

IBM Predictive Maintenance and Quality
Version 1.0.0.1

Installation Guide



Note

Before using this information and the product it supports, read the information in "Notices" on page 79.

Product Information

This document applies to IBM Predictive Maintenance and Quality 1.0.0.1 and may also apply to subsequent releases.

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Introduction

IBM® Predictive Maintenance and Quality uses data from multiple sources to give you the information that you need to make informed operational, maintenance, repair, or component replacement decisions.

IBM Predictive Maintenance and Quality provides you with operational intelligence data, which enables you to:

- Understand, monitor, predict, and control product and process variability
- Perform in-depth root cause failure analysis
- Identify incorrect operating practices
- Enhance equipment and process diagnostics capabilities

It also provides you with asset performance management capabilities that enable you to:

- Have forward visibility into equipment and process performance
- Increase asset uptime
- Identify safety issues
- Identify improper maintenance procedures
- Optimize maintenance intervals and procedures.

Audience

This document is intended to help users install Predictive Maintenance and Quality.

Finding information

To find IBM Predictive Maintenance and Quality product documentation on the web, go to the IBM Predictive Maintenance and Quality information center (<http://pic.dhe.ibm.com/infocenter/pmq/v1r0m0/index.jsp>).

Accessibility features

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products. Some of the components included in the IBM Predictive Maintenance and Quality solution have accessibility features.

IBM Predictive Maintenance and Quality HTML documentation has accessibility features. PDF documents are supplemental and, as such, include no added accessibility features.

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.

Chapter 1. IBM Predictive Maintenance and Quality

With IBM Predictive Maintenance and Quality, you can monitor, analyze, and report on information that is gathered from devices. In addition, recommendations for actions can be generated by IBM Predictive Maintenance and Quality.

IBM Predictive Maintenance and Quality is an integrated solution that you can use to perform the following tasks:

- Predict the failure of an instrumented asset so that you can prevent costly unexpected downtime.
- Quickly mine maintenance logs to determine the most effective repair procedures and maintenance cycles.
- Identify the root cause of asset failure faster so that you can take corrective actions.

Instrumented assets generate data such as device ID, timestamp, temperature, and status code. This data can be collected and used in models that predict when an asset is likely to fail.

Examples of instrumented assets are manufacturing equipment, mining equipment, drilling equipment, farming equipment, security equipment, cars, trucks, trains, helicopters, engines, cranes, oil platforms, and wind turbines.

For example, an oil refinery is a system that combines thousands of interlocking pieces. It is critical that such a system is able to work safely and efficiently. You can use IBM Predictive Maintenance and Quality to monitor and track the lifecycle of each piece of the refinery, such as each pipe, pump, compressor, valve, furnace, turbine, tank, heat exchange unit, and boiler. Reports give you the information to ensure that you have the right parts available and can schedule repairs during downtimes.

Predictive maintenance

In predictive maintenance, you look for patterns in the usage and environmental information for equipment that correlate with failures that take place. This information is used to create predictive models to score incoming new data. You can predict the likelihood of failure. Scores are generated from this information that give you an indication of the health of the piece of equipment. In addition, key performance indicators (KPIs) are collected, which are used for reporting. KPIs help you to identify assets that do not conform to normal patterns of behavior. You can define rules to generate recommendations when a piece of equipment is identified as having a high probability of failure. Recommendations can be fed into other systems so that people are alerted to them automatically.

Predictive quality in manufacturing

Past operations data, environmental data, and historical defect data can be used to identify the causes of elevated defect rates. This information is used in predictive models, so that when incoming data is fed into the models, you can predict the likely defect rates. The predicted values are then used for analysis and reporting and to drive recommendations such as modification to inspection patterns, or recalibration of machinery. Scoring can be done on a near real-time basis.

Solution architecture

The IBM Predictive Maintenance and Quality solution is divided into nodes, where each node provides a specific function for the solution. Each node must be installed on a separate computer or on a separate virtual machine image from other nodes.

For a complete list of products included with Predictive Maintenance and Quality, see Appendix B, “Products installed with IBM Predictive Maintenance and Quality,” on page 65.

The following diagram shows the nodes.

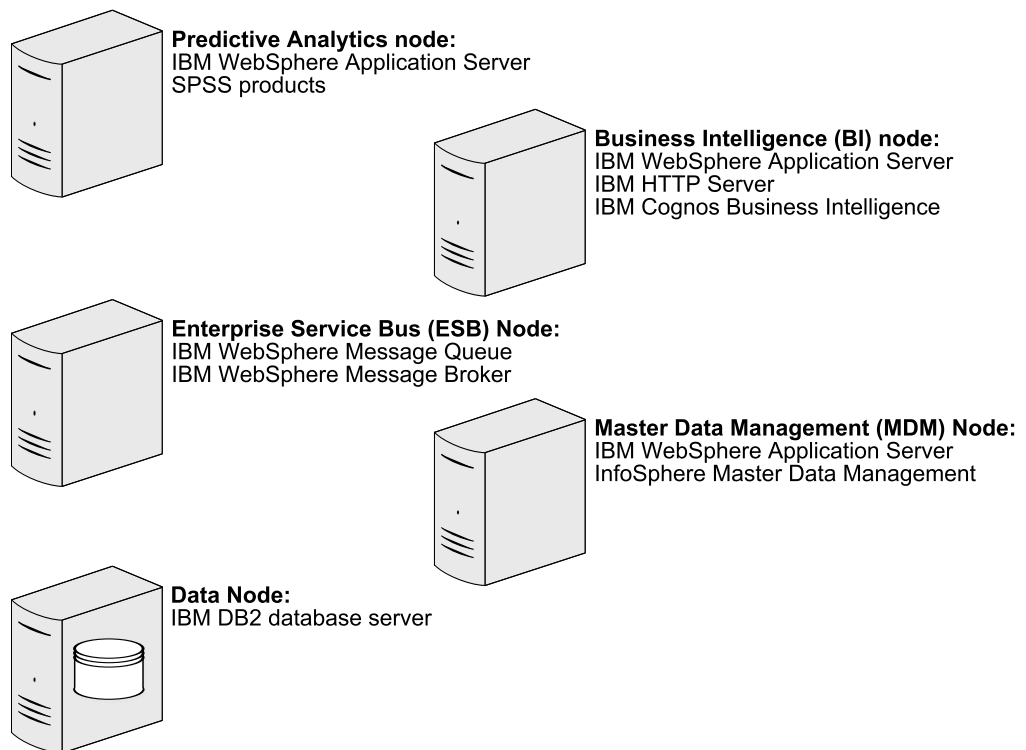


Figure 1. Predictive Maintenance and Quality nodes

Predictive Analytics node

The Analytics node in provides predictive scores and offers recommendations.

This node has the following software installed:

- IBM WebSphere® Network Deployment
- IBM SPSS® Collaboration and Deployment Services
- IBM SPSS Modeler Server
- IBM SPSS Data Access Pack
- IBM SPSS Text Analytics Server
- IBM SPSS Modeler Collaboration and Deployment Services Adapter
- IBM SPSS Decision Management
- IBM SPSS Statistics Server
- IBM SPSS Statistics Collaboration and Deployment Services Adapter

- IBM DB2[®] Client

Business Intelligence (BI) node

The BI node provides dashboards and reports.

This node has the following software installed:

- IBM WebSphere Network Deployment
- IBM HTTP Server
- IBM Cognos[®] Business Intelligence
- IBM DB2 Client

Enterprise Service Bus (ESB) node

The ESB node server processes events, updates the content for IBM Cognos Business Intelligence, and triggers predictive scoring and decision management. It also loads master data into the solution.

This node has the following software installed:

- IBM WebSphere Message Queue
- IBM WebSphere Message Broker
- IBM WebSphere Message Broker Explorer
- IBM WebSphere Message Broker ODBC Database Extender

Master Data Management (MDM) node

The MDM node manages the master data for the solution. The master data includes the set of devices that supply events to the solution and their locations. It also includes metadata that is used to determine how events are processed by the solution.

This node has the following software installed:

- IBM WebSphere Network Deployment
- IBM InfoSphere[®] Master Data Management Collaboration Edition
- IBM DB2 Client

Data node

The Data node provides the database server that contains the databases that are used by other products in the solution. The database acts as an event store and holds calculated key performance indicators (KPIs) and profiles. It also contains supporting master data for the solution.

This node has the following software installed:

- IBM DB2 Enterprise Server Edition

Chapter 2. Installation planning and preparation

Before you install IBM Predictive Maintenance and Quality, ensure that the computers that you use meet the minimum requirements for operating systems, prerequisite software, processing, and disk space.

You must also install additional prerequisite software on some computers, including the Business Intelligence (BI) node, the Master Data Management (MDM) node, and the Enterprise Service Bus (ESB) node computers.

Important: The computers or virtual machines that you use for Predictive Maintenance and Quality nodes must not have any of the included software already installed.

Critical installation and configuration issues

To review a list of critical installation and configuration issues for IBM Predictive Maintenance and Quality version 1.0 as of the date of release, see the document titled Critical installation and configuration issues for IBM Predictive Maintenance and Quality version 1.0 (<http://www.ibm.com/support/docview.wss?uid=swg21637185>).

Supported operating systems and hardware requirements

Review the minimum hardware and operating system requirements before you install IBM Predictive Maintenance and Quality. The requirements apply for all computers or virtual machines that you use for the installation.

Server computers

The IBM Predictive Maintenance and Quality server components must be installed on computers that are running the 64-bit Red Hat Enterprise Linux Server Edition version 6.3 (x86_64) operating system.

You must have the **Legacy UNIX compatibility** package installed. The package is selected when the operating system is set up. The components of this package must be installed on each computer or virtual machine image on which you install a Predictive Maintenance and Quality node.

Hardware requirements

At a minimum, each computer or virtual machine that is hosting a Predictive Maintenance and Quality server component, or node, must have the following hardware requirements:

- 4 processors
- 8 GB of RAM
- 500 GB of hard disk space

Each node must be installed on a separate computer or on a separate virtual machine image.

User requirements

You must have **root** access to all of the computers on which you install a Predictive Maintenance and Quality node. Each computer on which you install a node must have remote **root** log in enabled.

You must log in to the computer where you run the installer as **root**.

Client computers

The Predictive Maintenance and Quality client components must be installed on computers that are running Microsoft Windows 7 64-bit operating systems.

Ensuring that the required operating system packages are installed

Specific operating system packages must be installed on each computer or virtual machine where you install an IBM Predictive Maintenance and Quality node.

Ensure that the following packages are installed:

- libXext-1.1-3.el6.i686.rpm
- libXft-2.1.13-4.1.el6.i686.rpm
- libXi-1.3-3.el6.i686.rpm
- libXp-1.0.0-15.1.el6.i686.rpm
- libXpm-3.5.8-2.el6.i686.rpm
- libXrender-0.9.5-1.el6.i686.rpm
- libXtst-1.0.99.2-3.el6.i686.rpm
- compat-libstdc++-33-3.2.3-69.el6.i686.rpm
- compat-libstdc++-296-2.96-144.el6.i686.rpm
- expat-2.0.1-11.el6_2.i686.rpm
- fontconfig-2.8.0-3.el6.i686.rpm
- freetype-2.3.11-6.el6_2.9.i686.rpm
- libstdc++-4.4.6-4.el6.i686.rpm
- libX11-1.3-2.el6.i686.rpm
- libXau-1.0.5-1.el6.i686.rpm
- libxcb-1.5-1.el6.i686.rpm
- libICE-1.0.6-1.el6.i686.rpm
- libuuid-2.17.2-12.7.el6.i686.rpm
- libSM-1.1.0-7.1.el6.i686.rpm
- libXt-1.0.7-1.el6.i686.rpm
- libXmu-1.0.5-1.el6.i686.rpm
- libjpeg-6b-46.el6.i686.rpm
- libpng-1.2.49-1.el6_2.i686.rpm
- zlib-1.2.3-27.el6.i686.rpm
- glibc-2.12-1.80.el6.i686.rpm
- openmotif-2.3.3-4.el6.i686.rpm

Procedure

1. Log in as **root**.
2. Type the following command to verify that an operating system package is installed:

```
rpm -qi full_package_name
```

For example, to verify that `libXext-1.1-3.el6.i686` is installed, type `rpm -qi libXext-1.1-3.el6.i686`.

3. Install any package that is not already installed.

You must download any missing package, and then install the downloaded package by typing the following command:

```
rpm -ihv full_package_name.rpm
```

For example, to install `libXext-1.1-3.el6.i686`, type `rpm -ihv libXext-1.1-3.el6.i686.rpm`.

4. Repeat these steps on each computer on which you install a Predictive Maintenance and Quality node.

Verifying that the Legacy UNIX compatibility package is installed

Legacy UNIX compatibility must be installed on each computer or virtual machine where you install an IBM Predictive Maintenance and Quality node.

You must verify that the following packages are installed:

- `authd-1.4.3-30.el6.x86_64.rpm`
- `cups-lpd-1.4.2-48.el6.x86_64.rpm`
- `dump-0.4-0.6.b42.el6.x86_64.rpm`
- `finger-0.17-39.el6.x86_64.rpm`
- `finger-server-0.17-39.el6.x86_64.rpm`
- `krb5-appl-servers-1.0.1-7.el6_2.1.x86_64.rpm`
- `ksh-20100621-16.el6.x86_64.rpm`
- `mksh-39-7.el6.x86_64.rpm`
- `ncompress-4.2.4-54.el6_2.1.x86_64.rpm`
- `rsh-0.17-60.el6.x86_64.rpm`
- `rsh-server-0.17-60.el6.x86_64.rpm`
- `rusers-0.17-61.el6.x86_64.rpm`
- `rusers-server-0.17-61.el6.x86_64.rpm`
- `rwho-0.17-34.el6.x86_64.rpm`
- `talk-0.17-34.el6.x86_64.rpm`
- `talk-server-0.17-34.el6.x86_64.rpm`
- `tcp_wrappers-7.6-57.el6.x86_64.rpm`
- `telnet-0.17-47.el6.x86_64.rpm`
- `telnet-server-0.17-47.el6.x86_64.rpm`
- `tftp-0.49-7.el6.x86_64.rpm`
- `xinetd-2.3.14-34.el6.x86_64.rpm`

Procedure

1. Log in as **root**.
2. Type the following command to verify that an operating system package is installed:

```
rpm -qi full_package_name
```

For example, to verify that `authd-1.4.3-30.el6.x86_64` is installed, type `rpm -qi authd-1.4.3-30.el6.x86_64`.

3. Install any package that is not already installed.
You must download any missing package, and then install the downloaded package by typing the following command:

```
rpm -ihv full_package_name.rpm
```

For example, to install `authd-1.4.3-30.el6.x86_64`, type `rpm -ihv authd-1.4.3-30.el6.x86_64.rpm`.
4. Repeat these steps on each computer on which you install a Predictive Maintenance and Quality node.

Installing prerequisite operating system packages on the BI node computer

Specific operating system packages must be installed on the Business Intelligence (BI) node computer or virtual machine before you install IBM Predictive Maintenance and Quality.

The following packages must be installed:

- `libselinux-2.0.94-5.3.el6.i686.rpm`
- `cracklib-2.8.16-4.el6.i686.rpm`
- `db4-4.7.25-17.el6.i686.rpm`
- `audit-libs-2.2-2.el6.i686.rpm`
- `pam-1.1.1-13.el6.i686.rpm`

The following packages must be installed by using YUM:

- `apr-util`
- `libexpat.so.0`
- `libXm.so.4`
- `compat-expat1`

Procedure

1. Log in to the BI node computer as **root**.
2. Install the RPM packages.
 - a. Type the following command to verify that an operating system package is installed:

```
rpm -qi full_package_name
```

For example, to verify that `libselinux-2.0.94-5.3.el6.i686` is installed, type `rpm -qi libselinux-2.0.94-5.3.el6.i686`.
 - b. Install any package that is not already installed.
You must download any missing package, and then install the downloaded package by typing the following command:

```
rpm -ihv full_package_name.rpm
```

For example, to install `libselinux-2.0.94-5.3.el6.i686`, type `rpm -ihv libselinux-2.0.94-5.3.el6.i686.rpm`.

Important: To install `pam-1.1.1-13.el6.i686.rpm`, use the following command: `rpm --force -ivh pam-1.1.1-13.el6.i686.rpm`.
3. Install the packages by using YUM.
 - a. Type the following command:

```
yum -y install apr-util libexpat.so.0 libXm.so.4 compat-expat1
```


Installing Java on the Predictive Analytics node computer

You must install a Java™ Runtime Environment (JRE) on the computer you use as the IBM Predictive Maintenance and Quality Analytics node.

You must install Java version 1.5 or later on the Analytics node computer.

Installation of Perl on the MDM node computer

You must install a version of Perl on the Master Data Management (MDM) node computer for IBM Predictive Maintenance and Quality.

In the **Deployment Wizard**, you are prompted for a location on the MDM node computer where you installed Perl.

For more information about installing Perl for IBM InfoSphere Master Data Management, see the MDM documentation(pic.dhe.ibm.com/infocenter/mdm/v10r1/index.jsp?topic=%2Fcom.ibm.pim.ins.doc%2Fpim_tsk_installingperl.html).

Note: For IBM Predictive Maintenance and Quality, the minimum version of Perl is 5.10.

Installing IBM Data Server Driver on the ESB node computer

Before you can deploy IBM Predictive Maintenance and Quality, you must install the IBM Data Server Driver for ODBC and CLI on the Enterprise Service Bus (ESB) node computer.

Procedure

1. Go to the IBM driver and client download page (www.ibm.com/support/docview.wss?uid=swg21385217).
2. Click the link for **IBM Data Server Driver for ODBC and CLI (CLI Driver)**.
3. If prompted, log in with your IBM account.
4. Select **IBM Data Server Driver for ODBC and CLI (Linux AMD64 and Intel EM64T)**.
5. Click **Continue**, and download the driver.
6. Go to the directory where you downloaded the driver.
7. Type the following command to extract the files:

```
tar -zxf ibm_data_server_driver_for_odbc_cli_linuxx64_v10.1.tar.gz
```

The files are extracted to the `odbc_cli/clidriver` directory.
8. Copy the `odbc_cli` directory to the `var` directory to match the default location in the server installer. For example, ensure the path is `/var/odbc_cli`.

Disabling SELinux on all target computers

You must disable the Security-Enhanced Linux (SELinux) feature on all computers where you install an IBM Predictive Maintenance and Quality node.

Procedure

1. Log in as **root**.
2. Type `getenforce` and press Enter. The resulting message should say Disabled.
3. If the status is not Disabled, do the following.
 - a. Go to the `/etc/sysconfig` directory.

- b. Open the `selinux` file for editing.
 - c. Change the SELINUX value to disabled.
For example:
`SELINUX=disabled`
 - d. Save and close the file.
 - e. Restart the computer for the changes to take effect.
4. Repeat these steps on each computer on which you install a Predictive Maintenance and Quality node.

Computer firewall settings required for the installation

The **Deployment Wizard** requires bidirectional communication with each IBM Predictive Maintenance and Quality node when you install a server component or server artifact component, and your firewall can interfere with this communication. To ensure this communication, you must configure your firewall settings for the installation.

Configuring your firewall settings for the Deployment Wizard

On each computer on which you will install an IBM Predictive Maintenance and Quality node, you must open two ports to allow the bidirectional communication that is required by the **Deployment Wizard**. After you open the ports in your firewall, you can then enter these port values in the **Deployment Wizard**.

Procedure

1. Log in as **root**.
2. Back up your existing firewall settings by typing the following command:
`/etc/init.d/iptables save`
3. Add rules for the two ports that are required by the **Deployment Wizard** with the following command:
`iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 35000 -j ACCEPT`
`iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 30000 -j ACCEPT`
Where port **35000** and **30000** are available port numbers on your computers. You do not have to use these port numbers, but you must use available port numbers.
If you do not use ports **35000** and **30000**, ensure that you change only the port number values in the commands.
- Tip:** Using the same port numbers for each target computer is recommended.
4. Type the following command to save your firewall settings:
`/etc/init.d/iptables save`
5. Type the following command to restart your firewall.
`/etc/init.d/iptables restart`
6. Verify that your changes have been applied with the following command:
`iptables -L`
The added port should appear in the list.
7. Repeat these steps on each computer on which you install a Predictive Maintenance and Quality node, and on the computer from where you run the installation if it is not one of the node computers.

Configuring your firewall settings for the Data node installation and configuration

Before you can install and configure the IBM Predictive Maintenance and Quality Data node, you must ensure that the database server port number is open on the Data node computer.

Procedure

1. Log in to the Data node computer as **root**.
2. Back up your existing firewall settings by typing the following command:
`/etc/init.d/iptables save`
3. Add rules for the port with the following command:
`iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport port_number -j ACCEPT`

For example, to open **50000**, type the following command

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 50000 -j ACCEPT
```

Note: If you are using a port number other than 50000 for your database server, ensure you open the appropriate port number.

4. Type the following command to save your firewall settings:
`/etc/init.d/iptables save`
5. Type the following command to restart your firewall.
`/etc/init.d/iptables restart`
6. Verify that your changes have been applied with the following command:
`iptables -L`
The added ports should appear in the list.

Disabling your computer's firewall during the installation

If you choose to temporarily disable your computer's firewall during the installation of IBM Predictive Maintenance and Quality, ensure that you enable the firewall on each node after the installation is complete.

Important: If you disable your computer's firewall during the installation, you must still ensure that the required ports are opened on each node computer when you restart your firewall.

Procedure

1. Log in as the **root** user.
2. Go to the `/etc/init.d` directory.
3. Type the following command:
`iptables stop`
4. Repeat these steps on each computer on which you install a node and on the server from which you are running the installation.

What to do next

After the installation is complete, on each node, go to the `/etc/init.d` directory, and type `iptables start` to restart your firewall.

Mounting the USB hard disk drive

The installation files for IBM Predictive Maintenance and Quality are provided on a universal serial bus (USB) hard disk drive. You can run the installation from the USB or you can copy the files to your computer before you start the installation. Before you do either, you must mount the USB hard disk drive.

For more information about mounting USB hard disk drives, see the Red Hat Customer Portal (<https://access.redhat.com/home>).

Verifying that your servers prerequisites are met

Scripts are provided to help you ensure that the computers on which you install an IBM Predictive Maintenance and Quality node meet the minimum requirements.

The following scripts are provided:

CheckPkg.sh

Verifies that the required rpm packages are installed on the computer. The rpm names are listed in the `packages.lst` file.

CheckDB2.sh

Verifies the version, installation location, instance name, and status of an existing IBM DB2 server.

CheckPaf.sh

Verifies the operating system, disk space, memory, and number of processors for computer.

checkport.sh

Verifies that a port is open on the computer firewall. For example, on the Data node computer, type `./checkport.sh 50000` to ensure that port 50000 is open on that computer.

CheckRemotePort.sh

Verifies that a port is open on a remote computer's firewall. For example, to verify that the database server port number is open on the Data node computer, type `./CheckRemotePort.sh data_node_name 50000` to ensure that port 50000 is open on that computer. `data_node_name` can be the fully qualified domain name or IP address of the Data node computer.

CheckUser.sh

Verifies that the current user is **root**.

CheckWAS.sh

Tests if WebSphere Application Server is installed on a node computer. If installed, the version, build level and date, and installation location are displayed.

Procedure

1. In a terminal window, go to the USB hard disk drive that you mounted or to the directory where you copied the installation files.
2. In a terminal window, go to the USB hard disk drive that you mounted or to the directory where you copied the installation files.
3. Go to the Prerequisite Checker directory.
4. Copy the scripts to each computer on which you want to verify that the prerequisites are met.
5. Run the scripts as required.

Chapter 3. Installation of the server components

The installation program installs the required software on each computer that you identify as an IBM Predictive Maintenance and Quality node. The installation program can be run from one of the computers that will be a node, or it can be run from another computer.

Installation process

With the IBM Predictive Maintenance and Quality installation program, you can select the individual computers on which each solution node is to be installed and enter configuration information for each software component.

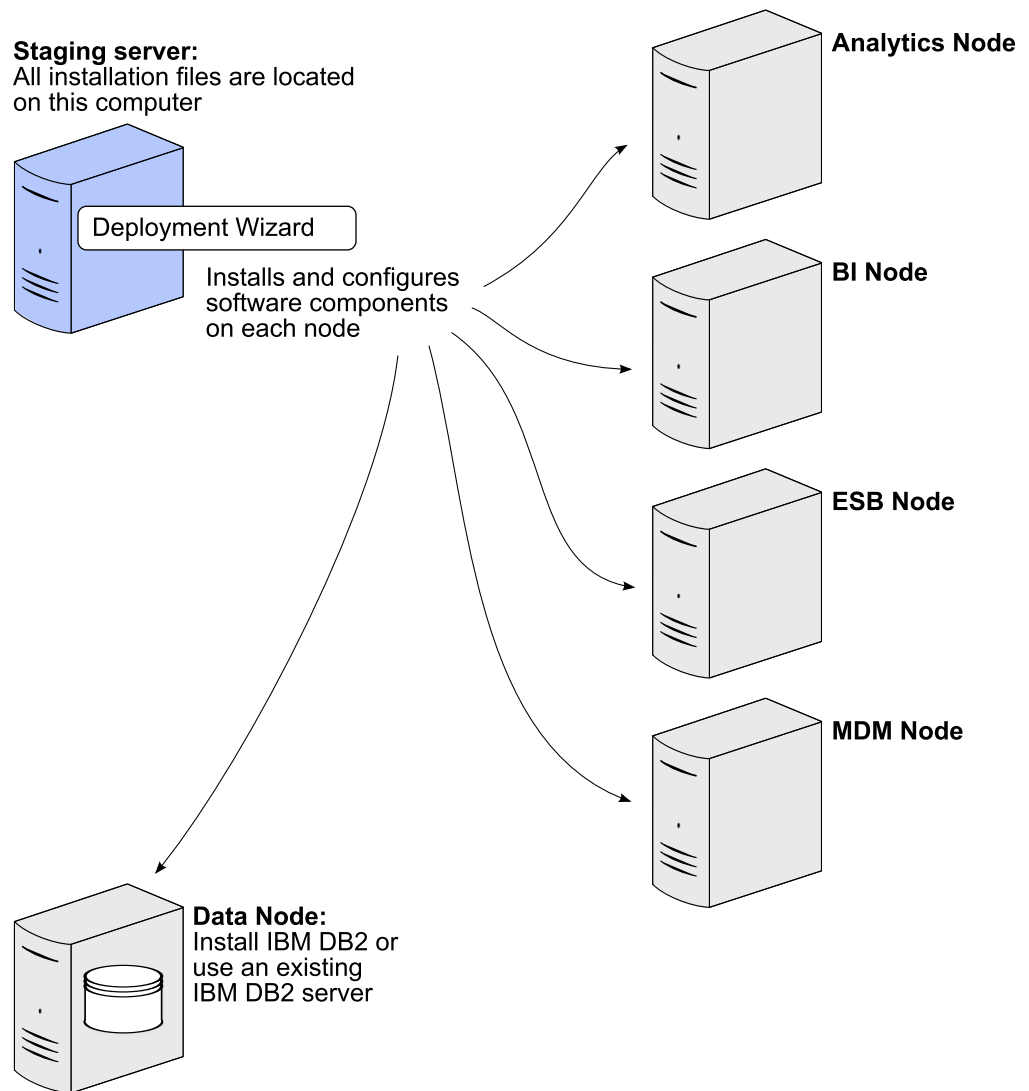


Figure 2. Predictive Maintenance and Quality installation process

In the diagram, the staging server represents the computer from which you run the installation. In your installation, the staging server can also be used as a node

computer. The staging server must also be using the same operating system as the other computers on which you install a node. It must also have the same prerequisites.

Starting the installer for the server components

Use the Launchpad to start the IBM Predictive Maintenance and Quality server installer.

Before you begin

Ensure that you are logged in as **root**.

You must have a Firefox, version 10 or earlier, or SeaMonkey, version 2.9 or earlier, web browser installed and set as your default web browser on the computer from where you run the installation.

Procedure

1. In a terminal window, go to the USB hard disk drive that you mounted or to the directory where you copied the installation files.
2. Go to the `ServerInstaller/disk1` directory.
3. Type the following command to change the permissions for the installation files:

```
chmod -R 755 *
```
4. Enter the following command:

```
./launchpad.sh
```
5. Review the information in the Launchpad panels.
6. To start the **Deployment Wizard**, click **Install Server > Predictive Maintenance and Quality Server Installer**.

Setting port numbers for the Deployment Wizard to use

If you opened ports for the installation of IBM Predictive Maintenance and Quality components, you must set those port numbers in the **Deployment Wizard**.

Procedure

1. In the **Deployment Wizard**, click **Edit > Preferences**.
The **Deployment Preferences** window appears.
2. Enter 30000 in the **Data Port Number** box.

Important: Ensure that you enter the port number that you opened if you selected a port other than 30000.
3. Enter 35000 in the **Communication Port Number** box.

Important: Ensure that you enter the port number that you opened if you selected a port other than 35000.
4. If you are using the computer on which you are running the installation as a node, do the following steps:
 - a. Click **Target Computer Settings**.
 - b. Select **localhost** in the **Target Computer** field.
 - c. Enter the communication port number that you set in the **Communication Port** field. For example, enter 35000.

Note: The **RMI Registry Port** is unavailable if you are using localhost as a node.

Installing or selecting a database instance

IBM Predictive Maintenance and Quality requires a database instance. You can install IBM DB2 from the **Deployment Wizard** or use an existing IBM DB2 instance.

If you are using an existing IBM DB2 instance, it must be IBM DB2 Enterprise Server Edition 9.7 with IBM DB2 9.7 Fix Pack 7.

Procedure

1. Select one of the following options:
 - **Install IBM DB2 Enterprise Server Edition**
 - **Use existing IBM DB2 Enterprise Server Edition**
If you select this option, IBM DB2 Enterprise Server Edition must already be installed and running on the Data node computer.
2. Click **Next**.

Specifying the target computers to install the server components

You must specify a different target computer for each IBM Predictive Maintenance and Quality node. A node can be installed on a computer or virtual machine, but each node must be installed on a separate computer or virtual machine.

Before you begin

You must have **root** access on each computer on which you install a node.

You might have to change a setting in a configuration file on your target computer to allow the **Deployment Wizard** to access the computer as **root**. Use the following steps if you receive a message that says the connection to the target computer was refused:

1. On the target computer, go to the `/etc/ssh` directory and open `sshd_config` for editing.
2. Change the `PermitRootLogin` property to `yes`.
3. Save the file. You may have to restart the server for the change to take effect.

Procedure

1. On the **Specify Target Computers** pages of the **Deployment Wizard**, enter the name or IP address of the computer on which you install a node in the **Target Computer** box.

The **Deployment Wizard** prompts you for each node computer.

If you are installing a node on the computer where you are running the **Deployment Wizard**, you can enter `localhost`.

2. Click **Add**.
 - a. When you enter a computer other than `localhost`, in the **Target Computer Credentials** box, enter the **User ID** and **Password** for the **root** user.

Important: Ensure that you enter the credentials for the **root** user on the target computer.

b. Click **Test Login**.

c. Click **Add**.

The computer that you entered appears in the **Selected target computers** box.

3. Do the following steps if you opened ports for the installation.

a. Click **Edit > Preferences**.

b. Click **Target Computer Settings**.

c. Select the computer name or IP address in the **Target Computer** field.

d. Enter the communication port number that you set in the **Communication Port** field. For example, enter 35000.

e. Enter the Data Port Number that you set in the **RMI Registry Port** field. For example, enter 30000.

Note: If you are using localhost as a node in the installation, the **RMI Registry Port** is unavailable.

4. In the **Selected target computers** box, select the target computer, and click **Test Connections**.

Important: **Test Connections** tests the connection, tests the credentials, and locates or enables a deployment agent on the target computer. You must have an active deployment agent on each target computer.

If you receive an error message after you click **Test Connections**, you might have to change some settings on your computers.

- Edit your iptable settings or temporarily disable your firewall. For more information, see “Computer firewall settings required for the installation” on page 10.
- Compare and correct your domain name system (DNS) settings for each computer. For example, type `sudo system-config-network`. Select **DNS configuration**, and ensure that your host name domain and DNS search path settings are correct.
- Ensure that the `/etc/hosts` file has the correct entries. For an example, see “Test Connections validation errors” on page 67.

5. Click **Next**.

6. Repeat the steps for each computer on which you install a node.

Configuring parameters for the server components installation

The **Deployment Wizard** displays some default values for each component of IBM Predictive Maintenance and Quality. You can accept the default values or change them to suit your environment.

If you are prompted for users, the **Deployment Wizard** creates the users on the appropriate target node computer, if they do not exist. For example, IBM DB2 requires a DB2 administrator user, an instance owner user, and a fenced user. Each of these users is created on the Data node computer.

Procedure

Use the following tables to verify or enter values in each field on each panel of the **Deployment Wizard**:

- Clicking **Browse** browses the target computer's file system. It does not browse the local computer from where you are running the **Deployment Wizard**.

- For some values, such as passwords, default values are not provided. Ensure that you enter all values on each panel of the **Deployment Wizard**.
- On the **Configure IBM DB2 Enterprise Edition** page, enter a name for each database that is to be created by the **Deployment Wizard**.

Important: Ensure you use a separate database for each product.

Important: You cannot use the same user for the IBM DB2 administrative user and the instance owner. They must be different users.

Table 1. IBM DB2 configuration parameters for a new database server installation

Field	Default or example value	Description
DB2 Server Installation Directory	/opt/ibm/db2/V9.7	The location where IBM DB2 is to be installed on the Data node computer.
DB2 Database Port Number	50000	The port number that is used by IBM DB2.
DB2 Server Administrative User Name	dasusr1	The user ID that runs the administration server.
DB2 Server Administrative Password	There is no default value for this field.	The password for the user ID that runs the administration server. The password cannot contain more than 8 characters.
DB2 Server Administrative Home Directory	/home/dasusr1	The home directory for the user ID that runs the administration server. This directory is on the Data node computer's file system.
DB2 Instance Owner User Name	db2inst1	The user ID that controls the DB2 processes and owns the directories that are used by the database instance.
DB2 Instance Owner Password	There is no default value for this field.	The password for the DB2 instance owner user. The password cannot contain more than 8 characters.
DB2 Instance Owner Home Directory	/home/db2inst1	The home directory for the DB2 instance owner user. This directory is on the Data node computer's file system.
DB2 Fenced User Name	db2fenc1	The user ID that can run user-defined functions and store procedures.
DB2 Fenced Password	There is no default value for this field.	The password for the DB2 instance owner user. The password cannot contain more than 8 characters.
DB2 Fenced User Home Directory	/home/db2fenc1	The home directory for the DB2 instance owner user. This directory is on the Data node computer's file system.

Table 2. IBM DB2 configuration parameters for an existing database server

Field	Default or example value	Description
DB2 Installation Location	/opt/ibm/db2/V9.7	The location where IBM DB2 is installed on the Data node computer.
DB2 Instance Name	db2inst1	The name of the instance in which your databases are created.
DB2 Instance Password	There is no default value for this field.	The password for the DB2 instance owner user.
DB2 Port Number	50000	The port number that is used by IBM DB2.

Table 3. IBM DB2 configuration parameters: Database names.

Important: The database names cannot exceed 8 characters.

Field	Default or example value	Description
SPSS Database Name	SPSSDB	The SPSS database that is used by the components that are installed on the Predictive Analytics node computer.
Cognos Database Name	COG102CS	The IBM Cognos content store database.
MDM Database Name	MDMDB	The Master Data Management (MDM) node database.

Table 4. IBM DB2 client parameters.

Note: The values apply to all nodes where the IBM DB2 client is installed.

Field	Default or example value	Description
DB2 Client Installation Directory	/opt/ibm/db2/V9.7	The location where the IBM DB2 client is to be installed. This directory is on the MDM node, Business Intelligence (BI) node, and Analytics node computer's file system.
DB2 Client Instance User Name	db2inst1	The user ID for the DB2 client.
DB2 Client Instance Password	There is no default value for this field.	The password for the DB2 client instance owner user.
DB2 Client Instance Home Directory	/home/db2inst1	The home directory for the DB2 client instance owner user on each node.

Table 5. WebSphere installation parameters

Field	Default or example value	Description
WebSphere Installation Directory	/opt/IBM/WebSphere/AppServer	The location where the WebSphere Application Server is to be installed. The location is the same for each node where WebSphere is installed.

Table 6. HTTP Server installation parameters

Field	Default or example value	Description
HTTP Server Installation Directory	/opt/IBM/HTTPServer	The location where IBM HTTP Server is to be installed. This directory is on the BI node computer's file system.
HTTP Port Number	80	The port number that is used by HTTP Server.

Table 7. IBM Cognos BI installation parameters

Field	Default or example value	Description
Cognos BI Installation Location	/opt/ibm/cognos/c10_64	The location where IBM Cognos BI is to be installed. This directory is on the BI node computer's file system.

Table 8. WebSphere profile for IBM Cognos BI parameters.

Note: The settings in this table are applied to the WebSphere installation on the BI node.

Field	Default or example value	Description
WebSphere Profile Location	/opt/IBM/WebSphere/AppServer/profiles	The location where the WebSphere profile is to be created. This directory is on the BI node computer's file system.
WebSphere Profile Name	COGNOSProfile	The name of the WebSphere profile that is used for IBM Cognos BI.
WebSphere Host Name	This value is automatically entered.	The name or IP address of the BI node computer.
WebSphere Profile template location	/opt/IBM/WebSphere/AppServer/profileTemplates/default	The location where the WebSphere profile templates are located.

Table 9. IBM Cognos BI Server parameters

Field	Default or example value	Description
Database Host Name	This value is automatically entered.	The name or IP address of the Data node computer.
WebSphere Host Name	This value is automatically entered.	The name or IP address of the BI node.

Table 9. IBM Cognos BI Server parameters (continued)

Field	Default or example value	Description
Cognos Dispatcher Application Server Port	9080	The HTTP transport port number for the WebSphere Application Server where IBM Cognos is running.
Database Server Host Name	This value is automatically entered.	The name or IP address of the Data node.

Table 10. WebSphere Message Broker installation parameters

Field	Default or example value	Description
WebSphere Message Broker Installation Location	/opt/ibm/mqsi/8.0.0.1	The location where WebSphere Message Broker is to be installed. This directory is on the Enterprise Service Bus (ESB) node computer's file system.
WMB ODBC Database Extender Install Location	/opt/ibm/IE02/2.0.0	The location where WebSphere Message Broker ODBC Database Extender is to be installed. This directory is on the Enterprise Service Bus (ESB) node computer's file system.
WebSphere Message Broker Explorer Installation Directory	/opt/IBM/MBExplorer	The location where WebSphere Message Broker Explorer is to be installed. This directory is on the Enterprise Service Bus (ESB) node computer's file system.

Table 11. WebSphere Message Broker and Queue installation parameters

Field	Default or example value	Description
ESB Deployment Location	/var/PMQ	The location where Predictive Maintenance and Quality files can be placed.
Location of the IBM Data Server Driver for ODBC and CLI	/var/odbc_cli	The location where you downloaded the IDM Data Server Driver. This directory is on the ESB node computer's file system.
Broker Name	pmqbroker	The broker to be created.
Queue Manager Name	pmqmanager	The Queue Manager name to be created.
Execution Group	pmqgroup	The name of a group of message flows that are assigned to a broker
Specify Database Node IP Address	This value is automatically entered.	The name of IP address of the Data node computer.

Table 12. WebSphere Message Broker installation parameters

Field	Default or example value	Description
MDM Collaboration Server Installation Directory	/opt/IBM/MDMPIM	The location where Master Data Management Collaboration Server is to be installed. This directory is on the MDM node computer's file system.

Table 13. InfoSphere Master Data Management parameters

Field	Default or example value	Description
WebSphere Profile Location	/opt/IBM/WebSphere/AppServer/profiles	The location where the WebSphere profile is to be created. This directory is on the MDM node computer's file system.
WebSphere Profile Name	MDMProfile	The name of the WebSphere profile that is used for InfoSphere Master Data Management.
WebSphere Host Name	This value is automatically entered.	The name or IP address of the MDM node computer.
Default WebSphere Template Path	/opt/IBM/WebSphere/AppServer/profileTemplates/default	The location where the WebSphere profile templates are located.
MDM DB2 Host Name	This value is automatically entered.	The name or IP address of the Data node computer.
Perl Installation Directory	/opt/ActivePerl-5.16	The location where you installed Active Perl. This location on the MDM node computer.

Table 14. IBM SPSS Collaboration and Deployment Server parameters

Field	Default or example value	Description
SPSS Collaboration and Deployment Services Installation Directory	/opt/IBM/SPSS/Deployment/5.0/Server	The location where IBM SPSS Collaboration and Deployment Services is to be installed. This location is on the Analytics node computer's file system.
WebSphere Profile Location	/opt/IBM/WebSphere/AppServer/profiles	The location where the WebSphere profile is to be created. This directory is on the Analytics node computer's file system.
WebSphere Profile Default Template Location	/opt/IBM/WebSphere/AppServer/profileTemplates/default	The location where the WebSphere profile templates are located. This directory is on the Analytics node computer's file system.

Table 14. IBM SPSS Collaboration and Deployment Server parameters (continued)

Field	Default or example value	Description
WebSphere Profile Name	SPSSProfile	The name of the WebSphere profile that is used for the SPSS products.
WebSphere Host Name	This value is automatically entered.	The name or IP address of the Analytics node computer.
SPSS DB2 Database Host Name	This value is automatically entered.	The name or IP address of the Data node computer.
Modeler Server Installation Directory	/usr/IBM/SPSS/ModelerServer/15.0	The directory where the IBM SPSS Modeler Server is to be installed. This directory is on the Analytics node computer.
SPSS Collaboration and Deployment Services Enterprise Viewer Installation Directory	/opt/IBM/SPSS/Deployment/5.0/EnterpriseViewDriver	The directory where the IBM SPSS Collaboration and Deployment Services Enterprise View Driver is to be installed. This directory is on the Analytics node computer.
SPSS Collaboration and Deployment Services Python Installation Directory	/opt/IBM/SPSS/Deployment/5.0/PythonEssentials	The directory where the IBM SPSS Collaboration and Deployment Services Python Scripting Essentials is to be installed. This directory is on the Analytics node computer.
SPSS Data Access Pack Installation Directory	/root/SDAP61	The directory where the IBM SPSS Data Access Pack is to be installed. This directory is on the Analytics node computer.
SPSS Statistics Installation Directory	/opt/IBM/SPSS/StatisticsServer21	The directory where the IBM SPSS Statistics Server is to be installed. This directory is on the Analytics node computer.

Starting the installation

After you enter all of the required fields in the **Deployment Wizard**, you can start the installation and configuration of the IBM Predictive Maintenance and Quality components.

Procedure

On the **Summary Panel** of the **Deployment Wizard**, click **Deploy all**.

Note: If you choose to deploy the tasks individually, you must click **Deploy task** for each task in the order that the tasks appear on the **Summary** panel.

Configure the server components and test the installation

After the installation of the IBM Predictive Maintenance and Quality server components is complete, you must perform some additional configuration tasks and then test the installation.

Testing the database installation and configuration

You can test the database installation and configuration by logging in to the Data node computer and listing the databases on the server. You can also list the databases available on each node computer where the IBM DB2 client was installed.

Procedure

1. Log on to the Data node computer.
 - a. Open a terminal window, and change to the database instance owner user. For example, `su - db2inst1`.
 - b. Enter the following command to list the databases on the computer:
`db2 list database directory`
The following databases are listed:
 - COG102DB
 - MDMDB
 - SPSSDB
2. Log on to the Business Intelligence (BI) node computer.
 - a. Open a terminal window, and change to the database client user. For example, `su - db2inst1`.
 - b. Enter the following command to list the databases on the computer:
`db2 list database directory`
COG102DB is listed.
3. Log on to the Predictive Analytics node computer.
 - a. Open a terminal window, and change to the database client user. For example, `su - db2inst1`.
 - b. Enter the following command to list the databases on the computer:
`db2 list database directory`
SPSSDB is listed.
4. Log on to the Master Data Management (MDM) node computer.
 - a. Open a terminal window, and change to the database client user. For example, `su - db2inst1`.
 - b. Enter the following command to list the databases on the computer:
`db2 list database directory`
MDMDB is listed.

Configuring WebSphere Application Server for IBM Cognos BI

To complete the installation of the IBM Predictive Maintenance and Quality server components, you must configure properties in IBM WebSphere Application Server for IBM Cognos Business Intelligence.

Procedure

1. Open a web browser.
2. In the address bar, type the address for the WebSphere Admin Console that was installed on the BI node computer.
The Admin console address is: `http://bi_node_name:9060/ibm/console`. Where `bi_node_name` is the name or IP address for the BI node computer.
3. Expand **Servers > Server Types > WebSphere application servers**, and click **server1**.

4. Under **Server Infrastructure**, expand **Java and Process Management**, and click **Process Definition**.
5. Under **Additional Properties**, click **Java Virtual Machine**.
6. In the **Initial Heap Size** box, enter **512**.
7. In the **Maximum Heap Size** box, enter **1024**.
8. Click **Apply**, and then click **Save**.
9. Under **Additional Properties**, click **Environment Variables**.
10. Click **New**.
11. In the **Name** box, enter `LD_LIBRARY_PATH`.
12. In the **Value** box, enter the path to the IBM Cognos BI bin64 directory. For example, enter `/opt/ibm/cognos/c10_64/bin64/`.

Important: If you changed the default value in the **Cognos BI Installation Location** field in the **Deployment Wizard**, ensure you use the path you entered.

13. Click **Apply**, and then click **Save**.

Saving your IBM Cognos Configuration settings and starting the services

You must save the configuration settings in IBM Cognos Configuration before you can start the IBM Cognos application in WebSphere Application Server.

Procedure

1. Log in to the BI node computer as **root**.
2. Go to the `/opt/ibm/cognos/c10_64/bin64` directory.
3. Type the following command:
`./cogconfig.sh`
IBM Cognos Configuration starts.
4. Click **File > Save**.
5. Close IBM Cognos Configuration.

Important: If you are prompted to start the Cognos Content Database service, click **No**.

6. Log in to the BI node computer as **root** using a terminal emulator, such as PuTTY.

Note: Using a terminal emulator like PuTTY ensures that the proper profile is loaded.

7. Go to the WebSphere Application Server Profile Location. For example, go to the `/opt/IBM/WebSphere/AppServer/profiles/COGNOSProfile/bin` directory if you used the default path in the **Deployment Wizard**.
8. Type `./stopServer.sh server1` to stop WebSphere Application Server.
9. Type `./startServer.sh server1` to start WebSphere Application Server.

Results

WebSphere Application Server is configured for IBM Cognos BI.

It may take several minutes for all of the IBM Cognos services to start for the first time.

Setting the password for the mqm user on the ESB node computer

You must set the password for the **mqm** user on the Enterprise Service Bus (ESB) node computer.

Procedure

1. Log in to the ESB node computer as **root**.
2. Type the following command:

```
passwd mqm
```
3. Enter **mqm** and the new password.

You do not have to use **mqm**. It is only a suggestion. If you do use **mqm**, you will see a message saying that your password is too weak. But, you can ignore the message.

Testing the installation of the server components

You can test the installation of the IBM Predictive Maintenance and Quality server components by accessing some of the component portals.

For example, you can open the IBM Cognos BI portal on the BI node. If the portal opens, IBM Cognos BI is installed and running. You can also access the SPSS configuration tool on the Analytics node computer.

Procedure

1. Open a web browser.
2. In the address bar, type the address for the IBM Cognos Content Manager status page.

The address is `http://bi_node_name:9080/p2pd/servlet`, where *bi_node_name* is the name or IP address for the BI node computer.

The Content Manager status says **Running**.

3. In the address bar, type the address for the IBM Cognos BI portal.

The address is `http://bi_node_name/ibmcognos/`, where *bi_node_name* is the name or IP address for the BI node computer.

Note: Ensure that you add the trailing `/` to the URL.

IBM Cognos Connection appears.

4. In the address bar, type the address for the SPSS administration console.

The address is `http://analytics_node_name:9080/config`, where *analytics_node_name* is the name or IP address for the Analytics node computer.

The SPSS administration console appears.

Computer firewall settings to run the server components

Each IBM Predictive Maintenance and Quality node computer requires certain ports to be opened for the server components to operate in a multi-computer solution, and you must configure your firewall settings for each specific node.

Configuring your firewall settings for all nodes

On each computer on which you install an IBM Predictive Maintenance and Quality node, you must open specific ports.

The following ports must be open:

- **vnc-server**
- **x11**
- **5901**
- **5902**
- **5903**
- **6001**
- **6002**
- **6003**
- **22**

Procedure

1. Log in as **root**.
2. Back up your existing firewall settings by typing the following command:
`/etc/init.d/iptables save`
3. Add rules for the ports with the following command:
`iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport port_number -j ACCEPT`

For example, to open **vnc-server**, type the following command

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport vnc-server -j ACCEPT
```

4. Type the following command to save your firewall settings:
`/etc/init.d/iptables save`
5. Type the following command to restart your firewall.
`/etc/init.d/iptables restart`
6. Verify that your changes have been applied with the following command:
`iptables -L`
The added port should appear in the list.
7. Repeat these steps on each computer on which you install a Predictive Maintenance and Quality node.

Configuring your firewall settings for the Analytics node computer

You must ensure that certain ports are open on the Predictive Analytics node computer for IBM Predictive Maintenance and Quality.

The following ports must be open:

- **45088**
- **58313**
- **28052**
- **tungsten-https**
- **glrpc**
- **corbaloc**
- **59356**
- **9043**
- **9060**

Procedure

1. Log in to the Analytics node computer as **root**.
2. Back up your existing firewall settings by typing the following command:
`/etc/init.d/iptables save`
3. Add rules for the ports with the following command:
`iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport port_number -j ACCEPT`

For example, to open **45088**, type the following command

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 45088 -j ACCEPT
```

4. Repeat the previous step for each of the required port values.
5. Type the following command to save your firewall settings:
`/etc/init.d/iptables save`
6. Type the following command to restart your firewall.
`/etc/init.d/iptables restart`
7. Verify that your changes have been applied with the following command:
`iptables -L`
The added ports should appear in the list.

Configuring your firewall settings for the BI node computer

You must ensure that certain ports are open on the Business Intelligence (BI) node computer for IBM Predictive Maintenance and Quality.

The following ports must be open:

- **9362**
- **vrace**
- **9663**
- **corbaloc**
- **9043**
- **glrpc**
- **http**
- **tungsten-https**
- **9060**
- **6001**
- **6002**
- **6003**
- **5901**
- **5902**
- **5903**

Procedure

1. Log in to the BI node computer as **root**.
2. Back up your existing firewall settings by typing the following command:
`/etc/init.d/iptables save`
3. Add rules for the ports with the following command:
`iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport port_number -j ACCEPT`

For example, to open **9362**, type the following command

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9362 -j ACCEPT
```

4. Repeat the previous step for each of the required port values.
5. Type the following command to save your firewall settings:

```
/etc/init.d/iptables save
```
6. Type the following command to restart your firewall.

```
/etc/init.d/iptables restart
```
7. Verify that your changes have been applied with the following command:

```
iptables -L
```

The added ports should appear in the list.

Configuring your firewall settings for the ESB node computer

You must ensure that certain ports are open on the Enterprise Service Bus (ESB) node computer for IBM Predictive Maintenance and Quality.

The following ports must be open:

- **boks**
- **boks_clntd**
- **boks_servm**
- **boks_servc**
- **ibm-mqseries**

Procedure

1. Log in to the ESB node computer as **root**.
2. Back up your existing firewall settings by typing the following command:

```
/etc/init.d/iptables save
```
3. Add rules for the ports with the following command:

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport port_number -j ACCEPT
```

For example, to open **boks**, type the following command

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks -j ACCEPT
```

4. Repeat the previous step for each of the required port values.
5. Type the following command to save your firewall settings:

```
/etc/init.d/iptables save
```
6. Type the following command to restart your firewall.

```
/etc/init.d/iptables restart
```
7. Verify that your changes have been applied with the following command:

```
iptables -L
```

The added ports should appear in the list.

Configuring your firewall settings for the MDM node computer

You must ensure that certain ports are open on the Master Data Management (MDM) node computer for IBM Predictive Maintenance and Quality.

The following ports must be open:

- **9060**
- **tungsten-https**
- **50498**

- 9634
- 9633
- 57537
- 49888
- 53343
- 41950
- 60573
- 43420
- 40187
- netsteward
- corbaloc
- glrpc
- 44152
- 43830
- 39188
- 9043
- 7507
- 49298
- 8881
- cddb-al t
- 40752
- 50512
- 35086
- bacula-dir
- jetdirect
- 55052
- 32970
- complex-link
- 37253
- 9060

Procedure

1. Log in to the MDM node computer as **root**.
2. Back up your existing firewall settings by typing the following command:
`/etc/init.d/iptables save`
3. Add rules for the ports with the following command:
`iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport port_number -j ACCEPT`

For example, to open **9060**, type the following command

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9060 -j ACCEPT
```

4. Repeat the previous step for each of the required port values.
5. Type the following command to save your firewall settings:
`/etc/init.d/iptables save`
6. Type the following command to restart your firewall.
`/etc/init.d/iptables restart`
7. Verify that your changes have been applied with the following command:

```
iptables -L
```

The added ports should appear in the list.

Configuring your firewall settings for the Data node computer

You must ensure that certain ports are open on the Data node computer for IBM Predictive Maintenance and Quality.

The following ports must be open:

- **ibm-db2**
- **db2c_db2inst1**

Procedure

1. Log in to the Data node computer as **root**.
2. Back up your existing firewall settings by typing the following command:

```
/etc/init.d/iptables save
```
3. Add rules for the ports with the following command:

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport port_number -j ACCEPT
```

For example, to open **ibm-db2**, type the following command

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport ibm-db2 -j ACCEPT
```

4. Type the following command to save your firewall settings:

```
/etc/init.d/iptables save
```
5. Type the following command to restart your firewall.

```
/etc/init.d/iptables restart
```
6. Verify that your changes have been applied with the following command:

```
iptables -L
```

The added ports should appear in the list.

Chapter 4. Fix pack updates for the server components

Fix pack updates are available for IBM Predictive Maintenance and Quality server nodes.

You must install the fix pack updates for

1. the Data node
2. the Business Intelligence (BI)
3. the Enterprise Service Bus (ESB)
4. the Predictive Analytics node
5. the Master Data Management (MDM) node

Apply fix pack updates to the Data node

You must stop the IBM DB2 services before you apply the fix pack updates.

IBM DB2 Server

For more information about IBM DB2 fix packs, see the DB2 Version 9.7 Fix Pack 8 for Linux, UNIX, and Windows fix pack document (<http://www.ibm.com/support/docview.wss?uid=swg24034634>).

For more information about installing IBM DB2 fix packs, see the IBM DB2 documentation (pic.dhe.ibm.com/infocenter/db2luw/v9r7/index.jsp?topic=/com.ibm.db2.luw.qb.server.doc/doc/c0025016.html).

Apply fix pack updates to the Business Intelligence (BI) node

You must apply fix pack updates to the IBM DB2 client, WebSphere Application Server, IBM HTTP Server, and to IBM Cognos Business Intelligence on the Predictive Maintenance and Quality BI node computer.

IBM DB2 Client

For more information about IBM DB2 fix packs, see the DB2 Version 9.7 Fix Pack 8 for Linux, UNIX, and Windows fix pack document (<http://www.ibm.com/support/docview.wss?uid=swg24034634>).

For more information about installing IBM DB2 Connect on Linux operating systems, see the IBM DB2 documentation (pic.dhe.ibm.com/infocenter/db2luw/v9r7/index.jsp?topic=%2Fcom.ibm.db2.luw.qb.dbconn.doc%2Fdoc%2Ft0008459.html).

WebSphere Application Server

For more information about WebSphere Application Server fix packs, see the 8.0.0.7: WebSphere Application Server V8.0 Fix Pack 7 document (www.ibm.com/support/docview.wss?uid=swg24035457).

For more information about installing WebSphere Application Server fix packs, see the WebSphere documentation (pic.dhe.ibm.com/infocenter/wasinfo/v8r0/).

[index.jsp?topic=%2Fcom.ibm.websphere.installation.nd.doc%2Finfo%2Fae%2Fae%2Ftins_upgrade.html](#)).

IBM Cognos Business Intelligence

For more information about IBM Cognos Business Intelligence fix packs, see the IBM Cognos Business Intelligence 10.2.1 Fix Pack 1 document (www.ibm.com/support/docview.wss?uid=swg24035542).

For more information about installing IBM Cognos Business Intelligence fix packs, see the IBM Cognos fix pack documentation (www.ibm.com/software/analytics/cognos/support/fixpacks.html).

Apply fix pack updates to the Enterprise Service Bus (ESB) node

You must install fix pack updates for WebSphere Message Queue on the ESB node to apply the updates for IBM Predictive Maintenance and Quality.

WebSphere Message Queue

For more information about WebSphere Message Queue fix packs, see the WebSphere MQ V7.5 Fix Pack 7.5.0.2 document (www.ibm.com/support/docview.wss?uid=swg24035286).

For more information about installing fix pack updates for WebSphere Message Queue, see the WebSphere Message Queue documentation (pic.dhe.ibm.com/infocenter/wmqv7/v7r5/index.jsp?topic=%2Fcom.ibm.mq.mig.doc%2Fq008000_.htm).

WebSphere Message Broker

For more information about WebSphere Message Broker fix packs, see the WebSphere Message Broker V8.0 - Fix Pack 8.0.0.3 document (www.ibm.com/support/docview.wss?uid=swg24036309).

For more information about installing fix pack updates for WebSphere Message Broker, see the WebSphere Message Broker documentation (http://pic.dhe.ibm.com/infocenter/wmbhelp/v8r0m0/index.jsp?topic=%2Fcom.ibm.etools.mft.doc%2Fbx89999_.htm).

Apply fix pack updates to the Predictive Analytics node

You must apply fix pack updates to the IBM DB2 client, WebSphere Application Server, and to IBM SPSS Collaboration and Deployment Services components on the IBM Predictive Maintenance and Quality Analytics node computer.

IBM DB2 Client

For more information about IBM DB2 fix packs, see the DB2 Version 9.7 Fix Pack 8 for Linux, UNIX, and Windows fix pack document (<http://www.ibm.com/support/docview.wss?uid=swg24034634>).

For more information about installing IBM DB2 Connect on Linux operating systems, see the IBM DB2 documentation (pic.dhe.ibm.com/infocenter/db2luw/v9r7/index.jsp?topic=%2Fcom.ibm.db2.luw.qb.dbconn.doc%2Fdoc%2Ft0008459.html).

WebSphere Application Server

For more information about WebSphere Application Server fix packs, see the 8.0.0.7: WebSphere Application Server V8.0 Fix Pack 7 document (www.ibm.com/support/docview.wss?uid=swg24035457).

For more information about installing WebSphere Application Server fix packs, see the WebSphere documentation (pic.dhe.ibm.com/infocenter/wasinfo/v8r0/index.jsp?topic=%2Fcom.ibm.websphere.installation.nd.doc%2Finfo%2Fae%2Fae%2Ftins_upgrade.html).

IBM SPSS products

For more information about installing IBM SPSS Collaboration and Deployment Services fix packs, see the SPSS Collaboration and Deployment Services 5.0 Fix Pack 2 upgrade document (www.ibm.com/support/docview.wss?uid=swg24034742).

For more information about installing SPSS Modeler fix packs, see the SPSS Modeler 15.0 Fix Pack 2 - Professional Components document (www.ibm.com/support/docview.wss?uid=swg24034741).

Apply fix pack updates to the Master Data Management (MDM) node

You must apply fix pack updates to the IBM DB2 client and WebSphere Application Server components on the IBM Predictive Maintenance and Quality MDM node computer.

IBM DB2 Client

For more information about IBM DB2 fix packs, see the DB2 Version 9.7 Fix Pack 8 for Linux, UNIX, and Windows fix pack document (<http://www.ibm.com/support/docview.wss?uid=swg24034634>).

For more information about installing IBM DB2 Connect on Linux operating systems, see the IBM DB2 documentation (pic.dhe.ibm.com/infocenter/db2luw/v9r7/index.jsp?topic=%2Fcom.ibm.db2.luw.qb.dbconn.doc%2Fdoc%2Ft0008459.html).

WebSphere Application Server

For more information about WebSphere Application Server fix packs, see the 8.0.0.7: WebSphere Application Server V8.0 Fix Pack 7 document (www.ibm.com/support/docview.wss?uid=swg24035457).

For more information about installing WebSphere Application Server fix packs, see the WebSphere documentation (pic.dhe.ibm.com/infocenter/wasinfo/v8r0/index.jsp?topic=%2Fcom.ibm.websphere.installation.nd.doc%2Finfo%2Fae%2Fae%2Ftins_upgrade.html).

Chapter 5. Installation of the server artifacts

The server artifacts include report content and workflows for IBM Predictive Maintenance and Quality. The installation program will install artifacts on each node computer.

Important: If you are installing Predictive Maintenance and Quality for the first time, you do not have to install the server artifacts components that are included in the original product source files. Instead, install the server artifacts that are provided with the fix pack updates.

If you already have a Predictive Maintenance and Quality environment up and running, use the server artifact installer that is provided with the fix pack to update your existing Predictive Maintenance and Quality content.

Back up existing content for installing the fix pack updates to an existing environment

If you are installing the fix pack updates to an IBM Predictive Maintenance and Quality environment in which you already deployed the server artifacts, back up the existing content before you install the server artifacts that are provided with the fix pack.

If you are installing the server artifacts for the first time, you do not have to back up the content.

You must back up content on the Enterprise Service Bus (ESB) node and the Business Intelligence (BI) node computers.

For more information about backing up IBM WebSphere Message Broker content on the ESB node computer, see the WebSphere Message Broker documentation (pic.dhe.ibm.com/infocenter/wmbhelp/v8r0m0/index.jsp?topic=%2Fcom.ibm.etools.mft.doc%2Fbh44660_.htm).

For more information about backing up IBM WebSphere Message Queue content on the ESB node computer, see the WebSphere Message Queue documentation (pic.dhe.ibm.com/infocenter/wmqv7/v7r5/index.jsp?topic=%2Fcom.ibm.mq.con.doc%2Fq018580_.htm).

For more information about backing up IBM Cognos content on the BI node computer, see the IBM Cognos documentation (pic.dhe.ibm.com/infocenter/cbi/v10r2m1/index.jsp?topic=%2Fcom.ibm.swg.ba.cognos.inst_cr_winux.10.2.1.doc%2Ft_backupexistingcognosinformation.html).

Starting the installer for the server artifacts

Use the Launchpad to start the IBM Predictive Maintenance and Quality server artifacts installer.

Note: If you are installing Predictive Maintenance and Quality for the first time, use the server artifact installer that is provided with the fix pack updates instead of the server artifacts installer that is provided with the original version of the product.

If you already have a Predictive Maintenance and Quality environment up and running, run the server artifacts installer that is provided with the fix pack updates to update your environment.

Before you begin

Ensure that you are logged in as **root**.

You must have a Firefox, version 10 or earlier, or SeaMonkey, version 2.9 or earlier, web browser installed and set as your default web browser on the computer from where you run the installation.

Procedure

1. In a terminal window, go to the USB hard disk drive that you mounted or to the directory where you copied the installation files.
2. Go to the `ServerArtifacts/disk1` directory.
3. Type the following command to change the permissions for the installation files:

```
chmod -R 755 *
```
4. Enter the following command:

```
./launchpad.sh
```
5. Review the information in the Launchpad panels.
6. Click **Install Server Artifacts > Predictive Maintenance and Quality Server Artifacts Accelerator** to start the **Deployment Wizard** to install the server artifacts.
7. Select one of the following options.
 - If you are installing Predictive Maintenance and Quality for the first time, select **New Customer**.
 - If you already have a Predictive Maintenance and Quality environment up and running, select **Existing Customer**.

Important: Ensure that you select the correct option for your environment. If you already have existing Predictive Maintenance and Quality server artifacts that are deployed, you must select **Existing Customer**. If you do not have the server artifacts that are deployed, select **New Customer**.

8. Follow the prompts to install the server artifacts.
9. On the **Select Tasks** page, select all nodes.

Setting port numbers for the Deployment Wizard to use

If you opened ports for the installation of IBM Predictive Maintenance and Quality components, you must set those port numbers in the **Deployment Wizard**.

Procedure

1. In the **Deployment Wizard**, click **Edit > Preferences**.
The **Deployment Preferences** window appears.
2. Enter 30000 in the **Data Port Number** box.

Important: Ensure that you enter the port number that you opened if you selected a port other than 30000.

3. Enter 35000 in the **Communication Port Number** box.

Important: Ensure that you enter the port number that you opened if you selected a port other than 35000.

4. If you are using the computer on which you are running the installation as a node, do the following steps:
 - a. Click **Target Computer Settings**.
 - b. Select **localhost** in the **Target Computer** field.
 - c. Enter the communication port number that you set in the **Communication Port** field. For example, enter 35000.

Note: The **RMI Registry Port** is unavailable if you are using localhost as a node.

Specifying the target computers on which you will install the server artifacts

You must specify a each computer on which you installed an IBM Predictive Maintenance and Quality node. Ensure that you identify the correct computer for each node.

Before you begin

You must have **root** access on each computer on which you install a node.

You might have to change a setting in a configuration file on your target computer to allow the **Deployment Wizard** to access the computer as **root**. Use the following steps if you receive a message that says the connection to the target computer was refused:

1. On the target computer, go to the `/etc/ssh` directory and open `sshd_config` for editing.
2. Change the `PermitRootLogin` property to `yes`.
3. Save the file. You may have to restart the server for the change to take effect.

Procedure

1. On the **Specify Target Computers** pages of the **Deployment Wizard**, enter the name or IP address of the computer on which you installed the node you are prompted for in the **Target Computer** box.

The **Deployment Wizard** prompts you for each node computer.

If you installed a node on the computer where you are running the **Deployment Wizard**, enter `localhost`.

2. Click **Add**.
 - a. When you enter a computer other than `localhost`, in the **Target Computer Credentials** box, enter the **User ID** and **Password** for the **root** user.

Important: Ensure that you enter the credentials for the **root** user on the target computer.

- b. Click **Test Login**.
- c. Click **Add**.

The computer that you entered appears in the **Selected target computers** box.

3. Do the following steps if you opened ports for the installation.
 - a. Click **Edit > Preferences**.
 - b. Click **Target Computer Settings**.
 - c. Select the computer name or IP address in the **Target Computer** field.
 - d. Enter the communication port number that you set in the **Communication Port** field. For example, enter 35000.
 - e. Enter the Data Port Number that you set in the **RMI Registry Port** field. For example, enter 30000.

Note: If you are using localhost as a node in the installation, the **RMI Registry Port** is unavailable.

4. In the **Selected target computers** box, select the target computer, and click **Test Connections**.

Important: **Test Connections** tests the connection, tests the credentials, and locates or enables a deployment agent on the target computer. You must have an active deployment agent on each target computer.

If you receive an error message after you click **Test Connections**, you might have to change some settings on your computers.

- Edit your iptable settings or temporarily disable your firewall. For more information, see “Computer firewall settings required for the installation” on page 10.
- Compare and correct your domain name system (DNS) settings for each computer. For example, type `sudo system-config-network`. Select **DNS configuration**, and ensure that your host name domain and DNS search path settings are correct.
- Ensure that the `/etc/hosts` file has the correct entries. For an example, see “Test Connections validation errors” on page 67.

5. Click **Next**.
6. Repeat the steps for each node computer.

Configuring parameters for the server artifacts installation

The **Deployment Wizard** displays some default values for each component. You can accept the default values or change them to suit your environment.

Procedure

Use the following table to verify or enter values in each field on each panel of the **Deployment Wizard**.

Table 15. Data node parameters

Field	Default or example value	Description
Data Node Deployment Location	<code>/opt/IBM/PMQ/Data</code>	The location where the server artifacts are to be installed on the Data node computer.

Table 15. Data node parameters (continued)

Field	Default or example value	Description
DB2 Instance Owner User Name	db2inst1	The user ID that controls the DB2 processes and owns the directories that are used by the database instance.
DB2 Instance Owner Password	There is no default value for this field.	The password for the DB2 instance owner user. Note: Ensure that you use the same password as you provided during the server installation.

Table 16. Enterprise Service Bus (ESB) node parameters

Field	Default or example value	Description
Enterprise Service Bus Node Deployment Location	/var/PMQ	The location where the server artifacts are to be installed on the ESB node computer.
Installation Location of Message Broker	/opt/ibm/mqsi/8.0.0.1	The location where WebSphere Message Broker is installed. This directory is on the ESB node computer's file system.
Websphere Message Queue Location	/opt/mqm	The location where WebSphere Message Queue is installed. This directory is on the ESB node computer's file system.
Broker Name	pmqbroker	The broker name that you created.
Queue Manager Name	pmqmanager	The Queue Manager name that you created.
Execution Group	pmqgroup	The name of a group of message flows that are assigned to a broker that you created.
PMQIntegration SPSS WebService URL	http:// <i>analytics_node_name</i> : <i>port</i> /scoring/services/Scoring.HttpV2	Where <i>analytics_node_name</i> is the name or IP address of the Predictive Analytics node computer, and <i>port</i> is the HTTP port for the WebSphere instance, for example 9080.
PMQMaximoIntegration SPSS WebService URL	http:// <i>maximo_server_name</i> : <i>port</i> /meaweb/services/EXTSYS1_MXWOInterface	Where <i>maximo_server_name</i> is the name or IP address of the computer where IBM Maximo® Asset Management is running, and <i>port</i> is the port number.

Table 17. Business Intelligence (BI) node parameters

Field	Default or example value	Description
Business Intelligence Deployment Location	/opt/IBM/PMQ/BI	The location where the server artifacts are to be installed on the BI node computer.
Cognos Install Location	/opt/ibm/cognos/c10_64	The location where IBM Cognos BI is installed. This directory is on the BI node computer's file system.
WebSphere Install Location	/opt/IBM/WebSphere/AppServer	The location where WebSphere is installed. This directory is on the BI node computer's file system.
DB2 Instance Home Directory	/home/db2inst1	The home directory of the database instance owner.
Cognos BI Dispatcher URI	http://bi_node_name:9080/p2pd/servlet/dispatch	The URL to the IBM Cognos BI dispatcher, where <i>bi_node_name</i> is the name or IP address of the BI node computer.
DB2 Database Instance User Name	db2inst1	The user ID for the IBM Cognos content store database.
DB2 Database Instance Password	There is no default value for this field.	The password for the database instance owner user.
DB2 Database Port Number	50000	The port number for the IBM DB2 database server.
DB2 Database Hostname	There is no default value for this field.	The name or IP address of the Data node computer.

Table 18. Analytics node parameters

Field	Default or example value	Description
Analytics Deployment Location	/opt/IBM/PMQ/Analytics	The location where the server artifacts are to be installed on the Analytics node computer.
Modeler Server Install Location	/usr/IBM/SPSS/ModelerServer/15.0	The location where the Modeler Server is installed.
Collaboration and Deployment Services Install Location	/opt/IBM/SPSS/Deployment/5.0/Server	The location where IBM SPSS Collaboration and Deployment Services is installed. This location is on the Analytics node computer.

Table 19. Master Data Management (MDM) node parameters

Field	Default or example value	Description
Master Data Deployment Location	/opt/IBM/PMQ/MDM	The location where the server artifacts are to be installed on the MDM node computer.

Starting the installation of the server artifacts

After you enter all of the required fields in the **Deployment Wizard**, you can start the installation of the server artifacts.

Procedure

On the **Summary Panel** of the **Deployment Wizard**, click **Deploy all**.

Note: If you choose to deploy the tasks individually, you must click **Deploy task** for each task in the order that the tasks appear on the **Summary** panel.

Complete the configuration of the server components

After you have installed the IBM Predictive Maintenance and Quality server artifacts, you can complete the configuration of the server components.

Verifying the configuration of IBM SPSS Collaboration and Deployment Services

To complete the configuration of IBM SPSS Collaboration and Deployment Services Server, you must verify the **URL Prefix** value for your environment.

Procedure

1. Open a web browser.
2. In the address bar, type the address for the Collaboration and Deployment administration console.
The address is `http://analytics_node_name:9080/config`, where `analytics_node_name` is the name or IP address for the Predictive Analytics node computer.
3. Enter the **Login name** and **Password** for the administrator user, and click **Login**.
The default **Login name** is `admin`, and the default **Password** is `admin`.
4. On the **Configuration** panel, under **Setup**, click **URL Prefix**.
5. In the **URL Prefix** box, verify that the address is `http://analytics_node_name:9080`, where `analytics_node_name` is the name or IP address of the Analytics node computer.
6. If the value is correct, you do not have to complete the remaining steps in this task.
7. If the value is not correct, enter the name or IP address of the Analytics node computer, and click **Set**.
8. Open the WebSphere Administrative Console in your web browser.
The address is `http://analytics_node_name:9060/ibm/console`, where `analytics_node_name` is the name or IP address for the Analytics node computer. 9060 is the default port number for the WebSphere Administrative Console.
9. Click **Log in**.
You do not need to enter a value in the **User ID** box.
10. Under **Applications > Application Types > WebSphere Enterprise Applications**, select **IBM_SPSS_Collaboration_and_Deployment_Services_5.0**, and click **Stop**.

11. Select **IBM_SPSS_Collaboration_and_Deployment_Services_5.0**, and click **Start** to restart the application and apply the changes.

Configuring the MDM node

To configure the Master Data Management (MDM) node, you must log in to the MDM administration console and import content files.

The content files are installed onto the MDM node computer by the Server Artifact installer. You must copy the content files from the MDM node to a computer where you have Microsoft Internet Explorer installed.

Procedure

1. Copy the MDM node contents to your Microsoft Windows-based computer with an FTP client or by using a shared directory.

The contents files are installed to `/opt/ibm/PMQ` by default on the MDM node computer. The contents file is named `IBMPMQ.zip`.

2. In Microsoft Internet Explorer, go to the MDM administration console.
The address is `http://mdm_node_name:7507/utills/enterLogin.jsp`, where `mdm_node_name` is the name or IP address of the MDM node computer.
3. In **User name**, enter `Admin`.

Note: These values are case-sensitive.

4. In the **Password** box, enter `trinitron`.
5. In the **Company** box, enter `IBMPMQ`.
6. Click **Login**.
7. Click **System Administrator > Import Environment**.
8. In the **Import Company Environment** box, browse to and select the `IBMPMQ.zip` file that you copied.
9. Click **Import**.
10. Log out, and log back in to the MDM administration console to ensure that the import was completed.

Chapter 6. Fix pack updates for the server artifacts

IBM Predictive Maintenance and Quality fix pack updates for the server artifacts affect the Business Intelligence (BI) node and the Enterprise Service Bus (ESB) node.

Updating the IBM Cognos BI artifacts for Fix Pack 1

You must manually update the IBM Cognos Business Intelligence artifacts for IBM Predictive Maintenance and Quality version 1 fix pack 1.

Procedure

1. Log in to the BI node computer as **root**.
2. Copy the file `IBMPMQ` from `/opt/IBM/PMQ/<BI time stamp>/reports` directory to the `/opt/ibm/cognos/c10_64/deployment` directory.

Note: The file path is case-sensitive.

3. In the address bar, type the address for the IBM Cognos BI portal.
The address is `http://bi_node_name/ibmcognos/`, where `bi_node_name` is the name or IP address for the BI node computer.

Note: Ensure that you add the trailing `/` to the URL.

IBM Cognos Connection appears.

4. Click **Administer IBM Cognos content**.
 5. On the **Configuration** tab, click **Content Administration**.
 6. On the toolbar, click **New Import**.
 7. Select the `IBMPMQ` deployment archive and click **Next**.
 8. If you want, type a unique name and a description and screen tip for the deployment archive, select the folder where you want to save it, and then click **Next**.
 9. Select the content that you want to include in the import. To ensure that the target package or folder exists in the target content store, click **Edit** next to the package, and check that location is correct. Click **Next**.
 10. In the **Specify the general options** pane, click **Next**.
The summary information appears.
 11. Review the summary information and click **Next**.
 12. Select the action that you want:
 - To run the import one time, click **Save and run once**. Click **Finish**, specify the time and date for the run, then click **Run**. Review the run time and click **OK**.
 - To schedule at a recurring time, click **Save and schedule**. Click **Finish**, and then select frequency and start and end dates. Click **OK**.
- Tip:** To temporarily disable the schedule, select the **Disable the schedule** check box.
- To save without scheduling or running, click **Save only** and click **Finish**.
13. When the import is submitted, click **OK**.

14. When the import is complete, click **Launch > IBM Cognos Connection** to view the imported content.

IBM WebSphere Message Broker artifacts

IBM WebSphere Message Broker archive (BAR) files, script files, and project interchange files are provided.

IBM WebSphere Message Broker archive files

The following WebSphere Message Broker archive (BAR) files are configured by using command-line parameters:

- PMQEventDataLoad.bar
- PMQMaximoIntegration.bar
- PMQIntegration.bar
- PMQMasterDataLoad.bar

IBM WebSphere Message Broker script files

The following script files are used to deploy the BAR files by using command-line parameters:

- credentials.properties
- PMQIntegration.properties
- PMQMaximoIntegration.properties
- Queues.txt
- sql.properties

IBM WebSphere Message Broker project interchange files

The following files are project interchange files:

- PMQEventDataLoad_PI.zip
- PMQMaximoIntegration_PI.zip
- PMQIntegration_PI.zip
- PMQMasterDataLoad_PI.zip

Apply fix pack updates to WebSphere Message Broker artifacts - no customization

Follow these steps to update the artifacts WebSphere Message Broker for IBM Predictive Maintenance and Quality fix pack 1 if you made no customization to the WebSphere Message Broker code.

Procedure

1. Log on to the Enterprise Service Bus (ESB) node computer as the mqm user.
2. Check that the properties files placed at `/var/PMQ/MQSIFileInput/properties<TimeStamp>` contain the correct web service end-point URL for the SPSS scoring service and Maximo WorkOrder.

Note: <TimeStamp> is the time when the fix pack artifacts were copied to the server by the installer.

3. Override the web service end-point URLs of the Predictive Maintenance and Quality MaximoIntegration.bar and PMQIntegration.bar with the following commands:

```
mqsapplybaroverride -b <Bar file> -k <ApplicationName> -p
<PropertiesFile>
```

PMQMaximoIntegration.bar

```
Example: mqsapplybaroverride -b /var/PMQ/MQSIFileInput/
server<TimeStamp>/PMQMaximoIntegration.bar -k
PMQMaximoIntegration -p /var/PMQ/MQSIFileInput/
properties<TimeStamp>/PMQMaximoIntegration.properties
```

PMQIntegration.bar:

```
Example: mqsapplybaroverride -b /var/PMQ/MQSIFileInput/
server<TimeStamp>/PMQIntegration.bar -k PMQIntegration -p
/var/PMQ/MQSIFileInput/properties<TimeStamp>/
PMQIntegration.properties
```

4. Deploy the bar files with the following command:

```
mqsdeploy Broker name -e EG name -a Bar file
```

List of bar files:

- PMQMasterDataLoad.bar
- PMQEventDataLoad.bar
- PMQIntegration.bar
- PMQMaximoIntegration.bar

```
Example: mqsdeploy pmqbroker -e pmqgroup -a /var/PMQ/MQSIFileInput/
server<TimeStamp>/PMQMasterDataLoad.bar
```

Apply fix pack updates to WebSphere Message Broker artifacts - with customization

Follow these steps to update the artifacts for the WebSphere Message Broker for IBM Predictive Maintenance and Quality fix pack 1 if you customized the WebSphere Message Broker code.

Procedure

1. Log on to the Enterprise Service Bus (ESB) node computer as the mqm user.
2. From this location: /var/PMQ/MQSIFileInput/PMQSource<TimeStamp> import the following files into the WebSphere Message Broker Toolkit in a new workspace:
 - PMQEventDataLoad_PI.zip
 - PMQIntegration_PI.zip
 - PMQMasterDataLoad_PI.zip
 - PMQMaximoIntegration_PI.zip
3. Incorporate the changes manually to your existing files.
 - a. RTC Defect 1005: Handle runtime exceptions in message flows such as data source not found in the computer name, or an incorrect data source name.

The following applications are affected:

 - **PMQEventDataLoad**
 - **PMQIntegration**
 - **PMQMasterDataLoad**
 - **PMQMaximoIntegration**

To apply the fix, follow these steps:

- 1) In the library named **PMQCommonLibrary**, compare the existing files named `ProcessError.esql` and `Error_Handler_Compute.esql` with the new files.
 - 2) Search for “Start of RTC Defect Fix 1005” in the new file to locate the start of code change. The modified block of code ends with the comment “End of RTC Defect Fix 1005”.
 - 3) Replace or add the fix code from the new file to the existing file.
- b. RTC Defect 698: Avoid Duplicate batch batch entries. Duplicate batch batch entries must be rejected by the batch batch flow and written to error logs.

The following application is affected:

- **PMQMasterDataLoad**

To apply the fix, follow these steps:

- 1) Compare the existing `batch_batch_Compute.esql` file with the new file.
 - 2) Search for “Start of RTC Defect Fix 698” in the new file to locate the start of code change. The modified block of code ends with the comment “End of RTC Defect Fix 698”.
 - 3) Replace or add the defect fix code from the new file to the existing file.
- c. RTC Defect 699: Implement the SPSS Version 2 scoring web service.

The following application is affected:

- **PMQIntegration**

To apply the fix, follow these steps:

- 1) Compare the existing files `PMQIntegration_BuildRequest.esql`, `PMQIntegration_GenerateEvent.esql`, with the new files.
 - 2) In the file `PMQIntegration_BuildRequest.esql`, search for “Start of RTC Defect Fix 699” to locate the start of the code change. The modified block of code ends with the comment “End of RTC Defect Fix 699”.
 - 3) In the file `PMQIntegration_GenerateEvent.esql` search for “RTC Defect Fix 699” `PMQIntegration_BuildRequest.esql` to locate the line of code that changed.
 - 4) Replace or add the defect fix code from the new file to the existing file.
 - 5) Open the `PMQIntegration.msgflow`.
 - 6) Go to the HTTP Transport property of `InvokeSPSS (SOAP Request)` node, change the web service URL to:

```
http://<localhost>:9080/scoring/services/Scoring.HttpV2
```

Where the `<localhost>` is the correct IP or DNS name of the SPSS server where the scoring service is running.
- d. RTC Defect 700: Fix the event processing code to support target namespace.

The following application is affected:

- **PMQEventDataLoad**

To apply the fix, follow these steps:

- 1) Compare the existing `StdEventLoad_LoadEvent.esql` file with the new file.
 - 2) Search for the start of “RTC Defect Fix 700: Fix the event processing code to support target namespace” in the new file. The modifications end with the comment “End of RTC Defect Fix 700”.
- e. RTC Defect 701: User friendly error messages must be shown.

The following application is affected:

- **PMQEventDataLoad**

To apply the fix, follow these steps:

- 1) Compare the existing StdEventLoad_LoadEvent.esql file with the new file.
 - 2) Search for the start of “RTC Defect Fix 701” in the new file. The modifications end with the comment “End of RTC Defect Fix 701”.
 - 3) Replace or add the defect fix code from the new file to the existing file.
- f. RTC Defect 1006: Fix Maximo asset mapping when CLASSTRUCTUREID is missing.

The following application is affected:

- **PMQMaximoIntegration**

To apply the fix, follow these steps:

- 1) Compare the existing maximo_asset.map file with the new file. In the new file, there is a new IF block for CLASSTRUCTUREID, which is mapped to group_type_member_cd_1 only when CLASSTRUCTUREID is not empty.
 - 2) Replace or add the defect fix code from the new file to the existing code.
 - 3) Open the WorkorderCreation.msgflow and go to the HTTP Transport property of InvokeWorkOrder (SOAP Request) node.
 - 4) In the URL `http://<localhost>:9080/meaweb/services/EXTSYS1_MXW0Interface`
Where *<localhost>* is the IP or DNS name of the Maximo server where the work order service is running.
- g. RTC Defect 2922: For null `<value_type_cd> /<value_type_cd>`, data does not get populated to the RESOURCE_PROFILE tables.

The following application is affected:

- **PMQEventDataLoad**

To apply the fix, follow these steps:

- 1) Compare the existing StdEventLoad_LoadEvent.esql file with the new file. In the new file, search for the start of “RTC Defect Fix 2922”. The modifications end with “End RTC Defect Fix 2922”.
 - 2) Replace or add the defect fix code from the new file to the existing file.
- h. RTC Defect 3939: Error when importing Project interchange PMQMaximoIntegration_PI.zip in to WMB 8.0.0.3 Toolkit.

The following application is affected:

- **PMQMaximoIntegration**

To work around this problem, follow these steps:

- 1) Delete xml.xsd from `<Workspace Path>\PMQMaximoIntegration\IBMdefined\org\w3\www\xml_1998\namespace\xml.xsd`
 - 2) Clean and build the workspace.
4. Clean and build your existing workspace so the changes are reflected in all of the Predictive Maintenance and Quality applications, and redeploy the applications.

Chapter 7. Installation of the client components

There are several client components that are included with IBM Predictive Maintenance and Quality. You can install the components as you require.

Important: The client components must be installed on computers running the Microsoft Windows 7 64-bit operating system.

Important: Install the client components only after you successfully install the server components.

Client components

The following client components for IBM Predictive Maintenance and Quality are available to be installed.

Database connectivity

IBM DB2 Connect™ must be installed to enable connectivity to the analytics database.

Predictive modeling and decision management

Install the following components so that you can modify or create predictive models and so that you can perform decision management tasks:

- IBM SPSS Collaboration and Deployment Services Deployment Manager
- IBM SPSS Modeler Client
- IBM SPSS Statistics Client
- IBM SPSS Text Analytics Client

Optionally, install the following components:

- IBM SPSS Collaboration and Deployment Services Documentation
- IBM SPSS Decision Management Documentation
- IBM SPSS Modeler Client Documentation
- IBM SPSS Statistics Desktop

Predictive Maintenance and Quality version 1.0 includes entitlements for the following SPSS licenses:

- SPSS Modeler Premium 15 Authorized User
- SPSS Statistics Standard 21 Authorized User

Business intelligence

Install IBM Cognos Framework Manager so that you can modify the reporting model metadata.

Note: You must install DB2 Connect before you can use IBM Cognos Framework Manager. Ensure that you restart the computer after you install DB2 Connect, and that you catalog the databases before you use Framework Manager.

Optionally, install the following components:

- IBM Cognos Business Intelligence Samples
- IBM Cognos Dynamic Query Analyzer
- IBM Cognos for Microsoft Office
- IBM Cognos Lifecycle Manager
- IBM Cognos Mobile
- IBM Cognos Real-time Monitoring
- IBM Cognos Software Development Kit
- IBM Cognos Supplementary Languages Documentation

Enterprise service bus

Install the following components:

- WebSphere Message Broker Toolkit
- WebSphere MQ for Windows

Use the WebSphere Message Broker Toolkit to create, manage, deploy, and delete message flows and associated resources in a development environment.

Starting the installer for the client components

The IBM Predictive Maintenance and Quality client installers are provided on the same USB hard disk drive as the server and content installers.

Important: The **Deployment Wizard** copies the installers to your computer. You must run each installer individually after they are copied to your computer.

Procedure

1. Insert the Predictive Maintenance and Quality USB hard disk drive into the USB port of your Microsoft Windows 7-based computer.
2. Go to the Client/disk1 directory.
3. Double-click launchpad64.exe.
4. Review the information in the Launchpad panels.
5. Click **Install Client > Predictive Maintenance and Quality Client Accelerator** to start the **Deployment Wizard**.
6. On the **Select Tasks** panel, select the groups of clients you want to install, and click **Next** to select the client components that you want to install.

Important: The required client components include the following:

- WebSphere Message Broker Toolkit
 - WebSphere MQ for Windows
 - IBM SPSS Collaboration and Deployment Services Deployment Manager
 - IBM SPSS Modeler Client
 - IBM SPSS Statistics Desktop
 - IBM SPSS Statistics Client
 - IBM SPSS Text Analytics Client
 - IBM Cognos Framework Manager
7. Enter a location for each client component installer to be copied to. The default is C:\IBM\PMQ\Client Installer.

8. On the **Summary Panel**, click **Deploy all**.
9. After the client installers are copied to your computer, you must install each client individually by using its installer.

Installing IBM SPSS Collaboration and Deployment Services Deployment Manager

You must install IBM SPSS Collaboration and Deployment Services Deployment Manager to complete the configuration of IBM Predictive Maintenance and Quality.

Install IBM SPSS Collaboration and Deployment Services Deployment Manager on a computer running the Microsoft Windows 7 operating system.

Procedure

1. Go to the *install_location*\Client Installer\Analytics\IBM SPSS Collaboration and Deployment Services Deployment Manager directory.
By default, the *install_location* is C:\IBM\PMQ\.
2. Extract the installer files from the zip file.
3. Double-click `install.exe` to start the IBM SPSS Collaboration and Deployment Services Deployment Manager installation.
4. Follow the steps in the wizard to install the client component.
For more information about the installation of Deployment Manager, see the IBM SPSS documentation (pic.dhe.ibm.com/infocenter/spsscads/v5r0m0/index.jsp).

Adding a content server connection for IBM SPSS Collaboration and Deployment Services

You must add a connection to your IBM SPSS Collaboration and Deployment Services repository in the IBM SPSS Collaboration and Deployment Services Deployment Manager client.

After you add the connection, the server folder displays in the **Content Explorer**, and you can log in to the server.

Procedure

1. On your Microsoft Windows computer, start IBM SPSS Collaboration and Deployment Services Deployment Manager. For example, click **Start > Deployment Manager**.
2. Click **File > New > Content Server Connection**.
3. In the **Connection Name** box, enter a name for your Collaboration and Deployment Services repository.
4. In the **Host** box, enter the name or IP address of the Predictive Analytics node computer.
5. In the **Port** box, enter 9080.
9080 is the port number used by the WebSphere Application Server instance.
6. Click **Finish**.
7. Click the connection name that you created.
8. In the **User ID** box, enter `admin`.
9. In the **Password** box, enter `admin`.
10. Click **OK**.

Adding users and groups to IBM SPSS Collaboration and Deployment Services

You use IBM SPSS Collaboration and Deployment Services Deployment Manager to manage users and groups. You must add an administrator user for IBM Predictive Maintenance and Quality.

Procedure

1. In Deployment Manager, click **Tools > Server Administration**.
2. Click **Click here to define a new administrative server connection**.
3. In the **Name** box, enter a name for your server, and click **Next**.
4. In the **Host** box, enter the name or IP address of Predictive Analytics node computer.
5. In the **Port** box, enter the port number of for the WebSphere instance. The default value is 9080.
6. Click **Finish**.
7. Double-click the connection name that you created.
8. In the **User ID** box, enter admin.
9. In the **Password** box, enter admin.
10. Click **OK**.
11. Expand **Users and Groups**, and double-click **Local User Repository**.
12. Select **Show all available users/groups**.
13. Click **New Group**.
 - a. Enter administrator.
 - b. Select **Show all available users**.
 - c. Under **Available users**, move the **admin** user to **Groups contains users**.
 - d. Click **OK**.
14. Click **New Group**.
 - a. Enter DM Administrator.
 - b. Select **Show all available users**.
 - c. Under **Available users**, move the **admin** user to **Groups contains users**.
 - d. Click **OK**.
15. Click **New Group**.
 - a. Enter DM Users.
 - b. Select **Show all available users**.
 - c. Under **Available users**, move the **admin** user to **Groups contains users**.
 - d. Click **OK**.
16. Double-click **Roles**.
17. Click **New Role**.
 - a. In the **Role Name** box, enter DM Administrator.
 - b. Click **Select All** to add all actions for this user role.
 - c. Click **OK**.
 - d. Select the **DM Administrator** role, and click **Edit Users and Groups**.
 - e. Click **Show all available users/groups**.
 - f. Under **Available users**, move the **DM Administrator** group to **Users/Groups Assigned to Role**.
 - g. Click **OK**.

18. Click **New Role**.
 - a. In the **Role Name** box, enter DM User.
 - b. Click **Select All** to add all actions for this user role.
 - c. Click **OK**.
 - d. Select the **DM User** role, and click **Edit Users and Groups**.
 - e. Click **Show all available users/groups**.
 - f. Under **Available users**, move the **DM Users** group to **Users/Groups Assigned to Role**.
 - g. Click **OK**.

Importing the Predictive Maintenance and Quality resource definitions into IBM SPSS Collaboration and Deployment Services

Resource definitions include credential definitions, data source definitions, message domains, promotion policies, server definitions, and server cluster specifications. These resources are required for running jobs.

You must import these resource definitions into IBM SPSS Collaboration and Deployment Services Deployment Manager.

The resource files are installed onto the Predictive Analytics node computer by the Server Artifact installer. You must copy the content files from the Analytics node to the computer where you installed Deployment Manager.

Procedure

1. Copy the Analytics node contents to your Windows-based computer using either an FTP client or by using a shared directory.

The contents files are installed to `/opt/ibm/PMQ` by default on the Analytics node computer.
2. On your Windows-based computer, in Deployment Manager, click **Content Explorer**.
3. Right-click **Content Repository**, and click **Import**.
4. Browse to and select the file named `PredictiveMaintenance.pes` in the directory where you copied the Analytics node contents.
5. Click **Open**.
6. Accept the default options in the **Import** window, and click **OK**.

Adding credential definitions to IBM SPSS Collaboration and Deployment Services

You must add user credential definitions in IBM SPSS Collaboration and Deployment Services Deployment Manager. You must add the credentials for your IBM SPSS admin user, the database instance owner, and the root user on the Predictive Analytics node computer.

Procedure

1. In Deployment Manager, click **Content Explorer**.
2. Expand **Resource Definitions > Credentials**.
3. Right-click **Credentials**, and click **New > Credentials Definition**.
 - a. In the **Name** box, enter `admin`, and click **Next**.

- b. In the **User ID** box, enter admin.
 - c. In the **Password** box, enter admin.
 - d. In the **Security Provider** box, select **Local User Repository**.
 - e. Click **Finish**.
4. Right-click **Credentials**, and click **New > Credentials Definition**.
 - a. In the **Name** box, enter db2inst1, and click **Next**.
 - b. In the **User ID** box, enter db2inst1.
 - c. In the **Password** box, enter the password for your **db2inst1** user.
 - d. Leave the **Security Provider** box blank.
 - e. Click **Finish**.
 5. Right-click **Credentials**, and click **New > Credentials Definition**.
 - a. In the **Name** box, enter modeler, and click **Next**.
 - b. In the **User ID** box, enter root.
 - c. In the **Password** box, enter the password for the **root** user on the Analytics node computer.
 - d. Leave the **Security Provider** box blank.
 - e. Click **Finish**.

Adding server definitions to IBM SPSS Collaboration and Deployment Services

You must add server definitions in Deployment Manager.

If you are not using a computer that is running the Microsoft Windows 7 operating system, some entries, such as server types, may not display correctly.

Procedure

1. In Deployment Manager, click **Content Explorer**.
2. Expand **Resource Definitions**.
3. Right-click **Servers**, and click **New > Server Definition**.
 - a. In the **Name** box, enter localhost, and click **Next**.
 - b. In the **Type** box, select **Content Repository Server**.
 - c. Click **Next**.
 - d. In the **Host** box, enter the name or IP address of Analytics node computer.
 - e. In the **Port** box, enter 9080.
 - f. Click **Finish**.
4. Right-click **Servers**, and click **New > Server Definition**.
 - a. In the **Name** box, enter modeler, and click **Next**.
 - b. In the **Type** box, select **Modeler Server**.
 - c. Click **Next**.
 - d. In the **Host** box, enter the name or IP address of Analytics node computer.
 - e. In the **Port** box, leave the default value 28052.
 - f. In the **Default data path** box, enter the path to the data directory on Analytics node computer. For example, enter /usr/IBM/SPSS/ModelerServer/15.0
 - g. Click **Finish**.

Creating scoring configurations

You must create scoring configurations for IBM Predictive Maintenance and Quality. You create these configurations in IBM SPSS Collaboration and Deployment Services Deployment Manager.

You must select the appropriate **Output data returned settings** for the stream you are configuring:

Table 20. Output data returned settings for each IBM Predictive Maintenance and Quality stream

Stream name	Scoring service name	Output data returned setting
Health_Score_Model.str	RESOURCE_HEALTH_SCORE	HEALTH_SCORE
Life Time Analysis_Model1.str	RESOURCE_LIFETIME_SCORE	RESOURCE_ID EXPECTED_DEVICE_LIFETIME
Asset_Recommendation.str	RESOURCE_RECOMMENDATION	HEALTH_RECOMMENDATION

Procedure

1. In Deployment Manager, click **Content Explorer**.
2. Under **Content Repository > PredictiveMaintenance**, right-click the model for which you want to create the scoring. For example, right-click **Health_Score_Model.str**.
3. Click **Configure Scoring**.
4. In the **Configure Scoring Model** dialog box, click **Next**.
5. On the **Data provider settings** panel, click **Next**.
6. On the **Input data order** panel, click **Next**.
7. On the **Input data returned settings** panel, click **Next**.
8. On the **Output data returned settings** panel, select the appropriate score, and click **Next**. For example, for **Health_Score_Model.str**, select **HEALTH_SCORE**.
9. On the **Logging settings** panel, click **Next**.
10. On the **Advanced settings** panel, click **Finish**.
11. Repeat these steps for each stream you want to configure.

Chapter 8. Fix pack updates for the client components

Use the product documentation to apply fix pack updates to the IBM Predictive Maintenance and Quality client components.

IBM DB2 Client

For more information about IBM DB2 fix packs, see the DB2 Version 9.7 Fix Pack 8 for Linux, UNIX, and Windows fix pack document (<http://www.ibm.com/support/docview.wss?uid=swg24034634>).

For more information about installing IBM DB2 Connect on Windows operating systems, see the IBM DB2 documentation (pic.dhe.ibm.com/infocenter/db2luw/v9r7/index.jsp?topic=%2Fcom.ibm.db2.luw.qb.dbconn.doc%2Fdoc%2Ft0008456.html).

WebSphere Message Queue

For more information about WebSphere Message Queue fix packs on Windows operating systems, see the Readme for WebSphere MQ V7.5, Fix Pack 7.5.0.2 (www.ibm.com/support/docview.wss?uid=swg27039002).

You can download the fix pack by going to IBM Fix Central (www.ibm.com/support/fixcentral/), and searching for 7.5.0-WS-MQ-Windows-FP0001.

For more information about installing WebSphere Message Queue clients, see the WebSphere Message Queue documentation (pic.dhe.ibm.com/infocenter/wmqv7/v7r5/index.jsp?topic=%2Fcom.ibm.mq.ins.doc%2Fq009030_.htm).

WebSphere Message Broker Toolkit

For more information about installing WebSphere Message Broker Toolkit fix packs, see the WebSphere Message Broker Toolkit Version 8.0 Fix Pack 3 document (www.ibm.com/support/docview.wss?rs=849&uid=swg24035893).

IBM SPSS Collaboration and Deployment Services Deployment Manager

For more information about installing IBM SPSS Collaboration and Deployment Services Deployment Manager fix packs, see the SPSS Collaboration and Deployment Services 5.0 Fix Pack 2 document (www.ibm.com/support/docview.wss?rs=849&uid=swg24034742).

IBM SPSS Modeler

For more information about installing IBM SPSS Modeler fix packs, see the Release Notes® - IBM SPSS Modeler 15.0 Fix Pack 2 document (www.ibm.com/support/docview.wss?rs=849&uid=swg27038311).

For more information about installing IBM SPSS Modeler Premium Add-ons fix packs, see the SPSS Modeler 15.0 Fix Pack 2 - Premium Add-ons document (www.ibm.com/support/docview.wss?rs=849&uid=swg24034740).

Chapter 9. Uninstallation of the IBM Predictive Maintenance and Quality components

Follow the uninstall instructions for each of the Predictive Maintenance and Quality components to uninstall the product.

Uninstalling components from the Predictive Analytics node computer

Follow the uninstall instructions for each component on the Analytics node computer.

Procedure

1. To uninstall the IBM DB2 client, see the IBM DB2 documentation (pic.dhe.ibm.com/infocenter/db2luw/v9r7).
2. To uninstall IBM SPSS Collaboration and Deployment Services, see the IBM SPSS documentation (pic.dhe.ibm.com/infocenter/wasinfo/v8r0).
 - a. Go to the `/opt/ibm/InstallationManager/eclipse` directory, and run IBMIM.
 - b. Click **Uninstall**, and follow the steps to uninstall the product.
3. To uninstall WebSphere Application Server, see the WebSphere documentation (pic.dhe.ibm.com/infocenter/wasinfo/v8r0).
 - a. Go to the `/opt/ibm/InstallationManager/eclipse` directory, and run IBMIM.
 - b. Click **Uninstall**, and follow the steps to uninstall the product.

Note: If WebSphere Application Server processes are running and prevent you from uninstalling the product, you must stop the server process. Go to the `/opt/ibm/WebSphere/AppServer/profiles/profile_name/bin` directory, and type `./stopServer.sh server1`.

4. To uninstall IBM Installation Manager, see the IBM Installation Manager information center (pic.dhe.ibm.com/infocenter/install/v1r6).
 - a. Go to the `/var/ibm/InstallationManager/uninstall` directory, and run `uninstall`.
 - b. Follow the steps to uninstall Installation Manager.

Uninstalling components from the BI node computer

Follow the uninstall instructions for each component on the Business Intelligence (BI) node computer.

Procedure

1. To uninstall the IBM DB2 client, see the IBM DB2 documentation (pic.dhe.ibm.com/infocenter/db2luw/v9r7).
2. To uninstall IBM Cognos Business Intelligence, see the IBM Cognos BI documentation (pic.dhe.ibm.com/infocenter/cbi/v10r2m0).
 - a. Go to the `/opt/ibm/cognos/c10_64/uninstall` directory.
 - b. Type `./uninst -u`, and press Enter.
 - c. Follow the steps to uninstall the product.
3. To uninstall IBM HTTP Server, see the IBM HTTP Server for WebSphere Application Server documentation (pic.dhe.ibm.com/infocenter/wasinfo/v8r0).

- a. Go to the `/opt/ibm/InstallationManager/eclipse` directory, and run IBMIM.
 - b. Click **Uninstall**, and follow the steps to uninstall the product.
4. To uninstall WebSphere Application Server, see the WebSphere documentation (pic.dhe.ibm.com/infocenter/wasinfo/v8r0).
 - a. Go to the `/opt/ibm/InstallationManager/eclipse` directory, and run IBMIM.
 - b. Click **Uninstall**, and follow the steps to uninstall the product.

Note: If WebSphere Application Server processes are running and prevent you from uninstalling the product, you must stop the server process. Go to the `/opt/ibm/WebSphere/AppServer/profiles/profile_name/bin` directory, and type `./stopServer.sh server1`.

5. To uninstall IBM Installation Manager, see the IBM Installation Manager information center (pic.dhe.ibm.com/infocenter/install/v1r6).
 - a. Go to the `/var/ibm/InstallationManager/uninstall` directory, and run `uninstall`.
 - b. Follow the steps to uninstall Installation Manager.

Uninstalling components from the ESB node computer

Follow the uninstall instructions for each component on the Enterprise Service Bus (ESB) node computer.

Procedure

1. To uninstall WebSphere Message Broker, see the WebSphere Message Broker documentation (publib.boulder.ibm.com/infocenter/wmbhelp/v8r0m0).
2. To uninstall WebSphere Message Queue, see the WebSphere Message Queue documentation (publib.boulder.ibm.com/infocenter/wmqv6/v6r0).

Uninstalling components from the MDM node computer

Follow the uninstall instructions for each component on the Master Data Management (MDM) node computer.

Procedure

1. To uninstall the IBM DB2 client, see the IBM DB2 documentation (pic.dhe.ibm.com/infocenter/db2luw/v9r7).
2. To uninstall InfoSphere Master Data Management Server, see the IBM MDM documentation (pic.dhe.ibm.com/infocenter/mdm/v10r0m0).
 - a. Go to the `/opt/IBM/MDMPIM/_uninst` directory.
 - b. Type `./uninstall.bin`, and press Enter.
 - c. Follow the steps to uninstall the product.
3. To uninstall WebSphere Application Server, see the WebSphere documentation (pic.dhe.ibm.com/infocenter/wasinfo/v8r0).
 - a. Go to the `/opt/ibm/InstallationManager/eclipse` directory, and run IBMIM.
 - b. Click **Uninstall**, and follow the steps to uninstall the product.

Note: If WebSphere Application Server processes are running and prevent you from uninstalling the product, you must stop the server process. Go to the `/opt/ibm/WebSphere/AppServer/profiles/profile_name/bin` directory, and type `./stopServer.sh server1`.

4. To uninstall IBM Installation Manager, see the IBM Installation Manager information center (pic.dhe.ibm.com/infocenter/install/v1r6).
 - a. Go to the `/var/ibm/InstallationManager/uninstall` directory, and run `uninstall`.
 - b. Follow the steps to uninstall Installation Manager.

Uninstalling components from the Data node computer

Follow the uninstall instructions for each component on the Data node computer.

Procedure

To uninstall IBM DB2, see the IBM DB2 documentation (pic.dhe.ibm.com/infocenter/db2luw/v9r7).

Appendix A. Samples

Sample data is provided so that you can see the IBM Predictive Maintenance and Quality solution work end-to-end.

Loading the sample data

Sample data is installed as part of the IBM Predictive Maintenance and Quality server artifact installation. You can load the sample data to see an example of the Predictive Maintenance and Quality solution from end-to-end.

Procedure

1. Log in to the Enterprise Service Bus (ESB) node computer as the `mqm` user.
2. Go to the `/var/PMQ/MQSIFileInput/PMQSampleData/Sample_PMQ/MasterData-Set1` directory.
3. Copy the contents of that directory to the `/var/PMQ/MQSIFileInput/masterdatain` directory one file at a time.

WebSphere Message Broker automatically loads the files from that directory. The files are automatically removed after they are loaded.

Important: The files must be copied one at a time.

4. Go to the `/var/PMQ/MQSIFileInput/PMQSampleData/Sample_PMQ/MasterData-Set2` directory.
5. Copy the contents of that directory to the `/var/PMQ/MQSIFileInput/masterdatain` directory one file at a time.

Important: `batch_batch_upsert_sample_pmq.csv` must be loaded last.

6. Go to the `/var/PMQ/MQSIFileInput/PMQSampleData/Sample_PMQ/EventData-Set3` directory.
7. Copy the contents of that directory to the `/var/PMQ/MQSIFileInput/eventdatain` directory one file at a time.

Removing sample data

Before you load live production data in IBM Predictive Maintenance and Quality, all sample data must be removed.

This procedure deletes all the contents of the event and master data tables. Its scope is not limited to the supplied sample data and so any additional content that is loaded is also deleted.

Before you begin

If test events were loaded from the sample master data, the test events must also be removed. For more information, see the *IBM Predictive Maintenance and Quality Solution Guide*.

Procedure

1. Type the following command to connect to the **IBMPMQ** datastore:
`db2 "connect to IBMPMQ user user_name using password"`

2. Run `SampleDeletes.sql` in the location: `/opt/IBM/PMQ/Data` by using the following command:
`db2 "-tvf /opt/IBM/PMQ/Data/SampleDeletes.sql"`
3. Type the following command to commit the transaction:
`db2 "commit"`
4. Type the following command to populate the master tables with NA rows:
`db2 "call SCHEMA.POP_NA('EN' , 'English' , 'PMQ' , 'PMQ')"`
Ensure that the correct schema name is used, such as `db2inst1`
5. Type the following command to run the Calendar generation procedure:
`db2 "call SCHEMA.Calendar_pop"`
6. Type the following command to disconnect from the database:
`db2 "connect reset"`

Appendix B. Products installed with IBM Predictive Maintenance and Quality

The following products are installed with or available to be installed with Predictive Maintenance and Quality.

Server components

- IBM DB2 Enterprise Server Edition 9.7 for Linux on AMD64 and Intel EM64T systems (x64) English
- IBM DB2 9.7 Fix Pack 7 for Linux/x86-64 (64 bit), DB2 Server Fix Pack
- IBM DB2 Enterprise Server Edition 9.7 Client for Linux on AMD64 and Intel EM64T systems (x64) English
- IBM WebSphere Network Deployment 8.0 for Multiplatform, Multilingual
- IBM WebSphere Network Deployment 8.0 Fix Pack 5
- IBM WebSphere Network Deployment 8.0 Supplements Pack for Multiplatform Multilingual
- IBM Installation Manager 1.6 for Linux 64-bit Multilingual
- IBM Cognos Business Intelligence Server 10.2.0 Linux x86 Multilingual
- IBM WebSphere Message Broker V8.0.0.1 Linux x86-64 Multilingual
- IBM WebSphere Message Broker 8.0 Fix Pack 2
- IBM WebSphere Message Broker Explorer 8.0.0.2
- IBM WebSphere Message Broker ODBC Database Extender (IE02)
- IBM WebSphere Message Queue V7.5 for Linux on x86 64bit Multilingual
- IBM SPSS Collaboration and Deployment Services Server 5.0 Red Hat Enterprise Linux Multilingual
- IBM SPSS Collaboration and Deployment Services Deployment Manager 5.0 Fix pack 1
- IBM SPSS Collaboration and Deployment Services Enterprise View Driver 64-bit 5.0 Red Hat Enterprise Linux Multilingual
- IBM SPSS Collaboration and Deployment Services Web Installer for Deployment Manager 5.0 Multiplatform Multilingual
- IBM SPSS Collaboration and Deployment Services Enterprise Python Scripting 5.0 Red Hat Enterprise Linux Multilingual
- IBM SPSS Modeler Server 64-bit 15.0 Linux Multilingual
- IBM SPSS Modeler Server 64-bit 15.0 Fix Pack 1
- IBM SPSS Data Access Pack 6.1 sp3 Multiplatform English
- IBM SPSS Text Analytics Server 64-bit 15.0 Linux Multilingual
- IBM SPSS Modeler 15.0 Collaboration and Deployment Services Adapter 64-bit 5 Linux Multilingual
- IBM SPSS Modeler Collaboration and Deployment Services Adapter 15 Fix Pack 1
- IBM SPSS Decision Management 7.0 Linux Multilingual
- IBM SPSS Decision Management 7.0 Fix Pack 1
- IBM SPSS Decision Management Modeler Extension Libraries 7.0 Linux Multilingual

- IBM SPSS Decision Management Modeler Extension Libraries 7.0 Fix Pack 1
- IBM SPSS Decision Management Modeler Advantage 7.0 Linux Multilingual
- IBM SPSS Decision Management Modeler Advantage 7.0 Fix Pack 1
- IBM SPSS Decision Management Customer Applications 7.0 Linux Multilingual
- IBM SPSS Decision Management Customer Applications 7.0 Fix Pack 1
- IBM SPSS Decision Management for Claims 7.0 Linux Multilingual
- IBM SPSS Decision Management for Claims 7.0 Fix Pack 1
- IBM SPSS Statistics 21.0 Collaboration and Deployment Services Adapter 64-bit 5.0 Linux Multilingual
- IBM SPSS Statistics 21.0 Collaboration and Deployment Services Adapter 5.0 Fix Pack 1
- IBM SPSS Statistics - Essentials for Python 21.0 for Linux 64 Multilingual
- IBM SPSS Statistics Server 64-bit 21.0 Linux Multilingual
- IBM Infosphere Master Data Management Collaboration Server V10.1.0 Multiplatform Multilingual 10.1.0.0
- Quick Start Documentation - IBM Infosphere Master Data Management V10.1.0 Multiplatform Multilingual

Client and optional components

- IBM DB2 Connect Personal Edition 9.7 for Windows® on AMD64 and Intel® EM64T systems (x64) English
- IBM Cognos Framework Manager 10.2.0 Microsoft Windows Multilingual
- IBM Cognos Business Intelligence Samples 10.2.0 Multiplatform Multilingual
- IBM Cognos Supplementary Languages Documentation 10.2.0 Multiplatform Multilingual
- IBM Cognos Dynamic Query Analyzer 10.2.0 Multiplatform Multilingual
- IBM Cognos for Microsoft Office 10.1.1 for Business Intelligence 10.2.0 Microsoft Windows Multilingual
- IBM Cognos Lifecycle Manager 10.2.0 Microsoft Windows English
- IBM Cognos Mobile 10.2.0 Multiplatform Multilingual
- IBM Cognos Real-time Monitoring 10.2.0 Multiplatform Multilingual
- IBM Cognos Software Development Kit 10.2.0 Multiplatform English
- IBM SPSS Collaboration and Deployment Services Deployment Manager 64-bit 5.0 Microsoft Windows Multilingual
- IBM SPSS Collaboration and Deployment Services Documentation 5.0 Multilingual
- IBM SPSS Modeler Client 64-bit 15.0 Microsoft Windows Multilingual
- IBM SPSS Text Analytics Client 64-bit 15.0 Microsoft Windows Multilingual
- IBM SPSS Modeler Client Documentation 15.0 Multilingual
- IBM SPSS Decision Management Documentation 7.0
- IBM SPSS Statistics Client 64-bit 21.0 Microsoft Windows Multilingual
- IBM SPSS Statistics Client/Developer Installation Documentation 21.0 Multilingual
- IBM Message Broker Toolkit V8.0.0.1 Windows 1 Multilingual
- IBM Message Broker Toolkit Fix Pack 2
- IBM Installation Manager V1.6.0 for Windows Multilingual
- IBM WebSphere MQ V7.5 for Windows Multilingual

Appendix C. Troubleshooting

This section contains troubleshooting information for the IBM Predictive Maintenance and Quality installation.

Log in as root rather than su or sudo

To run the IBM Predictive Maintenance and Quality installation, you must log in to the computer from where you run the installation as **root**. Using **su root** or **sudo** to run the installer is not supported in this version.

Browser not supported for the Launchpad

You must have a Firefox, version 10 or earlier, or SeaMonkey, version 2.9 or earlier, web browser that is installed and set as your default web browser on the computer from where you run the IBM Predictive Maintenance and Quality installation. If you have another browser that is set as your default and want to keep your existing default browser, you can temporarily use a supported browser for the installation.

Procedure

1. On the computer from where you run the installation, download a supported web browser. For example, download Firefox version 10.
2. Uncompress the downloaded file if necessary.
3. In a terminal window, type the following command:
`export BROWSER=/path_to_supported_browser`
4. Then, start the Launchpad by typing the following command:
`./launchpad.sh`
The Launchpad should appear in the supported browser.

Installer does not launch

If the IBM Predictive Maintenance and Quality installer does not launch, ensure that you have completed all of the prerequisite tasks and installed all of the required rpm packages.

Test Connections validation errors

If you click the **Test Connections** button in the IBM Predictive Maintenance and Quality installer and you receive an error, use the following tips to verify communication between the **Deployment Wizard** and the target computer.

- Ensure that you entered a valid host name or IP address.
- Ensure that you can ping the target computer from the computer where you are running the installation.
- Ensure that all of your computers have valid entries in the `/etc/hosts` file.

For example, ensure that your hosts file that resemble the following:

```
127.0.0.1 localhost.localdomain localhost
##.##.##.## myserver.domain.com myserver
```

- Ensure that your firewall is disabled or that the ports required for the **Deployment Wizard** are open on all computers.

Viewing log files

Log files for the IBM Predictive Maintenance and Quality installation can be displayed in the **Deployment Wizard**.

Procedure

1. To view log files in the **Deployment Wizard**, select the message, and click **Detailed messages** or **Master log**.
2. If you clicked **Detailed messages**, select a message, and click **View Details**.

Temporary file locations

Temporary files are created during the IBM Predictive Maintenance and Quality installation. You can find the location for the temporary files from the **Deployment Wizard**.

Procedure

In the **Deployment Wizard**, click **Edit > Preferences**.

The path to the location for the temporary files is shown in the **Path** box.

Ensuring connectivity between the Analytics node and the Data node computers

In IBM Predictive Maintenance and Quality, if the task for configuring the IBM SPSS Collaboration and Deployment Services displays a database initialization error, you may have to run the `tracert` command to ensure communication between the Predictive Analytics node and the Data node.

Procedure

1. On the Analytics node computer, enter the following command:

```
tracert data_node_name
```

Where *data_node_name* is the name or IP address of the Data node computer.
2. Try the task again.

Modeler Server type not displaying in resource definitions

In IBM Predictive Maintenance and Quality, if the **Modeler Server** type does not display in resource definitions in IBM SPSS Collaboration and Deployment Services Deployment Manager, try closing Deployment Manager and opening it again.

Unable to import the company archive in MDM

If you cannot import the IBM Predictive Maintenance and Quality company archive in the Master Data Management (MDM) console, you can manually import the archive.

Procedure

1. Log in to the MDM node computer as **root**.

2. Copy the IBMPMQ.zip file from /opt/IBM/PMQ/MDM_version directory to the /opt/IBM/PMQ directory.
3. Enter the following command:


```
$TOP/bin/importCompanyFromZip.sh --company_code=IBMPMQ
--zipfile_path=/opt/IBM/PMQ/IBMPMQ.zip
```

Error installing IBM Cognos BI in IBM Predictive Maintenance and Quality

The IBM Cognos Business Intelligence installer requires a specific library file in order to run.

For information about the problem and the resolution, see the IBM support page (<http://www.ibm.com/support/docview.wss?uid=swg21612290>).

Administration tool and product portal reference

The administrative tools and portals for IBM Predictive Maintenance and Quality are located in several locations.

Access information for the tools and portals is provided in the following table.

Table 21. Administration tool and product portal reference

Administration tool or portal and description	URL or location
<p>WebSphere Integrated Solutions Console</p> <p>The WebSphere Integrated Solutions Console is the administration tool for WebSphere.</p> <p>The WebSphere Integrated Solutions Console is running on each node computer where WebSphere is installed.</p> <p>Use the console to start and stop applications.</p>	<p>http://server_node_name:9060/ibm/console</p> <p>Where <i>server_node_name</i> is the name or IP address of a node computer where WebSphere is installed.</p> <p>Leave the User ID box blank.</p>
<p>IBM Cognos Configuration</p> <p>Use IBM Cognos Configuration to configure settings for IBM Cognos Business Intelligence.</p>	<p>/opt/IBM/cognos/c10_64/bin64/cogconfig.sh</p> <p>IBM Cognos Configuration is installed on the Business Intelligence (BI) node computer.</p>
<p>IBM Cognos Connection</p> <p>Use IBM Cognos Connection to access reports.</p> <p>IBM Cognos Administration</p> <p>Use IBM Cognos Administration to configure IBM Cognos BI, such as add data source connections and set security.</p>	<p>http://bi_node_name/ibmcognos</p> <p>Where <i>bi_node_name</i> is the name or IP address of BI node computer.</p>

Table 21. Administration tool and product portal reference (continued)

Administration tool or portal and description	URL or location
<p>IBM SPSS Collaboration and Deployment Services Deployment Manager</p> <p>Use IBM SPSS Collaboration and Deployment Services Deployment Manager to configure IBM SPSS server settings.</p>	<p><code>http://analytics_node_name:9080/config</code></p> <p>Where <i>analytics_node_name</i> is the name or IP address of Predictive Analytics node computer.</p> <p>The default user name is admin.</p> <p>The default password is admin.</p>
<p>IBM InfoSphere Master Data Management Collaboration Server</p>	<p><code>http://mdm_node_name:7507</code></p> <p>Where <i>mdm_node_name</i> is the name or IP address of Master Data Management (MDM) node computer.</p> <p>The default user name is Admin. This value is case sensitive.</p> <p>The default password is trinitron. This value is case sensitive.</p> <p>You must also enter a company name. The default company name is IBMPMQ.</p>

Troubleshooting reports

Reports in IBM Predictive Maintenance and Quality are created in IBM Cognos Report Studio. You may encounter problems when using some of the reports included with IBM Predictive Maintenance and Quality.

For further information about troubleshooting reports, see the *IBM Cognos Business Intelligence Troubleshooting Guide*, and the *IBM Cognos Report Studio User Guide*. This is available from the web Cognos Business Intelligence documentation (<http://pic.dhe.ibm.com/infocenter/cbi/v10r2m0/index.jsp>).

Slow response times for running the IBM Cognos Business Intelligence reports

In some circumstances, you can experience slow response times for IBM Cognos reports in the IBM Predictive Maintenance and Quality environment, particularly for the Site overview reports. Slow response times happen when the DB2 database contains large volumes of data, for example, if the EVENT OBSERVATION table contains more than 3 million records.

About this task

To improve response times, create database indexes, and run **runstats** on the indexes. You can get recommendations for the most appropriate actions to take by running the **db2adviz** command (DB2 Design Adviser).

Procedure

1. Create the EXPLAIN table with the following command: `db2 -tvf ~/sql1lib/misc/EXPLAIN.DDL`

2. Bind the following files that are found in the `sqllib/bnd` folder in the home directory of the db2 user:

```
db2 bind db2advis.bnd blocking all grant public
db2 bind db2advworkload.bnd blocking all sqlerror continue grant public
db2 bind db2advworkload.bnd blocking all sqlerror continue grant public
db2 bind db2advis.bnd blocking all grant public
```

3. Run the **db2advis** command to get the recommendation by using the following command:

```
db2advis -d <database name> -s "<sql of the Cognos report>" >recommendation.txt
```

Where

-d <database-name>

Specifies the name of the database to which a connection is to be established.

-s "<sql of the Cognos report>"

Specifies the text of a single SQL statement to be assessed and have indexes that are suggested by the DB2 Design Advisor. The statement must be enclosed by double quotation marks.

What to do next

For more information, see the IBM DB2 documentation on the web: <http://pic.dhe.ibm.com/infocenter/db2luw/v9r7/index.jsp> (<http://pic.dhe.ibm.com/infocenter/db2luw/v9r7/index.jsp>) and search for **db2advis**.

Correcting issues in the Site Overview dashboard

The health score in the Overview report, and the Contributors reports may have blank values.

Procedure

1. In IBM Cognos Connection, open the **Site overview** dashboard from Public Folder > IBMPMQ.
2. Open **Query Explorer**.
3. Right-click in the **Query Explorer** and select **Manage Queries**.
4. Right-click **Overview**, select **Copy**, then right-click and select **Paste** three times.
5. Rename the queries by right-clicking each one and clicking **Rename Query**. Rename them as follows:
 - "Overview1" to "HS For Day"
 - "Overview2" to "HS For Resource"
 - "Overview3" to "RC For Day"
6. Customize the queries listed in the following table:

Table 22. Customizing queries in the Site Overview dashboard

Query	Actions
HS For Day	<ol style="list-style-type: none"> 1. Double-click HS For Day and remove all of the data items, except for the following: <ul style="list-style-type: none"> • Date • Calendar Date • Health Score 2. Open the Location ID from the Detail filters section and delete [Location ID] from the Filter Expression window. 3. Drag the Location ID from the Location dimension into the Resource KPI namespace in the Available Components pane. The resulting expression is: [Resource KPI].[Location].[Location].[Location]. [Location ID] = ?Location? 4. Open the Resource Sub Type from the Detail filters section, and delete [Resource Sub Type] from the filter expression window under the Expression pane. 5. Drag the Resource Sub Type from the Resource dimension into the Resource KPI namespace in the Available Components pane. The resulting expression is: [Resource KPI].[Resource].[Resource].[Resource]. [Resource Sub Type] = ?EquipmentType? 6. Drag the Health Score data item to the Detail Filters section. 7. Add the following expression: [Health Score] is not null
HS For Resource	<ol style="list-style-type: none"> 1. Double-click HS For Resource and remove all of the data items, except for the following: <ul style="list-style-type: none"> • Resource • Date • Calendar Date • Health Score 2. Open the Location ID from the Detail filters section and delete [Location ID] from the filter Expression window. 3. Drag the Location ID from the Location dimension into the Resource KPI namespace in the Available Components pane. The resulting expression is: [Resource KPI].[Location].[Location].[Location]. [Location ID] = ?Location? 4. Open the Resource Sub Type from the Detail filters section, and delete [Resource Sub Type] from the filter expression window under the Expression pane. 5. Drag the Resource Sub Type from the Resource dimension into the Resource KPI namespace in the Available Components pane. The resulting expression is: [Resource KPI].[Resource].[Resource].[Resource]. [Resource Sub Type] = ?EquipmentType? 6. Drag the Incident Count data item to the Detail filters section. 7. Add the following expression: [Health Score] is not null

Table 22. Customizing queries in the Site Overview dashboard (continued)

Query	Actions
RC For Day	<ol style="list-style-type: none"> 1. Double-click RC For Day and remove all of the data items, except for the following: <ul style="list-style-type: none"> • Date • Calendar Date • Incident Count • Recommendation Count 2. Open the Location ID from the Detail filters section and delete [Location ID] from the Filter Expression window. 3. Drag the Location ID from the Location dimension into the Resource KPI namespace in the Available Components pane. The resulting expression is: [Resource KPI].[Location].[Location].[Location]. [Location ID] = ?Location? 4. Open the Resource Sub Type from the Detail filters section, and delete [Resource Sub Type] from the Filter Expression window under the Expression pane. 5. Drag the Resource Sub Type from the Resource dimension into the Resource KPI namespace in the Available Components pane. The resulting expression is: [Resource KPI].[Resource].[Resource].[Resource]. [Resource Sub Type] = ?EquipmentType? 6. Drag the Incident Count data item to the Detail filters section. 7. Add the following expressions: ([Incident Count] is not null)and([Recommendation Count] is not null)

7. Modify the properties for the HS for Day query:
 - Open **Page Explorer**, and open the report page "Page1".
 - Select the conditional block, which is at the bottom of the report page body, above the page footer. In the **Properties** pane of the **Conditional Block**, under the **Conditional** section, change the **Current Block** value to 4. This shows the Overview Charts in the report page body.
 - Click the first bar chart, and in the chart **Properties** window, under Data, change the **Query** value to HS For Day
 - Select the conditional block, which is below the bar chart, and in the **Properties** pane change the **Current Block** value to Yes. This shows the list report.
 - Select the **List** report.
 - Select the conditional block by clicking the outside of the list. Change the **Current Block** value to No in the **Properties** pane to hide the List report.
8. Modify the properties for the HS For Resource query:
 - Click the second bar chart, and in the chart **Properties** window, under Data, change the **Query** value to HS For Resource.
 - Select the conditional block, which is below the bar chart, and in the **Properties** pane change the **Current Block** value to Yes. This shows the **List** report.
 - Select the **List** report.

- In the **Properties** pane, in the Data section, change the Query value to HS For Resource
 - Select the conditional block by clicking the outside of the list. Change the **Current Block** value to No in the **Properties** pane to hide the List report.
9. Modify the properties for the RC For Day query:
 - Click the third bar chart, and in the chart **Properties** window, under Data, change the **Query** value to RC For Day
 - Select the conditional block, which is below the bar chart, and in the **Properties** pane change the **Current Block** value to Yes. This shows the list report.
 - Select the **List** report.
 - In the **Properties** pane, in the Data section, change the Query value to RC For Day
 - Select the conditional block by clicking the outside of the list. Change the **Current Block** value to No in the **Properties** pane to hide the List report.
 10. Save the changes and run the report.

Correcting drill-down issues in the Site overview dashboard

The Site overview dashboard sticks on the drill-down option. Drill-up is intermittently disabled during this process.

Procedure

1. In IBM Cognos Connection, open the **Site overview** dashboard from Public Folder > IBMPMQ.
2. Open **Query Explorer** and double-click **Query KPI** to see the list of member sets type, and data items type.
3. Rename the Month member set type to Months.
4. From the **Toolbox**, create a new data item named **Month** with following expression:


```
#prompt('vDate', 'token', '[Resource KPI].[Calendar].[Year].[Month]')#
```
5. Open **Page Explorer** and open the report page named **Page1**.
6. Select the **Conditional Block**, which is at the bottom of the report page body, above the page footer.
7. In the **Properties** pane of the **Conditional Block**, under the **Conditional** section, change the **Current Block** value to 6. This value displays the KPI trend chart in the report page body.
8. From the **Toolbox**, add a Value prompt to the KPI Trend chart, select **Use existing parameter**, and the **vDate** parameter from the list, and click **Finish**.
9. Select the **Value** prompt, and in the **Properties** pane, add the following expression to the **Static Choices** value:


```
[Resource KPI].[Calendar].[Year].[Month]
```
10. In the **General** section of the **Properties** pane, set **Required** to **Yes**, and set **Auto Submit** to **Yes**.
11. Add the following expression to the **Default Selections** property:


```
[Resource KPI].[Calendar].[Year].[Month]
```
12. Hide the prompt so that it is not displayed to the user. In the **Positioning** section of the **Properties** pane, set the **Visible** property to **No**.
13. Replace the **Months** data item with **Month** in a KPI chart at the X – axis.
14. Save the changes and run the report.

Correcting drill-up issues in the Product quality dashboard

Drill-up does not work correctly in the **Product quality** dashboard. To correct this problem, follow these steps.

Procedure

1. In IBM Cognos Connection, open the **Product quality dashboard** from **Public Folder > IBMPMQ**.
2. Open **Query Explorer** and select the query **Material by process** to see the list of data items.
3. From the **Toolbox**, add a data item named **Process** with the following expression:

```
#prompt('ProcessHide','token','[Material Profile].[Process Hierarchy].[Process Hierarchy].[Level 1 Process]')#
```
4. Add another data item named **Material Type**. Ensure that there is a double space between **Material** and **Type**. Add the following expression:

```
#prompt('MaterialTypeHide', 'token','[Material Profile].[Materials].[Material By Type].[Material Type]')#
```
5. Open **Page Explorer** and open the report page "Page1".
6. Select the **Conditional Block** which is at the bottom of the report page body, above the page footer.
7. In the **Properties** pane of the **Conditional Block**, under the **Conditional** section, change the **Current Block** value to 2. This value displays the **Material Usage By Process** report in the report page body.
8. From the **Toolbox**, add a **Value prompt** to the **Material Usage By Process** report. Select the **Use existing parameter** option, select the **Process Hide** parameter from the list, and click **Finish**.
9. Select the **Value prompt**, and in the **Properties** pane, add the following expression to the **Static Choices** value:

```
[Material Profile].[Process Hierarchy].[Process Hierarchy].[Level 1 Process]
```
10. In the **General** section of the **Properties** pane, set **Required** to **Yes**, and set **Auto Submit** to **Yes**.
11. Add the following expression to the **Default Selections** property:

```
[Material Profile].[Process Hierarchy].[Process Hierarchy].[Level 1 Process]
```
12. From the **Toolbox**, add another **Value prompt** to the **Material Usage By Process** report. Select the **Use existing parameter** option, select the **MaterialTypeHide** parameter from the list, and click **Finish**.
13. Select the **Value prompt**, and in the **Properties** pane, add the following expression to the **Static Choices** value:

```
[Material Profile].[Materials].[Material By Type].[Material Type]
```
14. In the **General** section of the **Properties** pane, set **Required** to **Yes**, and set **Auto Submit** to **Yes**.
15. Add the following expression to the **Default Selections** property:

```
[Material Profile].[Materials].[Material By Type].[Material Type]
```
16. Hide the prompt so that it is not displayed to the user. In the **Positioning** section of the **Prompt Properties** pane, set the **Visible** property to **No**.
17. Save the changes and run the report.

Correcting drill-up issues in the Material usage by production batch report

Drill-up does not work correctly in the Material usage by production batch report. Follow these steps to correct this issue:

Procedure

1. In IBM Cognos Connection, open the **Material usage by production batch** report from Public Folder > IBMPMQ.
2. Open **Query Explorer** and select the query **Query_measure_count_by_product_and_material** to see the list of data items for the query.
3. From the **Toolbox**, add a new data item named **Material Type**. Ensure that there is a double space between Material and Type. Add the following expression:

```
#prompt('MaterialTypeHide', 'token', '[Material Profile].[Materials].  
[Material By Type].[Material Type]')#
```
4. Open **Page Explorer** and open the report page named "Page1"
5. From the **Toolbox**, add a **Value prompt** to the **Material usage by production batch** report. Select the **Use existing parameter** option, select the **MaterialTypeHide** parameter from the list, and click **Finish**.
6. Select the **Value prompt**, and in the **Properties** pane, add the following expression to the **Static Choices** value:

```
[Material Profile].[Materials].[Material By Type].[Material Type]
```
7. In the **General** section of the **Properties** pane, set **Required** to **Yes**, and set **Auto Submit** to **Yes**.
8. Add the following expression to the **Default Selections** property:

```
[Material Profile].[Materials].[Material By Type].[Material Type]
```
9. Hide the prompt so that it is not displayed to the end user. In the **Positioning** section of the **Properties** pane, set the **Visible** property to **No**.
10. Save the changes and run the report.

Correcting the logo in Predictive Maintenance and Quality sample reports

The IBM logo in IBM Predictive Maintenance and Quality sample reports does not display correctly. Correct this problem by copying the image to the Image folder in the Installation directory.

Before you begin

You must first install the IBM Cognos Business Intelligence artifacts for IBM Predictive Maintenance and Quality version 1 fix pack 1. For more information, see the *IBM Predictive Maintenance and Quality Installation Guide*, and search for "Updating the IBM Cognos BI artifacts for Fix Pack 1".

Procedure

1. Create a folder named Images under /opt/ibm/cognos/c10_64/webcontent/.

Note: Images must have an uppercase I.

2. Copy the IBM_logo_header.png file from /opt/IBM/PMQ/<BI time stamp>/Reports/ and save it to /opt/ibm/cognos/c10_64/webcontent/Images.

3. On the Cognos server, open the **Reusable Object Library** report from **Public Folder, IBMPMQ**.
4. Click the image item.
5. Under **Image Property, URL Source**, click the URL property to set the image URL.
6. Replace the existing path with this one: `../Images/IBM_logo_header.png`
7. Click **OK**, and save the report

What to do next

Run any report from **Public Folder, IBMPMQ** to verify that the IBM logo displays correctly.

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