

IBM Business Intelligence Pattern  
Version 2.0.0

*User Guide*



**Note**

Before using this information and the product it supports, read the information in "Notices" on page 73.

**Product Information**

This document applies to IBM Business Intelligence Pattern 2.0.0 and may also apply to subsequent releases.

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## Introduction

IBM® Cognos® Business Intelligence (BI) is a web-based business intelligence solution that supports how people think and work by providing integrated query and reporting, analysis, scorecarding, and event management features. This documentation is for the business intelligence solutions architects and administrators who oversee the setup, administration, and use of IBM Cognos BI.

### Accessibility features

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products. This product has accessibility features. For information on these features, see Appendix A, “Accessibility features,” on page 61.

### Audience

To use this documentation effectively, you should be familiar with your information technology infrastructure and with the business needs of the people in your organization who will use Cognos BI.

### Finding information

To find IBM Cognos product documentation on the web, including all translated documentation, access one of the IBM Cognos Information Centers (<http://pic.dhe.ibm.com/infocenter/cogic/v1r0m0/index.jsp>). Release Notes are published directly to Information Centers, and include links to the latest technotes and APARs.

For the product documentation for IBM PureApplication® System, see the IBM PureApplication System Information Center (<http://pic.dhe.ibm.com/infocenter/psappsys/v1r0m0/index.jsp>).

### Forward-looking statements

This documentation describes the current functionality of the product. References to items that are not currently available may be included. No implication of any future availability should be inferred. Any such references are not a commitment, promise, or legal obligation to deliver any material, code, or functionality. The development, release, and timing of features or functionality remain at the sole discretion of IBM.

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## IBM Business Intelligence Pattern 2.0 release notes

Release notes provide a list of topics and links that will be useful when you install IBM Business Intelligence Pattern 2.0.

### Contents

- “Critical installation and configuration issues” on page vi
- “Installing IBM Business Intelligence Pattern 2.0” on page vi
- “Software environments” on page vi
- “Known issues” on page vi

## **Critical installation and configuration issues**

To review a list of critical installation and configuration issues for IBM Business Intelligence Pattern 2.0 as of the date of release, see the document titled Critical installation and configuration issues for IBM Business Intelligence Pattern 2.0 (<http://www.ibm.com/support/docview.wss?uid=swg27038044>).

## **Installing IBM Business Intelligence Pattern 2.0**

For instructions on how to install IBM Business Intelligence Pattern 2.0, see Chapter 3, “Quick reference: installation checklists,” on page 7. IBM Business Intelligence Pattern 2.0 documentation is available on the IBM Business Intelligence 10.2.1 Information Center (<http://pic.dhe.ibm.com/infocenter/cbi/v10r2m1/index.jsp>).

## **Software environments**

To review an up-to-date list of environments supported by IBM Business Intelligence Pattern 2.0, including information about operating systems, patches, browsers, web servers, directory servers, database servers, and application servers, see the Software Environments site (<http://www.ibm.com/support/docview.wss?uid=swg27037044>).

## **Known issues**

To view known issues and their workarounds, see the IBM Support portal (<http://www.ibm.com/support>).

For more information about finding information on the Support portal, see the IBM Support portal assistance (<http://www.ibm.com/software/support/portal/sp-help.html>).

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## Chapter 1. What's new?

Review the list of new, changed, deprecated, and removed features for this release. This information helps you plan your upgrade and application deployment strategies as well as the training requirements for your users.

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### New features in IBM Business Intelligence Pattern 2.0

With Business Intelligence Pattern Version 2.0 you can quickly deploy IBM Cognos Business Intelligence 10.2.1 solutions in private cloud environments using virtual application patterns.

#### Dynamic Cubes 10.2.1 support

You can use a new Dynamic Cubes component to create patterns that provision IBM Cognos Dynamic Cubes 10.2.1 applications.

For information, see “IBM Cognos Dynamic Cubes component” on page 31.

#### IBM Cognos Mobile 10.2.1 Support

Mobile devices can use virtual applications that are created with Business Intelligence Pattern 2.0. To enable this support, upload onto your target system the IBM Cognos Mobile 10.2.1 installation file at the same time as the IBM Cognos Business Intelligence 10.2.1 installation file. For information about enabling IBM Cognos Mobile 10.2.1 support, see the “Installation checklist” on page 7.

For information about preparing the content store for mobile applications, see “Cognos Mobile database preparation” on page 16.

For information about enabling access to virtual applications from BlackBerry devices, see “IBM Cognos Business Intelligence component” on page 27.

#### Multitenancy support

You can create BI patterns that use the IBM Cognos Business Intelligence built-in multitenancy capabilities. You enable multitenancy support by specifying advanced authentication properties and custom LDAP properties in the user registry components.

For information about enabling multitenancy features, see “User registry components” on page 32.

#### Additional currencies support

Business Intelligence virtual applications are configured to automatically support all the additional currency symbols that can be used in IBM Cognos Business Intelligence 10.2.1.

## Single signon support

You can configure virtual applications to use single signon between LDAP user registries and the IBM Cognos components. You enable this feature with the external identity mapping property.

For information about enabling external identity mapping, see “User registry components” on page 32.

## Supplementary fonts support

By default, BI virtual applications include the default fonts that are installed with IBM Cognos Business Intelligence 10.2.1. In Business Intelligence Pattern 2.0, you can customize your patterns by adding supplementary fonts to the base set of fonts available.

For more information, see “Adding supplementary fonts” on page 19.

## Custom Java Provider

You can attach a custom Java™ authentication provider to an IBM Cognos Business Intelligence component to provide a user registry (namespace) for container-managed security.

For more information, see “Custom Java Provider” on page 37.

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## Changed features in IBM Business Intelligence Pattern 2.0

Review the list of changed features to understand the changes in existing functionality from the previous release.

## IBM Cognos Business Intelligence 10.2.1 support

The IBM Business Intelligence Pattern 2.0 pattern type provisions IBM Cognos Business Intelligence Version 10.2.1 virtual applications. To provision IBM Cognos Business Intelligence Version 10.1.1 virtual applications, use the IBM Business Intelligence Pattern 1.0 pattern type.

## Content store settings optimization

In Business Intelligence Pattern 1.0, content store settings are optimized when you deploy virtual applications that point to a new content store. In Business Intelligence Pattern 2.0, content store settings are optimized at deployment time for applications that use either an existing content store or a new content store.

## Changes to default values for some LDAP property mappings

The default values for some LDAP properties are updated to match the default values that changed for IBM Cognos Business Intelligence Version 10.2.1.



## **Content store dispatcher settings are unregistered**

When you migrate to a cloud environment, any dispatchers previously registered for the content store will be unregistered. Therefore, you should take a note of any optimization settings applied at the dispatcher level before migrating to a cloud environment.

Review these settings before you apply them to the cloud environment.

## **The Runtime log file captures more data**

In Business Intelligence Pattern 2.0, the `cogserver.log` file can store up to 400 MB of data.

For more information about the `cogserver.log` file, see “Accessing the Runtime log file for error diagnosis” on page 70.



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## Chapter 2. Overview: Getting started with IBM Business Intelligence Pattern

Review the steps required to implement BI solutions into private cloud environments using IBM Business Intelligence Pattern.

1. Install IBM Business Intelligence Pattern on your system. For installation information, see Chapter 3, “Quick reference: installation checklists,” on page 7.
2. Plan your deployment. For planning information, see Chapter 5, “Planning the deployment of Business Intelligence solutions in cloud environments,” on page 11.
3. Create your Business Intelligence virtual application pattern. For information about creating a BI pattern, see Chapter 6, “IBM Business Intelligence Pattern components and templates,” on page 25.
4. Deploy your application pattern to the cloud group where the ELB shared service is running. For information on how to deploy applications, refer to your system documentation.
5. Perform any applicable post-deployment configuration tasks. For information about post-deployment tasks, see “Post-deployment tasks” on page 41.
6. Apply the latest BI fix packs in all environments. For information about applying fix packs, see “Applying fix packs and interim fixes” on page 46.
7. Access and test the BI virtual application. For information about accessing the virtual application instance, see “Access to the BI application” on page 41.
8. Determine a backup strategy for the content of the NFS server. For information about which directories to back up, see “NFS server content back up” on page 45.
9. Move your application to a production environment. For information about setting up a production environment, see “Moving a BI virtual application to a production environment” on page 45.
10. Maintain the virtual application instance. For the list of operations that you can run on virtual application instances, see “Maintenance of BI virtual applications” on page 46.



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## Chapter 3. Quick reference: installation checklists

Use checklists to plan for the IBM Business Intelligence Pattern (BI Pattern) installation on your system.

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### Preinstallation checklist

There are some tasks that you must do before you install IBM Business Intelligence Pattern.

- \_\_\_ • Review the supported environments information at IBM Support Portal (<http://www-01.ibm.com/support/docview.wss?uid=swg27037044>).
- \_\_\_ • Review last-minute restrictions and limitations. For information about how to obtain the latest restrictions and limitations, see “IBM Business Intelligence Pattern 2.0 release notes” on page v.
- \_\_\_ • Verify that your hardware and software meet the minimum requirements. For more information, see Chapter 4, “Prerequisites for IBM Business Intelligence Pattern,” on page 9.
- \_\_\_ • If you do not have the IBM Business Intelligence Pattern part numbers, review the download instructions in the IBM Business Intelligence Pattern version 2.0 download document (<http://www.ibm.com/support/docview.wss?uid=swg24033913>).
- \_\_\_ • Obtain the required Business Intelligence Pattern 2.0 licenses so that you can download the software from IBM Passport Advantage®.

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### Installation checklist

You run the installation program from a computer that can access the system where you want to install BI Pattern.

- \_\_\_ 1. Complete the following table for the target IBM PureApplication System:

*Table 1. System information required during installation*

System information	Sample value	Your value
The host name or the IP address of the target system.	9.24.207.202	
The userid and password of a user that can install the BI Pattern type on the target system.	<i>biadmin</i> <i>biadminpwd</i>	

- \_\_\_ 2. Get access to a computer that uses either a Windows or Linux operating system where you can access the target IBM PureApplication System and where you can copy the installation files.

**Note:** If you are using a computer with a Linux operating system, login using a non-root user account.

- \_\_\_ 3. Verify that the computer has Java Runtime Environment (JRE) and that the PATH environment variable includes the bin directory of the JRE.
- \_\_\_ 4. Access Passport Advantage and download the following packages:
  - Download IBM Business Intelligence Pattern version 2.0

- Download into a separate directory the 64-bit version of either the Linux or AIX® operating system of the following installation files:
  - IBM Cognos Business Intelligence Version 10.2.1
  - IBM Cognos Mobile Version 10.2.1

**Important:** You can only add IBM Cognos Mobile support when you install the BI Pattern type with the IBM Cognos Mobile installation file on your target system. To add IBM Cognos Mobile after the BI Pattern type is already installed, delete any existing BI virtual applications and the BI Pattern type from your system. Then, reinstall the BI Pattern type including the IBM Cognos Mobile installation files.

- \_\_\_ 5. Uncompress into an empty directory the BI Pattern compressed archive (tar.gz) file.
- \_\_\_ 6. Run the `install.bat` (Windows environments) or `install.sh` (Linux environments) command.  
For example,  

```
cd /data/downloads/software/COGNOSPattern/2.0
./install.sh <targetIP> <username> <password> /data/downloads/software/COGNOS/10.2.1
```
- \_\_\_ 7. Follow the prompts of the installation program using the information in Table 1 on page 7 to upload to your system the installation files for BI Pattern, IBM Cognos Business Intelligence Version 10.2.1, and IBM Cognos Mobile Version 10.2.1.

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## Post-installation checklist

After you install the BI Pattern type on your system, you must log in to your system and enable the BI Pattern type before you can use it.

- \_\_\_ 1. Log in to your system as an administrator or with an account that can work with product licenses.
- \_\_\_ 2. Enable the BI Pattern type. For information about enabling pattern types, see the documentation for your system.

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## Chapter 4. Prerequisites for IBM Business Intelligence Pattern

Before you use BI Pattern, verify that your hardware and software meet the requirements.

The official set of software requirements is available on the IBM Business Intelligence Pattern 2.0 software environments page (<http://www.ibm.com/support/docview.wss?uid=swg27037044>). If there is a conflict between the information provided in the information center and the information in the software environments page, the information in the software environments page takes precedence.

### Hardware requirements

You require access to IBM PureApplication System W1500 Version 1.0.0.4 or IBM PureApplication™ System W1700 Version 1.0.0.0.

You also require a computer that uses either a Microsoft Windows, or Red Hat Enterprise Linux operating system where you can download the installation files and connect to IBM PureApplication System.

### Software requirements

- Java Runtime Environment (JRE) on the computer where the BI Pattern installation files are downloaded. If the system is configured to use SSL and has a JRE provided by IBM, the JRE must be Java 6 SR3 or later, otherwise the installation will fail.
- The base operating system image on the system must be either IBM OS image for Red Hat Linux Systems V2.0.0.2 or AIX V2.0.0.1.
- A Type 4 Java Database Connectivity (JDBC) driver for connecting to the database used for the BI and Mobile content store, and for connecting to the audit database. The following databases are supported:
  - DB2® for Linux, UNIX, and Windows
  - DB2 for z/OS®
  - Oracle
  - Microsoft SQL Server

To find out which database versions are supported, see IBM Cognos Business Intelligence 10.2.1 Software Environments (<http://www.ibm.com/support/docview.wss?uid=swg27037784>).

- Type 4 JDBC drivers for connecting to the following relational data sources:
  - DB2 for Linux, UNIX, and Windows
  - DB2 for z/OS
  - Oracle
  - Microsoft SQL Server

**Tip:** To find out which relational data sources versions are supported, see IBM Cognos Business Intelligence 10.2.1 Software Environments (<http://www.ibm.com/support/docview.wss?uid=swg27037784>).

- To connect to SAP NetWeaver Business Warehouse (SAP BW), copies of the 32-bit and 64-bit versions of the SAP BW `librfccm.so` library files.

- For user authentication, LDAP Version 3 Compliant Directory Servers, such as IBM Tivoli® Directory Server. You can also use a custom authentication provider, if one exists.



## Chapter 5. Planning the deployment of Business Intelligence solutions in cloud environments

Before you can implement BI solutions in cloud environments, you must collect information about your environment and prepare artifacts that are required when you are ready to define a BI pattern.

Use the following checklist to help you plan your virtual application deployment:

- 1. Determine whether your virtual applications connect to an existing Business Intelligence content store or a new one. For information about preparing the content store database, see “Preparing your databases” on page 15.

For an Oracle or IBM DB2 content store, create a compressed file containing a JDBC driver that your application will use to connect to the databases. For information about the JDBC drivers and the compressed files for the content store, see “Setting up access to your content store databases, audit databases, and data sources” on page 16.

Use the following table to record information about the content store:

*Table 2. Content store information*

Content store information	Sample value	Your value
Content store database name	Salesdb	
Content store database server and port number	dbservername:50000	
Content store database user name	admin	
Content store database password	clpwd	
For Oracle and IBM DB2, fully qualified name of the compressed file with the JDBC driver to connect to the content store.	c:\drivers\db2cs.zip	

- 2. To reuse an existing IBM Cognos Mobile 10.2.1 content store, you must copy the contents of the Mobile content store into the same database that is used by the Business Intelligence content store. For information about importing objects into a content store, refer to the Business Intelligence documentation or the database product documentation.
- 3. Determine whether your virtual applications connect to an existing audit database or create one of the same type as your content store. For information about preparing an audit database, see “Preparing your databases” on page 15.

Record information about the audit database in the following table.

*Table 3. Audit database information*

Audit database information	Sample value	Your value
Audit database name	Auditdb	
Audit database server and port number	dbservername:50000	
Audit database user name	admin	

Table 3. Audit database information (continued)

Audit database information	Sample value	Your value
Audit database password	auditpwd	

- 4. Perform capacity planning. This helps you determine the type of virtual instances needed (static and dynamic), the size of the instances, and other information required when defining a BI pattern. You can look at existing system metrics and trends as a baseline for this exercise. For information about capacity planning, see “Deployment throughput” on page 30.
- 5. Determine your data sources and TM1® connectivity requirements. Then, prepare the compressed files that contain the files required to connect to your data sources.

Record information about your data source connectivity requirements in the following table.

Table 4. Data source connectivity information

Data source connectivity information	Sample value	Your value
Name of the compressed file with the data sources JDBC drivers. For information about setting up access to your data sources, see “Setting up access to your content store databases, audit databases, and data sources” on page 16.	c:\drivers\ds.zip	
Name of the compressed file with the 32-bit and 64-bit library files required for SAP NetWeaver Business Warehouse (SAP BW). For information about setting up access, see “Setting up access to SAP NetWeaver Business Warehouse servers” on page 18.	c:\drivers\sapbw.zip	
Name of the compressed file with the TM1 configuration files required for IBM Cognos Business Insight connectivity. For information about setting up access, see “Setting up IBM Cognos Business Insight connectivity to TM1 data” on page 17.	c:\drivers\tm.zip	

- 6. Determine whether your application requires user authentication. By default, anonymous logon is enabled if there is no user registry attached to the BI component. With an existing authentication namespace (user registry), when you configure the BI component, use the administrative credentials that your BI component is pointing to, otherwise the deployment will fail.

Table 5. Configuration information when using an existing authentication namespace

Information	Your value
Administrative namespace ID	
Administrative username	
Administrative password	

- 7. If you want your application to be configured to support multiple tenants, collect information about how the tenancy information is determined for the users in your environment in the following scenarios :

- If the application uses the hierarchy information, record information in the following table.

*Table 6. Configuration information for environments where tenancy is determined by the hierarchy*

Information	Sample value	Your value
Determine the value for the <code>multitenancy.TenantPattern</code> advanced property	<code>~/ancestors[2]/defaultName</code>	

**Important:** If you use Active Directory user registries, set also the `MultiDomainTree` advanced property to true to map the tenants to domains.

- If the application uses specific object attributes from your authentication provider, such as a department number (`departmentNumber`), record information in the following table.

*Table 7. Configuration information for environments where tenancy is determined by object attributes*

Information	Sample value	Your value
Determine the value for the <code>multitenancy.TenantPattern</code> advanced property	<code>~/parameters/dept</code>	
Set the value for the <code>AdditionalUserPropertiesToQuery</code> advanced property	<code>parameters</code>	
Set the value for the dept LDAP custom property	<code>departmentNumber</code>	

- If you are using a custom Java class, compile the custom Java class file into a JAR file and include it in a compressed file using the `webapps/p2pd/WEB-INF/lib` path.

Record the information in the following table.

*Table 8. Configuration information for environments where tenancy is determined by using a custom Java class*

Custom files information	Sample value	Your value
Set the value for the <code>multitenancy.ITenantProvider</code> advanced property to match the name of the custom Java class.	<code>com.tenantinfo.Class</code>	
Optional: Record any other advanced properties and values applicable to your environment.		
Name of the compressed file containing the custom Java class. The directory structure inside the compressed file determines where to copy the custom Java class.	<code>c:\drivers\custom.zip</code>	

8. If you want to use your application with BlackBerry devices, determine the host names and port numbers of the primary BlackBerry MDS Connection Service push servers. For example, `BlackBerry1:8080`.

- \_\_\_ 9. Determine which cloud group will contain the virtual application instance. Verify that the cloud group has the following characteristics:
  - \_\_\_ • The cloud group has a running instance of the elastic load balancing (ELB) shared service. For information about deploying the ELB service, see “Deploying the ELB Proxy Service.”
  - \_\_\_ • The cloud group has the required CPU, memory, disk, and IP addresses to run the application, including any resources needed during scaling operations.
- \_\_\_ 10. Determine whether you want to set up Secure Shell (SSH) key-based access for your deployed application. For information about whether you require SSH key-based access, see “NFS server” on page 38.
- \_\_\_ 11. Determine if the first entry point for your virtual application is through an external proxy host configured to use the Secure Socket Layer (SSL) protocol. If you enable SSL, it must be on port 443.

After you have completed these tasks, you can define a pattern for your BI virtual application. For information about creating a BI pattern, see Chapter 6, “IBM Business Intelligence Pattern components and templates,” on page 25.

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## Deploying the ELB Proxy Service

Elastic load balancing (ELB) is a shared service that provides routing and load balancing to deployed applications. Before you can deploy BI applications in a cloud group, one instance of the ELB Proxy Service must be running in that cloud group. If there is an instance already running, you do not need to deploy another one.

### Before you begin

Confirm with your system administrator whether an instance of the ELB Proxy Service is running in the cloud group where you want to deploy your virtual applications. Users with administrative permissions or system administrators can view the list of deployed shared services by using **Instances > Shared Services**. If the ELB Proxy Service is not running, use this procedure to deploy an instance of it.

### Procedure

1. Log in to your system as an administrator or with an account that can work with shared services. For information about the roles and user permissions required, see the documentation for your system.
2. Click **Cloud > Shared Services**.
3. From the Shared Services palette, select **ELB Proxy Service**, then click **Deploy**.
4. Follow the prompts to deploy an instance of the shared service in the cloud group where you want to deploy BI pattern applications. You can accept or change the default values. For more information about the ELB Proxy Service, refer to the documentation for your system.
5. To monitor the deployment of the shared service, click **Instances > Shared Services**.

### Results

After the ELB Proxy Service deployment is complete, the ELB Proxy Service status is running and the health is normal.

## What to do next

BI pattern applications can be deployed in this cloud group.

---

## Preparing your databases

Before you can create a pattern for your BI virtual application, you must set up the databases that are used by the BI Pattern components.

The database type for the content store database, the Cognos Mobile database, and the audit database must be the same.

### Content store database preparation

Determine which content store to associate with your virtual application. You can reuse an existing content store, create a content store, or use a content store database backup and restore it into a new content store. The database backup and restore option is suited for large content stores and has the least amount of downtime.

At deployment time, BI virtual applications optimize specific content store settings to ensure an optimal application performance.

If you are reusing an existing content store, complete the following steps:

1. Shut down any existing application that is connected to your content store.
2. Back up your existing content store. For information about backing up databases, see the documentation of your database vendor.
3. Review existing content store settings and make changes as required. BI virtual applications optimize content store settings related to the number of processes for the report and batch report services.

If you are creating a content store, complete the following steps:

1. Create a deployment archive from IBM Cognos Administration.
2. Create a content store database. For information about creating a database, see your database documentation. For information about using a database virtual application pattern as a content store, see “Provisioning databases by using database virtual application patterns” on page 19.

If you are using the database backup and restore option, complete the following steps:

1. Back up your existing content store database. For information about backing up databases, see the documentation of your database vendor.
2. Create an instance of the database from the content store database backup. For information about restoring database backups, see your database documentation.

### Audit database preparation

Determine whether you can reuse an existing audit database or create one with the same type as the content store database.

If you are reusing an existing audit database, complete the following steps:

1. Shut down any existing application that is connected to your audit database.

2. Back up your existing audit database. For information about backing up databases, see the documentation of your database vendor.

If you are creating an audit database, complete the following steps:

1. Create a deployment archive from IBM Cognos Administration.
2. Create an audit database. For information about creating a database, see your database documentation. For information about using a database virtual application pattern as an audit database, see “Provisioning databases by using database virtual application patterns” on page 19.

## Cognos Mobile database preparation

BI Pattern virtual applications share the same database for the Business Intelligence content store and the Cognos Mobile content store. To reuse your existing Cognos Mobile data, you must copy the contents of the Mobile content store database into the same database as the BI content store database and associate it to your virtual application when you define your pattern.

---

## Setting up access to your content store databases, audit databases, and data sources

You must upload JDBC drivers to your system to associate a content store and an audit database with your virtual application. You must also upload JDBC drivers so that your virtual application can access your data sources. JDBC drivers are required for Oracle and IBM DB2 databases only.

### About this task

For Oracle and IBM DB2, you must upload the content store JDBC drivers at deployment time. Data source drivers can be added at deployment time or later. The database type for both the content store database and the audit database must be the same.

**Important:** Drivers are associated with a virtual application. If you add a driver to a virtual application or if you refresh an existing driver, you must also add all the drivers associated with the virtual application, even if the drivers have not changed.

You can obtain the latest JDBC drivers for DB2 databases at Download Fix Packs by version for IBM Data Server Client Packages (<http://www.ibm.com/support/docview.wss?uid=swg27016878>).

### Procedure

1. Create a compressed file with the appropriate database JDBC driver required to connect to an existing content store. For information about the files required to set up connectivity to your content store, see the *IBM Cognos Business Intelligence Version 10.2.1 Installation and Configuration Guide*.

**Exception:** You do not need to upload a JDBC driver if you are using a Microsoft SQL Server database as your content store.

2. Create a compressed file with the appropriate database JDBC drivers required for data source connectivity.

For information about the files required to set up connectivity to your relational data source provider, see the *IBM Cognos 10 Dynamic Query Cookbook* in the

Proven Practices section of the IBM Cognos Customer Center (<http://www.ibm.com/software/data/cognos/customercenter/>).

3. From your system, use the Virtual Application console to upload the compressed JDBC driver files. Depending on whether your pattern is deployed, there are two ways to upload the compressed file:
  - If your BI virtual application instance is deployed, you can update the jdbc drivers. For information about updating the content store or audit database drivers, see “Updating content store or audit database information” on page 48. For information about updating the data sources drivers, see “Updating drivers and configuration files to access data” on page 48.
  - If your BI virtual application is not deployed, you can add the files while creating the virtual application pattern. For more information, see Chapter 6, “IBM Business Intelligence Pattern components and templates,” on page 25.

## What to do next

When you refresh the drivers or add new drivers, ensure that the compressed file includes all the drivers needed for the deployment. Missing drivers from the compressed file are no longer associated with your virtual application.

---

## Setting up IBM Cognos Business Insight connectivity to TM1 data

Before BI Pattern application instances can access TM1 data in IBM Cognos Business Insight, you must upload a set of TM1 configuration files to your BI Pattern application template.

If you are working with multiple locales, you must upload a set of files for each locale.

### Environments with existing TM1 and BI configurations

If your IBM Cognos Business Intelligence (BI) 10.2.1 environment already accesses TM1 servers, follow these steps to reuse your configuration files and to upload them to your system:

1. From a computer where BI 10.2.1 is installed, copy the following TM1 configuration files into a compressed (.zip) file:
  - `variables_TM1.xml`. This file is in the `c10_location\templates\ps\portal` directory.
  - `tm1_contribution.atom`. This file is in the `c10_location\configuration\icd\contributions\contrib` directory.

In addition, for each locale that you need to use in your environment, copy the following TM1 files into the compressed file:

  - `tm1_locale.properties` where *locale* represents the locale used. This file is in the `c10_location\configuration\icd\contributions\contrib` directory.
  - `tm1buxmsgs_locale.xml` where *locale* represents the locale used. This file is in the `c10_location\templates\ps\messages` directory.
2. From your system, use the Virtual Application console to upload the compressed file. Depending on whether your application is deployed, there are two ways to upload the compressed file:
  - If your BI Pattern application instance is deployed, you can update the configuration files. For more information, see Updating drivers and configuration files.



- If your BI Pattern application is not deployed, you can add the configuration files when creating the virtual application pattern. For more information, see Chapter 6, “IBM Business Intelligence Pattern components and templates,” on page 25.

## Environments without an existing TM1 and BI configuration

If your IBM Cognos Business Intelligence (BI) 10.2.1 environment does not access TM1 servers, IBM Business Intelligence Pattern provides sample TM1 configuration files. Use the following steps to set up access to TM1 servers:

1. Go to the computer where the IBM Business Intelligence Pattern package was uncompressed and go to the *BI\_Pattern\_install\samples\TM1* directory.
2. Copy the following files into a new directory:
  - *tm1buxmsgs\_EN.xml*
  - *tm1\_en.properties*
  - *tm1\_contribution.atom*
  - *variables\_TM1.xml*
3. Update each configuration file with values that are appropriate for your environment. If your environment supports multiple locales, copy the *tm1\_en.properties* and the *tm1buxmsgs\_EN.xml* files and create a version for each locale. For information about the naming convention and how to update these files, see the *IBM Cognos Business Intelligence Installation and Configuration Guide*.
4. Create a compressed (.zip) file and include the updated TM1 configuration files.
5. From your system, use the Virtual Application console to upload the compressed file. Depending on whether your application is deployed, there are two ways to upload the compressed file:
  - If your BI Pattern application instance is deployed, you can update the configuration files. For more information, see *Updating drivers and configuration files*.
  - If your BI Pattern application is not deployed, you can add the configuration files when creating the virtual application pattern. For more information, see Chapter 6, “IBM Business Intelligence Pattern components and templates,” on page 25.

---

## Setting up access to SAP NetWeaver Business Warehouse servers

Before BI Pattern application instances can use SAP NetWeaver Business Warehouse (SAP BW) data, you must upload a set of files to your cloud environment.

BI Pattern applications requires that you package two SAP BW library files in a specific directory structure. Follow these steps to create a compressed file (.zip) with the correct directory structure:

1. Copy the 32-bit version of the SAP BW *librfccm.so* library file in a *bin* directory of the compressed file.
2. Copy the 64-bit version of the SAP BW *librfccm.so* library file in a *bin64* directory of the compressed file.
3. From your system, use the Virtual Application console to upload the compressed file. Depending on whether your pattern is deployed, there are two ways to upload the compressed file:



- If your BI Pattern application instance is deployed, you can update the files. For more information, see “Updating drivers and configuration files to access data” on page 48.
- If your BI Pattern application is not deployed, you can add the files while creating the application pattern. For more information, see Chapter 6, “IBM Business Intelligence Pattern components and templates,” on page 25.

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## Adding supplementary fonts

If your environment requires fonts that are not installed with IBM Cognos Business Intelligence 10.2.1, you can install a set of supplementary fonts. These additional fonts become automatically available when authoring reports.

You associate new fonts to your BI Pattern virtual application by uploading a compressed file that contains the complete list of the additional fonts. These fonts are then associated with your virtual application instances. You can add font files at deployment time or later.

If you add fonts after your virtual application is deployed or if you refresh existing fonts, ensure that the compressed file contains all the fonts that were previously associated with the virtual application, even if the fonts have not changed.

### Procedure

1. Create a compressed file with the additional TrueType font files. The supported file extensions are `ttf` or `ttc`.
2. From your system, use the Virtual Application console to upload the compressed file. Depending on whether your pattern is deployed, there are two ways to upload the compressed file:
  - If your BI virtual application instance is deployed, you can update the font files. For information about updating the fonts files, see “Updating fonts” on page 51.
  - If your BI virtual application is not deployed, you can add the font files while creating the virtual application pattern. For more information, see “Fonts” on page 30.

---

## Provisioning databases by using database virtual application patterns

You can create a database virtual application pattern to deploy DB2 databases in a Database-as-a-Service (DBaaS) cloud environment. You can then configure IBM Business Intelligence Pattern (BI Pattern) to use these databases.

### Before you begin

Consult with your database administrators to define the database requirements, the scripts requirements, as well as the commands required to generate the DBaaS databases.

You must accept the IBM Transactional Database Pattern type license agreement and enable the pattern type. For information about accepting license agreements and enabling pattern types, see the documentation for your system.

### About this task

To provision databases from database patterns, you must perform the following tasks.

## Procedure

1. Create a database workload standard package.
2. Create a database workload standard.
3. Create a database pattern.
4. Deploy a database using the database pattern.
5. Collect the database information required by IBM Business Intelligence Pattern (BI Pattern).

## Defining the database workload standard package

Before you create a database pattern that you can use with IBM Business Intelligence Pattern (BI Pattern), you must first create a customized database workload standard package that contains the correct database specifications.

The workload standard package is a .zip file that contains a script or scripts to customize the workload standard. The create\_db subdirectory and its entry script create\_db.sh are mandatory.

## Before you begin

To define the workload standard package, review the documentation for your system to determine which database versions are supported.

## Procedure

1. Create the create\_db.sh entry script and any optional subdirectories as required for customizing your workload standard in a folder on your local system. For information about the optional subdirectories for customized workload standard packages, see the documentation for your system.

For example, the create\_db.sh script might contain the following commands to create a “dbaas” database based on DB2 Version 9.7:

```
db2 -v CONNECT RESET
db2 -v DROP DATABASE dbaas
db2 -v -t CREATE DATABASE dbaas USING CODESET UTF-8 TERRITORY US PAGESIZE 32768
db2 -v UPDATE DATABASE CONFIGURATION FOR dbaas USING APPLHEAPSZ 2560
db2 -v UPDATE DATABASE CONFIGURATION FOR dbaas USING STMTHEAP 8192
db2 -v CONNECT TO dbaas
db2 -v DROP TABLESPACE USERSPACE1
db2 -v CREATE BUFFERPOOL dbaasBP IMMEDIATE SIZE -1 PAGESIZE 32K
db2 -v CREATE BUFFERPOOL dbaasTEMPBP IMMEDIATE SIZE -1 PAGESIZE 32K
db2 -v CREATE BUFFERPOOL dbaasSYSBP IMMEDIATE SIZE -1 PAGESIZE 32K
db2 -v CONNECT RESET
db2 -v CONNECT TO dbaas
db2 -v -t CREATE REGULAR TABLESPACE dbaas PAGESIZE 32K
db2 -v -t CREATE USER TEMPORARY TABLESPACE USERTEMP1 PAGESIZE 32K
db2 -v -t CREATE SYSTEM TEMPORARY TABLESPACE TEMPSYS1 PAGESIZE 32K BUFFERPOOL dbaasSYSBP
db2 -v GRANT CREATETAB,CONNECT ON DATABASE TO USER appdba
db2 -v GRANT USE OF TABLESPACE dbaas TO USER appdba
db2 -v GRANT USE OF TABLESPACE USERTEMP1 TO USER appdba
db2 -v CONNECT RESET
exit
```

2. Test the script in your local environment.
3. Create a compressed file (.zip) that contains the script in a create\_db subdirectory.

## Creating a database workload standard

After you define a database workload standard package for IBM Business Intelligence Pattern, you must use the interface of your system to specify metadata for the customized workload standard.

## Procedure

1. Click **Catalog > Database Workload Standards**.
2. On the Database Workload Standards page, click the **New** icon.
3. In the Database Workload Standards window, perform the following steps:
  - a. Provide a name and a description for your customized database workload.
  - b. For the workload type, select **Departmental Transactional**.
  - c. For the initial disk size, accept the default value or specify the space available when the database is first deployed. The value must be an integer from 0 to 500.
  - d. Accept the default value or specify a new value for storage multiplier. Storage multiplier is used with initial disk size to determine the user data size. The default value is recommended. The range of permitted values is 1.0 to 3.0.
  - e. Click the **Browse** button and navigate to the location of the compressed file that contains the database workload standard package.
  - f. Click **Save**.

## Creating a database pattern and deploying databases

After you create a customized workload standard, you can use it to create database patterns. You can then use the database patterns to deploy databases.

### Procedure

1. Click **Patterns > Database Patterns**.
2. In the Database Patterns panel, click the **New** icon.
3. In the Database pattern window, perform the following steps:
  - a. Specify a database pattern name.
  - b. Optional: Add a description for your customized database workload.
  - c. Accept or change the default value of the database pattern purpose.
  - d. From the Source list, select **Apply a database workload standard** and select the customized workload standard that you created.
  - e. Accept or change the default values provided for the database that is used as the base for the database pattern.
  - f. Click **Save**.
4. In the Database Patterns panel, select your database pattern and click the **Deploy** icon.
5. In the Deploy Database from Database Pattern window:
  - a. Specify a database name.

The name must match the name specified in the customized workload standard `create_db.sh` entry script.
  - b. Optional: Add a description for the database.
  - c. Select whether to deploy the database to an environment profile or to a cloud group, and provide the appropriate values.
  - d. Click **OK**.

## What to do next

To monitor the status of the database deployment, click **Instances > Databases** and click the database name. The status of the deployment changes to **Running** when it is complete.

After the database is deployed, you can refer to it in your BI virtual application. In the following table record the information that is needed when you create a BI Pattern application.

*Table 9. Database information required in BI virtual application*

Database information	Sample value	Your value
Name	dbaas	
Host	9.24.205.34	
Port number	50000	
Password for the <b>appdba</b> User (Application DBA)	owU1LdiDB62i6ehh	
Database level	9.7.0.5	

---

## Reviewing security requirements

Depending on the security requirements of your environment, you might want to update your network configuration or set up additional security features. Before adding more security features for your BI Pattern virtual applications, determine your private cloud environment security requirements.

BI Pattern virtual applications benefit from the built-in security features that are inherited from IBM Cognos Business Intelligence. In addition, virtual applications can take advantage of the security features of the private cloud framework.

For information about setting security in BI environments, see “Securing your BI virtual application by setting the HTTPOnly parameter” on page 44.

## Updating your network configuration

To protect your infrastructure from threats against your BI Pattern applications, you can configure an additional SSL-enabled entry point and add network firewalls.

The following diagram shows how you can combine BI patterns and network firewalls in your private cloud environment. In the first tier, users send requests through an SSL-enabled entry point. These requests are then validated through a network firewall before reaching the tier of servers where the private cloud environment runs the BI patterns. This tier might contain database patterns for the BI content store and query databases. To further secure your environment, configure a network firewall to secure any authentication sources and databases located outside the private cloud.

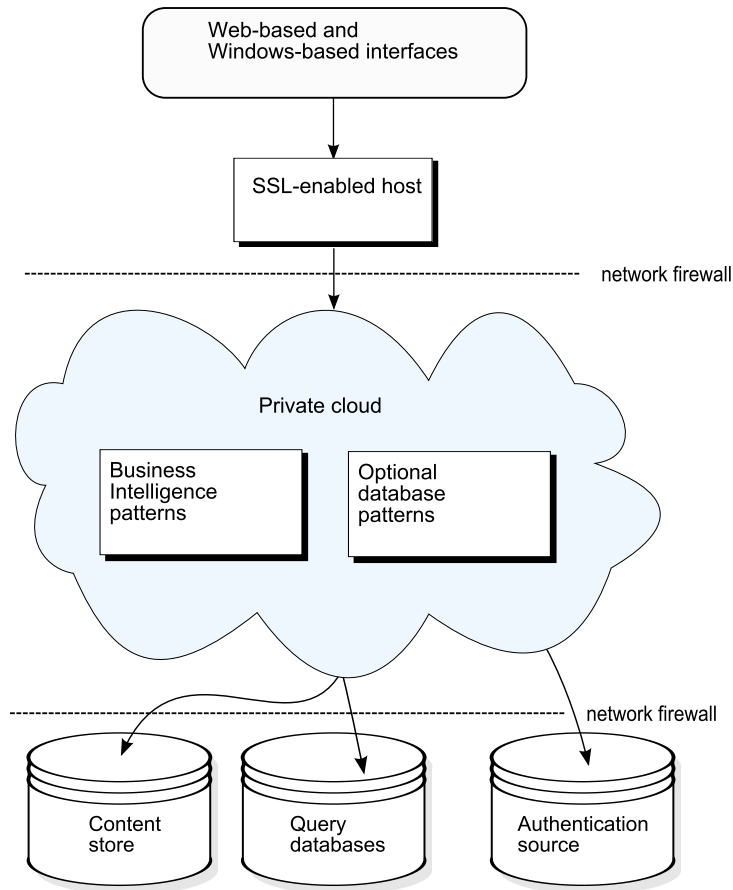


Figure 1. IBM Business Intelligence Pattern architecture using an SSL-enabled entry point and network firewalls

On an AIX operating system, the firewall is disabled by default. To enable the firewall, on an IBM PureApplication System 1700 server, you must enable IPSec filtering after the deployment of IBM Cognos Business Intelligence. For more information, see the web document titled BI Pattern - Additional hardening on IBM PureApplication System 1700 when IPSec filtering is enabled.



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## Chapter 6. IBM Business Intelligence Pattern components and templates

IBM Business Intelligence Pattern (BI Pattern) virtual applications contain middleware components that represent the Business Intelligence service for the BI virtual application instance. BI Pattern virtual applications can also include a policy that determines the scaling requirements of the deployed applications.

### Architecture

IBM Business Intelligence Pattern contains components that you configure and connect using the console of your system to create a virtual application pattern. You can then deploy the pattern to provision Business Intelligence virtual applications. You can choose the following BI Pattern components:

- Business Intelligence analytics component, which represents a service to deploy IBM Cognos Business Intelligence 10.2.1 applications. BI patterns must include one Business Intelligence component.
- Dynamic Cubes analytics component, which represents a service to deploy IBM Cognos Dynamic Cubes 10.2.1 applications. BI patterns can include one or more Dynamic Cubes components, each one connected to the Business Intelligence component.
- Existing user registry components, which provide a user registry (namespace) for container-managed security. If you do not configure and connect a user registry to a Business Intelligence component, anonymous logon to your application is enabled by default. You can have multiple user registries, and each one must be connected to the Business Intelligence component that exists in your pattern.

These components include the configuration specifications and user registry specifications required for the application deployment. In addition, they contain artifacts, such as the drivers needed to connect to a content store, an audit database, and data sources.

You can also attach an optional scaling policy to the BI Pattern virtual application. The scaling policy dynamically manages the resources allocated to your BI Pattern virtual application.

The following diagram shows some of the BI Pattern virtual application components and the topology that can be generated when these components are deployed. In this example, the BI instance authenticates users through an external authentication provider.

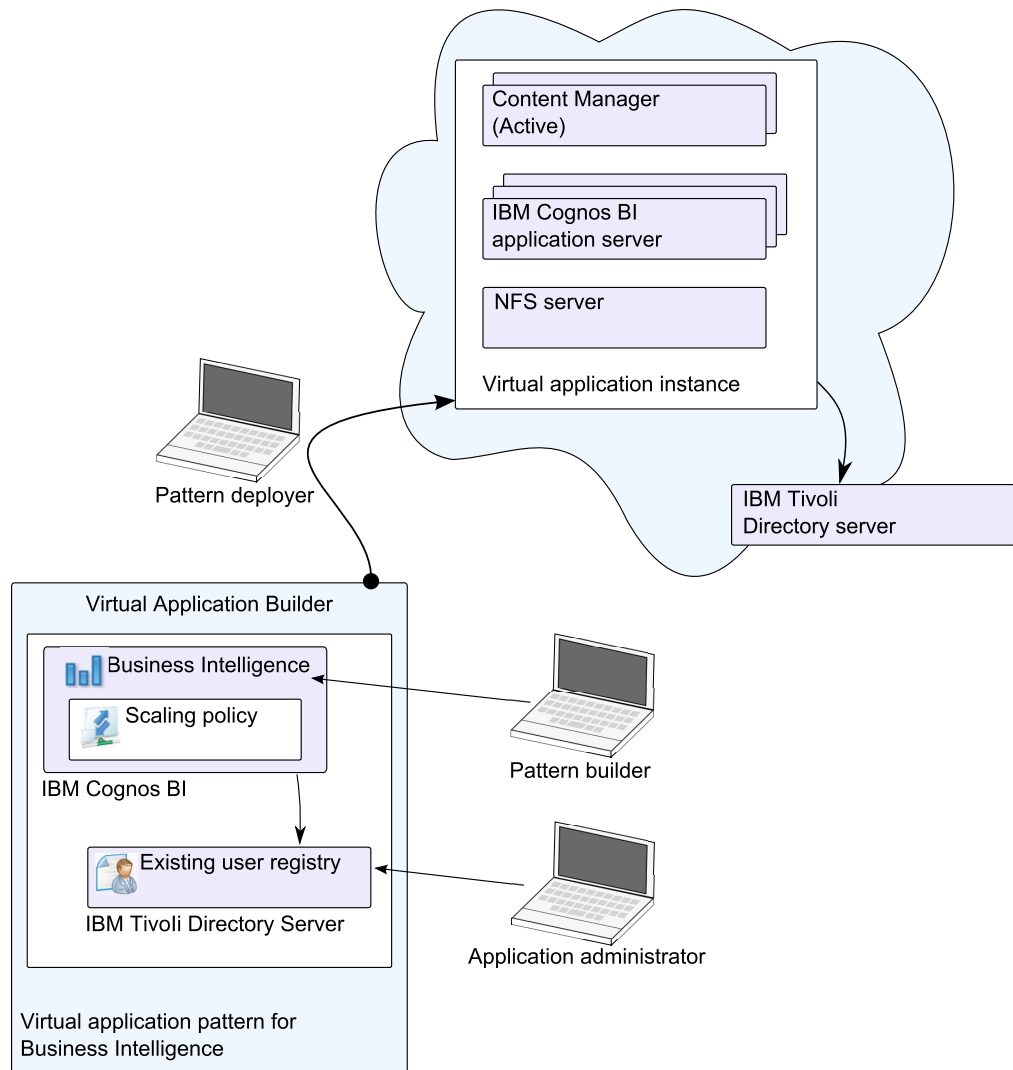


Figure 2. BI Pattern virtual application components

Application templates that contains some of these components are provided with IBM Business Intelligence Pattern.

After the BI Pattern virtual application is deployed, a BI virtual application instance is created. The BI instance generates middleware services that provision a minimum of four virtual machines hosting the Cognos BI Application Tier components, the Content Manager Tier components, and an NFS server. The NFS server acts as a repository for sharing content. The BI scaling policy determines the elasticity of the deployment and manages the addition and removal of the virtual machines, as needed.

The following roles can be associated with the deployed middleware services:

**CognosBICM1 or CognosBICM2**

These roles identify the virtual machines that host the active and the standby Content Manager.

**CognosBIAS**

This role identifies the virtual machine that hosts an application server (Application Tier) component.



**CognosBIASAutoScale**

This role identifies a scalable virtual machine that hosts an application server component.

**CognosBINFSServer**

This role identifies the virtual machine that hosts the NFS server.

**CognosBIASDC-*Dynamic\_cubes\_server\_name***

This role identifies the virtual machine that hosts a Dynamic Cubes server.

---

## IBM Cognos Business Intelligence component

To create a BI pattern, you configure the Business Intelligence component in the Virtual Application Builder. You can optionally add a scaling policy. You can also connect the Business Intelligence component to multiple existing User Registry components or to multiple Dynamic Cubes components.

### General configuration settings

You can specify the following general configuration settings:

**Name** A unique name that identifies the BI component in the Virtual Application Builder.

**Enable SSL**

You can use the Secure Sockets Layer (SSL) protocol for communication between IBM Cognos BI components and other servers.

When you create the pattern in Virtual Application Builder, you can enable SSL communication between Cognos BI components by selecting **Enable SSL**. When this option is selected, the pattern turns on SSL between the Elastic Load Balancing (ELB) service and Cognos BI, turns on SSL between all Cognos BI components, and generates application endpoints that use HTTPS. The SSL configuration uses port number 443.

For information about configuring SSL on your first-tier proxy server, refer to the documentation for your proxy server. If you configure your environment to use SSL only on the first-tier proxy service without selecting the **Enable SSL** option, SSL is used only between the end user's browser and the proxy service.

To change the SSL setting after the pattern is deployed, you must back up data on the NFS server, terminate your deployment, change the SSL setting, and then redeploy the pattern.

**Application host name alias**

A unique name that the ELB Proxy Service uses to relay incoming requests to a BI Pattern application instance. This value represents the web alias name used to construct entry points to the application instance. For example, if the application host name alias is `ibmcognos`, then the entry points to the application would be `http://ibmcognos/p2pd` and `http://ibmcognos/p2pd/servlet/dispatch`.

To change this setting after the pattern is deployed, you must back up any data on the NFS server, terminate your deployment, change the name, and then redeploy the pattern.

**Valid domains or hosts**

The list of domain names or host names separated by commas. These are

used by IBM Cognos Application Firewall (CAF) to validate requests with host names and domain names. For example, \*.mycompany.com, hostname, hostname:80.

## **Content store and audit databases information**

BI Pattern application instances require access to a content store database and an audit database. If you are moving an existing BI application to the cloud environment and want to reuse existing databases, review the content store settings to ensure that they are optimized for the cloud environment. A subset of the content store settings are automatically optimized at deployment time.

For BI Pattern application instances to locate the content store and audit databases, you must provide the following attributes:

### **Content store database name**

The name of the database for the Business Intelligence and mobile content store.

### **Content store database server and port number**

The host name and port number of the content store database, separated by a colon. For example: dbservername:50000.

### **Content store database user name**

The user name of an account with database administrator privileges for the content store database.

### **Content store database password**

The password associated with the user name with database administrator privileges for the content store database.

### **Audit database name**

The name for the audit database.

### **Audit database server and port number**

The host name and port number of the audit database, separated by a colon. Example: dbservername:50000.

### **Audit database user name**

The user name of an account with database administrator privileges for the audit database.

### **Audit database password**

The password associated with the user name with database administrator privileges for the audit database.

### **Database JDBC driver**

The name of the compressed (zip) file containing the files required for connecting to the content store and audit databases. These files are only required for DB2 and Oracle databases. For information about preparing the required files, see "Setting up access to your content store databases, audit databases, and data sources" on page 16.

## **Data source connectivity**

You must upload the drivers required for data source connectivity of your BI Pattern applications by specifying the following attributes either at deployment time or after the applications are deployed:

### **Data sources JDBC drivers**

The name of the compressed (zip) file containing one or more JDBC

drivers and license files for Business Intelligence relational data source connectivity. For information about preparing the required files, see “Setting up access to your content store databases, audit databases, and data sources” on page 16

#### **SAP BW drivers**

The name of the compressed (zip) file containing the 32-bit and 64-bit library files required for SAP NetWeaver Business Warehouse (SAP BW) connectivity. For information about using SAP BW data sources, see “Setting up access to SAP NetWeaver Business Warehouse servers” on page 18.

#### **TM1 configuration files**

The name of the compressed (zip) file containing specific TM1 configuration files required for IBM Cognos Business Insight integration. For information about accessing TM1 data, see “Setting up IBM Cognos Business Insight connectivity to TM1 data” on page 17.

### **Notification**

You can set up BI Pattern applications for email notification using the following attributes:

#### **Notification mail server and port number**

The host name and port number of the mail server computer. The syntax is host:port. For example, mailservername:25.

#### **Notification user ID**

The user ID required to log in to the email account. If the mail server does not require authentication, leave it blank.

#### **Notification password**

The password required for the email account that is used to log in to the mail server. If the mail server does not require authentication, leave it blank.

#### **Notification default sender**

The email address of the sender of outgoing messages. For example, cognosbireports@ibm.com.

### **Administrative credentials**

If your virtual applications use a CPU-based scaling policy, you must provide user credentials with administrative privileges. BI Pattern virtual applications use these credentials to administer, optimize, and maintain the deployed virtual applications. If your virtual applications use a static scaling policy, these credentials are ignored. To specify administrative credentials, use the following attributes:

#### **Administrative namespace ID**

The identifier of the namespace associated with a user with administrative privileges. The namespace ID must be defined in an Existing User Registry component; or if a user registry is not configured yet, specify NONE.

#### **Administrative username**

The username with administrative privileges for deploying and administering BI Pattern applications.

#### **Administrative password**

The password for the username used for deploying and administering BI Pattern application instances.

## Mobile configuration

If you have uploaded the IBM Cognos Mobile installation file to your system, your application can run on mobile devices.

To enable BlackBerry users to receive content notification, you must specify the following attribute:

### **BlackBerry MDS host names and port numbers**

Specifies the host names and port numbers for the BlackBerry Mobile Data Service (MDS) Connection Service primary push servers. This information enables content notifications to be delivered to BlackBerry users. For example: server1:8080, 1.1.1.1:5050.

## Fonts

If your environment requires fonts that are not installed with IBM Cognos Business Intelligence, you can install a set of supplementary fonts. You must package these additional fonts in a compressed file and then specify the file name in the following attribute:

### **Supplementary fonts**

The name of the compressed (zip) file containing additional font files that can be used when authoring reports. The file must contain the complete list of additional fonts. The supported font file extensions are ttf or ttc. For more information about fonts, see “Adding supplementary fonts” on page 19.

## Deployment throughput

Deployment throughput options specify whether predefined settings or customized settings are used for the allocation of server resources used by BI Pattern application instances. To select a value appropriate for your environment, consider the amount of resources available in the cloud group where the application is deployed, and also review existing system metrics and trends as a baseline.

Use your console to select standard options for applications with low, medium, or high throughput. For the list of available settings, use the online help of your system. To customize the server allocation of resources, you can select advanced deployment throughput options:

### **Application servers resource allocation for CPU, RAM (GB), and disk space**

**(GB)** The allocation of the virtual CPU, RAM, and disk space resources for the IBM Cognos BI Application Server Tier. The default values are servers with two virtual CPUs, 16 GB of RAM, and 50 GB of disk space.

### **Content Manager server resource allocation for CPU, RAM (GB), and disk space**

**(GB)** The allocation of the virtual CPU, RAM, and disk space resources for the IBM Cognos BI Content Manager Server Tier. The default values are servers with two virtual CPUs, 8 GB of RAM, and 50 GB of disk space.

### **NFS server resource allocation for CPU, RAM (GB), and disk space (GB)**

The allocation of the virtual CPU, RAM, and disk space resources of the NFS server. The default values are servers with one virtual CPU, 4 GB of RAM, and 50 GB of disk space.

---

## IBM Cognos Dynamic Cubes component

When you create patterns, you can add one or more Dynamic Cubes components and connect them to the Business Intelligence component.

The Dynamic Cubes component contains the following types of configuration options:

- General configuration settings
- Deployment throughput options

### General configuration settings

You can specify the following general configuration settings:

**Name** A unique name that identifies the Dynamic Cubes component in the Virtual Application Builder.

**Number of static instances**

The number of virtual machines instances for the Dynamic Cubes servers. New machines are not provisioned or removed at run time.

### Deployment throughput

Deployment throughput options specify whether predefined settings or customized settings are used for the allocation of server resources used by BI Pattern application instances. To select a value appropriate for your environment, consider the amount of resources available in the cloud group where the application is deployed and also review existing system metrics and trends as a baseline.

Use your console to select standard options for applications with small, medium, or large throughput. For the list of available settings, use the online help of your system. To customize the server allocation of resources, you can select the following advanced deployment throughput options:

**Application servers resource allocation for CPU, RAM (GB), and disk space**

**(GB)** The allocation of the virtual CPU, RAM, and disk space resources for the IBM Cognos BI Application Server Tier. The default values are servers with two virtual CPUs, 16 GB of RAM, and 50 GB of disk space.

**Dynamic Cubes servers resource allocation for CPU, RAM (GB), and disk space**

**(GB)** The allocation of the virtual CPU, RAM, and disk space resources for the IBM Cognos BI Dynamic Query Server Tier. The default values are servers with one virtual CPU, 4 GB of RAM, and 10 GB of disk space.

**Note:**

After installing BI Pattern, and consistent with IBM Business Intelligence behavior, you must define routing rules to ensure that dynamic cube-based reports are directed to the dynamic query server for execution. To ensure that your server processes dynamic cube requests, you must:

- assign a server group to the dispatcher
- assign a routing set to all packages associated with a dynamic cube
- create a routing rule to send queries for the routing set to the server group

You can set routing rules in IBM Cognos Administration or you can use the IBM Cognos Software Development Kit. For information about creating routing rules in IBM Cognos Administration, see Set Routing Keywords for Server Groups in the

*IBM Cognos Business Intelligence Administration and Security Guide* and *Configure a dynamic cube for the query service in the IBM Cognos Dynamic Cubes User Guide*. For information about creating custom routing rules using the SDK, see the *IBM Cognos Software Development Kit Developer Guide*.

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## Business Intelligence scaling policy

You can apply a policy to define either static or CPU-based scaling policy to IBM Business Intelligence Pattern (BI Pattern) applications. You add the BI scaling policy at the BI component level using the **Add a Component Policy** icon.

A scaling policy component defines the conditions under which scaling activities are performed for your application.

The static policy provides a fixed number of application server instances. This policy enables you to provide fault tolerance and high availability of your application, but does not provide application elasticity. Consider using this type of scaling policy when your application workload is constant.

The CPU-based policy provides application elasticity by enabling applications to scale in (down) or out (up) the amount of processing available to match the application workload. Consider using this type of scaling policy when your application workload is difficult to predict.

Depending on the type of scaling that you choose, you can specify the following BI Pattern attributes:

- **Number of static instances:** The number of virtual machines instances that are hosting the Cognos Application Server Tier. Environments that use external products, such as Framework Manager, should set a minimum of value of one static instance.
- **Range of scaling in and out instances:** The scaling range for virtual machines instances that are hosting the Application Server Tier.
- **Scaling in and out when CPU usage is out of threshold range (in percentage):** The processor threshold condition to start scaling activity.
- **Minimum time (in seconds) to trigger add or remove:** The time duration condition to start scaling activity.
- **Timeout (in minutes):** The number of minutes before shutting down an application server node that is being scaled down. Allocate an appropriate amount of time for requests to complete on a dispatcher for your environment. For an unlimited timeout period, specify -1.

---

## User registry components

You define the user authentication sources for your BI applications by configuring and then connecting user registry (namespace) components to a Business Intelligence (BI) component. When user registry components are not defined in your application pattern, anonymous logon to your virtual application is enabled by default.

Before you can use these external resources, they must already exist in your environment and be configured for use in authentication. For information about LDAP configuration and custom Java authentication provider, see the *IBM Cognos Business Intelligence* documentation.

If your applications require LDAP attributes that are not included in the IBM Tivoli Directory Server or the Microsoft Active Directory user registry component, use the Generic LDAP Directory Server component.

## IBM Tivoli Directory Server

An IBM Tivoli Directory Server user registry component represents an existing Lightweight Directory Access Protocol (LDAP) services that you can connect to a BI component. This LDAP service provides a user registry (namespace) for container-managed security.

You can specify the following attributes for each user registry:

**Name** A unique name that represents the name of the namespace. Specify this name for maintenance operations on a user registry.

### Namespace ID

A unique value that identifies this namespace. This value is used internally at run time by IBM Cognos BI components. You specify this identifier when you define a pattern.

### Server and port number

The host name and the port number for the directory server, separated by a colon. Instead of the host name, you can specify the IP address. For example, `ldapservname:389`.

### Base distinguished name

The base distinguished name of the LDAP server.

### User lookup

The user lookup information used for binding to the LDAP directory server.

### Bind user DN

The user ID used for binding to the LDAP server when performing a search using the user lookup property, or when performing all operations using the external identity mapping.

### Password

The password for the user ID used for binding to the LDAP server.

### Use bind credentials for search

Specifies whether to use bind credentials to search.

This option affects only users who do not use an external identity mapping. If you select this option, the bind credentials that are provided in the namespace configuration are used to search in the LDAP directory server. If you do not select this option, or bind credentials are not available, the authenticated user credentials are for searching.

### SSL certificate database

Specifies the name of the compressed (zip) file containing the certificate database files that are required by the LDAP directory server for establishing SSL connections.

Your administrator must create this file when enabling SSL for use with an LDAP directory server. For more information, see the *IBM Cognos Business Intelligence Administration and Security Guide*.



## Microsoft Active Directory

A Microsoft Active Directory user registry component represents an existing LDAP service that can be connected to a BI component. This LDAP service provides a user registry (namespace) for container-managed security.

You can specify the following attributes for each user registry:

**Name** A unique name that represents the name of the namespace. Specify this name for maintenance operations on a user registry.

**Namespace ID**

A unique value that identifies this namespace. This value is used internally at run time by IBM Cognos BI components. You specify this identifier when you define a pattern.

**Server and port number**

The host name and the port number for the directory server, separated by a colon. Instead of the host name, you can specify the IP address. For example, `ldapservname:389`.

**Base distinguished name**

The base distinguished name of the LDAP server.

**User lookup**

The user lookup information used for binding to the LDAP directory server.

**Bind user DN**

The user ID used for binding to the LDAP server when performing a search using the user lookup property, or when performing all operations using the external identity mapping.

**Password**

The password for the user ID used for binding to the LDAP server.

**Use bind credentials for search**

Specifies whether to use bind credentials to search.

This option affects only users who do not use an external identity mapping. If you select this option, the bind credentials that are provided in the namespace configuration are used to search in the LDAP directory server. If you do not select this option, or bind credentials are not available, the authenticated user credentials are for searching.

**SSL certificate database**

Specifies the name of the compressed (zip) file containing the certificate database files that are required by the LDAP directory server for establishing SSL connections.

Your administrator must create this file when enabling SSL for use with an LDAP directory server. For more information, see the *IBM Cognos Business Intelligence Administration and Security Guide*.

## Generic LDAP Directory Server

A Generic LDAP Directory Server user registry component represents an existing LDAP service that can be connected to a BI component. This LDAP service provides a user registry (namespace) for container-managed security.

You can provide the following attributes for each user registry:



**Name** A unique name that represents the name of the namespace. Specify this name for maintenance operations on a user registry.

**Namespace ID**

A unique value that identifies this namespace. This value is used internally at run time by IBM Cognos BI components. You specify this identifier when you define a pattern.

**Server and port number**

The host name and the port number for the directory server, separated by a colon. Instead of the host name, you can specify the IP address. For example, `ldapservname:389`.

**Base distinguished name**

The base distinguished name of the LDAP server.

**User lookup**

The user lookup information used for binding to the LDAP directory server.

**External identity mapping**

The mapping used to construct a distinguished name (DN) or a search filter to locate a user in the LDAP directory server. If the application cannot find the environment variable or the DN in the LDAP server, it attempts to use the **User lookup** property to construct the DN.

If you specify `${environment("ENVIRONMENT_VARIABLE_NAME")}`, all instances of this string are replaced by the value of the environment variable provided by the web server. If the string does not begin with an open parenthesis, the result of the substitution is assumed to be the user's DN.

For example, if you specify

`uid=${environment("REMOTE_USER")},ou=people, base DN`, where *base DN* is the Base Distinguished Name parameter value. If the value begins with an open parenthesis, the result of the substitution is assumed to be a search filter. For example,

`(userPrincipalName=${environment("REMOTE_USER")})`. In this case, you must either enable anonymous access to the LDAP directory server or set the **Bind user DN** and **Password** properties.

For more information about LDAP mapping, refer to the *IBM Cognos Business Intelligence 10.2.1 Architecture and Deployment* guide.

**Bind user DN**

The user ID used for binding to the LDAP server when performing a search using the user lookup property, or when performing all operations using the external identity mapping.

**Password**

The password for the user ID used for binding to the LDAP server.

**Use bind credentials for search**

Specifies whether to use bind credentials to search.

This option affects only users who do not use an external identity mapping. If you select this option, the bind credentials that are provided in the namespace configuration are used to search in the LDAP directory server. If you do not select this option, or bind credentials are not available, the authenticated user credentials are for searching.

**Unique identifier**

The value used to uniquely identify objects stored in the LDAP directory server.

### SSL certificate database

Specifies the name of the compressed (zip) file containing the certificate database files that are required by the LDAP directory server for establishing SSL connections.

Your administrator must create this file when enabling SSL for use with an LDAP directory server. For more information, see the *IBM Cognos Business Intelligence Administration and Security Guide*.

The Generic LDAP Directory Server user registry component provides the following groups of additional attributes:

- For folder mappings:

**Name** The LDAP attribute used for the “name” property of a folder.

**Object class**

The name of the LDAP object class used to identify a folder.

**Description**

The LDAP attribute used for the “description” property of a folder.

- For group mappings:

**Name** The LDAP attribute used for the “name” property of a group.

**Object class**

The name of the LDAP object class used to identify a group.

**Description**

The LDAP attribute used for the “description” property of a group.

**Member**

The LDAP attribute used for the “member” property of a group.

- For account mappings:

**Name** The LDAP attribute used for the “name” property of an account.

**Account object class**

The name of the LDAP object class used to identify an account.

**Description**

The LDAP attribute used for the “description” property of an account.

**Product locale**

The LDAP attribute used for the “productLocale” property of an account.

**Content locale**

The LDAP attribute used for the “contentLocale” property of an account.

**Username**

The LDAP attribute used for the “userName” property of an account.

**Password**

The LDAP attribute used for the “password” property of an account.

**Surname**

The LDAP attribute used for the “surname” property of an account.

**Given name**

The LDAP attribute used for the “givenName” property of an account.

**Postal address**

The LDAP attribute used for the “postalAddress” property of an account.

**Email** The LDAP attribute used for the “email” property of an account.

**Business phone**

The LDAP attribute used for the “businessPhone” property of an account.

**Home phone:**

The LDAP attribute used for the “homePhone” property of an account.

**Mobile phone**

The LDAP attribute used for the “mobilePhone” property of an account.

**Pager phone**

The LDAP attribute used for the “pagerPhone” property of an account.

**Fax/Phone**

The LDAP attribute used for the “faxPhone” property of an account.

- For advanced authentication properties:

**Advanced properties**

The number of authentication properties that you want to set. Blank entries are ignored.

**Name** The name of the advanced property for the user registry. For example, `multitenancy.TenantPattern`.

**Value** The value associated with the advanced property.

- For custom LDAP properties:

**Custom properties**

The number of authentication properties that you want to set. Blank entries are ignored.

**Name** The name of the custom property. For example, `dept`.

**Value** The value associated with a custom property.

- For custom files:

**Custom files**

The name of the compressed file that contains custom files that are required by your Custom Java Provider user registry. When you deploy your pattern, the custom files are copied in the file structure specified in the compressed file.

## Custom Java Provider

An Existing User Registry (Custom Java Provider) component represents a custom Java authentication provider that can be attached to an IBM Cognos Business Intelligence component. The custom Java authentication provider provides a user registry (namespace) for container-managed security. This external resource must already exist in your environment and be configured for use in authentication.

You can provide the following attributes for each user registry:

**Name** A unique name that represents the name of the namespace. Specify this name for maintenance operations on a user registry.

**Namespace ID**

A unique value that identifies this namespace. This value is used internally at run time by IBM Cognos BI components. You specify this identifier when you define a pattern.

**Java class name**

The name of the Java class to authenticate users.

**Selectable for authentication**

When this option is selected, application users can select this user registry on the logon page of the application.

The Custom Java Provider user registry component provides the following groups of additional attributes:

- For advanced authentication properties:

**Advanced properties**

The number of authentication properties that you want to set. Blank entries are ignored.

**Name** The name of the advanced property for the user registry. For example, `multitenancy.TenantPattern`.

**Value** The value associated with the advanced property.

- For custom files:

**Custom files**

The name of the compressed file that contains custom files that are required by your Custom Java Provider user registry. When you deploy your pattern, the custom files are copied in the file structure specified in the compressed file.

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## NFS server

An NFS server is automatically configured as part of your deployment of IBM Business Intelligence Pattern. The NFS server acts as a repository for sharing content between virtual machines in the deployment. To use the NFS server, you must log in as a special user named “cognos” and copy files manually to specific directories.

Before you can work with the NFS server, you must add Secure Shell (SSH) key-based access when deploying the virtual application pattern. When deploying a virtual application pattern, you can configure an RSA key pair to enable SSH key based access to the virtual machines. You can either provide your own externally-generated public key or use a key pair that is generated by the system. For information about configuring SSH key-based access, see the documentation for your system.

You must access the NFS server for the following tasks:

- Rendering images. For information about where to copy images, see “Rendering images in HTML and PDF reports” on page 42.
- Importing and exporting deployment archives. For information about working with deployment archives, see “Importing or exporting BI deployment archives” on page 42.
- Using PowerCubes. For information about using PowerCubes, see “Copying PowerCubes” on page 43.

It is important to determine a backup strategy for the content of the NFS server because the NFS server is deleted when your virtual application is deleted. For more information, see “NFS server content back up” on page 45.

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## Creating application templates

You can use application templates to create a Business Intelligence (BI) Pattern virtual application.

Some application templates are provided with the BI Pattern type. You can also create and save your own templates to eliminate common tasks such as defining connection information to your LDAP servers.

When you create a new virtual application, you can select one of the following BI Pattern application templates and change it to suit your environment:

### **Blank IBM Business Intelligence application template**

This application template contains the BI component. If you do not add a user registry to this template, the deployed virtual application has anonymous signon enabled by default.

### **Sample IBM Business Intelligence application template**

This application template contains the BI component, a scaling policy, and an IBM Tivoli Directory Server namespace (user registry).

## **Procedure**

1. Create a BI virtual application pattern.  
There are multiple ways to create a virtual application pattern using a template. For example, depending on your administrative credentials, you can use the **Pattern** or the **Catalog** menu. For information about using a pattern template to create a virtual application, see the documentation for your system.
2. Update the application components using the Virtual Application Builder.  
For information about updating the IBM Cognos Business Intelligence (BI) components, see Chapter 6, “IBM Business Intelligence Pattern components and templates,” on page 25.
3. Save the application pattern.

## **What to do next**

After you have created your application pattern, perform the following steps:

1. Deploy your application pattern to the cloud group where the ELB shared service is running. For information on how to deploy applications, refer to your system documentation.
2. Perform any applicable post-deployment configuration tasks. For more information, see “Post-deployment tasks” on page 41.
3. Apply the latest BI fix packs in all environments. For more information, see “Applying fix packs and interim fixes” on page 46.
4. Access and test the BI virtual application. For more information, see “Access to the BI application” on page 41.
5. Determine a backup strategy for the content of the NFS server. For more information, see “NFS server content back up” on page 45.
6. Move your application to a production environment. For more information, see “Moving a BI virtual application to a production environment” on page 45.
7. Maintain the virtual application instance. For the list of operations that you can run on virtual application instances, see “Maintenance of BI virtual applications” on page 46.



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## Chapter 7. Deployed Business Intelligence Pattern virtual applications

After your BI Pattern virtual applications are deployed, you can perform post-deployment tasks to ensure that your applications are performing well.

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### Post-deployment tasks

You can perform administration tasks to ensure that your applications run optimally.

#### Access to the BI application

After the virtual application is deployed and started, you can access the Business Intelligence application. To do this, you must determine the application endpoint URL by using the Virtual Application Instances dashboard.

Each virtual application instance has at least four virtual machines associated with it. Some of the virtual machines have endpoints that provide access to different components of your BI application. Virtual machines with the following roles have endpoints that you can use:

##### CognosBICM1 or CognosBICM2

The endpoint information contains a link that you can use to view information about the active or the standby Content Manager and to determine which of the virtual machines hosts the active Content Manager. For example, the endpoint information might appear as follows:

**Endpoint information**

**COGNOS BI CONTENT MANAGER URI:** <http://172.0.16.1:9300/p2pd/servlet>

##### CognosBIAS or CognosBIASAutoScale

The endpoint information contains links to your virtual application instance, and provides information that you can use to configure other products to connect to your virtual application instance. For example, the endpoint information might appear as follows:

**Endpoint information**

**Application URI:** <http://ibmcognos/p2pd>

**URI for external applications:** <http://ibmcognos/p2pd/servlet/dispatch>

**Local dispatcher URI:** <http://172.0.16.1:9300/p2pd/servlet/dispatch>

To access the BI application Home page or Login page, use the **Application URI** endpoint.

**Important:** To access the virtual host name, register a DNS entry for the virtual host name.

When you configure other applications to connect to your virtual application instance, use the **URI for external applications** and the **Local dispatcher URI** information. For information about configuring Framework Manager or Lifecycle Manager, see “Configuring IBM Cognos BI products to connect to a BI virtual application” on page 44.

## Importing or exporting BI deployment archives

You can use Business Intelligence (BI) deployment archives in your cloud environment.

First, you must copy the BI deployment archive to the NFS server of the virtual application instance. Then, a BI administrator can use IBM Cognos Administration to import or export the deployment archive into the BI application.

### Before you begin

- You successfully deployed a virtual application instance of the IBM Business Intelligence Pattern (BI Pattern).
- You have access to the source environment where the deployment archives are stored.
- You know the IP address of the virtual machine that is hosting the NFS server. You can use the workload console of your system to determine the IP address of the NFS server.

### About this task

You must repeat this procedure whenever you redeploy an instance of the virtual application.

When you deploy a BI Pattern application, a **cognos** user account is automatically created on the NFS server. You must log in to the NFS server as the **cognos** user and copy the deployment archives to the `/data/deployment` directory.

### Procedure

1. Log in to the NFS server as the **cognos** user.  
If you cannot log in, the RSA key pair might be out of sync. For information about copying the **virtuser** key to the `/home` directory of the **cognos** user, see “Cognos user cannot log in to the Content Manager server” on page 70.
2. Find the deployment archive files in your source environment and copy them to the `/data/deployment` directory in the NFS server.
3. Open IBM Cognos Administration and log in as an administrator.
4. Import or export the deployment archives. For information about working with deployment archives, see the *IBM Cognos Business Intelligence Administration and Security Guide* Version 10.2.1.

## Rendering images in HTML and PDF reports

For images to display in HTML and PDF reports in your deployed application, you must copy the images to the virtual application NFS server to make the images available to all the application servers.

### Before you begin

- You successfully deployed a virtual application instance of the IBM Business Intelligence Pattern (BI Pattern).
- You have access to the source environment where the images are stored.
- You know the IP address of the virtual machine that is hosting the NFS server. You can use the workload console of your system to determine the IP address of the NFS server.



## About this task

You must repeat this procedure whenever you redeploy an instance of the virtual application.

When you deploy a BI Pattern application, a **cognos** user account is automatically created on the NFS server. You must log in to the NFS server as the **cognos** user and copy the images to the `/data/images` directory.

### Procedure

1. Log in to the NFS server as the **cognos** user.  
If you cannot log in, the RSA key pair might be out of sync. For information about copying the **virtuser** key to the `\home` directory of the **cognos** user, see “Cognos user cannot log in to the Content Manager server” on page 70.
2. Find the images in your source environment and copy them to the `/data/images` directory in the NFS server.
3. Add references to your images in your BI reports using the following syntax: `http://virtual_host/p2pd/images/image_name`. For example, to add an image called `logo.jpg`, you might specify `http://ibmcognos/p2pd/images/logo.jpg`.  
For information about working with images, see *Insert and Image in a Report* in the *IBM Cognos Report Studio User Guide*.

## Copying PowerCubes

To use PowerCubes in your Business Intelligence virtual applications, you must copy the PowerCubes to the NFS server to make the data available to all the application servers.

### Before you begin

- You successfully deployed a virtual application instance of the IBM Business Intelligence Pattern (BI Pattern).
- You have access to the source environment where the PowerCubes are stored.
- You know the IP address of the virtual machine that is hosting the NFS server.  
You can use the workload console of your system to determine the IP address of the NFS server.

## About this task

You must repeat this procedure whenever you redeploy an instance of the virtual application.

When you deploy a BI Pattern application, a **cognos** user account is automatically created on the NFS server. You must log in to the NFS server as the **cognos** user and copy the PowerCubes to the `/data/cubes` directory.

### Procedure

1. Log in to the NFS server as the **cognos** user.  
If you cannot log in, the RSA key pair might be out of sync. For information about copying the **virtuser** key to the `\home` directory of the **cognos** user, see “Cognos user cannot log in to the Content Manager server” on page 70.
2. Find the PowerCubes in your source environment, and copy them to the `/data/cubes` directory in the NFS server.

3. Make the PowerCubes available to your application users by creating packages and publishing them from Transformer or Framework Manager. You can also create PowerCube packages in IBM Cognos BI. To specify the NFS server location of a PowerCube, use the following syntax: `../cubes/PowerCube_name`. For example, to add a cube called `outdoors.mdc`, you can specify `../cubes/outdoors.mdc` in IBM Cognos Administration or Framework Manager. For information about deploying PowerCubes, see the IBM Cognos Business Intelligence documentation.

## Configuring IBM Cognos BI products to connect to a BI virtual application

For Business Intelligence (BI) products, such as Framework Manager or Lifecycle Manager, to connect to your virtual application instance, you must update their configurations with the location of your virtual application instance.

On each computer where IBM Cognos BI products are installed, you must update the **Gateway URI** and the **Dispatcher URI for external applications** properties using IBM Cognos Configuration.

### Before you begin

Obtain the endpoint information for your virtual application instance. To obtain it, you can use the Virtual Application Instances dashboard and click the **Endpoint** link of any virtual machines that host a BI application server. For example, assuming an application with a virtual host name of `ibmcognos`, the endpoint information might be as follows:

#### Endpoint information

**Application URI:** `http://ibmcognos/p2pd`

**URI for external applications:** `http://ibmcognos/p2pd/servlet/dispatch`

**Local dispatcher URI:** `http://172.0.16.1:9300/p2pd/servlet/dispatch`

### Procedure

1. Start IBM Cognos Configuration.
2. In the **Explorer** window, click **Environment**.
3. In the **Properties** window, update the following properties to point to your virtual application instance:
  - a. Update the **Gateway URI** property with the information provided by the **Local dispatcher URI** endpoint value using the following syntax: `http://IP address of local dispatcher:9300/p2pd/servlet/dispatch`.  
For example: `http://172.0.16.1:9300/p2pd/servlet/dispatch`.
  - b. Update the **Dispatcher URI for external applications** property with the information provided by the **Local dispatcher URI** endpoint value using the following syntax: `http://IP address of local dispatcher:9300/p2pd/servlet/dispatch`.  
For example: `http://172.0.16.1:9300/p2pd/servlet/dispatch`.
4. From the **File** menu, click **Save**.

## Securing your BI virtual application by setting the HTTPOnly parameter

Depending on your environment, you can decide to add additional security features to your virtual application instances.

Enabling the HTTPOnly attribute prevents malicious scripts from stealing the session identity of a user. You set this attribute in IBM Cognos Administration.

## Before you begin

Administrators who want to enable this attribute must ensure that users have a web browser that supports the HTTPOnly attribute.

### Procedure

1. Go to IBM Cognos Administration.
2. On the **Status** tab, click **System**.
3. In the **Scorecard** pane, from the **System** drop-down menu, click **Set properties**.
4. Click the **Settings** tab.
5. From the **Category** list, select **Environment**.
6. For the **HTTPOnly Cookie Support** parameter, select the corresponding check box in the **Value** column.
7. Click **OK**.

## Moving a BI virtual application to a production environment

After you test your BI virtual application, you can move it to a production environment.

### Procedure

1. Complete one of the following tasks:
  - Perform a full content store deployment.
  - Perform a database backup of your existing content store and restore the content into a new content store database. For information about database backups, see the documentation for your database vendor.
2. To enable the virtual host name to work for the application users, register a DNS entry for the virtual host name.
3. Update any content with URL links so that those links point to the new endpoint information. Test your changes.
4. For your application to use SSL on the first-tier proxy, make sure that SSL is configured on port 443 of the first-tier proxy.

## NFS server content back up

Work with your system administrator to determine a backup strategy for the content of the NFS server. Perform regular backups of the content of the NFS server to ensure that you can recover application data if your virtual application instance is deleted.

Back up the following directories because they contain important information about your virtual application instance:

- /data/cubes
- /data/images
- /data/deployment

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## Maintenance of BI virtual applications

From time to time, you must apply maintenance activities to virtual applications, such as password updates or software updates. These maintenance activities are called operations. Before you apply operations, an application must be in maintenance mode.

From your system, you can submit a maintenance operation for each administration task separately or you can combine multiple tasks into a single maintenance operation. Combining multiple operations reduces the downtime of your virtual applications. After a maintenance operation is applied, the system restarts the virtual application automatically. If the virtual application cannot be restarted, review the log files to determine the cause of the problem.

### Applying fix packs and interim fixes

After your virtual application is deployed, you can use your system to upload IBM Cognos Business Intelligence (BI) fix packs and interim fixes. You can associate the appropriate fixes to specific virtual application instances, as needed.

#### Before you begin

1. Download the latest BI fix pack and interim fixes from Fix Central.
2. Add the BI fix packs and interim fixes as emergency fixes to the catalog of your system. Associate the fix files to the IBM Business Intelligence **cognosbi/2.0.0.0** plug-in.

For information about creating fixes, see the documentation for your system.

#### Procedure

1. Set the application to **Maintainance** mode.
2. Click **Instances > Virtual Application**. The Virtual Application Instances palette displays.
3. Select the Business Intelligence virtual application that you want to update.
4. Click the **Manage** icon.
5. Click the **Operation** tab.
6. From the **Operations** palette, select the Business Intelligence application (CognosBICM1).
7. In the **Product maintenance** section, expand the **Install IBM Cognos Business Intelligence Updates** section.
8. Click the **Select** button to choose which product updates to apply to your virtual application.
9. Click the **Submit** button.
10. Check the progress of the update in the **Operation Execution Results** section to verify that the fix was applied successfully.

#### What to do next

After the values are applied to your virtual instance, the instance restarts automatically. To monitor the status of the instance, click **Instances > Virtual Applications**. From the Virtual Application Instances palette, select the instance to view detailed information about the status of the operation.

**Important:** If the credentials for the content store are not valid, the virtual instance cannot automatically restart.

If your virtual application instance is still in maintenance mode, click the **Resume** icon to exit maintenance mode.

## Updating user credentials

You can update user names and passwords for the components used by the virtual application instances. In addition, you can update the credentials used for binding to the LDAP server.

### Before you begin

Your application must be deployed, and all of your virtual machines, must be started before you can change the configuration.

Before you submit an operation, put your virtual application instance in maintenance mode until the operation is applied.

### Procedure

1. Click **Instances > Virtual Application**. The Virtual Application Instances palette displays.
2. Select the Business Intelligence virtual application that you want to update.
3. Click the **Manage** icon.
4. Click the **Operation** tab.
5. From the **Operations** palette, select the Business Intelligence application (CognosBICM1).
6. Depending on the credentials that you want to update, expand the following sections:
  - For the credentials used to access the content store, the audit database, or the notification mail server, or to perform administrative tasks, go to the **Fundamental** section and expand the **Update configuration** section.
  - For the credentials used for binding to the LDAP server, go to the **User registry** section and expand the **Update user registry binding credentials** section.
7. Type the new values.

#### Important:

- When you update the binding credentials for the user registry, you must specify the name of the existing user registry in the **User registry name** field. This value represents the namespace name.
  - When you update the administrative credentials, you must specify the namespace ID in the **Administrative namespace ID** field.
8. Click **Submit**.
  9. To monitor the progress of the operation, click the **Refresh** icon.

### What to do next

After the values are applied to your virtual instance, the instance restarts automatically. To monitor the status of the instance, click **Instances > Virtual Applications**. From the Virtual Application Instances palette, select the instance to view detailed information about the status of the operation.

**Important:** If the credentials for the content store are not valid, the virtual instance cannot automatically restart.

If your virtual application instance is still in maintenance mode, click the **Resume** icon to exit maintenance mode.

## Updating content store or audit database information

After you deploy an application, you can point to a new content store or audit database.

### Before you begin

- Your application must be deployed, and all of your virtual machines must be started before you can change the configuration.
- Your content store and audit databases must already exist.

### About this task

Any database JDBC driver that you upload is used to connect to both the content store database and the audit database. You cannot change the type of database from the initial deployment.

### Procedure

1. Click **Instances > Virtual Application**. The Virtual Application Instances palette displays.
2. Select the Business Intelligence virtual application that you want to update.
3. Click the **Manage** icon.
4. Click the **Operation** tab.
5. From the **Operations** palette, select the Business Intelligence application (CognosBICM1).
6. In the **Fundamental** section, expand the **Update configuration** section.
7. Type the new values for the Content store or audit database. For information on creating the compressed file for the required files to connect to DB2 or Oracle databases, see “Setting up access to your content store databases, audit databases, and data sources” on page 16.
8. Click **Submit**.
9. To monitor the progress of the operation, click the **Refresh** icon.

### What to do next

After the values are applied to your virtual instance, the instance restarts automatically. To monitor the status of the instance, click **Instances > Virtual Applications**. From the Virtual Application Instances palette, select the instance to view detailed information about the status of the operation.

**Important:** If the credentials for the content store are not valid, the virtual instance cannot automatically restart.

If your virtual application instance is still in maintenance mode, click the **Resume** icon to exit maintenance mode.

## Updating drivers and configuration files to access data

After you deploy an application, you can update the files required to access your data sources, the SAP NetWeaver Business Warehouse (SAP BW) server, and the TM1 data server.

## Before you begin

Prepare the compressed files that contain the drivers and configuration files. The compressed files must include all the drivers and files required by your virtual application instance, even if these files have not changed.

The name of the compressed files does not have to match the name of the compressed file that was used in the original deployment. However, some of the compressed files must have a specific directory structure. For information about the files and directory structure required, see the following topics:

- Setting up access to your data sources
- “Setting up access to SAP NetWeaver Business Warehouse servers” on page 18
- “Setting up IBM Cognos Business Insight connectivity to TM1 data” on page 17

## Procedure

1. Click **Instances > Virtual Application**. The Virtual Application Instances palette displays.
2. Select the Business Intelligence virtual application that you want to update.
3. Click the **Manage** icon.
4. Click the **Operation** tab.
5. From the **Operations** palette, select the Business Intelligence application (CognosBICM1).
6. In the **Fundamental** section, expand the **Update configuration** section.
7. Click the **Edit** button to select the compressed files.
8. Click **Submit**.
9. To monitor the progress of the operation, click the **Refresh** icon.

## What to do next

After the values are applied to your virtual instance, the instance restarts automatically. To monitor the status of the instance, click **Instances > Virtual Applications**. From the Virtual Application Instances palette, select the instance to view detailed information about the status of the operation.

**Important:** If the credentials for the content store are not valid, the virtual instance cannot automatically restart.

If your virtual application instance is still in maintenance mode, click the **Resume** icon to exit maintenance mode.

## Updating the list of valid domain names and host names

After you deploy an application, you can update the list of domain names or host names used by IBM Cognos Application Firewall (CAF) to validate requests.

## Before you begin

Your application must be deployed, and all of your virtual machines must be started before you can change the configuration.

## Procedure

1. Click **Instances > Virtual Application**. The Virtual Application Instances palette displays.



2. Select the Business Intelligence virtual application that you want to update.
3. Click the **Manage** icon.
4. Click the **Operation** tab.
5. From the **Operations** palette, select the Business Intelligence application (CognosBICM1).
6. In the **Fundamental** section, expand the **Update configuration** section.
7. In the **Valid domains or hosts** field, type domain names and host names separated by a comma. For example: \*.mycompany.com, hostname, hostname:80.
8. Click **Submit**.
9. To monitor the progress of the operation, click the **Refresh** icon.

### What to do next

After the values are applied to your virtual instance, the instance restarts automatically. To monitor the status of the instance, click **Instances > Virtual Applications**. From the Virtual Application Instances palette, select the instance to view detailed information about the status of the operation.

**Important:** If the credentials for the content store are not valid, the virtual instance cannot automatically restart.

If your virtual application instance is still in maintenance mode, click the **Resume** icon to exit maintenance mode.

## Updating notification mail server information

After you deploy an application, you can update the notification mail server information.

### Before you begin

Your application must be deployed, and all of your virtual machines must be started before you can change the configuration.

### Procedure

1. Click **Instances > Virtual Application**. The Virtual Application Instances palette displays.
2. Select the Business Intelligence virtual application that you want to update.
3. Click the **Manage** icon.
4. Click the **Operation** tab.
5. From the **Operations** palette, select the Business Intelligence application (CognosBICM1).
6. In the **Fundamental** section, expand the **Update configuration** section.
7. Specify the new values for the notification mail server.
8. Click **Submit**.
9. To monitor the progress of the operation, click the **Refresh** icon.

### What to do next

After the values are applied to your virtual instance, the instance restarts automatically. To monitor the status of the instance, click **Instances > Virtual**



**Applications.** From the Virtual Application Instances palette, select the instance to view detailed information about the status of the operation.

**Important:** If the credentials for the content store are not valid, the virtual instance cannot automatically restart.

If your virtual application instance is still in maintenance mode, click the **Resume** icon to exit maintenance mode.

## Updating fonts

After you deploy an application, you can add new fonts or refresh existing fonts by uploading a compressed file that contains all the supplementary font files associated with your application. You do not need to upload the fonts that are included by default with IBM Cognos Business Intelligence version.

### Before you begin

- Your application must be deployed, and all of your virtual machines must be started before you can change the configuration.
- Prepare a compressed file that contains the TrueType font files. The compressed file must include all the supplementary font files (ttf or ttc format) required by your virtual application instance, even when these font files have not changed.
- The name of the compressed file does not have to match the name of the compressed file that was used in the original deployment.

### Procedure

1. Click **Instances > Virtual Application**. The Virtual Application Instances palette displays.
2. Select the Business Intelligence virtual application that you want to update.
3. Click the **Manage** icon.
4. Click the **Operations** tab.
5. From the **Operations** palette, select the Business Intelligence application (CognosBICM1).
6. In the **Fundamental** section, expand the **Update configuration** section.
7. In the **Supplementary fonts** box specify the name of the compressed file that contains all the fonts to associate with your deployment.
8. Click **Submit**.

## Updating the list of primary BlackBerry push servers

Cognos Mobile can use the BlackBerry MDS Connection Service capabilities to push reports to BlackBerry device users and to synchronize the reports. After you deploy an application, you can update the list of primary BlackBerry push servers.

### Before you begin

- Your application must be deployed, and all of your virtual machines must be started before you can change the configuration.
- IBM Cognos Mobile must be installed.

### Procedure

1. Click **Instances > Virtual Application**. The Virtual Application Instances palette displays.
2. Select the Business Intelligence virtual application that you want to update.

3. Click the **Manage** icon.
4. Click the **Operation** tab.
5. From the **Operations** palette, select the Business Intelligence application (CognosBICM1).
6. In the **Fundamental** section, expand the **Update configuration** section.
7. Type the new values for the BlackBerry MDS servers.
8. Click **Submit**.
9. To monitor the progress of the operation, click the **Refresh** icon.

### **What to do next**

After the values are applied to your virtual instance, the instance restarts automatically. To monitor the status of the instance, click **Instances > Virtual Applications**. From the Virtual Application Instances palette, select the instance to view detailed information about the status of the operation.

If your virtual application instance is still in maintenance mode, click the **Resume** icon to exit maintenance mode.

---

## Chapter 8. Upgrade to IBM Business Intelligence Pattern 2.0

Before you upgrade from IBM Business Intelligence Pattern 1.0 to IBM Business Intelligence Pattern 2.0, you must prepare for the system upgrade.

Upgrading to IBM Business Intelligence Pattern 2.0, requires you to also upgrade to IBM Cognos Business Intelligence 10.2.1 during the installation and deployment.

---

### Upgrade checklist

The installation program must be run from a computer that has access to the system that is to be upgraded to BI Pattern 2.0.

Ensure that the BI Pattern 1.0 deployment remains running throughout the upgrade process.

- • Verify that you have a current backup or full deployment of the BI Pattern 1.0 content store database.
- • Follow the prompts of the installation program to upload the BI Pattern 2.0 and IBM Cognos Business Intelligence installation files to the target PureApplication System.  
A deployment of BI Pattern 2.0 is created, but not deployed.
- • Verify that all User Registries defined in BI Pattern 1.0 are configured in BI Pattern 2.0.
- • Copy the content of the BI Pattern 1.0 NFS server to the BI Pattern 2.0 NFS server.

The BI Pattern 2.0 deployment must be configured to use the content store database that was used by BI Pattern 1.0.

---

### Preparation for the upgrade to IBM Business Intelligence Pattern 2.0

There are some tasks that you must complete before you upgrade to IBM Business Intelligence Pattern 2.0.

Use the following table to collect information about the target IBM PureApplication System.

*Table 10. System information required for the upgrade to BI Pattern 2.0*

System information	Sample value	Your value
The host name or the IP address of the target system.	9.24.207.202	
The user ID and password of a user that can install BI Pattern type on the target system.	biadmin biadminpwd	

Table 10. System information required for the upgrade to BI Pattern 2.0 (continued)

System information	Sample value	Your value
The location of the following components:	/data/downloads/software/COGNOS/10.2.1	
• IBM Cognos Business Intelligence 10.2.1	/data/downloads/software/COGNOSPattern/2.0	
• IBM BI Pattern 2.0		
• Optional: IBM Cognos Mobile 10.2.1		

Get access to a computer that uses either a Windows or Linux operating system where you can access the target IBM PureApplication System and where you can copy the installation files.

Verify that the computer has Java Runtime Environment (JRE) installed and that the PATH environment variable includes the bin directory of the JRE.

Before you can create a pattern for your BI virtual application, you must set up the databases that are used by the BI Pattern components. Refer to “Preparing your databases” on page 15 for additional details.

## Upgrading to IBM Business Intelligence Pattern 2.0

Use the installation program to upgrade to IBM Business Intelligence Pattern 2.0 and IBM Cognos Business Intelligence 10.2.1. The content store that is used with BI Pattern 1.0 and IBM Cognos Business Intelligence 10.1.1 is automatically upgraded.

### Procedure

1. Access Passport Advantage and download the following packages into separate directories:
  - IBM Business Intelligence Pattern 2.0
  - IBM Cognos Business Intelligence 10.2.1, 64-bit version for Linux or AIX operating system
  - Optional: IBM Cognos Mobile 10.2.1, multiplatform
2. Uncompress the BI Pattern (tar.gz) file into an empty directory.
3. Verify the location of the IBM Cognos installation files

Table 11. Installation locations of installed BI components

Component	Example directory
IBM Cognos Business Intelligence 10.2.1	/data/downloads/software/COGNOS/10.2.1
IBM Business Intelligence Pattern 2.0	/data/downloads/software/COGNOSPattern/2.0

4. Run the `install.bat` (Windows environments) or `install.sh` (Linux environments) command.  
For example,  

```
cd /data/downloads/software/COGNOSPattern/2.0
```

```
./install.sh <targetIP> <username> <password> /data/downloads/software/COGNOS/10.2.1
```
5. Follow the prompts of the installation program by using the information in Table 1 on page 7 to upload to your system the installation files for BI Pattern 2.0 and IBM Cognos Business Intelligence 10.2.1.

6. Log in to your system as an administrator or with an account that can work with product licenses.
7. Enable the BI Pattern 2.0 type. For information about enabling pattern types, see the documentation for your system.
8. Create a new **Virtual Application Pattern** that is based on BI Pattern 2.0. In the configuration, use the database connection values to point to the content store that is currently used for BI Pattern 1.0. This will upgrade that content store upon deployment.

**Tip:** By default, anonymous logon is enabled if there is no user registry attached to the BI component. When you configure a user registry component, ensure that you use the administrative credentials of the BI component, otherwise the deployment will fail.

**Important:** Do not deploy the pattern at this time.

9. Work with your system administrator to copy all the contents of the BI Pattern 1.0 NFS server to a temporary location.

The following directories on the NFS server contain important information about your virtual application instance:

- /data/cubes
- /data/images
- /data/deployment

10. Stop BI Pattern 1.0.
11. Deploy BI Pattern 2.0 to the cloud group.
12. Copy the BI Pattern 1.0 NFS server contents from the temporary location to the BI Pattern 2.0 NFS server.

---

## More options for upgrading the content store

An upgrade from BI Pattern 1.0 to 2.0 also requires an upgrade from IBM Cognos Business Intelligence 10.1.1 to 10.2.1. Therefore, the content store will be automatically upgraded in place if the same content store is referenced when configuring BI Pattern 2.0. If you do not want to upgrade the content store of the BI Pattern 1.0 deployment at this time, you can reference a blank database as your content store. This will require that the BI Pattern 1.0 content be moved into the environment after the installation of BI Pattern 2.0. There are two ways that you can do this:

- update the BI Pattern 2.0 configuration to reference the BI Pattern 1.0 content store and re-deploying the content store
- restore a Full Content Store Deployment from the Pattern 1.0, which would have been taken during normal maintenance

## Moving your content to a new version of the product

When you upgrade to BI Pattern 2.0, you can choose to upgrade the content store in a test environment before using it in a production environment.

This method maintains all of your security and user preferences, but it does require a new content store database.

### Procedure

1. Perform a full backup of your content store from the existing IBM Cognos Business Intelligence environment.

2. Restore the backup to a new content store database that is accessible from the target PureApplication System.
3. During the BI Pattern 2.0 configuration, within the **Virtual Application Patterns**, connect to the restored content store database. This will perform an in place upgrade of the content store.

## Moving your content store via deployment archive

To move all content, settings and user information from your content store, you can use a full content store deployment.

### Procedure

1. In the BI Pattern 1.0 and IBM Cognos Business Intelligence 10.1.1 environment, perform a full content store deployment. For more information, see the instructions in the *IBM Business Intelligence 10.1.1 Administration and Security Guide*.
2. During the configuration of the **Virtual Application Patterns** for BI Pattern 2.0, connect the content store to a blank database.
3. Complete the upgrade for BI Pattern 2.0 and IBM Cognos Business Intelligence 10.2.1.
4. Copy the deployment compressed file for the content store to the BI Pattern 2.0 /data/deployment directory.
5. In the IBM Cognos Business Intelligence Administration console, import the content store by using the compressed file that is mentioned in Step 4. The content is imported and upgraded as part of the import process.

---

## Chapter 9. Change the IBM Cognos Business Intelligence 10.2.1 to IBM Cognos Business Intelligence 10.2.0

Complete the following tasks if you want to replace an IBM Cognos Business Intelligence 10.2.1 environment on an IBM PureApplication System with a Cognos BI 10.2.0 environment on the same system. These tasks will not revert an existing Cognos BI 10.2.1 content store to a Cognos BI 10.2.0 content store but will replace it.

Before you install BI Pattern 2.0, you must choose to install either Cognos BI 10.2.0 or Cognos BI 10.2.1 because the source folder must be populated with the corresponding BI files.

- \_\_\_ • Delete all BI Pattern 2.0 instances.
- \_\_\_ • Delete all BI Pattern 2.0 virtual applications.
- \_\_\_ • Delete the BI Pattern 2.0 pattern types.
- \_\_\_ • Delete the existing Cognos BI installation package from the IBM PureApplication System storehouse.
- \_\_\_ • Prepare the Java Runtime Environment (JRE).
- \_\_\_ • Install Cognos BI 10.2.0 and Cognos Mobile 10.2.0 using BI Pattern 2.0.

---

### Deleting IBM Business Intelligence Pattern 2.0 from the IBM PureApplication System Workload Console

To replace IBM Cognos Business Intelligence 10.2.1 with IBM Cognos Business Intelligence 10.2.0 you must remove the pattern from the IBM PureApplication Workload Console.

#### Before you begin

Ensure that you review the data on the NFS server and backup as necessary.

#### Procedure

1. From within the PureApplication Workload Console select from the **Instances** menu, **Virtual Application Instances, IBM Business Intelligence Pattern 2.0**.
2. Select a BI Pattern virtual application, and click **Stop**. Repeat for each virtual application.
3. Select each BI Pattern instance and click **Delete**.
4. From the **Cloud** menu, select **Pattern Type** and then the IBM Business Intelligence Pattern 2.0.0.0 entry. Click **Delete**.

---

### Deleting the IBM Cognos Business Intelligence 10.2.1 installation package from the IBM PureApplication System storehouse

After you remove the pattern from the IBM PureApplication System Workload Console, you must then remove the existing IBM Cognos Business Intelligence installation package from PureApplication System storehouse

## About this task

You must perform this task if you are using IBM PureApplication System 1.0.0.4 or earlier.

You can use a third-party application, such as cURL, to transfer data via HTTP.

An example of the command is:

```
curl -i -u <username>:<password> -k -X DELETE https://<targetIP>/storehouse/admin/files/cognos/bi/10.2.1/bi_svr_10.2.1_186_ml.tar.gz
```

## Procedure

Using the command line, delete the following Cognos BI and Cognos Mobile installation package files from the PureApplication System storehouse.

- storehouse/admin/files/cognos/bi/10.2.1/bi\_svr\_10.2.1\_186\_ml.tar.gz
- storehouse/admin/files/cognos/bi/10.2.1/bi\_svr\_10.2.1\_aix\_ml.tar.gz
- storehouse/admin/files/cognos/bi/10.2.1/mobile\_10.2.1\_mp\_ml.tar.gz
- storehouse/admin/files/cognos/bi/10.2.1/jreiwd-linuxi38664h-gate-7.0.41.1.4-inst.tar.gz
- storehouse/admin/files/cognos/bi/10.2.1/jreiwd-aix64h-gate-7.0.41.1.4-inst.tar.gz

---

## Preparing the Java Runtime Environment

To change from IBM Cognos Business Intelligence 10.2.1 to IBM Cognos Business Intelligence 10.2.0, you must replace the Java Runtime Environment (JRE).

### Procedure

1. Back up the current JREs found at <BI\_Pattern\_install\_location>/zipfiles to another location.

If you need to go back to BI 10.2.1, restore the JREs back to the original location.

2. Download a JRE supported by Cognos BI 10.2.

The JRE must match the platform of the IBM PureApplication System. You can review the supported JREs at the IBM Cognos Customer Care Center (<http://www.ibm.com/support/docview.wss?uid=swg27037804>).

3. Create a directory and name it java and uncompress the downloaded JRE into the directory.

The folder structure should be:

```
java/  
  jre/  
    bin/  
    ...
```

4. Create a tar.gz file with the java directory at the root.

If you are installing to Linux, name the file jreiwd-linuxi38664h-gate-7.0.41.1.4-inst.tar.gz.

If installing to AIX, name the file jreiwd-aix64h-gate-7.0.41.1.4-inst.tar.gz.

5. Move the new tar.gz file into the <BI\_Pattern\_install\_location>/zipfiles directory.



---

## Installing IBM Cognos Business Intelligence 10.2 and IBM Cognos Mobile using IBM Business Intelligence Pattern 2.0

After you remove IBM Cognos Business Intelligence 10.2.1, you can install IBM Cognos Business Intelligence 10.2.0.

### Procedure

1. Download the IBM Cognos Business Intelligence Server and IBM Cognos Mobile packages from Passport Advantage.
2. Rename the packages to the names expected by the pattern.  
If deploying to Linux, rename the files.
  - Rename `bi_svr_10.2_186_ml.tar.gz` to `bi_svr_10.2.1_186_ml.tar.gz`
  - Rename `mobile_10.2_mp_ml.tar.gz` to `mobile_10.2.1_mp_ml.tar.gz`If deploying to AIX, rename the files.
  - Rename `bi_svr_10.2_aix_ml.tar.gz` to `bi_svr_10.2.1_aix_ml.tar.gz`
  - Rename `mobile_10.2_mp_ml.tar.gz` to `mobile_10.2.1_mp_ml.tar.gz`
3. Re-install BI Pattern 2.0 while pointing to the folder with the renamed 10.2 binaries. For more information about how to install BI Pattern 2.0, see the Quick reference: installation checklists.



---

## Appendix A. Accessibility features

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products.

For information about the commitment that IBM has to accessibility, see the IBM Accessibility Center (<http://www.ibm.com/able>).

### **Keyboard navigation**

This product uses standard browser navigation keys.

The Virtual Application Builder, however is not keyboard accessible. If you need to work with virtual application patterns without using a mouse, you can use the command-line interface provided by your system or the REST API.



---

## Appendix B. IBM Business Intelligence Pattern virtual applications troubleshooting

The troubleshooting information helps you understand, isolate, and resolve problems with IBM Business Intelligence Pattern, and contains instructions for using the problem determination resources that are provided with your products.

Operations performed in IBM Business Intelligence Pattern are recorded in various log files for tracking purposes. For information about accessing and viewing the logs, see the documentation for your system. Logs are organized by virtual machine name. They are grouped under categories such as DeploymentInlet, OS, IWD Agent, and usually also under the role of the virtual machine. For information about the Business Intelligence log files, review the *IBM Cognos Business Intelligence 10.2.1 Troubleshooting Guide*.

---

### Troubleshoot a problem

*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 to a resolution of the problem.

#### 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 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 the problem 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 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 the hardware. Confirm that you are running within an environment that is supported; 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 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 an upgrade or an installation of software or hardware?

### **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 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 occur?
- 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?**

Problems that you can reproduce are often easier to solve. However, problems that you can reproduce can have a disadvantage. If the problem has a 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. Answer the following questions:

- 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?

## 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 Cognos, but sometimes you need to look beyond the information center to resolve problems.

### Procedure

To search knowledge bases for information that you need, use one or more of the following approaches:

- Find the content that you need by using the IBM Support Portal (<http://www.ibm.com/support/entry/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](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 Cognos by using one of the following additional technical resources:
  - IBM Cognos BI APARs (problem reports) (<http://www.ibm.com/search/csass/search?q=&ibm-go-btn.x=0&ibm-go-btn.y=0&ibm-go-btn=Go&sn=spe&filter=language:en+collection:dblue+ibmcontenttypeid:CT748&prod=U487531B48832U38::#q%253d%2526filter%253d%2526tsswrelease%253a841%2520%2526ibmcontenttypeid%253aCT748%2520%2526language%253aen%2520%2526collection%253adblue%2526prod%253dU487531B48832U38%2526sn%253dspe%2526sortby%253d-moddate%2526o%253d0>)
  - Searching technotes (<https://www.ibm.com/support/docview.wss?uid=swg21373237>).
  - IBM Cognos forums and communities ([http://www.ibm.com/support/entry/portal/Forums\\_communities/Software/Information\\_Management/Cognos\\_Business\\_Intelligence\\_and\\_Financial\\_Performance\\_Management](http://www.ibm.com/support/entry/portal/Forums_communities/Software/Information_Management/Cognos_Business_Intelligence_and_Financial_Performance_Management)).
  - Cognos Customer Center (<http://www.ibm.com/software/data/cognos/customercenter/index.html>)
- 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 on any [ibm.com](http://www.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](http://www.ibm.com) domain. Sometimes you can

find useful problem-solving information about IBM products in newsgroups, forums, and blogs that are not on [ibm.com](http://ibm.com).

**Tip:** Include “IBM” and the name of the product in your search if you are looking for information about an IBM product.

## Getting fixes

A product fix might be available to resolve your problem.

### Procedure

To find and install fixes:

1. Determine which fix you need (Fix Central) (opens in new window) (<http://www.ibm.com/support/fixcentral/>)
2. Download the fix. Open the download document and follow the link in the “Download package” section.
3. Apply the fix by following the instructions in the “Installation Instructions” section of the download document.
4. Subscribe to receive weekly email notifications about fixes and other IBM Support information.

## Contacting IBM Support

IBM Support provides access to a variety of IBM resources for help with software questions.

### 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 maintenance contract, and you must be authorized to submit problems to IBM. You should also have the following information at hand:

- Your customer identification number
- Your service request number, if it is an ongoing service request
- The phone number where you can be reached
- The version of the software you use
- The version of the operating environment you use
- A description of what you were doing when the problem occurred
- The exact wording of any error messages that display
- Any steps you took to attempt to solve the problem

For information about the types of available support, see the Support portfolio topic in the *Software Support Handbook* (opens in new window).

### 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 (<http://www14.software.ibm.com/webapp/set2/sas/f/handbook/getsupport.html>) (opens in new window) topic in the *Software Support Handbook*.



2. Gather diagnostic information.
3. Submit the problem to IBM Support in one of the following ways:
  - By using IBM Support Assistant (ISA): Use this feature to open, update, and view an Electronic Service Request with IBM. Any data that has been collected can be attached to the service request. This expedites the analysis and reduces the time to resolution.
  - Online through the IBM Support Portal (<http://www.ibm.com/software/support/>) (opens in new window): 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, see the Directory of worldwide contacts (<http://www.ibm.com/planetwide/>) (opens in new window) 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.

## 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.

### 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

1. Open a problem management record (PMR). You can use the IBM Support Assistant (<http://www.ibm.com/software/support/isa>) (opens in new window) or the IBM Service Request tool (<http://www.ibm.com/support/servicerequest>) (opens in new window).
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 manually or automatically.
3. Compress the files by using the TRSMMAIN or AMATERSE program. Download the free utility from the IBM to the IBM Cognos BI system and then install the utility using the TSO RECEIVE command.
4. Transfer the files to IBM. You can use one of the following methods to transfer the files to IBM:
  - The Service Request tool (<http://www.ibm.com/support/servicerequest>) (opens in new window)
  - Standard data upload methods: FTP, HTTP
  - Secure data upload methods: FTPS, SFTP, HTTPS
  - Email

If you are using an IBM Cognos product and you use ServiceLink / IBMLink to submit PMRs, you can send diagnostic data to IBM Support in an email or by using FTP.

All of these data exchange methods are explained on the IBM Support site (<http://www-01.ibm.com/software/support/exchangeinfo.html>) (opens in new window).

## 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`

## 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 Support tools and resources. You can subscribe to updates by using one of two approaches:

#### RSS feeds and social media subscriptions

The following RSS feeds and social media subscriptions are available for IBM Cognos BI:

- RSS feed for a developerWorks® forum (<http://www.ibm.com/developerworks/forums/forum.jspa?forumID=1573>) (opens in new window).

- Subscription to Cognos Support notebook blog (<https://www.ibm.com/developerworks/mydeveloperworks/blogs/roller-ui/rendering/feed/cognosupport/entries/atom?lang=en>) (opens in new window)
- RSS feed for the Support site for IBM Cognos Business Intelligence ([http://www-947.ibm.com/systems/support/myfeed/xmlfeeder.wss?feeder.reqid=feeder.create\\_public\\_feed&feeder.feedtype=RSS&feeder.maxfeed=25&OC=SS9RTN&feeder.subdefkey=swgimgmt&feeder.channel.title=Cognos%20%20Business%20Intelligence&feeder.channel.descr=The%20latest%20updates%20about%20Cognos%20%20Business%20Intelligence](http://www-947.ibm.com/systems/support/myfeed/xmlfeeder.wss?feeder.reqid=feeder.create_public_feed&feeder.feedtype=RSS&feeder.maxfeed=25&OC=SS9RTN&feeder.subdefkey=swgimgmt&feeder.channel.title=Cognos%20%20Business%20Intelligence&feeder.channel.descr=The%20latest%20updates%20about%20Cognos%20%20Business%20Intelligence)) (opens in new window)

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 (<http://www.ibm.com/software/support/rss/>) (opens in new window) site.

### My Notifications

With My Notifications, you can subscribe to Support updates for any IBM product. 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 that you want to be informed about and the delivery methods that best suit your needs.

### Procedure

To subscribe to Support updates:

1. Subscribe to the *Product* RSS feeds.
2. To subscribe to My Notifications, begin by going to the IBM Support Portal (<http://www.ibm.com/software/support/>) (opens in new window) and clicking **My Notifications** in the **Notifications** portlet.
3. If you have already registered for My support, sign in and skip to the next step. If you have not registered, click **Register now**. Complete the registration form using your email address as your IBM ID and click **Submit**.
4. Click **Edit profile**.
5. Click **Add products** and choose a product category; for example, **Software**.
6. In the second list, select a product segment; for example, **Data & Information Management**.
7. In the third list, select a product subsegment, for example, **Databases**.
8. Select the products that you want to receive updates for.
9. Click **Add products**.
10. After selecting all products that are of interest to you, click **Subscribe to email** on the **Edit profile** tab.
11. Select **Please send these documents by weekly email**.
12. Update your email address as needed.
13. In the **Documents list**, select the product category; for example, **Software**.
14. Select the types of documents that you want to receive information for.
15. Click **Update**.

## 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).

---

## Accessing the Runtime log file for error diagnosis

To help with runtime error diagnosis, you can assess the `cogserver.log` file of a virtual application.

In Business Intelligence Pattern 2.0, the `cogserver.log` file can store up to 400 MB of data. The default size of a log file is 20 MB, with an additional file that is kept as an archive with a `.1` suffix. For example, when the current log file reaches the 20 MB limit, another file is created called `cogserver.log.1`, when that file reaches the 20 MB limit a file called `cogserver.log.2` is created, and so on, up to a maximum of 20 files. When the `cogserver.log.20` file reaches the 20 MB limit, the data is rewritten to the `cogserver.log` file.

### About this task

The following Business Intelligence virtual applications have their own `cogserver.log` file.

- **CognosBIASAutoScale**
- **CognosBIAS**
- **CognosBICM2**
- **CognosBICM1**

### Procedure

1. Click **Instances > Virtual Application**.
2. Select the Business Intelligence virtual application whose `cogserver.log` file you want to use for diagnosis.
3. Click the **Manage** icon.
4. Click the **Logging** tab.
5. Expand the Business Intelligence virtual machine that has the error that you want to diagnose.
6. Expand the **IBMCognos<virtual\_machine\_role> > c10\_64/logs** folders.  
Where `<virtual_machine_role>` is the role of the Business Intelligence virtual machine.  
For example,
  - **IBMCognosBIAS**
  - **IBMCognosBICM1**

---

## Cognos user cannot log in to the Content Manager server

In some cases, you can no longer use the **cognos** account to log in to the Content Manager server. This happens when the public key of the **cognos** user account was removed or the public key does not match the private key associated with the virtual application.

To fix this problem, you can manually update the public key in the `authorized_keys` file for the **cognos** user account. When you update the key manually, it does not affect the availability of your BI application.

To manually update the public key file for the **cognos** user account, perform the following steps:

1. On the Content Manager server, log in as **virtuser**.

For example, you might run a command similar to the following command:

```
ssh -i id_rsa virtuser@machine_ip
```

where

- *id\_rsa* represents a file in the current directory with the public key file
  - *machine\_ip* represents the IP address of the Content Manager server
2. Gain root access by running the following command: `sudo su -`.
  3. Copy the `authorized_keys` file from the `/home/virtuser/.ssh/` directory to the `/home/cognos/.ssh/` directory.
  4. Verify that the file ownership of the public key is the **cognos** user. If not, change the file ownership so that it is owned by the **cognos** user.

---

## Deployment fails when starting IBM Business Intelligence Pattern

If your deployment fails and no error message is displayed, review the logs for the following error:

Unable to print or tune the deployment.

Check the Administrative Namespace ID or credentials.

### Procedure

1. Click **Instances** and then click **Virtual Applications**.
2. Select the Business Intelligence virtual application that contains the `trace.log` file you want to review.
3. Click **Manage**.
4. Click the **Logging** tab.
5. Expand the Business Intelligence CM1 virtual machine.
6. Expand the `IWD Agent .../logs/CM1 server name` folders.
7. Click the `trace.log` file. This will populate the log contents in the viewing pane.
8. At the top of the viewing pane, search for error: `CM-REQ-4342`. This will help confirm the cause of the issue.

### Results

ERROR Unable to print or tune the deployment.

Check the Administrative Namespace ID or credentials:

CM-REQ-4342 An error occurred with the client.

This issue may occur when a User Registry Component has been populated on the Virtual Application Builder canvas, but the Administrative namespace ID, Administrative username and Administrative password have not been accurately populated on the Business Intelligence Analytics component.

This message is written to the IBM BI Pattern (IWD Agent) `trace.log` associated with the Cognos CM1 server.

To resolve the problem, accurately enter the Administrative namespace ID as defined in the User Registry Component into the **Administrative credentials section** of the Business Intelligence component. By entering the Administrative namespace ID along with an Administrative username and password, the required authentication references can be made.

For more information, see step 6 of the Planning the deployment of Business Intelligence solutions in cloud environments checklist and the Administrative Credentials section of IBM Cognos Business Intelligence component.

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