and Linux adapters that are installed and configured in IBM Tivoli Directory Integrator to remotely manage LDAP and Linux accounts from Security Identity Manager.
Mobile application development	To manage the repository of mobile applications, track devices that are registered with the IBMWorklight Application Center, and view the applications that are installed on a specific device, use the link to the IBM Worklight Application Center 6.0 console.
1.6.0.2 OIP administration	Use the link to the web-based console for OIP administration to centrally administer and configure the optimized interactive process tasks and settings for the solution. For example, to configure SMS or email settings for the solution.

Data server

Table 40. Administration on the data server

Console	Administration
Database	For information about how to administer the database with DB2 Enterprise Server Edition, see the IBM DB2 Database for Linux, UNIX, and Windows product documentation. You can perform tasks with the database control center GUI or the command line.
Directory	To administer the user's directory, use the web-based console for Tivoli Directory Server. For information about how to use the Tivoli Directory Server web-based console, see the IBM Tivoli Directory Server product documentation.

Analytics server

Table 41. Administration on the analytics server

Console	Administration
Report administration	To set up reports, use the link to the web-based console for IBM Cognos Connection. You can create new reports or modify existing ones. You can also configure data sources, set up public and private folders, define permissions and distribution, and schedule reports to run automatically.
Data mining and modeling	For information about using the IBM SPSS Modeler data mining tools to develop and deploy predictive models for improved decision making, see the link to the IBM SPSS Modeler product documentation.
Data optimization	For information about how to build optimization models by using mathematical algorithms, see the link to the IBM ILOG CPLEX Optimization Studio product documentation.
Messaging	For information about defining and administering local and remote WebSphere MQ objects, such as queues and queue managers, see the link to the WebSphere MQ product documentation.
Message bus	For information about configuring and administering message brokers, and for information about developing, testing, and debugging message flow applications, see the link to the WebSphere Message Broker product documentation.

Related tasks:

“Configuring system properties”

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

Configuring system properties

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

Procedure

To view, create, modify, or delete system properties, in the Solution Administration view, click **System Administration > System Properties**. To view the value and description of a system property, click the name of the property. Click the field help icons to view information about the names and values that you can enter.

- To create a system property, click **Create**:
 1. In the Create a System Property window, enter a value for **Name**.
 2. Optional: Enter a value for **Value**.
 3. Optional: Enter a value for **Group**. System properties that are members of the same group can be retrieved by a single call to the system properties REST service.
 4. Optional: Enter a value for **Description**.
 5. Click **OK**.
- To modify a system property, click the name of the property:
 1. Edit the **Value**, **Description**, and **Group** for the property as appropriate.
 2. Click **Save**.
- To delete a system property, click the name of the property:
 1. Click **Delete**.
 2. In the confirmation window, click **OK**.

Starting, stopping, and querying status in a standard environment

The platform control tool allows a user to stop, start, and query IBM Intelligent Operations Center components running in a standard environment. A platform control tool is also available for IBM Intelligent Operations Center running in a high availability environment.

Related concepts:

“Starting, stopping, and querying status in a high availability environment” on page 198

The platform control tool allows a user to stop, start, and query IBM Intelligent Operations Center services running in a high availability environment. A platform control tool is also available for IBM Intelligent Operations Center running in a standard environment.

“What’s new in version 1.6.0.2” on page 14

IBM Intelligent Operations Center version 1.6.0.2 provides several new features, and provides updates to existing features. New features include enhanced user profile management, where users can customize notification settings. Solution administrators can use a new component customization tool to create customized user interface components. For KPIs, solution administrators can map KPIs to reports.

Understanding platform control tool standard environment components

1.6.0.2

Platform control tool components are combined into logical groupings and named using a parent/child relationship.

For example, in the standard environment, directory components can be started, stopped, or queried at the base level or at lower component levels.

Table 42. Example directory component and subcomponent platform control tool names in the standard environment

Base component	Components	Subcomponents
dir	dbstds	dbstdsadm
		dbstdsserv
	dbstdi	

Base components for the standard environment are:

- dir** Directory components
- db** Database components
- sec** Security components
- msg** Messaging components
- col** Collaboration components
- app** Application components
- ana** Analytics components

Components and subcomponents are named in the form server + product or service. For example, dbstds is Tivoli Directory Server on the data server.

For more information on component and subcomponent names, see the `iopmgmt.std.help.txt` file shipped with IBM Intelligent Operations Center.

Starting the components in a standard environment

The platform control tool can be used to start the components running on IBM Intelligent Operations Center standard environment servers.

About this task

The `IOControl` command must be run as the `ibmadm` user. If not logged on as the `ibmadm`, run the `su - ibmadm` command to switch to the `ibmadm` user.

Attention: Starting individual components should only be done by experienced IBM Intelligent Operations Center administrators. Unpredictable results can occur if components are not started in the required order.

Procedure

On the analytics server run the following command to start all the IBM Intelligent Operations Center components.

```
IOControl -a start -c all -p password
```

where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: `'pass$phrase'`

The components are started in the required order. Prerequisite components are started before dependent components. For example, database and directory components are started first.

To start only one component, run the following command.

```
IOControl -a start -c component -p password
```

where *component* is an ID listed under **Target Options** in the IOCControl help and where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: 'pass\$phrase'

Optionally the nostatus option can be added to the command. This will suppress any output returned from the command.

Results

The requested IBM Intelligent Operations Center components are started.

What to do next

If the IOCControl command did not result in the desired outcome, check the logs in the /opt/IBM/ISP/mgmt/logs directory. The logs contain the results of the most recent IOCControl command.

1.6.0.2 The log file name begins with the action specified for -a.

Related tasks:

“Stopping the components in a standard environment” on page 194

The platform control tool can be used to stop components running on IBM Intelligent Operations Center standard environment servers.

“Querying the status of the components in a standard environment” on page 197

The platform control tool can be used to determine the status of the components running on IBM Intelligent Operations Center standard environment servers.

“Getting help for the platform control tool in a standard environment” on page 198

Information is available about the options for running the platform control tool in a standard environment.

Required start order in the V1.6.0.2 standard environment

1.6.0.2

In the standard environment, IBM Intelligent Operations Center components must be started in a specific order.

The platform control tool is used to start IBM Intelligent Operations Center components. While it is recommended that the platform control tool **-a start -c all -p password** command be used to start all components, there might be times when individual components need to be started.

The following table shows the required start order for the components. Components can be started by using the base component or individual component for the -c value.

Table 43. Start order for IBM Intelligent Operations Center standard edition components

Base component	Component	Started product or service
dir	dbstds	Tivoli Directory Server
	dbstdi	Tivoli Directory Integrator
dbs	dbstdb24adm	DB2 Enterprise Server Edition administration server
	dbstdb24mid	DB2 Enterprise Server Edition for middleware
	dbstdb24app	DB2 Enterprise Server Edition for applications
sec	appisim	IBM Security Identity Manager
msg	anamb	IBM Message Broker
col	appdomino	IBM Lotus Sametime

Table 43. Start order for IBM Intelligent Operations Center standard edition components (continued)

Base component	Component	Started product or service
app	appdmgr	WebSphere Application Server Deployment Manager
	appbmon	IBM Business Monitor
	appstproxy	IBM Lotus Sametime Proxy Server
	appwrklt	IBM Worklight
	appwpe	WebSphere Portal Extend
	appiop	Intelligent Operations Platform server
	webihs	IBM HTTP Server
ana	anacognos	IBM Cognos Business Intelligence
	anacplex	IBM ILOG CPLEX Optimization Studio
	anasps	IBM SPSS Modeler

Required start order in the V1.6 and V1.6.0.1 standard environment

1.6

1.6.0.1

In the standard environment, IBM Intelligent Operations Center components must be started in a specific order.

The platform control tool is used to start IBM Intelligent Operations Center components. While it is recommended that the platform control tool `-a start -c all -p password` command be used to start all components, there might be times when individual components need to be started.

Some components have dependencies on other components, so components must be started in a specific order.

In general, components should be started in three groups:

Group 1

tds, db24mid, db24app

Group 2

sim

Group 3

all remaining components

Start the components in group 1 first, then start group 2, and finally start group 3. The components within each group can be started in any order.

Table 44. IBM Intelligent Operations Center component start order dependencies

Component	Description	Components that must be running before this component is started
tds	Tivoli Directory Server	None
db24mid	DB2 Enterprise Server Edition for middleware	None
db24app	DB2 Enterprise Server Edition for applications	None
sim	IBM Security Identity Manager	tds
appdmgr	WebSphere Application Server Deployment Manager	tds
wbm	WebSphere Business Modeler	tds, wpe

Table 44. IBM Intelligent Operations Center component start order dependencies (continued)

Component	Description	Components that must be running before this component is started
st	IBM Lotus Sametime	tds
stproxy	IBM Lotus Sametime Proxy Server	tds
wpe	WebSphere Portal Extend	tds
wmb	IBM Message Broker	tds
cognos	IBM Cognos Business Intelligence	tds, wpe
wrklit	IBM Worklight	tds, wpe
iopsvr	Intelligent Operations Platform server	tds, wpe
ihsweb	IBM HTTP Server	tds

Stopping the components in a standard environment

The platform control tool can be used to stop components running on IBM Intelligent Operations Center standard environment servers.

About this task

The IOCControl command must be run as the `ibmadmin` user. If not logged on as the `ibmadmin`, run the `su - ibmadmin` command to switch to the `ibmadmin` user.

Attention: Stopping individual components should only be done by experienced IBM Intelligent Operations Center administrators. Unpredictable results can occur if components are not stopped in the required order.

Procedure

On the analytics server run the following command to stop all the IBM Intelligent Operations Center components.

```
IOCControl -a stop -c all -p password
```

where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: `'pass$phrase'`

To stop only one component, run the following command.

```
IOCControl -a stop -c component -p password
```

where *component* is an ID listed under **Target Options** in the IOCControl help and where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: `'pass$phrase'`

1.6.0.2 Optionally the `nostatus` option can be added to the command. This will suppress any output returned from the command.

Results

The requested IBM Intelligent Operations Center components are stopped.

What to do next

If the `IOCControl` command did not result in the desired outcome, check the logs in the `/opt/IBM/ISP/mgmt/logs` directory. The logs contain the results of the most recent `IOCControl` command.

1.6.0.2 The log file name begins with the action specified for `-a`.

Related tasks:

“Starting the components in a standard environment” on page 191

The platform control tool can be used to start the components running on IBM Intelligent Operations Center standard environment servers.

“Querying the status of the components in a standard environment” on page 197

The platform control tool can be used to determine the status of the components running on IBM Intelligent Operations Center standard environment servers.

“Getting help for the platform control tool in a standard environment” on page 198

Information is available about the options for running the platform control tool in a standard environment.

Required stop order in the V1.6.0.2 standard environment

1.6.0.2

In the standard environment, IBM Intelligent Operations Center components must be stopped in a specific order.

The platform control tool is used to stop IBM Intelligent Operations Center components. While it is recommended that the platform control tool `-a stop -c all -p password` command be used to stop all components, there might be times when individual components need to be stopped.

The following table shows the required stop order for the components. Components can be stopped by using the base component or individual component for the `-c` value.

Table 45. Stop order for IBM Intelligent Operations Center standard edition components

Base component	Component	Started product or service
ana	anaspss	IBM SPSS Modeler
	anacplex	IBM ILOG CPLEX Optimization Studio
	anacognos	IBM Cognos Business Intelligence
app	webihs	IBM HTTP Server
	appiop	Intelligent Operations Platform server
	appwpe	WebSphere Portal Extend
	appwrklt	IBM Worklight
	appstproxy	IBM Lotus Sametime Proxy Server
	appbmon	WebSphere Business Modeler
	appdmgr	WebSphere Application Server Deployment Manager
col	appdomino	IBM Lotus Sametime
msg	anamb	IBM Message Broker
sec	appisim	IBM Security Identity Manager
dbs	dbfdb24app	DB2 Enterprise Server Edition for applications
	dbfdb24mid	DB2 Enterprise Server Edition for middleware
	dbfdb24adm	DB2 Enterprise Server Edition administration server

Table 45. Stop order for IBM Intelligent Operations Center standard edition components (continued)

Base component	Component	Started product or service
dir	dbstdi	Tivoli Directory Integrator
	dbstds	Tivoli Directory Server

Required stop order in the V1.6 and V1.6.0.1 standard environment

1.6

1.6.0.1

In the standard environment, IBM Intelligent Operations Center components must be stopped in a specific order.

The platform control tool is used to stop IBM Intelligent Operations Center components. While it is recommended that the platform control tool `-a stop -c all -p password` command be used to stop all components, there might be times when individual components need to be stopped.

Some components have dependencies on other components, so components must be stopped in a specific order.

In general, components should be stopped in three groups:

Group 1

appdmgr, ihsweb, wbm, st, stproxy, wpe, wmb, cognos, wrklt, iopsvr

Group 2

sim

Group 3

db24mid, db24app, tds

Stop the components in group 1 first, then stop group 2, and finally stop group 3. The components within each group can be stopped in any order.

Table 46. IBM Intelligent Operations Center component stop order dependencies

Component	Description	Components that must be stopped before this component is stopped
appdmgr	WebSphere Application Server Deployment Manager	wpe
ihsweb	IBM HTTP Server	wpe
wbm	WebSphere Business Modeler	None
st	IBM Lotus Sametime	stproxy
stproxy	IBM Lotus Sametime Proxy Server	None
wpe	WebSphere Portal Extend	iopsvr, wrklt, cognos, wbm
wmb	IBM Message Broker	None
cognos	IBM Cognos Business Intelligence	None
wrklt	IBM Worklight	None
iopsvr	Intelligent Operations Platform server	None
sim	IBM Security Identity Manager	None
db24mid	DB2 Enterprise Server Edition for middleware	wpe
db24app	DB2 Enterprise Server Edition for applications	wpe
tds	Tivoli Directory Server	All other services

Querying the status of the components in a standard environment

The platform control tool can be used to determine the status of the components running on IBM Intelligent Operations Center standard environment servers.

About this task

The IOCControl command must be run as the ibmadmin user. If not logged on as the ibmadmin, run the su - ibmadmin command to switch to the ibmadmin user.

Procedure

On the analytics server run the following command to query the status all the IBM Intelligent Operations Center components.

```
IOCControl -a status -c all -p password
```

where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: 'pass\$phrase'

To check only one component, run the following command.

```
IOCControl -a status -c component -p password
```

where *component* is an ID listed under **Target Options** in the IOCControl help and where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: 'pass\$phrase'

Results

Components that are started will display [**on**]. Components that are not started will display [**off**].

1.6.0.2 If [**unknown**] is displayed, a problem occurred while trying to determine the status of the component. Possible problems include:

- A network connection problem between the platform control tool and the component.
- A resource shortage on the server. For example, lack of available disk space for logging resulting in the server being unable to handle new work requests.
- An optional product not completely installed.
- Other component-specific issues.

Retry the command. If [**unknown**] continues to be displayed, check the logs for additional information.

Note: **1.6.0.2** If the component specified by -c has defined subcomponents, the status of the subcomponents are displayed instead of the status of the parent component. The platform control tool help lists the components and subcomponents defined by IBM Intelligent Operations Center.

What to do next

If the IOCControl command did not result in the desired outcome, check the logs in the /opt/IBM/ISP/mgmt/logs directory. The logs contain the results of the most recent IOCControl command.

Related tasks:

“Starting the components in a standard environment” on page 191

The platform control tool can be used to start the components running on IBM Intelligent Operations Center standard environment servers.

“Stopping the components in a standard environment” on page 194

The platform control tool can be used to stop components running on IBM Intelligent Operations Center

standard environment servers.

“Getting help for the platform control tool in a standard environment”

Information is available about the options for running the platform control tool in a standard environment.

Getting help for the platform control tool in a standard environment

Information is available about the options for running the platform control tool in a standard environment.

About this task

The IOCControl command must be run as the ibmadmin user. If not logged on as the ibmadmin, run the su - ibmadmin command to switch to the ibmadmin user.

Procedure

On the analytics server run the one of the following commands to see options for the IOCControl command.

1.6.0.2

```
IOCControl -a help  
or IOCControl -h
```

1.6

1.6.0.1

```
IOCControl -a 000  
or  
IOCControl -h
```

Results

The options for the IOCControl command are displayed.

Related tasks:

“Starting the components in a standard environment” on page 191

The platform control tool can be used to start the components running on IBM Intelligent Operations Center standard environment servers.

“Stopping the components in a standard environment” on page 194

The platform control tool can be used to stop components running on IBM Intelligent Operations Center standard environment servers.

“Querying the status of the components in a standard environment” on page 197

The platform control tool can be used to determine the status of the components running on IBM Intelligent Operations Center standard environment servers.

Starting, stopping, and querying status in a high availability environment

The platform control tool allows a user to stop, start, and query IBM Intelligent Operations Center services running in a high availability environment. A platform control tool tool is also available for IBM Intelligent Operations Center running in a standard environment.

Related concepts:

“Starting, stopping, and querying status in a standard environment” on page 190

The platform control tool allows a user to stop, start, and query IBM Intelligent Operations Center components running in a standard environment. A platform control tool tool is also available for IBM Intelligent Operations Center running in a high availability environment.

“What’s new in version 1.6.0.2” on page 14

IBM Intelligent Operations Center version 1.6.0.2 provides several new features, and provides updates to existing features. New features include enhanced user profile management, where users can customize notification settings. Solution administrators can use a new component customization tool to create customized user interface components. For KPIs, solution administrators can map KPIs to reports.

Understanding platform control tool high availability environment components

1.6.0.2

Platform control tool components are combined into logical groupings and named using a parent/child relationship.

For example, in the high availability environment, directory components can be started, stopped, or queried at the base level or at lower component levels.

Table 47. Example directory component and subcomponent platform control tool names in the high availability environment

Base component	Components	Subcomponents	Sub-subcomponents
dirgrp	dirpri	dbstdspri	dbstdsapmpri
			dbstdsservpri
		anatdsproxypri	anatdsproxyadmpri
			anatdsproxyservpri
	dirsbby	dbstdipri	
		dbstdssby	dbstdsadsby
			dbstdsservsby
		anatdsproxysby	anatdsproxyadsby
			anatdsproxyservsby

Base components for the high availability environment are:

- dirgrp** Directory components
- dbsgroup** Database components
- secgrp** Security components
- msggrp** Messaging components
- colgrp** Collaboration components
- appgrp** Application components
- anagr** Analytics components

Components and subcomponents are named in the form server + product or service. For example, dbstdspri is Tivoli Directory Server on data server 1.

For more information on component and subcomponent names, see the iopmgmt.ha.help.txt file shipped with IBM Intelligent Operations Center.

Starting the components in a high availability environment

The platform control tool can be used to start the components running on IBM Intelligent Operations Center high availability environment servers.

About this task

The IOCControl command must be run as the ibmadmin user. If not logged on as the ibmadmin, run the su - ibmadmin command to switch to the ibmadmin user.

Attention: Starting individual components should only be done by experienced IBM Intelligent Operations Center administrators. Unpredictable results can occur if components are not started in the required order.

Procedure

1. Log on to analytics server 1 or analytics server 2 as the ibmadmin user. If logged on as a different user, change to the ibmadmin user by running the su - ibmadmin command. Under normal operations use the platform control tool on analytics server 1. If analytics server 1 is unavailable you can run the platform control tool on analytics server 2 . Do not use the platform control tool on analytics server 1 and analytics server 2 at the same time or unpredictable results can occur.
2. **1.6.0.2** Run the following command to start all the IBM Intelligent Operations Center components.
`IOCControl -a start -c all -p password`

where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: 'pass\$phrase'

Optionally the nostatus option can be added to the command. This will suppress any output returned from the command.

The components are started in the required order. Prerequisite components are started before dependent components. For example, database and directory components are started first.

To start only one component, run the following command.

```
IOCControl -a start component -p password
```

where *component* is an ID listed in the IOCControl help and where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: 'pass\$phrase'

Optionally the nostatus option can be added to the command. This will suppress any output returned from the command.

3. **1.6** **1.6.0.1** Run the following command to start all the IBM Intelligent Operations Center components.
`IOCControl -a 001 -p password`

where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: 'pass\$phrase'

Optionally the nostatus option can be added to the command. This will suppress any output returned from the command.

The components are started in the required order. Prerequisite components are started before dependent components. For example, database and directory components are started first.

To start only one component, run the following command.

```
IOCControl -a action -p password
```

where *action* is an ID listed in the IOCControl help and where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: 'pass\$phrase'

Optionally the `nostatus` option can be added to the command. This will suppress any output returned from the command.

Results

The requested IBM Intelligent Operations Center components are started.

What to do next

If the `IOCControl` command did not result in the desired outcome, check the logs in the `/opt/IBM/ISP/mgmt/logs` directory. The logs contain the results of the most recent `IOCControl` command.

1.6.0.2 The log file name begins with the action specified for `-a`.

Related tasks:

“Stopping the components in a high availability environment” on page 203

The platform control tool can be used to stop components running on IBM Intelligent Operations Center high availability servers.

“Querying the status of the components in a high availability environment” on page 207

The platform control tool can be used to determine the status of the components running on IBM Intelligent Operations Center high availability environment servers.

“Getting help for the platform control tool in a high availability environment” on page 208

Information is available about the options for running the platform control tool in a high availability environment.

Required start order in a V1.6.0.2 high availability environment

1.6.0.2

In the high availability environment, IBM Intelligent Operations Center components must be started in a specific order.

The platform control tool is used to start IBM Intelligent Operations Center components. While it is recommended that the platform control tool `-a start -c all -p password` command be used to start all components, there might be times when individual components need to be started.

The following table shows the required start order for the components. Components can be stopped by using the base component or individual component for the `-c` value.

Table 48. Start order for IBM Intelligent Operations Center high availability components

Base component	Component	Description
dirgrp	dirpri	Start platform directory components (primary) <ul style="list-style-type: none">• Tivoli Directory Server• Tivoli Directory Server proxy server• Tivoli Directory Integrator
	dirsky	Start platform directory components (standby) <ul style="list-style-type: none">• Tivoli Directory Server• Tivoli Directory Server proxy server

Table 48. Start order for IBM Intelligent Operations Center high availability components (continued)

Base component	Component	Description
dbsggrp	dbssby	Start database components (standby) <ul style="list-style-type: none"> • DB2 Enterprise Server Edition administration server • DB2 Enterprise Server Edition for middleware • DB2 Enterprise Server Edition for applications
	dbspri	Start database components (primary) <ul style="list-style-type: none"> • DB2 Enterprise Server Edition administration server • DB2 Enterprise Server Edition for middleware • DB2 Enterprise Server Edition for applications
secgrp	secpri	Start security components (primary) <ul style="list-style-type: none"> • IBM Security Identity Manager
	secsby	RESERVED
msggrp	msgpri	Start platform messaging servers (primary) <ul style="list-style-type: none"> • IBM Message Broker
	msgsbby	Start platform messaging servers (standby) <ul style="list-style-type: none"> • IBM Message Broker
colgrp	colpri	Start collaboration components (primary) <ul style="list-style-type: none"> • IBM Lotus Sametime
	colsby	RESERVED
appgrp	apppri	Start platform application servers (primary) <ul style="list-style-type: none"> • WebSphere Application Server Deployment Manager • IBM Business Monitor • IBM Lotus Sametime Proxy Server • IBM Worklight • WebSphere Portal Extend • Intelligent Operations Platform server • IBM HTTP Server
	appsby	Start platform application servers (standby) <ul style="list-style-type: none"> • WebSphere Application Server Deployment Manager • IBM Business Monitor • IBM Lotus Sametime Proxy Server • IBM Worklight • WebSphere Portal Extend • Intelligent Operations Platform server • IBM HTTP Server
anagrp	anapri	Start platform analytics servers (primary) <ul style="list-style-type: none"> • IBM Cognos Business Intelligence • IBM ILOG CPLEX Optimization Studio • IBM SPSS Modeler
	anasby	Start platform analytics servers (standby) <ul style="list-style-type: none"> • IBM Cognos Business Intelligence • IBM ILOG CPLEX Optimization Studio • IBM SPSS Modeler

Required start order in a V1.6 and V1.6.0.1 high availability environment

1.6

1.6.0.1

In the high availability environment, IBM Intelligent Operations Center components must be started in a specific order.

The platform control tool is used to start IBM Intelligent Operations Center components. While it is recommended that the platform control tool start all option be used to start all components, there might be times when individual components need to be started.

Some components have dependencies on other components, so components must be started in a specific order.

Table 49. IBM Intelligent Operations Center component start order dependencies

Component	Description	Services that must be running before this component is started
101	Start LDAP components (primary)	None
111	Start LDAP components (standby)	101
121	Start LDAP proxy components (primary)	101
131	Start LDAP proxy components (standby)	111, 121
141	Start database components (standby)	None
151	Start database components (primary)	141, 903
201	Start platform applications servers (primary)	101
211	Start platform applications servers (standby)	111
221	Start platform analytics servers (primary)	101
231	Start platform analytics servers (standby)	111
241	Start platform messaging servers (primary)	101
251	Start platform messaging servers (standby)	111
261	Start collaboration components (primary)	101
271	Start reporting components (primary)	101
301	Start web components (primary)	101
311	Start web components (standby)	101

Stopping the components in a high availability environment

The platform control tool can be used to stop components running on IBM Intelligent Operations Center high availability servers.

About this task

The IOCCControl command must be run as the ibmadmin user. If not logged on as the ibmadmin, run the su - ibmadmin command to switch to the ibmadmin user.

Attention: Stopping individual components should only be done by experienced IBM Intelligent Operations Center administrators. Unpredictable results can occur if components are not stopped in the required order.

Procedure

1. Log on to analytics server 1 or analytics server 2 as the `ibmadmin` user. If logged on as a different user, change to the `ibmadmin` user by running the `su - ibmadmin` command. Under normal operations use the platform control tool on analytics server 1. If analytics server 1 is unavailable you can run the platform control tool on analytics server 2. Do not use the platform control tool on analytics server 1 and analytics server 2 at the same time or unpredictable results can occur.
2. **1.6.0.2** Run the following command to stop all the IBM Intelligent Operations Center components.

```
IOCControl -a stop -c all -p password
```

where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: `'pass$phrase'`

To stop only one component, run the following command.

```
IOCControl -a stop -c component -p password
```

where *component* is an ID listed in the `IOCControl` help and where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: `'pass$phrase'`

3. **1.6** **1.6.0.1** Run the following command to stop all the IBM Intelligent Operations Center components.

```
IOCControl -a 091 -p password
```

where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: `'pass$phrase'`

To stop only one component, run the following command.

```
IOCControl -a action password
```

where *action* is an ID listed in the `IOCControl` help and where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: `'pass$phrase'`

Results

The requested IBM Intelligent Operations Center components are stopped.

What to do next

If the `IOCControl` command did not result in the desired outcome, check the logs in the `/opt/IBM/ISP/mgmt/logs` directory. The logs contain the results of the most recent `IOCControl` command.

1.6.0.2 The log file name begins with the action specified for `-a`.

Related tasks:

“Starting the components in a high availability environment” on page 199

The platform control tool can be used to start the components running on IBM Intelligent Operations Center high availability environment servers.

“Querying the status of the components in a high availability environment” on page 207

The platform control tool can be used to determine the status of the components running on IBM Intelligent Operations Center high availability environment servers.

“Getting help for the platform control tool in a high availability environment” on page 208

Information is available about the options for running the platform control tool in a high availability

environment.

Required stop order in a V1.6.0.2 high availability environment

1.6.0.2

In the high availability environment, IBM Intelligent Operations Center components must be stopped in a specific order.

The platform control tool is used to stop IBM Intelligent Operations Center components. While it is recommended that the platform control tool `-a stop -c all -p password` command be used to stop all components, there might be times when individual components need to be stopped.

The following table shows the required stop order for the components. Components can be stopped by using the base component or individual component for the `-c` value.

Table 50. Stop order for IBM Intelligent Operations Center high availability components

Base component	Component	Description
anagrp	anasby	Stop platform analytics servers (standby) <ul style="list-style-type: none"> • IBM Cognos Business Intelligence • IBM ILOG CPLEX Optimization Studio • IBM SPSS Modeler
	anapri	Stop platform analytics servers (primary) <ul style="list-style-type: none"> • IBM Cognos Business Intelligence • IBM ILOG CPLEX Optimization Studio • IBM SPSS Modeler
appgrp	appsby	Stop platform applications servers (standby) <ul style="list-style-type: none"> • WebSphere Application Server Deployment Manager • IBM Business Monitor • IBM Lotus Sametime Proxy Server • IBM Worklight • WebSphere Portal Extend • Intelligent Operations Platform server • IBM HTTP Server
	apppri	Stop platform applications servers (primary) <ul style="list-style-type: none"> • WebSphere Application Server Deployment Manager • IBM Business Monitor • IBM Lotus Sametime Proxy Server • IBM Worklight • WebSphere Portal Extend • Intelligent Operations Platform server • IBM HTTP Server
colgrp	colsby	RESERVED
	colpri	Stop collaboration components (primary) <ul style="list-style-type: none"> • IBM Lotus Sametime
msggrp	msgsbby	Stop platform messaging servers (standby) <ul style="list-style-type: none"> • IBM Message Broker
	msgpri	Stop platform messaging servers (primary) <ul style="list-style-type: none"> • IBM Message Broker

Table 50. Stop order for IBM Intelligent Operations Center high availability components (continued)

Base component	Component	Description
secgrp	secsby	RESERVED
	secpri	Stop security components (primary) <ul style="list-style-type: none"> IBM Security Identity Manager
dbsgroup	dbspri	Start database components (primary) <ul style="list-style-type: none"> DB2 Enterprise Server Edition administration server DB2 Enterprise Server Edition for middleware DB2 Enterprise Server Edition for applications
	dbssby	Start database components (standby) <ul style="list-style-type: none"> DB2 Enterprise Server Edition administration server DB2 Enterprise Server Edition for middleware DB2 Enterprise Server Edition for applications
dirgrp	dirsbyp	Stop platform directory components (standby) <ul style="list-style-type: none"> Tivoli Directory Server Tivoli Directory Server proxy server
	dirpri	Stop platform directory components (primary) <ul style="list-style-type: none"> Tivoli Directory Server Tivoli Directory Server proxy server Tivoli Directory Integrator

Required stop order in a V1.6 and V1.6.0.1 high availability environment

1.6

1.6.0.1

In the high availability environment, IBM Intelligent Operations Center components must be stopped in a specific order.

The platform control tool is used to stop IBM Intelligent Operations Center components. While it is recommended that the platform control tool stop all command be used to stop all components, there might be times when individual components need to be stopped.

Table 51. IBM Intelligent Operations Center component start order dependencies

Component	Description	Services that must be running before this component is started
501	Stop web components (standby)	None
511	Stop web components (primary)	501
601	Stop reporting components (primary)	None
611	Stop collaboration components (primary)	None
621	Stop platform messaging servers (standby)	None
631	Stop platform messaging servers (primary)	621
641	Stop platform analytics servers (standby)	None
651	Stop platform analytics servers (primary)	641
661	Stop platform applications servers (standby)	None
671	Stop platform applications servers (primary)	661
751	Stop database components (primary)	601, 611, 631, 651, 671, 953
741	Stop database components (standby)	621, 641, 661, 955

Table 51. IBM Intelligent Operations Center component start order dependencies (continued)

Component	Description	Services that must be running before this component is started
701	Stop LDAP proxy components (standby)	641
711	Stop LDAP proxy components (primary)	651
721	Stop LDAP components (standby)	601, 611, 621, 631, 641, 651, 661, 671, 953
731	Stop LDAP components (primary)	601, 611, 621, 631, 641, 651, 661, 671, 953, 731

Querying the status of the components in a high availability environment

The platform control tool can be used to determine the status of the components running on IBM Intelligent Operations Center high availability environment servers.

About this task

The IOCControl command must be run as the ibmadmin user. If not logged on as the ibmadmin, run the su - ibmadmin command to switch to the ibmadmin user.

Procedure

1. Log on to analytics server 1 or analytics server 2 as the ibmadmin user. If logged on as a different user, change to the ibmadmin user by running the su - ibmadmin command. Under normal operations use the platform control tool on analytics server 1. If analytics server 1 is unavailable you can run the platform control tool on analytics server 2 . Do not use the platform control tool on analytics server 1 and analytics server 2 at the same time or unpredictable results can occur.

2. **1.6.0.2** Run the following command to query the status all the IBM Intelligent Operations Center components.

```
IOCControl -a status -c all -p password
```

where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: 'pass\$phrase'

To check only one component, run the following command.

```
IOCControl -a status -c component -p password
```

where *component* is an ID in the IOCControl help and where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: 'pass\$phrase'

3. **1.6** **1.6.0.1** Run the following command to query the status all the IBM Intelligent Operations Center components.

```
IOCControl -a 801 -p password
```

where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example: 'pass\$phrase'

To check only one component, run the following command.

```
IOCControl -a action -p password
```

where *action* is an ID in the IOControl help and where *password* is the topology password defined when the IBM Intelligent Operations Center was installed. If the *password* value contains special characters, the *password* value must be enclosed in single quotation marks. For example:
'pass\$phrase'

Results

Components that are started will display [**on**]. Components that are not started will display [**off**].

1.6.0.2 If [**unknown**] is displayed, a problem occurred while trying to determine the status of the component. Possible problems include:

- A network connection problem between the platform control tool and the component.
- A resource shortage on the server. For example, lack of available disk space for logging resulting in the server being unable to handle new work requests.
- An optional product not completely installed.
- Other component-specific issues.

Retry the command. If [**unknown**] continues to be displayed, check the logs for additional information.

Note: **1.6.0.2** If the component specified by `-c` has defined subcomponents, the status of the subcomponents are displayed instead of the status of the parent component. The platform control tool help lists the components and subcomponents defined by IBM Intelligent Operations Center.

Related tasks:

“Starting the components in a high availability environment” on page 199

The platform control tool can be used to start the components running on IBM Intelligent Operations Center high availability environment servers.

“Stopping the components in a high availability environment” on page 203

The platform control tool can be used to stop components running on IBM Intelligent Operations Center high availability servers.

“Getting help for the platform control tool in a high availability environment”

Information is available about the options for running the platform control tool in a high availability environment.

Getting help for the platform control tool in a high availability environment

Information is available about the options for running the platform control tool in a high availability environment.

About this task

The IOControl command must be run as the `ibmadm` user. If not logged on as the `ibmadm`, run the `su - ibmadm` command to switch to the `ibmadm` user.

Procedure

- **1.6.0.2** On analytics server 1 or analytics server 2 run the one of the following commands to see options for the IOControl command.

```
IOControl -a help
```

or

```
IOControl -h
```

- **1.6** **1.6.0.1** On analytics server 1 or analytics server 2 run the one of the following commands to see options for the IOControl command.

Results

The options for the **IOControl** command are displayed.

Related tasks:

“Starting the components in a high availability environment” on page 199

The platform control tool can be used to start the components running on IBM Intelligent Operations Center high availability environment servers.

“Stopping the components in a high availability environment” on page 203

The platform control tool can be used to stop components running on IBM Intelligent Operations Center high availability servers.

“Querying the status of the components in a high availability environment” on page 207

The platform control tool can be used to determine the status of the components running on IBM Intelligent Operations Center high availability environment servers.

Verifying the components

The system verification check tool tests components within IBM Intelligent Operations Center to determine if they are accessible and operational.

How to use the system verification check tool

The system verification check tool is used to determine the operational status of services comprising the IBM Intelligent Operations Center system.

About this task

The system verification check tool verifies system capabilities.



For details on individual tests and troubleshooting if the tests fails, click **Help** for the test.


Properties provides additional information about the test for use when calling IBM Software Support.

Procedure

1. Log on to IBM Intelligent Operations Center as a user with administrator authority.
2. Click **Administration > Solution Administration** in the top banner.
3. Click **System Administration > System Verification Check** in the side menu.
4. Select the test or tests to be run by doing one of the following:
 - Click a specific test to be run.
 - Click **Run All Tests** to test the capabilities of all selections.

Results

The  icon will be displayed when a test completes successfully. The  icon will be displayed when a test fails. If a test fails, follow the problem determination instructions for the test to resolve the errors.

These instructions can also be accessed by clicking the  icon or **Help**.

If a specific test was run, the run results of the test are displayed at the bottom of the portlet along with the test execution time. If **Run All Tests** was selected, this information is not displayed.

What to do next

The tool can be reset, and all results cleared, by clicking **Reset**.

Determining the status of IBM Intelligent Operations Center services and components

IBM Intelligent Operations Center provides a number of system verification check tool tests that can be used to determine the operational status of various IBM Intelligent Operations Center services and components.

The tests are logically grouped by function. For example, collaboration and monitoring.

Analytics (Cognos Connection console via Web Server) Test

The Analytics (Cognos Connection console via Web Server) test determines if Cognos, on the analytics server, can be accessed by the Cognos Servlet Gateway and Cognos Administration Portal URL.

Resources

The Analytics (Cognos Connection console via Web Server) test uses the following resource:

- Cognos (on the analytics server system).

Problem determination

If the Analytics (Cognos Connection console via Web Server) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *anacognos* (in a standard environment) or *anacognosgrp* (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *cognos* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To start the primary web server, specify 701 for *action*.
- To start the standby web server, specify 711 for *action*.
- To stop the primary web server, specify 511 for *action*.
- To stop the standby web server, specify 501 for *action*.
- To check the status of the primary analytics server, specify 841 for *action*.
- To check the status of the standby analytics server, specify 843 for *action*.
- To start the primary analytics server, specify 221 for *action*.
- To start the standby analytics server, specify 231 for *action*.
- To stop the primary analytics server, specify 651 for *action*.
- To stop the standby analytics server, specify 641 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.
- a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. On the analytics server review the following Cognos logs:
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_Disp1/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_Disp1/SystemErr.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_GW1/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_GW1/SystemErr.log
 - All logs in the /opt/IBM/cognos/c10_64/logs/ directory.
5. Verify that the file system on the analytics server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that Cognos Dispatcher and Cognos Gateway servers are started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
- a. On the analytics server system log on as ibmadmin (Cognos user).
 - b. In a command window, run: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/serverStatus.sh -all -username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (the default is admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.
 - c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped.is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh. Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.

- d. If message ADMU0509I: The Application Server "CognosX_Displ" cannot be reached. It appears to be stopped. is displayed, start CognosX_Displ using the following command:
`/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startServer.sh CognosX_Displ.`
 Skip this step if message ADMU0508I: The Application Server "CognosX_Displ" is STARTED. is displayed. If you had to start CognosX_Displ, a message similar to the following will be displayed: ADMU3000I: Server CognosX_Displ open for e-business; process id is 26654.
- e. If message ADMU0509I: The Application Server "CognosX_GW1" cannot be reached. It appears to be stopped. is displayed, start CognosX_GW1 using the following command:
`/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startServer.sh CognosX_GW1.`
 Skip this step if message ADMU0508I: The Application Server "CognosX_GW1" is STARTED. is displayed. If you had to start CognosX_GW1, a message similar to the following will be displayed:
 ADMU3000I: Server CognosX_GW1 open for e-business; process id is 26676.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CognosX_Displ
- c. CognosX_GW1



Stop servers in this order:


- a. CognosX_GW1
- b. CognosX_Displ
- c. nodeagent

The CognosX_GW1 server is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopServer.sh CognosX_GW1 -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The CognosX_Displ server is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopServer.sh CognosX_Displ -wasadmin WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

7. Verify that Cognos Dispatcher and Cognos Gateway servers are started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the analytics server.
 - b. View the status of the CognosX-Disp1 and CognosX_GW1 servers by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CognosX_Displ
- c. CognosX_GW1

Stop servers in this order:

- a. CognosX_GW1
- b. CognosX_Displ
- c. nodeagent

To stop the CognosX_GW1 and CognosX_Displ servers, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

8. Verify the Cognos Administration Portal can be accessed from the the web server using following URL: `http://WEB_SERVER_HOST/ServletGateway/servlet/Gateway`. Where the `WEB_SERVER_HOST` is host name for the web server.

What to do next

Resolve any issues or errors found and retry the test.

Analytics (Cognos Connection console) Test

The Analytics (Cognos Connection console) test determines if Cognos, on the analytics server, can be accessed by the Cognos Servlet Gateway and Cognos Administration Portal URL.

Resources


The Analytics (Cognos Connection console) test uses the following resource:

- Cognos (on the analytics server system).

Problem determination

If the Analytics (Cognos Connection console) test fails, do the following to find and resolve the access problem.

Procedure

1.  Use the platform control tool to check the status of the component and to start and stop it as needed. For *component* use `anacognos` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:


```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. 1.6 1.6.0.1 Use the platform control tool to check the status of the component and to start and stop it as needed. For *component* use *cognos* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:


```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:


```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:


```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
3. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. On the analytics server review the following Cognos logs:
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_Displ/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_Displ/SystemErr.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_GW1/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_GW1/SystemErr.log
 - All logs in the /opt/IBM/cognos/c10_64/logs/ directory.
4. Verify that the file system on the analytics server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that Cognos Dispatcher and Cognos Gateway servers are started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the analytics server system log on as *ibmadmin* (Cognos user).
 - b. In a command window, run: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/serverStatus.sh -all -username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (the default is *admin*) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.
 - c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh. Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
 - d. If message ADMU0509I: The Application Server "CognosX_Displ" cannot be reached. It appears to be stopped. is displayed, start CognosX_Displ using the following command: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startServer.sh CognosX_Displ. Skip this step if message ADMU0508I: The Application Server "CognosX_Displ" is STARTED. is

displayed. If you had to start CognosX_Displ, a message similar to the following will be displayed: ADMU3000I: Server CognosX_Displ open for e-business; process id is 26654.

- e. If message ADMU0509I: The Application Server "CognosX_GW1" cannot be reached. It appears to be stopped. is displayed, start CognosX_GW1 using the following command:
`/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startServer.sh CognosX_GW1`. Skip this step if message ADMU0508I: The Application Server "CognosX_GW1" is STARTED. is displayed. If you had to start CognosX_GW1, a message similar to the following will be displayed:
ADMU3000I: Server CognosX_GW1 open for e-business; process id is 26676.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CognosX_Displ
- c. CognosX_GW1




Stop servers in this order:

- a. CognosX_GW1
- b. CognosX_Displ
- c. nodeagent

The CognosX_GW1 server is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopServer.sh CognosX_GW1 -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The CognosX_Displ server is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopServer.sh CognosX_Displ -wasadmin WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

6. Verify that Cognos Dispatcher and Cognos Gateway servers are started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the analytics server.
 - b. View the status of the CognosX-Disp1 and CognosX_GW1 servers by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.
 - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CognosX_Displ
- c. CognosX_GW1

Stop servers in this order:

- a. CognosX_GW1
- b. CognosX_Displ
- c. nodeagent

To stop the CognosX_GW1 and CognosX_Displ servers, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

7. Verify that the Cognos Administration Portal can be accessed from the WebSphere Portal system, on the analytics server, using following URL: `http://ANALYTICS_SERVER_HOST:9444/ServletGateway/servlet/Gateway`. Where the `ANALYTICS_SERVER_HOST` is host name for the analytics server.

What to do next

Resolve any issues or errors found and retry the test.

Analytics (Cognos Connection console) [1] Test

The Analytics (Cognos Connection console) [1] test determines if Cognos, on analytics server 1 in a high availability environment, can be accessed by the Cognos Servlet Gateway and Cognos Administration Portal URL.

Resources

The Analytics (Cognos Connection console) [1] test uses the following resource:

- Cognos (on the analytics server system).

Problem determination

If the Analytics (Cognos Connection console) [1] test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options. For *component* use `anacognosgrp` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```

2. 1.6 1.6.0.1 Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
 - To check the status of the primary server, specify 841 for *action*.
 - To check the status of the standby server, specify 843 for *action*.
 - To start the primary server, specify 221 for *action*.
 - To start the standby server, specify 231 for *action*.
 - To stop the primary server, specify 651 for *action*.
 - To stop the standby server, specify 641 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. On the analytics server review the following Cognos logs:
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_Displ/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_Displ/SystemErr.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_GW1/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_GW1/SystemErr.log
 - All logs in the /opt/IBM/cognos/c10_64/logs/ directory.
4. Verify that the file system on the analytics server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that Cognos Dispatcher and Cognos Gateway servers are started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the analytics server system log on as ibmadmin (Cognos user).
 - b. In a command window, run: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD where WAS_ADMIN_USER is the WebSphere administrator ID (the default is admin) and WAS_ADMIN_PWD is the WebSphere Application Server administrator password.
 - c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh. Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
 - d. If message ADMU0509I: The Application Server "CognosX_Displ" cannot be reached. It appears to be stopped. is displayed, start CognosX_Displ using the following command: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startServer.sh CognosX_Displ. Skip this step if message ADMU0508I: The Application Server "CognosX_Displ" is STARTED. is displayed. If you had to start CognosX_Displ, a message similar to the following will be displayed: ADMU3000I: Server CognosX_Displ open for e-business; process id is 26654.
 - e. If message ADMU0509I: The Application Server "CognosX_GW1" cannot be reached. It appears to be stopped. is displayed, start CognosX_GW1 using the following command: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startServer.sh CognosX_GW1. Skip this step if message ADMU0508I: The Application Server "CognosX_GW1" is STARTED. is displayed.

If you had to start CognosX_GW1, a message similar to the following will be displayed:
ADMU3000I: Server CognosX_GW1 open for e-business; process id is 26676.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CognosX_Displ
- c. CognosX_GW1




Stop servers in this order:

- a. CognosX_GW1
- b. CognosX_Displ
- c. nodeagent

The CognosX_GW1 server is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopServer.sh CognosX_GW1 -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The CognosX_Displ server is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopServer.sh CognosX_Displ -wasadmin WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

6. Verify that Cognos Dispatcher and Cognos Gateway servers are started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the analytics server.
 - b. View the status of the CognosX-Disp1 and CognosX_GW1 servers by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.
 - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CognosX_Displ
- c. CognosX_GW1

Stop servers in this order:

- a. CognosX_GW1
- b. CognosX_Displ
- c. nodeagent

To stop the CognosX_GW1 and CognosX_Displ servers, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

7. Verify that the Cognos Administration Portal can be accessed from the WebSphere Portal system, on the analytics server, using following URL: `http://ANALYTICS_PRIMARY_HOST:9444/ServletGateway/servlet/Gateway`. Where the `ANALYTICS_PRIMARY_HOST` is host name for analytics server 1.

What to do next

Resolve any issues or errors found and retry the test.

Analytics (Cognos Connection console) [2] Test

The Analytics (Cognos Connection console) [2] test determines if Cognos, on analytics server 2 in a high availability environment, can be accessed by the Cognos Servlet Gateway and Cognos Administration Portal URL.

Resources

The Analytics (Cognos Connection console) [2] test uses the following resource:

- Cognos (on the analytics server system).

Problem determination

If the Analytics (Cognos Connection console) [2] test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options. For *component* use `anacognosgrp` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
 - To check the status of the primary server, specify 841 for *action*.
 - To check the status of the standby server, specify 843 for *action*.
 - To start the primary server, specify 221 for *action*.

- To start the standby server, specify 231 for *action*.
- To stop the primary server, specify 651 for *action*.
- To stop the standby server, specify 641 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

- Review the log files for runtime exceptions.
 - On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - On the analytics server review the following Cognos logs:
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_Displ/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_Displ/SystemErr.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_GW1/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_GW1/SystemErr.log
 - All logs in the /opt/IBM/cognos/c10_64/logs/ directory.
- Verify that the file system on the analytics server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
- Verify that Cognos Dispatcher and Cognos Gateway servers are started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - On analytics server 2 system log on as ibmadmin (Cognos user).
 - In a command window, run: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/serverStatus.sh -all -username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (the default is admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.
 - If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh. Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
 - If message ADMU0509I: The Application Server "CognosX_Displ" cannot be reached. It appears to be stopped. is displayed, start CognosX_Displ using the following command: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startServer.sh CognosX_Displ. Skip this step if message ADMU0508I: The Application Server "CognosX_Displ" is STARTED. is displayed. If you had to start CognosX_Displ, a message similar to the following will be displayed: ADMU3000I: Server CognosX_Displ open for e-business; process id is 26654.
 - If message ADMU0509I: The Application Server "CognosX_GW2" cannot be reached. It appears to be stopped. is displayed, start CognosX_GW2 using the following command: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startServer.sh CognosX_GW2. Skip this step if message ADMU0508I: The Application Server "CognosX_GW2" is STARTED. is displayed. If you had to start CognosX_GW2, a message similar to the following will be displayed: ADMU3000I: Server CognosX_GW2 open for e-business; process id is 26676.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CognosX_Dispatch2
- c. CognosX_GW2

Stop servers in this order:

- a. CognosX_GW2
- b. CognosX_Dispatch2
- c. nodeagent

The CognosX_GW2 server is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopServer.sh CognosX_GW2 -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The CognosX_Dispatch2 server is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopServer.sh CognosX_Dispatch2 -wasadmin WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.


The nodeagent is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

6. Verify that Cognos Dispatcher and Cognos Gateway servers are started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:

- a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID `admin` and password. `APPLICATION_SERVER_HOST` is the host name for the analytics server.
- b. View the status of the CognosX-Dispatch2 and CognosX_GW2 servers by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CognosX_Dispatch2
- c. CognosX_GW2

Stop servers in this order:

- a. CognosX_GW2
- b. CognosX_Dispatch2
- c. nodeagent

To stop the CognosX_GW2 and CognosX_Dispatch2 servers, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the analytics server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (the default is admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

7. Verify that the Cognos Administration Portal can be accessed from the WebSphere Portal system, on the analytics server, using following URL: `http://ANALYTICS_BACKUP_HOST:9444/ServletGateway/servlet/Gateway`. Where the `ANALYTICS_BACKUP_HOST` is host name for analytics server 2.

What to do next

Resolve any issues or errors found and retry the test.

Analytics (SPSS Modeler) Test

The Analytics (SPSS Modeler) test determines if the SPSS Modeler server is running on the analytics server.

Resources

The Analytics (SPSS Modeler) test uses the following resource:

- SPSS Modeler server (on the analytics server)

Problem determination

If the Analytics (SPSS Modeler) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `anasps` (in a standard environment) or `anaspsgrp` (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `cognos` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To check the status of the primary server, specify 841 for *action*.
- To start the primary server, specify 271 for *action*.
- To stop the primary server, specify 601 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.
- a. On the application server review the following WebSphere Portal logs:
- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
- b. On the analytics server review the following SPSS Modeler log:
- /opt/IBM/SPSS/ModelerServer/15.0/log/messages.log
5. Verify that the file system on the analytics server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify the SPSS Modeler server is started.
- a. On the analytics server log on as the ibmadmin user.
- b. Run the following command.

```
/opt/IBM/SPSS/ModelerServer/15.0/modelersrv.sh list
```

Output similar to the following should be returned:

```
PID PPID USER VSZ PCPU COMMAND
11021 1 ibmadmin 352724 0.0 modelersrv_15_0
```

7. If the server is not listed, start the SPSS Modeler server by running the following command:

```
/opt/IBM/SPSS/ModelerServer/15.0/modelersrv.sh start
```

8. If the server is running, stop the server and restart it.

- a. Stop the SPSS Modeler server by running one of the following commands.

```
/opt/IBM/SPSS/ModelerServer/15.0/modelersrv.sh stop
```

```
/opt/IBM/SPSS/ModelerServer/15.0/modelersrv.sh kill
```

- b. Start the SPSS Modeler server by running the following command.

```
/opt/IBM/SPSS/ModelerServer/15.0/modelersrv.sh start
```

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST CplexServer1) Test

The Application Server (REST CplexServer1) test tests access to the WebSphere Application Server REST service on the target server.

Resources

The Application Server (REST CplexServer1) test uses the following resource:

- WebSphere Application Server on the analytics server.

Problem determination

If the Application Server (REST CplexServer1) test fails, do the following to find and resolve the access problem.

Procedure

- 1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `anacplex` (in a standard environment) or `anacplexgrp` (in a high availability environment) and specify your topology password for *topology_password*.
 - To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
- 1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `cplex` and specify your topology password for *topology_password*.
 - To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
- 1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.
 - To check the status of the primary server, specify 841 for *action*.
 - To check the status of the standby server, specify 843 for *action*.
 - To start the primary server, specify 221 for *action*.
 - To start the standby server, specify 231 for *action*.
 - To stop the primary server, specify 651 for *action*.
 - To stop the standby server, specify 641 for *action*.Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
 - c. On the analytics server review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/logs/CPlexServer1/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/logs/CPlexServer1/SystemErr.log
5. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the CPlexServer1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as ibmadmin.
 - b. In a command window, run: /opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD where WAS_ADMIN_USER is the WebSphere administrator ID (normally admin) and WAS_ADMIN_PWD is the WebSphere Application Server administrator password.
 - c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
 - a. If message ADMU0509I: The Application Server "CPlexServer1" cannot be reached. It appears to be stopped. is displayed, start the CPlexServer1 server using the following command: /opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/bin/startServer.sh CPlexServer1. Skip this step if message ADMU0508I: The Application Server "CPlexServer1" is STARTED. is displayed. If you had to start CPlexServer1, a message similar to the following will be displayed: ADMU3000I: Server CPlexServer1 open for e-business; process id is 26654.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CPlexServer1

Stop servers in this order:

- a. CPlexServer1
- b. nodeagent

The CPlexServer1 server is stopped by running the following command in a command window on the application server: /opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/bin/stopServer.sh

-all -username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere administrator password.


7. Verify that the CPlexServer1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:

- a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. *APPLICATION_SERVER_HOST* is the host name for the application server.

- b. View the status of the CPlexServer1 server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CPlexServer1

Stop servers in this order:

- a. CPlexServer1
- b. nodeagent

To stop the CPlexServer1 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST CPlexServer2) Test

The Application Server (REST CPlexServer2) test tests access to the WebSphere Application Server REST service on the target server.

Resources

The Application Server (REST CPlexServer2) test uses the following resource:

- WebSphere Application Server on analytics server 2.

Problem determination

If the Application Server (REST CPLEXServer2) test fails, do the following to find and resolve the access problem.

Procedure

- 1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *anacplexgrp* and specify your topology password for *topology_password*.
 - To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
- 1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
 - To check the status of the primary server, specify 841 for *action*.
 - To check the status of the standby server, specify 843 for *action*.
 - To start the primary server, specify 221 for *action*.
 - To start the standby server, specify 231 for *action*.
 - To stop the primary server, specify 651 for *action*.
 - To stop the standby server, specify 641 for *action*.Specify your topology password for *topology_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```
- Review the log files for runtime exceptions.
 - On the application server review the following WebSphere Portal logs:
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log`
 - In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log`
 - On analytics server 2 review the following WebSphere Application Server logs:
 - `CPLEXServer2/opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/logs/CPLEXServer2/SystemOut.log`
 - `CPLEXServer2/opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/logs/CPLEXServer2/SystemErr.log`
- Verify that the file system on the application server has not reached capacity. This can be determined by running the `df -h` command. The file system can be considered full even if it less than 100% used. For this reason if the `df -h` command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.

5. Verify that the CPlexServer2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as `ibmadmin`.
 - b. In a command window, run: `CPlexServer2/opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
 - c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped.` is displayed, start the `nodeagent` using the following command: `CPlexServer2/opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED.` is displayed. If you had to start the `nodeagent`, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654.`
 - a. If message `ADMU0509I: The Application Server "CPlexServer2" cannot be reached. It appears to be stopped.` is displayed, start the `CPlexServer2` server using the following command: `CPlexServer2/opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/bin/startServer.sh CPlexServer2`. Skip this step if message `ADMU0508I: The Application Server "CPlexServer2" is STARTED.` is displayed. If you had to start `CPlexServer2`, a message similar to the following will be displayed: `ADMU3000I: Server CPlexServer2 open for e-business; process id is 26654.`

Important: Servers must be started and stopped in a specific order.

Start servers in this order:



- a. `nodeagent`
- b. `CPlexServer2`


Stop servers in this order:

- a. `CPlexServer2`
- b. `nodeagent`

The `CPlexServer2` server is stopped by running the following command in a command window on the application server: `CPlexServer2/opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The `nodeagent` is stopped by running the following command in a command window on the application server: `CPlexServer2/opt/IBM/WebSphere/AppServer/profiles/CPLEXProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the `CPlexServer2` server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID `admin` and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
 - b. View the status of the `CPlexServer2` server by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `CPLexServer2/opt/IBM/WebSphere/AppServer/profiles/CPLExProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CPlexServer2

Stop servers in this order:

- a. CPlexServer2
- b. nodeagent

To stop the CPlexServer2 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `CPLexServer2/opt/IBM/WebSphere/AppServer/profiles/CPLExProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST CognosX_Displ) Test

The Application Server (REST CognosX_Displ) test tests access to the WebSphere Application Server REST service on the target server.

Resources


The Application Server (REST CognosX_Displ) test uses the following resource:

- WebSphere Application Server on the analytics server.

Problem determination

If the Application Server (REST CognosX_Displ) test fails, do the following to find and resolve the access problem.

Procedure

1.  Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `anacognosdisp` (in a standard environment) or `anacognosdispgrp` (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *cognos* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:


```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:


```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:


```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.
 - To check the status of the primary server, specify 841 for *action*.
 - To check the status of the standby server, specify 843 for *action*.
 - To start the primary server, specify 221 for *action*.
 - To start the standby server, specify 231 for *action*.
 - To stop the primary server, specify 651 for *action*.
 - To stop the standby server, specify 641 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```
4. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
 - c. On the analytics server review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_Disp1/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_Disp1/SystemErr.log
5. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the CognosX_Disp1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as *ibmadmin*.
 - b. In a command window, run: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally *admin*) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.

- c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh` . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
- a. If message ADMU0509I: The Application Server "CognosX_Displ" cannot be reached. It appears to be stopped. is displayed, start the CognosX_Displ server using the following command: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startServer.sh CognosX_Displ`. Skip this step if message ADMU0508I: The Application Server "CognosX_Displ" is STARTED. is displayed. If you had to start CognosX_Displ, a message similar to the following will be displayed: ADMU3000I: Server CognosX_Displ open for e-business; process id is 26654.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:




- a. nodeagent
- b. CognosX_Displ

Stop servers in this order:

- a. CognosX_Displ
- b. nodeagent

The CognosX_Displ server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

7. Verify that the CognosX_Displ server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
 - b. View the status of the CognosX_Displ server by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.
 - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CognosX_Displ

Stop servers in this order:

- a. CognosX_Displ
- b. nodeagent

To stop the CognosX_Displ server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST CognosX_Displ2) Test

The Application Server (REST CognosX_Displ2) test tests access to the WebSphere Application Server REST service on the target server.

Resources

The Application Server (REST CognosX_Displ2) test uses the following resource:

- WebSphere Application Server on analytics server 2.

Problem determination

If the Application Server (REST CognosX_Displ2) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `anacognosdispggrp` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
 - To check the status of the primary server, specify 841 for *action*.
 - To check the status of the standby server, specify 843 for *action*.
 - To start the primary server, specify 221 for *action*.
 - To start the standby server, specify 231 for *action*.
 - To stop the primary server, specify 651 for *action*.
 - To stop the standby server, specify 641 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
 - c. On analytics server 2 review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_Dis2/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_Dis2/SystemErr.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the CognosX_Dis2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as `ibmadmin`.
 - b. In a command window, run: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
 - c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped.` is displayed, start the `nodeagent` using the following command: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED.` is displayed. If you had to start the `nodeagent`, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654.`
 - a. If message `ADMU0509I: The Application Server "CognosX_Dis2" cannot be reached. It appears to be stopped.` is displayed, start the `CognosX_Dis2` server using the following command: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startServer.sh CognosX_Dis2`. Skip this step if message `ADMU0508I: The Application Server "CognosX_Dis2" is STARTED.` is displayed. If you had to start `CognosX_Dis2`, a message similar to the following will be displayed: `ADMU3000I: Server CognosX_Dis2 open for e-business; process id is 26654.`

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. `nodeagent`
- b. `CognosX_Dis2`

Stop servers in this order:

- a. `CognosX_Dis2`
- b. `nodeagent`

The `CognosX_Dis2` server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopServer.sh`

-all -username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.


The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere administrator password.

6. Verify that the CognosX_Dis2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:

- a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. *APPLICATION_SERVER_HOST* is the host name for the application server.
- b. View the status of the CognosX_Dis2 server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CognosX_Dis2

Stop servers in this order:

- a. CognosX_Dis2
- b. nodeagent

To stop the CognosX_Dis2 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST CognosX_GW1) Test

The Application Server (REST CognosX_GW1) test tests access to the WebSphere Application Server REST service on the target server.

Resources

The Application Server (REST CognosX_GW1) test uses the following resource:

- WebSphere Application Server on the analytics server.

Problem determination

If the Application Server (REST CognosX_GW1) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *anacognosgw* (in a standard environment) or *anacognosgwgrp* (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *cognos* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.
 - To check the status of the primary server, specify 841 for *action*.
 - To check the status of the standby server, specify 843 for *action*.
 - To start the primary server, specify 221 for *action*.
 - To start the standby server, specify 231 for *action*.
 - To stop the primary server, specify 651 for *action*.
 - To stop the standby server, specify 641 for *action*.Specify your topology password for *topology_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```
4. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
- b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
 - c. On the analytics server review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_GW1/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_GW1/SystemErr.log
5. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
 6. Verify that the CognosX_GW1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as `ibmadmin`.
 - b. In a command window, run: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
 - c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed`, start the `nodeagent` using the following command: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed`. If you had to start the `nodeagent`, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654.`
 - a. If message `ADMU0509I: The Application Server "CognosX_GW1" cannot be reached. It appears to be stopped. is displayed`, start the `CognosX_GW1` server using the following command: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startServer.sh CognosX_GW1`. Skip this step if message `ADMU0508I: The Application Server "CognosX_GW1" is STARTED. is displayed`. If you had to start `CognosX_GW1`, a message similar to the following will be displayed: `ADMU3000I: Server CognosX_GW1 open for e-business; process id is 26654.`

Important: Servers must be started and stopped in a specific order.

Start servers in this order:




- a. `nodeagent`
- b. `CognosX_GW1`

Stop servers in this order:

- a. `CognosX_GW1`
- b. `nodeagent`

The `CognosX_GW1` server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The `nodeagent` is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

7. Verify that the CognosX_GW1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID `admin` and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
 - b. View the status of the CognosX_GW1 server by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.
 - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CognosX_GW1

Stop servers in this order:

- a. CognosX_GW1
- b. nodeagent

To stop the CognosX_GW1 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST CognosX_GW2) Test

The Application Server (REST CognosX_GW2) test tests access to the WebSphere Application Server REST service on the target server.

Resources


The Application Server (REST CognosX_GW2) test uses the following resource:

- WebSphere Application Server on analytics server 2.

Problem determination

If the Application Server (REST CognosX_GW2) test fails, do the following to find and resolve the access problem.

Procedure

1.  Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `anacognosgwgrp` and specify your topology password for *topology_password*.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.

- To check the status of the primary server, specify 841 for *action*.
- To check the status of the standby server, specify 843 for *action*.
- To start the primary server, specify 221 for *action*.
- To start the standby server, specify 231 for *action*.
- To stop the primary server, specify 651 for *action*.
- To stop the standby server, specify 641 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCCControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.

- a. On the application server review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log

- b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log

- c. On analytics server 2 review the following WebSphere Application Server logs:

- /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_GW2/SystemOut.log
- /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/logs/CognosX_GW2/SystemErr.log

4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.

5. Verify that the CognosX_GW2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:

- a. On the application server 1 system log on as ibmadmin.

- b. In a command window, run: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/serverStatus.sh -all -username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.

- c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh . Skip this step if message ADMU0508I: The

Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.

- a. If message ADMU0509I: The Application Server "CognosX_GW2" cannot be reached. It appears to be stopped. is displayed, start the CognosX_GW2 server using the following command: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startServer.sh CognosX_GW2`. Skip this step if message ADMU0508I: The Application Server "CognosX_GW2" is STARTED. is displayed. If you had to start CognosX_GW2, a message similar to the following will be displayed: ADMU3000I: Server CognosX_GW2 open for e-business; process id is 26654.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:




- a. nodeagent
- b. CognosX_GW2

Stop servers in this order:

- a. CognosX_GW2
- b. nodeagent

The CognosX_GW2 server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the CognosX_GW2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
 - b. View the status of the CognosX_GW2 server by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.
 - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. CognosX_GW2

Stop servers in this order:

- a. CognosX_GW2

b. nodeagent

To stop the CognosX_GW2 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/cognosProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST IopServer1) Test

The Application Server (REST IopServer1) test tests access to the WebSphere Application Server REST service on the target server.

Resources

The Application Server (REST IopServer1) test uses the following resource:

- WebSphere Application Server on the application server.

Problem determination

If the Application Server (REST IopServer1) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appiop` (in a standard environment) or `appiogrp` (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `iopsvr` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To check the status of the primary server, specify 831 for *action*.
- To check the status of the standby server, specify 833 for *action*.
- To start the primary server, specify 201 for *action*.
- To start the standby server, specify 211 for *action*.
- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.
- a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
 - c. On the application server review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/AppServer/profiles/IopProfile1/logs/IopServer1/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/IopProfile1/logs/IopServer1/SystemErr.log
5. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the IopServer1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
- a. On the application server system log on as ibmadmin.
 - b. In a command window, run: /opt/IBM/WebSphere/AppServer/profiles/IopProfile1/bin/serverStatus.sh -all -username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.
 - c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppServer/profiles/IopProfile1/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
 - a. If message ADMU0509I: The Application Server "IopServer1" cannot be reached. It appears to be stopped. is displayed, start the IopServer1 server using the following command: /opt/IBM/WebSphere/AppServer/profiles/IopProfile1/bin/startServer.sh IopServer1. Skip this step if message ADMU0508I: The Application Server "IopServer1" is STARTED. is displayed. If you had to start IopServer1, a message similar to the following will be displayed: ADMU3000I: Server IopServer1 open for e-business; process id is 26654.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. IopServer1

Stop servers in this order:

- a. IopServer1
- b. nodeagent

The IopServer1 server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/IopProfile1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.


The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/IopProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

7. Verify that the IopServer1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:

- a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
- b. View the status of the IopServer1 server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/IopProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. IopServer1

Stop servers in this order:

- a. IopServer1
- b. nodeagent

To stop the IopServer1 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/IopProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST IopServer2) Test

The Application Server (REST IopServer2) test tests access to the WebSphere Application Server REST service on the target server.

Resources

The Application Server (REST IopServer2) test uses the following resource:

- WebSphere Application Server on application server 2.

Problem determination

If the Application Server (REST IopServer2) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appiopgrp* and specify your topology password for *topology_password*.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.

- To check the status of the primary server, specify 831 for *action*.
- To check the status of the standby server, specify 833 for *action*.
- To start the primary server, specify 201 for *action*.
- To start the standby server, specify 211 for *action*.
- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCCControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
- c. On application server 2 review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/AppServer/profiles/IopProfile2/logs/IopServer2/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/IopProfile2/logs/IopServer2/SystemErr.log
 4. Verify that the file system on the application server has not reached capacity. This can be determined by running the `df -h` command. The file system can be considered full even if it less than 100% used. For this reason if the `df -h` command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
 5. Verify that the IopServer2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as `ibmadmin`.
 - b. In a command window, run: `/opt/IBM/WebSphere/AppServer/profiles/IopProfile2/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
 - c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed`, start the `nodeagent` using the following command: `/opt/IBM/WebSphere/AppServer/profiles/IopProfile2/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed`. If you had to start the `nodeagent`, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654`.
 - a. If message `ADMU0509I: The Application Server "IopServer2" cannot be reached. It appears to be stopped. is displayed`, start the `IopServer2` server using the following command: `/opt/IBM/WebSphere/AppServer/profiles/IopProfile2/bin/startServer.sh IopServer2`. Skip this step if message `ADMU0508I: The Application Server "IopServer2" is STARTED. is displayed`. If you had to start `IopServer2`, a message similar to the following will be displayed: `ADMU3000I: Server IopServer2 open for e-business; process id is 26654`.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. `nodeagent`
- b. `IopServer2`




Stop servers in this order:

- a. `IopServer2`
- b. `nodeagent`

The `IopServer2` server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/IopProfile2/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The `nodeagent` is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/IopProfile2/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the `IopServer2` server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:

- a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID `admin` and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
- b. View the status of the IopServer2 server by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.
 - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/IopProfile2/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. IopServer2

Stop servers in this order:

- a. IopServer2
- b. nodeagent

To stop the IopServer2 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/IopProfile2/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST STProxyServer1) Test

The Application Server (REST STProxyServer1) test tests access to the WebSphere Application Server REST service on the target server.

Resources


The Application Server (REST STProxyServer1) test uses the following resource:

- WebSphere Application Server on the application server.

Problem determination

If the Application Server (REST STProxyServer1) test fails, do the following to find and resolve the access problem.

Procedure

1.  Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appstproxy` (in a standard environment) or `appstproxygrp` (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *stproxy* and specify your topology password for *topology_password*.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To check the status of the primary server, specify 831 for *action*.
- To check the status of the standby server, specify 833 for *action*.
- To start the primary server, specify 201 for *action*.
- To start the standby server, specify 211 for *action*.
- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.

- a. On the application server review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log

- b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log

- c. On the application server review the following WebSphere Application Server logs:

- /opt/IBM/WebSphere/AppSrv7/profiles/STPAppProfile1/logs/STProxyServer1/SystemOut.log

- /opt/IBM/WebSphere/AppSrv7/profiles/STPAppProfile1/logs/STProxyServer1/SystemErr.log
5. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
 6. Verify that the STProxyServer1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as `ibmadmin`.
 - b. In a command window, run: `/opt/IBM/WebSphere/AppSrv7/profiles/STPAppProfile1/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
 - c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped.` is displayed, start the `nodeagent` using the following command: `/opt/IBM/WebSphere/AppSrv7/profiles/STPAppProfile1/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED.` is displayed. If you had to start the `nodeagent`, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654.`
 - a. If message `ADMU0509I: The Application Server "STProxyServer1" cannot be reached. It appears to be stopped.` is displayed, start the `STProxyServer1` server using the following command: `/opt/IBM/WebSphere/AppSrv7/profiles/STPAppProfile1/bin/startServer.sh STProxyServer1`. Skip this step if message `ADMU0508I: The Application Server "STProxyServer1" is STARTED.` is displayed. If you had to start `STProxyServer1`, a message similar to the following will be displayed: `ADMU3000I: Server STProxyServer1 open for e-business; process id is 26654.`

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. `nodeagent`
- b. `STProxyServer1`

Stop servers in this order:


- a. `STProxyServer1`
- b. `nodeagent`

The `STProxyServer1` server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppSrv7/profiles/STPAppProfile1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.


The `nodeagent` is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppSrv7/profiles/STPAppProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

7. Verify that the `STProxyServer1` server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID `admin` and password. `APPLICATION_SERVER_HOST` is the host name for the application server.

- b. View the status of the STProxyServer1 server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServerv7/profiles/STPAppProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. STProxyServer1

Stop servers in this order:

- a. STProxyServer1
- b. nodeagent

To stop the STProxyServer1 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServerv7/profiles/STPAppProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST WBM_DE_AppTarget.WBMNode1.0) Test

The Application Server (REST WBM_DE_AppTarget.WBMNode1.0) test tests access to the WebSphere Application Server REST service on the target server.

Resources


The Application Server (REST WBM_DE_AppTarget.WBMNode1.0) test uses the following resource:

- WebSphere Application Server on the application server.

Problem determination

If the Application Server (REST WBM_DE_AppTarget.WBMNode1.0) test fails, do the following to find and resolve the access problem.

Procedure

1.  Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use appbmon (in a standard environment) or appbmongrp (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *wbm* and specify your topology password for *topology_password*.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To check the status of the primary server, specify 831 for *action*.
- To check the status of the standby server, specify 833 for *action*.
- To start the primary server, specify 201 for *action*.
- To start the standby server, specify 211 for *action*.
- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.

- a. On the application server review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log

- b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log

- c. On the application server review the following WebSphere Application Server logs:

- /opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/logs/WBM_DE_AppTarget.WBMNode1.0/SystemOut.log
- /opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/logs/WBM_DE_AppTarget.WBMNode1.0/SystemErr.log

5. Verify that the file system on the application server has not reached capacity. This can be determined by running the `df -h` command. The file system can be considered full even if it less than 100% used. For this reason if the `df -h` command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the `WBM_DE_AppTarget.WBMNode1.0` server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as `ibmadmin`.
 - b. In a command window, run: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
 - c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed`, start the `nodeagent` using the following command: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed`. If you had to start the `nodeagent`, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654`.
 - a. If message `ADMU0509I: The Application Server "WBM_DE_AppTarget.WBMNode1.0" cannot be reached. It appears to be stopped. is displayed`, start the server using the following command: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/startServer.sh WBM_DE_AppTarget.WBMNode1.0`. Skip this step if message `ADMU0508I: The Application Server "WBM_DE_AppTarget.WBMNode1.0" is STARTED. is displayed`. If you had to start the server, a message similar to the following will be displayed: `ADMU3000I: Server WBM_DE_AppTarget.WBMNode1.0 open for e-business; process id is 26654`.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. `nodeagent`
- b. `WBM_DE_AppTarget.WBMNode1.0`

Stop servers in this order:

- a. `WBM_DE_AppTarget.WBMNode1.0`
- b. `nodeagent`

The `WBM_DE_AppTarget.WBMNode1.0` server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.


The `nodeagent` is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

7. Verify that the `WBM_DE_AppTarget.WBMNode1.0` server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID `admin` and password. `APPLICATION_SERVER_HOST` is the host name for the application server.

- b. View the status of the WBM_DE_AppTarget.WBMNode1.0 server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WBM_DE_AppTarget.WBMNode1.0

Stop servers in this order:

- a. WBM_DE_AppTarget.WBMNode1.0
- b. nodeagent

To stop the WBM_DE_AppTarget.WBMNode1.0 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST WBM_DE_AppTarget.WBMNode2.0) Test

The Application Server (REST WBM_DE_AppTarget.WBMNode2.0) test tests access to the WebSphere Application Server REST service on the target server.

Resources


The Application Server (REST WBM_DE_AppTarget.WBMNode2.0) test uses the following resource:

- WebSphere Application Server on application server 2.

Problem determination

If the Application Server (REST WBM_DE_AppTarget.WBMNode2.0) test fails, do the following to find and resolve the access problem.

Procedure

1.  Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appbmggrp` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.

- To check the status of the primary server, specify 831 for *action*.
- To check the status of the standby server, specify 833 for *action*.
- To start the primary server, specify 201 for *action*.
- To start the standby server, specify 211 for *action*.
- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCCControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.
- a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
 - c. On application server 2 review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/logs/WBM_DE_AppTarget.WBMNode2.0/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/logs/WBM_DE_AppTarget.WBMNode2.0/SystemErr.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the WBM_DE_AppTarget.WBMNode2.0 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
- a. On the application server 2 system log on as ibmadmin.
 - b. In a command window, run: /opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/serverStatus.sh -all -username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.
 - c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
 - a. If message ADMU0509I: The Application Server "WBM_DE_AppTarget.WBMNode2.0" cannot be reached. It appears to be stopped. is displayed, start the WBM_DE_AppTarget.WBMNode2.0 server using the following command: /opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/

startServer.sh WBM_DE_AppTarget.WBMNode2.0. Skip this step if message ADMU0508I: The Application Server "WBM_DE_AppTarget.WBMNode2.0" is STARTED. is displayed. If you had to start WBM_DE_AppTarget.WBMNode2.0, a message similar to the following will be displayed: ADMU3000I: Server WBM_DE_AppTarget.WBMNode2.0 open for e-business; process id is 26654.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:




- a. nodeagent
- b. WBM_DE_AppTarget.WBMNode2.0

Stop servers in this order:

- a. WBM_DE_AppTarget.WBMNode2.0
- b. nodeagent

The WBM_DE_AppTarget.WBMNode2.0 server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the WBM_DE_AppTarget.WBMNode2.0 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
 - b. View the status of the WBM_DE_AppTarget.WBMNode2.0 server by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.
 - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WBM_DE_AppTarget.WBMNode2.0

Stop servers in this order:

- a. WBM_DE_AppTarget.WBMNode2.0
- b. nodeagent

To stop the WBM_DE_AppTarget.WBMNode2.0 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/stopNode.sh -username`

`WAS_ADMIN_USER` -password `WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST WebSphere_Portal) Test

The Application Server (REST WebSphere_Portal) test tests access to the WebSphere Application Server REST service on the target server.

Resources

The Application Server (REST WebSphere_Portal) test uses the following resource:

- WebSphere Application Server on the application server.

Problem determination

If the Application Server (REST WebSphere_Portal) test fails, do the following to find and resolve the access problem.

Procedure

- 1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appwpe` (in a standard environment) or `appwpegrp` (in a high availability environment) and specify your topology password for *topology_password*.
 - To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
- 1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `wpe` and specify your topology password for *topology_password*.
 - To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
- 1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To check the status of the primary server, specify 831 for *action*.
- To check the status of the standby server, specify 833 for *action*.
- To start the primary server, specify 201 for *action*.
- To start the standby server, specify 211 for *action*.
- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

- Review the log files for runtime exceptions.
 - On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
 - On the application server review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
- Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
- Verify that the WebSphere_Portal server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - On the application server system log on as ibmadmin.
 - In a command window, run: /opt/IBM/WebSphere/wp_profile/bin/serverStatus.sh -all -username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.
 - If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/wp_profile/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
 - If message ADMU0509I: The Application Server "WebSphere_Portal" cannot be reached. It appears to be stopped. is displayed, start the WebSphere_Portal server using the following command: /opt/IBM/WebSphere/wp_profile/bin/startServer.sh WebSphere_Portal. Skip this step if message ADMU0508I: The Application Server "WebSphere_Portal" is STARTED. is displayed. If you had to start WebSphere_Portal, a message similar to the following will be displayed: ADMU3000I: Server WebSphere_Portal open for e-business; process id is 26654.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- nodeagent
- WebSphere_Portal

Stop servers in this order:


- a. WebSphere_Portal
- b. nodeagent

The WebSphere_Portal server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.


The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

7. Verify that the WebSphere_Portal server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:

- a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
- b. View the status of the WebSphere_Portal server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/wp_profile/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WebSphere_Portal

Stop servers in this order:

- a. WebSphere_Portal
- b. nodeagent

To stop the WebSphere_Portal server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST WebSphere_Portal_Portal_Node2) Test

The Application Server (REST WebSphere_Portal_Portal_Node2) test tests access to the WebSphere Application Server REST service on the target server.

Resources

The Application Server (REST WebSphere_Portal_Portal_Node2) test uses the following resource:

- WebSphere Application Server on application server 2.

Problem determination

If the Application Server (REST WebSphere_Portal_Portal_Node2) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appwpegrp* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
 - To check the status of the primary server, specify 831 for *action*.
 - To check the status of the standby server, specify 833 for *action*.
 - To start the primary server, specify 201 for *action*.
 - To start the standby server, specify 211 for *action*.
 - To stop the primary server, specify 671 for *action*.
 - To stop the standby server, specify 661 for *action*.Specify your topology password for *topology_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```
3. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
 - c. On application server 2 review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_Portal_Node2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_Portal_Node2/SystemErr.log

4. Verify that the file system on the application server has not reached capacity. This can be determined by running the `df -h` command. The file system can be considered full even if it less than 100% used. For this reason if the `df -h` command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the WebSphere_Portal_Portal_Node2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as `ibmadmin`.
 - b. In a command window, run: `/opt/IBM/WebSphere/wp_profile/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
 - c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed`, start the `nodeagent` using the following command: `/opt/IBM/WebSphere/wp_profile/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed`. If you had to start the `nodeagent`, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654`.
 - a. If message `ADMU0509I: The Application Server "WebSphere_Portal_Portal_Node2" cannot be reached. It appears to be stopped. is displayed`, start the `WebSphere_Portal_Portal_Node2` server using the following command: `/opt/IBM/WebSphere/wp_profile/bin/startServer.sh WebSphere_Portal_Portal_Node2`. Skip this step if message `ADMU0508I: The Application Server "WebSphere_Portal_Portal_Node2" is STARTED. is displayed`. If you had to start `WebSphere_Portal_Portal_Node2`, a message similar to the following will be displayed: `ADMU3000I: Server WebSphere_Portal_Portal_Node2 open for e-business; process id is 26654`.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. `nodeagent`
- b. `WebSphere_Portal_Portal_Node2`

Stop servers in this order:

- a. `WebSphere_Portal_Portal_Node2`
- b. `nodeagent`

The `WebSphere_Portal_Portal_Node2` server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.


The `nodeagent` is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the `WebSphere_Portal_Portal_Node2` server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID `admin` and password. `APPLICATION_SERVER_HOST` is the host name for the application server.

- b. View the status of the WebSphere_Portal_Portal_Node2 server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/wp_profile/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WebSphere_Portal_Portal_Node2

Stop servers in this order:

- a. WebSphere_Portal_Portal_Node2
- b. nodeagent

To stop the WebSphere_Portal_Portal_Node2 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST WorklightServer1) Test

The Application Server (REST WorklightServer1) test tests access to the WebSphere Application Server REST service on the target server.

Resources


The Application Server (REST WorklightServer1) test uses the following resource:

- WebSphere Application Server on the application server.

Problem determination

If the Application Server (REST WorklightServer1) test fails, do the following to find and resolve the access problem.

Procedure

1.  Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appwrklt` (in a standard environment) or `appwrkltgrp` (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *wrkl1t* and specify your topology password for *topology_password*.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOControl -a stop -c component -p topology_password
```

3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To check the status of the primary server, specify 831 for *action*.
- To check the status of the standby server, specify 833 for *action*.
- To start the primary server, specify 201 for *action*.
- To start the standby server, specify 211 for *action*.
- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.

- a. On the application server review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log

- b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log

- c. On the application server review the following WebSphere Application Server logs:

- /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/logs/WorklightServer1/SystemOut.log
- /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/logs/WorklightServer1/SystemErr.log

5. Verify that the file system on the application server has not reached capacity. This can be determined by running the `df -h` command. The file system can be considered full even if it less than 100% used. For this reason if the `df -h` command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the WorklightServer1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as `ibmadmin`.
 - b. In a command window, run: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
 - c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed`, start the nodeagent using the following command: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed`. If you had to start the nodeagent, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654`.
 - a. If message `ADMU0509I: The Application Server "WorklightServer1" cannot be reached. It appears to be stopped. is displayed`, start the WorklightServer1 server using the following command: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/startServer.sh WorklightServer1`. Skip this step if message `ADMU0508I: The Application Server "WorklightServer1" is STARTED. is displayed`. If you had to start WorklightServer1, a message similar to the following will be displayed: `ADMU3000I: Server WorklightServer1 open for e-business; process id is 26654`.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WorklightServer1

Stop servers in this order:

- a. WorklightServer1
- b. nodeagent


The WorklightServer1 server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

7. Verify that the WorklightServer1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID `admin` and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
 - b. View the status of the WorklightServer1 server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WorklightServer1

Stop servers in this order:

- a. WorklightServer1
- b. nodeagent

To stop the WorklightServer1 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST WorklightServer2) Test

The Application Server (REST WorklightServer2) test tests access to the WebSphere Application Server REST service on the target server.

Resources

The Application Server (REST WorklightServer2) test uses the following resource:

- WebSphere Application Server on application server 2.

Problem determination

If the Application Server (REST WorklightServer2) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appwrk1grp` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
 - To check the status of the primary server, specify 831 for *action*.
 - To check the status of the standby server, specify 833 for *action*.
 - To start the primary server, specify 201 for *action*.
 - To start the standby server, specify 211 for *action*.
 - To stop the primary server, specify 671 for *action*.
 - To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
 - c. On application server 2 review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/logs/WorklightServer2/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/logs/WorklightServer2/SystemErr.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the WorklightServer2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server 2 system log on as ibmadmin.
 - b. In a command window, run: /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/serverStatus.sh -all -username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.
 - c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
 - a. If message ADMU0509I: The Application Server "WorklightServer2" cannot be reached. It appears to be stopped. is displayed, start the WorklightServer2 server using the following command: /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/startServer.sh WorklightServer2. Skip this step if message ADMU0508I: The Application Server

"WorklightServer2" is STARTED. is displayed. If you had to start WorklightServer2, a message similar to the following will be displayed: ADMU3000I: Server WorklightServer2 open for e-business; process id is 26654.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:




- a. nodeagent
- b. WorklightServer2

Stop servers in this order:

- a. WorklightServer2
- b. nodeagent

The WorklightServer2 server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the WorklightServer2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
 - b. View the status of the WorklightServer2 server by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.
 - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WorklightServer2

Stop servers in this order:

- a. WorklightServer2
- b. nodeagent

To stop the WorklightServer2 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/stopNode.sh`

-username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (REST isim1) Test

The Application Server (REST isim1) test tests access to the WebSphere Application Server REST service on the target server.

Resources

The Application Server (REST isim1) test uses the following resource:

- WebSphere Application Server on the application server.

Problem determination

If the Application Server (REST isim1) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appisim* (in a standard environment) or *appisimgrp* (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *sim* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To check the status of the primary server, specify 831 for *action*.
- To check the status of the standby server, specify 833 for *action*.
- To start the primary server, specify 201 for *action*.
- To start the standby server, specify 211 for *action*.
- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
 - c. On the application server review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/AppSrv7/profiles/ism1/logs/ism1/SystemOut.log
 - /opt/IBM/WebSphere/AppSrv7/profiles/ism1/logs/ism1/SystemErr.log
5. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the ism1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as ibmadmin.
 - b. In a command window, run: /opt/IBM/WebSphere/AppSrv7/profiles/ism1/bin/serverStatus.sh -all -username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.
 - c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppSrv7/profiles/ism1/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
 - a. If message ADMU0509I: The Application Server "ism1" cannot be reached. It appears to be stopped. is displayed, start the ism1 server using the following command: /opt/IBM/WebSphere/AppSrv7/profiles/ism1/bin/startServer.sh ism1. Skip this step if message ADMU0508I: The Application Server "ism1" is STARTED. is displayed. If you had to start ism1, a message similar to the following will be displayed: ADMU3000I: Server ism1 open for e-business; process id is 26654.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. ism1

Stop servers in this order:

- a. isim1
- b. nodeagent


The isim1 server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

7. Verify that the isim1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
 - b. View the status of the isim1 server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. isim1

Stop servers in this order:

- a. isim1
- b. nodeagent

To stop the isim1 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Application Server (WebSphere Application Server Admin Console) Test

The Application Server (WebSphere Application Server Admin Console) test accesses the WebSphere Application Server on the application server.

Resources

The Application Server (WebSphere Application Server Admin Console) test uses the following resource:

- WebSphere Application Server (on the application server)

Problem determination

If the Application Server (WebSphere Application Server Admin Console) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appdmgr` (in a standard environment) or `appdmgrgrp` (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appdmgr` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.
 - To check the status of the primary server, specify 831 for *action*.
 - To check the status of the standby server, specify 833 for *action*.
 - To start the primary server, specify 201 for *action*.
 - To start the standby server, specify 211 for *action*.
 - To stop the primary server, specify 671 for *action*.
 - To stop the standby server, specify 661 for *action*.Specify your topology password for *topology_password*.


```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
 - c. On the application server review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/AppServer/profiles/dmgr/logs/dmgr/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/dmgr/logs/dmgr/SystemErr.log

5. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.

6. Verify that the dmgr server is started by the WebSphere Application Server administrative console or by manual steps. The following are the manual steps.

- a. On the application server log on as ibmadmin.

- b. Start the dmgr server by running the following command.

```
/opt/IBM/WebSphere/AppServer/profiles/dmgr/bin/startManager.sh
```

The dmgr server can be stopped by running the following command in a command window on the application server:

```
/opt/IBM/WebSphere/AppServer/profiles/dmgr/bin/stopManager.sh  
-username WAS_ADMIN_USER -password WAS_ADMIN_PWD
```

where *WAS_ADMIN_USER* is the WebSphere Application Server administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator ID password

7. Verify that the dmgr server is started by the WebSphere Application Server administrative console or by manual steps. The following are the steps using the WebSphere Application Server administrative console.

- a. Log on to the WebSphere Application Server administrative console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server administrator ID (usually admin) and password. *APPLICATION_SERVER_HOST* is the application server hostname.

8. Verify that the dmgr server is started by the WebSphere Application Server administrative console or by manual steps. The following are the steps using the WebSphere Application Server administrative console.

- a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. *APPLICATION_SERVER_HOST* is the host name for the application server.

- b. View the status of the WebSphere_Portal server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable.

To stop the dmgr server, select the server and click **Stop**.

What to do next

Resolve any issues or errors found and retry the test.

Business Monitoring (WebSphere Business Monitor console) Test

The Business Monitoring (WebSphere Business Monitor console) test determines if the IBM Business Monitor server is running and the administration console is available.

Resources

The Business Monitoring (WebSphere Business Monitor console) test uses the following resource:

- WebSphere Application Server named WBM_DE.AppTarget.WBMNode1.0

Problem determination

If the Business Monitoring (WebSphere Business Monitor console) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appbmon* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the component and to start and stop it as needed. For *component* use *wbm* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
3. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log

- b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
- c. On the application server review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/logs/WBM_DE_AppTarget.WBMNode1.0/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/logs/WBM_DE_AppTarget.WBMNode1.0/SystemErr.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the `df -h` command. The file system can be considered full even if it less than 100% used. For this reason if the `df -h` command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the WBM_DE_AppTarget.WBMNode1.0 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as `ibmadmin`.
 - b. In a command window, run: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
 - c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped.` is displayed, start the `nodeagent` using the following command: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED.` is displayed. If you had to start the `nodeagent`, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654.`
 - a. If message `ADMU0509I: The Application Server "WBM_DE_AppTarget.WBMNode1.0" cannot be reached. It appears to be stopped.` is displayed, start the server using the following command: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/startServer.sh WBM_DE_AppTarget.WBMNode1.0`. Skip this step if message `ADMU0508I: The Application Server "WBM_DE_AppTarget.WBMNode1.0" is STARTED.` is displayed. If you had to start the server, a message similar to the following will be displayed: `ADMU3000I: Server WBM_DE_AppTarget.WBMNode1.0 open for e-business; process id is 26654.`

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. `nodeagent`
- b. `WBM_DE_AppTarget.WBMNode1.0`




Stop servers in this order:

- a. `WBM_DE_AppTarget.WBMNode1.0`
- b. `nodeagent`

The `WBM_DE_AppTarget.WBMNode1.0` server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The `nodeagent` is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/stopNode.sh -username`

`WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the `WBM_DE_AppTarget.WBMNode1.0` server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID `admin` and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
 - b. View the status of the `WBM_DE_AppTarget.WBMNode1.0` server by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.
 - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. `nodeagent`
- b. `WBM_DE_AppTarget.WBMNode1.0`

Stop servers in this order:

- a. `WBM_DE_AppTarget.WBMNode1.0`
- b. `nodeagent`

To stop the `WBM_DE_AppTarget.WBMNode1.0` server, select the server and click **Stop**.

The `nodeagent` is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

Business Monitoring (WebSphere Business Monitor console) [1] Test

The Business Monitoring (WebSphere Business Monitor console) [1] test determines if the primary IBM Business Monitor server in a high availability environment is running and the administration console is available.

Resources


The Business Monitoring (WebSphere Business Monitor console) [1] test uses the following resource:

- WebSphere Application Server named `WBM_DE.AppTarget.WBMNode1.0`

Problem determination

If the Business Monitoring (WebSphere Business Monitor console) [1] test fails, do the following to find and resolve the access problem.

Procedure

1.  Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appbmgrp` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

2. Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.

- To check the status of the primary server, specify 831 for *action*.
- To check the status of the standby server, specify 833 for *action*.
- To start the primary server, specify 201 for *action*.
- To start the standby server, specify 211 for *action*.
- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.

- a. On the application server review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log

- b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log

- c. On the application server review the following WebSphere Application Server logs:

- /opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/logs/WBM_DE_AppTarget.WBMNode1.0/SystemOut.log
- /opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/logs/WBM_DE_AppTarget.WBMNode1.0/SystemErr.log

4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.

5. Verify that the WBM_DE_AppTarget.WBMNode1.0 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:

- a. On the application server system log on as ibmadmin.

- b. In a command window, run: /opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/serverStatus.sh -all -username *WAS_ADMIN_USER* -password *WAS_ADMIN_PWD* where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.

- c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/

AppServer/profiles/wbmProfile1/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.

- a. If message ADMU0509I: The Application Server "WBM_DE_AppTarget.WBMNode1.0" cannot be reached. It appears to be stopped. is displayed, start the server using the following command:
/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/startServer.sh
WBM_DE_AppTarget.WBMNode1.0. Skip this step if message ADMU0508I: The Application Server "WBM_DE_AppTarget.WBMNode1.0" is STARTED. is displayed. If you had to start the server, a message similar to the following will be displayed: ADMU3000I: Server WBM_DE_AppTarget.WBMNode1.0 open for e-business; process id is 26654.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:




- a. nodeagent
- b. WBM_DE_AppTarget.WBMNode1.0

Stop servers in this order:

- a. WBM_DE_AppTarget.WBMNode1.0
- b. nodeagent

The WBM_DE_AppTarget.WBMNode1.0 server is stopped by running the following command in a command window on the application server: /opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD where WAS_ADMIN_USER is the WebSphere administrator ID (normally admin) and WAS_ADMIN_PWD is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: /opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD where WAS_ADMIN_USER is the WebSphere administrator ID (normally admin) and WAS_ADMIN_PWD is the WebSphere administrator password.

6. Verify that the WBM_DE_AppTarget.WBMNode1.0 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at http://APPLICATION_SERVER_HOST:9061/ibm/console using the WebSphere Application Server Administrative ID admin and password. APPLICATION_SERVER_HOST is the host name for the application server.
 - b. View the status of the WBM_DE_AppTarget.WBMNode1.0 server by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.
 - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the /opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/startNode.sh command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WBM_DE_AppTarget.WBMNode1.0

Stop servers in this order:

- a. WBM_DE_AppTarget.WBMNode1.0
- b. nodeagent

To stop the WBM_DE_AppTarget.WBMNode1.0 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

Business Monitoring (WebSphere Business Monitor console) [2] Test

The Business Monitoring (WebSphere Business Monitor console) [2] test determines if the backup IBM Business Monitor server in a high availability environment is running and the administration console is available.

Resources

The Business Monitoring (WebSphere Business Monitor console) [2] test uses the following resource:

- WebSphere Application Server named WBM_DE.AppTarget.WBMNode2.0

Problem determination

If the Business Monitoring (WebSphere Business Monitor console) [2] test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appbmongrp` and specify your topology password for `topology_password`.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
 - To check the status of the primary server, specify 831 for *action*.
 - To check the status of the standby server, specify 833 for *action*.
 - To start the primary server, specify 201 for *action*.
 - To start the standby server, specify 211 for *action*.
 - To stop the primary server, specify 671 for *action*.
 - To stop the standby server, specify 661 for *action*.

Specify your topology password for `topology_password`.

```
su - ibmadmin
```

```
IOCCControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.

- a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
 - c. On application server 2 review the following WebSphere Application Server logs:
 - /opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/logs/WBM_DE_AppTarget.WBMNode2.0/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/logs/WBM_DE_AppTarget.WBMNode2.0/SystemErr.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
 5. Verify that the WBM_DE_AppTarget.WBMNode2.0 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server 2 system log on as `ibmadmin`.
 - b. In a command window, run: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
 - c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped.` is displayed, start the `nodeagent` using the following command: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED.` is displayed. If you had to start the `nodeagent`, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654.`
 - a. If message `ADMU0509I: The Application Server "WBM_DE_AppTarget.WBMNode2.0" cannot be reached. It appears to be stopped.` is displayed, start the `WBM_DE_AppTarget.WBMNode2.0` server using the following command: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/startServer.sh WBM_DE_AppTarget.WBMNode2.0`. Skip this step if message `ADMU0508I: The Application Server "WBM_DE_AppTarget.WBMNode2.0" is STARTED.` is displayed. If you had to start `WBM_DE_AppTarget.WBMNode2.0`, a message similar to the following will be displayed: `ADMU3000I: Server WBM_DE_AppTarget.WBMNode2.0 open for e-business; process id is 26654.`

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. `nodeagent`
- b. `WBM_DE_AppTarget.WBMNode2.0`




Stop servers in this order:

- a. `WBM_DE_AppTarget.WBMNode2.0`
- b. `nodeagent`

The `WBM_DE_AppTarget.WBMNode2.0` server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where

WAS_ADMIN_USER is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere administrator password.

6. Verify that the WBM_DE_AppTarget.WBMNode2.0 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. *APPLICATION_SERVER_HOST* is the host name for the application server.
 - b. View the status of the WBM_DE_AppTarget.WBMNode2.0 server by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.
 - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WBM_DE_AppTarget.WBMNode2.0

Stop servers in this order:

- a. WBM_DE_AppTarget.WBMNode2.0
- b. nodeagent

To stop the WBM_DE_AppTarget.WBMNode2.0 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS_ADMIN_USER* is the WebSphere administrator ID (normally admin) and *WAS_ADMIN_PWD* is the WebSphere administrator password.

What to do next

Resolve any issues or errors found and retry the test.

Collaboration (Lotus Domino console) Test

Collaboration (Lotus Domino console) test determines if the Domino Directory is accessible through its URL.

Resources

The Collaboration (Lotus Domino console) test uses the following resource:

- Domino Server (on the application server).

Problem determination

If the Collaboration (Lotus Domino console) test fails, do the following to find and resolve the problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appdomino* (in a standard environment) or *appdominogrp* (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *st* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.
 - To check the status of the server, specify 871 for *action*.
 - To start the server, specify 261 for *action*.
 - To stop the server, specify 611 for *action*.Specify your topology password for *topology_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```
4. Review the log files for runtime exceptions.
 - a. On the application server review the following Lotus Domino logs:
 - `/local/notesdata/console.out`
 - `/local/notesdata/log.nsf`
 - All logs in the `/local/notesdata/IBM_TECHNICAL_SUPPORT/` directory.
5. Verify that the file systems on the application server system have not reached capacity. This can be determined using the **df -h** command.
6. Verify that the Lotus Domino Process components are running.

- a. Login to the Lotus Domino Directory console at `http://APP_SERVER_HOST:84/names.nsf` where `APP_SERVER_HOST` is the host name of the application server. Login using the Domino administrator username and password.
 - b. If the console cannot be accessed, on the application server, run the `ps -ef | grep notes` command to determine if the Lotus Domino processes are running. The Lotus Domino processes are:
 - server
 - event
 - update
 - replica
 - router
 - adminp
 - calconn
 - sched
 - http
 - rnrmgr
 - staddin
7. If some, but not all, processes are running, stop the running processes before restarting all the processes.
 - a. On the application server, login as the notes user.
 - b. Change to the `/local/notesdata` directory.
 - c. Run the `"nohup /opt/IBM/lotus/bin/server -q >console.out 2>&1 &"` command to stop all running Lotus Domino processes.
 - d. Check that all processes have stopped by running the `ps -ef | grep notes` command.
 - e. If any Lotus Domino processes are still running, stop them using the `kill -9 pid` where `pid` is the process identifier of the Lotus Domino process.
 8. If the Lotus Domino processes are not running, start the Lotus Domino Server components.
 - a. On the application server, login as the notes user.
 - b. Change to the `/local/notesdata` directory.
 - c. Run the `"nohup /opt/IBM/lotus/bin/server > console.out 2>&1 &"` command to start all Lotus Domino Server components.

What to do next

Resolve any issues or errors found and retry the test.

Collaboration (Lotus Sametime console) Test

Collaboration (Lotus Sametime console) test determines if the Sametime Console is accessible through its URL.

Resources

The Collaboration (Lotus Sametime console) test uses the following resource:

- Sametime Server (on the application server).

Problem determination

If the Collaboration (Lotus Sametime console) test fails, do the following to find and resolve the problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appdomino* (in a standard environment) or *appdominogr* (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *st* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.
 - To check the status of the server, specify 871 for *action*.
 - To start the server, specify 261 for *action*.
 - To stop the server, specify 611 for *action*.Specify your topology password for *topology_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```
4. Collect and review the Sametime Community Server configuration and log files.
 - a. Log on the application server as a *notes* user.
 - b. Change to the `/local/notesdata` directory.
 - c. Run the `sh stdiagzip.sh` command. This command will collect all pertinent log files and write them to the `/local/notesdata/` directory.
 - d. Review the logs in the `/local/notesdata/` directory.
5. Verify that the file systems on the application server system have not reached capacity. This can be determined using the `df -h` command.
6. Verify that the Sametime Process components are running.

- a. Login to the Sametime Home page at `http://APP_SERVER_HOST:84/stcenter.nsf` where `APP_SERVER_HOST` is the host name of the application server. Login using the Domino administrator username and password.
- b. On the Sametime Home page click **Administer the server**.
- c. On the Server - Overview page, make sure all the Sametime services are running.
7. If some, but not all, processes are running, stop the running processes before restarting all the processes.
 - a. On the application server, login as the notes user.
 - b. Change to the `/local/notesdata` directory.
 - c. Run the `"nohup /opt/IBM/lotus/bin/server -q >console.out 2>&1 &"` command to stop all running Sametime processes.
 - d. Check that all processes have stopped by running the `ps -ef | grep notes` command.
 - e. If any processes are still running, stop them by using the `kill -9 pid` where `pid` is the process identifier of the Lotus Domino process.
8. If the Sametime processes are not running, start the Lotus Sametime Server components.
 - a. On the application server, login as the notes user.
 - b. Change to the `/local/notesdata` directory.
 - c. Run the `"nohup /opt/IBM/lotus/bin/server > console.out 2>&1 &"` command to start all Lotus Sametime Server components.

What to do next

Resolve any issues or errors found and retry the test.

Collaboration (Lotus Sametime Proxy console) Test

The Collaboration (Lotus Sametime Proxy console) test determines if the Lotus Sametime Proxy Web Application can be accessed by the Lotus Sametime Proxy Web Application URL.

Resources

The Collaboration (Lotus Sametime Proxy console) test uses the following resource:

- Sametime Proxy (on the application server).

Problem determination

If the Collaboration (Lotus Sametime Proxy console) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appstproxy` (in a standard environment) or `appstproxygrp` (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:


```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:


```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To check the status of the server, specify 871 for *action*.
- To start the server, specify 261 for *action*.
- To stop the server, specify 611 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log
 - b. On the application server review the following Sametime Proxy Server logs:
 - /opt/IBM/WebSphere/AppServer/profiles/STPAppProfile1/logs/STProxyServer1/SystemOut.log
 - /opt/IBM/WebSphere/AppServer/profiles/STPAppProfile1/logs/STProxyServer1/SystemErr.log
4. Verify that the file systems on the application server system have not reached capacity. This can be determined using the **df -h** command.
5. Verify that the Sametime Proxy Server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
 - a. On the application server system log on as `ibmadmin`.
 - b. In a command window, run: `/opt/IBM/WebSphere/AppServer/profiles/STPAppProfile1/bin/serverStatus.sh -all -username waswebadmin -password WAS_ADMIN_PWD` where `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
 - c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped.` is displayed, start the nodeagent using the following command: `/opt/IBM/WebSphere/AppServer/profiles/STProxyServer1/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED.` is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654.`
 - d. If message `ADMU0509I: The Application Server "STProxyServer1" cannot be reached. It appears to be stopped.` is displayed, start `STProxyServer1` using the following command: `/opt/IBM/WebSphere/AppServer/profiles/STPAppProfile1/bin/startServer.sh STProxyServer1`. Skip this step if message `ADMU0508I: The Application Server "STProxyServer1" is STARTED.` is displayed. If you had to start `STProxyServer1`, a message similar to the following will be displayed: `ADMU3000I: Server STProxyServer1 open for e-business; process id is 26654.`

Important: Servers must be started and stopped in a specific order.

Start servers in this order:




- a. nodeagent
- b. STProxyServer1

Stop servers in this order:

- a. STProxyServer1
- b. nodeagent

The STProxyServer1 server is stopped by running the following command in a command window on the Application Server: `/opt/IBM/WebSphere/AppServer/profiles/STPAppProfile1/bin/stopServer.sh STProxyServer1 -username waswebadmin -password WAS_ADMIN_PWD` where `WAS_ADMIN_PWD` is the WebSphere administrator password.

The nodeagent is stopped by running the following command in a command window on the Application Server: `/opt/IBM/WebSphere/AppServer/profiles/STPAppProfile1/bin/stopNode.sh -username waswebadmin -password WAS_ADMIN_PWD` where `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the Sametime Proxy Server is are started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
 - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID `admin` and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
 - b. View the status of the STProxyServer1 server by clicking **Servers > Server Types > WebSphere application servers**.
 - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
 - The  icon means the server is stopped. Select the server and click **Start** to start the server.
 - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/STProxyServer1/bin/startNode.sh` command in a command window.

Important: Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. STProxyServer1

Stop servers in this order:

- a. STProxyServer1
- b. nodeagent

To stop the STProxyServer1 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the Application Server: `/opt/IBM/WebSphere/AppServer/profiles/STPAppProfile1/bin/stopNode.sh -username waswebadmin -password WAS_ADMIN_PWD` where `WAS_ADMIN_PWD` is the WebSphere administrator password.

7. Verify that the Sametime Proxy Console can be accessed from the WebSphere Portal system, on the application server, using following URL: `http://APPLICATION_SERVER_HOST:9085/stwebclient/popup.jsp`. Where the `APPLICATION_SERVER_HOST` is host name for the application server.

What to do next

Resolve any issues or errors found and retry the test.

Database (*database name*) Test

The Database (*database name*) tests the DB2 manager status of the *database name* DB2 instance on the data server by running the `db2status` script.

Resources

The Database (*database name*) test uses the following resource:

- The Application DB2 instance (on the data server)

Problem determination

If the Database (*database name*) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `dbfdb24app` (in a standard environment) or `dbfdb24appgrp` (in a high availability environment) and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `db24app` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.
 - To check the status of the primary server, specify 821 for *action*.
 - To check the status of the standby server, specify 823 for *action*.
 - To start the primary server, specify 141 for *action*.
 - To start the standby server, specify 151 for *action*.
 - To stop the primary server, specify 701 for *action*.
 - To stop the standby server, specify 711 for *action*.Specify your topology password for *topology_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```


4. Check that there is network connectivity between the application server where the test was initiated and the data server where the database resides. This can be done by sending **ping** commands with both the short and fully-qualified host name of the data server from the application server. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or `/etc/hosts` file.
5. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log`
6. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
7. Verify that the database manager used by the data server is started.
 - a. On the data server, run the following command from a command window as the Applications DB2 instance user (`db2inst2`).


```
db2 get snapshot for dbm | grep "Database manager status"
```

If the database manager is started for the *database name* instance, the following message is displayed: Database manager status = Active.
8. If the DB2 processes are not running, start them by running **su - db2inst2** from the command window if running as the root user. Otherwise, run **db2start** to start the Database Manager.
9. Check the DB2 logs for errors related to the database instance used for this test. The logs are located on the data server in the `/datahome/db2inst2/sqllib/db2dump` directory. Check the `db2diag.log` in the `/datahome/db2inst2/sqllib/db2dump` directory for errors issued when starting the database used for this test.

What to do next

Resolve any issues or errors found and retry the test.

Database (DB2 Instance - Applications) Test

The Database (DB2 Instance - Applications) tests the DB2 manager status of the DB2 instance on the data server by running the **db2status** script.

Resources

The Database (DB2 Instance - Applications) test uses the following resource:

- The DB2 Applications instance (on the data server)

Problem determination

If the Database (DB2 Instance - Applications) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `db2db24app` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:


```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the component and to start and stop it as needed. For *component* use db24app and specify your topology password for *topology_password*.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

3. Check that there is network connectivity between the application server where the test was initiated and the data server where the database resides. This can be done by sending **ping** commands with both the short and fully-qualified host name of the data server from the application server. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or `/etc/hosts` file.
4. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log`
5. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the database manager used by the data server is started.
 - a. On the data server, run the following command from a command window as the Applications instance user.

```
db2 get snapshot for dbm | grep "Database manager status"
```

If the database manager is started for the Applications instance, the following message is displayed: Database manager status = Active.

7. If the DB2 processes are not running, start them by running **su - db2inst2** from the command window if running as the root user. Otherwise, run **db2start** to start the Database Manager.
8. Check the DB2 logs for errors related to the database instance used for this test. The logs are located on the data server in the `/datahome/db2inst2/sqllib/db2dump` directory. Check the `db2diag.log` in the `/datahome/db2inst2/sqllib/db2dump` directory for errors issued when starting the database used for this test.

What to do next

Resolve any issues or errors found and retry the test.

Database (DB2 Instance - Applications) [1] Test

The Database (DB2 Instance - Applications) [1] tests the DB2 manager status of the DB2 instance on data server 1 in a high availability environment by running the **db2status** script.

Resources

The Database (DB2 Instance - Applications) [1] test uses the following resource:

- The DB2 Applications instance (on the data server)

Problem determination

If the Database (DB2 Instance - Applications) [1] test fails, do the following to find and resolve the access problem.

Procedure

- 1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `db2sdb24appgrp` and specify your topology password for *topology_password*.
 - To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
- 1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
 - To check the status of the primary server, specify 821 for *action*.
 - To check the status of the standby server, specify 823 for *action*.
 - To start the primary server, specify 141 for *action*.
 - To start the standby server, specify 151 for *action*.
 - To stop the primary server, specify 701 for *action*.
 - To stop the standby server, specify 711 for *action*.Specify your topology password for *topology_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```
- Check that there is network connectivity between the application server where the test was initiated and the data server where the database resides. This can be done by sending **ping** commands with both the short and fully-qualified host name of the data server from the application server. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or `/etc/hosts` file.
- Review the log files for runtime exceptions.
 - On the application server review the following WebSphere Portal logs:
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log`
 - In a high availability environment, on application server 2 review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log
 - /opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log
5. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
 6. Verify that the database manager used by the data server is started.
 - a. On the data server, run the following command from a command window as the Applications instance user.


```
db2 get snapshot for dbm | grep "Database manager status"
```

If the database manager is started for the Applications instance, the following message is displayed: Database manager status = Active.
 7. If the DB2 processes are not running, start them by running **su - db2inst2** from the command window if running as the root user. Otherwise, run **db2start** to start the Database Manager.
 8. Check the DB2 logs for errors related to the database instance used for this test. The logs are located on the data server in the /datahome/db2inst2/sqllib/db2dump directory. Check the db2diag.log in the /datahome/db2inst2/sqllib/db2dump directory for errors issued when starting the database used for this test.

What to do next

Resolve any issues or errors found and retry the test.

Database (DB2 Instance - Applications) [2] Test

The Database (DB2 Instance - Applications) [2] tests the DB2 manager status of the DB2 instance on data server 2 in a high availability environment by running the **db2status** script.

Resources

The Database (DB2 Instance - Applications) [2] test uses the following resource:

- The DB2 Applications instance (on the data server)

Problem determination

If the Database (DB2 Instance - Applications) [2] test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *db2db24appgrp* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:


```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:


```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:


```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

2. 1.6 1.6.0.1 Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
 - To check the status of the primary server, specify 821 for *action*.
 - To check the status of the standby server, specify 823 for *action*.
 - To start the primary server, specify 141 for *action*.
 - To start the standby server, specify 151 for *action*.
 - To stop the primary server, specify 701 for *action*.
 - To stop the standby server, specify 711 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

3. Check that there is network connectivity between the application server where the test was initiated and the data server where the database resides. This can be done by sending **ping** commands with both the short and fully-qualified host name of the data server from the application server. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or `/etc/hosts` file.
4. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log`
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log`
5. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the database manager used by the data server is started.
 - a. On the data server, run the following command from a command window as the Applications instance user.


```
db2 get snapshot for dbm | grep "Database manager status"
```

If the database manager is started for the Applications instance, the following message is displayed: Database manager status = Active.

7. If the DB2 processes are not running, start them by running **su - db2inst2** from the command window if running as the root user. Otherwise, run **db2start** to start the Database Manager.
8. Check the DB2 logs for errors related to the database instance used for this test. The logs are located on the data server in the `/datahome/db2inst2/sqllib/db2dump` directory. Check the `db2diag.log` in the `/datahome/db2inst2/sqllib/db2dump` directory for errors issued when starting the database used for this test.

What to do next

Resolve any issues or errors found and retry the test.

Database (DB2 Instance - Directory Server) Test

The Database (DB2 Instance - Directory Server) tests the DB2 manager status of the DB2 instance on the data server by running the **db2status** script.

Resources

The Database (DB2 Instance - Directory Server) test uses the following resource:

- The DB2 Directory Server instance (on the data server)

Problem determination

If the Database (DB2 Instance - Directory Server) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *dbstdsserv* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the component and to start and stop it as needed. For *component* use *tds* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
3. Check that there is network connectivity between the application server where the test was initiated and the data server where the database resides. This can be done by sending **ping** commands with both the short and fully-qualified host name of the data server from the application server. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or `/etc/hosts` file.
4. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log`
5. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.

6. Verify that the database manager used by the data server is started.
 - a. On the data server, run the following command from a command window as the Directory Server instance user.


```
db2 get snapshot for dbm | grep "Database manager status"
```

If the database manager is started for the Directory Server instance, the following message is displayed: Database manager status = Active.

7. If the DB2 processes are not running, start them by running **su - dsrdbm01** from the command window if running as the root user. Otherwise, run **db2start** to start the Database Manager.
8. Check the DB2 logs for errors related to the database instance used for this test. The logs are located on the data server in the `/datahome/dsrdbm01/sqllib/db2dump` directory.
9. Check the `db2diag.log` for errors issued when starting the database used for this test.

What to do next

Resolve any issues or errors found and retry the test.

Database (DB2 Instance - Directory Server) [1] Test

The Database (DB2 Instance - Directory Server) [1] tests the DB2 manager status of the DB2 instance on data server 1 in a high availability environment by running the **db2status** script.

Resources

The Database (DB2 Instance - Directory Server) [1] test uses the following resource:

- The DB2 Directory Server instance (on the data server)

Problem determination

If the Database (DB2 Instance - Directory Server) [1] test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `dbstdservgrp` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:


```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:


```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:


```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
 - To check the status of the primary server, specify 821 for *action*.
 - To check the status of the standby server, specify 823 for *action*.
 - To start the primary server, specify 141 for *action*.
 - To start the standby server, specify 151 for *action*.
 - To stop the primary server, specify 701 for *action*.

- To stop the standby server, specify 711 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

3. Check that there is network connectivity between the application server where the test was initiated and the data server where the database resides. This can be done by sending **ping** commands with both the short and fully-qualified host name of the data server from the application server. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or `/etc/hosts` file.
4. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log`
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log`
5. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the database manager used by the data server is started.
 - a. On the data server, run the following command from a command window as the Directory Server instance user.


```
db2 get snapshot for dbm | grep "Database manager status"
```

If the database manager is started for the Directory Server instance, the following message is displayed: Database manager status = Active.
7. If the DB2 processes are not running, start them by running **su - dsrdbm01** from the command window if running as the root user. Otherwise, run **db2start** to start the Database Manager.
8. Check the DB2 logs for errors related to the database instance used for this test. The logs are located on the data server in the `/datahome/dsrdbm01/sqllib/db2dump` directory.
9. Check the `db2diag.log` for errors issued when starting the database used for this test.

What to do next

Resolve any issues or errors found and retry the test.

Database (DB2 Instance - Directory Server) [2] Test

The Database (DB2 Instance - Directory Server) [2] tests the DB2 manager status of the DB2 instance on data server 2 in a high availability environment by running the **db2status** script.

Resources

The Database (DB2 Instance - Directory Server) [2] test uses the following resource:

- The DB2 Directory Server instance (on the data server)

Problem determination

If the Database (DB2 Instance - Directory Server) [2] test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *dbstdsservgrp* and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
 - To check the status of the primary server, specify 821 for *action*.
 - To check the status of the standby server, specify 823 for *action*.
 - To start the primary server, specify 141 for *action*.
 - To start the standby server, specify 151 for *action*.
 - To stop the primary server, specify 701 for *action*.
 - To stop the standby server, specify 711 for *action*.Specify your topology password for *topology_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```
3. Check that there is network connectivity between the application server where the test was initiated and the data server where the database resides. This can be done by sending **ping** commands with both the short and fully-qualified host name of the data server from the application server. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or */etc/hosts* file.
4. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - */opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log*
 - */opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log*
 - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
 - */opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log*
 - */opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log*
5. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the database manager used by the data server is started.
 - a. On the data server, run the following command from a command window as the Directory Server instance user.

```
db2 get snapshot for dbm | grep "Database manager status"
```

If the database manager is started for the Directory Server instance, the following message is displayed: Database manager status = Active.

7. If the DB2 processes are not running, start them by running `su - dsrdbm01` from the command window if running as the root user. Otherwise, run `db2start` to start the Database Manager.
8. Check the DB2 logs for errors related to the database instance used for this test. The logs are located on the data server in the `/datahome/dsrdbm01/sql1lib/db2dump` directory.
9. Check the `db2diag.log` for errors issued when starting the database used for this test.

What to do next

Resolve any issues or errors found and retry the test.

Database (DB2 Instance - Middleware) Test

The Database (DB2 Instance - Middleware) tests the DB2 manager status of the DB2 instance on the data server by running the `db2status` script.

Resources

The Database (DB2 Instance - Middleware) test uses the following resource:

- The DB2 Middleware instance (on the data server)

Problem determination

If the Database (DB2 Instance - Middleware) test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `db2mid` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the component and to start and stop it as needed. For *component* use `db2mid` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
 - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
 - c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

3. Check that there is network connectivity between the application server where the test was initiated and the data server where the database resides. This can be done by sending **ping** commands with both the short and fully-qualified host name of the data server from the application server. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or `/etc/hosts` file.
4. Review the log files for runtime exceptions.
 - a. On the application server review the following WebSphere Portal logs:
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log`
5. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the database manager used by the data server is started.
 - a. On the data server, run the following command from a command window as the Middleware instance user.

```
db2 get snapshot for dbm | grep "Database manager status"
```

If the database manager is started for the Middleware instance, the following message is displayed: Database manager status = Active.

7. If the DB2 processes are not running, start them by running **su - db2inst1** from the command window if running as the root user. Otherwise, run **db2start** to start the Database Manager.
8. Check the DB2 logs for errors related to the database instance used for this test. The logs are located on the data server in the `/datahome/db2inst1/sqllib/db2dump` directory.
9. Check the `db2diag.log` for errors issued when starting the database used for this test.

What to do next

Resolve any issues or errors found and retry the test.

Database (DB2 Instance - Middleware) [1] Test

The Database (DB2 Instance - Middleware) [1] tests the DB2 manager status of the DB2 instance on data server 1 in a high availability environment by running the **db2status** script.

Resources

The Database (DB2 Instance - Middleware) [1] test uses the following resource:

- The DB2 Middleware instance (on the data server)

Problem determination

If the Database (DB2 Instance - Middleware) [1] test fails, do the following to find and resolve the access problem.

Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `db2db24midgrp` and specify your topology password for *topology_password*.
 - a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.

- To check the status of the primary server, specify 821 for *action*.
- To check the status of the standby server, specify 823 for *action*.
- To start the primary server, specify 141 for *action*.
- To start the standby server, specify 151 for *action*.
- To stop the primary server, specify 701 for *action*.
- To stop the standby server, specify 711 for *action*.

Specify your topology password for *topology_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

3. Check that there is network connectivity between the application server where the test was initiated and the data server where the database resides. This can be done by sending **ping** commands with both the short and fully-qualified host name of the data server from the application server. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or `/etc/hosts` file.
4. Review the log files for runtime exceptions.
- a. On the application server review the following WebSphere Portal logs:
- `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log`
- b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
- `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemOut.log`
 - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2/SystemErr.log`
5. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the database manager used by the data server is started.
- a. On the data server, run the following command from a command window as the Middleware instance user.
- ```
db2 get snapshot for dbm | grep "Database manager status"
```

If the database manager is started for the Middleware instance, the following message is displayed: Database manager status = Active.

7. If the DB2 processes are not running, start them by running **su - db2inst1** from the command window if running as the root user. Otherwise, run **db2start** to start the Database Manager.
8. Check the DB2 logs for errors related to the database instance used for this test. The logs are located on the data server in the `/datahome/db2inst1/sqllib/db2dump` directory.

9. Check the `db2diag.log` for errors issued when starting the database used for this test.

## What to do next

Resolve any issues or errors found and retry the test.

## Database (DB2 Instance - Middleware) [2] Test

The Database (DB2 Instance - Middleware) [2] tests the DB2 manager status of the DB2 instance on data server 2 in a high availability environment by running the `db2status` script.

## Resources

The Database (DB2 Instance - Middleware) [2] test uses the following resource:

- The DB2 Middleware instance (on the data server)

## Problem determination

If the Database (DB2 Instance - Middleware) [2] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `db2sdb24midgrp` and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
  - To check the status of the primary server, specify 821 for *action*.
  - To check the status of the standby server, specify 823 for *action*.
  - To start the primary server, specify 141 for *action*.
  - To start the standby server, specify 151 for *action*.
  - To stop the primary server, specify 701 for *action*.
  - To stop the standby server, specify 711 for *action*.Specify your topology password for *topology\_password*.

```
su - ibmadmin

IOCCControl -a action -p topology_password
```
3. Check that there is network connectivity between the application server where the test was initiated and the data server where the database resides. This can be done by sending **ping** commands with both the short and fully-qualified host name of the data server from the application server. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or `/etc/hosts` file.
4. Review the log files for runtime exceptions.

- a. On the application server review the following WebSphere Portal logs:
  - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
  - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
- b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
  - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
  - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
5. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the database manager used by the data server is started.
  - a. On the data server, run the following command from a command window as the Middleware instance user.
 

```
db2 get snapshot for dbm | grep "Database manager status"
```

If the database manager is started for the Middleware instance, the following message is displayed: Database manager status = Active.
7. If the DB2 processes are not running, start them by running **su - db2inst1** from the command window if running as the root user. Otherwise, run **db2start** to start the Database Manager.
8. Check the DB2 logs for errors related to the database instance used for this test. The logs are located on the data server in the /datahome/db2inst1/sqllib/db2dump directory.
9. Check the db2diag.log for errors issued when starting the database used for this test.

## What to do next

Resolve any issues or errors found and retry the test.

## Directory (Tivoli Directory Server console) Test

The Directory (Tivoli Directory Server console) test determines if the Tivoli Directory Server is available by sending an HTTP request to the server.

## Resources

The Directory (Tivoli Directory Server console) test uses the following resource:

- Tivoli Directory Server (on the data server)

## Problem determination

If the Directory (Tivoli Directory Server console) test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use dbstdserv (in a standard environment) or dbstdservgrp (in a high availability environment) and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:
 

```
su - ibmadmin
```

```
I0CCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *tds* and specify your topology password for *topology\_password*.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To check the status of the primary server, specify 811 for *action*.
- To check the status of the standby server, specify 813 for *action*.
- To start the primary server, specify 101 for *action*.
- To start the standby server, specify 111 for *action*.
- To stop the primary server, specify 741 for *action*.
- To stop the standby server, specify 751 for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.

- a. On the application server review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
- /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log

5. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.

6. Verify that the Tivoli Directory Server LDAP server is running.

- a. Log on to a terminal session on the data server as *root*.

- b. Run the **ps -ef | grep ibmslapd** command. The results will be similar to the following:

```
dsrdbm01 13797 1 0 Apr26 pts/1 00:00:09 /opt/ibm/ldap/V6.3/sbin/64/ibmslapd -I dsrdbm01 -t -n
root 32080 19149 0 23:17 pts/1 00:00:00 grep ibmslapd
```

This example shows that the Tivoli Directory Server daemon, *ibmslapd*, is running.

- c. Run the **ps -ef | grep ibmdiradm** command. The results will be similar to the following:

```

root 4394 14038 0 14:17 pts/2 00:00:00 grep ibmdiradm
dsrdbm01 11055 1 0 Apr26 pts/1 00:00:00 /opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t

```

This example shows that the Tivoli Directory Server daemon, `ibmdiradm`, is running.

7. If the Tivoli Directory Server, `ibmslapd`, is not running, do the following.
  - a. As a `root` Linux user, run `/opt/ibm/ldap/V6.3/sbin/ibmslapd -I dsrdbm01` to start the Directory Server
8. If the Tivoli Directory Administration Server, `ibmdiradm`, is not running, do the following.
  - a. On a terminal session on the data server, run `su - dsrdbm01`.
  - b. Run `/opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t` to start the application server.
9. If the Tivoli Directory Server, `ibmslapd`, is running, do the following.

**Note:** Do this step even if the Tivoli Directory Server was started in the previous step.

- a. Log on to a terminal session on the data server as `dsrdbm01`.
  - b. Run `idsldapsearch -h localhost -D "cn=root" -w "ADMIN_PASSWORD" -s sub uid=*` where `ADMIN_PASSWORD` is the LDAP Root Administrator account password. The existing LDAP user objects will be displayed.
10. Verify that the Tivoli Directory Server Web Administration Tool is running. The Tivoli Directory Server Web Administration Tool is used to stop and start the LDAP instance, add users or accounts, and view log files.
    - a. Log on to a terminal session on the application server as `ibmadmin`.
    - b. Run the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/serverStatus.sh -all -username waswebadmin -password WAS_ADMIN_PASSWORD` command on the application server where `WAS_ADMIN_PASSWORD` is the WebSphere Application Server administrator password. If the tool is running, a message similar to the following will be returned.
 

```

ADMU0508I: The Application Server "tdsServer" is STARTED

```

 If the following message is returned, the `tdsServer` needs to be started.
 

```

ADMU0509I: The Application Server "tdsServer" cannot be reached. It appears to be stopped.

```
    - c. Start the `tdsServer` by running the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/startServer.sh tdsServer` command. The server, `tdsServer`, will start and a message similar to the following will be displayed.
 

```

ADMU3000I: Server tdsServer open for e-business; process id is 26654

```
  11. Access the Tivoli Directory Server Web Administration Tool at: `http://DATA_SERVER_HOST:9062/IDSWebApp/IDSjsp/Login.jsp` where `DATA_SERVER_HOST` is the host name of the data server.
  12. Log on with the LDAP Root Administrator Account, `cn=root`, and the appropriate password. The LDAP Server name should be `DATABASE_DIRECTORY_SERVER_HOST:389` where `DATABASE_DIRECTORY_SERVER_HOST` is the host name of the data server.
  13. Click **Server Administration > Start/stop/reset server**. The LDAP server status will be displayed. This page can also be used to start, stop, or reset the LDAP server.

## What to do next

Resolve any issues or errors found and retry the test.

## Directory (Tivoli Directory Server) Test

The Directory (Tivoli Directory Server) test determines if the Tivoli Directory Server is available by sending an HTTP request to the server.

## Resources

The Directory (Tivoli Directory Server) test uses the following resource:

- Tivoli Directory Server (on the data server)



## Problem determination

If the Directory (Tivoli Directory Server) test fails, do the following to find and resolve the access problem.

### Procedure

- 1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *dbstdsserv* and specify your topology password for *topology\_password*.
  - To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
- 1.6** **1.6.0.1** Use the platform control tool to check the status of the component and to start and stop it as needed. For *component* use *tds* and specify your topology password for *topology\_password*.
  - To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
- Review the log files for runtime exceptions.
  - On the application server review the following WebSphere Portal logs:
    - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`
    - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log`
- Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
- Verify that the Tivoli Directory Server LDAP server is running.
  - Log on to a terminal session on the data server as `root`.
  - Run the **ps -ef | grep ibmslapd** command. The results will be similar to the following:

```
dsrdbm01 13797 1 0 Apr26 pts/1 00:00:09 /opt/ibm/ldap/V6.3/sbin/64/ibmslapd -I dsrdbm01 -t -n
root 32080 19149 0 23:17 pts/1 00:00:00 grep ibmslapd
```

This example shows that the Tivoli Directory Server daemon, `ibmslapd`, is running.
  - Run the **ps -ef | grep ibmdiradm** command. The results will be similar to the following:

```
root 4394 14038 0 14:17 pts/2 00:00:00 grep ibmdiradm
dsrdbm01 11055 1 0 Apr26 pts/1 00:00:00 /opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t
```

This example shows that the Tivoli Directory Server daemon, `ibmdiradm`, is running.

6. If the Tivoli Directory Server, `ibmslapd`, is not running, do the following.
  - a. As a `root` Linux user, run `/opt/ibm/ldap/V6.3/sbin/ibmslapd -I dsrdbm01` to start the Directory Server
7. If the Tivoli Directory Administration Server, `ibmdiradm`, is not running, do the following.
  - a. On a terminal session on the data server, run `su - dsrdbm01`.
  - b. Run `/opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t` to start the application server.
8. If the Tivoli Directory Server, `ibmslapd`, is running, do the following.

**Note:** Do this step even if the Tivoli Directory Server was started in the previous step.

- a. Log on to a terminal session on the data server as `dsrdbm01`.
  - b. Run `idsldapsearch -h localhost -D "cn=root" -w "ADMIN_PASSWORD" -s sub uid=*` where `ADMIN_PASSWORD` is the LDAP Root Administrator account password. The existing LDAP user objects will be displayed.
9. Verify that the Tivoli Directory Server Web Administration Tool is running. The Tivoli Directory Server Web Administration Tool is used to stop and start the LDAP instance, add users or accounts, and view log files.
    - a. Log on to a terminal session on the application server as `ibmadmin`.
    - b. Run the `/opt/IBM/WebSphere/AppServerv7/profiles/isis1/bin/serverStatus.sh -all -username waswebadmin -password WAS_ADMIN_PASSWORD` command on the application server where `WAS_ADMIN_PASSWORD` is the WebSphere Application Server administrator password. If the tool is running, a message similar to the following will be returned.
 

```
ADMU0508I: The Application Server "tdsServer" is STARTED
```

 If the following message is returned, the `tdsServer` needs to be started.
 

```
ADMU0509I: The Application Server "tdsServer" cannot be reached. It appears to be stopped.
```
    - c. Start the `tdsServer` by running the `/opt/IBM/WebSphere/AppServerv7/profiles/isis1/bin/startServer.sh tdsServer` command. The server, `tdsServer`, will start and a message similar to the following will be displayed.
 

```
ADMU3000I: Server tdsServer open for e-business; process id is 26654
```
  10. Access the Tivoli Directory Server Web Administration Tool at: `http://DATA_SERVER_HOST:9062/IDSWebApp/IDSjsp/Login.jsp` where `DATA_SERVER_HOST` is the host name of the data server.
  11. Log on with the LDAP Root Administrator Account, `cn=root`, and the appropriate password. The LDAP Server name should be `DATABASE_DIRECTORY_SERVER_HOST:389` where `DATABASE_DIRECTORY_SERVER_HOST` is the host name of the data server.
  12. Click **Server Administration > Start/stop/reset server**. The LDAP server status will be displayed. This page can also be used to start, stop, or reset the LDAP server.

## What to do next

Resolve any issues or errors found and retry the test.

## Directory (Tivoli Directory Server) [1] Test

The Directory (Tivoli Directory Server) [1] test determines if the Tivoli Directory Server is available by sending an HTTP request to the server.

## Resources

The Directory (Tivoli Directory Server) [1] test uses the following resource:

- Tivoli Directory Server (on the data server)

## Problem determination

If the Directory (Tivoli Directory Server) [1] test fails, do the following to find and resolve the access problem.

## Procedure

- 1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *dbstdsservgrp* and specify your topology password for *topology\_password*.
  - To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
  - To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
  - To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
- 1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
  - To check the status of the primary server, specify 811 for *action*.
  - To check the status of the standby server, specify 813 for *action*.
  - To start the primary server, specify 101 for *action*.
  - To start the standby server, specify 111 for *action*.
  - To stop the primary server, specify 741 for *action*.
  - To stop the standby server, specify 751 for *action*.Specify your topology password for *topology\_password*.

```
su - ibmadmin

IOCCControl -a action -p topology_password
```
- Review the log files for runtime exceptions.
  - On the application server review the following WebSphere Portal logs:
    - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`
    - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log`
  - On the data server review the following Tivoli Directory Server log: `/datahome/dsrdbm01/idsslapd-dsrdbm01/logs/audit.log`
- Verify that the file system on the data server has not reached capacity. This can be determined by running the `df -h` command. The file system can be considered full even if it less than 100% used. For this reason if the `df -h` command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
- Verify that the Tivoli Directory Server LDAP server is running.
  - Log on to a terminal session on the data server as `root`.
  - Run the `ps -ef | grep ibmslapd` command. The results will be similar to the following:

```
dsrdbm01 13797 1 0 Apr26 pts/1 00:00:09 /opt/ibm/ldap/V6.3/sbin/64/ibmslapd -I dsrdbm01 -t -n
root 32080 19149 0 23:17 pts/1 00:00:00 grep ibmslapd
```

This example shows that the Tivoli Directory Server daemon, `ibmslapd`, is running.
  - Run the `ps -ef | grep ibmdiradm` command. The results will be similar to the following:

```
root 4394 14038 0 14:17 pts/2 00:00:00 grep ibmdiradm
dsrdbm01 11055 1 0 Apr26 pts/1 00:00:00 /opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t
```

This example shows that the Tivoli Directory Server daemon, `ibmdiradm`, is running.
- If the Tivoli Directory Server, `ibmslapd`, is not running, do the following.
  - As a `root` Linux user, run `/opt/ibm/ldap/V6.3/sbin/ibmslapd -I dsrdbm01` to start the Directory Server

7. If the Tivoli Directory Administration Server, `ibmdiradm`, is not running, do the following.
  - a. On a terminal session on the data server, run `su - dsrdbm01`.
  - b. Run `/opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t` to start the application server.
8. If the Tivoli Directory Server, `ibmslapd`, is running, do the following.

**Note:** Do this step even if the Tivoli Directory Server was started in the previous step.

- a. Log on to a terminal session on the data server as `dsrdbm01`.
  - b. Run `idsldapsearch -h localhost -D "cn=root" -w "ADMIN_PASSWORD" -s sub uid=* where ADMIN_PASSWORD` is the LDAP Root Administrator account password. The existing LDAP user objects will be displayed.
9. Verify that the Tivoli Directory Server Web Administration Tool is running. The Tivoli Directory Server Web Administration Tool is used to stop and start the LDAP instance, add users or accounts, and view log files.
    - a. Log on to a terminal session on the application server as `ibmadmin`.
    - b. Run the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/serverStatus.sh -all -username waswebadmin -password WAS_ADMIN_PASSWORD` command on the application server where `WAS_ADMIN_PASSWORD` is the WebSphere Application Server administrator password. If the tool is running, a message similar to the following will be returned.
 

```
ADMU0508I: The Application Server "tdsServer" is STARTED
```

 If the following message is returned, the `tdsServer` needs to be started.
 

```
ADMU0509I: The Application Server "tdsServer" cannot be reached. It appears to be stopped.
```
    - c. Start the `tdsServer` by running the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/startServer.sh tdsServer` command. The server, `tdsServer`, will start and a message similar to the following will be displayed.
 

```
ADMU3000I: Server tdsServer open for e-business; process id is 26654
```
  10. Access the Tivoli Directory Server Web Administration Tool at: `http://DATA_SERVER_HOST:9062/IDSWebApp/IDSjsp/Login.jsp` where `DATA_SERVER_HOST` is the host name of the data server.
  11. Log on with the LDAP Root Administrator Account, `cn=root`, and the appropriate password. The LDAP Server name should be `DATABASE_DIRECTORY_SERVER_HOST:389` where `DATABASE_DIRECTORY_SERVER_HOST` is the host name of the data server.
  12. Click **Server Administration > Start/stop/reset server**. The LDAP server status will be displayed. This page can also be used to start, stop, or reset the LDAP server.

## What to do next

Resolve any issues or errors found and retry the test.

## Directory (Tivoli Directory Server) [2] Test

The Directory (Tivoli Directory Server) [2] test determines if the Tivoli Directory Server is available by sending an HTTP request to the server.

## Resources

The Directory (Tivoli Directory Server) [2] test uses the following resource:

- Tivoli Directory Server (on the backup data server)

## Problem determination

If the Directory (Tivoli Directory Server) [2] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *dbstdsservgrp* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
  - To check the status of the primary server, specify 811 for *action*.
  - To check the status of the standby server, specify 813 for *action*.
  - To start the primary server, specify 101 for *action*.
  - To start the standby server, specify 111 for *action*.
  - To stop the primary server, specify 741 for *action*.
  - To stop the standby server, specify 751 for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
  - c. On the data server review the following Tivoli Directory Server log: /datahome/dsrdbm01/idsslapd-dsrdbm01/logs/audit.log
4. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the Tivoli Directory Server LDAP server is running.

- a. Log on to a terminal session on data server 2 as root.

- b. Run the **ps -ef | grep ibmslapd** command. The results will be similar to the following:

```
dsrdbm01 13797 1 0 Apr26 pts/1 00:00:09 /opt/ibm/ldap/V6.3/sbin/64/ibmslapd -I dsrdbm01 -t -n
root 32080 19149 0 23:17 pts/1 00:00:00 grep ibmslapd
```

This example shows that the Tivoli Directory Server daemon, *ibmslapd*, is running.

- c. Run the **ps -ef | grep ibmdiradm** command. The results will be similar to the following:

```
root 4394 14038 0 14:17 pts/2 00:00:00 grep ibmdiradm
dsrdbm01 11055 1 0 Apr26 pts/1 00:00:00 /opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t
```

This example shows that the Tivoli Directory Server daemon, `ibmdiradm`, is running.

6. If the Tivoli Directory Server, `ibmslapd`, is not running, do the following.
  - a. As a `root` Linux user, run `/opt/ibm/ldap/V6.3/sbin/ibmslapd -I dsrdbm01` to start the Directory Server
7. If the Tivoli Directory Administration Server, `ibmdiradm`, is not running, do the following.
  - a. On a terminal session on data server 2, run `su - dsrdbm01`.
  - b. Run `/opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t` to start the application server.
8. If the Tivoli Directory Server, `ibmslapd`, is running, do the following.

**Note:** Do this step even if the Tivoli Directory Server was started in the previous step.

- a. Log on to a terminal session on the data server as `dsrdbm01`.
  - b. Run `idsldapsearch -h localhost -D "cn=root" -w "ADMIN_PASSWORD" -s sub uid=*` where `ADMIN_PASSWORD` is the LDAP Root Administrator account password. The existing LDAP user objects will be displayed.
9. Verify that the Tivoli Directory Server Web Administration Tool is running. The Tivoli Directory Server Web Administration Tool is used to stop and start the LDAP instance, add users or accounts, and view log files.
    - a. Log on to a terminal session on application server 2 as `ibmadmin`.
    - b. Run the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/serverStatus.sh -all -username waswebadmin -password WAS_ADMIN_PASSWORD` command on application server 2 where `WAS_ADMIN_PASSWORD` is the WebSphere Application Server administrator password. If the tool is running, a message similar to the following will be returned.  
ADMU0508I: The Application Server "tdsServer" is STARTED  
If the following message is returned, the `tdsServer` needs to be started.  
ADMU0509I: The Application Server "tdsServer" cannot be reached. It appears to be stopped.
    - c. Start the `tdsServer` by running the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/startServer.sh tdsServer` command. The server, `tdsServer`, will start and a message similar to the following will be displayed.  
ADMU3000I: Server `tdsServer` open for e-business; process id is 26654
  10. Access the Tivoli Directory Server Web Administration Tool at: `http://DATA_SERVER_HOST:9062/IDSWebApp/IDSjsp/Login.jsp` where `DATA_SERVER_HOST` is the host name of the backup data server.
  11. Log on with the LDAP Root Administrator Account, `cn=root`, and the appropriate password. The LDAP Server name should be `DATABASE_DIRECTORY_SERVER_HOST:389` where `DATABASE_DIRECTORY_SERVER_HOST` is the host name of the backup data server.
  12. Click **Server Administration** > **Start/stop/reset server**. The LDAP server status will be displayed. This page can also be used to start, stop, or reset the LDAP server.

## What to do next

Resolve any issues or errors found and retry the test.

## Directory (Tivoli Directory Server Proxy) [1] Test

The Directory (Tivoli Directory Server Proxy) [1] test determines if the Tivoli Directory Server is available by sending an HTTP request to the server.

## Resources

The Directory (Tivoli Directory Server Proxy) [1] test uses the following resource:

- Tivoli Directory Server (on the analytics server)

## Problem determination

If the Directory (Tivoli Directory Server Proxy) [1] test fails, do the following to find and resolve the access problem.

### Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *apptdsproxygrp* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To check the status of the primary server, specify 815 for *action*.
- To check the status of the standby server, specify 817 for *action*.
- To start the primary server, specify 121 for *action*.
- To start the standby server, specify 131 for *action*.
- To stop the primary server, specify 731 for *action*.
- To stop the standby server, specify 721 for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
4. Verify that the file system on the analytics server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the file system on the data server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the Tivoli Directory Server LDAP server is running.
  - a. Log on to a terminal session on the analytics server as **root**.
  - b. Run the **ps -ef | grep ibmslapd** command. The results will be similar to the following:

```
dsrdbm01 13797 1 0 Apr26 pts/1 00:00:09 /opt/ibm/ldap/V6.3/sbin/64/ibmslapd -I dsrdbm01 -t -n
root 32080 19149 0 23:17 pts/1 00:00:00 grep ibmslapd
```

This example shows that the Tivoli Directory Server daemon, *ibmslapd*, is running.

c. Run the `ps -ef | grep ibmdiradm` command. The results will be similar to the following:

```
root 4394 14038 0 14:17 pts/2 00:00:00 grep ibmdiradm
dsrdbm01 11055 1 0 Apr26 pts/1 00:00:00 /opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t
```

This example shows that the Tivoli Directory Server daemon, `ibmdiradm`, is running.

7. If the Tivoli Directory Server, `ibmslapd`, is not running, do the following.
  - a. As a `root` Linux user, run `/opt/ibm/ldap/V6.3/sbin/ibmslapd -I dsrdbm01` to start the Directory Server
8. If the Tivoli Directory Administration Server, `ibmdiradm`, is not running, do the following.
  - a. On a terminal session on the analytics server, run `su - dsrdbm01`.
  - b. Run `/opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t` to start the application server.
9. If the Tivoli Directory Server, `ibmslapd`, is running, do the following.

**Note:** Do this step even if the Tivoli Directory Server was started in the previous step.

- a. Log on to a terminal session on the data server as `dsrdbm01`.
  - b. Run `idsldapsearch -h localhost -D "cn=root" -w "ADMIN_PASSWORD" -s sub uid=*` where `ADMIN_PASSWORD` is the LDAP Root Administrator account password. The existing LDAP user objects will be displayed.
10. Verify that the Tivoli Directory Server Web Administration Tool is running. The Tivoli Directory Server Web Administration Tool is used to stop and start the LDAP instance, add users or accounts, and view log files.
- a. Log on to a terminal session on the analytics server as `ibmadmin`.
  - b. Run the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/serverStatus.sh -all -username waswebadmin -password WAS_ADMIN_PASSWORD` command on the analytics server where `WAS_ADMIN_PASSWORD` is the WebSphere Application Server administrator password. If the tool is running, a message similar to the following will be returned.  
ADMU0508I: The Application Server "tdsServer" is STARTED  
If the following message is returned, the `tdsServer` needs to be started.  
ADMU0509I: The Application Server "tdsServer" cannot be reached. It appears to be stopped.
  - c. Start the `tdsServer` by running the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/startServer.sh tdsServer` command. The server, `tdsServer`, will start and a message similar to the following will be displayed.  
ADMU3000I: Server `tdsServer` open for e-business; process id is 26654
11. Access the Tivoli Directory Server Web Administration Tool at: `http://APPLICATION_SERVER_HOST:9081/IDSWebApp` where `APPLICATION_SERVER_HOST` is the host name of application server 1.
12. Log on with the LDAP Root Administrator Account, `cn=root`, and the appropriate password. The LDAP Server name should be `DATABASE_DIRECTORY_SERVER_HOST:389` where `DATABASE_DIRECTORY_SERVER_HOST` is the host name of the analytics server.
13. Click **Server Administration > Start/stop/reset server**. The LDAP server status will be displayed. This page can also be used to start, stop, or reset the LDAP server.

## What to do next

Resolve any issues or errors found and retry the test.

## Directory (Tivoli Directory Server Proxy) [2] Test

The Directory (Tivoli Directory Server Proxy) [2] test determines if the Tivoli Directory Server is available by sending an HTTP request to the server.



## Resources

The Directory (Tivoli Directory Server Proxy) [2] test uses the following resource:

- Tivoli Directory Server (on analytics server 2)

## Problem determination

If the Directory (Tivoli Directory Server Proxy) [2] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *apptdsproxygrp* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
  - To check the status of the primary server, specify 815 for *action*.
  - To check the status of the standby server, specify 817 for *action*.
  - To start the primary server, specify 121 for *action*.
  - To start the standby server, specify 131 for *action*.
  - To stop the primary server, specify 731 for *action*.
  - To stop the standby server, specify 721 for *action*.Specify your topology password for *topology\_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```
3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
4. Verify that the file system on the analytics server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the Tivoli Directory Server LDAP server is running.
  - a. Log on to a terminal session on analytics server 2 as root.

- b. Run the `ps -ef | grep ibmslapd` command. The results will be similar to the following:

```
dsrdbm01 13797 1 0 Apr26 pts/1 00:00:09 /opt/ibm/ldap/V6.3/sbin/64/ibmslapd -I dsrdbm01 -t -n
root 32080 19149 0 23:17 pts/1 00:00:00 grep ibmslapd
```

This example shows that the Tivoli Directory Server daemon, `ibmslapd`, is running.

- c. Run the `ps -ef | grep ibmdiradm` command. The results will be similar to the following:

```
root 4394 14038 0 14:17 pts/2 00:00:00 grep ibmdiradm
dsrdbm01 11055 1 0 Apr26 pts/1 00:00:00 /opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t
```

This example shows that the Tivoli Directory Server daemon, `ibmdiradm`, is running.

6. If the Tivoli Directory Server, `ibmslapd`, is not running, do the following.
  - a. As a `root` Linux user, run `/opt/ibm/ldap/V6.3/sbin/ibmslapd -I dsrdbm01` to start the Directory Server
7. If the Tivoli Directory Administration Server, `ibmdiradm`, is not running, do the following.
  - a. On a terminal session on analytics server 2, run `su - dsrdbm01`.
  - b. Run `/opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t` to start the application server.
8. If the Tivoli Directory Server, `ibmslapd`, is running, do the following.

**Note:** Do this step even if the Tivoli Directory Server was started in the previous step.

- a. Log on to a terminal session on the data server as `dsrdbm01`.
  - b. Run `idsldapsearch -h localhost -D "cn=root" -w "ADMIN_PASSWORD" -s sub uid=*` where `ADMIN_PASSWORD` is the LDAP Root Administrator account password. The existing LDAP user objects will be displayed.
9. Verify that the Tivoli Directory Server Web Administration Tool is running. The Tivoli Directory Server Web Administration Tool is used to stop and start the LDAP instance, add users or accounts, and view log files.
  - a. Log on to a terminal session on analytics server 2 as `ibmadmin`.
  - b. Run the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/serverStatus.sh -all -username waswebadmin -password WAS_ADMIN_PASSWORD` command on analytics server 2 where `WAS_ADMIN_PASSWORD` is the WebSphere Application Server administrator password. If the tool is running, a message similar to the following will be returned.

```
ADMU0508I: The Application Server "tdsServer" is STARTED
```

If the following message is returned, the `tdsServer` needs to be started.

```
ADMU0509I: The Application Server "tdsServer" cannot be reached. It appears to be stopped.
```
  - c. Start the `tdsServer` by running the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/startServer.sh tdsServer` command. The server, `tdsServer`, will start and a message similar to the following will be displayed.

```
ADMU3000I: Server tdsServer open for e-business; process id is 26654
```
10. Access the Tivoli Directory Server Web Administration Tool at: `http://DATA_SERVER_HOST:9062/IDSWebApp/IDSjsp/Login.jsp` where `DATA_SERVER_HOST` is the host name of the backup analytics server.
11. Log on with the LDAP Root Administrator Account, `cn=root`, and the appropriate password. The LDAP Server name should be `DATABASE_DIRECTORY_SERVER_HOST:389` where `DATABASE_DIRECTORY_SERVER_HOST` is the host name of the backup analytics server.
12. Click **Server Administration > Start/stop/reset server**. The LDAP server status will be displayed. This page can also be used to start, stop, or reset the LDAP server.

## What to do next

Resolve any issues or errors found and retry the test.

## Messaging (Message Broker install check) Test

The Messaging (Message Broker install check) test determines if the message broker and queue manager can be accessed.

## Resources

The Messaging (Message Broker install check) uses the following resource:

- WebSphere Portal Server (on the application server).

## Problem determination

If the Messaging (Message Broker install check) test fails, do the following to find and resolve the problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *msgmb* and specify your topology password for *topology\_password*.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

Alternately, the following commands can be run from the analytics server to check the status of IBM Message Broker:

```
su - mqm
```

```
mqsilist
```

If IBM Message Broker is running, BIP1284I: Broker 'IOC\_BROKER' on queue manager 'IOC.MB.QM' is running. and will be returned. If IBM Message Broker is not running, BIP1285I: Broker 'IOC\_BROKER' on queue manager 'IOC.MB.QM' is stopped. will be returned.

The following commands can also be used to stop IBM Message Broker and the queue manager:

```
su - mqmconn
```

```
source /opt/IBM/mqsi/8.0.0.1/bin/mqsiprofile
```

```
mqsisstop IOC_BROKER -q
```

2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the component and to start and stop it as needed. For *component* use *wmb* and specify your topology password for *topology\_password*.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

3. Check the logs for errors. The logs are located on the analytics server in the `/var/log/messages` directory. Look for messages with the prefix 'BIP'. Also look for queue names and timestamps when the test was run.
4. Check that there is network connectivity between the application server) and the analytics server. This can be done by sending **ping** commands with both the short and fully-qualified host name of the analytics server from the application server and vice versa. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or `/etc/hosts` file.
5. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemOut.log`
    - `/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal/SystemErr.log`
6. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
7. **1.6.0.2** If IBM Message Broker is not running, start it using the platform control tool or by the following steps.
  - a. Run the following commands.
 

```
su - mqmconn

source /opt/IBM/mqsi/8.0.0.1/bin/mqsiprofile
```

The following should be returned.

```
MQSI 8.0.0.3
/opt/IBM/mqsi/8.0.0.1
```
  - b. Run the following command:
 

```
mqsistart IOC_BROKER
```

The following should be returned.

```
BIP8096I: Successful command initiation, check the system log to
ensure that the component started without problem and that it
continues to run without problem.
```

## What to do next

Resolve any issues or errors found and retry the test.

## Messaging (Message Broker install check) [1] Test

The Messaging (Message Broker install check) [1] test determines if the message broker and queue manager can be accessed on the primary server in a high availability environment.

## Resources

The Messaging (Message Broker install check) [1] test uses the following resource:

- WebSphere Portal Server (on the application server).

## Problem determination

If the Messaging (Message Broker install check) [1] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `msgmbgrp` and specify your topology password for `topology_password`.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.

- To check the status of the primary server, specify 851 for *action*.
- To check the status of the standby server, specify 853 for *action*.
- To start the primary server, specify 241 for *action*.
- To start the standby server, specify 251 for *action*.
- To stop the primary server, specify 631 for *action*.
- To stop the standby server, specify 621 for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOCCControl -a action -p topology_password
```

3. Check that there is network connectivity between the application server) and the analytics server. This can be done by sending **ping** commands with both the short and fully-qualified host name of the analytics server from the application server and vice versa. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or /etc/hosts file.
4. Review the log files for runtime exceptions.
- a. On the application server review the following WebSphere Portal logs:
- /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
  - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
- b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
- /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
  - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
5. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Check the logs for errors. The logs are located on the analytics server in the /var/log/messages directory. Look for messages with the prefix 'BIP'. Also look for queue names and timestamps when the test was run.

## What to do next

Resolve any issues or errors found and retry the test.

## Messaging (Message Broker install check) [2] Test

The Messaging (Message Broker install check) [2] test determines if the message broker and queue manager can be accessed on the backup server in a high availability environment.

## Resources

The Messaging (Message Broker install check) [2] test uses the following resource:

- WebSphere Portal Server (on the application server).

## Problem determination

If the Messaging (Message Broker install check) [2] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *msgmbgrp* and specify your topology password for *topology\_password*.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.

- To check the status of the primary server, specify 851 for *action*.
- To check the status of the standby server, specify 853 for *action*.
- To start the primary server, specify 241 for *action*.
- To start the standby server, specify 251 for *action*.
- To stop the primary server, specify 631 for *action*.
- To stop the standby server, specify 621 for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

3. Check that there is network connectivity between the application server) and the analytics server. This can be done by sending **ping** commands with both the short and fully-qualified host name of the analytics server from the application server and vice versa. The results of the **ping** commands will show if the host name is being correctly resolved by the DNS or */etc/hosts* file.
4. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - */opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log*
    - */opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log*
  - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - */opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log*
    - */opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log*

5. Verify that the file system on the application server has not reached capacity. This can be determined by running the `df -h` command. The file system can be considered full even if it less than 100% used. For this reason if the `df -h` command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Check the logs for errors. The logs are located on the analytics server in the `/var/log/messages` directory. Look for messages with the prefix 'BIP'. Also look for queue names and timestamps when the test was run.

## What to do next

Resolve any issues or errors found and retry the test.

## Mobile (IBM Worklight console) Test

The Mobile (IBM Worklight console) test determines if the IBM Worklight server is running and the administration console is available.

## Resources

The Mobile (IBM Worklight console) test uses the following resource:

- WebSphere Application Server named WorklightServer1

## Problem determination

If the Mobile (IBM Worklight console) test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appwrklt` and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the component and to start and stop it as needed. For *component* use `wrklt` and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOControl -a stop -c component -p topology_password
```

3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
  - c. On the application server review the following WebSphere Application Server logs:
    - /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/logs/WorklightServer1/SystemOut.log
    - /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/logs/WorklightServer1/SystemErr.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the `df -h` command. The file system can be considered full even if it less than 100% used. For this reason if the `df -h` command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the WorklightServer1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
  - a. On the application server system log on as `ibmadmin`.
  - b. In a command window, run: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
  - c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped.` is displayed, start the `nodeagent` using the following command: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED.` is displayed. If you had to start the `nodeagent`, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654.`
  - a. If message `ADMU0509I: The Application Server "WorklightServer1" cannot be reached. It appears to be stopped.` is displayed, start the `WorklightServer1` server using the following command: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/startServer.sh WorklightServer1`. Skip this step if message `ADMU0508I: The Application Server "WorklightServer1" is STARTED.` is displayed. If you had to start `WorklightServer1`, a message similar to the following will be displayed: `ADMU3000I: Server WorklightServer1 open for e-business; process id is 26654.`

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. `nodeagent`
- b. `WorklightServer1`

Stop servers in this order:




- a. `WorklightServer1`
- b. `nodeagent`

The `WorklightServer1` server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/`



stopServer.sh -all -username *WAS\_ADMIN\_USER* -password *WAS\_ADMIN\_PWD* where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere administrator password.

6. Verify that the WorklightServer1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
  - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. *APPLICATION\_SERVER\_HOST* is the host name for the application server.
  - b. View the status of the WorklightServer1 server by clicking **Servers > Server Types > WebSphere application servers**.
    - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
    - The  icon means the server is stopped. Select the server and click **Start** to start the server.
    - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/startNode.sh` command in a command window.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WorklightServer1

Stop servers in this order:

- a. WorklightServer1
- b. nodeagent

To stop the WorklightServer1 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere administrator password.

## Mobile (IBM Worklight console) [1] Test

The Mobile (IBM Worklight console) [1] test determines if the primary IBM Worklight server in a high availability environment is running and the administration console is available.

## Resources

The Mobile (IBM Worklight console) [1] test uses the following resource:

- WebSphere Application Server named WorklightServer1

## Problem determination

If the Mobile (IBM Worklight console) [1] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appwrk1tgrp* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
  - To check the status of the primary server, specify 831 for *action*.
  - To check the status of the standby server, specify 833 for *action*.
  - To start the primary server, specify 201 for *action*.
  - To start the standby server, specify 211 for *action*.
  - To stop the primary server, specify 671 for *action*.
  - To stop the standby server, specify 661 for *action*.Specify your topology password for *topology\_password*.

```
su - ibmadmin

IOCCControl -a action -p topology_password
```
3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
  - c. On the application server review the following WebSphere Application Server logs:
    - /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/logs/WorklightServer1/SystemOut.log
    - /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/logs/WorklightServer1/SystemErr.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the WorklightServer1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
  - a. On the application server system log on as *ibmadmin*.
  - b. In a command window, run: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where

*WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere Application Server administrator password.

- c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/startNode.sh` . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
- a. If message ADMU0509I: The Application Server "WorklightServer1" cannot be reached. It appears to be stopped. is displayed, start the WorklightServer1 server using the following command: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/startServer.sh WorklightServer1`. Skip this step if message ADMU0508I: The Application Server "WorklightServer1" is STARTED. is displayed. If you had to start WorklightServer1, a message similar to the following will be displayed: ADMU3000I: Server WorklightServer1 open for e-business; process id is 26654.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:




- a. nodeagent
- b. WorklightServer1

Stop servers in this order:

- a. WorklightServer1
- b. nodeagent

The WorklightServer1 server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere administrator password.

6. Verify that the WorklightServer1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
  - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. *APPLICATION\_SERVER\_HOST* is the host name for the application server.
  - b. View the status of the WorklightServer1 server by clicking **Servers > Server Types > WebSphere application servers**.
    - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
    - The  icon means the server is stopped. Select the server and click **Start** to start the server.
    - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/startNode.sh` command in a command window.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WorklightServer1

Stop servers in this order:

- a. WorklightServer1
- b. nodeagent

To stop the WorklightServer1 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

## Mobile (IBM Worklight console) [2] Test

The Mobile (IBM Worklight console) [2] test determines if the backup IBM Worklight server in a high availability environment is running and the administration console is available.

## Resources

The Mobile (IBM Worklight console) [2] test uses the following resource:

- WebSphere Application Server named WorklightServer2

## Problem determination

If the Mobile (IBM Worklight console) [2] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appwrk1tgrp` and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
  - To check the status of the primary server, specify 831 for *action*.
  - To check the status of the standby server, specify 833 for *action*.
  - To start the primary server, specify 201 for *action*.
  - To start the standby server, specify 211 for *action*.
  - To stop the primary server, specify 671 for *action*.
  - To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
  - c. On application server 2 review the following WebSphere Application Server logs:
    - /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/logs/WorklightServer2/SystemOut.log
    - /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/logs/WorklightServer2/SystemErr.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the WorklightServer2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
  - a. On the application server 2 system log on as ibmadmin.
  - b. In a command window, run: /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/serverStatus.sh -all -username WAS\_ADMIN\_USER -password WAS\_ADMIN\_PWD where WAS\_ADMIN\_USER is the WebSphere administrator ID (normally admin) and WAS\_ADMIN\_PWD is the WebSphere Application Server administrator password.
  - c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
    - a. If message ADMU0509I: The Application Server "WorklightServer2" cannot be reached. It appears to be stopped. is displayed, start the WorklightServer2 server using the following command: /opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/startServer.sh WorklightServer2. Skip this step if message ADMU0508I: The Application Server "WorklightServer2" is STARTED. is displayed. If you had to start WorklightServer2, a message similar to the following will be displayed: ADMU3000I: Server WorklightServer2 open for e-business; process id is 26654.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:




- a. nodeagent
- b. WorklightServer2

Stop servers in this order:

- a. WorklightServer2
- b. nodeagent

The WorklightServer2 server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the WorklightServer2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
  - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
  - b. View the status of the WorklightServer2 server by clicking **Servers > Server Types > WebSphere application servers**.
    - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
    - The  icon means the server is stopped. Select the server and click **Start** to start the server.
    - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/startNode.sh` command in a command window.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WorklightServer2

Stop servers in this order:

- a. WorklightServer2
- b. nodeagent

To stop the WorklightServer2 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/profiles/WorklightProfile2/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

## What to do next

Resolve any issues or errors found and retry the test.

## Password Management (Password synchronization agent) Test

The Password Management (Password synchronization agent) tests access to the password management synchronization agent.

## Resources

The Password Management (Password synchronization agent) test uses the following resources:

- Tivoli Directory Server (on the data server)

- Tivoli Directory Integrator (on the data server)

## Problem determination

If the Password Management (Password synchronization agent) test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *dbstdi* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:
 

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:
 

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:
 

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the component and to start and stop it as needed. For *component* use *tdi* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:
 

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:
 

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:
 

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. On the data server review all the Tivoli Directory Server logs in the following directory:
    - /opt/IBM/TDI/V7.1/timsol/logs
  - c. On the data server review all the Tivoli Directory Server logs:
    - /opt/IBM/TDI/V7.1/pwd\_plugins/tds/plugin.log
    - /opt/IBM/TDI/V7.1/pwd\_plugins/tds/proxy.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the Tivoli Directory Integrator server is started.
  - a. Log on to the data server as the *ibmadmin* user.

- b. Start or restart the server.
  - To start the server, run the `/opt/IBM/TDI/V7.1/timsol/ITIMAd start` command.
  - To restart the server, run the `/opt/IBM/TDI/V7.1/timsol/ITIMAd restart` command.
6. Verify that the Tivoli Directory Server LDAP server is running.
  - a. Log on to a terminal session on the data server as the root user.
  - b. Run the `ps -ef | grep ibmslapd` command. The results will be similar to the following showing that the Tivoli Directory Server daemon, `ibmslapd`, is running.
 

```
dsrdbm01 13797 1 0 Apr26 pts/1 00:00:09 /opt/ibm/ldap/V6.3/sbin/64/ibmslapd -I dsrdbm01 -t -n
root 32080 19149 0 23:17 pts/1 00:00:00 grep ibmslapd
```
  - c. Run the `ps -ef | grep ibmdiradm` command. The results will be similar to the following showing that the Tivoli Directory Server daemon, `ibmdiradm`, is running.
 

```
root 4394 14038 0 14:17 pts/2 00:00:00 grep ibmdiradm
dsrdbm01 11055 1 0 Apr26 pts/1 00:00:00 /opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t
```
7. If the Tivoli Directory Server `ibmslapd` is not running, run the `opt/ibm/ldap/V6.3/sbin/ibmslapd -I dsrdbm01` as a root users to start the directory server.
8. If the Tivoli Directory Server administration server `ibmdiradm` is not running, run the `opt/ibm/ldap/V6.3/sbin/ibmdiradm -I dsrdbm01` command as a root user to start the administration server.

## What to do next

Resolve any issues or errors found and retry the test.

## Password Management (Password synchronization agent) [1] Test

The Password Management (Password synchronization agent) [1] test access to the password management synchronization agent on data server 1 in a high availability environment.

## Resources

The Password Management (Password synchronization agent) [1] test uses the following resources:

- Tivoli Directory Server (on the data server)
- Tivoli Directory Integrator (on the data server)

## Problem determination

If the Password Management (Password synchronization agent) [1] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `dbstdigrp` and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:
 

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:
 

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:
 

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```



2. 1.6 1.6.0.1 Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
  - To start the primary server, specify 101-AUX for *action*.
  - To start the standby server, specify 111-AUX for *action*.
  - To stop the primary server, specify 751-AUX for *action*.
  - To stop the standby server, specify 741-AUX for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
  - c. On data server 1 review all the Tivoli Directory Server logs in the following directory:
    - /opt/IBM/TDI/V7.1/timsol/logs
  - d. On data server 1 review all the Tivoli Directory Server logs:
    - /opt/IBM/TDI/V7.1/pwd\_plugins/tds/plugin.log
    - /opt/IBM/TDI/V7.1/pwd\_plugins/tds/proxy.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the Tivoli Directory Integrator server is started.
  - a. Log on to data server 1 as the ibmadmin user.
  - b. Start or restart the server.
    - To start the server, run the **/opt/IBM/TDI/V7.1/timsol/ITIMAd start** command.
    - To restart the server, run the **/opt/IBM/TDI/V7.1/timsol/ITIMAd restart** command.
6. Verify that the Tivoli Directory Server LDAP server is running.
  - a. Log on to a terminal session on data server 1 as the root user.
  - b. Run the **ps -ef | grep ibmslapd** command. The results will be similar to the following showing that the Tivoli Directory Server daemon, ibmslapd, is running.
 

```
dsrdbm01 13797 1 0 Apr26 pts/1 00:00:09 /opt/ibm/ldap/V6.3/sbin/64/ibmslapd -I dsrdbm01 -t -n
root 32080 19149 0 23:17 pts/1 00:00:00 grep ibmslapd
```
  - c. Run the **ps -ef | grep ibmdiradm** command. The results will be similar to the following showing that the Tivoli Directory Server daemon, ibmdiradm, is running.
 

```
root 4394 14038 0 14:17 pts/2 00:00:00 grep ibmdiradm
dsrdbm01 11055 1 0 Apr26 pts/1 00:00:00 /opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t
```
7. If the Tivoli Directory Server ibmslapd is not running, run the **opt/ibm/ldap/V6.3/sbin/ibmslapd -I dsrdbm01** as a root users to start the directory server.
8. If the Tivoli Directory Server administration server ibmdiradm is not running, run the **opt/ibm/ldap/V6.3/sbin/ibmdiradm -I dsrdbm01** command as a root user to start the administration server.

## What to do next

Resolve any issues or errors found and retry the test.

## Password Management (Password synchronization agent) [2] Test

The Password Management (Password synchronization agent) [2] tests access to the password management synchronization agent on data server 2 in a high availability environment.

## Resources

The Password Management (Password synchronization agent) [2] test uses the following resource:

- Tivoli Directory Server (on the data server)
- Tivoli Directory Integrator (on the data server)

## Problem determination

If the Password Management (Password synchronization agent) [2] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *dbstdigrp* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
  - To start the primary server, specify 101-AUX for *action*.
  - To start the standby server, specify 111-AUX for *action*.
  - To stop the primary server, specify 751-AUX for *action*.
  - To stop the standby server, specify 741-AUX for *action*.Specify your topology password for *topology\_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```
3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log

- c. On data server 2 review all the Tivoli Directory Server logs in the following directory:
  - /opt/IBM/TDI/V7.1/timsol/logs
- d. On data server 2 review all the Tivoli Directory Server logs:
  - /opt/IBM/TDI/V7.1/pwd\_plugins/tds/plugin.log
  - /opt/IBM/TDI/V7.1/pwd\_plugins/tds/proxy.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the Tivoli Directory Integrator server is started.
  - a. Log on to data server 2 as the `ibmadmin` user.
  - b. Start or restart the server.
    - To start the server, run the **/opt/IBM/TDI/V7.1/timsol/ITIMAd start** command.
    - To restart the server, run the **/opt/IBM/TDI/V7.1/timsol/ITIMAd restart** command.
6. Verify that the Tivoli Directory Server LDAP server is running.
  - a. Log on to a terminal session on data server 2 as the `root` user.
  - b. Run the **ps -ef | grep ibmslapd** command. The results will be similar to the following showing that the Tivoli Directory Server daemon, `ibmslapd`, is running.
 

```
dsrdbm01 13797 1 0 Apr26 pts/1 00:00:09 /opt/ibm/ldap/V6.3/sbin/64/ibmslapd -I dsrdbm01 -t -n
root 32080 19149 0 23:17 pts/1 00:00:00 grep ibmslapd
```
  - c. Run the **ps -ef | grep ibmdiradm** command. The results will be similar to the following showing that the Tivoli Directory Server daemon, `ibmdiradm`, is running.
 

```
root 4394 14038 0 14:17 pts/2 00:00:00 grep ibmdiradm
dsrdbm01 11055 1 0 Apr26 pts/1 00:00:00 /opt/ibm/ldap/V6.3/sbin/64/ibmdiradm -I dsrdbm01 -t
```
7. If the Tivoli Directory Server `ibmslapd` is not running, run the **opt/ibm/ldap/V6.3/sbin/ibmslapd -I dsrdbm01** as a root users to start the directory server.
8. If the Tivoli Directory Server administration server `ibmdiradm` is not running, run the **opt/ibm/ldap/V6.3/sbin/ibmdiradm -I dsrdbm01** command as a root user to start the administration server.

## What to do next

Resolve any issues or errors found and retry the test.

## Password Management (Tivoli Directory Integrator) Test

The Password Management (Tivoli Directory Integrator) tests access to Tivoli Directory Integrator.

## Resources

The Password Management (Tivoli Directory Integrator) test uses the following resource:

- Tivoli Directory Server (on the data server)
- Tivoli Directory Integrator (on the data server)

## Problem determination

If the Password Management (Tivoli Directory Integrator) test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `dbstdi` (in a standard environment) or `dbstdigrp` (in a high availability environment) and specify your topology password for *topology\_password*.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *tdi* and specify your topology password for *topology\_password*.

- a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To start the primary server, specify 101-AUX for *action*.
- To start the standby server, specify 111-AUX for *action*.
- To stop the primary server, specify 751-AUX for *action*.
- To stop the standby server, specify 741-AUX for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.

- a. On the application server review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
- /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log

- b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:

- /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
- /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log

- c. On the data server review all the Tivoli Directory Server logs in the following directory:

- /opt/IBM/TDI/V7.1/timsol/logs

- d. On the data server review all the Tivoli Directory Server logs:

- /opt/IBM/TDI/V7.1/pwd\_plugins/tds/plugin.log
- /opt/IBM/TDI/V7.1/pwd\_plugins/tds/proxy.log

5. Verify that the file system on the application server has not reached capacity. This can be determined by running the `df -h` command. The file system can be considered full even if it less than 100% used. For this reason if the `df -h` command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the Tivoli Directory Integrator server is started.
  - a. Log on to the data server as the `ibmadmin` user.
  - b. Start or restart the server.
    - To start the server, run the `/opt/IBM/TDI/V7.1/timsol/ITIMAd start` command.
    - To restart the server, run the `/opt/IBM/TDI/V7.1/timsol/ITIMAd restart` command.

## What to do next

Resolve any issues or errors found and retry the test.

## Portal (WebSphere Portal console via Web Server) Test

The Portal (WebSphere Portal console via Web Server) test tests web server access to the WebSphere Portal console.

## Resources

The Portal (WebSphere Portal console via Web Server) test uses the following resource:

- WebSphere Application Server on the application server.

## Problem determination

If the Portal (WebSphere Portal console via Web Server) test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appwpe` and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:
 

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:
 

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:
 

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the component and to start and stop it as needed. For *component* use `wpe` and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:
 

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:
 

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCCControl -a stop -c component -p topology_password
```

3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. On the application server review the following WebSphere Application Server logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the WebSphere\_Portal server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
  - a. On the application server system log on as ibmadmin.
  - b. In a command window, run: /opt/IBM/WebSphere/wp\_profile/bin/serverStatus.sh -all -username *WAS\_ADMIN\_USER* -password *WAS\_ADMIN\_PWD* where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere Application Server administrator password.
  - c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/wp\_profile/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
  - a. If message ADMU0509I: The Application Server "WebSphere\_Portal" cannot be reached. It appears to be stopped. is displayed, start the WebSphere\_Portal server using the following command: /opt/IBM/WebSphere/wp\_profile/bin/startServer.sh WebSphere\_Portal. Skip this step if message ADMU0508I: The Application Server "WebSphere\_Portal" is STARTED. is displayed. If you had to start WebSphere\_Portal, a message similar to the following will be displayed: ADMU3000I: Server WebSphere\_Portal open for e-business; process id is 26654.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WebSphere\_Portal

Stop servers in this order:

- a. WebSphere\_Portal
- b. nodeagent

The WebSphere\_Portal server is stopped by running the following command in a command window on the application server: /opt/IBM/WebSphere/wp\_profile/bin/stopServer.sh -all -username *WAS\_ADMIN\_USER* -password *WAS\_ADMIN\_PWD* where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: /opt/IBM/WebSphere/wp\_profile/bin/stopNode.sh -username *WAS\_ADMIN\_USER*


-password *WAS\_ADMIN\_PWD* where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere administrator password.

6. Verify that the WebSphere\_Portal server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:

- a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. *APPLICATION\_SERVER\_HOST* is the host name for the application server.
- b. View the status of the WebSphere\_Portal server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/wp_profile/bin/startNode.sh` command in a command window.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WebSphere\_Portal

Stop servers in this order:

- a. WebSphere\_Portal
- b. nodeagent

To stop the WebSphere\_Portal server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere administrator password.

## What to do next

Resolve any issues or errors found and retry the test.

## Portal (WebSphere Portal console via Web Server) [1] Test

The Portal (WebSphere Portal console via Web Server) [1] test tests web server access to the WebSphere Portal console on the primary server in a high availability environment.

## Resources

The Portal (WebSphere Portal console via Web Server) [1] test uses the following resource:

- WebSphere Application Server on the application server.

## Problem determination

If the Portal (WebSphere Portal console via Web Server) [1] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appwpegrp* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
  - To start the primary web servers, specify 701 for *action*.
  - To start the standby web servers, specify 711 for *action*.
  - To stop the primary web servers, specify 511 for *action*.
  - To stop the standby web servers, specify 501 for *action*.
  - To check the status of the primary Portal servers, specify 831 for *action*.
  - To check the status of the standby Portal servers, specify 833 for *action*.
  - To start the primary Portal servers, specify 201 for *action*.
  - To start the standby Portal servers, specify 211 for *action*.
  - To stop the primary Portal servers, specify 661 for *action*.
  - To stop the standby Portal servers, specify 671 for *action*.Specify your topology password for *topology\_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```
3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. On the application server review the following WebSphere Application Server logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the WebSphere\_Portal server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
  - a. On the application server system log on as *ibmadmin*.
  - b. In a command window, run: `/opt/IBM/WebSphere/wp_profile/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally *admin*) and *WAS\_ADMIN\_PWD* is the WebSphere Application Server administrator password.



- c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: `/opt/IBM/WebSphere/wp_profile/bin/startNode.sh` . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
- a. If message ADMU0509I: The Application Server "WebSphere\_Portal" cannot be reached. It appears to be stopped. is displayed, start the WebSphere\_Portal server using the following command: `/opt/IBM/WebSphere/wp_profile/bin/startServer.sh WebSphere_Portal`. Skip this step if message ADMU0508I: The Application Server "WebSphere\_Portal" is STARTED. is displayed. If you had to start WebSphere\_Portal, a message similar to the following will be displayed: ADMU3000I: Server WebSphere\_Portal open for e-business; process id is 26654.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:




- a. nodeagent
- b. WebSphere\_Portal

Stop servers in this order:

- a. WebSphere\_Portal
- b. nodeagent

The WebSphere\_Portal server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the WebSphere\_Portal server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
  - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
  - b. View the status of the WebSphere\_Portal server by clicking **Servers > Server Types > WebSphere application servers**.
    - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
    - The  icon means the server is stopped. Select the server and click **Start** to start the server.
    - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/wp_profile/bin/startNode.sh` command in a command window.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WebSphere\_Portal

Stop servers in this order:

- a. WebSphere\_Portal
- b. nodeagent

To stop the WebSphere\_Portal server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

## What to do next

Resolve any issues or errors found and retry the test.

## Portal (WebSphere Portal console via Web Server) [2] Test

The Portal (WebSphere Portal console via Web Server) [2] test tests web server access to the WebSphere Portal console on the backup server in a high availability environment.

## Resources

The Portal (WebSphere Portal console via Web Server) [2] test uses the following resource:

- WebSphere Application Server on application server 2.

## Problem determination

If the Portal (WebSphere Portal console via Web Server) [2] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appwpegrp` and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
  - To start the primary server, specify 701 for *action*.
  - To start the standby server, specify 711 for *action*.
  - To stop the primary server, specify 511 for *action*.
  - To stop the standby server, specify 501 for *action*.
  - To check the status of the primary Portal servers, specify 831 for *action*.
  - To check the status of the standby Portal servers, specify 833 for *action*.
  - To start the primary Portal servers, specify 201 for *action*.
  - To start the standby Portal servers, specify 211 for *action*.

- To stop the primary Portal servers, specify 661 for *action*.
- To stop the standby Portal servers, specify 671 for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

- Review the log files for runtime exceptions.
  - On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
  - On application server 2 review the following WebSphere Application Server logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_Portal\_Node2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_Portal\_Node2/SystemErr.log
- Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
- Verify that the WebSphere\_Portal\_Portal\_Node2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
  - On the application server system log on as ibmadmin.
  - In a command window, run: /opt/IBM/WebSphere/wp\_profile/bin/serverStatus.sh -all -username *WAS\_ADMIN\_USER* -password *WAS\_ADMIN\_PWD* where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere Application Server administrator password.
  - If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/wp\_profile/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
  - If message ADMU0509I: The Application Server "WebSphere\_Portal\_Portal\_Node2" cannot be reached. It appears to be stopped. is displayed, start the WebSphere\_Portal\_Portal\_Node2 server using the following command: /opt/IBM/WebSphere/wp\_profile/bin/startServer.sh WebSphere\_Portal\_Portal\_Node2. Skip this step if message ADMU0508I: The Application Server "WebSphere\_Portal\_Portal\_Node2" is STARTED. is displayed. If you had to start WebSphere\_Portal\_Portal\_Node2, a message similar to the following will be displayed: ADMU3000I: Server WebSphere\_Portal\_Portal\_Node2 open for e-business; process id is 26654.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- nodeagent
- WebSphere\_Portal\_Portal\_Node2




Stop servers in this order:

- WebSphere\_Portal\_Portal\_Node2

b. nodeagent

The WebSphere\_Portal\_Portal\_Node2 server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the WebSphere\_Portal\_Portal\_Node2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
  - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
  - b. View the status of the WebSphere\_Portal\_Portal\_Node2 server by clicking **Servers > Server Types > WebSphere application servers**.
    - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
    - The  icon means the server is stopped. Select the server and click **Start** to start the server.
    - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/wp_profile/bin/startNode.sh` command in a command window.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WebSphere\_Portal\_Portal\_Node2

Stop servers in this order:

- a. WebSphere\_Portal\_Portal\_Node2
- b. nodeagent

To stop the WebSphere\_Portal\_Portal\_Node2 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

## What to do next

Resolve any issues or errors found and retry the test.

## Portal (WebSphere Portal console) Test

The Portal (WebSphere Portal console) test tests access to the WebSphere Portal console.

## Resources

The Portal (WebSphere Portal console) test uses the following resource:

- WebSphere Application Server on the application server.

## Problem determination

If the Portal (WebSphere Portal console) test fails, do the following to find and resolve the access problem.

### Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appwpe* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the component and to start and stop it as needed. For *component* use *wpe* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. On the application server review the following WebSphere Application Server logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the WebSphere\_Portal server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
  - a. On the application server system log on as *ibmadmin*.

- b. In a command window, run: `/opt/IBM/WebSphere/wp_profile/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
- c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped.` is displayed, start the nodeagent using the following command: `/opt/IBM/WebSphere/wp_profile/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED.` is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654.`
- a. If message `ADMU0509I: The Application Server "WebSphere_Portal" cannot be reached. It appears to be stopped.` is displayed, start the WebSphere\_Portal server using the following command: `/opt/IBM/WebSphere/wp_profile/bin/startServer.sh WebSphere_Portal`. Skip this step if message `ADMU0508I: The Application Server "WebSphere_Portal" is STARTED.` is displayed. If you had to start WebSphere\_Portal, a message similar to the following will be displayed: `ADMU3000I: Server WebSphere_Portal open for e-business; process id is 26654.`

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WebSphere\_Portal

Stop servers in this order:

- a. WebSphere\_Portal
- b. nodeagent

The WebSphere\_Portal server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.


The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

- 6. Verify that the WebSphere\_Portal server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:

- a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
- b. View the status of the WebSphere\_Portal server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/wp_profile/bin/startNode.sh` command in a command window.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WebSphere\_Portal

Stop servers in this order:

- a. WebSphere\_Portal
- b. nodeagent

To stop the WebSphere\_Portal server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally `admin`) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

## What to do next

Resolve any issues or errors found and retry the test.

## Portal (WebSphere Portal console) [1] Test

The Portal (WebSphere Portal console) [1] test tests access to the WebSphere Portal console on the primary server in a high availability environment.

## Resources

The Portal (WebSphere Portal console) [1] test uses the following resource:

- WebSphere Application Server on the application server.

## Problem determination

If the Portal (WebSphere Portal console) [1] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use `appwpegrp` and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
  - To check the status of the primary server, specify 831 for *action*.
  - To check the status of the standby server, specify 833 for *action*.
  - To start the primary server, specify 201 for *action*.
  - To start the standby server, specify 211 for *action*.

- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

- Review the log files for runtime exceptions.
  - On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - On the application server review the following WebSphere Application Server logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
- Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
- Verify that the WebSphere\_Portal server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
  - On the application server system log on as ibmadmin.
  - In a command window, run: /opt/IBM/WebSphere/wp\_profile/bin/serverStatus.sh -all -username *WAS\_ADMIN\_USER* -password *WAS\_ADMIN\_PWD* where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere Application Server administrator password.
  - If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/wp\_profile/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
  - If message ADMU0509I: The Application Server "WebSphere\_Portal" cannot be reached. It appears to be stopped. is displayed, start the WebSphere\_Portal server using the following command: /opt/IBM/WebSphere/wp\_profile/bin/startServer.sh WebSphere\_Portal. Skip this step if message ADMU0508I: The Application Server "WebSphere\_Portal" is STARTED. is displayed. If you had to start WebSphere\_Portal, a message similar to the following will be displayed: ADMU3000I: Server WebSphere\_Portal open for e-business; process id is 26654.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- nodeagent
- WebSphere\_Portal

Stop servers in this order:

- WebSphere\_Portal
- nodeagent

The WebSphere\_Portal server is stopped by running the following command in a command window on the application server: /opt/IBM/WebSphere/wp\_profile/bin/stopServer.sh -all -username *WAS\_ADMIN\_USER* -password *WAS\_ADMIN\_PWD* where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere Application Server administrator password.




The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the WebSphere\_Portal server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:

- a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
- b. View the status of the WebSphere\_Portal server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/wp_profile/bin/startNode.sh` command in a command window.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WebSphere\_Portal

Stop servers in this order:

- a. WebSphere\_Portal
- b. nodeagent

To stop the WebSphere\_Portal server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

## What to do next

Resolve any issues or errors found and retry the test.

## Portal (WebSphere Portal console) [2] Test

The Portal (WebSphere Portal console) [2] test tests access to the WebSphere Portal console on the backup server in a high availability environment.

## Resources

The Portal (WebSphere Portal console) [2] test uses the following resource:

- WebSphere Application Server on application server 2.

## Problem determination

If the Portal (WebSphere Portal console) [2] test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appwpegrp* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** Use the platform control tool to check the status of the servers and to start and stop them as needed. Run the following commands with the desired options.
  - To check the status of the primary server, specify 831 for *action*.
  - To check the status of the standby server, specify 833 for *action*.
  - To start the primary server, specify 201 for *action*.
  - To start the standby server, specify 211 for *action*.
  - To stop the primary server, specify 671 for *action*.
  - To stop the standby server, specify 661 for *action*.Specify your topology password for *topology\_password*.

```
su - ibmadmin

IOCControl -a action -p topology_password
```
3. Review the log files for runtime exceptions.
  - a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
  - c. On application server 2 review the following WebSphere Application Server logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_Portal\_Node2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_Portal\_Node2/SystemErr.log
4. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
5. Verify that the WebSphere\_Portal\_Portal\_Node2 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
  - a. On the application server system log on as *ibmadmin*.

- b. In a command window, run: `/opt/IBM/WebSphere/wp_profile/bin/serverStatus.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.
- c. If message `ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped.` is displayed, start the nodeagent using the following command: `/opt/IBM/WebSphere/wp_profile/bin/startNode.sh`. Skip this step if message `ADMU0508I: The Application Server "nodeagent" is STARTED.` is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: `ADMU3000I: Server nodeagent open for e-business; process id is 26654.`
  - a. If message `ADMU0509I: The Application Server "WebSphere_Portal_Portal_Node2" cannot be reached. It appears to be stopped.` is displayed, start the `WebSphere_Portal_Portal_Node2` server using the following command: `/opt/IBM/WebSphere/wp_profile/bin/startServer.sh WebSphere_Portal_Portal_Node2`. Skip this step if message `ADMU0508I: The Application Server "WebSphere_Portal_Portal_Node2" is STARTED.` is displayed. If you had to start `WebSphere_Portal_Portal_Node2`, a message similar to the following will be displayed: `ADMU3000I: Server WebSphere_Portal_Portal_Node2 open for e-business; process id is 26654.`

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WebSphere\_Portal\_Portal\_Node2


Stop servers in this order:


- a. WebSphere\_Portal\_Portal\_Node2
- b. nodeagent


The `WebSphere_Portal_Portal_Node2` server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

6. Verify that the `WebSphere_Portal_Portal_Node2` server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
  - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
  - b. View the status of the `WebSphere_Portal_Portal_Node2` server by clicking **Servers > Server Types > WebSphere application servers**.
 

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/wp_profile/bin/startNode.sh` command in a command window.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. WebSphere\_Portal\_Portal\_Node2

Stop servers in this order:

- a. WebSphere\_Portal\_Portal\_Node2
- b. nodeagent

To stop the WebSphere\_Portal\_Portal\_Node2 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/wp_profile/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

## What to do next

Resolve any issues or errors found and retry the test.

## Security (IBM Security Identity Manager administration console) Test

The Security (IBM Security Identity Manager administration console) test determines if the IBM Security Identity Manager server is running and the administration console is available.

## Resources

The Security (IBM Security Identity Manager administration console) test uses the following resource:

- WebSphere Application Server named isim1.

## Problem determination

If the Security (IBM Security Identity Manager administration console) test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appisim* (in a standard environment) or *appisimgrp* (in a high availability environment) and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *sim* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a status -c component -p topology_password
```

- b. To start the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a start -c component -p topology_password
```

- c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To check the status of the primary server, specify 831 for *action*.
- To check the status of the standby server, specify 833 for *action*.
- To start the primary server, specify 201 for *action*.
- To start the standby server, specify 211 for *action*.
- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.
- a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
  - c. On the application server review the following WebSphere Application Server logs:
    - /opt/IBM/WebSphere/AppSrv7/profiles/ism1/logs/ism1/SystemOut.log
    - /opt/IBM/WebSphere/AppSrv7/profiles/ism1/logs/ism1/SystemErr.log
5. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the ism1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
- a. On the application server system log on as ibmadmin.
  - b. In a command window, run: /opt/IBM/WebSphere/AppSrv7/profiles/ism1/bin/serverStatus.sh -all -username WAS\_ADMIN\_USER -password WAS\_ADMIN\_PWD where WAS\_ADMIN\_USER is the WebSphere administrator ID (normally admin) and WAS\_ADMIN\_PWD is the WebSphere Application Server administrator password.
  - c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppSrv7/profiles/ism1/bin/startNode.sh . Skip this step if message ADMU0508I: The

Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.

- a. If message ADMU0509I: The Application Server "isim1" cannot be reached. It appears to be stopped. is displayed, start the isim1 server using the following command: `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/startServer.sh isim1`. Skip this step if message ADMU0508I: The Application Server "isim1" is STARTED. is displayed. If you had to start isim1, a message similar to the following will be displayed: ADMU3000I: Server isim1 open for e-business; process id is 26654.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:




- a. nodeagent
- b. isim1

Stop servers in this order:

- a. isim1
- b. nodeagent

The isim1 server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

7. Verify that the isim1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
  - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
  - b. View the status of the isim1 server by clicking **Servers > Server Types > WebSphere application servers**.
    - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
    - The  icon means the server is stopped. Select the server and click **Start** to start the server.
    - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/startNode.sh` command in a command window.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. isim1

Stop servers in this order:

- a. isim1

b. nodeagent

To stop the isim1 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServer/v7/profiles/isim1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

## What to do next

Resolve any issues or errors found and retry the test.

## Security (IBM Security Identity Manager console) Test

The Security (IBM Security Identity Manager console) test determines if the IBM Security Identity Manager server is running and the console is available.

## Resources

The Security (IBM Security Identity Manager console) test uses the following resource:

- WebSphere Application Server named isim1.

## Problem determination

If the Security (IBM Security Identity Manager console) test fails, do the following to find and resolve the access problem.

## Procedure

1. **1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appisim* (in a standard environment) or *appisimgrp* (in a high availability environment) and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
2. **1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *sim* and specify your topology password for *topology\_password*.
  - a. To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
  - b. To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
  - c. To stop the component run the following commands:

```
su - ibmadmin
```

```
IOCControl -a stop -c component -p topology_password
```

3. **1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.

- To check the status of the primary server, specify 831 for *action*.
- To check the status of the standby server, specify 833 for *action*.
- To start the primary server, specify 201 for *action*.
- To start the standby server, specify 211 for *action*.
- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOCControl -a action -p topology_password
```

4. Review the log files for runtime exceptions.
- a. On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - b. In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
  - c. On the application server review the following WebSphere Application Server logs:
    - /opt/IBM/WebSphere/AppSrv7/profiles/ism1/logs/ism1/SystemOut.log
    - /opt/IBM/WebSphere/AppSrv7/profiles/ism1/logs/ism1/SystemErr.log
5. Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
6. Verify that the ism1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
- a. On the application server system log on as ibmadmin.
  - b. In a command window, run: /opt/IBM/WebSphere/AppSrv7/profiles/ism1/bin/serverStatus.sh -all -username *WAS\_ADMIN\_USER* -password *WAS\_ADMIN\_PWD* where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere Application Server administrator password.
  - c. If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppSrv7/profiles/ism1/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
    - a. If message ADMU0509I: The Application Server "ism1" cannot be reached. It appears to be stopped. is displayed, start the ism1 server using the following command: /opt/IBM/WebSphere/AppSrv7/profiles/ism1/bin/startServer.sh ism1. Skip this step if message ADMU0508I: The Application Server "ism1" is STARTED. is displayed. If you had to start ism1, a message similar to the following will be displayed: ADMU3000I: Server ism1 open for e-business; process id is 26654.



**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:




- a. nodeagent
- b. isim1

Stop servers in this order:

- a. isim1
- b. nodeagent

The isim1 server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

7. Verify that the isim1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
  - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
  - b. View the status of the isim1 server by clicking **Servers > Server Types > WebSphere application servers**.
    - The  icon means the server is started. If required, select the server and click **Restart** to restart the server.
    - The  icon means the server is stopped. Select the server and click **Start** to start the server.
    - The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/startNode.sh` command in a command window.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. isim1

Stop servers in this order:

- a. isim1
- b. nodeagent

To stop the isim1 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

## What to do next

Resolve any issues or errors found and retry the test.

## Security (IBM Security Identity Manager self console) Test

The Security (IBM Security Identity Manager self console) test determines if the IBM Security Identity Manager server is running and the self console is available.

## Resources

The Security (IBM Security Identity Manager self console) test uses the following resource:

- WebSphere Application Server named isim1.

## Problem determination

If the Security (IBM Security Identity Manager self console) test fails, do the following to find and resolve the access problem.

## Procedure

- 1.6.0.2** Use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *appisim* (in a standard environment) or *appisimgrp* (in a high availability environment) and specify your topology password for *topology\_password*.
  - To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
  - To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
  - To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
- 1.6** **1.6.0.1** If running in a standard environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options. For *component* use *sim* and specify your topology password for *topology\_password*.
  - To check the status of the component run the following commands:

```
su - ibmadmin

IOCCControl -a status -c component -p topology_password
```
  - To start the component run the following commands:

```
su - ibmadmin

IOCCControl -a start -c component -p topology_password
```
  - To stop the component run the following commands:

```
su - ibmadmin

IOCCControl -a stop -c component -p topology_password
```
- 1.6** **1.6.0.1** If running in a high availability environment, use the platform control tool to check the status of the components and to start and stop them as needed. Run the following command with the desired options.
  - To check the status of the primary server, specify 831 for *action*.
  - To check the status of the standby server, specify 833 for *action*.

- To start the primary server, specify 201 for *action*.
- To start the standby server, specify 211 for *action*.
- To stop the primary server, specify 671 for *action*.
- To stop the standby server, specify 661 for *action*.

Specify your topology password for *topology\_password*.

```
su - ibmadmin
```

```
IOControl -a action -p topology_password
```

- Review the log files for runtime exceptions.
  - On the application server review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal/SystemErr.log
  - In a high availability environment, on application server 2 review the following WebSphere Portal logs:
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemOut.log
    - /opt/IBM/WebSphere/wp\_profile/logs/WebSphere\_Portal\_PortalNode2/SystemErr.log
  - On the application server review the following WebSphere Application Server logs:
    - /opt/IBM/WebSphere/AppServerv7/profiles/ism1/logs/ism1/SystemOut.log
    - /opt/IBM/WebSphere/AppServerv7/profiles/ism1/logs/ism1/SystemErr.log
- Verify that the file system on the application server has not reached capacity. This can be determined by running the **df -h** command. The file system can be considered full even if it less than 100% used. For this reason if the **df -h** command returns that the file system is 90% or more full, you should consider that the file system has reached capacity.
- Verify that the ism1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the manual steps:
  - On the application server system log on as ibmadmin.
  - In a command window, run: /opt/IBM/WebSphere/AppServerv7/profiles/ism1/bin/serverStatus.sh -all -username *WAS\_ADMIN\_USER* -password *WAS\_ADMIN\_PWD* where *WAS\_ADMIN\_USER* is the WebSphere administrator ID (normally admin) and *WAS\_ADMIN\_PWD* is the WebSphere Application Server administrator password.
  - If message ADMU0509I: The Application Server "nodeagent" cannot be reached. It appears to be stopped. is displayed, start the nodeagent using the following command: /opt/IBM/WebSphere/AppServerv7/profiles/ism1/bin/startNode.sh . Skip this step if message ADMU0508I: The Application Server "nodeagent" is STARTED. is displayed. If you had to start the nodeagent, a message similar to the following will be displayed: ADMU3000I: Server nodeagent open for e-business; process id is 26654.
  - If message ADMU0509I: The Application Server "ism1" cannot be reached. It appears to be stopped. is displayed, start the ism1 server using the following command: /opt/IBM/WebSphere/AppServerv7/profiles/ism1/bin/startServer.sh ism1. Skip this step if message ADMU0508I: The Application Server "ism1" is STARTED. is displayed. If you had to start ism1, a message similar to the following will be displayed: ADMU3000I: Server ism1 open for e-business; process id is 26654.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- nodeagent
- ism1

Stop servers in this order:

- a. isim1
- b. nodeagent


The isim1 server is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/stopServer.sh -all -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere Application Server administrator password.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

7. Verify that the isim1 server is started. Verification can be done using the WebSphere Application Server Administrative Console or by manual steps. The following are the steps using the WebSphere Application Server Administrative Console:
  - a. Log on to the WebSphere Application Server Administrative Console at `http://APPLICATION_SERVER_HOST:9061/ibm/console` using the WebSphere Application Server Administrative ID admin and password. `APPLICATION_SERVER_HOST` is the host name for the application server.
  - b. View the status of the isim1 server by clicking **Servers > Server Types > WebSphere application servers**.

The  icon means the server is started. If required, select the server and click **Restart** to restart the server.

The  icon means the server is stopped. Select the server and click **Start** to start the server.

The  icon means the server status is unavailable. The Node Agent might not be running. To start the Node Agent run the `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/startNode.sh` command in a command window.

**Important:** Servers must be started and stopped in a specific order.

Start servers in this order:

- a. nodeagent
- b. isim1

Stop servers in this order:

- a. isim1
- b. nodeagent

To stop the isim1 server, select the server and click **Stop**.

The nodeagent is stopped by running the following command in a command window on the application server: `/opt/IBM/WebSphere/AppServerv7/profiles/isim1/bin/stopNode.sh -username WAS_ADMIN_USER -password WAS_ADMIN_PWD` where `WAS_ADMIN_USER` is the WebSphere administrator ID (normally admin) and `WAS_ADMIN_PWD` is the WebSphere administrator password.

## What to do next

Resolve any issues or errors found and retry the test.

---

## Logging and analyzing usage data

IBM Intelligent Operations Center logs usage data that can then be processed using a usage analysis application.

These logs provide information on session activities such as login, logout, time out, and login failures. The log entries comply with the NCSA combined industry standard.

By analyzing the log entries you can monitor the usage of IBM Intelligent Operations Center.

## Usage analysis logs

IBM Intelligent Operations Center usage records are written to dedicated log files. WebSphere Portal is configured to rotate the logs every six hours. The rotation interval can be customized.

The usage analysis logs can be found on the application server in a standard environment and on application server 1 and application server 2 in a high availability environment. The logs are in the following directory:

```
wp_root/logs/wp_server_name/SiteAnalyzerLogs
```

where *wp\_root* is the WebSphere Portal home directory and *wp\_server\_name* is the WebSphere Portal server name.

Log files are named in the following format: *sa\_CREATE\_TIME\_CLOSE\_TIME.log* where *CREATE\_TIME* is the timestamp when the log was created and *CLOSE\_TIME* is the timestamp when the log was closed. The *CREATE\_TIME* and *CLOSE\_TIME* timestamps are in *YYYY.MM.DD-hh.mm.ss* format; where *YYYY* is year, *MM* is month, *DD* is day, *hh* is hour, *mm* is minutes and *ss* is seconds.

Logging must be enabled to capture usage analysis data. Logging is enabled by default.

### Related information:

 [Enabling site analysis logging in WebSphere Portal](#)

## Running the usage analysis tool

The usage analysis tool processes the usage analytics logs and saves the data for realtime and historical reporting purposes.

### About this task

The tool stores the following analysis information in the *USAGEAN* database in the *SCHUSAG.USAGEDATA* table. The processed logs are stored in the */opt/IBM/WebSphere/usageAnalysis/Archive\_date\_time/logs* directory where *date\_time* is the timestamp when the tool was run.

- *src\_ip* - the source IP address where the WebSphere Portal URL (*req\_url*) request originated.
- *req\_user* - the user who requested the WebSphere Portal URL (*req\_url*).
- *req\_datetime* - the date and time when the WebSphere Portal URL (*req\_url*) was requested.
- *req\_url* - the WebSphere Portal URL that was requested by the user (*req\_user*).
- *cookies* - the cookies that were passed with the WebSphere Portal URL (*req\_url*) request.
- *sa\_filename* - the name of the processed usage analytics log file.
- *p\_server* - the WebSphere Portal server where the usage analytics log file (*sa\_filename*) originated. This information is useful for installations with more than one WebSphere Portal node.
- *created* - the date and time when the entry was created in the database.

The Usage Analysis tool can be configured by changing the following properties in the */opt/IBM/WebSphere/usageAnalysis/runAnalysisTool.sh* file.

- *IS\_DEBUG* can be set to *yes* or *no* indicating whether debug statements are displayed when the Usage Analysis tool is run. The default is *no* indicating that debug statements are not displayed.
- *IS\_FORCE* can be set to *yes* or *no* indicating if a previously processed usage analysis file should be reprocessed. When set to *yes* existing entries in the database are deleted and the log is reprocessed.

To run the usage analytics tool, do the following.

## Procedure

1. In a standard environment, sign on to the application server server as the `ibmadmin` user. If running a high availability environment, sign on to application server 1 and application server 2 in turn and run the following steps.
2. Change to the `was_root/usageAnalysis` directory where `was_root` is the WebSphere Application Server home directory. For example, `/opt/IBM/WebSphere/usageAnalysis`.
3. Run `./runAnalysisTool.sh -h database_server_hostname -p db2inst1_password`  
Where `database_server_hostname` is the host name of the data server or data server 1 and `db2inst1_password` is the password defined by the `DEFAULT.PWD.DB2` in the topology properties file.

## Results

The analysis results are written to the `USAGEAN` database.

---

## Chapter 8. Maintaining the solution

To keep IBM Intelligent Operations Center running smoothly, schedule regular maintenance. Implement a log file maintenance plan, and tune the system to optimize performance.

### Support knowledge base query

The following link starts a customized query of the live Support knowledge base for all versions of IBM Intelligent Operations Center: View all maintenance tips for IBM Intelligent Operations Center.

---

## Backing up and recovering data

Create a plan for periodically backing up and recovering data for your deployment of IBM Intelligent Operations Center. Backing up and recovering data files and databases is an essential operation for any business system, particularly for data and applications that are running in production environments.

### Before you begin

Before you back up IBM Intelligent Operations Center, make the following decisions:

- Decide which utility to use. You can use Tivoli Storage Manager or another backup and recovery utility. Refer to either the Tivoli Storage Manager product documentation, or the documentation for the utility that you choose to use.
- Determine whether you want to do either an offline backup, or an online backup. If you do an offline backup, the IBM Intelligent Operations Center servers are stopped before you run the backup procedure. If you do an online backup, the IBM Intelligent Operations Center servers remain operational while you run the backup procedure. If you choose to do an online backup, ensure that the techniques and tools that you use for the file system and database backup support the capturing of online backups. For example, if an open file or a modified database is encountered during an online backup, ensure that it does not cause the backup to fail.

### Related information:

 [Tivoli Storage Manager product documentation](#)

## Backing up data

Schedule your chosen backup and recovery utility to periodically run an automated backup procedure on the IBM Intelligent Operations Center file system and databases. The frequency of the backups depends on how frequently changes are made to the data, and on how critical the data is.

### Backing up the file system

Periodically run an automated backup procedure on the IBM Intelligent Operations Center directories that are on each server. For complete protection, it is important that you back up all the directories.

### About this task

Back up all the files and subdirectories that are in each specified directory.

**Note:** Do the file system backup at the same time as the database backup.

### Procedure

Schedule your chosen backup utility to periodically back up the specified directories on each server, as indicated in the following table:

Table 52. IBM Intelligent Operations Center directories to back up on each server

| Server             | Directories                                                                                                                                                                                                                                                                 |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application server | /opt/IBM/WebSphere/<br>/opt/IBM/WebSphere_STProxy<br>/opt/IBM/TDI/V7.1/pwd_plugins/pam<br>/opt/IBM/isim/data<br>/opt/IBM/isim/extensions/6.0<br>/opt/IBM/isim/config<br>/opt/IBM/PMT<br>/opt/IBM/ISP<br>/opt/IBM/ioc<br>/local/notesdata<br>/home/ibmadmin<br>/home/ibmuser |
| Web server         | /opt/IBM/HTTPServer/conf<br>/opt/IBM/TDI/V7.1/pwd_plugins/pam<br>/opt/IBM/WebSphere/Plugins<br>/opt/IBM/ISP<br>/home/ibmadmin<br>/home/ibmuser                                                                                                                              |
| Analytics server   | /opt/IBM/WebSphere/<br>/opt/IBM/ISP<br>/opt/IBM/mqsi<br>/opt/IBM/cognos<br>/opt/IBM/ILOG<br>/opt/ibm/ioc<br>/opt/mqm<br>/var/mqm<br>/var/mqsi<br>/home/ibmadmin<br>/home/ibmuser<br>/datahome/proxy/idsslpad-proxy<br>/opt/IBM/TDI/V7.1/pwd_plugins/pam                     |
| Data server        | /datahome/dsrdbm01/idsslpad-dsrdbm01<br>/opt/IBM/ISP<br>/home/ibmadmin<br>/home/ibmuser<br>/opt/IBM/TDI/V7.1/pwd_plugins/pam<br>/opt/IBM/TDI/V7.1/pwd_plugins/tds<br>/opt/IBM/TDI/V7.1/timso1                                                                               |

## Backing up the databases

Periodically run an automated backup procedure on the IBM Intelligent Operations Center databases, including the directory server or user registry. For complete protection, ensure that you back up all the databases.

### About this task

For more information about the tools and processes that are available to back up the databases, see the link at the end of the topic to the DB2 product documentation.

When you back up Tivoli Directory Server, you can either back up database information only, or you can back up complete Tivoli Directory Server instance information. For more information about methods for backing up and restoring Tivoli Directory Server instance information, see the administration guide in the Tivoli Directory Server product documentation.

**Note:** Do the database backups at the same time as the file system backup.



## Procedure

Schedule your chosen backup tool to periodically back up the specified databases for each component in IBM Intelligent Operations Center, as indicated in the following table:

Table 53. Databases to back up in each component

| Component                                     | Database instance | Database                  |
|-----------------------------------------------|-------------------|---------------------------|
| WebSphere Portal Server                       | db2inst1          | CUSTDB                    |
|                                               | db2inst1          | FDBKDB                    |
|                                               | db2inst1          | LKMDDDB                   |
|                                               | db2inst1          | JCRDB                     |
|                                               | db2inst1          | RELDDB                    |
|                                               | db2inst1          | COMMDB                    |
| IBM Business Monitor                          | db2inst1          | MONITOR                   |
|                                               | db2inst1          | WBMDB                     |
| IBM Cognos Business Intelligence              | db2inst1          | CXLOGDB                   |
|                                               | db2inst1          | CXCONTDB                  |
| Usage analysis tool                           | db2inst1          | USAGEAN                   |
| Tivoli Identity Manager                       | db2inst1          | ITIMDB                    |
| IBM Worklight                                 | db2inst1          | WLREPORT                  |
|                                               | db2inst1          | APPCNTR                   |
|                                               | db2inst1          | WRKLGHT                   |
| IBM Intelligent Operations Center application | db2inst2          | IOCDB, IOCME 1.6.0.2 XMDB |
| System verification check tool                | db2inst2          | CATSchDB                  |
| LDAP                                          | dsrdbm01          | LDAPDB                    |

### Related information:

 [IBM Tivoli Directory Server product documentation](#)

 [IBM DB2 Database for Linux, UNIX, and Windows product documentation](#)

## Recovering data from a backup

If data that is either in your IBM Intelligent Operations Center files or in your databases is corrupted or lost, recover data from your backed up files and databases.

### Before you begin

Before you recover data from a backup, prepare your target environment. You must install an instance of IBM Intelligent Operations Center that you can use as the restoration target for your recovered files and databases. For information about installing an instance of IBM Intelligent Operations Center, see the link at the end of the topic to the installing and configuring section.

### About this task

Note the following points that relate to recovering databases:

- If you restore databases, you must also restore the data files that were archived when the backup image was taken.

- When you restore databases, ensure that databases are restored for a period that ends at the time when you completed the file system backup. Otherwise, the configuration files and the data files might not be synchronized with the information that is in the databases.
- If you are recovering data in a high availability environment, you must configure the DB2 high availability disaster recovery again after you restore the databases. For more information about configuring DB2 high availability disaster recovery, see the DB2 product documentation.

## Procedure

1. To stop all the IBM Intelligent Operations Center servers, run the IOCControl script that is in the platform control tool:
  - a. Locate the IOCControl script in the /opt/IBM/ISP/mgmt/scripts directory that is on the Analytics server.
  - b. Log on as user ibmadmin.
  - c. Run the IOCControl script with the appropriate options:
    - In a standard environment, enter the following command:
 

```
./IOCControl -a stop -c all -p password
```
    - In a high availability environment, enter the following command:
 

```
./IOCControl -a 091 -p password
```
2. To start the database servers, run the IOCControl script with the appropriate options:
  - In a standard environment, enter the following commands:
 

```
./IOCControl -a start -c db24mid -p password
./IOCControl -a start -c db24app -p password
```
  - In a high availability environment, enter the following commands:
 

```
./IOCControl -a 141 -p password
./IOCControl -a 151 -p password
```
3. Delete the files and directories that are listed in the table in the *Backing up the file system* topic. See the link at the end of the topic.
4. Restore the backed up files and directories that are listed in the table in the *Backing up the file system* topic. See the link at the end of the topic.
5. Restore the backed up databases.
6. To start all the IBM Intelligent Operations Center servers, run the IOCControl script:
  - a. Locate the IOCControl script in the /opt/IBM/ISP/mgmt/scripts directory that is on the Analytics server.
  - b. Log on as user ibmadmin.
  - c. Run the IOCControl script with the appropriate options:
    - In a standard environment, enter the following command:
 

```
./IOCControl -a start -c all -p password
```
    - In a high availability environment, enter the following command:
 

```
./IOCControl -a 001 -p password
```

### Related concepts:

Chapter 2, “Installing the solution,” on page 21

IBM Intelligent Operations Center provides installation options to install the IBM Intelligent Operations Center environment and application. After installing IBM Intelligent Operations Center, some additional configuration is required.

### Related information:

 [IBM DB2 Database for Linux, UNIX, and Windows product documentation](#)

---

## Log file maintenance

IBM Intelligent Operations Center stores log files in several different locations. To prevent system outages, periodically back up the database, archive log files, and remove the original log files.

IBM Intelligent Operations Center uses DB2 databases to store the information that is displayed in the user interface, in reports, in KPIs, and through APIs. As the data arrives in IBM Intelligent Operations Center, DB2 records information in logs that ensure transaction consistency and the ability to recover from system failures. As the volume of data increases in IBM Intelligent Operations Center, the number of log files increases significantly.

Monitor the amount of disk space that is required for log files. The amount of disk space that is required depends on the size of your scheduled data loads. If you do not manage log files, eventually the log files can fill up a file system partition and space for active logs becomes unavailable. The negative consequences are that many basic features in IBM Intelligent Operations Center do not work correctly. The approach that you take to managing log files depends on your approach to backing up and recovering data in IBM Intelligent Operations Center.

You can use a combination of the following methods. The method that you choose depends on the characteristics of each data source. Variations in the methods include turning off logging for the initial loads, or implementing circular logs that overwrite old records. These methods prevent out of space errors but prohibit recoverability to the last transaction. For more information, go to the link at the end of the topic for the *IBM DB2 10.1 Data Recovery and High Availability Guide and Reference* and see the section about storage considerations for recovery.

### Logging turned off

If data can be easily reproduced from an external system of record, turn off logging completely. Turning off logging saves space and also improves load performance significantly. You can recover from a failure by reloading the data from the external system of record. Because you must load all the history that is required, this method can take a long time if the data volumes are large.

### Logging turned off and backups implemented daily

If you cannot easily reproduce the data for more than a single day and it is acceptable to reload some data, turn off logging and implement daily backups. You can recover from a failure by restoring the backup from the previous day and by reloading the activity for today. Backups can be either standard DB2 backups, or virtual machine snapshots. This method saves space and improves performance, and is the most suitable method for standard IBM Intelligent Operations Center data sources that are populated by using either an extract, transform, and load (ETL) process, or by using exports.

### Logging turned on

If you require data recovery up to the last transaction and you do not want to reload data from the external system of record, then you must determine the amount of space that is necessary to handle active logs and backups. It is critical that you implement either regular full backups, or regular incremental backups, or a combination of regular full and incremental backups so that you can reclaim space for active log files. The following steps outline a sample backup process, where each backup step is done after an appropriate period:

1. Load initial data.
2. Implement a full database backup, backup\_1.
3. Load scheduled data that creates corresponding logs `activelog_1` and `activelog_2`.
4. Implement an incremental database backup, backup\_2.
5. Either archive, or delete, `activelog_1`, and `activelog_2`.

6. Load scheduled data that creates corresponding logs `activelog_3` and `activelog_4`.
7. Implement an incremental database backup, `backup_3`.
8. Either archive, or delete, `activelog_3`, and `activelog_4`.
9. Load scheduled data that creates corresponding logs `activelog_5` and `activelog_6`.
10. Implement a full database backup, `backup_4`.

As an example, if you need to recover data after a failure that occurs just after step 6 above, you can recover the data as shown in the following steps:

1. Restore the full database backup, `backup_1`.
2. Restore the incremental database backup, `backup_2`.
3. Apply the active logs `activelog_3` and `activelog_4`.

**Related information:**

 [IBM DB2 10.1 Data Recovery and High Availability Guide and Reference](#)

---

## Tuning performance

The following sections describe how to tune the application server and WebSphere Application Server.

**Related information:**

 [WebSphere Application Server product documentation](#)

## Tuning the application server

### About this task

Use the following guidelines, which are based on the results of performance tests, to set the Java virtual machine heap size.

### Procedure

1. Set the minimum and maximum heap sizes to the same values.
2. Set the heap size to a value that is compatible with the physical memory and that is above 2 GB.

### What to do next

For more information, see the related link.

## Tuning WebSphere Application Server

For information about tuning the performance of WebSphere Application Server Version 8, see the related link.

---

## Configuring DB2 performance monitoring data collection

To enable performance monitoring of the DB2 instance and databases, configure DB2 to collect data that is related to each DB2 monitor switch. Turn on the monitor switches to enable the database instances to be monitored by using the DB2 monitor routines.

### About this task

Use the following procedure to set the values of the relevant DB2 performance monitor switches to ON. Do the procedure on both `db2inst1` and `db2inst2`.

## Procedure

1. On the data server, log on as the DB2 instance owner for db2inst1.
2. Enter the following commands.

**Note:** Enter the db2 update command on one line as a single command.

```
db2 attach to db2inst1
```

```
db2 update dbm cfg using DFT_MON_BUFPOOL ON DFT_MON_LOCK ON DFT_MON_SORT ON
DFT_MON_STMT ON DFT_MON_TABLE ON DFT_MON_TIMESTAMP ON DFT_MON_UOW ON
HEALTH_MON OFF
```

```
db2stop
```

```
db2start
```

3. Repeat the previous steps but replace db2inst1 with db2inst2.

## What to do next

To check the DB2 performance monitor switch settings, complete the following steps on both db2inst1 and db2inst2:

1. On the data server, log on as the DB2 instance owner for db2inst1.
2. Enter the following command:  

```
db2 get dbm cfg |grep _MON
```
3. Repeat the previous steps but replace db2inst1 with db2inst2.

---

## Modifying the topology password

The topology password is used during the installation process to encrypt and access the file defining the solution topology. The password is created during the installation process when a keystore is created. If required, the password can be changed by deleting the keystore and specifying a new topology password.

### About this task

On the installation server, go to the directory where the IBM Intelligent Operations Center installation package was copied. In these steps, this directory is referred to as *install\_home*.

## Procedure

1. Log on as root or switch to the root account by running the **su -** command.
2. Change to the *install\_home/ioc16* directory.
3. Delete the *install\_home/ioc16/resource/ioc.keystore* file.
4. Run the **./iop.std.install.sh -p topology\_password 3** command for a standard environment or the **./iop.ha.install.sh -p topology\_password 3** command for a high availability environment where *topology\_password* is the password to be created for the topology.
5. Make a note of the password for future use.

**Important:** The topology password is needed when running the password management tool and platform control tool.

---

## Updating the LTPA token for single sign-on

IBM Intelligent Operations Center uses a Lightweight Third-Party Authentication (LTPA) token to enable single sign-on across many services. The token and keys generated during installation do not expire. It is a good security practice to periodically regenerate the LTPA token and update the services using it.

## Before you begin

The IBM Intelligent Operations Center product must be installed and all services started before updating the LTPA token.

This procedure requires that all services are stopped and started, so the update should not be done while the system is in production. Any users logged into the system will experience a service disruption and can lose data.

## Procedure

Generate a new LTPA token for the application server

1. On the application server open a web browser and go to `http://application_host:9061/ibm/console` where *application\_host* is the host name of the application server.
2. Log on as the admin user with the password specified in the topology properties file `WAS.ADMIN.ACCOUNT.PWD` parameter.
3. Click **Security > Global Security > LTPA**.
4. Enter a password twice for the new LTPA token. The password is used to encrypt the LTPA token. This password will be used when importing the LTPA token. Record the password as the `WAS.LTPA.PWD` parameter in the topology properties file.
5. Enter the path and filename where the LTPA token will be saved, for example, `/tmp/newapp.ltpa`. If you specify a different path or file name, substitute your path and filename for `/tmp/newapp.ltpa` in the rest of these steps.
6. Click **Export Keys**. The new LTPA token is saved as `/tmp/newapp.ltpa`.
7. Click **Messages > Save**. Updates will be saved. Ignore any warnings about the single sign-on domain not being defined.
8. On the application server, log on as the root user and open a terminal window.
9. Run the `cp /tmp/newapp.ltpa /opt/IBM/ISP/stproxy.ltpa` command. This replaces the file that was created when IBM Intelligent Operations Center was installed.

Update single sign-on for the collaboration service.

10. Follow the steps in “Configuring single sign-on for collaboration services” on page 69 to update single sign-on for the collaboration service.

Stop and restart all services.

11. Using the platform control tool stop all services.
12. Using the platform control tool start all services. LTPA tokens will be propagated between WebSphere Application Server and the Lotus Domino server.

---

## Setting the session timeout

The session timeout determines the time a user can remain idle before the session is terminated and the user must log in again. The session time out includes administrators logged in through the portal service.

### About this task

When IBM Intelligent Operations Center is installed, no session time out is defined. Users will stay logged in until they log out even if the session is idle.

If your organization has security policies requiring that sessions log out after a period of inactivity, use the following steps to define a session timeout for your IBM Intelligent Operations Center system.

## Procedure

Configure server timeouts.

1. Using a web browser go to `http://application_server:9061/ibm/console` where *application\_server* is the host name of the application server in a standard environment and application server 1 in a high availability environment.
  2. Log on as the admin user with the password defined for `PORTAL.ADMIN.ACCOUNT.PWD` in the topology properties file.
  3. Click **Servers > Server Type > WebSphere Application Servers > WebSphere Portal**.
  4. Click **Container Settings > Session management > Set Timeout**.
  5. Enter the desired timeout value in minutes.
  6. Click **OK**.
  7. Click **Save**.
  8. Click **Servers > Server Type > WebSphere Application Servers > STProxyServer1**.
  9. Click **Container Settings > Session management > Set Timeout**.
  10. Enter the desired timeout value in minutes.
  11. Click **OK**.
  12. Click **Save**.
  13. Click **Servers > Server Type > WebSphere Application Servers > CongnosX\_GW1**.
  14. Click **Container Settings > Session management > Set Timeout**.
  15. Enter the desired timeout value in minutes.
  16. Click **OK**.
  17. Click **Save**.
  18. Click **Servers > Server Type > WebSphere Application Servers > CongnosX\_Dispatch1**.
  19. Click **Container Settings > Session management > Set Timeout**.
  20. Enter the desired timeout value in minutes.
  21. Click **OK**.
  22. Click **Save**.
- If running in a high availability environment, configure the following additional servers.
23. Click **Servers > Server Type > WebSphere Application Servers > CongnosX\_Dispatch2**.
  24. Click **Container Settings > Session management > Set Timeout**.
  25. Enter the desired timeout value in minutes.
  26. Click **OK**.
  27. Click **Save**.
  28. Click **Servers > Server Type > WebSphere Application Servers > CongnosX\_GW2**.
  29. Click **Container Settings > Session management > Set Timeout**.
  30. Enter the desired timeout value in minutes.
  31. Click **OK**.
  32. Click **Save**.
  33. Click **Servers > Server Type > WebSphere Application Servers > WebSphere\_Portal\_PortalNode2**.
  34. Click **Container Settings > Session management > Set Timeout**.
  35. Enter the desired timeout value in minutes.
  36. Click **OK**.
  37. Click **Save**.
- Set the Cognos inactivity timeout.
38. Log on to the analytics server in the standard environment and both analytics server 1 and analytics server 2 in the high availability environment as the root user.
  39. Run `/opt/IBM/cognos/c10_64/bin64/cogconfig.sh`
  40. Click **Security > Authentication**.

41. Specify the desired timeout value in seconds for **Inactivity timeout in seconds**.
42. Click **File > Save**.
43. Repeat for the second analytics server in the high availability environment.  
Restart the server.
44. Stop and restart the application and analytic components using the platform control tool.



---

## Chapter 9. Viewing, filtering, and analyzing data

Use the IBM Intelligent Operations Center status views and operations views to view your data either on maps, or in a list. You can set filter criteria to determine what data is displayed. Analyze your data either in reports, by viewing KPIs, or by analyzing data hotspots. In the My Activities window, you can manage activities that have been assigned to you through standard operating procedures.

IBM Intelligent Operations Center is a web-based solution that uses portal technology. You can access the solution with any of the supported web browsers.

### Related information:

 Supported browsers for the IBM Intelligent Operations Center

---

### Sample user views

IBM Intelligent Operations Center provides sample operations and status views for supervisor, operator, and executive users. Use the views to access the information that you need and respond to events as required. There are also administration views.

The menus that are listed in the following table are displayed near the top of every view:

*Table 54. Menus that are displayed in every view*

| Menu          | Description                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Notifications | The Notifications window displays a dynamic list of notifications and their details.                                                                                                                                                                                                                                                                                                                              |
| My Activities | The My Activities window displays a dynamic list of activities that are associated with active instances of standard operating procedures.                                                                                                                                                                                                                                                                        |
| Contacts      | The Contacts window can display a list of your contacts that are organized by category. You can organize contacts in categories that are based on the people you want to communicate with; for example, you can have a category for general work contacts, and another category for project work contacts. You can send instant messages within the solution, and modify your online status, contacts, or groups. |
| More Actions  | <b>More Actions</b> is a context-sensitive menu. The options that are displayed relate to the panel that is in focus.                                                                                                                                                                                                                                                                                             |
| Help          | The <b>Help</b> menu is denoted by a question mark icon. It is a context-sensitive menu that contains links to local product documentation. The links are relevant to the panels and menu options that are currently displayed in the view. The menu also contains a link to the online complete product documentation, which is labeled <b>Online Full Help</b> .                                                |

The following topics outline the panels that are displayed in each of the views.

### Related tasks:

“Creating or customizing a page” on page 173

If you are an administrator, you can create new pages to be included in IBM Intelligent Operations Center, and specify what content to display on those pages. You can customize the appearance and layout

of the content that is included on each page.

## Operations with maps

Use the operations views to maintain awareness and obtain an overview of data updates that are associated with location. Each operations view is an interactive web page that consists of independent elements that cooperate with each other to provide comprehensive information and interaction for the user.

The data that is available in the view depends on the access permission that is assigned to the user. A group of users in an organization is assigned a set of permissions. Members of the group can see only the data that is appropriate to their job role.

Select the required view from the **Citywide** menu on the top menu bar. The views that are available to a user depend on the access permission that is assigned to the user. Each group of users can see only those pages that are appropriate to the job role that is associated with that group. The operations views that are provided are outlined in the following table.

*Table 55. Operations views*

| Views                  | Description                                                                                                                                                                                                                    |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supervisor: Operations | Use the Supervisor: Operations view to obtain an overview of current data. The Supervisor: Operations view is intended for supervisors and managers who are monitoring current data and anticipating future issues.            |
| Operator: Operations   | Use the Operator: Operations view to maintain awareness of current data items and their location. The Operator: Operations view is intended for operators, managers, or others who are monitoring and responding to data.      |
| Executive: Operations  | Use the Executive: Operations to obtain a consolidated view of current data. The Executive: Operations enables users with cross-organization responsibility to manage and respond to changes in relation to data and location. |

The operations views contain the following panels:

### Filter panel

In the appropriate operations view, use the filter panel to define what data is displayed in the content panel.

### Content panel

In the content panel of the operations view, you can view data on a geospatial map, on a location map, or in list format.

### Supporting content panel

In the supporting content panel, you can view reports of events as graphs, tables, or pie charts.

## Status with KPIs

Use the status views to obtain a consolidated view of key performance indicators (KPIs) that highlight key data. Users can monitor, manage, and respond to status changes in relation to the key areas of organizational performance.

The KPIs that are available in the view depend on the access permission that is assigned to the user. A group of users in an organization is assigned a set of permissions. Members of the group can see only those KPIs that are appropriate to their job.

Select the required view from the **Citywide** menu on the top menu bar. The view that is available to a user depends on the access permission that is assigned to the user. Each group of users can see only those pages that are appropriate to the job role that is associated with that group. The status views that are provided are outlined in the following table.

*Table 56. Status views*

| Views              | Description                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supervisor: Status | Use the Supervisor: Status view to see the status of selected KPIs for the organization that you are supervising. The Supervisor: Status view is intended for supervisors who are monitoring KPIs that are associated with day-to-day operations.                                                                                                                                 |
| Executive: Status  | Use the Executive: Status view to see all KPIs for a single organization or across multiple organizations that you are managing. See recent changes in the KPI status so that you can plan and direct operations as necessary. The Executive: Status view is intended to provide an executive-level summary of the status of KPIs across the organizations that you are managing. |

The status views contain the following elements:

#### Navigation tree

In the status views, use the navigation panel to define the data that is displayed in the content panel.

#### Content panel

In the content panel of the status view, you can view the highest level KPIs, or drill down to view underlying KPIs as required.

## Area status with KPIs

1.6.0.1

1.6.0.2

Use the area status views to obtain a view of key performance indicators (KPIs) that highlights key data for specific named areas. Users can monitor, manage, and respond to status changes in relation to organizational performance in specific areas of the map.

The KPIs that are available in the view depend on the access permission that is assigned to you and on the named areas that you select. A group of users in an organization is assigned a set of permissions. Members of the group can see only those KPIs that are appropriate to their job.

Select the required view from the **Citywide** menu on the top menu bar. The view that is available to a user depends on the access permission that is assigned to the user. Each group of users can see only those pages that are appropriate to the job role that is associated with that group. The sample area status views that are provided are outlined in the following table.

*Table 57. Area status views*

| Views                   | Description                                                                                                                                                                                                                                                                                |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supervisor: Area Status | Use the Supervisor: Area Status view to see the status of selected KPIs for the organization in the areas that you are supervising. The Supervisor: Area Status view is intended for supervisors who are monitoring KPIs that are associated with day-to-day operations in specific areas. |

Table 57. Area status views (continued)

| Views                  | Description                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Executive: Area Status | Use the Executive: Area Status view to see the KPIs for the organizations and areas that you are managing. See recent changes in the KPI status so that you can plan and direct operations as necessary. The Executive: Area Status view is intended to provide an executive-level summary of the status of KPIs across the organizations and in the areas that you are managing. |

The area status views contain the following elements:

### Map and list panel

In the area status views, use the map and list panel to define the data that is displayed in the content panel. You can use the Map or List tab to select the named areas you want to focus on. The selected named areas define the data that is displayed in the content panel.

### Content panel

In the content panel of the status view, you can view the highest level KPIs, or drill down to view underlying KPIs as required.

## Map

Select one or more data sources from the list in the **Select named area data sources** field at the top of the map and list panel. All the named areas for all the data sources are shown on the map. Highlight a named area shape on the map to have the relevant KPIs displayed on the content panel.

## List

Select one or more data sources from the list in the **Select named area data sources** field at the top of the map and list panel. All the named areas for all the data sources that are selected are shown on the list. In the **View data source** field, you can select a specific data source to see only the named areas that are associated with that data source displayed on the list. Click a named area row on the table to have the relevant KPIs displayed on the content panel.

For more general information about the map and list tabs, see the link at the end of the topic. For more detailed information about viewing the KPIs, see the link at the end of the topic.

**Administrator** For more information about configuring KPIs for named areas, see the links at the end of the topic.

### Related concepts:

“Viewing data on the maps and list” on page 369

In the content panel of the operations view, you can view data on a geospatial map, on a location map, or in list format.

“Monitoring status through KPIs” on page 384

Use the status view to see the status of key performance indicators (KPIs) in summary or in detail format.

“Configuring KPIs” on page 120

In the Solution Administration view, you can configure Key Performance Indicators (KPIs) and their hierarchical display in the user interface. The KPIs are displayed on the status views in IBM Intelligent Operations Center.

“Configuring a data source” on page 99

Use the Data Sources tool to configure a data source that supplies data to IBM Intelligent Operations Center.

---




## Administration and configuration views

Use the administration views to manage and configure IBM Intelligent Operations Center.

### Solution Administration

In the Solution Administration view, you can view product version details, access administration consoles, run system verification checks, and administer system properties. You can also configure the components.

You can configure the following components:

- Data sources
- Filter panel
- Geospatial map
- Key performance indicators
- Location maps
- Standard operating procedures
-   Hotspots
-  User interface components

To access the Solution Administration view, from the **Administration** menu at the top of the view, click **Solution Administration**.

### Portal Administration

Use the Portal Administration view to manage, maintain, and operate the content of the IBM Intelligent Operations Center interface, and to assign who can access the different features of the interface.

To access the Portal Administration view, from the **Administration** menu at the top of the view, select Portal Administration.

#### Related concepts:

Chapter 3, “Securing the solution,” on page 89

Security is important within the IBM Intelligent Operations Center because the solution is central to essential operations. To ensure security, it is important that you are aware of the default settings and that you manage users of the solution to give all users the correct level of access.

“Customizing the user interface” on page 173

You can customize elements of the IBM Intelligent Operations Center user interface to suit your operation.

---

## Viewing data on the maps and list

In the content panel of the operations view, you can view data on a geospatial map, on a location map, or in list format.

**Note:** On a geospatial map the world view icon works as described in the “Controlling the map” topic. On a location map, when you click the world view icon, the default view of the location map is displayed.

#### Related concepts:

“What’s new for the user” on page 8

In IBM Intelligent Operations Center 1.6, you can use the new filter panel to filter the data that is displayed on a map, or in reports.

### Controlling the map

You can move the cursor around the map by using your mouse or keyboard.

## Controls at the top of the map

The following controls are available at the top of the map:

- Pan arrows (up, down, left, right)
- Zoom in
- World view (zooms out to the maximum extent)
- Zoom out

## Controls for moving around the map

To move around the map, you can use the following controls:

- Click and drag the map by using the mouse
- Press the up pan arrow, or the up arrow key on the keyboard, to pan north
- Press the down pan arrow, or the down arrow key on the keyboard, to pan south
- Press the right pan arrow, or the right arrow key on the keyboard, to pan east
- Press the left pan arrow, or the left arrow key on the keyboard, to pan west

## Zoom controls for magnifying or reducing the scale of the map

To zoom in and out of the map, you can use the following controls:

- Click the + map icon to zoom in, or the - map icon to zoom out of the center of the map
- Double-click the selected location to center the map and zoom in to that location
- Click the **World view** icon to maximize the zoom out to show the world view
- Press the + key on the keyboard to zoom in
- Press the - key on the keyboard to zoom out
- Press Shift while you use the mouse to draw a rectangle around the area to zoom in on

### Related tasks:

“Setting the map center and zoom” on page 118

As an administrator, you can set the center point coordinates and the zoom level of any geospatial base map in the solution.

## Map tab

Use the Map tab to see current information that is represented on a geospatial map. You can obtain information from data items marked on the map. Select your data sources on the filter panel and your base map from the list of maps available in the solution.

The Map tab provides you with a visual representation of data items associated with their relevant positions on the map. Using information that is displayed on the Map together with Location Map, and List tabs, you can identify issues, resources, location patterns, conflicts, and synergies. You can easily keep up with rapidly changing situations, accessing relevant data sources and data feeds.

The Map, Location Map, and List tabs are linked together to share input and changes to the data items displayed. You can set filters on the filter panel for the data items you want to see. This setting controls which data items are displayed on the Map, Location Map, and List tabs. On the List tab, you can see the name of the selected data source and all its current data items listed with their properties.

## Map tab elements

The Map tab has two interactive interface elements as shown in the following table.

Table 58. Map interface elements

| Interface element        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Geospatial map           | The selected base map is displayed with markers that indicate where data items and detailed location maps exist.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>More Actions</b> menu | <p>A menu of actions that is associated with the map:</p> <p><b>New item</b><br/>Add a data item to the map at that position, for more information about adding a data item, see the link at the end of the topic.</p> <p><b>Reset map</b><br/>Return to the default base map for the solution. Reset the map to override your center point and zoom level with the default settings.</p> <p><b>1.6.0.2 Upload CSV</b><br/>If you have read and write permission for the selected data source, upload a CSV file that supplies data for the selected data source. An administrator configures user permissions on the <b>Security</b> tab of the data sources tool.</p> <p><b>Base maps</b><br/>Display an alternative base map, select the required map from the list of available maps.</p> |

**Note:** When you log on to the system for the first time, the map center point and zoom level is set to the default. Subsequently, when you log on to the system, the center point and zoom level is retrieved from your previous session. If the default map settings are changed by an administrator, reset the map to see the new default settings.

The map is updated with data items in relation to positions on the map, subject to settings on the filter panel. Settings on the filter panel control which data sources are used and which data items are displayed.

Where more detailed location maps are available, the location is indicated on the map. Location maps can be viewed on the Location Map tab.

**Note:** **Administrator** A data item must have latitude and longitude coordinates to be shown on the Map tab. If a data item has an area name, it is displayed on the Location Map tab only.

## Map markers

The position on the map of data items or location maps is indicated with markers as shown in the following table.

Table 59. Map markers

| Marker Type       | Description                                                                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Single-point icon | An icon marker indicates a point location on the map that is associated with a data item, with a unique icon picture to represent each data source. |
| Polygon           | A shape outlines on the map the area that is associated with a data item.                                                                           |
| Line              | A line segment or a set of lines outlines on the map the lines that are associated with a data item.                                                |

Table 59. Map markers (continued)

| Marker Type  | Description                                                                                                                                                                                                                                                                                        |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multi-point  | A single data item can be associated with more than one point on the map. A multi-point data item is represented by the same marker at more than one location. When you select one of these markers, the other icons that are associated with the data item are also highlighted at the same time. |
| Location map | Location map marker indicates for that position on the map a collection of one or more location maps are available on the Location Map tab                                                                                                                                                         |

To display details for a single data item, click the marker on the map. The preview card initially displays minimal and key properties. Depending on the data source, you can click for more information and actions that are associated with an item. You can update a data item if the data source is designed to allow an update.

To display detail for a collection of location maps, click the marker on the map. The preview card initially displays the number of location maps and the number of items that are associated with those maps. To view a map on the Location Map tab, click **More Actions** and click the map name.

**Administrator** If you have administration access, you can go to the Solution Administration view to configure what is shown on this tab.

#### Related concepts:

“Configuring geospatial maps” on page 117

In the Solution Administration view, you can configure the maps that are available to the user, the initial map center point, and the map zoom level.

## Adding a point data item

Create a data item that is associated with a point on the map. The data item is added to the Map and List tabs at the same time.

### About this task

Select a data source and a position on the map for the new data item. Then, enter values of the properties that are relevant to the data source and the item you want to add to the map.

**Note:** It is possible to add a data item that is not covered by your current filter panel setting. In that case, the item is added to the solution, but it is not displayed on the map or list unless the filter panel is changed to include it.

### Procedure

1. In the operations view, on the action bar at the top of the view, click **More Actions > New Item**. The **New Item** window is displayed.
2. Select a data source from the data item type drop-down list to see all of the associated geometries or markers. The data sources that are available for selection are those data sources that are associated with each particular filter panel.
3. Drag your selected geometry type or marker to the map in the location that you want for your new data item. The **Add New Item** window is displayed. **1.6.0.2** Select the marker type from the available geometries that are displayed. If you draw multiple points on the map, click **Done Drawing** when you have finished drawing all of the points.
4. Complete the appropriate fields for the properties of the data item. Properties that are marked with an asterisk are required for the successful creation of the new item. Those properties that are not marked with an asterisk are optional.



The location field is always completed automatically with the word 'Point' and the latitude and longitude coordinates of the position on the map. Depending on the data source configuration, other properties of the new data item can be completed automatically. [1.6.0.2](#) If the solution is configured with a geocoding provider, you can complete the location field with a street name. Also, if you add an item using the List tab, WKT (Well-known text) is the required format for entering the latitude and longitude coordinates. Enter the latitude and longitude coordinates in longitude-latitude order in the interface.

5. To add the item or items to the map, click **Save**.

## Results

An icon that represents the data source of the new item is displayed in the position on the map. You can view the details of the new item on a preview card from the Map, or on the List tab.

### Note:

[1.6.0.1](#) [1.6.0.2](#) To create a new data item that is represented by an area or a line on the geospatial map, see the link at the end of the topic.

Data items that are represented by lines, or other multi-point formats can be added to the map only when received from the data source as a result of polling. Location map markers can be added to the geospatial map as a result of configuration in the Location Map configuration tool.

### Related tasks:

[1.6.0.1](#) [1.6.0.2](#) “Adding an area or a line data item”

You can create a data item that is associated with an area on a geospatial map and added to a data source. The data item is added to the Map and List tabs at the same time.

## Adding an area or a line data item

[1.6.0.1](#) [1.6.0.2](#)

You can create a data item that is associated with an area on a geospatial map and added to a data source. The data item is added to the Map and List tabs at the same time.

## About this task

Select a data source and a start position on the map to associate with your new data item. Then, draw the shape to represent the area on the map and enter values of the properties that are relevant to an item for the data source.

**Note:** It is possible to add a data item that is not covered by your current filter panel settings. In that case, the item is added to the solution, but it is not displayed on the map or list unless the filter panel settings are changed to include it.

## Procedure

1. In the operations view, on the action bar at the top of the view, click **More Actions > New Item**. The New Item window is displayed.
2. Select a data source from the data item type drop-down list to see all of the associated geometries or markers. The data sources that are available for selection are those data sources that are associated with each particular filter panel.
3. Drag your selected geometry type or marker to the map in the location that you want for your new data item.
4. You can create a data item that is associated with an area or a line that you draw on the map, and then the data item is added to a data source.

- To draw an area on the map, click the required start position on the map and then click each corner of a polygon to draw your shape on the map. Double-click to finish the polygon. A new area is displayed on the map.
- **1.6.0.2** If you are drawing a line, multi-line or multi-polygon, select the drawing tool from the available geometries that are displayed, and click the required start position on the map. Double-click to finish drawing a line, or a line in a multi-line, or a polygon in a multi-polygon. If you draw a multi-line or multi-polygon on the map, click **Done Drawing** when you have finished drawing.

The **Add New Item** window is displayed.

5. Complete the appropriate fields for the properties of the data item. Properties that are marked with an asterisk are required for the successful creation of the new item. Those properties not marked with an asterisk are optional.

The location field is always completed automatically with the word 'Polygon' and the latitude and longitude coordinates of the positions that represent the area shape on the map. Depending on the data source configuration, other properties of the new data item can be completed automatically.

6. To add the item or items to the map, click **Save**.

## Results

A shape that represents the area of the new item is displayed on the map. You can view the details of the new item on a preview card from the Map tab, or from a row on the List tab. If a data source is configured as data for boundary, the new area name is available for selection on the boundary pane of the filter panel.

**Note:** To create a new data item that is represented by a point position on the geospatial map, see the link at the end of topic. Data items that are represented by lines, or other multi-point shapes, can be added to the map only when received from a data source as a result of polling. Location map markers are added to the geospatial map as a result of configuration in the Location Map configuration tool.

### Related tasks:

“Adding a point data item” on page 372

Create a data item that is associated with a point on the map. The data item is added to the Map and List tabs at the same time.

## Viewing KML overlays

**1.6.0.2**

If an administrator configures one or more KML overlays for the map, the **Map Overlays** pane is displayed in the filter panel. A KML overlay contains extra information about data items that can be displayed on the map, for example, locations and icons.

### Before you begin

To update the data items that are displayed on the map through the KML overlay, an administrator must update the KML overlay file.

### About this task

As an example, a KML overlay might contain a pipe map for a city. If you select the KML overlay for the pipe map, it is displayed on top of the map as if it is part of the map.

### Procedure

- To display a KML overlay on the map, in the **Map Overlays** pane in the filter panel, select the KML overlay that you want to display.

- If an administrator updates the data that is contained in a KML overlay file, refresh the browser to see the updates.

**Related tasks:**

“Adding KML overlays” on page 119

A KML file contains layers and collections of features that you can add onto an IBM Intelligent Operations Center map. If you have data in XML format, you can use the KML schema to add features onto a map without requiring a data source. As an administrator, you can add KML overlays to base maps.

## Location Map tab

Use the Location Map tab to obtain current information about what is happening at a specific location. You can obtain information from data items marked on the location map. Select your data sources on the filter panel and your location map from the list of maps available in the solution. A location map in IBM Intelligent Operations Center is a map, diagram, or plan with predefined areas for interaction, for example, seating areas in a major sports stadium.

The Location Map tab provides you with a visual representation of data items that are associated with the relevant areas on a location map. Using information that is displayed on the Location Map together with Map, and List tabs, you can identify issues, resources, location patterns, conflicts, and synergies. You can easily keep up with rapidly changing situations, accessing the relevant data sources and data feeds.

The Map, Location Map, and List tabs are linked together to share input and changes to the data items displayed. You can set filters on the filter panel for the data items you want to see. This setting controls which data items are displayed on the Map, Location Map, and List tabs. On the List tab, you can see the name of the selected data source and all its current data items listed with their properties.

## Location Map tab elements

The Location Map tab has three interactive interface elements as shown in the following table:

*Table 60. Location Map interface elements*

| Interface element        | Description                                                                                                                                                                                                       |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Map menu                 | An alphabetical list of the available location maps that are organized by collection and by category                                                                                                              |
| Location map             | The selected location map that is divided into interactive areas, which contain markers to indicate where data items exist                                                                                        |
| <b>More Actions</b> menu | A menu of actions that is associated with the map:<br><br><b>New item</b><br>To add a data item to the map at that position, for more information about adding an data item, see the link at the end of the topic |

In the map menu, a collection consists of one or more location maps, and a category consists of one or more collections of maps. A collection usually represents a specific location or building, and is also assigned a position for display on a geospatial map. A category is assigned an appropriate name, which makes it easier for you to find the collection you are looking for.

The map is updated with data items in relation to areas on the map, subject to settings you select on the filter panel. Settings on the filter panel control which data sources are used and which data items are displayed.

**Note:** **Administrator** A data item must have latitude and longitude coordinates to be shown on the Map tab. If a data item has an area name, it is displayed on the Location Map tab only.

## Location map markers

The following types of marker represent the position of data items on the location map:

Table 61. Location map markers

| Marker Type | Description                                                                                                                              |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Icon        | Indicates the occurrence of a data item in an area with a unique icon to represent each data source                                      |
| Cluster     | Indicates the occurrence of more than one data item in the same area with a number that represents the number of data items in that area |

To display details for a single data item, click the marker on the map. The preview card initially displays minimal and key properties. Depending on the data source, you can click for more information and actions that are associated with an item. You can update a data item if the data source is designed to allow an update.

If more than one data item occurs in the same area, the items are represented by a cluster marker. When you click this marker, the names of the data items are displayed. You can then display details of an individual data item by clicking that item. When you highlight a cluster marker, it changes color.

**Administrator** If you have administration access, you can go to the Solution Administration view to configure what is shown on this tab.

### Related concepts:

“Configuring location maps” on page 132

In the System Administration view, you can customize location maps for display on the Location Map tab. The Location Map tab is part of the content panel on the operations views.

## Adding a data item to the location map

You can create a data item that is associated with an area on a location map and added to a data source. The data item is added to the Location Map and List tabs at the same time.

### About this task

Select an area on the map and a data source to associate with your new data item. Then, enter details of the properties that are relevant to the data source and the item you want to add to the map.

**Note:** It is possible to add a data item that is not covered by your current filter panel selection. In that case, the item is added to the solution, but it is not displayed on the map or list. To display the item, change the filter panel selection to include it.

### Procedure

1. Click **More Actions** > **New Item**. The **New Item** window is displayed.
2. Select a map marker from the palette that represents the available data sources for location maps. The data sources that are available for selection are those data sources that are configured to display on a location map.
3. Drag the marker onto the map in the position you want to specify for your new data item. The **Add New Item** window is displayed.
4. Complete the appropriate fields for the properties of the data item. Properties marked with an asterisk are required for the successful creation of the new item. Those properties not marked with an asterisk are optional. The location field is completed automatically for the location map collection with the latitude and longitude of the position on the geospatial map. The area name field is completed automatically with the name of the area on the location map. Depending on the data source, other properties of the new data item can be completed automatically.

5. Click **Save** to save the item, or **Close** to stop adding the item.

## Results

An icon that represents the data source of the new item is displayed in the area on the location map. You can view the details of the new item on a preview card from the location map, or on the List tab.

## List tab

Use the List tab to view, monitor, and manage data items in the IBM Intelligent Operations Center.

The List tab contains an interactive list of data items and their details. All the data items that match the filter panel settings are available to view on the List tab.

The Map, Location Map, and List tabs are linked together to share input and changes to the data items displayed. You can set filters on the filter panel for the data items you want to see. This setting controls which data items are displayed on the Map, Location Map, and List tabs. On the List tab, you can see the name of the selected data source and all its current data items listed with their properties.

You can view data items from one data source at a time and select the data source that you want to view from the drop-down list of data sources at the top of the List tab.

The list outlines the minimal and key properties that describe an item. You can adjust the width and sort order of each column.

To display details for a single data item, click the row. The preview card initially displays minimal and key properties. Depending on the data source, you can click for more information and actions that are associated with an item. If the item occurs on the geospatial map, you can highlight the item on the map by clicking **More Actions > Highlight On Map**. You can update a data item if the data source is configured to allow an update.

To highlight from the list one or more items on the geospatial map, select the items on the list and on the top menu bar click **More Actions > Highlight On Map**.

The list is refreshed regularly with updates, subject to any filters you set.

## Adding a data item to the list

You can create a data item on the List tab that is added to a data source. The data item is added to the list and, depending on the data source, can also be added to a map at the same time.

## Procedure

1. In the operations view, on the action bar at the top of the view, click **More actions > New item**. The **Add New Item** window is displayed. The data item properties reflect the data source that is selected on the List tab.
2. Complete the appropriate fields values of the properties of the data item. Properties that are marked with an asterisk are required for the successful creation of the new item. Those properties not marked with an asterisk are optional. Depending on the data source configuration, some fields are completed automatically. You must complete the location field for a data item to display on a map. WKT (Well-known text) is the required format for entering the latitude and longitude coordinates of positions on the map, in the order of longitude and then latitude. **1.6.0.2** The allowed length for the field values is defined by the data source.
  - For an item that is represented by a map marker on a geospatial map, in the location field, enter the word **point** and the coordinates for the point.
  - For an item that is represented by a map marker on a location map,

- in the location field, enter the word `point` and the coordinates for the position on the geospatial map
  - in the area name field, enter the name of the location map area
  - **1.6.0.1** **1.6.0.2** For an item that is represented by a shape on the geospatial map, enter the word `polygon` and the coordinates for points that make up the polygon. The first and last point of the polygon must be the same to ensure that the polygon can be drawn successfully.
3. Click **Save** to save the item, or **Close** to cancel adding the item.

## Results

You can view the new item on the List tab and also on the map tabs when the data item has the appropriate properties.

---

## Filtering data on the maps and list

In the appropriate operations view, use the filter panel to define what data is displayed in the content panel. The content panel contains the Map tab, the Location Map tab, and the List tab.

The filter panel has the following predefined panes:

- Saved Filters
- Date & Time
- Boundary

The filter panel also has dynamic panes that contain the data source categories that are defined for the filter panel.

In the predefined and dynamic panes, you can apply filter criteria to define what data is displayed in the content panel. After you apply a set of filter criteria, you can name and save the set of filter criteria. You can view and access saved sets of filter criteria in the Saved Filters pane. To clear the current filter settings, near the bottom of the filter panel, click **Clear**.

**1.6.0.2**

### Displaying data items on the map

Data items are displayed on the map according to the selections that you make in the filter panel. If the number of data items that should be displayed exceeds the value that is configured in the **MaxFeaturesToRenderOnMap** system property, the excess data items are not displayed. A warning message is displayed that indicates that some data items are not displayed.

#### Related tasks:

“Setting displayed and returned data item limits” on page 118

You can set the maximum number of data items that are returned to the map and the list, and that are rendered on the map.

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

## Creating and saving filters

You can create and save filter criteria that are based on date, time, location, and configured data sources.

### About this task

To create a filter, in the filter panel, specify selection criteria in the appropriate panes. You can save the filter for later use.

Each time that you modify a setting or make a selection in one of the panes in the filter panel, a progress bar is displayed until the data in the content panel has been updated.

## Procedure

- To create a filter, specify the appropriate settings in the following panes:
  - Date & Time
  - Boundary
  - One or more filter panes
- To save the current filter settings, do the following substeps:
  1. Near the bottom of the filter panel, click **Save**.
  2. In the Save As window, for **Name**, enter a name for the filter.
  3. Click one of the following options to indicate whether the filter is private or public:
    - **Private (for my use only)**
    - **Public (anyone can use)**
- To clear the current filter settings, near the bottom of the filter panel, click **Clear**.

## Viewing, applying, and deleting saved filters or favorites

In either the Saved Filters pane, or the Favorites pane, you can view, apply, and delete filters that have been saved.

### About this task

Depending on which version of IBM Intelligent Operations Center is installed, saved filters are displayed either on the Saved Filters pane, or the Favorites pane. An icon next to each filter indicates whether a filter is private and for your use only, or public and for anyone to use.

## Procedure

In the filter panel, click either **Saved Filters**, or **Favorites**. Choose one of the following options:

- To apply either a saved filter, or a favorite, click the name in the list to select it.
- To delete either a saved filter, or a favorite, click the **Delete** icon.

## Filtering by date and time

In the Date & Time pane, define the period for which you want data to be displayed in the content panel.

## Procedure

1. In the filter panel, click **Date & Time**.
2. Under Start, define the start date and time of the period:
  - a. Click the calendar icon, and then choose a date.
  - b. From the **Time** list, select a time.
3. Under End, define the end date and time of the period:
  - a. Click the calendar icon, and then choose a date.
  - b. From the **Time** list, select a time.
4. Optional: If you want to further limit the period for which data is displayed to a predefined holiday or range, select a value from the **Only on** list.

## Filtering by boundary

In the Boundary pane, define the boundary for which you want data to be displayed in the content panel.

## About this task

**1.6.0.1** **1.6.0.2** If a data source is configured as data for boundary, it is displayed in the Boundary pane. You can set the boundary to one or more named areas that are defined in data items that are received from the data source.

## Procedure

In the Boundary pane

- To set the boundary to the current zoom level and pan location that is set on the Map tab, click either **1.6** **1.6.0.1** **Area currently displayed on map**, or **1.6.0.2** **Area within visible map**.
- **1.6.0.1** **1.6.0.2** To set the boundary to a named area, do the following steps:
  1. Click either **1.6.0.1** **Named area**, or **1.6.0.2** **Area within selected boundaries**.
  2. Select a data source from the first list, which is the **Boundary area type** list.
  3. Select one or more named areas from the second list, which is the **Boundary area** list.

The named areas that you select are highlighted on the map.

## Creating named areas

**1.6.0.1** **1.6.0.2**

On the map, you can draw named areas for data sources that have been defined as named area types.

## Before you begin

Create a named area type data source by following the instructions in the “Configuring a data source” on page 99 section. Note the following points:

- On the **Acquire** tab, for the data source acquisition method, select **User interface entry for geospatial maps**.
- On the **Basics** tab, for **Data for boundary**, select **Yes**.

Configure a pane on the filter panel to display the named area type data source. For more information, see the “Configuring the filter panel” on page 114 section.

## About this task

The following procedure describes how to create named areas by drawing them on the map. Instead of drawing each named area polygon individually on the map, you can define many named areas either in a CSV file, or by using SQL. Then, you create a named area type data source that acquires the named area data from either the CSV file, or from the SQL. For more information about using SQL to define named areas, see the *Defining named areas by using SQL* topic.

## Procedure

1. On the action bar at the top of the view, click **More Actions > New Item**.
2. **1.6.0.2** Choose a named area data source from the **Choose Data Item Type** list.
3. Drag the icon that represents the named area data source from the New Item window to the map, and then draw a named area.
4. Double-click, and then enter values in the appropriate fields for the properties of the named area data item.
5. To add the named area data item to the map, click **Save**.



## What to do next

On the map, you can view data items that are contained in the named area. In the filter panel, set the boundary to display data items that are in the named area:

1. Click either **1.6** **1.6.0.1** **Named area**, or **1.6.0.2** **Area within selected boundaries**.
2. From the first list, which is the **Boundary area type** list, select the named area type data source.
3. From the second list, which is the **Boundary area** list, select the named area that you created.

### Related tasks:

“Defining named areas by using SQL” on page 149

You might want to define a named area type data source that has many named areas. Instead of drawing each named area polygon individually on the map, you can define the named area polygons by using an SQL table. Then, create a data source that connects to a database to acquire the named area data from the SQL table.

“Adding an area or a line data item” on page 373

You can create a data item that is associated with an area on a geospatial map and added to a data source. The data item is added to the Map and List tabs at the same time.

## Filtering by data sources

In the filter panes, define the data sources for which you want to display data in the content panel.

### Procedure

Repeat the following steps for each of the data sources for which you want to display data.

1. In the filter panel, click the data source group.
2. Select the check boxes next to the required data sources.
3. Optional: For each data source, if more filter criteria are specified in the configuration of the data source, you can specify more filter criteria:
  - a. Click **More**. The **More** button is displayed only if more filter criteria are available.
  - b. In the More Filters window, select one or more values from at least one of the lists of filter options. If you select multiple values from only one list of filter options, then a data item must match only one of the selected values that is in the list for it to be displayed in the filtered results. If you select multiple values from more than one list of filter options, then a data item must match at least one of the selected values that is in each list for it to be displayed in the filtered results.

### Results

The first time that you select a data source, the browser displays the most current data that satisfies the filter criteria. After the initial query for data source information, the browser polls the server in the background, at intervals that are defined by the automatic refresh interval. The browser uses polled data to update the map, list, or location map with any new, updated, or deleted data source records.

## Setting the automatic refresh interval

You can set the automatic refresh interval in IBM Intelligent Operations Center to control how often to refresh the user interface with information that is arriving into the system. This includes information that is displayed on the map, in the list, or on the location map. This setting has an impact on the overall performance of the system, especially when there are multiple users that are active concurrently, so activate the automatic refresh feature only when necessary.

### Before you begin

If you are using a browser as an active operations console to see the latest activity as it arrives, select a time range in the filter panel; for example, the previous week. Then, use the following procedure to set

the automatic refresh interval to a required value that is based on the data that is selected. The single client operations view can be displayed on a large monitor in a control room.

## About this task

Set the automatic refresh interval by using your knowledge of the information sources that are displayed. For example, if weather events arrive once per hour, and you set the automatic refresh interval to 5 minutes, the automatic refresh returns new data only 1 out of every 12 refreshes. This is a waste of system resources for the remaining 11 refreshes per hour.

Turn the automatic refresh feature off for most system interactions, where you are doing basic planning and analysis by filtering different information that is on the display.

**Note:** If you add, update, or delete an item on the base map, a refresh occurs immediately, regardless of your settings. The refresh updates the automatic refresh interval timer so that duplicate refreshes do not occur.

## Procedure

Set the automatic refresh interval in any of the operations views.

1. In the **Auto refresh** field, either click the arrows to select a value, or enter a value. You can specify a value from 0 to 60 inclusive. If you specify a value of 0, the automatic refresh feature is turned off.
2. To specify the interval type, select a value from the list. You can select an interval type of seconds, minutes, hours, days, weeks, or months.

## Results

The results that are displayed in the browser after a refresh vary depending on the filter criteria that you select and on your configuration. New and updated items are displayed only if they match the current filter criteria. Deleted items are removed from the map.

---

## Viewing reports

Use the supporting content panel to view reports of events as graphs, tables, or pie charts. The reports that are displayed are dependent on specific data source outputs and specific events that you can select from the filter panel and that are visible in the current view of the map only. View data source results by time, either in bar chart or tabular format. You can also view results by data source, either in pie chart or tabular format. Toggle between the chart and tabular format by clicking the **Chart** and **List** tabs in the Data Source Results By Time and Total Results By Data Source reports. These reports help you to identify trends and plan responses to current and future events.

### Viewing reports in the solution

View reports by clicking the splitter bar on the trailing side of the map portal that expands the supporting content panel, where two reports are vertically displayed within the supporting content panel. By default, the top, or Data Source Results By Time report displays a graph of data source results by time. The bottom, or Total Results By Data Source report displays the results by data source. Select any number of events from the filter panel, and the solution can generate reports that are based on those events. The reports for events that are visible in the current view of the map only, are automatically displayed in the supporting content panel.

### Viewing data source results by time in a bar chart

By default, a bar chart that maps data source results against time in months is displayed in the **Chart** tab of the Data Source Results By Time report. Select days, weeks, or months, from the **Distributed By**

drop-down list, which is available only in the **List** tab. Months is the default value in the drop-down list. Switch to a table view of the same results over the same time periods by clicking the **List** tab.

## Viewing data source results by time in a table

Click the **List** tab when the bar chart is displayed in the Data Source Results By Time report. The results of the bar chart are displayed in tabular format in the same report. The following table lists the displayed columns and drop-down elements.

Table 62. Data source results by time in a table

| Field                 | Description                                                                                                                                                                                                                          |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Distributed By</b> | Select a value from this drop-down list to determine the legend that is used by the report. The possible values are below. <ul style="list-style-type: none"> <li>• Day</li> <li>• Week</li> <li>• Month</li> </ul>                  |
| <b>Data Source</b>    | An alphabetically ordered list of data sources that are used by the application for the report. Toggle the order by clicking the bidirectional arrow beside the column name.                                                         |
| <b>Month</b>          | An ordered list of the months that are considered in the report for the data source. Toggle the order by clicking the bidirectional arrow beside the column name. Alternative values for this field are <b>Day</b> and <b>Week</b> . |
| <b>Count</b>          | An ordered list of the number of incidents for each data source. Toggle the order by clicking the bidirectional arrow beside the column name.                                                                                        |

## Viewing results by data source in a pie chart

By default, a pie chart is displayed in the **Chart** tab of the Total Results By Data Source report. The pie chart displays a breakdown of the results in the bar chart or the table in the Data Source Results By Time report above the pie chart. Switch to a table view of the pie chart data by clicking the **List** tab.

## Viewing results by data source in a table

Click the **List** tab when the pie chart is displayed in the Total Results By Data Source report. The results of the pie chart are displayed in tabular format. The following table lists the displayed columns.

Table 63. Results by data source in a table

| Column                             | Description                                                                                                                                                                  |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data Source</b>                 | An alphabetically ordered list of data sources that are used by the application for the report. Toggle the order by clicking the bidirectional arrow beside the column name. |
| <b>Count</b>                       | An ordered list of the number of incidents for the data source. Toggle the order by clicking the bidirectional arrow beside the column name.                                 |
| <b>Percentage of total results</b> | The percentage of total results for each data source. Toggle the order that the percentages are displayed in by clicking the bidirectional arrow beside the column name.     |

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## Monitoring status through KPIs

Use the status view to see the status of key performance indicators (KPIs) in summary or in detail format.

The status view provides a summary of the status of the KPIs that you have permission to view. View the current KPI status so that you can plan and act if necessary.

There is a view filter on the legend bar. From a check box menu, you can select the range of KPIs that you want to view. By default all ranges are selected.

### Status view navigation

In the **Top Line** view, each column contains KPIs of a kind that are grouped under the KPI model name at the top of the column. The KPIs that are associated with each KPI group are represented by colored cells according to predefined status. The color code is explained in the legend at the top of the view. To see KPI details, click the cell. A preview card is displayed with the status, value, KPI type, and range type of the KPI. If the KPI is composed of underlying child KPIs, the preview card contains a **More Actions** menu. To focus on a specific KPI, on the menu, select **Drill In** to display underlying KPIs. You can repeat this action at each KPI level until you reach a level where there are no underlying KPIs. For each KPI, you can also see all of the underlying KPIs. To navigate back to focus on a higher level, click the required node on the navigation tree.

**1.6.0.2** To view any available reports that are mapped to a specific KPI, on the **More Actions** menu, select **View Reports**.

### KPI color code

Each KPI is represented by a colored cell. The cell color for a KPI reflects its status.

The color code that is supplied with the sample KPIs for the solution is as follows:

- Green indicates that the status is acceptable, based on the parameters for that KPI, no action is required.
- Yellow indicates that caution or monitoring is required, action may be required.
- Red indicates that the status is critical and action is recommended.
- Gray indicates that there is insufficient data available to calculate the KPI status.

The color code is defined in the legend at the top of the view.

### KPI updates

When an underlying child KPI is updated, the change is reflected in the status view. For example, one of the sample KPIs that determine the status of the Water Quality KPI changes status from acceptable to caution. The change is reflected by a change in the background color of the Water Quality cell from green to yellow. In addition, on the icon on the Notifications button, the number changes to notify a KPI change.

When the solution receives data that is related to the calculation of a KPI, there is a corresponding color change in the cell on the status view. This feature is an advantage when the KPI is one that is likely to receive changes in real time, for example, airport delays. It is not relevant to historical KPIs, for example, a KPI measuring water level for flood control. For that KPI, regular daily measurements are taken and there is unlikely in the interim to be a sudden change that affects status.

### Administrator

## Configuring KPIs

If you have administration access, you can go to the Solution Administration view to configure what is shown on the status view.

A set of sample KPIs is provided with the solution. These KPIs are designed to provide guidance for planning and implementing different types of KPIs to suit your organization. Examples are provided in the areas of water, transportation, and public safety.

### Related concepts:

“Configuring KPIs” on page 120

In the Solution Administration view, you can configure Key Performance Indicators (KPIs) and their hierarchical display in the user interface. The KPIs are displayed on the status views in IBM Intelligent Operations Center.

“Area status with KPIs” on page 367

Use the area status views to obtain a view of key performance indicators (KPIs) that highlights key data for specific named areas. Users can monitor, manage, and respond to status changes in relation to organizational performance in specific areas of the map.

### Related tasks:

“Mapping KPIs to reports” on page 125

As an administrator, you can map KPIs to reports that are displayed in the status views. You can map the same report to more than one KPI. Optionally, you can add a set of parameters to each report that might modify the data that is displayed by the report. The parameter values are used to generate a Cognos reports query, and the parameter values are also displayed as a label on the instance of the generated report.

## Viewing reports from KPI preview cards

1.6.0.2

From the KPI preview cards in the status views, you can view reports that are mapped to KPIs.

### Procedure

1. On the KPI preview card, click **More Actions > View Reports**.
2. Select one or more check boxes for the available reports and click **OK**. The reports are displayed in their selected report format in the KPI reports portlet in the status view.

---

## Analyzing data hotspots

1.6.0.1

1.6.0.2

Use the Map tab to analyze data, for the areas that you select on the map, in the form of hotspots that are generated by a predefined analysis. The hotspots view assists you in monitoring, managing, and responding to key issues.

Filters on the filter panel can be combined with the analysis to provide comprehensive information and interaction facilities. Looking at the analysis result, you can quickly identify locations where there are hotspots for particular patterns of data. For example, hotspots can indicate that high levels of petty crime are associated with street light outages in a city. This data can support your decision-making, for example, preparing for a city council or neighborhood meeting.

You choose on the filter panel the timeframe for the analysis. The filter panel lists the named areas that you can choose to focus on, or you can look at all of the map within the boundary shown. The filter panel lists the set of hotspot analyses available. The hotspot analysis that you select defines the data sources and the type of analysis that is to be applied to the data items.

When you run an analysis, the map shows you any hotspots that are generated by that analysis and by the filter criteria. The hotspots represent clusters of data items, according to the distance, time, and source correlation rules in the analysis definition. Each hotspot is shown as a colored circle on the geospatial map. Details of each hotspot are shown on the List tab.

You can interpret information from the hotspots that are shown on the map according to the color, location, and size of the circle.

- The color of the circle indicates the score that is calculated for number of related items in the cluster. The color range is from red to yellow to indicate a score range from the most to the least proportion of related items.
- The location of the circle is determined by the position of the center. The center of the circle is the center point in relation to the positions of all the items that are collected in the cluster.
- The radius of the circle is the distance between the center and the position of the item that is furthest from the center.

Hotspots are displayed on the map when data items follow a pattern that is based on the correlation rules that are configured in the analysis definition.

Details of each hotspot are displayed in a preview card when you click the hotspot.

**Score** The result of a calculation that is based on the number of related items in the cluster. In addition to showing the score as a percentage value, a bar graph icon is also shown with color intensity that ranges from gray through yellow to red for increasing score.

**Name** The name of this hotspot analysis and a number that is awarded automatically to each cluster. The number awarded ranges from the lowest number, 1, to the highest number that is equal to the total number of hotspots.

**Start** The earliest of the start dates of all the items in the cluster.

**End** The latest of the end dates of all the items in the cluster.

**Last Update**

The most recent of the last update dates of all the items in the cluster.

**Data Items**

The total number of items in the cluster.

**Radius**

The distance between the center and the position of the item that is furthest from the center of the cluster.

**Unit** The unit of measurement that is used for distance (yards or meters).

**Analysis type**

The type of analysis selected in the hotspot analysis definition. The options for hotspot analysis are: 'Cluster by distance', 'Cluster by distance and correlate data sources', or 'Cluster by distance and correlate data sources with time'.

**Data source**

The number of data items in the hotspot listed separately for each data source.

Details of each hotspot are also listed in a row on the List tab.

For more information hotspot analysis definition, consult with your administrator. For general instructions on using the map and list tabs, see the links at the end of the topic.

**Administrator** For information about configuring analysis views, see the link to *Configuring hotspot analysis*. For information about configuring named areas, see the link to *Configuring a data source in the solution*

### Related concepts:

“Filtering data on the maps and list” on page 378

In the appropriate operations view, use the filter panel to define what data is displayed in the content panel. The content panel contains the Map tab, the Location Map tab, and the List tab.

“Viewing data on the maps and list” on page 369

In the content panel of the operations view, you can view data on a geospatial map, on a location map, or in list format.

“Configuring a data source” on page 99

Use the Data Sources tool to configure a data source that supplies data to IBM Intelligent Operations Center.

“Configuring hotspot analysis” on page 128

Use the Hotspots tool to configure hotspot analysis definitions for the solution. Hotspot analysis can highlight patterns of data in relation to time and position on the geospatial map. As an administrator you can create a hotspot analysis definition, update an analysis that is already listed, or delete a hotspot analysis definition from the solution.

## Running hotspot analysis

1.6.0.1

1.6.0.2

In the filter panes, select the hotspot analysis for which you want to display data in the content panel.

### Procedure

Repeat the following steps for each of hotspot analyses for which you want to display data.

1. In the filter panel, click the hotspot analysis group.
2. Select the check boxes next to the required hotspot analyses.

### Results

Hotspots are generated on the geospatial map and list according to the criteria defined in the hotspot analysis definition

---

## Viewing notifications

Click Notifications to view a dynamic list of your notifications and their details.

To see whether there are notifications for you, look for an icon on the Notifications button. If there are no notifications for you, there is no icon. If there are notifications for you, the number of notifications is displayed on the icon.

1.6.0.2

The shape and color of the icon indicates the highest severity of notifications that are in the list:

- An orange square with rounded corners indicates that the list contains only normal notifications.
- A yellow triangle indicates that the list contains notifications with a maximum severity of warning.
- A red circle indicates that the list contains notifications with a maximum severity of critical.

Notifications is an interactive window that contains a list of all the current notifications that are relevant to you. You see only notifications that are sent to you or to the user groups that you are a member of.

Notifications are received when a predefined key performance indicator (KPI) value change occurs, where the new value is in a different range to the existing value. For example, the water level measurement of a reservoir is unacceptably low and the users with access to the KPI are notified.

1.6.0.1

1.6.0.2

Notifications also display errors from background processes.

## Notifications list

The Notifications window provides a dynamic, interactive list of notifications. The list contains key information for each notification: a headline description, and the sent date and time. The list is sorted in an order that is based on the sent date and time, starting with the most recent notification. You can change the sort order in the list.

1.6.0.1

1.6.0.2

A column in the Notifications list also indicates the severity of each notification.

Initially, the Notifications window displays a list of all of your current notifications. To see more information about a specific notification, click the row for that notification. The preview card for a notification displays its key properties, including the full description, the sent date and time, and the sender.

1.6.0.1

1.6.0.2

The preview card also indicates the number of times that the notification has been sent.

To remove the notification from the list, click **More Actions** on the preview card, and then click **Cancel**. To close the preview card and return to the list, click the close icon at the top of the card.

**Note:** Remove a notification only after you are certain it is obsolete because the notification is removed for all recipients when you close it.

A summary bar at the end of the list indicates the total number of notifications that are displayed and the number of notifications that are selected. Scroll down through the list with the side-bar.

To close the Notifications window, click Notifications on the menu bar.

In the user profile notification settings, you can customize the number of days for which notifications are displayed. By default, each notification is displayed for a maximum period of three days.

1.6.0.2

Notifications can be displayed for a maximum of 200 days.

You can set the length of time that a notification is displayed for you before the notification is removed from the list. On the top menu bar, click your user name and then click **Edit Profile**. Enter a number in the **Notification display limit** field to specify a value for the length of time in days that each notification is displayed. The default time limit is three days.

## Configuring notification settings

1.6.0.2

You can configure the solution to notify you if a specific event occurs. There are three types of notifications: system, SMS, and email. You can view and edit your notification settings in your IBM Intelligent Operations Center user profile.

### About this task

System notifications are displayed in the Notifications window in the content panel. SMS notifications are sent by SMS message, and email notifications are sent by email.

### Procedure

1. To modify your user profile, click **Manage Profile** from the list that is next to your user name at the top of the view.



- a. To configure the telephone number for the SMS message and to configure the email address, click **Manage Profile > My Profile**.
2. To configure whether to receive notifications, the types of notifications that you receive, and the length of time to display notifications for, click on the **My Notification Settings** tab.
3. Select a component and configure the notification settings.
  - To configure KPI notification settings, select **Key Performance Indicators**.

**Note:** Define the status criteria that determines whether you receive KPI notifications, and the notification method. For example, configure the solution so that you receive notifications by SMS message if KPIs changed to critical status in the previous hour.

- To configure system error notification settings, such as data import notification settings, select **System Errors**.
  - To configure IBM Cognos Business Intelligence notification settings, select **Cognos Business Intelligence**
  - To configure analytics notification settings, select **Analytics**.
  - To configure data import notification settings, select **Data Import**.

**Related tasks:**

“Viewing or editing your user profile” on page 169

You can view and edit the information in your solution user profile. Edit your user profile to set your time zone, language preference, and notification settings. You can also reset your password and modify your personal details.

“Defining the optimized interactive processes communication method” on page 76

The Optimized Interactive Processes (OIP) Extreme Messaging (XM) component packaged with IBM Intelligent Operations Center must be configured to define the communication methods if email or SMS notifications are to be used. If email is to be used, the server SMTP services are used to deliver outgoing email. For SMS notifications an SMS gateway provided by a third party is required. If neither notification method is required, these steps are optional.

---

## Managing activities

Click **My Activities** to view a dynamic list of activities that are owned or monitored by the currently logged on user. However, an administrator can see the activities for all owners and monitors in the **My Activities** window.

Each time a standard operating procedure is launched, the associated activities are assigned to owners.

An icon is displayed on the **My Activities** button that indicates the number of standard operating procedures that are active. To view the activities for which you are an owner or a monitor, click **My Activities**. In the **My Activities** window, the activities are grouped by their parent standard operating procedure instance.

For each instance of a standard operating procedure that has been launched, the **My Activities** window displays all the activities, including those activities that have been completed.

The following activity due icons are displayed near the top of the **My Activities** window:

**Past Due**

Activities whose completion is past due.

**Due Today**

Activities that are due to be completed today.

**Future** Activities whose completion is due in the future.

When an activity is started, the due date is calculated by adding the start time to the duration of the activity. The activity due dates are used to calculate the number that is displayed in each of the activity due icons.

In the My Activities window, standard operating procedures are displayed in alphabetical order. Next to each standard operating procedure in the list that has past due activities, a red icon indicates the number of activities that are past due.

#### **Related concepts:**

“Configuring standard operating procedures” on page 136

A standard operating procedure is a set of instructions that describes all the relevant steps and activities of a process or procedure. Standard operating procedures are essential to an organization to deliver consistent, measured, high-quality responses to complex and unpredictable events.

## **Viewing, editing, and completing activities**

The following steps show how to manage your activities in the My Activities window.

To view the activities for the instance of a standard operating procedure that has been launched, expand the name of the standard operating procedure. All the activities for the instance of the standard operating procedure are displayed, including the status and due date, until the instance is completed. The instance of the standard operating procedure is closed when all the activities are either completed, or skipped. You can also stop an instance of a standard operating procedure manually. To refresh the information that is displayed in the My Activities window, click **Refresh**.

Click an activity and then choose from the following options:

- To start an activity, from the list, select **Start**. If the activity is defined as an automated activity in the standard operating procedure definition, the workflow that is assigned to the activity is started automatically, and the activity is finished automatically. If the activity is an If-Then-Else activity, to start one of the branches that is defined for the activity, from the list, select either **Start Then**, or **Start Else**.

**Note:** If it has been specified that certain activities are done in order, you will not be able to start an activity that must be done in order until you have completed the predecessor activities that it depends on.

- To skip an activity, from the list, select **Skip**. This option is not available for activities that are marked as required.
- To complete an activity, from the list, select **Complete**.
- To add a reference to an activity, use the following substeps:
  1. From the list, select **Add Reference**.
  2. In the Add a Reference to the Library window, select a value from the **Reference** list. If you select **Add New**, enter the details for the new reference, and then click **Add**.
  3. Click **Add**.
  4. To see the reference that you added, from the list, select **Show Details**.
- To add a comment to an activity, use the following substeps:
  1. From the list, select **Add Comment**.
  2. In the Add Comment window, enter a comment in the **Comment** field.
  3. Click **Save**.
  4. To see the comment that you added, from the list, select **Show Details**.
- To view the details for an activity, including references and comments, use the following substeps:
  1. From the list, select **Show Details**.
  2. In the Activity Details window, click either the **References**, **Roles**, **Comments**, or **Change Log** tab.
- To send a notification, use the following substeps:

1. From the list, select **Send Email**.
  2. Select a value for **Notification template**.
  3. For **To**, enter the email address of the recipient.
  4. For **Subject**, enter a subject for the email.
  5. For **Message**, you can enter your own message. In addition, to append details of the current standard operating procedure, activity, or event, select a value from the **Related to** list, and then click **Append**. You can use the **Related to** list to append details from multiple items.
  6. Optionally, enter values for **User** and **Password**, for authentication to the SMTP server.
  7. Click **Send**.
- To view the details for the instance of the standard operating procedure, click the **i** icon next to the name of the standard operating procedure. In the Standard Operating Procedure Details window, choose from the following options:
    - To edit basic information for the standard operating procedure instance, from the list, select **Edit**. To save your changes to the basic information, click **Save**. Alternatively, to cancel your changes, click **Cancel**.
    - To either view or edit activities, references, and roles, or to view the comments and change log for the standard operating procedure instance, click the tabs.
    - To stop the instance of the standard operating procedure, from the list, select **Stop**.
    - To export details of the standard operating procedure instance, from the list, select **Export**.
    - To add a comment to the instance of the standard operating procedure, from the list, select **Add Comment**.

For more details about editing standard operating procedures, see the link at the end of the topic to the section about configuring standard operating procedures.

#### Related concepts:

“Configuring standard operating procedures” on page 136

A standard operating procedure is a set of instructions that describes all the relevant steps and activities of a process or procedure. Standard operating procedures are essential to an organization to deliver consistent, measured, high-quality responses to complex and unpredictable events.

## Linking data items to standard operating procedures

1.6.0.1

1.6.0.2

Through the preview card, you can either associate a data item to an instance of a standard operating procedure that is already running, or you can launch a new instance of a standard operating procedure.

### Before you begin

A solution administrator must use the data source configuration tool to assign the standard operating procedure actions to the appropriate data source. The names of the standard operating procedure actions are `LaunchSop` and `AssociateSop`. Then, for data items that are received from the data source, the standard operating procedure options are displayed in the **More Actions** menu on the preview card.

### Procedure

Choose one of the following options from the **More Actions** menu on the preview card for a data item:

- To associate the data item to an instance of a standard operating procedure that is already running, click **Associate to a Running Standard Operating Procedure** and select a standard operating procedure in the list. You can associate a data item to instances of one or more standard operating procedures.

- To disassociate the data item from an instance of a standard operating procedure, click **Associate to a Running Standard Operating Procedure** and clear the selection for the standard operating procedures in the list.
  - To launch an instance of a standard operating procedure, click **Launch Standard Operating Procedure**, and then choose one of the following options:
    - Select **Routed standard operating procedure definitions**. Use this option to select a standard operating procedure from a list of standard operating procedures that the corresponding data source is routed to, based on the data source configuration.
    - Select **All standard operating procedure definitions**. Use this option to select a standard operating procedure from a list of all the available standard operating procedures.
- You cannot launch an instance of a standard operating procedure that is already associated to a data item. Each data item can launch only one instance of each standard operating procedure.
- To view a list of the standard operating procedures that are associated to the data item, click **View Standard Operating Procedures**.

---

## Managing contacts

Click **Contacts** to send instant messages to other users within the solution.

**Note:** You must log on to the solution portal by using the fully qualified domain name of the IBM Intelligent Operations Center application server. If you log on to the portal by using an IP address or a host name alias instead of the registered fully qualified domain name, this instant messaging window does not display correctly.

Your default status indicates that you are available. You can change your status indicator to indicate that you are away from your computer, in a meeting, or that you do not want to be disturbed. You can also change your default status message. To change your status, at the top of the window, click the drop-down button beside your status indicator.

You can set up a list of your contacts that is organized by category. You can organize contacts in categories that are based on the people you want to communicate with. For example, you can have a category for general work contacts and another category for project work contacts.

To communicate with contacts, select from the contacts you set up, or find a contact by typing a name in the field provided. The status of each user is displayed with their name. You can also modify your own online status, contacts, or groups. Click the menus at the top of the window:

- **File** to add contacts, modify groups, or log off
- **Tools** to set up a chat, or announcement; or to change your privacy settings
- **Help** to get more detailed information about how to use the portlet

The meeting room facility is not available in IBM Intelligent Operations Center.

**Note:** A list is displayed with the status of all users who are logged on. Occasionally, when a user who is logged on closes the browser window or logs off, the status of that user might be still displayed as logged on until the session expires. However, any messages that are sent to that user after the user closed the browser window, or logged off, are not delivered. An error message is then displayed to a user who is trying to send a message to that user. To ensure that your status is always updated immediately to "unavailable", log off by clicking **File > Log Out**.

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## Chapter 10. Troubleshooting and support

To isolate and resolve problems with your IBM software, you can use the troubleshooting and support information, which contains instructions for using the problem-determination resources that are provided with your IBM products.

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### Techniques for troubleshooting problems

Troubleshooting is a systematic approach to solving a problem. The goal of troubleshooting is to determine why something does not work as expected and how to resolve the problem.

The first step in the troubleshooting process is to describe the problem completely. Problem descriptions help you and the IBM technical-support representative know where to start to find the cause of the problem. This step includes asking yourself basic questions:

- What are the symptoms of the problem?
- Where does the problem occur?
- When does the problem occur?
- Under which conditions does the problem occur?
- Can the problem be reproduced?

The answers to these questions typically lead to a good description of the problem, which can then lead you to a problem resolution.

#### What are the symptoms of the problem?

When starting to describe a problem, the most obvious question is “What is the problem?” This question might seem straightforward; however, you can break it down into several more-focused questions that create a more descriptive picture of the problem. These questions can include:

- Who, or what, is reporting the problem?
- What are the error codes and messages?
- How does the system fail? For example, is it a loop, hang, crash, performance degradation, or incorrect result?

#### Where does the problem occur?

Determining where the problem originates is not always easy, but it is one of the most important steps in resolving a problem. Many layers of technology can exist between the reporting and failing components. Networks, disks, and drivers are only a few of the components to consider when you are investigating problems.

The following questions help you to focus on where the problem occurs to isolate the problem layer:

- Is the problem specific to one platform or operating system, or is it common across multiple platforms or operating systems?
- Is the current environment and configuration supported?

If one layer reports the problem, the problem does not necessarily originate in that layer. Part of identifying where a problem originates is understanding the environment in which it exists. Take some time to completely describe the problem environment, including the operating system and version, all corresponding software and versions, and hardware information. Confirm that you are running within an environment that is a supported configuration; many problems can be traced back to incompatible levels

of software that are not intended to run together or have not been fully tested together.

## **When does the problem occur?**

Develop a detailed timeline of events leading up to a failure, especially for those cases that are one-time occurrences. You can most easily develop a timeline by working backward: Start at the time an error was reported (as precisely as possible, even down to the millisecond), and work backward through the available logs and information. Typically, you need to look only as far as the first suspicious event that you find in a diagnostic log.

To develop a detailed timeline of events, answer these questions:

- Does the problem happen only at a certain time of day or night?
- How often does the problem happen?
- What sequence of events leads up to the time that the problem is reported?
- Does the problem happen after an environment change, such as upgrading or installing software or hardware?

Responding to these types of questions can give you a frame of reference in which to investigate the problem.

## **Under which conditions does the problem occur?**

Knowing which systems and applications are running at the time that a problem occurs is an important part of troubleshooting. These questions about your environment can help you to identify the root cause of the problem:

- Does the problem always occur when the same task is being performed?
- Does a certain sequence of events need to occur for the problem to surface?
- Do any other applications fail at the same time?

Answering these types of questions can help you explain the environment in which the problem occurs and correlate any dependencies. Remember that just because multiple problems might have occurred around the same time, the problems are not necessarily related.

## **Can the problem be reproduced?**

From a troubleshooting standpoint, the ideal problem is one that can be reproduced. Typically, when a problem can be reproduced you have a larger set of tools or procedures at your disposal to help you investigate. Consequently, problems that you can reproduce are often easier to debug and solve. However, problems that you can reproduce can have a disadvantage: If the problem is of significant business impact, you do not want it to recur. If possible, re-create the problem in a test or development environment, which typically offers you more flexibility and control during your investigation.

- Can the problem be re-created on a test system?
- Are multiple users or applications encountering the same type of problem?
- Can the problem be re-created by running a single command, a set of commands, or a particular application?

### **Related tasks:**

“Searching knowledge bases” on page 441

You can often find solutions to problems by searching IBM knowledge bases. You can optimize your results by using available resources, support tools, and search methods.

---

## Enabling traces and viewing log files

To troubleshoot a problem in IBM Intelligent Operations Center, you might need to analyze log files in several systems.

The following procedures describe how to enable traces and view logs for the following systems:

- WebSphere Portal
- IBM Business Monitor

### Related concepts:

“Verifying the components” on page 209

The system verification check tool tests components within IBM Intelligent Operations Center to determine if they are accessible and operational.

“Log file maintenance” on page 359

IBM Intelligent Operations Center stores log files in several different locations. To prevent system outages, periodically back up the database, archive log files, and remove the original log files.

## Enabling tracing and viewing logs on WebSphere Portal

### About this task

If IBM Intelligent Operations Center is deployed in a high availability environment, enable tracing and view the logs on both of the following servers: application server 1 and application server 2.

WebSphere Portal logs are at the following locations:

#### Standard environment

`/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal`

#### High availability environment

`/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal` on application server 1

`/opt/IBM/WebSphere/wp_profile/logs/WebSphere_Portal_PortalNode2` on application server 2

To start the traces and view the logs, enter the commands at run time as the root user. Remember to remove all logging after troubleshooting.

### Procedure

1. In the Solution Administration view, click **System Administration > Administration Consoles**.
2. Click **Application server** to log on to the WebSphere Application Server 8.0 Deployment Manager console.
3. Click **Troubleshooting > Logs and Trace**.
4. Click **WebSphere\_Portal > Change log level details**.
5. Click the **Runtime** tab and enter the following command to troubleshoot all components:

```
=warning: com.ibm.ioc.=all
```

You can specify more specific trace commands:

- If a data source is created successfully but no information from it is displayed, enter the following trace command to turn on logging. Then, attempt to re-create the issue; for example, create another data source:

```
*=warning: com.ibm.ioc.logger.DataReceiverLogger=all:
```

- To troubleshoot filter panel issues, enter the following trace command:

```
*=warning: com.ibm.ioc.logger.FilterLogger=all:
```

- To troubleshoot map and list issues, enter the following trace command:

```
*=warning: com.ibm.ioc.logger.StatLogger=all:
```

- To troubleshoot KPI issues, enter the following trace command:

```
*=warning: com.ibm.ioc.logger.KpiLogger=all:
```

6. Click **OK**.

7. To view a log, for example on application server 1, enter the following commands:

```
cd /opt/IBM/WebSphere/wp_profile1/logs/WebSphere_Portal
tail -f trace.log
```

## What to do next

When you finish troubleshooting, remove all the traces.

## Enabling tracing and viewing logs for IBM Business Monitor on the application server

### About this task

If IBM Intelligent Operations Center is deployed in a high availability environment, enable tracing and view the logs on both the following servers: WBM\_DE.AppTarget.WBMNode1.0, and WBM\_DE.AppTarget.WBMNode2.0

Logs for IBM Business Monitor on the application server are at the following locations:

#### Standard environment

```
/opt/IBM/WebSphere/AppServer/profiles/wbmProfile1/logs/WBM_DE.AppTarget.WBMNode1.0
```

#### High availability environment

```
/opt/IBM/WebSphere/AppServer/profiles/wbmProfile2/logs/WBM_DE.AppTarget.WBMNode2.0
```

To start the traces and view the logs, enter the commands at run time as the root user.

## Procedure

1. In the Solution Administration view, click **System Administration > Administration Consoles**.
2. Click **Application server** to log on to the WebSphere Application Server 8.0 Deployment Manager console.
3. Click **Troubleshooting > Logs and Trace**.
4. Click **WBM\_DE.AppTarget.WBMNode1.0 > Change log level details**.
5. Click the **Runtime** tab and enter the following trace level code: `com.ibm.wbimonitor.*=all`
6. Click **OK**.

## What to do next

When you finish troubleshooting, remove all the traces.

---

## ISA Data Collector for IBM Intelligent Operations Center

ISA Data Collector for IBM Intelligent Operations Center helps troubleshoot problems with IBM Intelligent Operations Center and other IBM software products.

The tool collects information required that is required to troubleshoot problems in the IBM Intelligent Operations Center environment. The tool also sends the logs to a staging location for use by IBM Support. The following types of information are collected:

- Platform problem determination files
- System log and trace files
- Platform provisioning files



- System configuration files
- Java dump files
- Problem determination framework internal log files
- Installation log files
- List of installed rpm packages

## Installing ISA Data Collector

Use your browser to access the ISA Data Collector for IBM Intelligent Operations Center through the provided web link. You can collect data on your current system directly from the browser. Alternatively, you can download a utility that you can use to collect data from either the current system, or another system.

### Procedure

1. Go to the IBM Support Assistant Data Collector site.
2. Choose one of the following options:
  - Collect data from the current system by using the current browser:
    - a. Select **this system using the current browser**.
    - b. Review and accept the terms in the license agreement.
    - c. Click **Start Collection**.
  - Collect data from either the current system, or from another system, by using a downloadable utility:
    - a. Select **this or another system using a downloadable utility**.
    - b. Review and accept the terms in the license agreement.
    - c. Click the download option for your operating system.
    - d. Run the `isadc` utility.

### Related information:



IBM Support Assistant Data Collector for IBM Intelligent Operations Center 1.6.x

## Creating a data collection

ISA Data Collector for IBM Intelligent Operations Center collects logs and other information from the IBM Intelligent Operations Center system for troubleshooting within your organization or to be provided to IBM Support with a support request.

### Procedure

1. Run `cd /tmp/isadc` to change to the `isadc` directory.
2. Run `./isadc.sh` Information on the data collector is displayed.
3. Follow the prompts to create the data collection.
4. Enter whether or not the collection will be sent to IBM Support.

### Results

The collected information is saved as the specified file name and sent to IBM support, if requested.

### Related concepts:

“Naming data collections to be sent to IBM Support” on page 398  
Collections sent to the IBM Support site must meet specific naming standards.

## Naming data collections to be sent to IBM Support

Collections sent to the IBM Support site must meet specific naming standards.

Files names must meet one of the following formats:

*pmr\_number.branch\_number.country\_code.short\_description.zip*

or

*pmr\_number,branch\_number,country\_code,short\_description.zip*

For example: 34143.055.000.logs.zip

The second format is acceptable for compatibility with prior versions of ISA Data Collector. The first format, using periods instead of commas, is the preferred format.

ISA Data Collector validates the file name before sending a collection to IBM Support. If the file name does not meet naming standards, the user is prompted to change the file name before the file is sent.

## Known issues with ISA Data Collector for IBM Intelligent Operations Center

There are issues and limitations with ISA Data Collector for IBM Intelligent Operations Center.

- If the application server is not running, information about software versions and applied fixes will not be included in the collection.
- If the collector cannot access a server, the server is bypassed and no logs are collected. No error is issued.

If logs exist on a server, but were not collected, check the connectivity between the server and the analytics server in a standard environment and analytics server 1 in a high availability environment

---

## IBM Intelligent Operations Center Messages

Each message topic helps you to identify the cause of a particular error condition in the IBM Intelligent Operations Center and recommends actions to take to resolve the error.

To help you understand the errors that you might encounter while using IBM Intelligent Operations Center, each message topic is divided into three sections: the message that is displayed in the IBM Intelligent Operations Center or its logs, an explanation, and an action.

### The message

Contains two identifiers, which are the error identification and associated text. The error identification is the message ID. It is a unique number that identifies a message. A final character of E indicates that the message resulted from an error, W indicates a warning message, and I indicates an information message.

### The explanation

Contains an additional explanation of the message.

### The user response

Suggests the corrective action for resolving the error.

To help you search for information about an error message, enter the ID number of the error message in the Search field in the information center.

**Note:** The topics in this section contain only messages that are specific to IBM Intelligent Operations Center. For all other messages, see the product documentation.

---

**CIYBA0050E Cannot locate configuration file {0}. Add the enclosing folder to classpath.**

**Explanation:** Installation properties are supplied to the IBM Intelligent Operations Center installation tool in the `custom.properties` file. This file is located in the `install-root/resource` directory. This file must be located in the classpath of the installation tool.

**User response:** Ensure the `install-root/resource/custom.properties` file is in the classpath.

---

**CIYBA0051E Cannot load configuration file {0}. Add the folder to classpath and ensure the file is readable.**

**Explanation:** Installation properties are supplied to the IBM Intelligent Operations Center installation tool in the `custom.properties` file. This file is located in the `install-root/resource` directory.

This message is caused by one of the following conditions:

- The file was not found.
- The file could not be read.
- The file is not in a properties file format.

**User response:** Check the `install-root/resource/custom.properties` and make sure the `common.properties` file exists and that it can be read. Check that the file is in the properties file format.

---

**CIYBA0052E {0} does not contain a value for the remote connection specification property (connection.options).**

**Explanation:** The installer is attempting to override the permitted remote connection protocol specifications by supplying a `connection.options` property in the `install-root/resource/custom.properties` file. The supplied value is empty.

**User response:** Add a valid remote connection property list. The list is a comma-separated string. For example, `ssh-pw,ssh-key`.

Valid protocols are:

**ssh-pw** SSH with password authentication.

**ssh-key**

SSH with RSA or DSA keys

Optionally the `connection.options` property can be commented out. In that case the default connection protocol of `ssh-pw` will be used.

---

**CIYBA0053E Unsupported remote connection type specified: {0}.**

**Explanation:** The installer is attempting to override the permitted remote connection protocol specifications by supplying a `connection.options` property in the

`install-root/resource/custom.properties` file. One or more of the specified values is in error.

**User response:** Add a valid remote connection property list. The list is a comma-separated string. For example, `ssh-pw,ssh-key`.

Valid protocols are:

**ssh-pw** SSH with password authentication.

**ssh-key**

SSH with RSA or DSA keys

---

**CIYBA0054E An identity file (property: ssh.identity) was not specified for the remote connection protocol "{0}".**

**Explanation:** The remote connection protocol, `ssh-key`, is the sole remote connection protocol specified in the `install-root/resource/custom.properties` file. An identity file (the SSH private key) must be specified when choosing the `ssh-key` protocol.

**User response:** Specify the identity file in the `ssh.identity` property in the `install-root/resource/custom.properties` file.

---

**CIYBA0055E Cannot read key identity file: {0}.**

**Explanation:** A SSH identity file was specified in the `ssh.identity` property in the `install-root/resource/custom.properties` file, but the identity file cannot be found.

**User response:** Specify a valid identity file in the `ssh.identity` property.

---

**CIYBA0056E Unexpected error processing key identity file: {0}. Details: {1}.**

**Explanation:** An unanticipated exception has occurred while using the SSH identity file to establish remote communications.

**User response:** Use the details in {1} to determine the root cause of the exception.

---

**CIYBA0059E Terminating installation due to invalid remote connection configuration.**

**Explanation:** The installation process is terminating because the remote communication properties are configured incorrectly.

**User response:** No action is required.

---

**CIYBA0101E The Topology File {0} is not valid.**

**Explanation:** The installer attempted to validate the {0} topology file and found that the topology file contained errors. These errors can include:

- Not all required components existing in the topology file.

## CIYBA0102E • CIYBA0109E

- Prerequisite components not listed before dependant components.
- Components that should be deployed sequentially are in the parallel development stanza.

**User response:** Correct the topology file and rerun the installation.

---

### CIYBA0102E The topology or the topology specification files were not found.

**Explanation:** Each installation topology has an associated .xml file and specification. One or both of these files could not be found.

**User response:** Make sure that all the installation files were extracted to the installation server. Check that the image.basedir.local property in the custom.properties file is set to the correct location. The custom.propeties file is in the /resource subdirectory on the installation server where the installation package was extracted.

---

### CIYBA0103E The {0} script to install a component does not exist.

**Explanation:** The installation program attempted to locate a script for a component and that script was not found.

**User response:** Check that the installation media was extracted on the installation server. Check that the base directory was correctly configured in the custom.properties file. The base directory is used to derive the location of the installation script.

---

### CIYBA0104E The Topology file contains invalid entries.

**Explanation:** The installer encountered an error while reading the topology file and creating the deployable units for each component. This is normally an internal error unless a custom topology is being installed.

The topology file might be corrupted or incorrectly specified.

**User response:** Check the topology file for the following problems:

- Duplicate component IDs.
- Missing component IDs or type attributes.
- Specification of a connection attribute where no parent component exists.
- The topology fails XML schema validation.

---

### CIYBA0105E The {0} file could not be found.

**Explanation:** The installation program could not find the {0} file.

**User response:** Make sure that all the installation files were extracted to the installation server. Check that the

image.basedir.local property in the custom.properties file is set to the collect location. The custom.propeties file is in the /resource subdirectory on the installation server where the installation package was extracted.

---

### CIYBA0106E The {0} file could not be saved.

**Explanation:** The installation program attempted to write the file named {0} and a file I/O error was returned.

**User response:** Check that the specified location can be accessed using the installer's user ID. Make sure there is sufficient space on the disk and that the partition is not corrupt.

---

### CIYBA0107E Property reference {0} was not found in Topology file {1}

**Explanation:** During installation some of the components require property values from prerequisite software. These components use properties references in the topology file to determine the required property values. The property reference could not be found in the topology file.

**User response:** The topology file is corrupted. This could be due to manual edits that introduced invalid entries or that the installation did not write a topology file with correct values. Determine which components were incorrectly installed. Remove any incorrectly installed components, correct the topology file, and reinstall.

---

### CIYBA0108E Component {0} was not found in Topology file {1}.

**Explanation:** The installation program expected to find the {0} component ID in the {1} topology file. The component ID was not found. The problem might be due to an incorrectly specified dependency in a connection element of another component.

**User response:** Review the topology file for references to {0}. Correct any incorrect connection elements for the {0} component and reinstall.

---

### CIYBA0109E Property {0}.{1} in Topology File {2} is invalid.

**Explanation:** The property was not found in the topology file or in a specification properties file.

**User response:** If missing, add the property to the specification properties file or the topology file. This error might also be due to the property being misspelled. Correct the topology file or specification properties file and reinstall.

---

**CIYBA0110E The property {0}.{1} in Topology File {2} cannot be found.**

**Explanation:** A deployable unit reference another deployable unit indicated by role {1}. Either the dependent deployable unit is not found or there is a mismatch in roles.

**User response:** The topology file indicated contains references to the property shown, however the definition of that property cannot be found in the topology file. This situation could arise if the topology file was manually edited and a component was removed, however references to that component still exist.

---

**CIYBA0111E Cannot retrieve master host for component {0}.**

**Explanation:** A topology component must be associated with a target host. An orphan topology component is specified.

**User response:** Check the {0} topology component and make sure it has a sequence of connection attributes that ultimately has a component with a host attribute.

---

**CIYBA0112E Failed to read Topology File {0}**

**Explanation:** The installation program was unable to read the specified topology file.

**User response:** Check that the indicated topology file is in the installation directory and that the installation program can access the directory.

---

**CIYBA0113E Failed to save file {0}.**

**Explanation:** The installation program was unable to save the indicated file.

**User response:** Check that the installation program has access to the installation directory.

---

**CIYBA0114E The {0}.{1} property cannot be set.**

**Explanation:** The installation program was unable to update the indicated property.

**User response:** The topology file is either corrupted or was manually edited and introduced invalid property values. Correct the topology file and rerun the installation.

---

**CIYBA0115E The Topology File {0} cannot be found.**

**Explanation:** The installation program was unable to access the indicated topology file.

**User response:** Check that the topology file is in the directory specified by the installation program and make sure the installation program can access the directory.

---

**CIYBA0116E Unable to write to properties file {0}.**

**Explanation:** The installation program was unable to write the indicated properties file.

**User response:** Check that the user ID used by the installation program has access to the temporary directories on the target servers. The directory on the target servers where the temporary installation scripts will be written is specified by the `Unix.script.basedir.remote` property in the `custom.properties` file. Correct this property value if incorrectly specified.

---

**CIYBA0117E The installer failed to create the keystore.**

**Explanation:** The installation program was unable to create the key store.

**User response:** Check that the user ID being used by the installation program has access to all subdirectories where the installation media was extracted.

---

**CIYBA0118E The installer was unable to access the keystore using the supplied password. The password is incorrect or the keystore is corrupt.**

**Explanation:** The installation program was unable to access the keystore.

**User response:** Check that the supplied password is correct and the keystore was not corrupted. Regenerate the keystore with a new password by reinstalling the solution.

---

**CIYBA0119E Unable to encrypt property {0} in Topology file {1}.**

**Explanation:** The installation program attempted to encrypt the indicated property using the password supplied in the topology file and was unable to do so.

**User response:** Check that the keystore is not corrupted and that the password for the topology is correct. If needed, recreate the keystore with a new password by reinstalling.

---

**CIYBA0120E Unable to decrypt property {0} in topology file {1}**

**Explanation:** An attempt to read and decrypt the indicated property failed.

**User response:** Check that the user ID used by the installation program can access the indicated topology file and that the topology file is in the expected location. Check that the password and secret key are correct. Rerun the installation.

---

### CIYBA0121E The keystore file {0} already exists.

**Explanation:** This error should not occur using the IBM Installation Manager installation. IBM Installation Manager controls the installation flow and ensure there an attempt is not made to regenerate the keystore.

**User response:** Check that the installation has not already been run. Rerun the installer once the existing keystore from a previous installation attempt has been removed.

---

### CIYBA0122E The keystore for the Topology does not exist. Run the createSecretKey command.

**Explanation:** This error should not occur when running the IBM Installation Manager installation. The IBM Installation Manager installation automatically accepts the SecretKey and generates the keystore.

**User response:** If running a step-by-step installation, follow the steps to generate a keystore.

---

### CIYBA0123E The Topology {0} is not completely installed.

**Explanation:** The installation program has determined that not all the components in the topology have been installed.

**User response:** Check the topology file and determine which components have not been installed. Restart the installation.

---

### CIYBA0124E The {0} properties file cannot be found.

**Explanation:** The installation program attempted to read the indicated properties file. However, the file could not be found.

**User response:** Check that the installation package was property extracted. Check that the user ID used by the installation program has access to all directories where the package was extracted.

---

### CIYBA0125E Unable to write to the properties file {0}

**Explanation:** The installation program attempted to update a file with the runtime variable values and an I/O exception was returned.

**User response:** Check that the location specified can be accessed using the installation program user ID. Check that there is sufficient space in the file system and the disk partition is not corrupt.

---

### CIYBA0126E Unable to set the value for property {0} from Topology file {1}

**Explanation:** The installation program was unable to set the specified property value.

**User response:** Check that the property in the indicated topology file has the correct XML syntax. Check that the topology file is not corrupt or malformed. Remove any special characters from the file and restart the installation.

---

### CIYBA0127E Unable to read the solution specification file {0}

**Explanation:** The installation program tried to read the indicated file and a file I/O error was returned.

**User response:** Check that the file exists in the specified location. Check that the user ID used by the installation program has access to all directories where the package was extracted.

---

### CIYBA0128E The {0} file could not be saved.

**Explanation:** The installation program attempted to write the indicated file and a file I/O error was returned.

**User response:** Check that the location specified can be accessed by the user ID used by the installation program. Check that there is enough space in the file system and that the disk partition is not corrupt.

---

### CIYBA0129E Unable to read the solution package file {0}.

**Explanation:** The installation program attempted to read the indicated file and a file I/O error was returned.

**User response:** Check that the file exists in the specified location. Check that the user ID used by the installation program has access to all directories where the package was extracted.

---

### CIYBA0130E The solution package file : {0} does not exist.

**Explanation:** The installation program tried to read the indicated file and a file I/O error was returned.

**User response:** Check the permissions of the file indicated in the message. Ensure the user ID used by the installation program has permission to read the file. Modify the file permissions if needed.

---

### CIYBA0131E The installer failed to load the {0} Topology file. File I/O message was {1}.

**Explanation:** The indicated error was returned when attempting to import the specified topology file.

**User response:** Check that the indicated topology file is in the correct directory. Check that the topology file does not contain any invalid characters. Check that the installation program can access the directory containing the topology file.

---

**CIYBA0140E Unable to access required Transformer or XSL files.**

**Explanation:** The installation program attempted to read a required Transformer or XSL files and was unable to do so.

**User response:** Check that the location where the installation package was extracted can be accessed by the user ID used by the installation program. Make sure the disk partition is not corrupt. Extract the installation package again and retry the installation.

---

**CIYBA0141E Unable to locate installation file {0}.**

**Explanation:** The installation program attempted to read the indicated file and a file I/O error was returned.

**User response:** Check that the file exists in the specified location. Check that the user ID used by the installation program can access all directories containing the extracted installation package.

---

**CIYBA0142E Unable to write to installation file {0}.**

**Explanation:** The installation program tried to write the indicated file and a file I/O error was returned.

**User response:** Check that the user ID used by the installation program has access to all directories containing the extracted installation package. Check that the disk partition is not corrupt and has not run out of space.

---

**CIYBA0143E The installation program failed to process the Topology File.**

**Explanation:** The installation program reads the topology file and generates intermediate files containing runtime values. The installation program encountered an error while processing the topology file and writing the intermediate files. File I/O errors are the likely cause of this error.

**User response:** Check that the user ID used by the installation program has access to all directories where the installation package was extracted. Check that the disk partition is not corrupt or out of space.

---

**CIYBA0150E Unable to read the Topology Specification file {0}.**

**Explanation:** The installation program tried to read the indicated file and a file I/O was returned.

**User response:** Check that the file exists in the specified location. Check that the user ID being used by the installation program has access to all directories where the installation package was extracted.

---

**CIYBA0160E The rule specification file was not found in the {0} directory.**

**Explanation:** The installation program tried to load the rule-spec.xml file, which defines the precheck rules, and was unable to do so.

**User response:** Check that the indicated directory exists. Also make sure the directory can be accessed by the user ID used by the installation program.

---

**CIYBA0161E The rule name {0} is invalid.**

**Explanation:** The installation program identified an incorrect rule name in the rule-spec.xml file. This file defines rules used by the precheck step.

**User response:** Check that the rule name is correct in the rule-spec.xml file. Refer to an unchanged version of the rule-spec.xml file for the correct rule name.

---

**CIYBA0162E Installation prerequisite checking for topology {0} discovered problems.**

**Explanation:** The precheck step has failed with one or more of the configuration targets failing to meet the supported system requirements.

**User response:** Check that the planned topology meets the minimum supported requirements.

---

**CIYBA0163W The OS type of target server {0} is not {1}.**

**Explanation:** The precheck step has detected an unsupported operating system on the indicated target server.

**User response:** Make sure the operating system on the target server meets the supported system requirements.

---

**CIYBA0164W The {0} server was expected to have a {1} bit OS.**

**Explanation:** The precheck step has detected an incorrect operating system on the target server.

**User response:** Check that the operating system type on the target server meets the system requirements.

---

**CIYBA0165W CPU of target server {0} is not a x86 or s390 64bit CPU.**

**Explanation:** The precheck step has detected an unsupported CPU type for the indicated target server.

**User response:** Check that the CPU type for the target server meets system requirements.

---

---

**CIYBA0166E Cannot connect to target server {0}.**

**Explanation:** The installation program could not connect to the remote server when running the precheck step.

**User response:** Check connectivity between the installation server and the target servers. Check the precheck logs for other errors.

---

**CIYBA0167E Cannot connect to server {0} because of the wrong host name, account or password was specified.**

**Explanation:** The installation program failed when running the precheck step. The installation program was unable to connect to the target server.

**User response:** Check that the hostname is the correct format and the login details are correct for the remote server. Check the precheck logs for additional information.

---

**CIYBA0168E The {2} for servers {0} and {1} are not synchronized.**

**Explanation:** There is a {2} difference between {0} and {1} servers.

**User response:** Check that the {2} is the same for all {0} and {1} servers.

---

**CIYBA0171I Installation prerequisite checking is starting using instance {0}.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0172I Installation prerequisite check finished successfully.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0173I Installation prerequisite check finished with {0} warnings and {1} errors:**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0176E The login information for server {0} is incorrect. Verify the user id and password for the server.**

**Explanation:** The installation program precheck step found incorrect login information for the target server.

**User response:** Check that the account details for the

server have the correct user ID and password.

---

**CIYBA0177W Unable to connect to the remote server. Waiting to retry.**

**Explanation:** The installation program precheck step failed to connect to the remote server. The connection will be reattempted.

**User response:** No action is required. The installation program will wait the amount of time specified in the `waiting.time` property in the `custom.properties` file and will then reattempt the connection.

---

**CIYBA0178W Cannot connect to {0}, waiting {1} milliseconds before next connection attempt.**

**Explanation:** There are connectivity issues in the system.

**User response:** If multiple connection attempts fail, contact the network administrator to resolve the connectivity issues and retry the installation.

---

**CIYBA0179E No value was provided for key {0} in the topology properties file.**

**Explanation:** The installation program precheck step was unable to retrieve values for the hostname, user name, or password from the properties file.

**User response:** Check that the hostname, user name, and password are specified correctly in the properties file.

---

**CIYBA0180E The user ID entered for server {0} does not have root privileges.**

**Explanation:** The installation program precheck step detected that the account used for the indicated server does not have root privileges.

**User response:** Change the user ID used for the server to one that has root privileges or add root privileges to the user ID specified for the server.

---

**CIYBA0183E Value {0} for key {1} in not valid, it should be "EM64T" or "AMD64" or "S390".**

**Explanation:** The key value should be one of the specified values.

**User response:** Correct the value and rerun the installation.

---

**CIYBA0184E Value {0} for key {1} is not a valid host name**

**Explanation:** The installation program precheck step determined the value provided is not a valid hostname.



**User response:** Check that the host name is the correct format and has a correct value.

---

**CIYBA0185E Install prerequisite check failed on rule {0}**

**Explanation:** The installation program precheck step failed when checking the specified rule.

**User response:** Check the precheck logs for addition messages. Correct the error and retry the installation.

---

**CIYBA0187E SSH keystore "{0}" was specified, but could not be accessed. Certificate-based SSH protocol will be unavailable. Details: {1}.**

**Explanation:** The installation program precheck step detected invalid data in the SSH keystore when attempting to connect to the target server.

**User response:** Review the details in the message and verify that the provided keystore has adequate entries.

---

**CIYBA0190E The component {0} must appear before component {1} in topology file.**

**Explanation:** The topology file was incorrectly changed. A prerequisite component appears after a component that depends upon it.

**User response:** Change the topology file so the components that have dependencies are after the components they depend on.

---

**CIYBA0191E There is a dependency between component {0} and component {1} in the Topology File. The components cannot be deployed in parallel.**

**Explanation:** The components cannot be deployed in parallel if there is a dependency between them. For example, if component 2 is a prerequisite of component 1.

**User response:** Remove the components from the parallel stanza of the topology file.

---

**CIYBA0192E The property {1}.{2} has an invalid reference value of {0} in the Topology File.**

**Explanation:** The reference value included in the message is not valid for the indicated property.

**User response:** Use the ID field to find the property definition and make sure all references to the property have the correct value.

---

**CIYBA0193E The component {0} has duplicate connections {1} identified in the Topology File.**

**Explanation:** Duplicate connections for the component are defined in the topology file.

**User response:** Remove the duplicate connection information in the topology file and rerun the installation program.

---

**CIYBA0194E The property {0} is duplicated in component {0}**

**Explanation:** A duplicate property is defined for the component.

**User response:** Remove the duplicate property for the component in the property file.

---

**CIYBA0195E The component {0} in the Topology file has an invalid property {0}.**

**Explanation:** The property specified was unexpected for the indicated component. This could be caused by a misspelled property or a property missing from the property specification.

**User response:** Add the specified property to the properties file or the topology. If the property was misspelled, correct the misspelling. Correct the topology file or specification properties file and restart the installation.

---

**CIYBA0196E The component {1} is missing property {0}**

**Explanation:** The component must have the indicated property. The error could be caused by a misspelled property or due to the property being missing from the property specification file.

**User response:** Add the property to the specification properties file or topology. If the error is due to a misspelling, correct the misspelling. Restart the installation.

---

**CIYBA0197E Component {1} has an invalid component type {0} specified.**

**Explanation:** An invalid component type was specified for the component.

**User response:** Check that the specification file for the component contains the component type. Component specification files are located in the *install\_home/ioc16/spec/component* subdirectory on the installation server.

---

**CIYBA0198E** The connection {0} is not valid for component {1}

**Explanation:** The defined connection is not valid for the component.

**User response:** Check the spelling of the connection in the topology file for the component and make sure it is not misspelled.

---

**CIYBA0199E** The {0} connection was missing from component {1}.

**Explanation:** No connection is defined for the indicated component.

**User response:** Check the component specification file and make sure the connection information is included.

---

**CIYBA0200E** The connection information for {0} does not exist.

**Explanation:** The connection ID is missing for the indicated component.

**User response:** Check that the connection ID is specified in the topology file. Check that the connection ID is spelled correctly and refers to a stanza in the topology file defining the associated component for the connection ID.

---

**CIYBA0201E** Cannot connect to remote server {0}.

**Explanation:** The installation program found a connectivity problem to the indicated server.

**User response:** Check that there are no connection issues between the servers. Run the installation program precheck step and resolve any connectivity issues.

---

**CIYBA0202E** User name or password is invalid for server {0}.

**Explanation:** The installation program found invalid credentials for the indicated server.

**User response:** Check that the server credentials are correct in the topology file.

---

**CIYBA0203E** File {0} does not exist.

**Explanation:** An attempt to load the properties file returned an error.

**User response:** Check that the path to the properties file is correct and that the file exists.

---

**CIYBA0204E** Cannot read or write file {0}.

**Explanation:** The installation program tried to load the properties file and an error was returned.

**User response:** Check that the properties file path is correct and the indicated file exists.

---

**CIYBA0205E** Cannot create directory {0} on {1}.

**Explanation:** The installation program was unable to create a directory on the remote server.

**User response:** Check that there is enough space on the remote server and that the user ID used by the installation program has sufficient access rights and adequate permissions to create a directory.

---

**CIYBA0206E** Fail to upload file {0} to remote directory {1} on server {2}.

**Explanation:** The installation program was unable to copy files to the indicated directory on the remote server.

**User response:** Check that there is enough space on the remote server and that the user ID used by the installation program has sufficient access rights and adequate permission to write files to the remote server.

---

**CIYBA0207E** No image defined for {0}.

**Explanation:** The installation program was unable to retrieve image data for the properties file.

**User response:** Check that the properties file contains an image field with the data component.

---

**CIYBA0208E** Fail to upload image of component {0} to remote server {1}.

**Explanation:** The installation program was unable to copy the image files to a directory on the remote server.

**User response:** Check that there is enough space on the remote server and that the user ID used by the installation program has sufficient access rights and adequate permission to write to the directory on the remote server. Also check that the remote directory name is correct.

---

**CIYBA0209I** Host name : {0}.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

---

**CIYBA0210I** OSType={0},OSBit={1},CPUArch={2}.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0211I** Remote path : {0}.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0212I** Local path : {0}.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0213E** Fail to download file {0} from remote server {1}.

**Explanation:** The installation program was unable to copy the image files from a remote directory server to the local server.

**User response:** Check that there is enough space on the local server and that the user ID used by the installation program has sufficient access rights and adequate permissions to write to the directory. Also check that the local and remote directory names are correct.

---

**CIYBA0214E** Download file {0}.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0215I** Command : {0}.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0216I** Command exit code : {0}.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0217I** Command output : {0}.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---



---

**CIYBA0218E** Command failed with return code {0}.

**Explanation:** The command did not successfully complete.

**User response:** Check the log files for further details.

---

**CIYBA0219I** Upload file {0}.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0220I** Local image directory : {0}.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0221I** Remote image directory : {0}.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0222E** Remote image {0} already exists.

**Explanation:** The file already exists on the target server. The installation process includes transferring media to target servers. This message indicates the required image has already been transferred.

**User response:** This message indicates that media from a previous installation attempt still exists on the target servers. If the user intended to start a new installation, the media should be deleted so that it can be uploaded again.

---

**CIYBA0223E** Cannot launch command on server {0}.

**Explanation:** The installation program could not run the **IOC** command from the remote server to the local server.

**User response:** Check the connection between the local server and the remote server. Check that the user ID used by the installation program has sufficient access rights and adequate permission to run the command.

---

**CIYBA0224E** Get backup files from folder {0} on server {1}.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

---

**CIYBA0225E Failed to get backup files from folder {0} on server {1}.**

**Explanation:** The installation program was unable to retrieve files from a remote backup folder to a local folder.

**User response:** Check the connection between the local and remote servers. Check that the user ID used by the installation program has sufficient access rights and adequate permission to access the folders.

---

**CIYBA0226E No backup folder {0} exists on server {1}.**

**Explanation:** The installation program was unable to retrieve files from a remote backup folder to a local folder.

**User response:** Check that the remote directory and folder exists.

---

**CIYBA0227E Value must be provided for ID and path attributes.**

**Explanation:** The installation was unable to identify the component ID and path attribute.

**User response:** Check that the component ID and path arguments are provided within the task arguments.

---

**CIYBA0228I Exec command: {0}.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0229E Insufficient disk space in target directory {0}.**

**Explanation:** The installation program did not find enough space in the target directory.

**User response:** Check that the indicated directory has enough allocated space and can be accessed by the user ID used by the installation program.

---

**CIYBA0230I IBM Intelligent Operations Center Command Line Version: {0}**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0231I Import topology "{0}" successful.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0232E Topology name "{0}" was not found under the ../topology folder.**

**Explanation:** The installation program was unable to find the indicated topology in the ../topology folder.

**User response:** Check that the topology file exists in the ../topology folder and that it is in a valid XML format.

---

**CIYBA0233I Current topology is "{0}".**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0234E ANT\_HOME is not set or set incorrectly.**

**Explanation:** The installation program encountered a problem in the ANT\_HOME environment variable.

**User response:** Check that the ANT\_HOME variable is set to a valid ANT version.

---

**CIYBA0237E Component ID "{0}" is invalid.**

**Explanation:** The installation program found an incorrect component ID in the topology file.

**User response:** Check that the component ID exists and is named correctly in the topology file.

---

**CIYBA0238E Action "{0}" for component ID "{1}" is invalid.**

**Explanation:** The indicated action is incorrect for the current component in the topology file.

**User response:** Check the topology file and make sure the defined action is suitable for the component.

---

**CIYBA0239E If you want more detailed operation messages, please check {0}.**

**Explanation:** The command did not successfully complete.

**User response:** Check the log file indicated by {0} for actions to be taken.

---

**CIYBA0240I Command completed successfully or completed successfully with warnings.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0241E Command failed :**

**Explanation:** The displayed command failed.

**User response:** The action to be taken will depend on the command that failed. Review the command and the logs to determine the cause of the failure.

---

**CIYBA0242E Please remove the ".xml" from parameter "{0}".**

**Explanation:** The parameter shown includes the file extension .xml.

**User response:** XML filename parameters should not include the .xml extension. Remove .xml from the parameter and retry the command.

---

**CIYBA0243E IOP\_CIPHER\_ALG or IOP\_CIPHER\_KEYSIZE environment variables are incorrectly set. Set to appropriate JCE-compliant values.**

**Explanation:** The installation program was unable to identify a correct value for the cipher used in the encryption.

**User response:** Check that the CIPHER\_ALG and IOP\_CIPHER\_KEYSIZE environment values are correctly set.

---

**CIYBA0244E "{0}" is not a valid parameter.**

**Explanation:** The indicated parameter is not a valid parameter.

**User response:** Remove or correct the parameter and retry the command.

---

**CIYBA0245E "-{0}" miss parameter.**

**Explanation:** The indicated parameter is required but missing from the command.

**User response:** Rerun the command with the missing parameter.

---

**CIYBA0249I Prepare operation scripts.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0250I Operation complete.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0251I Operation sequence started.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0252I Operation sequence finished.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0253I Upload component [{0}] images to host [{1}]**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0254I Install component [{0}] on host [{1}]**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0255I Uninstall component [{0}] on host [{1}]**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0256I Start component [{0}] on host [{1}]**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0257I Stop component [{0}] on host [{1}]**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0258I Propagate component [{0}] on host [{1}]**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0261I {0} tasks are running**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0262I** The total {0} tasks will be performed

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0263I** Backup component [{0}] on host [{1}]

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYBA0264E** Cannot load log configuration file {0}.

**Explanation:** The logging function cannot find the property file containing the logging configuration parameters.

**User response:** Check that installation package was fully extracted and that it is located on a file system accessible to the user ID running the installation program.

---

**CIYBA0265E** Can not create file handler for log.

**Explanation:** The logging function attempted to open a file using a system file handle and was unable to do so.

**User response:** Have the system administrator check the number of file handles available to the system. Ensure the file system where the installation package was extracted is not corrupt.

---

**CIYBA0266E** The required RPM package {0} is not installed on the {1} server.

**Explanation:** The indicated RPM package is not installed on the server.

**User response:** Install the supported RPM package on the server.

---

**CIYBA0267E** The {1} server does not have enough disk space. {0} disk space is required.

**Explanation:** The server does not have enough disk space or the server does not meet the system requirements for disk space.

**User response:** Delete files to make space available on the server so the minimum space requirements are met.

---

**CIYBA0268E** The {1} server does not have enough memory. {0} GB of memory is required.

**Explanation:** There is not enough RAM on the indicated server. The server does not meet system requirements for minimum RAM.

**User response:** Add RAM to the server.

---



---

**CIYBA0269I** The {0} directory cannot be created on server {1}. The directory already exists.

**Explanation:** The specified directory already exists on the server.

**User response:** Remove the directory on the server.

---

**CIYBA0270I** The tcp ip port {0} is in already in use on server {1}. This is a required port and must be available prior to installation.

**Explanation:** The program or process is already configured to use a required TCP/IP port on the server.

**User response:** Reconfigure the server so the required port is available. Rerun the installation.

---

**CIYBA0271E** Server {1} does not have the expected fully-qualified Host Name, or short Host Name, or default Host Name. The expected FQH is {0}.

**Explanation:** The server does not have the expected fully qualified host name.

**User response:** If using the IBM Installation Manager installation, enter the fully qualified hostname for the server. If using the step-by-step installation, enter the fully qualified host name in the SERVERS section of the topology Properties file. Correct the server listed in the error message.

---

**CIYBA0272E** The network connection from server {1} to server {0} is broken.

**Explanation:** There is no network connectivity between the two indicated servers.

**User response:** Check the connectivity between the servers. If the problem persists, contact the system network administrator.

---

**CIYBA0273I** Server {0} is running SELinux which is unsupported.

**Explanation:** SELinux is not supported by IBM Intelligent Operations Center.

**User response:** Install a supported Linux version.

---

**CIYBA0274E** An active firewall was detected on server {0}. All firewalls must be disabled prior to installation.

**Explanation:** The server has an active firewall.

**User response:** Disable the firewall on the server during the installation process.

---

---

**CIYBA0275I** Unable to find a DNS entry for server {0}. DNS lookup by IP or Host Name failed.

**Explanation:** The server is either not configured correctly in the DNS, or the DNS is not functioning properly. The DNS lookup command failed for the server by IP address and by host name.

**User response:** Contact the system network administrator for the server and correct the DNS entry of DNS

---

**CIYBA0276E** Server {1} has a system setting that does not meet installation requirements. See previous message for details.

**Explanation:** The system setting for the maximum number of open files does not meet installation requirements.

**User response:** The `ulimit` setting needs to be modified to the indicated value.

---

**CIYBA0277I** The Linux release found does not meet installation requirements. The expected release is {0}.

**Explanation:** The Linux installed on the indicated server is not supported.

**User response:** Install a supported Linux version.

---

**CIYBA0278I** The Linux distribution found does not meet requirements. The expected distribution is {0}

**Explanation:** The Linux installed is not supported.

**User response:** Install a supported Linux distribution.

---

**CIYBA0279E** WebSphere Application Server profile {0} is not started or account or password is invalid on server {4}.

**Explanation:** The WebSphere Application Server profile is not started or an attempt was made to start it with invalid credentials.

**User response:** Start the WebSphere Application Server profile using a correct user ID and password.

---

**CIYBA0281E** Server {0} does not have IPv6 enabled. Enable IPv6 on the server before installation.

**Explanation:** The indicated server does not have IPv6 configured.

**User response:** Enable IPv6 on the indicated server.

---



---

**CIYBA0282E** Some of the files located in the {0} directory on the media server are corrupt.

**Explanation:** All installation files have MD5 checksums that need to be verified prior to installation. The MD5 checksum on some files located in the indicated directory do not have valid MD5 checksums.

**User response:** Extract the installation package again, or recopy the files to the directory.

---

**CIYBA0283E** SSH on server {0} is not configured correctly. Password authentication using SSH is needed but not configured on server.

**Explanation:** The SSH configuration on the indicated server is incorrect.

**User response:** Reconfigure the `/etc/ssh/sshd_config` file as follows:

- Remove all `AllowUsers` and `AllowGroups` statements.
- Specify `YES` for `PermitRootLogin`.
- Specify `YES` for `Password Authentication`.

These changes will allow only root users to access the server using SSH with password authentication.

---

**CIYBA0284E** {0} was found to be a symbolic [soft] link. Symbolic links are not permitted.

**Explanation:** Symbolic or soft links to files or directories are not supported.

**User response:** Remove symbolic links and provide the direct path or file name.

---

**CIYBA0285E** Tivoli Directory Server instance {0} is not started on server {1}.

**Explanation:** The indicated Tivoli Directory Server instance needs to be started.

**User response:** Start the Tivoli Directory Server.

---

**CIYBA0286E** IBM DB2 instance {0} is not started on server {1}.

**Explanation:** The indicated DB2 instance is not started.

**User response:** Start the DB2 instance.

---

**CIYBA0287E** WebSphere Application Server {1} on profile {0} is not started on server {2}.

**Explanation:** The indicated WebSphere Application Server profile is not started on the indicated server.

**User response:** Start the WebSphere Application Server profile.

---

---

**CIYBA0288E** Server {0} does not have "localhost" mapped to 127.0.0.1.

**Explanation:** In the host file for each server the localhost entry must be mapped to 127.0.0.1.

**User response:** Update the host file on the server to map the localhost value to 127.0.0.1.

---

**CIYBA0289I** The {1} server does not have the required number of CPUs. The required number of CPUs for this machine is {0}.

**Explanation:** The server does not have enough CPU resources to meet requirements.

**User response:** Add CPU resources to the indicated server.

---

**CIYBA0301E** A button was clicked to run a test but no matching properties were found in the properties file.

**Explanation:** The properties for the test were not found in the properties file.

**User response:** Click **Reset**. This will cause the program to read the current properties file in case changes were made. Retry the test.

---

**CIYBA0302E** Every test must have certain properties. The class property is one of them. Parameters: {0}: class name {1}: method name {2}: sequence number

**Explanation:** Test definition is missing the class property.

**User response:** Search for the sequence number in the properties file. Add a class property for the test. This is the class name of the test. This is usually the class name of the remote execution agent (the code that forwards the test request to IopCatRemoteResponder for execution.

For example:

```
0070.classname=com.ibm.iop.cat.fw.remote.IopCatRemoteR
```

---

**CIYBA0303E** Every test must have certain properties. The display label property is one of them. Parameters: {0}: class name {1}: method name {2}: sequence number

**Explanation:** Test definition is missing the display label.

**User response:** Search for the sequence number in the properties file. Add a `displayLabel` property for the test. This is the text that will be displayed on the button.

---

**CIYBA0304E** A button was clicked to run a test but no matching test was found in the properties file.

**Explanation:** The currently loaded properties file does not define the requested test.

**User response:** Click **Reset**. The current properties file will be reloaded.

---

**CIYBA0305E** A button was clicked to run a test but no configuration information can be found for the test.

**Explanation:** Configuration information is not available for the test.

**User response:** Click **Reset**. The current properties file will be reloaded.

---

**CIYBA0306E** The code specified by the class could not be found. Parameter:{0}: class name (not found)

**Explanation:** Either the `classname` was not specified correctly in the properties file or the code was not found.

**User response:** Check the shared libraries for the IopCatRemoteResponder application to see if one or more shared libraries are missing or not specified.

---

**CIYBA0307E** Common variables apply to all tests. The name, class or debug variables cannot be set using common. Parameters: {0}: class name {1}: method name {2}: property key string

**Explanation:** Common was used to set name, class, or debug.

**User response:** Search for the key and remove the offending line. For example, `common.name` used to name all tests with the same name.

---

**CIYBA0308E** An exception occurred in class {0}, method {1}. Details {2}

**Explanation:** An exception occurred.

**User response:** Examine the exception string to determine why the test failed. This may be a normal test failure. For example, "Connection refused" usually means no program was listening on a given port so the service is not running.

---

**CIYBA0309E** {0}.{1}() - Test[{2}] - Exception: {3}

**Explanation:** A runtime exception occurred in the indicated test.

**User response:** Review the error message for details.

---



---

**CIYBA0310E** An unexpected Exception occurred while running this test.

**Explanation:** An unexpected exception occurred.

**User response:** Review other exceptions for additional details.

---

**CIYBA0312I** The Web test received the expected HTTP response code (either in the range 200-299 or specified by the property expectedRcode). Parameters: {0}: class name

**Explanation:** Indicates the test was successful.

**User response:** No action is required.

---

**CIYBA0313E** The Web test did not receive the expected HTTP response code (either in the range 200-299 or specified by the property expectedRcode). Parameters: {0}: class name {1}: HTTP response code

**Explanation:** An unexpected HTTP response code was received.

**User response:** Check the URL specified by the hosturl property either with a browser or the **wget** command.

---

**CIYBA0314I** Test response code: {0} Response text: {1} Details: {2}.

**Explanation:** This message returns the test response as a string.

**User response:** No action is required.

---

**CIYBA0315E** All tests must have properties. No properties were passed into this test.

**Explanation:** Properties were missing from the test invocation.

**User response:** This message should not occur since properties are passed by the framework. Contact IBM Software Support.

---

**CIYBA0320E** An expected string was not found in output text "{1}". Class name {0}

**Explanation:** The SSH tests login to the server, runs the commands, and checks for an expected string in the output from the commands. No expected string was specified in the properties for this test.

**User response:** Check the expected key for the test. Add or modify the property to specify a string expected to be contained in the output for the commands specified in the `commands` property.

---

**CIYBA0322E** Expected string not found in output text "{1}". Class name {0}

**Explanation:** The SSH tests log on to the server, runs the commands, and checks for an expected string in the output from the commands. The expected string was not found in the output.

**User response:** Check the expected key for the test and the output text. This could indicate the test failed. If the output text contains "keyboard interactive not allowed" it could mean that the user ID or password used to log on to the remote server is incorrect. Check the user, password, and hostname properties for the test. The password is an alias to a password in the keystore.

---

**CIYBA0323E** Unexpected exception "{1}". Class name {0}

**Explanation:** An unexpected exception occurred.

**User response:** If the output text contains "keyboard interactive not allowed" it could mean that the user ID or password used to log on to the remote server is incorrect. Check the user, password, and hostname properties for the test. The password is an alias to a password in the keystore.

---

**CIYBA0340E** The test execution agent (IopCatRemoteResponder) was unable to parse the input JSON data. Parameters: {0}: class name {1}: method name {2}: post data

**Explanation:** The user interface and test execution agent communicate using JSON. This error means the test execution agent (IopCatRemoteResponder) was unable to parse the input JSON data.

**User response:** Examine the post data to see if it is in the correct JSON format.

---

**CIYBA0341E** An exception was encountered while running the test. Parameters: {0}: class name {1}: method name {2}: exception string

**Explanation:** An exception was encountered while running the test.

**User response:** Check the exception string to determine why the test failed. This might be a normal test failure. For example, "Connection refused" usually means no program was listening on the port so the service is not running.

---

**CIYBA0342E** The test execution agent (IopCatRemoteResponder) was unable to send a reply back to the user interface. Parameters: {0}: class name {1}: method name {2}: exception string

**Explanation:** The user interface and test execution

agent communicate using JSON. This error means the test execution agent (IopCatRemoteResponder) was unable to send a reply back to the user interface.

**User response:** Check the exception string to determine why the reply could not be sent. This could occur if the test took too long and the user interface is no longer waiting.

---

**CIYBA0343E An expected Key prefix is missing. Parameters: {0}: class name {1}: method name {2}: property key string**

**Explanation:** All properties for a given test are prefixed by the same number. This provides the grouping since properties files are not positional.

**User response:** Search for the key in the properties file and add the appropriate prefix. For example, the following is incorrect:

```
classname - com.ibm.iop.cat.fw.remote.IopCatRemoter
0050_rhosturl - https://$!APP_HOSTNAME:$!9443/IopCatRemoteResponder/IopCatRemoteResponder
0050_remoteclassname= com.ibm.iop.cat.fw.Echo
0050_displaylabel - Internal Diagnostic (Echo REST remotet)
0050_comment - Self diagnostic CAT check. Tests link between to CAT modules.
0050_failinpage - cct_echo_rest_remoted_test.html
```

Should be:

```
0050_classname - com.ibm.iop.cat.fw.remote.IopCatRemoter
0050_rhosturl - https://$!APP_HOSTNAME:$!9443/IopCatRemoteResponder/IopCatRemoteResponder
0050_remoteclassname= com.ibm.iop.cat.fw.Echo
0050_displaylabel - Internal Diagnostic (Echo REST remotet)
0050_comment - Self diagnostic CAT check. Tests link between to CAT modules.
0050_failinpage - cct_echo_rest_remoted_test.html
```

---

**CIYBA0345E Invalid Key - The key prefix is not numeric. Parameters: {0}: class name {1}: method name {2}: sequence number**

**Explanation:** Every test must have a numeric prefix grouping all of the properties for a given test. The prefix given is not numeric.

**User response:** Search for the sequence number in the properties file. Change the prefix to be numeric and use that same prefix for the rest of the properties for the test.

---

**CIYBA0347E An Exception has occurred. Parameters: {0}: class name {1}: method name {2}: exception string**

**Explanation:** An exception has occurred.

**User response:** Examine the exception string to determine why the test failed. This might be a normal test failure. For example, "Connection refused" usually means no program was listening on the port so the service is not running.

---

**CIYBA0348E A button was clicked to run a test but no matching properties were found in the properties file.**

**Explanation:** No properties were found for the test. The properties file might have been changed.

**User response:** Click **Reset**. The current properties file will be reloaded.

---

**CIYBA0349E The code specified by the class could not be found. Parameter: {0}: class name (not found)**

**Explanation:** Either the classname is not correctly specified in the properties file or the code was not found.

**User response:** Check the shared libraries for the IopCatRemoteResponder to see if one or more shared libraries are missing.

---

**CIYBA0401E The platform control tool properties template file name was not specified or was incorrect.**

**Explanation:** The parameter for the platform control tool properties template file is missing.

**User response:** Enter the correct name for the platform control tool properties file.

---

**CIYBA0402E The IBM Intelligent Operations Center topology properties file name was not specified or was incorrect.**

**Explanation:** The parameter for the IBM Intelligent Operations Center topology properties file is missing or incorrect.

**User response:** Enter the correct name for the IBM Intelligent Operations Center topology properties file.

---

**CIYBA0403E The platform control tool properties template file name was not specified or was incorrect.**

**Explanation:** The parameter specifying the platform control tool properties template file is missing.

**User response:** Enter the correct file name for the platform control tool topology properties file.

---

**CIYBA0404E The IBM Intelligent Operations Center topology properties file cannot be found.**

**Explanation:** The IBM Intelligent Operations Center topology properties file cannot be found.

**User response:** Check that the IBM Intelligent Operations Center topology properties file is located in the *install\_home/ioc16/topology* directory on the installation server.

---

**CIYBA0405E Missing password in the Topology File for property:**

**Explanation:** A password was not found in the indicated topology properties file.

**User response:** A password for the topology file is required. Enter a password for the topology.

---

**CIYRS0000E** An error occurred while creating the system property {0}.

**Explanation:** The system property with name {0} was not created because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0000I** The system property {0} was created.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0001E** An error occurred while updating the system property {0}.

**Explanation:** The system property with name {0} was not updated because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0001I** The system property {0} was updated.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0002E** An error occurred while deleting the system property {0}.

**Explanation:** The system property with name {0} was not deleted because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0002I** The system property {0} was deleted.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0003E** An error occurred while creating the pane {0}.

**Explanation:** The filter panel REST service was not able to complete the insert request because of an internal SQL exception.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0003I** The pane {0} was created.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0004E** An error occurred while updating the pane {0}.

**Explanation:** The filter panel REST service was not able to complete the update request. A possible reason is that a concurrent update request is in progress.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0004I** The pane {0} was updated.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0005E** An error occurred while deleting the pane {0}.

**Explanation:** The filter panel REST service was not able to complete the delete request because of an internal SQL exception.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**CIYRS0005I The pane {0} was deleted.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0006I The Date & Time pane was saved.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0007E An error occurred while deleting data source {0}.**

**Explanation:** The specified data source was not deleted because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**CIYRS0007I The data source {0} is deleted.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0008E An error occurred while saving data source {0}.**

**Explanation:** The specified data source was not saved because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**CIYRS0008I The data source {0} is saved.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0009E An error occurred while saving translated text for data source {0}.**

**Explanation:** The translated text that you entered for the specified data source was not saved because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**CIYRS0010E No properties were found for data source {0}.**

**Explanation:** No properties were found in the specified data source.

**User response:** Verify that all the values you provided for your data source are correct. If you created a customized receiver, check for receiver issues. Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**CIYRS0011E You cannot edit standard operating procedures that are not in draft status.**

**Explanation:** You tried to edit a standard operating procedure definition that is not in draft status. If you want to edit a standard operating procedure definition, you must first create a draft version.

**User response:** Create a draft version of the standard operating procedure definition that you want to edit. For more information about creating drafts, see the link at the end of the topic.

**Related tasks:**

“Working with drafts and approvals” on page 139  
When you create a standard operating procedure definition, a draft version is saved initially. When you submit a draft version for approval, a version of the standard operating procedure definition is saved, where the version name is the approval time stamp value. You can create another draft that is based on an approved version.

**CIYRS0012E A transitional update cannot be requested.**

**Explanation:** The data server cannot process the update to the standard operating procedure definition because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0013E You are not authorized to create standard operating procedures.**

**Explanation:** Only authorized standard operating procedure authors and administrators can configure standard operating procedure definitions. Authorized standard operating procedure authors are listed in the SopAuthorRoles system property. Authorized standard operating procedure administrators are listed in the SopAdminRoles system property.

**User response:** Ask an authorized standard operating procedure author or administrator to create the standard operating procedure definition for you. Alternatively, ask an administrator to add you to the list of authorized standard operating procedure authors. For more information about roles that relate to the creation and administration of standard operating procedures, see the link at the end of the topic.

**Related concepts:**

“Defining standard operating procedure roles” on page 97

The standard operating procedure component obtains the current authentication credentials to determine what actions each user is authorized to do. Each user is authorized to do standard operating procedure actions that are based on the LDAP Roles that the user is assigned to, and must match the distinguished name (DN) that is used in association with the standard operating procedure objects.

---

**CIYRS0014E A transitional standard operating procedure definition exists for the current user.**

**Explanation:** You have previously created a draft version of the selected standard operating procedure definition that has not been committed.

**User response:** Either commit, or delete, the draft version of the selected standard operating procedure definition that you created previously.

---

**CIYRS0015E The selected standard operating procedure definition is not in draft status.**

**Explanation:** The change cannot be made to the standard operating procedure definition because the definition is not in draft status.

**User response:** Create a draft version of the standard operating procedure definition before you attempt to change it.

**Related tasks:**

“Working with drafts and approvals” on page 139  
 When you create a standard operating procedure definition, a draft version is saved initially. When you submit a draft version for approval, a version of the standard operating procedure definition is saved, where the version name is the approval time stamp value. You can create another draft that is based on an approved version.

---

**CIYRS0016E A draft version could not be created because an approval request is pending.**

**Explanation:** You cannot create a draft version of a standard operating procedure definition if a draft exists that has been submitted for approval.

**User response:** Either discard the draft, or wait for the current draft to be approved, before you create another draft version of the standard operating procedure definition. For more information about working with drafts and approvals, see the link at the end of the topic.

**Related tasks:**

“Working with drafts and approvals” on page 139  
 When you create a standard operating procedure definition, a draft version is saved initially. When you submit a draft version for approval, a version of the standard operating procedure definition is saved, where the version name is the approval time stamp value. You can create another draft that is based on an approved version.

---

**CIYRS0017E The reference could not be found.**

**Explanation:** The reference that is included in the standard operating procedure definition cannot be found. A possible reason is that it has been deleted from the reference library.

**User response:** Check whether the reference is in the library. If necessary, do one or more of the following options:

- Add a new reference to the library.
- Edit the reference in the standard operating procedure definition.
- Edit the reference in the standard operating procedure instance.

---

**CIYRS0018E You cannot edit shared references.**

**Explanation:** Only users who are listed in the ReferenceLibrarianRoles system property can edit shared references. Users who are listed in the SopAdminRoles system property and the SopAuthorRoles system property can edit and delete only references that they have created.

**User response:** Ask an authorized reference librarian to edit a shared reference for you.

**Related concepts:**

“Defining standard operating procedure roles” on page 97

The standard operating procedure component obtains the current authentication credentials to determine what actions each user is authorized to do. Each user is authorized to do standard operating procedure actions that are based on the LDAP Roles that the user is assigned to, and must match the distinguished name (DN) that is used in association with the standard operating procedure objects.

**CIYRS0019E The standard operating procedure definition is not editable.**

**Explanation:** You cannot edit the standard operating procedure definition because it is not in draft status. Another administrator might have created a draft version of the standard operating procedure definition.

**User response:** Check whether a draft version that is owned by another administrator exists. If a draft version exists, ensure that it is either committed, or deleted, before you create another draft version.

**Related tasks:**

“Working with drafts and approvals” on page 139  
When you create a standard operating procedure definition, a draft version is saved initially. When you submit a draft version for approval, a version of the standard operating procedure definition is saved, where the version name is the approval time stamp value. You can create another draft that is based on an approved version.

**CIYRS0020E The item could not be found.**

**Explanation:** The data item that is referenced by the standard operating procedure could not be found.

**User response:** Check the ID of the data item.

**CIYRS0021E No recipients were specified.**

**Explanation:** You must specify at least one recipient email address for the notification.

**User response:** Enter one or more recipient email addresses for the notification.

**CIYRS0022E No valid notification requests were provided.**

**Explanation:** The format of the content that is included in the notification template is incorrect.

**User response:** Check and correct the format of the content that is included in the notification template.

**CIYRS0023E No standard operating procedure definitions that match the filter criteria could be found.**

**Explanation:** No standard operating procedure definitions match the filter criteria that you specified in your request.

**User response:** Check and amend the filter criteria in your request.

**CIYRS0024E An internal processing error occurred.**

**Explanation:** An internal processing error occurred that prevented the request from being processed.

**User response:** Review the log files. For further assistance, contact IBM Support.

**Related concepts:**

“Enabling traces and viewing log files” on page 395  
To troubleshoot a problem in IBM Intelligent Operations Center, you might need to analyze log files in several systems.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**CIYRS0025E The imported XML file is invalid.**

**Explanation:** The imported XML file could not be read because it contains invalid XML.

**User response:** Check the XML file and ensure that it contains valid XML, then import the XML file again.

**CIYRS0026E The format of the input data is invalid.**

**Explanation:** The request to the REST service contained data that is formatted incorrectly.

**User response:** Check the format of the data in the request and try again.

**CIYRS0027E A communication error occurred while processing the client request.**

**Explanation:** The data in the request could not be read because of a communication error.

**User response:** Review the log files. For further assistance, contact IBM Support.

**CIYRS0028E Invalid automation details were provided.**

**Explanation:** Insufficient details were specified for an automation activity.

**User response:** For information about automation activities, see the link at the end of the topic to the IBM SmartCloud Control Desk 7.5.1 product documentation.

For help with resolving problems that are related to automated activities, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**Related information:**

 [IBM SmartCloud Control Desk Version 7.5.1 product documentation](#)

**CIYRS0029E No automation key is available.**

**Explanation:** An automation key is not available for an automation activity.

**User response:** For information about automation activities, see the link at the end of the topic to the IBM SmartCloud Control Desk 7.5.1 product documentation. For help with resolving problems that are related to automated activities, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**Related information:**

 [IBM SmartCloud Control Desk Version 7.5.1 product documentation](#)

**CIYRS0030E The automated activity could not be started.**

**Explanation:** The automated activity could not be started.

**User response:** For information about automation activities, see the link at the end of the topic to the IBM SmartCloud Control Desk 7.5.1 product documentation. For help with resolving problems that are related to automated activities, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**Related information:**

 [IBM SmartCloud Control Desk Version 7.5.1 product documentation](#)

**CIYRS0031E The automated activity could not be stopped.**

**Explanation:** The automated activity, which was completed, could not be stopped.

**User response:** For information about automation activities, see the link at the end of the topic to the IBM SmartCloud Control Desk 7.5.1 product documentation.

For help with resolving problems that are related to automated activities, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**Related information:**

 [IBM SmartCloud Control Desk Version 7.5.1 product documentation](#)

**CIYRS0032E An unsolicited response that could not be processed was received from the automation engine.**

**Explanation:** An unsolicited response that could not be processed was received from the automation engine.

**User response:** For information about automation activities, see the link at the end of the topic to the IBM SmartCloud Control Desk 7.5.1 product documentation. For help with resolving problems that are related to automated activities, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**Related information:**

 [IBM SmartCloud Control Desk Version 7.5.1 product documentation](#)

**CIYRS0033E An automation with handle ID {0} was not found.**

**Explanation:** An automated work order that an automation activity attempted to initiate, and that has the handle ID {0}, was not found.

**User response:** For information about automation activities, see the link at the end of the topic to the IBM SmartCloud Control Desk 7.5.1 product documentation. For help with resolving problems that are related to automated activities, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**Related information:**

 [IBM SmartCloud Control Desk Version 7.5.1 product documentation](#)

**CIYRS0034E The automation engine returned error {0}.**

**Explanation:** A problem that is related to an automation activity occurred in the automation engine, as indicated by the error code {0}.

**User response:** For information about automation activities, see the link at the end of the topic to the IBM SmartCloud Control Desk 7.5.1 product documentation. For help with resolving problems that are related to automated activities, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**Related information:**

 [IBM SmartCloud Control Desk Version 7.5.1 product documentation](#)

**CIYRS0035E The activity is not an automated activity.**

**Explanation:** An automation ID was requested for an activity that is not an automation activity.

**User response:** Verify that an activity is an automation activity before you request an automation ID for the activity.

**CIYRS0036I {0} standard operating procedures were imported.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0037E The activity type definitions that are on the import target system are not consistent with the activity type definitions that are on the import source system.**

**Explanation:** The activity types that are specified on the source system do not match the activity types that are specified on the target system.

**User response:** Before you import standard operating procedure definitions, ensure that the same types of activities are specified on both the source system and the target system.

**CIYRS0038E You cannot delete required activities.**

**Explanation:** For an instance of a standard operating procedure that has been launched, you cannot delete activities that have been indicated as required in the definition of the standard operating procedure.

**User response:** You must complete activities that have been indicated as required in the definition of the standard operating procedure.

**CIYRS0039E You cannot edit completed or skipped activities.**

**Explanation:** The activity that you are trying to edit has already been either completed, or skipped.

**User response:** None.

**CIYRS0041E You cannot delete a standard operating procedure definition where instances exist that have been created based on the standard operating procedure definition.**

**Explanation:** Active instances exist for the standard operating procedure definition that you are trying to delete. You cannot delete a standard operating procedure definition for which there are active instances.

**User response:** Wait for the status of all the active instances of the selected standard operating procedure definition to be completed before you attempt to delete the definition. For information about viewing the status of the instances of a standard operating procedure, see the link at the end of the topic.

**Related tasks:**

“Viewing and editing definitions” on page 140  
 Use the following procedure to view and edit standard operating procedure definitions.

**CIYRS0042E You can stop only standard operating procedures that have been started.**

**Explanation:** You attempted to stop an instance of a standard operating procedure that is not started.

**User response:** Review the status of an instance of a standard operating procedure in either the Solution Administration view, or by using the standard operating procedure REST interface.

**Related tasks:**

“Viewing and editing instances of a standard operating procedure” on page 141  
 For a standard operating procedure definition, you can review the instances of the standard operating procedure that have been launched. You can view an instance in the Standard Operating Procedure Details window, where you can edit an instance, or change the status of an instance.

**CIYRS0043E You can start only standard operating procedures that are stopped.**

**Explanation:** You attempted to start an instance of a standard operating procedure that is not stopped.

**User response:** Review the status of an instance of a standard operating procedure in either the Solution Administration view, or by using the standard operating procedure REST interface.



**Related tasks:**

“Viewing and editing instances of a standard operating procedure” on page 141

For a standard operating procedure definition, you can review the instances of the standard operating procedure that have been launched. You can view an instance in the Standard Operating Procedure Details window, where you can edit an instance, or change the status of an instance.

---

**CIYRS0044E If you select a duration unit other than "None", you must specify a valid duration value.**

**Explanation:** You selected a duration unit other than **None** but you did not enter a value for the duration of the activity.

**User response:** In the **Duration** field, enter a numerical value for the duration of the activity.

---

**CIYRS0045E You must enter a value for "Name".**

**Explanation:** You did not enter a value for the name of the standard operating procedure definition.

**User response:** In the **Name** field, enter a name for the standard operating procedure definition.

---

**CIYRS0046E The following fields exceed their maximum length.**

**Explanation:** The fields that are indicated contain data that exceeds the maximum length.

**User response:** Ensure that the data in each field does not exceed the maximum field length that is indicated in the following table:

| Field       | Maximum length |
|-------------|----------------|
| NAME        | 128            |
| DESCRIPTION | 1024           |
| COMMENT     | 1024           |
| PROPERTY    | 64             |
| CRITERIA    | 512            |
| URI         | 2083           |
| STATUS      | 256            |

---

**CIYRS0047E An error occurred while importing standard operating procedures: {0}.**

**Explanation:** The standard operating procedure definitions that are indicated in {0} could not be imported from the XML file that you imported.

**User response:** In the XML file that you are importing, check the format of the standard operating procedure

definitions that are indicated in {0}. Review the log files for more details.

**Related concepts:**

“Enabling traces and viewing log files” on page 395  
 To troubleshoot a problem in IBM Intelligent Operations Center, you might need to analyze log files in several systems.

---

**CIYRS0048E An error occurred while starting the automation. The automation engine reported the following error: {0}.**

**Explanation:** The automation activity could not be started because the error that is indicated in {0} occurred in the automation engine.

**User response:** For information about automation activities, see the link at the end of the topic to the IBM SmartCloud Control Desk 7.5.1 product documentation. For help with resolving problems that are related to automated activities, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**Related information:**

 [IBM SmartCloud Control Desk Version 7.5.1 product documentation](#)

---

**CIYRS0049E You are not authorized to delete instances of standard operating procedures that are associated with this standard operating procedure definition.**

**Explanation:** Only authorized standard operating procedure administrators and users who have been granted write access in the standard operating procedure definition can delete instances of standard operating procedures. Authorized standard operating procedure administrators are listed in the SopAdminRoles system property.

**User response:** Ask either an authorized standard operating procedure administrator or a user who has been granted write access in the standard operating procedure definition to delete the instance of the standard operating procedure for you. For more information about roles that relate to the administration of standard operating procedures, see the link at the end of the topic.

**Related concepts:**

“Defining standard operating procedure roles” on page 97

The standard operating procedure component obtains the current authentication credentials to determine what actions each user is authorized to do. Each user is authorized to do standard operating procedure actions that are based on the LDAP Roles that the user is assigned to, and must match the distinguished name (DN) that is used in association with the standard operating procedure objects.

**Related tasks:**

“Configuring standard operating procedure definitions” on page 136

When you define a standard operating procedure, you define activities that are included in the standard operating procedure. You can specify the order in which some or all of the activities in a standard operating procedure are executed. For example, you can specify that a particular activity is not started until the previous activity is completed or skipped. You also assign owners and monitors to the standard operating procedure.

**CIYRS0050E You are not authorized to update either the standard operating procedure, or the activity.**

**Explanation:** Only authorized standard operating procedure administrators and users who have been granted write access in the standard operating procedure definition can update instances of standard operating procedures and associated activities. Authorized standard operating procedure administrators are listed in the SopAdminRoles system property.

**User response:** Ask either an authorized standard operating procedure administrator or a user who has been granted write access in the standard operating procedure definition to remove the instance of the standard operating procedure for you. For more information about roles that relate to the administration of standard operating procedures, see the link at the end of the topic.

**Related concepts:**

“Defining standard operating procedure roles” on page 97

The standard operating procedure component obtains the current authentication credentials to determine what actions each user is authorized to do. Each user is authorized to do standard operating procedure actions that are based on the LDAP Roles that the user is assigned to, and must match the distinguished name (DN) that is used in association with the standard operating procedure objects.

**Related tasks:**

“Configuring standard operating procedure definitions” on page 136

When you define a standard operating procedure, you define activities that are included in the standard operating procedure. You can specify the order in which some or all of the activities in a standard operating procedure are executed. For example, you can specify that a particular activity is not started until the previous activity is completed or skipped. You also assign owners and monitors to the standard operating procedure.

**CIYRS0053E The request could not be authorized.**

**Explanation:** You are not authorized to access the resource.

**User response:** Ask an authorized standard operating procedure administrator to create the request for you. Alternatively, ask an administrator to add you to the list of authorized standard operating procedure administrators. For more information about roles that relate to the administration of standard operating procedures, see the link at the end of the topic.

**Related concepts:**

“Defining standard operating procedure roles” on page 97

The standard operating procedure component obtains the current authentication credentials to determine what actions each user is authorized to do. Each user is authorized to do standard operating procedure actions that are based on the LDAP Roles that the user is assigned to, and must match the distinguished name (DN) that is used in association with the standard operating procedure objects.

**CIYRS0054E Either the request could not be authorized, or the ID does not exist.**

**Explanation:** Either you are not authorized to access the resource, or you specified an ID that does not exist.

**User response:** Verify the ID of the resource. For information about who is authorized to access resources, see the link at the end of the topic to error message CIYRS0053E.

**Related information:**

“CIYRS0053E”

The request could not be authorized.

**CIYRS0055E You cannot start this activity.**

**Explanation:** You cannot start the selected activity because it is not in waiting status.

**User response:** Review the status of an activity in either the Solution Administration view, or by using the standard operating procedure REST interface.

**Related tasks:**

“Viewing and editing instances of a standard operating procedure” on page 141

For a standard operating procedure definition, you can review the instances of the standard operating procedure that have been launched. You can view an instance in the Standard Operating Procedure Details window, where you can edit an instance, or change the status of an instance.

---

**CIYRS0056E You cannot skip this activity.**

**Explanation:** You cannot skip this activity because it is specified as a required activity in the standard operating procedure definition.

**User response:** Complete the required activity.

---

**CIYRS0057E You cannot complete this activity.**

**Explanation:** You attempted to complete an activity that is not started.

**User response:** Review the status of an activity in either the Solution Administration view, or by using the standard operating procedure REST interface.

**Related tasks:**

“Viewing and editing instances of a standard operating procedure” on page 141

For a standard operating procedure definition, you can review the instances of the standard operating procedure that have been launched. You can view an instance in the Standard Operating Procedure Details window, where you can edit an instance, or change the status of an instance.

---

**CIYRS0058E The reference could not be found or parsed.**

**Explanation:** Either the reference URL is incorrect, or the content at the URL is incorrect. For example, the reference content might have been deleted.

**User response:** Check the reference URL. If the URL is correct, check the content at the URL. Correct either the reference URL, or the reference content, as appropriate. Also, see the related topic for message CIYRS0017E.

**Related information:**

“CIYRS0017E” on page 417  
The reference could not be found.

---

**CIYRS0059E You cannot stop this activity.**

**Explanation:** You attempted to stop an activity that is not started.

**User response:** Review the status of an activity in either the Solution Administration view, or by using the standard operating procedure REST interface.

**Related tasks:**

“Viewing and editing instances of a standard operating procedure” on page 141

For a standard operating procedure definition, you can review the instances of the standard operating procedure that have been launched. You can view an instance in the Standard Operating Procedure Details window, where you can edit an instance, or change the status of an instance.

---

**CIYRS0060E This activity is not started.**

**Explanation:** You attempted to query the automation status of an activity that is not started.

**User response:** Review the status of an activity in either the Solution Administration view, or by using the standard operating procedure REST interface.

**Related tasks:**

“Viewing and editing instances of a standard operating procedure” on page 141

For a standard operating procedure definition, you can review the instances of the standard operating procedure that have been launched. You can view an instance in the Standard Operating Procedure Details window, where you can edit an instance, or change the status of an instance.

---

**CIYRS0061E You are not authorized to create, edit, or delete a reference.**

**Explanation:** Only users who are listed in the following system properties are authorized to create, edit, or delete references in the library:

- ReferenceLibrarianRoles
- SopAdminRoles
- SopAuthorRoles

For more information about creating, editing, and deleting references, see the link at the end of the topic.

**User response:** Ask an authorized user to create, edit, or delete a reference for you.

**Related concepts:**

“Defining standard operating procedure roles” on page 97

The standard operating procedure component obtains the current authentication credentials to determine what actions each user is authorized to do. Each user is authorized to do standard operating procedure actions that are based on the LDAP Roles that the user is assigned to, and must match the distinguished name (DN) that is used in association with the standard operating procedure objects.

---

**CIYRS0062E You cannot delete references that are currently being used.**

**Explanation:** The reference that you are trying to delete in the library is used in an instance of an active standard operating procedure.

**User response:** Review the active instances of standard operating procedures to see where the reference is being used, and wait for the instances to be completed. Also, to prevent future errors, delete the reference from all standard operating procedure definitions. Then, delete the reference in the library.

**Related tasks:**

“Viewing and editing definitions” on page 140  
Use the following procedure to view and edit standard operating procedure definitions.

**CIYRS0063E The duration value that you entered is not valid. Check the value and try again.**

**Explanation:** If you specify a duration for an activity, the value must be a numerical integer.

**User response:** Enter a numerical integer in the **Duration** field.

**CIYRS0065E An error occurred while saving the filter/favorite {0}.**

**Explanation:** The filter panel REST service was not able to complete the insert request because of an internal SQL exception.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**CIYRS0065I The filter/favorite {0} was saved.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0066E An error occurred while deleting the filter/favorite {0}.**

**Explanation:** The filter panel REST service was not able to complete the delete request because of an internal SQL exception.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**CIYRS0066I The filter {0} was deleted.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0067E You cannot launch a standard operating procedure that is in draft status.**

**Explanation:** The version of the standard operating procedure that you are trying to launch is in draft status. You can launch only versions of standard operating procedures that have been approved.

**User response:** Either submit the draft standard operating procedure definition for approval, or launch a previously approved version of the standard operating procedure definition, if a suitable one exists. For more information about working with draft and approved versions of standard operating procedures, see the link at the end of the topic.

**Related tasks:**

“Working with drafts and approvals” on page 139  
When you create a standard operating procedure definition, a draft version is saved initially. When you submit a draft version for approval, a version of the standard operating procedure definition is saved, where the version name is the approval time stamp value. You can create another draft that is based on an approved version.

**CIYRS0068E At least one activity definition must be defined.**

**Explanation:** You must add at least one activity definition to a standard operating procedure definition.

**User response:** Click **Add**. In the Create Activity Definition window, either select an activity definition from the **Name** list, or specify a new activity definition.

**Related tasks:**

“Configuring standard operating procedure definitions” on page 136  
When you define a standard operating procedure, you define activities that are included in the standard operating procedure. You can specify the order in which some or all of the activities in a standard operating procedure are executed. For example, you can specify that a particular activity is not started until the previous activity is completed or skipped. You also assign owners and monitors to the standard operating procedure.

**CIYRS0070I The Saved Filters/Favorites pane was saved.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0071E** An error occurred while creating the system property. A system property with the name {0} already exists.

**Explanation:** The system property could not be created because you assigned it a name that is already assigned to another system property. Names of system properties must be unique.

**User response:** Create the system property with a unique name.

---

**CIYRS0072E** The image path {0} could not be found.

**Explanation:** The path value {0} does not exist. Either the path to the image, or the image file name, is incorrect.

**User response:** Check and correct the image path and file name, and then submit your request again.

---

**CIYRS0073E** The data source is missing the required data source label.

**Explanation:** You did not provide a name for the data source in the **Data source label** field.

**User response:** Provide a name for your data source in the **Data source label** field.

---

**CIYRS0074E** The data source is missing the required connection protocol.

**Explanation:** You did not specify the method of data acquisition for your data source.

**User response:** Provide a data acquisition method for your data source from the supported options, either a standard CSV file or DB2 database.

---

**CIYRS0075E** The data source connection protocol is unsupported.

**Explanation:** The system does not recognize the method of data acquisition you specified for your data source.

**User response:** Provide a data acquisition method for your data source from the supported options, either a standard CSV file or DB2 database.

---

**CIYRS0076E** No data source properties were found for the combination of **Connection Information** values you specified.

**Explanation:** No properties were found in the data source with the values you specified in the **Connection Information** fields.

**User response:** Verify that all the values in **Connection Information** fields are correct and try again.

---



---

**CIYRS0077E** The CSV directory path is missing or incorrect.

**Explanation:** There is no file path provided for the CSV file, or the file path that is in the **Directory** field is incorrect.

**User response:** Verify that the file path in the **Directory** field is the correct file path for the CSV file data source.

---

**CIYRS0078E** The CSV filename is missing or incorrect.

**Explanation:** There is no file name, or the file name in the **File name** field is incorrect.

**User response:** Verify that the correct file name for the CSV file data source is in the **File name** field.

---

**CIYRS0079E** The CSV file could not be found or could not be read.

**Explanation:** The system cannot find a CSV file with the values provided in the **Connection Information** fields, or the file is found but cannot be read.

**User response:** Verify that a CSV file exists corresponding to the values specified in **Connection Information** fields. Verify that the content is in the standard format.

---

**CIYRS0080E** The database type is missing or incorrect.

**Explanation:** You did not specify the correct value for **How to acquire data**.

**User response:** Provide a data acquisition method for your data source from the supported options, either a standard CSV file or DB2 database.

---

**CIYRS0081E** It was not possible to ping the hostname or IP.

**Explanation:** When the system pings the value in the **Host name or IP** field, no response is received.

**User response:** Verify that the host name or IP value is correct. Ensure that there are no firewall issues.

---

**CIYRS0082E** The database port is missing or incorrect.

**Explanation:** There is no value in the **Port** field for the database, or the value that is supplied is incorrect.

**User response:** Verify that the value for the database port is correct.

---

---

**CIYRS0083E** The database user ID is missing or incorrect.

**Explanation:** There is no value in the **User ID** field for the database, or the value is incorrect.

**User response:** Verify that the value for the database user ID is correct.

---

**CIYRS0084E** The database password is missing or incorrect.

**Explanation:** There is no value in the **Password** field for the database, or the value is incorrect.

**User response:** Verify that the value for the database password is correct.

---

**CIYRS0085E** The database name is missing or incorrect.

**Explanation:** There is no value in the **Database name** field, or the value is incorrect.

**User response:** Verify that the value for the database name is correct.

---

**CIYRS0086E** The database table is missing or incorrect.

**Explanation:** There is no value in the **Database table** field, or the value is incorrect.

**User response:** Verify that the database table name is fully qualified with a schema prefix, for example, IOC.STAGING.

---

**CIYRS0087E** The program failed to connect to the database with the combination of host name, port, user ID, and password that you specified.

**Explanation:** The system cannot connect to the database with the values specified in the **Connection Information** fields.

**User response:** Verify that the values in **Connection Information** fields are correct for the database data source connection.

---

**CIYRS0088E** The database table name is missing the schema prefix.

**Explanation:** There is no schema prefix on the value in the **Database table** field.

**User response:** Verify that the database table name is fully qualified with a schema prefix, for example, IOC.STAGING.

---

**CIYRS0089E** An error occurred while creating category {0}.

**Explanation:** The category that is indicated in {0} was not created because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0089I** Category {0} is created.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0091E** An error occurred while creating collection {0}.

**Explanation:** The collection that is indicated in {0} was not created because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0091I** Collection {0} is created.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0092E** An error occurred while updating collection {0}.

**Explanation:** The collection that is indicated in {0} was not updated because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0092I Collection {0} is updated.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0093E An error occurred while creating location map {0}.**

**Explanation:** The location map that is indicated in {0} was not created because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0093I Location map {0} is created.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0094E An error occurred while updating the location map.**

**Explanation:** The location map was not updated because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0094I Location map updated.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0095E An error occurred while deleting location map {0}.**

**Explanation:** The location map that is indicated in {0} was not deleted because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and

correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0095I Location map {0} is deleted.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0096E An error occurred while deleting category {0}.**

**Explanation:** The category that is indicated in {0} was not deleted because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0096I Category {0} is deleted.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0097E An error occurred while deleting collection {0}.**

**Explanation:** The collection that is indicated in {0} was not deleted because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0097I Collection {0} is deleted.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

---

**CIYRS0099E An error occurred while creating areas.**

**Explanation:** Some areas might have been created. However, at least one area was not created because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0099I Areas have been created.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0100E An internal processing error occurred.**

**Explanation:** The request could not be processed because an internal processing error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0101E An error occurred while defining the requested data source {0}.**

**Explanation:** The data source {0} could not be defined because there is an error in the definition of the data source.

**Response:** Check the definition of the data source.

---

**CIYRS0102E The criteria that were entered are not valid. Check the criteria and try again.**

**Explanation:** The criteria that you specified in the request are not in the correct format.

**User response:** Check the format of the criteria in your request. Format a list of key value properties as a URL encoded comma-separated list of parameters.

---

**CIYRS0103E Data source {0} has no view defined. Check the configuration and try again.**

**Explanation:** A view is not defined for the data source {0}.

**Response:** Check the definition of the data source.

---

**CIYRS0104E Data source {0} has no columns defined. Check the configuration and try again.**

**Explanation:** In the database, no property columns are defined for data source {0}.

**Response:** Check the definition of the data source.

---

**CIYRS0105E There is no data source with id {0}.**

**Explanation:** A data source that has the id value {0} does not exist.

**User response:** Check whether the id value is correct, or that the data source has been created correctly.

---

**CIYRS0106E A positive double value is required for the buffer.**

**Explanation:** The buffer value that you specified is invalid.

**User response:** Specify a positive decimal value for the buffer value.

---

**CIYRS0107E Boundaries are required.**

**Explanation:** You must include the boundary coordinates in the request.

**User response:** Specify the boundary coordinates in the request.

---

**CIYRS0108E The request contains invalid WKT input.**

**Explanation:** The request contains input that is not valid well-known text (WKT) format.

**User response:** Ensure that the request input is valid WKT format.

---

**CIYRS0109E The coordinates that you entered are out of bounds. Check the coordinates and try again.**

**Explanation:** The coordinates that you are entered are not inside the map.

**User response:** Ensure that the coordinates that you specify are inside the map boundary.

---



---

**CIYRS0110E** The coordinates that you entered are invalid; the polygon is not closed. Check the coordinates and try again.

**Explanation:** The coordinates that you specified do not form a closed polygon.

**User response:** Ensure that you specify coordinates that form a closed polygon.

---

**CIYRS0111E** The buffer value is out of bounds. Check the buffer value and try again.

**Explanation:** You must specify a buffer value that corresponds to a closed polygon that is inside the map boundary.

**User response:** Enter a buffer value that corresponds to a closed polygon that is inside the map boundary.

---

**CIYRS0112E** An invalid sort option {0} was used.

**Explanation:** You can use only data source column names to specify a sort function.

**User response:** Specify the sort function by using data source column names.

---

**CIYRS0113E** An invalid time stamp value {0} was used.

**Explanation:** The request contains an invalid time stamp value {0}.

**User response:** Enter a valid LONG time stamp value that complies with ISO8601.

---

**CIYRS0114E** The criterion format {0} is incorrect.

**Explanation:** The criterion {0} that you specified in the request is not in the correct format.

**User response:** Check the format of the criterion {0}.

---

**CIYRS0115E** Column {0} was not found in the data source definition.

**Explanation:** Column {0} that you specified in your request does not exist in the data source definition.

**User response:** Check the columns in the data source definition.

---

**CIYRS0116E** An invalid operator {0} was used.

**Explanation:** The request contains an invalid operator {0}.

**User response:** In a request, only the following operators are valid: =, >, >=, <, <=

---

**CIYRS0117E** An error occurred while updating data receiver {0}.

**Explanation:** The data receiver that is indicated in {0} was not updated because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0118E** The unique text identifier value is already used by another Data source.

**Explanation:** The value in the Data source unique text identifier field is in use for another data source.

**User response:** Verify that the value in the Data source unique text identifier field is unique to the data source.

---

**CIYRS0119E** The pane cannot be created because another pane already uses the selected color.

**Explanation:** You assigned a color to the pane that is already used by another pane. You must assign a unique color to each pane.

**User response:** Assign a color to the pane that is not used by another pane.

---

**CIYRS0120E** The pane cannot be updated because another pane already uses the selected color.

**Explanation:** You assigned a color to the pane that is already used by another pane. You must assign a unique color to each pane.

**User response:** Assign a color to the pane that is not used by another pane.

---

**CIYRS0121I** Image file {0} was uploaded successfully.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0122E** The location map image file type is not supported: {0}.

**Explanation:** The format of the location map image file that you are trying to upload is not supported.

**User response:** Ensure that the format of the location

map image file that you want to upload is either PNG, JPG, GIF, or SVG.

**Related tasks:**

“Viewing and uploading map images” on page 133  
As an administrator, you can view or upload map images that are available to use when you are creating location maps in the solution.

**CIYRS0123E The map icon image file type is not supported: {0}.**

**Explanation:** The format of the map icon image file that you are trying to upload is not supported.

**User response:** Ensure that the format of the map icon image file that you want to upload is transparent PNG.

**Related concepts:**

“Data item icons” on page 183  
You can design your own icons and upload image files to represent data items in the operations views, the status views, and the Solution Administration view. The image files that you upload must meet certain requirements.

**CIYRS0124E An error occurred while uploading the image file.**

**Explanation:** The image file was not uploaded because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**CIYRS0125E An error occurred while creating a data receiver for the data source**

**Explanation:** A data receiver was not created for the data source because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**CIYRS0126E An error occurred while updating the data receiver for this data source**

**Explanation:** The data receiver for the data source was not updated because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and

correctly configured. If the error still recurs, contact IBM support.

**CIYRS0183I One or more standard operating procedure instances were successfully created.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0183E An error occurred while launching the standard operating procedures.**

**Explanation:** An error occurred that prevented the standard operating procedures from being launched.

**User response:** Review the log files. For further assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**CIYRS0184I {0} has been associated with {1}**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0184E An error occurred while associating the item to one or more standard operating procedure instances that are running.**

**Explanation:** An error occurred that prevented the item from being associated to one or more standard operating procedure instances.

**User response:** Review the log files. For further assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**CIYRS0185I The hotspot analysis {0} was created.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0185E An error occurred while creating the hotspot analysis.**

**Explanation:** The hotspot analysis definition could not be created because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator

who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

---

**CIYRS0186I The hotspot analysis {0} was updated.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0186E An error occurred while updating the hotspot analysis.**

**Explanation:** The hotspot analysis definition could not be updated because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

---

**CIYRS0187I The hotspot analysis {0} was deleted.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0187E An error occurred while deleting the hotspot analysis.**

**Explanation:** The hotspot analysis definition could not be deleted because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

---

**CIYRS0188E An error occurred while creating the hotspot analysis. A hotspot analysis with the same name already exists.**

**Explanation:** You cannot create a hotspot analysis definition that has the same name as an existing definition.

**User response:** Enter a unique name for the hotspot analysis definition that you want to create.

---

**CIYRS0189W The selected filter criteria would return {0} records, which exceeds the configured limit of {1}. Only {2} records were returned.**

**Explanation:** You specified filter criteria that would return a number of data items that exceeds the configured limit. Therefore, fewer data items were returned, as indicated in the message.

**User response:** Specify more restrictive filter criteria to return a number of data items that is within the configured limit. Alternatively, increase the configured limit by editing the StatMaxAllowedFeaturesInResponse system property.

**Related tasks:**

“Configuring system properties” on page 189  
View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

“Setting displayed and returned data item limits” on page 118

You can set the maximum number of data items that are returned to the map and the list, and that are rendered on the map.

---

**CIYRS0190E The data source {0} is required by {1}.**

**Explanation:** The data source cannot be deleted because the service that is indicated in the message is using it.

**User response:** Verify whether the service that is indicated in the message is still using the data source. If the service no longer requires the data source, remove the reference from the service to the data source, and then delete the data source.

---

**CIYRS0191I The Cognos models were successfully updated.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0191E The Cognos models were not updated.**

**Explanation:** An error occurred that prevented the Cognos models from being updated.

**User response:** Review the log files. If you are generating Cognos models in a high availability environment, see the *Configure the Cognos model in a high availability environment* link for a possible solution. For further assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

“Configure the Cognos model in a high availability environment” on page 75

IBM Intelligent Operations Center can publish a Cognos model when a data source is created or updated. In a high availability environment, you must configure Cognos to enable IBM Intelligent Operations Center to publish the Cognos model.

---

**CIYRS0192I** {0} has been disassociated from {1}

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0193E** An error occurred while updating your profile.

**Explanation:** An error occurred while updating your profile.

**User response:** Review the log files. For further assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0194I** Your profile was updated.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0195I** The new password was saved successfully.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0196E** An error occurred while the password was being saved.

**Explanation:** An error occurred while the password was being saved.

**User response:** Review the log files. For further assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0197I** The notifications settings were saved successfully.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0198E** An error occurred while the notification settings were being saved.

**Explanation:** An error occurred while the notification settings were being saved.

**User response:** Review the log files. For further

assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0199I** The display settings were saved successfully.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0200E** An error occurred while the display settings were being saved.

**Explanation:** An error occurred while the display settings were being saved.

**User response:** Review the log files. For further assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0201I** The profile was saved successfully.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0202E** An error occurred while the profile was being saved.

**Explanation:** An error occurred while the profile was being saved.

**User response:** Review the log files. For further assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYRS0203I** The custom component was created successfully.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYRS0203E** An error occurred while the custom component was being created.

**Explanation:** An error occurred while the custom component was being created.

**User response:** Review the log files. For further

assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**CIYRS0204I The custom component was updated successfully.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0204E An error occurred while the custom component was being updated.**

**Explanation:** An error occurred while the custom component was being updated.

**User response:** Review the log files. For further assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**CIYRS0205I The custom component was deleted successfully.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0205E An error occurred while the custom component was being deleted.**

**Explanation:** An error occurred while the custom component was being deleted.

**User response:** Review the log files. For further assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**CIYRS0206I The customization was saved successfully.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

**CIYRS0206E An error occurred while the customization was being saved.**

**Explanation:** An error occurred while the customization was being saved.

**User response:** Review the log files. For further assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

**CIYUI0000E You cannot edit the selected pane.**

**Explanation:** In the pane that you selected, no options exist that you can configure.

**User response:** None.

**CIYUI0001E You cannot delete the selected pane.**

**Explanation:** You cannot delete the selected pane because it is a predefined pane. You can delete only dynamic panes that display data sources.

**User response:** None.

**CIYUI0002E An invalid module definition was specified as a "More Actions" extension in the preview card.**

**Explanation:** An error occurred while a **More Actions** extension was being loaded.

**User response:** Verify that the extension is correctly defined in the database table. For more information about defining custom actions, see the link at the end of the topic.

**Related tasks:**

“Assigning actions to your data source” on page 113  
 You can choose which user actions to apply to data items that are received from your data source. Some actions are applied by default.

“Defining custom actions for data sources” on page 182  
 You can define custom actions that are displayed as available actions on the **Actions** tab in the data source configuration tool. If you assign a custom action to a data source, it is displayed in the **More Actions** menu that is on the preview card for the data source.

**CIYUI0003E An invalid module definition was specified in the portlet configuration parameter.**

**Explanation:** An invalid module definition was loaded into the content panel.

**User response:** Verify that the module definition is correctly defined.

**Related tasks:**

“Customizing the content panel” on page 174  
 You can customize the content panel in IBM Intelligent Operations Center, and specify which tabs and content to display. The content panel is implemented through a content viewer portlet, and an administrator can customize it through the WebSphere Portal administrative interface.

---

**CIYUI0004I The data item was created successfully.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYUI0005I The data item was updated successfully.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYUI0006E Another user has updated the item.**

**Explanation:** Another user has saved a change to the item since you started editing the item.

**User response:** Close the item, then open it again and edit it as required.

---

**CIYUI0007E An error occurred while saving the item.**

**Explanation:** The item was not saved because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYUI0008E An invalid module definition was specified as a "More Actions" extension for the list.**

**Explanation:** An error occurred while a **More Actions** extension was being loaded into the **List** tab.

**User response:** Verify that the extension is correctly defined in the database table. For more information about defining custom actions, see the link at the end of the topic.

**Related tasks:**

“Defining custom actions for data sources” on page 182  
 You can define custom actions that are displayed as available actions on the **Actions** tab in the data source configuration tool. If you assign a custom action to a data source, it is displayed in the **More Actions** menu

that is on the preview card for the data source.

---

**CIYUI0009E An error occurred while saving the base map.**

**Explanation:** The base map was not saved because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYUI0010E You must select another map as the default base map before you can delete this base map.**

**Explanation:** You cannot delete the selected map because it is the default base map.

**User response:** If you want to delete the selected map, you must set another map as the default base map.

**Related tasks:**

“Managing base maps” on page 117  
 As an administrator, you can create, edit, or delete base maps in the solution.

---

**CIYUI0013E An error occurred while deleting the base map.**

**Explanation:** The base map was not deleted because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYUI0014E An error occurred while saving the center point coordinates and zoom level.**

**Explanation:** The center point coordinates and zoom level were not saved because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYUI0014I The center point coordinates and zoom level have been successfully updated.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYUI0015E An error occurred while retrieving the map settings.**

**Explanation:** The map settings were not retrieved because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYUI0016I No base maps have been configured. An administrator can add geospatial maps by selecting "Solution Administration" and then "Configuration Tools".**

**Explanation:** This is an informational message that indicates that no base maps have been configured.

**User response:** An administrator can configure geospatial maps in the Solution Administration view. For more information, see the link at the end of the topic.

**Related concepts:**

“Configuring geospatial maps” on page 117  
In the Solution Administration view, you can configure the maps that are available to the user, the initial map center point, and the map zoom level.

---

**CIYUI0017E An error occurred while retrieving the map.**

**Explanation:** The map was not retrieved because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYUI0018I The record was cancelled successfully.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYUI0019E An error occurred while attempting to cancel the record.**

**Explanation:** The record could not be canceled because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYUI0020I The records were cancelled successfully.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYUI0021E An error occurred while attempting to cancel one of the records.**

**Explanation:** One of the records could not be canceled because an error occurred.

**User response:** Review the log files. For further assistance, contact IBM Support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYUI0022E An error occurred while loading the data source extension module {0}.**

**Explanation:** The data source extension module that is indicated in {0} was not loaded because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYUI0023E An error occurred while loading the data source configurations.**

**Explanation:** The data source configurations were not loaded because an error occurred.

**User response:** Verify that the password is correct. Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYUI0024E The selected data source {0} has not been fully configured.**

**Explanation:** The configuration of the data source that is indicated in {0} is not complete.

**User response:** Ask an administrator to check the configuration of the data source. For more information about configuring data sources, see the link at the end of the topic.

**Related concepts:**

“Configuring a data source” on page 99  
Use the Data Sources tool to configure a data source that supplies data to IBM Intelligent Operations Center.

---

**CIYUI0025E An error occurred while loading data for data source {0}.**

**Explanation:** The data for the data source that is indicated in {0} was not loaded because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYUI0026E An error occurred while loading the data source; the "More Actions" module {0} is invalid.**

**Explanation:** An error occurred while a **More Actions** extension was being loaded.

**User response:** Verify that the extension is correctly defined in the database table. For more information about defining custom actions, see the link at the end of the topic.

**Related tasks:**

“Defining custom actions for data sources” on page 182  
You can define custom actions that are displayed as available actions on the **Actions** tab in the data source configuration tool. If you assign a custom action to a data source, it is displayed in the **More Actions** menu that is on the preview card for the data source.

---

**CIYUI0027E Complete the existing expressions before adding a new one.**

**Explanation:** You clicked **Add Routing Expression** while an expression you added previously is incomplete.

**User response:** Enter the values to complete the routing expression you added before you click **Add Routing Expression** again.

---

**CIYUI0028E Complete the existing styles before adding a new one.**

**Explanation:** You clicked **Add Style** while a style you added previously is incomplete.

**User response:** Enter the values to complete the style you added before you click **Add Style** again.

---

**CIYUI0029E No area exists where the item has been dropped.**

**Explanation:** You added an item to a part of the location map for which an area is not configured.

**User response:** Ensure that you add an item to a part of the location map that is included in a configured area. If necessary, ask an administrator to configure a new area on the location map.

**Related tasks:**

“Adding a data item to the location map” on page 376  
You can create a data item that is associated with an area on a location map and added to a data source. The data item is added to the Location Map and List tabs at the same time.

“Creating, updating, or deleting areas on a location map” on page 135  
As an administrator you can create, update, or delete areas for display on your location map.

---

**CIYUI0030E The Google Maps API could not be loaded.**

**Explanation:** The Google Maps API service is not available.

**User response:** Check whether the Google Maps API service is available online. If the service is not available, wait until the service becomes available and then try again.



---

**CIYUI0031E Select an existing data source before saving changes.**

**Explanation:** You clicked **Save** without selecting a data source, or without changing a data source.

**User response:** Select a data source and change it before you click **Save** again.

---

**CIYUI0032E Complete the required minimal property fields before saving.**

**Explanation:** You did not complete all the required fields on the **Minimal properties** tab before you saved your data source configuration.

**User response:** Enter the required values on the **Minimal properties** tab and click **Save**. For more information about the required values on the **Minimal properties** tab, see the link at the end of the topic.

**Related reference:**

“Data source minimal property settings” on page 105  
Assign properties from your data source to each minimal property and choose the settings that are appropriate for your data.

---

**CIYUI0033E You are not authorized to save changes to the selected DataSource.**

**Explanation:** You do not have the authority that is required to update the data source that you selected.

**User response:** Contact an administrator or the creator of the data source to give you the authority to update the data source.

---

**CIYUI0034E Pane {0} could not be moved.**

**Explanation:** Pane {0} could not be moved because an error occurred.

**User response:** Refresh the browser window and try again. If the problem persists, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

---

**CIYUI0036E An error occurred while uploading the image. Please try again.**

**Explanation:** The image could not be uploaded because an error occurred.

**User response:** Ensure that the image file is in one of the accepted formats. For more information about uploading images, see the link at the end of the topic.

If the problem persists, refresh the browser window and try again. If the error recurs, contact an administrator who can ensure that the data server is running and correctly configured. If the error still recurs, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

“Viewing and uploading map images” on page 133  
As an administrator, you can view or upload map images that are available to use when you are creating location maps in the solution.

---

**CIYUI0036I Image uploaded successfully.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYUI0037I Please select a valid category, collection or map to delete.**

**Explanation:** You tried to delete the **Location Map Images** menu option, which is an invalid option for deletion.

**User response:** Select a valid category, collection, or map to delete.

---

**CIYUI0038E Select an existing data source to delete.**

**Explanation:** You clicked **Delete** without selecting a data source.

**User response:** Select the data source that you want to delete and click **Delete**.

---

**CIYUI0039E You are not authorized to delete to the selected DataSource.**

**Explanation:** You do not have the authority that is required to delete the data source that you selected.

**User response:** Contact an administrator or the creator of the data source to give you the authority to delete the data source.

---

**CIYUI0040E Value is required to proceed.**

**Explanation:** You did not enter values into one or more of the fields that are required.

**User response:** Ensure that you enter values into all the fields that are required.

---

**CIYUI0040I Value is required to proceed.**

**Explanation:** You did not enter values into one or more of the fields that are required.

**User response:** Ensure that you enter values into all the fields that are required.

---

---

**CIYUI0041I Icon upload complete.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYUI0042E The area was removed. An area cannot overlap an existing area.**

**Explanation:** The area that you are trying to create was removed because it overlaps another area.

**User response:** Review the areas that have already been created. When you create an area, ensure that you draw an area that does not overlap another area.

**Related tasks:**

“Creating, updating, or deleting areas on a location map” on page 135

As an administrator you can create, update, or delete areas for display on your location map.

---

**CIYUI0043E The data item does not match the routing expressions.**

**Explanation:** The incoming data item does not match any of the routing expressions that are defined for the data source. The data item will be discarded.

**User response:** If you want similar data items to be routed to a component in IBM Intelligent Operations Center, review and update the routing criteria that are defined for the data source.

**Related tasks:**

“Routing data from your data source” on page 111  
For the data that is received from your data source, set routing expressions that define how the data is processed by the solution. Data items that match the required expression or combination of expressions are routed to the selected destination.

---

**CIYUI0044E Lines cannot intersect each other.**

**Explanation:** This message occurs when you attempt to complete a polygon shape that is drawn on the map with one or more lines that are crossed.

**User response:** When you draw a polygon on the map, ensure that the lines that compose the sides of the polygon do not cross. Redraw the polygon so that the sides meet at the corners of the polygon shape.

---

**CIYUI0045W If you select more than three data sources, the performance of the system slows down significantly when hotspots are generated.**

**Explanation:** Performance can be affected by the number of data sources that are selected for analysis and to a lesser extent by the number of data items in the data sources.

**User response:** Select only data sources that are essential to your analysis. Be prepared for a slower response with more two or more data sources and higher numbers of data items.

---

**CIYUI0046E An error occurred while retrieving the KPI model list.**

**Explanation:** There is a problem communicating with IBM Business Monitor.

**User response:** Ensure that the IBM Business Monitor models are deployed correctly.

---

**CIYUI0047E An error occurred while saving the KPI hierarchy.**

**Explanation:** There is an error in the message that is sent from the rest service. The JSON cannot be parsed.

**User response:** Check the system logs for communication errors with the data server or contact your administrator for assistance.

---

**CIYUI0048E The data item could not be added. The area name on the location map exceeds the character limit of the area name property in the data source.**

**Explanation:** The incoming data item does not match any of the routing expressions that are defined for the data source. The data item will be discarded.

**User response:** If you want similar data items to be routed to a component in IBM Intelligent Operations Center, review and update the routing criteria that are defined for the data source.

---

**CIYUI0049I The KPI hierarchy was imported successfully.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYUI0049E The KPI hierarchy import operation failed.**

**Explanation:** The KPI hierarchy import operation failed.

**User response:** The KPI hierarchy import failed. For more information, see the server logs.

---

**CIYUI0050I The KPI hierarchy was exported successfully.**

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYUI0051E** An error occurred while the custom component was being updated. The component cannot be loaded.

**Explanation:** An error occurred while the custom component was being updated.

**User response:** Verify that the path location, the path name, and the module name are correct. Then, try again.

**Related tasks:**

“Creating components” on page 175

Use the component customization tool to create customized components that you can add to the user interface. For example, you can either create your own customized preview card, or you can create actions that you make available in the **More Actions** menu on the preview card. You can also create customized full properties windows and advanced visualization components.

---

**CIYUI0052E** The component cannot be loaded.

**Explanation:** The component cannot be loaded

**User response:** Verify that the path location, the path name, and the module name are correct. Then, try again.

**Related tasks:**

“Creating components” on page 175

Use the component customization tool to create customized components that you can add to the user interface. For example, you can either create your own customized preview card, or you can create actions that you make available in the **More Actions** menu on the preview card. You can also create customized full properties windows and advanced visualization components.

---

**CIYUI0053E** A preview card component was not specified for the selected item's data source.

**Explanation:** The preview card component was not specified.

**User response:** In the Solution Administration view, use the component customization tool to assign a preview card component to the data source.

**Related tasks:**

“Customizing components” on page 174

To extend and customize the functionality of your solution, you can create customized components that you can add to the user interface. You can also replace an existing component with a customized component. For example, for a particular system component, you can replace an existing preview card with a new, customized preview card.

---

**CIYUI0054E** A full properties window component was not specified for the selected item's data source.

**Explanation:** A full properties window component was not specified.

**User response:** In the Solution Administration view, use the component customization tool to assign a full properties window component to the data source.

**Related tasks:**

“Customizing components” on page 174

To extend and customize the functionality of your solution, you can create customized components that you can add to the user interface. You can also replace an existing component with a customized component. For example, for a particular system component, you can replace an existing preview card with a new, customized preview card.

---

**CIYUI0055E** An invalid module definition was specified for the preview card component.

**Explanation:** An invalid module definition was specified for the preview card component.

**User response:** Verify that the path location, the path name, and the module name are correct. Then, try again.

**Related tasks:**

“Creating components” on page 175

Use the component customization tool to create customized components that you can add to the user interface. For example, you can either create your own customized preview card, or you can create actions that you make available in the **More Actions** menu on the preview card. You can also create customized full properties windows and advanced visualization components.

---

**CIYUI0056E** An invalid module definition was specified for the full properties window component.

**Explanation:** An invalid module definition was specified for the full properties window component.

**User response:** Verify that the path location, the path name, and the module name are correct. Then, try again.

**Related tasks:**

“Creating components” on page 175

Use the component customization tool to create customized components that you can add to the user interface. For example, you can either create your own customized preview card, or you can create actions that you make available in the **More Actions** menu on the preview card. You can also create customized full properties windows and advanced visualization components.

---

**CIYUI0057E The data import operation failed for data source {0}.**

**Explanation:** The data import operation failed for the data source that is indicated because of an exception that is indicated in the notification description.

**User response:** For more information, see the SystemOut.log file. For further assistance, contact IBM support.

**Related tasks:**

“Contacting IBM Support” on page 443  
 IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

---

**CIYUI0058E "{0}" is an invalid module definition.**

**Explanation:** The selected component has an invalid module definition.

**User response:** Verify that the path location, the path name, and the module name are correct. Then, try again.

**Related tasks:**

“Creating components” on page 175  
 Use the component customization tool to create customized components that you can add to the user interface. For example, you can either create your own customized preview card, or you can create actions that you make available in the **More Actions** menu on the preview card. You can also create customized full properties windows and advanced visualization components.

---

**CIYUI0059E The logon attempt failed because either your user ID or your password is incorrect.**

**Explanation:** Either the user ID, or the password, that you entered when you logged on is incorrect.

**User response:** Verify that the user ID and the password are correct. Then, try again.

---

**CIYUI0060W Only {0} data items can be rendered on the map with the current filter criteria, and in accordance with the configured limit.**

**Explanation:** Data items are displayed on the map according to the selections that you make in the filter panel. If the number of data items that should be displayed exceeds the value that is configured in the **MaxFeaturesToRenderOnMap** system property, the excess data items are not displayed.

**User response:** Edit the value of the **MaxFeaturesToRenderOnMap** system property. If you increase the value significantly, performance might be diminished.

**Related tasks:**

“Setting displayed and returned data item limits” on page 118

You can set the maximum number of data items that are returned to the map and the list, and that are rendered on the map.

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

---

**CIYUI0061W The selected data item cannot be rendered on the map because, with the current filter criteria, the configured limit for maximum displayed items is exceeded.**

**Explanation:** Data items are displayed on the map according to the selections that you make in the filter panel. If the number of data items that should be displayed exceeds the value that is configured in the **MaxFeaturesToRenderOnMap** system property, the excess data items are not displayed.

**User response:** Edit the value of the **MaxFeaturesToRenderOnMap** system property. If you increase the value significantly, performance might be diminished.

**Related tasks:**

“Setting displayed and returned data item limits” on page 118

You can set the maximum number of data items that are returned to the map and the list, and that are rendered on the map.

“Configuring system properties” on page 189

View, create, modify, and delete system properties in the system properties table. The system properties affect the system-wide configuration of IBM Intelligent Operations Center.

---

**CIYUI0062E The file was not uploaded because it does not contain a valid image.**

**Explanation:** The file was not uploaded because it is not a valid image file.

**User response:** Verify that the format and contents of the file that you want to upload are correct. Then, try again.

---

**CIYUI0063E The file was not uploaded because it is not a valid CSV file.**

**Explanation:** The file was not uploaded because it is not a valid CSV file.

**User response:** Verify that the type of the file that you want to upload is a CSV file. Then, try again.

---

**CIYUI0064E** Before you can save the current filter panel criteria as a favorite, you must correct one or more errors in the {0} pane.

**Explanation:** The filter pane that is indicated in the message contains one or more errors.

**User response:** Correct the errors that are in the filter pane.

**Related concepts:**

“Filtering data on the maps and list” on page 378  
 In the appropriate operations view, use the filter panel to define what data is displayed in the content panel. The content panel contains the Map tab, the Location Map tab, and the List tab.

---

**CIYUI0065E** An error occurred while the CSV file was being uploaded.

**Explanation:** An error occurred while the CSV file was being uploaded.

**User response:** Verify that the format and contents of the file that you want to upload are correct. If the problem persists, check the log files.

---

**CIYUI0065I** The CSV file was uploaded successfully.

**Explanation:** This message is for informational purposes only.

**User response:** No action is required.

---

**CIYUI0067E** The activity cannot be saved because it launches an instance of a standard operating procedure that might cause a loop. For example, the activity launches an instance of a standard operating procedure that in turn launches another instance of the activity's parent standard operating procedure.

**Explanation:** The activity that you are attempting to save would launch an instance of a standard operating procedure that might cause a loop, as described in the message.

**User response:** Edit the activity definition so that the activity does not launch an instance of a standard operating procedure that in turn launches another instance of a standard operating procedure that the activity is related to.

---

## Using knowledge bases and IBM Support

This section contains topics for using knowledge bases, Fix Central, and IBM Support to find troubleshooting information.

### Searching knowledge bases

You can often find solutions to problems by searching IBM knowledge bases. You can optimize your results by using available resources, support tools, and search methods.

#### About this task

You can find useful information by searching the information center for IBM Intelligent Operations Center, but sometimes you need to look beyond the information center to answer your questions or resolve problems.

#### Procedure

To search knowledge bases for information that you need, use one or more of the following approaches:

- Search for content by using IBM Support Assistant Lite (ISA Lite).

ISA Lite is a no-charge software tool that helps you answer questions and resolve problems with IBM software products. For instructions for downloading and installing ISA Lite, see the links at the end of the topic.

- Find the content that you need by using the IBM Support Portal.

The IBM Support Portal is a unified, centralized view of all technical support tools and information for all IBM systems, software, and services. The IBM Support Portal lets you access the IBM electronic support portfolio from one place. You can tailor the pages to focus on the information and resources that you need for problem prevention and faster problem resolution. Familiarize yourself with the IBM Support Portal by viewing the demo videos (<https://www.ibm.com/blogs/SPNA/entry/>

the\_ibm\_support\_portal\_videos) about this tool. These videos introduce you to the IBM Support Portal, explore troubleshooting and other resources, and demonstrate how you can tailor the page by moving, adding, and deleting portlets.

- Search for content about IBM Intelligent Operations Center by using one of the following additional technical resources:
  - IBM Intelligent Operations Center technotes and APARs (problem reports)
  - IBM Intelligent Operations Center Support Portal page
  - IBM Intelligent Operations Center Forums and communities page
  - IBM Smarter Cities Software Solutions Redbooks
  - IBM Intelligent Operations Center publication library page
- Search for content by using the IBM masthead search. You can use the IBM masthead search by typing your search string into the Search field at the top of any ibm.com page.
- Search for content by using any external search engine, such as Google, Yahoo, or Bing. If you use an external search engine, your results are more likely to include information that is outside the ibm.com domain. However, sometimes you can find useful problem-solving information about IBM products in newsgroups, forums, and blogs that are not on ibm.com.

**Tip:** Include “IBM” and the name of the product in your search if you are looking for information about an IBM product.

#### **Related concepts:**

“Viewing product version details” on page 187

In the Solution Administration view, you can view details of the version of IBM Intelligent Operations Center and the integrated IBM Smarter Cities Software Solutions that you installed. You can also view details of any updates that you applied since installation.

“ISA Data Collector for IBM Intelligent Operations Center” on page 396

ISA Data Collector for IBM Intelligent Operations Center helps troubleshoot problems with IBM Intelligent Operations Center and other IBM software products.

“Techniques for troubleshooting problems” on page 393

Troubleshooting is a systematic approach to solving a problem. The goal of troubleshooting is to determine why something does not work as expected and how to resolve the problem.

## **Getting fixes from Fix Central**

You can use Fix Central to find the fixes that are recommended by IBM Support for various products, including IBM Intelligent Operations Center. With Fix Central, you can search, select, order, and download fixes for your system with a choice of delivery options. A product fix for IBM Intelligent Operations Center might be available to resolve your problem.

### **Procedure**

To find and install fixes:

1. Obtain the tools that are required to get the fix. If it is not installed, obtain your product update installer. You can download the installer from Fix Central. This site provides download, installation, and configuration instructions for the update installer.
2. Select IBM Intelligent Operations Center as the product, and select one or more check boxes that are relevant to the problem that you want to resolve.
3. Identify and select the fix that is required.
4. Download the fix.
  - a. Open the download document and follow the link in the “Download Package” section.
  - b. When downloading the file, ensure that the name of the maintenance file is not changed. This change might be intentional, or it might be an inadvertent change that is caused by certain web browsers or download utilities.

5. To apply the fix, follow the instructions in the “Installation Instructions” section of the download document.
6. Optional: Subscribe to receive weekly email notifications about fixes and other IBM Support updates.

**Related tasks:**

“Subscribing to support updates” on page 444

To stay informed of important information about the IBM products that you use, you can subscribe to updates.

**Related information:**



Fix Central help

## Contacting IBM Support

IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

### Before you begin

After trying to find your answer or solution by using other self-help options such as technotes, you can contact IBM Support. Before contacting IBM Support, your company must have an active IBM software subscription and support contract, and you must be authorized to submit problems to IBM. For information about the types of available support, see the Support portfolio topic in the *Software Support Handbook*.

### Procedure

Complete the following steps to contact IBM Support with a problem:

1. Define the problem, gather background information, and determine the severity of the problem. For more information, see the Getting IBM support topic in the *Software Support Handbook*.
2. Gather diagnostic information. For information about using IBM Support Assistant Lite to collect IBM Intelligent Operations Center log files, see the link at the end of the topic.
3. Submit the problem to IBM Support in one of the following ways:
  - Using IBM Support Assistant Lite (ISA Lite). See the link at the end of the topic.
  - Online through the IBM Intelligent Operations Center Support Portal page: You can open, update, and view all your Service Requests from the Service Request portlet on the Service Request page.
  - By phone: For the phone number to call in your region, see the Directory of worldwide contacts web page.

### Results

If the problem that you submit is for a software defect or for missing or inaccurate documentation, IBM Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Support provides a workaround that you can implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM Support website daily, so that other users who experience the same problem can benefit from the same resolution.

### What to do next

Be prepared to work with the IBM technical-support representative by using IBM Assist On-Site, which is a remote-assistance plug-in that you can download to your computer. The IBM technical-support representative can use IBM Assist On-Site to view your desktop and share control of your mouse and keyboard. This tool can shorten the time that it takes to identify the problem, collect the necessary data, and solve the problem. For more information, see IBM Assist On-Site.

**Related concepts:**

“Viewing product version details” on page 187

In the Solution Administration view, you can view details of the version of IBM Intelligent Operations Center and the integrated IBM Smarter Cities Software Solutions that you installed. You can also view details of any updates that you applied since installation.

“ISA Data Collector for IBM Intelligent Operations Center” on page 396

ISA Data Collector for IBM Intelligent Operations Center helps troubleshoot problems with IBM Intelligent Operations Center and other IBM software products.

## Subscribing to support updates

To stay informed of important information about the IBM products that you use, you can subscribe to updates.

### About this task

By subscribing to receive updates, you can receive important technical information and updates for specific IBM Support tools and resources. You can subscribe to updates by using one of two approaches:

#### RSS feeds

The following RSS feed is available for IBM Intelligent Operations Center: IBM Intelligent Operations Center.

For general information about RSS, including steps for getting started and a list of RSS-enabled IBM web pages, visit the IBM Software Support RSS feeds site.

#### My Notifications

With My Notifications, you can subscribe to Support updates for any IBM product. (My Notifications replaces My Support, which is a similar tool that you might have used in the past.) With My Notifications, you can specify that you want to receive daily or weekly email announcements. You can specify what type of information you want to receive (such as publications, hints and tips, product flashes (also known as alerts), downloads, and drivers). My Notifications enables you to customize and categorize the products about which you want to be informed and the delivery methods that best suit your needs.

## Procedure

To subscribe to Support updates:

1. To subscribe to the IBM Intelligent Operations Center RSS feed, use the following substeps:

- a. Open the link IBM Intelligent Operations Center RSS feed.
- b. In the Subscribe with Live Bookmark window, select a folder in which to save the RSS feed bookmark and click **Subscribe**.

For more information on subscribing to RSS feeds, see the IBM Software Support RSS feeds link in the Related information section at the end of the topic.

2. To subscribe to My Notifications, go to the IBM Support Portal and click **My Notifications** in the **Notifications** portlet.

3. Sign in using your IBM ID and password, and click **Submit**.

4. Identify what and how you want to receive updates.

- a. Click the **Subscribe** tab.
- b. Select IBM Intelligent Operations Center and click **Continue**.
- c. Select your preferences for how to receive updates, whether by email, online in a designated folder, or as an RSS or Atom feed.
- d. Select the types of documentation updates that you want to receive, for example, new information about product downloads and discussion group comments.
- e. Click **Submit**.



## Results





Until you modify your RSS feeds and My Notifications preferences, you receive notifications of updates that you have requested. You can modify your preferences when needed (for example, if you stop using one product and begin using another product).

### Related tasks:

“Getting fixes from Fix Central” on page 442

You can use Fix Central to find the fixes that are recommended by IBM Support for various products, including IBM Intelligent Operations Center. With Fix Central, you can search, select, order, and download fixes for your system with a choice of delivery options. A product fix for IBM Intelligent Operations Center might be available to resolve your problem.

### Related information

-  [IBM Software Support RSS feeds](#)
-  [Subscribe to My Notifications support content updates](#)
-  [My notifications for IBM technical support](#)
-  [My notifications for IBM technical support overview](#)

## Exchanging information with IBM

To diagnose or identify a problem, you might need to provide IBM Support with data and information from your system. In other cases, IBM Support might provide you with tools or utilities to use for problem determination.

### Related concepts:

“Enabling traces and viewing log files” on page 395

To troubleshoot a problem in IBM Intelligent Operations Center, you might need to analyze log files in several systems.

“ISA Data Collector for IBM Intelligent Operations Center” on page 396

ISA Data Collector for IBM Intelligent Operations Center helps troubleshoot problems with IBM Intelligent Operations Center and other IBM software products.

## Sending information to IBM Support

To reduce the time that it takes to resolve your problem, you can send trace and diagnostic information to IBM Support.

### Procedure

To submit diagnostic information to IBM Support:

1. Open a problem management record (PMR) using The Service Request tool.
2. Collect the diagnostic data that you need. Diagnostic data helps reduce the time that it takes to resolve your PMR. You can collect the diagnostic data automatically or manually:
  - Collect the data automatically using IBM Support Assistant Lite (ISA Lite). See the link near the top of the topic.
  - Collect the data manually. For information about IBM Intelligent Operations Center log files, see the links near the top of the topic.
3. Compress the files into either a ZIP file, or a TAR file.
4. Transfer the compressed file to IBM. You can use one of the following methods to transfer the compressed file to IBM:
  - The Service Request tool
  - Standard data upload methods: FTP, HTTP

- Secure data upload methods: FTPS, SFTP, HTTPS
- Email

All of these data exchange methods are explained on the IBM Support site.

## Receiving information from IBM Support

Occasionally an IBM technical-support representative might ask you to download diagnostic tools or other files. You can use FTP to download these files.

### Before you begin

Ensure that your IBM technical-support representative provided you with the preferred server to use for downloading the files and the exact directory and file names to access.

### Procedure

To download files from IBM Support:

1. Use FTP to connect to the site that your IBM technical-support representative provided and log in as anonymous. Use your email address as the password.
2. Change to the appropriate directory:
  - a. Change to the /fromibm directory.  
`cd fromibm`
  - b. Change to the directory that your IBM technical-support representative provided.  
`cd nameofdirectory`
3. Enable binary mode for your session.  
`binary`
4. Use the **get** command to download the file that your IBM technical-support representative specified.  
`get filename.extension`
5. End your FTP session.  
`quit`

---

## Known problems and solutions for IBM Intelligent Operations Center

Some common problems with IBM Intelligent Operations Center are documented, along with their solutions or workarounds. If you have a problem with IBM Intelligent Operations Center, review the problem-solution topics to determine if a solution is available to the problem that you are experiencing.

### Data sources or data items not being displayed

In certain circumstances, data sources or data items are not displayed in the solution.

#### Symptoms

The target table in the solution is populated with data but no items are displayed.

#### Resolving the problem

There are three known instances where data sources or data items are not displayed in the solution. See the subtopics for resolutions of these issues.

#### Data items not being displayed because of date or zoom level selection

Due to incorrect solution configuration, data items might not be displayed in the solution.

## Symptoms

The target table in the solution is populated with data but no data items are displayed.

## Resolving the problem

Ensure that the start date for your data item falls within the data selection in your filter panel. Also, the zoom level might be unsuitable for the data that you are viewing. Ensure that the current zoom level applies to the list as well as to the map. You might also select world view in your map.

## Data items not being displayed on the map because of Area name field population

Due to incorrect solution configuration, data items might not be displayed in the solution. If you populate the **Area name** field when you create a data source, data items might not be displayed on the map.

## Symptoms

The target table in the solution is populated with data but no data items are displayed on the map.

## Resolving the problem

Recreate the data source without populating the **Area name** field.

## Data source routing updates not reflected in filtered results

If you edit the routing criteria for a data source, it might take several refresh cycles before data items that match the updated routing criteria are displayed.

## Symptoms

You have created a data source with routing criteria. You have configured the filter criteria so that data items from the data source are displayed in either the maps, or in a list. You update the routing criteria for the data source, and then you wait for the refresh interval. Extra data items that you expect to be displayed, might not be displayed. Items that meet the previous routing criteria are still displayed.

## Resolving the problem

The data items that are displayed in the filtered results do not reflect the updated routing criteria because of how the data receiver processes the last updated time stamps for the data items. If you update the routing criteria for a data source, records that match the updated routing criteria are processed when the `lastupdatedatetimestamp` field of the records is updated. Therefore, it might take several refresh cycles before data items that match the updated routing criteria are displayed. However, items that met the previous routing criteria are still displayed because they have already been processed and the routing affects only either unprocessed, or updated, staging data.

### Related tasks:

“Routing data from your data source” on page 111

For the data that is received from your data source, set routing expressions that define how the data is processed by the solution. Data items that match the required expression or combination of expressions are routed to the selected destination.

## Relocated items are not removed after a refresh

In either the map, the location map, or the list, if you update the location of an item to outside the viewable map area, the item remains in its previous location. The updated item is not removed from the viewable map area until the browser window is refreshed.

## Symptoms

If you relocate an item to outside the viewable map area, the item remains visible after the automatic refresh interval expires. The automatic refresh returns only the items that are in the current viewable map area that have changed since the last refresh. Because the updated item is no longer in the viewable map area, the item is not returned as a changed item. Therefore, the item is not removed from either the map, the location map, or the list.

## Resolving the problem

Refresh the browser to rerun a full query and cause the updated item to be removed from either the map, the location map, or the list. Alternatively, change the zoom level on the map to refresh the data. Changing the zoom level on the map might refresh the data more quickly than refreshing the browser.

## System performance issues

System performance issues and unexplained user interface errors can occur if log files fill up a file system partition and space for active logs becomes unavailable.

## Symptoms

Errors might occur when you attempt to save data or use features in IBM Intelligent Operations Center.

## Resolving the problem

Check that the file systems on the data server are not full. See the related link for information about how to maintain database log files.

### Related concepts:

“Log file maintenance” on page 359

IBM Intelligent Operations Center stores log files in several different locations. To prevent system outages, periodically back up the database, archive log files, and remove the original log files.

## Third-party server not responding

In the standard topology, you might receive the Third-party server not responding error message after you log on to WebSphere Portal.

## Symptoms

You receive the Third-party server not responding error message after you log on to WebSphere Portal.

## Resolving the problem

1. To query the status of WebSphere Portal, enter the following commands to log on to the server where the IOControl script is, and to run the IOControl script. By default, the IOControl script is on the installation server.

```
su - ibmadmin
IOControl -a status -c wpe -p topology_password
```

If WebSphere Portal is running, a message that is similar to the following example is displayed:

```
Executing query command.....completed.
IBM WebSphere Portal Extend [on]
Command completed successfully.
```

2. If WebSphere Portal is not running, enter the following command:

```
IOControl -a start -c wpe -p topology_password
```

## Authentication mechanism not available

In the standard topology, you might receive the HPDIA0119W Authentication mechanism is not available error message after you log on to WebSphere Portal.

### Symptoms

You receive the HPDIA0119W Authentication mechanism is not available error message after you log on to WebSphere Portal.

### Resolving the problem

1. To log on to the application server as `ibmadmin`, and to query the status of Tivoli Directory Server, enter the following commands:

```
su - ibmadmin
IOCControl -a status -c tds -p topology_password
```

If Tivoli Directory Server is running, a message that is similar to the following example is displayed:

```
Executing query command.....completed.
IBM Tivoli Directory Server [on]
Command completed successfully.
```

2. If Tivoli Directory Server is not running, enter the following command:

```
IOCControl -a start -c tds -p topology_password
```

## KPI data is not displayed in the status views

KPI data might not display in the status views because of a change in the security settings, or an issue with IBM Business Monitor.

### Symptoms

KPI data does not display in the status views of the solution.

### Resolving the problem

- Check whether the issue is related to a change in security settings:
  1. Check your port settings. If an administrator changes the HTTPS secure connection settings in the system properties, and you do not change the port settings accordingly, a problem occurs when the status views retrieve data from IBM Business Monitor.
  2. Check whether the SSL certificate has expired. If the SSL certificate has expired, import a new SSL certificate into the WebSphere Application Server truststore.
  3. Check the credentials that are used to connect to IBM Business Monitor. If an administrator has updated the credentials, update the credentials that are stored in the `wbmadmin` JAAS entry in WebSphere Application Server.
- To check the status of IBM Business Monitor, log on to the WebSphere Application Server administration console. For more information about accessing administration consoles, see the link.
  1. In the WebSphere Application Server administration console, click **Servers > Clusters > WebSphere Application Server clusters**.
  2. Choose the appropriate option:
    - If the status of `WBM.DE.AppTarget` is stopped, restart it.
    - If the status of `WBM.DE.AppTarget` is not stopped, stop it and then restart it.If the issue is not resolved, then proceed to the next substep.
  3. Check the IBM Business Monitor logs to investigate and resolve any issues with IBM Business Monitor. For more information about checking the logs, see the link at the end of the topic.

4. When all IBM Business Monitor issues are resolved, log on to the WebSphere Application Server administration console and restart IBM Business Monitor.

**Related concepts:**

“Administering the services” on page 187

Use the Administration Consoles to administer the services that are provided by the solution.

## KPI events not updated in the status views

KPI event data might not be updated in the status views.

### Symptoms

KPI event data does not update in the status views.

### Resolving the problem

- Confirm that KPI event updates are reaching IBM Business Monitor:
  1. Log on to the WebSphere Application Server administration console. For more information about accessing administration consoles, see the link at the end of the topic.
  2. Click **Troubleshooting > Monitor Models > Failed Event Sequences**. Delete any KPI events that are displayed on the page.
  3. Restart IBM Business Monitor.
  4. Click **Applications > Monitor Services > Recorded Events Management > Enable/Disable Events Record**, and enable event recording.
  5. Click **Applications > Monitor Services > Recorded Events Management > Events Management**. Check on the page that at least two events are created for every KPI event that is sent to IBM Intelligent Operations Center.
- Confirm that KPI events are being updated in the status views. For more information about viewing KPIs, see the link at the end of the topic. If you see that the KPI values are updated in the status views, then the values are also updated in IBM Business Monitor.

**Related concepts:**

“Administering the services” on page 187

Use the Administration Consoles to administer the services that are provided by the solution.

“Monitoring status through KPIs” on page 384

Use the status view to see the status of key performance indicators (KPIs) in summary or in detail format.

## KPI report associated with a data source cannot be deleted

When you delete a data source that is associated with a KPI report, the KPI report remains mapped to the data source. If you access the report, an error is displayed.

### Symptoms

If you delete a data source that is associated with a KPI report, the report remains mapped to the data source. If you access the KPI report after you have deleted the data source, the following error is displayed:

An error occurred while performing operation 'sqlPrepareWithOptions' status='-69'.

### Resolving the problem

If the link to a KPI report is broken, you can disassociate the report from the KPI with the KPI customization tool. Alternatively, reassociate the KPI report with an existing data source to generate a new report.

## Date and time format displayed incorrectly in the Arabic locale

In the IBM Intelligent Operations Center user interface, if you select the Arabic locale, the date and time are formatted incorrectly.

The Dojo toolkit, which is used to implement the IBM Intelligent Operations Center user interface, does not currently support Arabic numerals.

## Unable to start the LDAP server using the Tivoli Directory Server Web Administration Tool

When trying to start the LDAP server using the Tivoli Directory Server Web Administration Tool, an HTTP 500 error is returned and the LDAP server will not start.

### Resolving the problem

Start Tivoli Directory Server using the platform control tool.

#### Related concepts:

“Starting, stopping, and querying status in a standard environment” on page 190

The platform control tool allows a user to stop, start, and query IBM Intelligent Operations Center components running in a standard environment. A platform control tool tool is also available for IBM Intelligent Operations Center running in a high availability environment.

“Starting, stopping, and querying status in a high availability environment” on page 198

The platform control tool allows a user to stop, start, and query IBM Intelligent Operations Center services running in a high availability environment. A platform control tool tool is also available for IBM Intelligent Operations Center running in a standard environment.

## Connections refused with large number of users

In IBM Intelligent Operations Center, if there are more than approximately 400 users, some connections might be refused.

### Symptoms

If there are more than approximately 400 users in IBM Intelligent Operations Center, some connections to the solution might be refused. This occurs because the sockets are exhausted on the IBM HTTP Server. You might have to increase the maximum allowed number of clients to resolve this issue.

### Resolving the problem

The IBM Intelligent Operations Center user interface can send many AJAX requests from each browser page. It might be necessary to increase the maximum number of clients that are supported by IBM HTTP Server. In the `httpd.conf` file, a stanza defines the settings for the worker MPM (Multi-Processing Module), as shown in the following example:

```
worker MPM
#
ThreadLimit: maximum setting of ThreadsPerChild
ServerLimit: maximum setting of StartServers
StartServers: initial number of server processes to start
MaxClients: maximum number of simultaneous client connections
MinSpareThreads: minimum number of worker threads which are kept spare
MaxSpareThreads: maximum number of worker threads which are kept spare
ThreadsPerChild: constant number of worker threads in each server process
MaxRequestsPerChild: maximum number of requests a server process serves
<IfModule worker.c>
 ThreadLimit 25
 ServerLimit 64
 StartServers 1
 MaxClients 600
```

```
MinSpareThreads 25
MaxSpareThreads 75
ThreadsPerChild 25
MaxRequestsPerChild 0
</IfModule>
```

The default value of the *MaxClients* setting is 600. Complete the following steps to increase the maximum number of clients:

1. Change the value of the *MaxClients* setting to a value that is more appropriate for the user load and complexity of the client page.

**Note:** As a guide, set the value of the *MaxClients* setting to a value that is equal to 2.5 - 3 times the number of concurrent users that might view an IBM Intelligent Operations Center browser page.

2. Restart IBM HTTP Server for the changes to take effect.

## IBM Intelligent Operations Center stops responding if the primary application server becomes inoperable

In an IBM Intelligent Operations Center high availability environment, if the primary application server becomes inoperable, IBM Intelligent Operations Center stops responding to user input.

### Symptoms

To provide a working high availability implementation, the IBM Intelligent Operations Center installation uses the primary application server as the host file system. If the primary application server becomes inoperable for any reason, the data that is hosted and shared on the file system is no longer accessible to the secondary application server. The secondary application server then becomes inoperable.

IBM Intelligent Operations Center stops responding to user input if the primary application server becomes inoperable in a high availability environment.

### Resolving the problem

Replace the default IBM Intelligent Operations Center NFS configuration for hosting image, CSV, and JAR files with a stand-alone NFS server. In the steps, use the following directories:

```
/opt/IBM/ioc/csv
/opt/IBM/ioc/lib
/opt/IBM/WebSphere/wp_profile/installedApps/cell11/ioc_theme_ear/
 ioc_theme_static_js_web.war/images
```

1. Create and export the directories on the stand-alone NFS server.
2. Copy the contents of the same directories that are on the primary application server to the directories that you just created on the stand-alone NFS server.
3. For the directories on the primary application server, delete the contents and also remove the export.
4. Configure the primary application server and the secondary application server to mount the directories from the stand-alone NFS file server.
5. After you complete the configuration, stop and restart the NFS service on the primary application server and the secondary application server.

### Data import fails

When you import data from a data source into IBM Intelligent Operations Center, if the correct data and data types are not used, the data import fails and an error is displayed.



## Symptoms

If you import data from a data source into IBM Intelligent Operations Center, where the solution start date and end date columns are configured as string values, and the data source time column contains values that are not time type values, the following error is displayed:

```
[2/10/14 13:38:28:367 GMT] 00000051 DataReceiverL I com.ibm.ioc.datareceiver.utils.DataReceiverUtil
parseStartAndEndDateFromString java.text.ParseException: Unparseable date: "2008-10-02"
 at java.text.DateFormat.parse(DateFormat.java:348)
 at com.ibm.ioc.datareceiver.utils.DataReceiverUtil.
parseStartAndEndDateFromString(DataReceiverUtil.java:5077)
```

## Resolving the problem

To prevent the data import error, configure the data source to have start date and end date columns that are string data types, and leave the time column empty. The data import process correctly assigns the default time.

## Screen reader does not announce time values

The screen reader does not announce time values from list boxes. You can work around this problem by typing the time into the field in the 12-hour format.

## Symptoms

If you use the JAWS screen reader to select a list box that contains time values, the reader announces "start date and time edit combo required", followed by an announcement of the time. However, the reader does not announce the time values that you can select from the list to enter into the field.

## Resolving the problem

Use the keyboard to type a time value into the field in the 12-hour format that is required by the client operating system.

## Screen reader keyboard instructions announced inconsistently

If you select a translation wizard form field, the screen reader might not announce the keyboard controls consistently.

## Symptoms

The screen reader might not announce the keyboard controls consistently for a translation wizard form field.

## Resolving the problem

If the translation wizard form is displayed, the screen reader announces *menu*. If required, press the **Jaws** key + **Insert** key combination to revert to keyboard control announcements.

## Translation wizard label not announced

If you initially click an empty field in a translation wizard form, the label name is announced by the screen reader. However, if you return to the completed field in the translation wizard form, the screen reader might not announce the label name.

## Symptoms

The screen reader might not announce the label name for a completed field in a translation wizard form.

## Resolving the problem

Update either your browser, or your version of Jaws. The issue does not occur in Firefox 24 with Jaws 14.0.1823. Also, the issue does not occur in Firefox 17 with any version of either Jaws 14, or Jaws 15.

---

## Chapter 11. Reference

These topics contain additional reference information to help you.

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### IBM Intelligent Operations Center REST interface

IBM Intelligent Operations Center provides a set of APIs that are implemented by using Representational State Transfer (REST) Services. The REST services provide a set of uniform resource identifiers (URIs) that access data in IBM Intelligent Operations Center components, such as system properties and key performance indicators (KPIs).

You can call the services with any HTTP client application, and define an expected response in the form of a JavaScript Object Notation (JSON) object. The JSON format can be easily parsed and processed by JavaScript, and other products, tools, and languages, which gives you greater flexibility in using your own environment.

Many of the services take a simple HTTP GET URI as input. More complicated services take JSON input through HTTP GET for retrieval, HTTP POST for create, or HTTP PUT for update. Results are returned in JSON, and error messages and status indicators are returned in the HTTP response as JSON output.

#### Resource URIs

Each IBM Intelligent Operations Center REST resource URI has the following format:

```
http://{host}:{port}/ibm/ioc/api/{service-name}/{resource}?{parameters}
```

Where:

- `http://{host}:{port}` contains the host address and port
- `ibm/ioc/api` is the context root
- `{service-name}` represents the service
- `{resource}` represents the logical resource
- `{parameters}` are the parameters to apply to the query

#### REST services access

Access to the REST services is restricted to authorized IBM Intelligent Operations Center users. In addition, access to the POST, PUT, and DELETE methods for most services is restricted to administrative users. An administrative user is a member of at least one of the following groups: `CityWideAdmin`, and `wpsadmins`.

For more information about adding users to groups, see the link at the end of the topic.

#### Resource versions

The following changes are considered compatible between versions and must be expected by clients:

- Adding a REST resource relationship to the resource model, without affecting existing navigation.
- Adding additive information to REST representations that do not affect existing clients.
- Adding a MIME type or representation support.
- Adding new properties to existing JSON objects that are returned to a client that are ignored by earlier clients.

- Adding new properties to existing JSON objects that are received from a client that are defined as optional.

## HTTP methods

The IBM Intelligent Operations Center REST interface provides the following HTTP methods:

**GET** Read a resource.

**POST** Create a resource.

**PUT** Update a resource.

**DELETE**  
Delete a resource.

## Error handling

For errors that are recognized during the processing of an IBM Intelligent Operations Center REST request, an appropriate HTTP status code is returned to the calling client, for example, 200 OK or 404 Not found.

## Supported standards

The IBM Intelligent Operations Center REST APIs support the following Internet standards:

*Table 64. Internet standards supported by the IBM Intelligent Operations Center REST APIs*

Standard	Reference
HTTP 1.1	RFC 2616
MIME, Part 1: Format of Internet Message Bodies	RFC 2045
MIME, Part 2: Media Types	RFC 2046
MIME Media Types	The Internet Corporation for Assigned Names and Numbers (IANA)
JSON Schema	Internet Engineering Task Force

### Related tasks:

“Viewing or modifying group membership” on page 94

View or modify group membership to manage the access permissions of users in IBM Intelligent Operations Center.

### Related information:

 [IBM Intelligent Operations Center V1.6 REST APIs](#)

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## Products and components installed with IBM Intelligent Operations Center in a standard topology

The IBM Intelligent Operations Center solution installs a number of software products and components for the standard topology.

The software products and components and the servers they are installed on are shown in Table 65 on page 457.

Table 65. Products installed with IBM Intelligent Operations Center

Product	Application server	Analytics server	Data server	Web server	Semantic model server (optional)
<p><b>1.6.0.2</b> Tivoli Directory Server 6.3.0.26 (including the GSKit upgrade to 8.0.50.16)</p> <p><b>1.6</b> <b>1.6.0.1</b> Tivoli Directory Server 6.3.0.18</p>	not installed	not installed	installed	not installed	not installed
<p><b>1.6.0.2</b> DB2 Enterprise Server Edition 10.1.0.3</p> <p><b>1.6</b> <b>1.6.0.1</b> DB2 Enterprise Server Edition 10.1.0.1</p>	not installed	not installed	installed	not installed	not installed
<p><b>1.6.0.2</b> DB2 10.1.0.3 Client</p> <p><b>1.6</b> <b>1.6.0.1</b> DB2 10.1.0.1 Client</p>	installed	installed	not installed	not installed	not installed
<p><b>1.6.0.2</b> Tivoli Directory Integrator 7.1.1.3</p> <p><b>1.6</b> <b>1.6.0.1</b> Tivoli Directory Integrator 7.1.1.2</p>	plug-in features installed	plug-in features installed	all features installed	plug-in features installed	not installed
Tivoli Directory Integrator Dispatcher 6.0.6	not installed	not installed	installed	not installed	not installed
Tivoli Directory Integrator POSIX adapter 6.0.23	not installed	not installed	installed	not installed	not installed
IBM Installation Manager 1.6.0	installed	installed	not installed	installed	installed

Table 65. Products installed with IBM Intelligent Operations Center (continued)

Product	Application server	Analytics server	Data server	Web server	Semantic model server (optional)
<p><b>1.6.0.2</b> WebSphere Application Server 7.0.0.31</p> <p><b>1.6</b> <b>1.6.0.1</b> WebSphere Application Server 7.0.0.27</p>	installed	not installed	not installed	not installed	installed
<p><b>1.6.0.2</b> WebSphere Application Server Network Deployment 8.0.0.8</p> <p><b>1.6</b> <b>1.6.0.1</b> WebSphere Application Server Network Deployment 8.0.0.6</p>	installed	installed	not installed	not installed	not installed
WebSphere Application Server 1.1.0.3 Feature Pack for Web 2.0 and Mobile	installed	not installed	not installed	not installed	installed
IBM Business Monitor 8.0.1.0	installed	not installed	not installed	not installed	not installed
<p><b>1.6.0.2</b> WebSphere Portal 8.0.0.1 CF08 (including GSKit fix IFPI05309)</p> <p><b>1.6</b> <b>1.6.0.1</b> WebSphere Portal 8.0.0.1 CF05</p>	installed	not installed	not installed	not installed	not installed
<p><b>1.6.0.2</b> IBM HTTP Server 8.0.0.8</p> <p><b>1.6</b> <b>1.6.0.1</b> IBM HTTP Server 8.0.0.6</p>	not installed	not installed	not installed	installed	not installed

Table 65. Products installed with IBM Intelligent Operations Center (continued)

Product	Application server	Analytics server	Data server	Web server	Semantic model server (optional)
<p>1.6.0.2 IBM HTTP Server 7.0.0.31</p> <p>1.6</p> <p>1.6.0.1 IBM HTTP Server 7.0.0.27</p>	not installed	not installed	not installed	not installed	installed
WebSphere MQ 7.5	not installed	installed	not installed	not installed	not installed
<p>1.6.0.2 IBM Message Broker 8.0.0.3</p> <p>1.6</p> <p>1.6.0.1 IBM Message Broker 8.0.0.1</p>	not installed	installed	not installed	not installed	not installed
IBM Cognos Business Intelligence 10.2	not installed	installed	not installed	not installed	not installed
SPSS Modeler Base 15.0	not installed	installed	not installed	not installed	not installed
SPSS Modeler Data Access 6.1	not installed	installed	not installed	not installed	not installed
<p>1.6.0.2 IBM ILOG CPLEX Optimization Studio 12.6</p> <p>1.6</p> <p>1.6.0.1 IBM ILOG CPLEX Optimization Studio 12.5</p>	not installed	installed	not installed	not installed	not installed
<p>1.6.0.2 IBM Java 1.7.0.6.1</p> <p>1.6</p> <p>1.6.0.1 IBM Java 1.7.0.4.2</p>	not installed	installed	not installed	not installed	not installed
Lotus Domino 8.5.3.1	installed	not installed	not installed	not installed	not installed
Lotus Sametime Entry 8.5.2.1	installed	not installed	not installed	not installed	not installed
IBM Worklight Consumer Edition 6.0.0	installed	not installed	not installed	not installed	not installed

Table 65. Products installed with IBM Intelligent Operations Center (continued)

Product	Application server	Analytics server	Data server	Web server	Semantic model server (optional)
Lotus Sametime Proxy 8.5.2	installed	not installed	not installed	not installed	not installed
<b>1.6.0.2</b> IBM Security Identity Manager 6.0.0.2  <b>1.6</b> <b>1.6.0.1</b> IBM Security Identity Manager 6.0	installed	not installed	not installed	not installed	not installed
Data Studio 3.2.0 (Optional component)	not installed	not installed	installed <b>Note:</b> IBM Installation Manager 1.6.0 will also be installed on this server if Data Studio is installed.	not installed	not installed
Semantic model services	not installed	not installed	not installed	not installed	installed
Jazz Foundation Server 3.0.1 (for semantic model services)	not installed	not installed	not installed	not installed	installed

**Related concepts:**

“What’s new in version 1.6.0.2” on page 14

IBM Intelligent Operations Center version 1.6.0.2 provides several new features, and provides updates to existing features. New features include enhanced user profile management, where users can customize notification settings. Solution administrators can use a new component customization tool to create customized user interface components. For KPIs, solution administrators can map KPIs to reports.

## Products and components installed with IBM Intelligent Operations Center in a high availability topology

The IBM Intelligent Operations Center solution installs a number of software products and components for the high availability topology.

The software products and components and the servers they are installed on in a high availability environment are shown in Table 66.

Table 66. Products installed with IBM Intelligent Operations Center

Product	Application server 1	Application server 2	Analytics server 1	Analytics server 2	Data server 1	Data server 2	Web server 1	Web server 2	Semantic model server (optional)
<b>1.6.0.2</b> Tivoli Directory Server 6.3.0.26 (including the GSKit upgrade to 8.0.50.16)  <b>1.6</b> <b>1.6.0.1</b> Tivoli Directory Server 6.3.0.18	not installed	not installed	installed	installed	installed	installed	not installed	not installed	not installed



Table 66. Products installed with IBM Intelligent Operations Center (continued)

Product	Application server 1	Application server 2	Analytics server 1	Analytics server 2	Data server 1	Data server 2	Web server 1	Web server 2	Semantic model server (optional)
<p><b>1.6.0.2</b> DB2 Enterprise Server Edition 10.1.0.3</p> <p><b>1.6</b></p> <p><b>1.6.0.1</b> DB2 Enterprise Server Edition 10.1.0.1</p>	not installed	not installed	not installed	not installed	installed	installed	not installed	not installed	not installed
<p><b>1.6.0.2</b> DB2 10.1.0.3 Client</p> <p><b>1.6</b></p> <p><b>1.6.0.1</b> DB2 10.1.0.1 Client</p>	installed	installed	installed	installed	not installed	not installed	not installed	not installed	not installed
<p><b>1.6.0.2</b> Tivoli Directory Integrator 7.1.1.3</p> <p><b>1.6</b></p> <p><b>1.6.0.1</b> Tivoli Directory Integrator 7.1.1.2</p>	plug-in features installed	plug-in features installed	plug-in features installed	plug-in features installed	all features installed	plug-in features installed	plug-in features installed	plug-in features installed	not installed
Tivoli Directory Integrator Dispatcher 6.0.6	not installed	not installed	not installed	not installed	installed	not installed	not installed	not installed	not installed
Tivoli Directory Integrator POSIX adapter 6.0.23	not installed	not installed	not installed	not installed	installed	not installed	not installed	not installed	not installed
IBM Installation Manager 1.6.0	installed	installed	installed	installed	not installed	not installed	installed	installed	installed
<p><b>1.6.0.2</b> WebSphere Application Server 7.0.0.31</p> <p><b>1.6</b></p> <p><b>1.6.0.1</b> WebSphere Application Server 7.0.0.27</p>	installed	installed	not installed	not installed	not installed	not installed	not installed	not installed	installed
<p><b>1.6.0.2</b> WebSphere Application Server Network Deployment 8.0.0.8</p> <p><b>1.6</b></p> <p><b>1.6.0.1</b> WebSphere Application Server Network Deployment 8.0.0.6</p>	installed	installed	installed	installed	not installed	not installed	not installed	not installed	not installed
WebSphere Application Server 1.1.0.3 Feature Pack for Web 2.0 and Mobile	installed	installed	not installed	not installed	not installed	not installed	not installed	not installed	installed
IBM Business Monitor 8.0.1.0	installed	installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed
<p><b>1.6.0.2</b> WebSphere Portal 8.0.0.1 CF08 (including GSKit fix IFPI05309)</p> <p><b>1.6</b></p> <p><b>1.6.0.1</b> WebSphere Portal 8.0.0.1 CF05</p>	installed	installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed
<p><b>1.6.0.2</b> IBM HTTP Server 8.0.0.8</p> <p><b>1.6</b></p> <p><b>1.6.0.1</b> IBM HTTP Server 8.0.0.6</p>	not installed	not installed	not installed	not installed	not installed	not installed	installed	installed	not installed
<p><b>1.6.0.2</b> IBM HTTP Server 7.0.0.31</p> <p><b>1.6</b></p> <p><b>1.6.0.1</b> IBM HTTP Server 7.0.0.27</p>	not installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed	installed
WebSphere MQ 7.5	not installed	not installed	installed	installed	not installed	not installed	not installed	not installed	not installed

Table 66. Products installed with IBM Intelligent Operations Center (continued)

Product	Application server 1	Application server 2	Analytics server 1	Analytics server 2	Data server 1	Data server 2	Web server 1	Web server 2	Semantic model server (optional)
<b>1.6.0.2</b> IBM Message Broker 8.0.0.3  <b>1.6</b> <b>1.6.0.1</b> IBM Message Broker 8.0.0.1	not installed	not installed	installed	installed	not installed	not installed	not installed	not installed	not installed
IBM Cognos Business Intelligence 10.2	not installed	not installed	installed	installed	not installed	not installed	not installed	not installed	not installed
SPSS Modeler Base 15.0	not installed	not installed	installed	installed	not installed	not installed	not installed	not installed	not installed
SPSS Modeler Data Access 6.1	not installed	not installed	installed	installed	not installed	not installed	not installed	not installed	not installed
<b>1.6.0.2</b> IBM ILOG CPLEX Optimization Studio 12.6  <b>1.6</b> <b>1.6.0.1</b> IBM ILOG CPLEX Optimization Studio 12.5	not installed	not installed	installed	installed	not installed	not installed	not installed	not installed	not installed
<b>1.6.0.2</b> IBM Java 1.7.0.6.1  <b>1.6</b> <b>1.6.0.1</b> IBM Java 1.7.0.4.2	not installed	not installed	installed	installed	not installed	not installed	not installed	not installed	not installed
Lotus Domino 8.5.3.1	installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed
Lotus Sametime Entry 8.5.2.1	installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed
IBM Worklight Consumer Edition 6.0.0	installed	installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed
Lotus Sametime Proxy 8.5.2	installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed
<b>1.6.0.2</b> IBM Security Identity Manager 6.0.0.2  <b>1.6</b> <b>1.6.0.1</b> IBM Security Identity Manager 6.0	installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed
Data Studio 3.2.0 (Optional component)	not installed	not installed	not installed	not installed	<b>Note:</b> IBM Installation Manager 1.6.0 will also be installed on this server if Data Studio is installed.	<b>Note:</b> IBM Installation Manager 1.6.0 will also be installed on this server if Data Studio is installed.	not installed	not installed	not installed
Semantic model services	not installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed	installed
Jazz Foundation Server 3.0.1 (for semantic model services)	not installed	not installed	not installed	not installed	not installed	not installed	not installed	not installed	installed

**Related concepts:**

“What’s new in version 1.6.0.2” on page 14

IBM Intelligent Operations Center version 1.6.0.2 provides several new features, and provides updates to existing features. New features include enhanced user profile management, where users can customize notification settings. Solution administrators can use a new component customization tool to create customized user interface components. For KPIs, solution administrators can map KPIs to reports.

## Products included, but not installed, with IBM Intelligent Operations Center

### 1.6.0.1

The IBM Intelligent Operations Center package includes products that are not installed when IBM Intelligent Operations Center is installed. If required for specific use cases, these products can be installed after IBM Intelligent Operations Center is installed.

- IBM SmartCloud Control Desk 7.5.1
- IBM Social Media Analytics 1.2
- IBM Tivoli Composite Application Manager for Applications 7.2.0.1

- IBM Tivoli Monitoring 6.3
- IBM Tivoli Netcool/Impact 6.1.1
- IBM Tivoli Netcool/OMNIBus 7.4
- IBM Security Access Manager for Web 7.0

**Related concepts:**

“What’s new in version 1.6.0.2” on page 14

IBM Intelligent Operations Center version 1.6.0.2 provides several new features, and provides updates to existing features. New features include enhanced user profile management, where users can customize notification settings. Solution administrators can use a new component customization tool to create customized user interface components. For KPIs, solution administrators can map KPIs to reports.

## Ports used by IBM Intelligent Operations Center servers

IBM Intelligent Operations Center uses specific ports.

The ports used by IBM Intelligent Operations Center are shown in Table 67. In a high availability environment these ports are used on both the primary and standby servers.

*Table 67. Ports used by IBM Intelligent Operations Center*

Server	Ports required for product use
Application server	84, 1352, 1516, 1533, 2810, 2811, 2812, 2813, 2814, 2815, 7272, 7273, 7274, 7275, 7277, 7278, 7288, 7291, 8082, 8878, 8879, 8882, 8883, 8884, 8885, 8886, 8887, 8888, 8889, 8890, 9044, 9046, 9047, 9048, 9050, 9061, 9063, 9064, 9065, 9066, 9067, 9081, 9082, 9083, 9084, 9085, 9092, 9094, 9101, 9103, 9104, 9105, 9106, 9107, 9201, 9202, 9203, 9204, 9205, 9206, 9207, 9208, 9209, 9210, 9352, 9354, 9355, 9356, 9357, 9358, 9359, 9360, 9361, 9362, 9404, 9406, 9411, 9412, 9414, 9415, 9417, 9418, 9419, 9420, 9422, 9423, 9444, 9445, 9446, 9447, 9448, 9629, 9630, 9631, 9632, 9634, 9635, 9636, 9637, 9638, 9639, 9641, 9809, 9811, 9812, 9813, 9900, 9902, 9904, 9906, 9908, 10025, 10029, 10030, 10033, 10034, 10035, 10036, 10037, 10039, 10039, 10129, 18002  The following are also used in a high availability environment: 10043, 10044, 10045, 10047, 10048, 10050, 10051, 10053, 10056, 10057, 10058
Data server	389, 523, 1098, 1099, 1527, 3538, 3737, 3766, 18001, 18002, 50001, 50002  The following are also used in a high availability environment: 55002, 55003, 55004, 55005, 55006, 55007, 55008, 55009, 55010, 55011, 55012, 55013, 55014, 55015, 55016, 55025
Analytics server	2809, 2810, 4414, 7272, 7273, 8878, 8879, 8882, 8883, 8884, 8891, 9046, 9047, 9048, 9051, 9063, 9064, 9065, 9068, 9081, 9082, 9083, 9086, 9103, 9104, 9105, 9109, 9201, 9202, 9203, 9204, 9353, 9354, 9355, 9356, 9358, 9365, 9411, 9412, 9414, 9415, 9417, 9418, 9427, 9444, 9445, 9446, 9449, 9629, 9630, 9635, 9636, 9637, 9642, 9811, 9812, 9813, 9814, 9900, 9902, 18002  The following are also used in a high availability environment: 389, 3538
Web server	80, 443, 8008, 18002
Semantic model server (optional)	80, 82, 2809, 2810, 2811, 2812, 2813, 3538, 3737, 7272, 7273, 7274, 7275, 7277, 7281, 8008, 8878, 8879, 8880, 8881, 8882, 8883, 8884, 8885, 8886, 8887, 8888, 9043, 9044, 9045, 9046, 9047, 9048, 9060, 9061, 9062, 9063, 9064, 9065, 9080, 9081, 9082, 9083, 9084, 9100, 9101, 9102, 9103, 9104, 9105, 9201, 9202, 9203, 9204, 9205, 9206, 9207, 9208, 9209, 9210, 9352, 9353, 9354, 9355, 9356, 9357, 9358, 9359, 9360, 9361, 9362, 9402, 9403, 9405, 9406, 9408, 9409, 9411, 9412, 9414, 9415, 9417, 9418, 9443, 9444, 9445, 9446, 9447, 9629, 9630, 9631, 9632, 9633, 9634, 9635, 9636, 9637, 9638, 9639, 9809, 9810, 9811, 9812, 9813, 9814, 9900, 9902, 9904, 9906, 9908

## Processes running under the root account

After cyber hygiene completes, some processes must still run under the root account.

Processes running under the root account can be vulnerable if a user or process can obtain root privileges through privilege escalation. Normally this is only a problem for services processing requests originated by a user. User-originated requests can contain maliciously configured input that can compromise the server. Services processing user requests are systems providing user interfaces or accessible application programming interfaces (APIs).

Linux daemons are not normally at risk since they usually only start, stop, or respond to well-defined system events. In many cases these daemons must run as the root account so they can control other processes or respond to critical system events. As long as a user-accessible server itself is not running as root, daemons running under the root account do not present as serious an exposure.

Table 68 lists the processes that continue running as the root account after installation is complete.

*Table 68. IBM Intelligent Operations Center environment processes running as root*

Server	Product	Process Name	Explanation
data server	DB2	db2wdog	This daemon process receives system events and propagate them to multiple child processes. The db2wdog process manages the db2sync processes and requires root level management.
data server	DB2	db2chkpwd	This daemon authenticates the user ID and password of the user or application connecting to a database. The db2chkpwd process needs to read the /etc/shadow password file.
data server	DB2	/opt/IBM/DB2/bin/db2fmc	This daemon serves as a fault monitoring coordinator. It must run as root to monitor all DB2 instances.
data server	DB2	/usr/sbin/rcst/bin/rmcd and /usr/sbin/rcst/bin/IBM.ConfigRMd	These commands manage the high availability solution for DB2. They need access to all databases on the servers configured for high availability.
data server	DB2	/sbin/srcmstr	This daemon starts and monitors all daemons in the Tivoli System Automation for Multiplatforms Reliable Scalable Cluster Technology (TSAMP/RSCT) environment.
web server	IBM HTTP Server	httpd -d, http -f	Linux requires root access to listen on ports less than 1024. Standard HTTP ports are 80 through 443. IBM Intelligent Operations Center uses port 82. The httpd -d and http -f processes must run as root. Any alternate configuration is the responsibility of the installation as part of comprehensive network and security policy and configuration.
application server, analytics server, data server, web server	Tivoli Directory Integrator	/opt/IBM/TDI/V7.1/jvm/jre/bin/java ... /pwd_plugins/pam/pwsync_ioc.props , /opt/IBM/TDI/V7.1/jvm/jre/bin/java ... /pwd_plugins/tds/pwsync_ioc.props	Tivoli Directory Server and Linux Password Synchronizer Java Proxy processes must run as root to intercept password change requests.

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## PDF library

This topic provides links to the help content in PDF format for convenient printing.

- [IBM Intelligent Operations Center publication library page](#)

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## Glossary

This glossary provides terms and definitions for the IBM Intelligent Operations Center software and products.

The following cross-references are used in this glossary:

- *See* refers you from a term to the preferred term or from an abbreviation to the full form.
- *See also* refers you to a related or contrasting term.

For other terms and definitions, see the [IBM Terminology website](#) (opens in new window).

"A" "B" "C" on page 466 "D" on page 466 "E" on page 467 "G" on page 467 "H" on page 467 "I" on page 467 "J" on page 468 "K" on page 468 "L" on page 469 "M" on page 469 "N" on page 469 "O" on page 470 "P" on page 470 "R" on page 470 "S" on page 471 "T" on page 472 "U" on page 472 "V" on page 473 "W" on page 473 "X" on page 473

## A

### **Abstract Syntax Notation One (ASN.1)**

The international standard for defining the syntax of information data. It defines a number of simple data types and specifies a notation for referencing these types and for specifying values of these types. The ASN.1 notations can be applied whenever it is necessary to define the abstract syntax of information without constraining in any way how the information is encoded for transmission.

### **access control list (ACL)**

In computer security, a list associated with an object that identifies all the subjects that can access the object and their access rights.

**ACL** See access control list.

### **administrator permission**

The authority granted to an administrator to give them access to create, configure, and delete portal resources or users. This authority is granted by membership of a user role group.

### **aggregation KPI**

A KPI value that is calculated from a metric using an aggregation function.

**APAR** See authorized program analysis report.

**ASN.1** See Abstract Syntax Notation One.

### **asynchronous**

Pertaining to events that are not synchronized in time or do not occur in regular or predictable time intervals.

### **attribute**

A characteristic or trait of an entity that describes the entity; for example, the telephone number of an employee is one of the employee attributes.

### **authenticated portal user**

A user that is a member of an umbrella group within WebSphere Portal authenticated with a profile containing a password and user ID.

### **authentication**

A security service that provides proof that a user of a computer system is genuinely who that person claims to be. Common mechanisms for implementing this service are passwords and digital signatures.

### **authorization**

The process of granting a user, system, or process either complete or restricted access to an object, resource, or function.

### **authorization permission**

Access to a portal, resource, or data associated with membership of a group.

### **authorized program analysis report (APAR)**

A request for correction of a defect in a supported release of a program supplied by IBM.

## B

### **base map**

A map that depicts background reference information such as landforms, roads, landmarks, and

political boundaries, onto which other thematic information is placed. A base map is used for locational reference and often includes a geodetic control network as part of its structure.

## C

**cache** Memory used to improve access times to instructions, data, or both. Data that resides in cache memory is normally a copy of data that resides elsewhere in slower, less expensive storage, such as on a disk or on another network node.

**CAP** See Common Alerting Protocol.

### **cloud application**

An application that is extended to be accessible through the Internet. Cloud applications use large data centers and powerful servers that host web applications and web services.

### **Common Alerting Protocol (CAP)**

A simple but general format for exchanging all-hazard emergency alerts and public warnings over all kinds of networks.

### **common widget**

A widget provided by IBM that is not associated with a particular product. See also widget.

### **configuration**

1. The manner in which the hardware and software of a system, subsystem, or network are organized and interconnected.
2. The process of describing to a system the devices, optional features, and program products that have been installed so that these features can be used. See also customization.

### **CSV file**

A text file that contains comma-separated values. A CSV file is commonly used to exchange files between database systems and applications that use different formats.

### **customization**

1. The process of describing optional changes to defaults of a software program that is already installed on the system and configured so that it can be used. See also configuration.
2. The modification of a portal page or portlet by a user. WebSphere Portal enables a user to customize a portal page by modifying the page layout and by selecting which portlets will display per device. See also personalization.

## D

### **dashboard**

1. An interface that integrates data from a variety of sources and provides a unified display of relevant and in-context information.
2. A web page that can contain one or more widgets that graphically represent business data.

### **data item**

Self-contained data messages that can be sent or processed by all components.

### **data source**

An external source of data, for example, a database or a file, that can supply a wide variety of data in the required format.

### **domain**

An individual division of a major operation, which generally matches the organization structure and the expertise of the people involved. For example, a city authority is divided into departments dealing with transportation, water, and public safety.

## E

**EAR** See enterprise archive.

**EJB** See Enterprise JavaBeans.

### **enterprise archive (EAR)**

A specialized type of JAR file, defined by the Java EE standard, used to deploy Java EE applications to Java EE application servers. An EAR file contains EJB components, a deployment descriptor, and web archive (WAR) files for individual web applications. See also Java archive.

### **Enterprise JavaBeans (EJB)**

A component architecture defined by Sun Microsystems for the development and deployment of object-oriented, distributed, enterprise-level applications (Java EE).

### **expression KPI**

A KPI that has its value calculated from the values of the other KPIs.

### **Extensible Markup Language (XML)**

A standard metalanguage for defining markup languages that is based on Standard Generalized Markup Language (SGML).

## G

### **GDDM**

See Graphical Data Display Manager.

### **geospatial**

Pertaining to the geographical characteristics of the Earth.

### **Graphical Data Display Manager (GDDM)**

An IBM computer-graphics system that defines and displays text and graphics for output on a display or printer.

**group** A collection of users who can share access authorities for protected resources.

## H

**HA** See high availability.

**heap** In Java programming, a block of memory that the Java virtual machine (JVM) uses at run time to store Java objects. Java heap memory is managed by a garbage collector, which automatically de-allocates Java objects that are no longer in use.

### **high availability (HA)**

The ability of IT services to withstand all outages and continue providing processing capability according to some predefined service level. Covered outages include both planned events, such as maintenance and backups, and unplanned events, such as software failures, hardware failures, power failures, and disasters.

### **hotspot**

A colored circle on a geospatial map that represents a cluster of data items that are collected and analyzed based on proximity and time criteria that the user defines.

### **hover help**

Explanatory text that can be viewed by moving a cursor over a graphical user interface (GUI) item such as an icon, field, or text string. Hover help can contain rich text and links.

## I

### **integration**

The software development activity in which separate software components are combined into an executable whole.

## **ISO model**

A set of rules for data communication, sanctioned by the International Organization for Standardization (ISO). The ISO protocols enable systems supplied by different vendors to connect and communicate. They are the basis of the open systems interconnection (OSI) standards.

## **J**

**JAR** See Java archive.

### **Java archive (JAR)**

A compressed file format for storing all of the resources that are required to install and run a Java program in a single file. See also enterprise archive.

### **Java EE**

See Java Platform, Enterprise Edition.

### **Java Naming and Directory Interface (JNDI)**

An extension to the Java platform that provides a standard interface for heterogeneous naming and directory services.

### **Java Platform, Enterprise Edition (Java EE)**

An environment for developing and deploying enterprise applications, defined by Oracle. The Java EE platform consists of a set of services, application programming interfaces (APIs), and protocols that provide the functionality for developing multitiered, web-based applications. (Oracle)

### **JavaScript Object Notation (JSON)**

A lightweight data-interchange format that is based on the object-literal notation of JavaScript. JSON is programming-language neutral but uses conventions from various languages.

### **Java virtual machine (JVM)**

A software implementation of a processor that runs compiled Java code (applets and applications).

**JNDI** See Java Naming and Directory Interface.

**JSON** See JavaScript Object Notation.

**JVM** See Java virtual machine.

## **K**

### **key performance indicator (KPI)**

A quantifiable measure that is designed to track one of the critical success factors of a business process.

### **keystore**

A repository that contains password information.

**KPI** See key performance indicator.

### **KPI model**

The part of the monitor model that contains the KPI contexts, which in turn contain key performance indicators and their associated triggers and events.

### **KPI policy**

A policy that determines if an incoming event is a KPI event update, then sends it for processing to generate a KPI update or an alert depending on parameters.



## L

### **latitude**

The angular distance of a place north or south of the earth's equator, usually expressed in degrees and minutes.

**layer** An overlay that can be placed on the map to provide additional geospatial information.

**LDAP** See Lightweight Directory Access Protocol.

### **LDAP Directory Interchange Format (LDIF)**

A file format that is used to describe directory information as well as changes that need to be applied to a directory, such that directory information can be exchanged between directory servers that are using LDAP.

**LDIF** See LDAP Directory Interchange Format.

### **level of service (LOS)**

A qualitative measure used in the transportation industry by traffic engineers to determine the effectiveness of elements of a transportation infrastructure. This measure describes the operational conditions of traffic as defined in the Highway Capacity Manual.

### **Lightweight Directory Access Protocol (LDAP)**

An open protocol that uses TCP/IP to provide access to directories that support an X.500 model and that does not incur the resource requirements of the more complex X.500 Directory Access Protocol (DAP). For example, LDAP can be used to locate people, organizations, and other resources in an Internet or intranet directory.

### **linear reference**

A location reference marker along a roadway, generally on a shoulder, indicating its location along a route. An example of a marker is a milepost.

### **location map**

A map or plan containing interactive areas that have been defined in the IBM Intelligent Operations Center. Events can be associated with one or more of these areas. For example, a diagram of seating areas in a major sports stadium can be defined so that events that have occurred can be associated with the appropriate area.

### **logical zone**

A logical grouping of assets or events in a geographical area.

### **longitude**

The angular distance of a place east or west of the meridian at Greenwich, England, usually expressed in degrees and minutes.

**LOS** See level of service.

## M

### **monitoring context instance**

Information in IBM Business Monitor that is collected at a specific point in time within a monitoring context.

### **monitor model**

A model that describes the business performance management aspects of a business model, including events, business metrics, and key performance indicators (KPIs) that are required for real-time business monitoring.

## N

### **nested KPI**

A KPI that is defined as a child of a parent KPI.

**notification**

A message that signals an event or key performance indicator (KPI) status change.

**notification trigger**

A predefined key performance indicator (KPI) value change that causes an alert notification to be sent to the Coordinator - Alerts portlet.

**O****operations view**

A web page that contains portlets that can cooperate to facilitate comprehensive information supply and interaction at operations level for monitoring incoming data from data sources, and for responding to incoming data.

**P**

**page** In a portal environment, the interface element that contains one or more portlets.

**personalization**

The process of enabling information to be targeted to specific users based on business rules and user profile information. See also customization.

**plug-in**

A separately installable software module that adds function to an existing program, application, or interface.

**PMR** See problem management record.

**polygon**

In the GDDM function, a sequence of adjoining straight lines that enclose an area.

**polyline**

A shape that consists of only straight lines.

**portal** A single, secure point of access to diverse information, applications, and people that can be customized and personalized.

**portlet**

A reusable component that is part of a web application that provides specific information or services to be presented in the context of a portal.

**preview card**

A window that is displayed when a user clicks a marker on either a geospatial map or a location map, or when a user clicks a row on the List tab. The window displays information about the associated data item.

**problem management record (PMR)**

The number in the IBM support mechanism that represents a service incident with a customer.

**R**

**RDF** See Resource Description Framework.

**Really Simple Syndication (RSS)**

An XML file format for syndicated web content that is based on the Really Simple Syndication specification (RSS 2.0). The RSS XML file formats are used by Internet users to subscribe to websites that have provided RSS feeds.

**Representational State Transfer (REST)**

A software architectural style for distributed hypermedia systems like the World Wide Web. The term is also often used to describe any simple interface that uses XML (or YAML, JSON, plain text) over HTTP without an additional messaging layer such as SOAP.

**resource bundle**

1. A structured collection of data that provides a key-value mapping for data (resources) used in localizing a program. The values are commonly strings, but may themselves be structured data.
2. A class that contains the text for the store pages. Bundle files are created and accessed according to the Java PropertyResourceBundle API.

**Resource Description Framework (RDF)**

A framework for representing information on the web.

**REST** See Representational State Transfer.

**RSS** See Really Simple Syndication.

**S****Secure Sockets Layer (SSL)**

A security protocol that provides communication privacy. With SSL, client/server applications can communicate in a way that is designed to prevent eavesdropping, tampering, and message forgery.

**SGML**

See Standard Generalized Markup Language.

**shapefile**

A digital file format for geographic information systems software.

**single sign-on (SSO)**

An authentication process in which a user can access more than one system or application by entering a single user ID and password.

**skin** An element of a graphical user interface that can be changed to alter the appearance of the interface without affecting its functionality.

**SOAP** A lightweight, XML-based protocol for exchanging information in a decentralized, distributed environment. SOAP can be used to query and return information and invoke services across the Internet. See also web service.

**solution**

A combination of products that addresses a particular customer problem or project.

**SOP** See standard operating procedure.

**SPARQL**

A query language for RDF that is used to express queries across diverse data sources. The W3 specification defines the syntax and semantic of the SPARQL query language.

**SSL** See Secure Sockets Layer.

**SSO** See single sign-on.

**standard environment**

IBM Intelligent Operations Center installed on a series of servers, where each server provides specific services to the solution.

**Standard Generalized Markup Language (SGML)**

A standard metalanguage for defining markup languages that is based on the ISO 8879 standard. SGML focuses on structuring information rather than presenting information; it separates the structure and content from the presentation. It also facilitates the interchange of documents across an electronic medium.

**standard operating procedure (SOP)**

A procedure defining a sequence of activities that are triggered in response to an event whose parameters meet certain predefined conditions.

**Standard Operating Procedure selection matrix**

A matrix containing unique sets of event parameters that determine whether a standard operating procedure is initiated for a particular event.

**status view**

A web page that facilitates comprehensive information supply at status level for monitoring incoming data from data sources. For example, a status view can contain a consolidated view of data that is displayed as key performance indicators.

**system properties**

System-wide configuration data for the IBM Intelligent Operations Center.

**T**

**TAI** See trust association interceptor.

**TCP/IP**

See Transmission Control Protocol/Internet Protocol.

**theme** The style element that gives a place a particular look. The portal provides several themes, similar to virtual wallpaper, which can be chosen when creating a place.

**Transmission Control Protocol/Internet Protocol (TCP/IP)**

An industry-standard, nonproprietary set of communication protocols that provides reliable end-to-end connections between applications over interconnected networks of different types.

**trigger**

A mechanism that detects an occurrence and can cause additional processing in response.

**trust association interceptor (TAI)**

The mechanism by which trust is validated in the product environment for every request received by the proxy server. The method of validation is agreed upon by the proxy server and the interceptor.

**U****Uniform Resource Identifier (URI)**

1. A compact string of characters for identifying an abstract or physical resource.
2. A unique address that is used to identify content on the web, such as a page of text, a video or sound clip, a still or animated image, or a program. The most common form of URI is the web page address, which is a particular form or subset of URI called a Uniform Resource Locator (URL). A URI typically describes how to access the resource, the computer that contains the resource, and the name of the resource (a file name) on the computer.

**Uniform Resource Locator (URL)**

The unique address of an information resource that is accessible in a network such as the Internet. The URL includes the abbreviated name of the protocol used to access the information resource and the information used by the protocol to locate the information resource.

**URI** See Uniform Resource Identifier.

**URL** See Uniform Resource Locator.

**user administrator**

A person who adds new users and ensures security by giving users membership of role-based authorization groups with appropriate permissions.

**user permission**

The authority granted to a user to give them access to view and work with portal resources. This authority is granted by membership of a user role group.

**user profile**

A description of a user that includes such information as user ID, user name, password, access authority, and other attributes that are obtained when the user logs on.

**user role group**

A group that assigns membership to give a new user the appropriate level of access to the solution. Each new user is added as a member of the appropriate role group. There are different permission levels associated with each role group.

**V****Virtual Network Computing (VNC)**

A graphical desktop sharing system that uses the remote frame buffer (RFB) protocol to remotely control another computer. It transmits the keyboard and mouse events from one computer to another, relaying the graphical screen updates back in the other direction, over a network.

**VNC** See Virtual Network Computing.

**W****Web Map Service (WMS)**

A standard protocol for serving georeferenced map images over the Internet that are generated by a map server using data from a GIS database. The specification was developed and first published by the Open Geospatial Consortium in 1999.

**web service**

A self-contained, self-describing modular application that can be published, discovered, and invoked over a network using standard network protocols. Typically, XML is used to tag the data, SOAP is used to transfer the data, WSDL is used for describing the services available, and UDDI is used for listing what services are available. See also SOAP.

**Web Service Definition Language (WSDL)**

An XML-based specification for describing networked services as a set of endpoints operating on messages containing either document-oriented or procedure-oriented information.

**widget**

A reusable user interface component such as a button, scroll bar, control area, or text edit area, that can receive input from the keyboard or mouse and can communicate with an application or with another widget. See also common widget.

**WMS** See Web Map Service.

**WO** See work order.

**workflow**

A specific set of actions appropriate to a particular set of circumstances. The solution can be customized to trigger appropriate workflows, for example connecting to emergency response systems.

**work order (WO)**

A record that contains information about work that must be performed.

**WSDL**

See Web Service Definition Language.

**X**

**XML** See Extensible Markup Language.

**XML schema**

A mechanism for describing and constraining the content of XML files by indicating which

elements are allowed and in which combinations. XML schemas are an alternative to document type definitions (DTDs) and can be used to extend functionality in the areas of data typing, inheritance, and presentation.

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## Accessibility

Accessibility features help users with physical disabilities, such as restricted mobility or limited vision, to use software products successfully.

The major accessibility features in this product enable users to do the following:

- Use assistive technologies, such as screen-reader software and digital speech synthesizer, to hear what is displayed on the screen. Consult the product documentation of the assistive technology for details on using those technologies with this product.
- Operate specific or equivalent features using only the keyboard.
- Magnify what is displayed on the screen.

In addition, the documentation was modified to include the following features to aid accessibility:

- All documentation is available in XHTML formats to give the maximum opportunity for users to apply screen-reader software technology.
- All images in the documentation are provided with alternative text so that users with vision impairments can understand the contents of the images.

The solution includes the following features to aid accessibility:

- All pages include an accessibility prologue that describes the links that you use to skip over the navigation elements of each page. The prologue also includes the set of keyboard shortcuts that are available.
- All pages include landmarks that define the start of the different sections of a page, for example, banner, navigation and main content.
- Activate the field help where it is present from the keyboard by pressing CTRL+SHIFT+?.
- Activate the Contacts portlet in the solution from the keyboard with the Mozilla Firefox browser by pressing ALT+SHIFT+C.

**Note:** Ensure that the Contacts portlet is displayed before you press the shortcut keys. The shortcut might differ in Chrome and Internet Explorer 9.

- The following web browser and screen reader are recommended:

**Web browser**

Mozilla Firefox 17 extended support release

**Screen reader**

Freedom Scientific JAWS 14

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