

IBM Predictive Customer Intelligence  
Version 1.1.1

*IBM Predictive Customer Intelligence  
Installation Guide*



**Note**

Before using this information and the product it supports, read the information in "Notices" on page 115.

**Product Information**

This document applies to IBM Predictive Customer Intelligence Version 1.1.1 and may also apply to subsequent releases.

Licensed Materials - Property of IBM

© **Copyright IBM Corporation 2014, 2016.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

---

# Contents

|  |            |
|--|------------|
| <b>Introduction</b> . . . . .  | <b>vii</b> |
| <b>What's new?</b> . . . . .   | <b>ix</b>  |
| <b>Chapter 1. Prerequisites and installation preparation</b> . . . . .                                       | <b>1</b>   |
| Solution architecture . . . . .  | 1          |
| Supported operating systems and hardware requirements . . . . .  | 3          |
| Installing required operating system packages on the CA node computer . . . . .                              | 4          |
| Installing required operating system packages on the Integration Bus node computer . . . . .                 | 5          |
| Setting ulimit values on the node computers. . . . .   | 6          |
| Prerequisites for using the solution installer . . . . .   | 6          |
| Creating directories for the solution installer. . . . .   | 6          |
| Adding each node computer to the hosts file on all computers . . . . .                                       | 7          |
| Modifying the sudoers file for the user who runs the installation . . . . .                                  | 7          |
| Synchronizing the time on each Linux node computer . . . . .   | 7          |
| Prerequisites for Redhat Enterprise Linux 7 . . . . .  | 7          |
| Creating directories . . . . .   | 8          |
| Disabling the firewall . . . . .   | 8          |
| <b>Chapter 2. Upgrading from IBM Predictive Customer Intelligence Version 1.1 to Version 1.1.1</b> . . . . . | <b>9</b>   |
| Upgrading your BI Node to IBM Cognos Analytics 11 . . . . .  | 9          |
| Upgrading server software on Microsoft Windows operating systems . . . . .                                   | 9          |
| Upgrading server software on Linux operating systems . . . . .   | 9          |
| Upgrading client software on Microsoft Windows operating systems . . . . .                                   | 10         |
| <b>Chapter 3. Install IBM Predictive Customer Intelligence by using the solution installer</b> . . . . .     | <b>11</b>  |
| Downloading and decompressing the installation files . . . . .   | 12         |
| Opening firewall ports for the solution installer . . . . .  | 12         |
| Starting the solution installer . . . . .  | 13         |
| Using the solution installer . . . . .   | 14         |
| Configuration properties for the solution installer . . . . .  | 18         |
| Saving and opening configurations . . . . .  | 21         |
| Using predefined configurations . . . . .  | 22         |
| Starting the installation . . . . .  | 23         |
| Computer firewall settings for the server components after installation . . . . .                            | 23         |
| Opening the firewall ports for a single node configuration. . . . .  | 23         |
| Configuring your firewall settings for the Predictive Analytics node computer . . . . .                      | 24         |
| Configuring your firewall settings for the CA node computer . . . . .  | 25         |
| Configuring your firewall settings for the Integration Bus node computer . . . . .                           | 26         |
| Configuring your firewall settings for the data node computer . . . . .                                      | 27         |
| Configure the server components and test the installation . . . . .  | 27         |
| Testing the database installation and configuration . . . . .  | 27         |
| Configuring IBM Cognos Analytics on a single node installation . . . . .                                     | 28         |
| Configuring IBM HTTP Server for IBM Cognos Analytics . . . . .   | 28         |
| Configure the Integration Bus node components . . . . .  | 29         |
| Testing the installation of the server components on a single node installation . . . . .                    | 30         |
| <b>Chapter 4. Manually install IBM Predictive Customer Intelligence</b> . . . . .                            | <b>33</b>  |
| Downloading and decompressing the installation files . . . . .   | 33         |
| Install IBM DB2 software on the data node computer . . . . .   | 33         |
| Installing IBM DB2 Enterprise Server . . . . .   | 33         |
| Adding the IBM DB2 license. . . . .  | 34         |
| Creating a database for the SPSS components . . . . .  | 35         |

|  |           |
|--|-----------|
| Install software on the Predictive Analytics node computer . . . . .                                       | 36        |
| Installing IBM DB2 client software on the Predictive Analytics node computer . . . . .                     | 36        |
| Installing IBM Installation Manager on the Predictive Analytics node computer . . . . .                    | 36        |
| Installing WebSphere Application Server on the Predictive Analytics node computer . . . . .                | 37        |
| Installing IBM SPSS Collaboration and Deployment Services Server . . . . .                                 | 38        |
| Installing IBM SPSS Enterprise View Driver software . . . . .  | 39        |
| Installing IBM SPSS Modeler Server software . . . . .  | 40        |
| Installing IBM SPSS Modeler Premium Server software. . . . .   | 40        |
| Installing IBM SPSS Modeler adapters for Collaboration and Deployment Services . . . . .                   | 41        |
| Installing IBM Analytical Decision Management software . . . . .   | 41        |
| Installing IBM SPSS Data Access Pack . . . . .   | 42        |
| Installing IBM SPSS Statistics Server software . . . . .   | 43        |
| Installing IBM SPSS Statistics Collaboration and Deployment Services adapters. . . . .                     | 43        |
| Install software on the Cognos Analytics node computer . . . . .   | 44        |
| Installing IBM DB2 client software on the CA node computer . . . . .                                       | 44        |
| Installing IBM Cognos Analytics . . . . .  | 45        |
| Configure and start IBM Cognos Analytics . . . . .   | 45        |
| Install software on the Integration Bus node computer . . . . .  | 48        |
| Installing IBM DB2 client software on the Integration Bus node computer . . . . .                          | 48        |
| Installing IBM MQ . . . . .  | 49        |
| Installing IBM Integration Bus . . . . .   | 50        |
| Computer firewall settings for the server components after installation . . . . .                          | 52        |
| Configuring your firewall settings for the Predictive Analytics node computer . . . . .                    | 52        |
| Configuring your firewall settings for the CA node computer . . . . .                                      | 53        |
| Configuring your firewall settings for the Integration Bus node computer . . . . .                         | 54        |
| Configuring your firewall settings for the data node computer . . . . .                                    | 55        |
| <br>   |           |
| <b>Chapter 5. Client component installation . . . . .</b>  | <b>57</b> |
| Client components . . . . .  | 57        |
| Downloading and decompressing the client installation files . . . . .                                      | 58        |
| Installing IBM SPSS Collaboration and Deployment Services Deployment Manager . . . . .                     | 58        |
| Adding server connections for IBM SPSS Collaboration and Deployment Services . . . . .                     | 59        |
| Adding users and groups and server definitions to IBM SPSS Collaboration and Deployment Services . . . . . | 60        |
| Installing IBM SPSS Modeler Client . . . . .   | 61        |
| Installing IBM SPSS Modeler Premium Client . . . . .   | 61        |
| Installing the Integration Bus client . . . . .  | 62        |
| Installing Framework Manager for IBM Predictive Customer Intelligence. . . . .                             | 62        |
| <br>   |           |
| <b>Chapter 6. Updating SPSS Modeler . . . . .</b>  | <b>63</b> |
| Updating components to SPSS Modeler . . . . .  | 63        |
| <br>   |           |
| <b>Chapter 7. Artifacts installation . . . . .</b>   | <b>65</b> |
| Downloading and decompressing the artifact installation files . . . . .                                    | 65        |
| Integration with Next Best Action Optimizer . . . . .  | 65        |
| Configuring the Next Best Action Optimizer connectors . . . . .  | 66        |
| Open NBAOPT Studio from IBM SPSS Modeler . . . . .   | 66        |
| Generating streams from PMML files. . . . .  | 67        |
| Configuring the IBM SPSS stream . . . . .  | 69        |
| Integration with the IBM Enterprise Marketing Management suite . . . . .                                   | 69        |
| Configuring the Enterprise Marketing Management connectors . . . . .                                       | 70        |
| IBM Interact connectors . . . . .  | 70        |
| The External Learning connector . . . . .  | 70        |
| Configuring the External Learning connector configuration file . . . . .                                   | 71        |
| The External Callout connector . . . . .   | 74        |
| Troubleshooting EMM connector deployments. . . . .   | 77        |
| Configure the Analytic Solution Foundation . . . . .   | 77        |
| Creating the Analytic Solution Foundation database and loading the data . . . . .                          | 78        |
| Installing IBM Installation Manager for the Analytic Solution Foundation . . . . .                         | 78        |
| Installing IBM WebSphere SDK Java Technology Edition for Analytic Solution Foundation . . . . .            | 79        |
| Configuring IBM WebSphere SDK Java Technology Edition for Analytic Solution Foundation . . . . .           | 79        |

|  |            |
|--|------------|
| Installing the Analytic Solution Foundation web application . . . . .  | 80         |
| <b>Chapter 8. Product license files . . . . .</b>  | <b>81</b>  |
| Copying the component license files to each component computer . . . . .                                       | 81         |
| Updating your software tag file if you change product usage. . . . .   | 82         |
| <b>Chapter 9. Use accelerators and industry customer intelligence solutions. . . . .</b>                       | <b>83</b>  |
| Downloading and installing accelerators. . . . .   | 83         |
| Downloading and installing industry customer intelligence solutions . . . . .                                  | 83         |
| <b>Chapter 10. Stop and start solution software services . . . . .</b>   | <b>85</b>  |
| Stop solution services . . . . .   | 85         |
| Stopping services on the CA node computer . . . . .  | 85         |
| Stopping services on the Integration Bus node computer . . . . .   | 85         |
| Stopping services on the Predictive Analytics node computer. . . . .   | 86         |
| Stopping services on the data node computer . . . . .  | 86         |
| Start solution services . . . . .  | 87         |
| Starting services on the data node computer . . . . .  | 87         |
| Starting services on the Predictive Analytics node computer . . . . .  | 87         |
| Starting services on the Integration Bus node computer. . . . .  | 88         |
| Starting services on the CA node computer. . . . .   | 88         |
| <b>Chapter 11. Uninstallation of the server components . . . . .</b>   | <b>91</b>  |
| Uninstalling components from the Predictive Analytics node computer . . . . .                                  | 91         |
| Uninstalling components from the CA node computer . . . . .  | 91         |
| Uninstalling components from the Integration Bus node computer . . . . .                                       | 92         |
| Uninstalling components from the data node computer. . . . .   | 93         |
| Uninstalling the solution installer . . . . .  | 93         |
| <b>Appendix A. Accessibility features. . . . .</b>   | <b>95</b>  |
| <b>Appendix B. Troubleshooting . . . . .</b>   | <b>97</b>  |
| Troubleshooting a problem . . . . .  | 97         |
| Troubleshooting resources . . . . .  | 97         |
| Browser window closes while you are running an installation from the solution installer . . . . .              | 99         |
| Solution installer error "Deployment failed by the error occurred due to => FATAL;". . . . .                   | 99         |
| Solution installer error "There is no connection to the server" . . . . .                                      | 100        |
| Modeler Server type not displaying in resource definitions . . . . .   | 100        |
| "The port 9683 is already in use" error when you run the solution installer after you reinstalled it . . . . . | 100        |
| <b>Appendix C. Troubleshooting IBM Cognos Business Intelligence 10.2.x . . . . .</b>                           | <b>101</b> |
| Error installing IBM Cognos BI . . . . .   | 101        |
| Saving IBM Cognos BI report files to local file system. . . . .  | 101        |
| <b>Appendix D. Supporting programs licensed with IBM Predictive Customer Intelligence</b>                      |            |
| <b>1.1.1 . . . . .</b>   | <b>103</b> |
| <b>Appendix E. Programs not authorized by the IBM Predictive Customer Intelligence</b>                         |            |
| <b>1.1.1 license . . . . .</b>   | <b>105</b> |
| <b>Appendix F. Deprecated components for PCI 1.1 . . . . .</b>   | <b>109</b> |
| <b>Appendix G. Performance tuning for IBM Predictive Customer Intelligence . . . . .</b>                       | <b>111</b> |
| Tune WebSphere Application Server for IBM Predictive Customer Intelligence. . . . .                            | 111        |
| JVM tuning . . . . .   | 111        |
| Thread pools . . . . .   | 111        |
| Web container configuration . . . . .  | 112        |
| Logging and performance monitoring . . . . .   | 113        |

|  |            |
|--|------------|
| Tune IBM Unica for IBM Predictive Customer Intelligence . . . . .            | 113        |
| Java Serialization API rather than SOAP API . . . . .                        | 113        |
| Threads for interactive flowcharts . . . . .                                 | 113        |
| Tuning IBM Cognos BI 10.x for IBM Predictive Customer Intelligence . . . . . | 113        |
| <b>Notices . . . . .</b>   | <b>115</b> |

---

## Introduction

IBM® Predictive Customer Intelligence gives you the information and insight that you need to provide proactive service to your customers. The information can help you to develop a consistent customer contact strategy and improve your relationship with your customers.

IBM Predictive Customer Intelligence brings together, in a single solution, the ability to do the following tasks:

- Determine the best offer for a customer.
- Retain customers that are likely to churn.
- Segment your customers, for example, by family status and salary.
- Identify the most appropriate channel to deliver an offer, for example, by email, telephone call, or application.

This solution ensures that all interactions with customers are coordinated and optimized. IBM Predictive Customer Intelligence gives you the ability to sift quickly through millions of customers and know who to contact, when, and with what action.

The following steps define the process:

1. Understand the customer. Predictive modeling helps you to understand what market segments each customer falls into, what products they are interested in, and what offers they are most likely to respond to.
2. Define possible actions and the rules and models that determine which customers are eligible for which offers.
3. After the best action is identified, deliver the recommendation to the customer.

### Audience

This guide is intended to provide users with an understanding of how the IBM Predictive Customer Intelligence solution works. It is designed to help people who are planning to implement IBM Predictive Customer Intelligence know what tasks are involved.

### Finding information

To find product documentation on the web, including all translated documentation, access IBM Knowledge Center ([www.ibm.com/support/knowledgecenter/SSCJHT\\_1.1.1](http://www.ibm.com/support/knowledgecenter/SSCJHT_1.1.1)).

PDF versions of the documents are available from the Predictive Customer Intelligence version 1.1.1 product documentation page ([www.ibm.com/support/docview.wss?uid=swg27048306](http://www.ibm.com/support/docview.wss?uid=swg27048306)).

### 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 Customer Intelligence have accessibility features.

IBM Predictive Customer Intelligence 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.

### **Samples disclaimer**

Sample files may contain fictional data manually or machine generated, factual data compiled from academic or public sources, or data used with permission of the copyright holder, for use as sample data to develop sample applications. Product names referenced may be the trademarks of their respective owners. Unauthorized duplication is prohibited.



---

## What's new?

The following feature is available in IBM Predictive Customer Intelligence version 1.1.1.

### **IBM Cognos Analytics 11.0.2**

IBM Cognos Analytics 11.0.2 is available for installation and replaces IBM Cognos Business Intelligence 10.2.2. It is available for all supported platforms and is installed by default if using the Solution Installer on Linux Redhat.

For more information, see Chapter 3, “Install IBM Predictive Customer Intelligence by using the solution installer,” on page 11.



---

## Chapter 1. Prerequisites and installation preparation

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

On Linux operating systems, you must also install additional prerequisite software on some computers, including the Cognos Analytics (CA) node and the Integration Bus node computers.

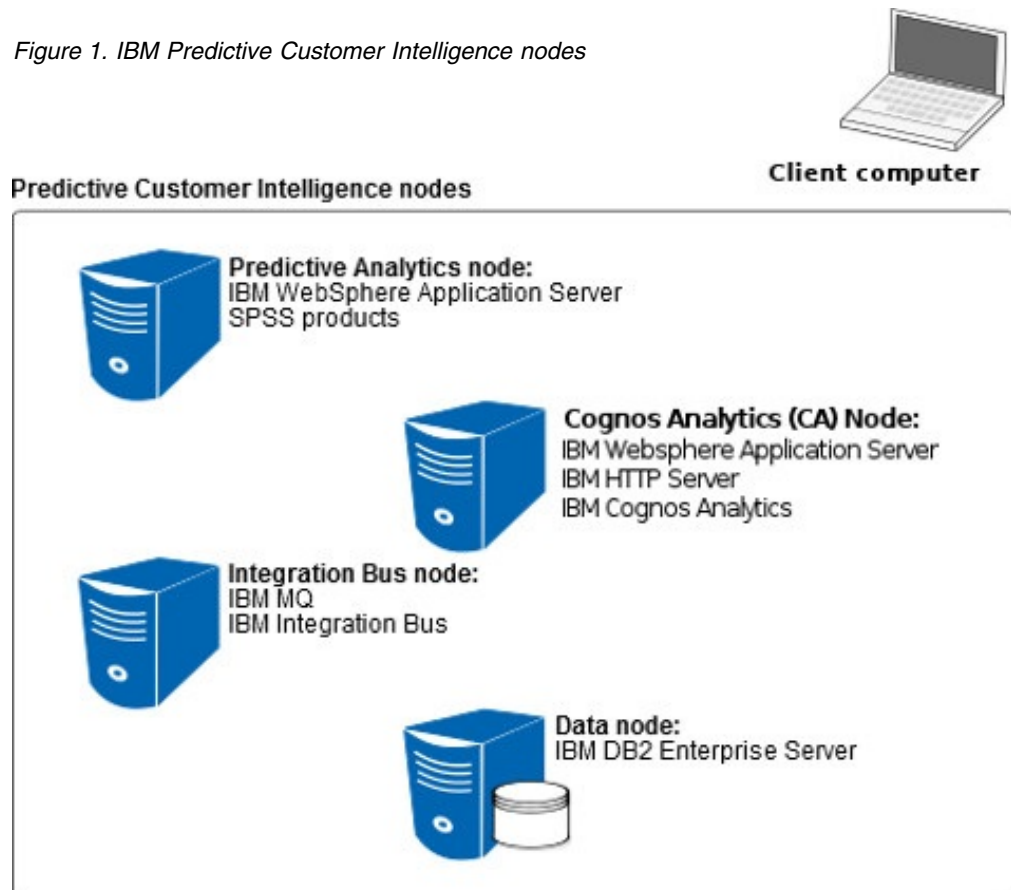
**Important:** The computers or virtual machines on which you install IBM Predictive Customer Intelligence nodes using the solution installer, must not have any of the included software already installed.

---

### Solution architecture

The IBM Predictive Customer Intelligence solution uses several different nodes, where each node provides a specific function for the solution. Each node represents a separate computer or a separate virtual machine image from the other nodes. A typical production environment uses four nodes.

The following diagram shows the nodes in the architecture, with the software installed on each node.



## Predictive Analytics node

The Predictive Analytics node provides predictive scores and offers recommendations.

This node has the following software installed:

- IBM WebSphere® Application Server Network Deployment
- IBM SPSS® Collaboration and Deployment Services
- IBM SPSS Modeler Server
- IBM SPSS Modeler Collaboration and Deployment Services Adapter
- IBM SPSS Statistics Server
- IBM Analytic Decision Management
- IBM SPSS Data Access Pack
- IBM Data Server Runtime Client

Optionally, you can distribute the Predictive Analytics node components onto other computers in your environment. For example, you can add a node on which only IBM SPSS Collaboration and Deployment Services is installed.

Optional server components are also available, such as IBM SPSS Analytic Server, including Analytic Catalyst, and IBM ILOG® CPLEX® Enterprise Server, including Optimization Studio. For information about installing these products, see their respective documentation.

If you install IBM SPSS Analytic Server, do not install it on a computer where another IBM Predictive Customer Intelligence node is installed.

## Cognos Analytics node

The CA node provides dashboards and reports.

This node has the following software installed:

- IBM Cognos® Analytics
- IBM Data Server Runtime Client

Optional components are also available, such as IBM Cognos Software Development Kit. For information about installing these products, see their respective documentation.

## Integration Bus node

The Integration Bus node processes events, updates the content for IBM Cognos Analytics, and triggers predictive scoring and decision management. It also loads master data into the solution.

This node has the following software installed:

- IBM MQ (formerly WebSphere MQ)
- IBM Integration Bus
- IBM Data Server Runtime Client

## Data node

The data node provides the database server that contains the databases that are used by other products in the solution.

This node has the following software installed:

- IBM DB2<sup>®</sup> Enterprise Server Edition

---

## Supported operating systems and hardware requirements

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

For an up-to-date list of environments that are supported by IBM Predictive Customer Intelligence, see the IBM Software Product Compatibility Reports ([www.ibm.com/support/docview.wss?uid=swg27044319](http://www.ibm.com/support/docview.wss?uid=swg27044319)).

### Server computers

To use the solution installer, the IBM Predictive Customer Intelligence server components must be installed on computers that are running a 64-bit Red Hat Enterprise Linux Server Edition version 6 (x86\_64 with update 5, 6, or 7) operating system.

Alternatively, you can manually install IBM Predictive Customer Intelligence on 64-bit SUSE Linux, Red Hat Enterprise Linux, Microsoft Windows 2008 Server (x86\_64), or Microsoft Windows 2012 Server (x86\_64) operating systems.

**Important:** If you use the solution installer, the operating system for the computer where you run the solution installer must be set to use English as the language. The solution installer does not run on other languages. Also, the client computers must also be using English as the language.

### Hardware requirements

If you are using four or five node configuration, each computer or virtual machine that hosts an IBM Predictive Customer Intelligence server component, or node, must have the following hardware requirements:

- 2 processors
- 16 GB of RAM
- 60 GB of hard disk space

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

The computer on which you run the solution installer should have a minimum of 80 GB of free hard disk space so that you can decompress the installation files.

If you are installing on a single node, such as for a test or demonstration environment, the computer must have:

- 4 processors
- 32 GB of RAM
- 250 GB of hard disk space

If you are expecting to store large volumes of data, you might need to increase your disk size.

### User requirements

On Linux operating systems, you must have **root** or **sudo** access to all of the computers on which you install an IBM Predictive Customer Intelligence node, including the computer from which you run the installation.

On Microsoft Windows operating systems, you must have administrator access to all of the computers on which you install an IBM Predictive Customer Intelligence node.

### Client computers

The IBM Predictive Customer Intelligence client components must be installed on computers that run Microsoft Windows 7 or Microsoft Windows 8 operating systems.

Clients can be installed on 32-bit or 64-bit computers. 64-bit is recommended.

## Installing required operating system packages on the CA node computer

Specific operating system packages must be installed on the Linux operating system computer or virtual machine where you install the IBM Predictive Customer Intelligence Cognos Analytics node .

For a complete list of software requirements for IBM Cognos Analytics, see the Cognos Analytics 11.0.0 Supported Software Environments page ([www.ibm.com/support/docview.wss?uid=swg27047186](http://www.ibm.com/support/docview.wss?uid=swg27047186)).

You must ensure that the following 32-bit packages are installed. These are the minimum versions required:

- `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`

You must also install the 64-bit OpenMotif package. The minimum version is:

- `openmotif-2.3.3-8.el6.i686.rpm`

You can download the packages from a site such as [pkgs.org](http://pkgs.org) or [rpm.pbone.net](http://rpm.pbone.net).

### Procedure

1. Log on to the CA node computer as the **root** user or as a user with **sudo** permissions.
2. Type the following command to verify that an operating system package is installed:

```
rpm -qi package_name
```

For example, to verify that `libselinux` is installed and what version you have, type `rpm -qi libselinux`.

**Note:** You might have to use `sudo` to run the command successfully.  
For example, enter `sudo rpm -qi full_package_name`.

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 `libselineux-2.0.94-5.3.e16.i686`, type `rpm -ihv libselineux-2.0.94-5.3.e16.i686.rpm`.

To install `pam-1.1.1-13.e16.i686.rpm`, use the following command: `rpm -ihv -force full_package_name.rpm`.

**Tip:** If you have yum repositories configured for your Linux operating system computers, you can use the following command to install all of the pre-requisite RPMs:

```
yum -y install --setopt=protected_multilib=false libselineux.i686  
cracklib.i686 db4.i686 audit-libs.i686 pam.i686 openmotif.i686
```

## Installing required operating system packages on the Integration Bus node computer

Specific operating system packages must be installed on the Linux operating system computer or virtual machine where you install the IBM Predictive Customer Intelligence Integration Bus node node.

Ensure that the following 32-bit packages are installed. These are the minimum versions required:

- `gtk2-2.24.23-6.e16.i686.rpm`
- `libXtst-1.0.99.2-3.e16.i686.rpm`
- `glibc-2.12-1.80.e16.i686.rpm`
- `libgcc-4.8.3-9.e17.i686.rpm`

You can download the packages from a site such as `pkgs.org` or `rpm.pbone.net`.

### Procedure

1. Log on to the computer as the **root** user or as a user with **sudo** permissions.
2. Type the following command to verify that an operating system package is installed:

```
rpm -qi package_name
```

For example, to verify that `gtk2` is installed and what version you have, type `rpm -qi gtk2`.

**Note:** You might have to use `sudo` to run the command successfully.  
For example, enter `sudo rpm -qi full_package_name`.

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 `gtk2-2.24.23-6.e16.i686`, type `rpm -ihv gtk2-2.24.23-6.e16.i686.rpm`.

**Tip:** If you have yum repositories configured for your Linux operating system computers, you can use the following command to install all of the pre-requisite RPMs:

```
yum -y install --setopt=protected_multilib=false gtk2.i686 libXtst.i686  
glibc.i686 libgcc.i686
```

## Setting ulimit values on the node computers

Before you install IBM Predictive Customer Intelligence on Linux operating systems, you must ensure that you have appropriate ulimit values on each node.

You must perform these steps on the Cognos Analytics node, the Predictive Analytics node, and the Integration Bus node computers.

**Note:** IBM MQ requires these minimum settings during installation. If they are not set an error message is displayed during installation.

### Procedure

Log in to the computer as the **root** user or as a user with **sudo** permissions.

1. Go to the /etc/security directory.
2. Open the limits.conf file for editing.
3. Add the following lines to the file:

```
@root soft nofile 10240  
@root hard nofile 16384  
* soft nofile 10240  
* hard nofile 16384
```

4. Save and close the file.
5. Restart the computer for the changes to take effect.

---

## Prerequisites for using the solution installer

If you are using the solution installer, ensure that the following tasks are completed.

### Creating directories for the solution installer

If you are installing on a Red Hat Enterprise Linux operating system by using the solution installer, you must create a directory on each computer on which you install an IBM Predictive Customer Intelligence component.

The solution installer uses the /opt/IBM directory to copy license files and other files. This directory must exist on each node computer and on the computer on which you run the solution installer before you run the installation.

### Procedure

1. Create an /opt/IBM directory on each computer on which you are going to install an IBM Predictive Customer Intelligence component.
2. Create an /opt/IBM directory on the computer on which you are going to run the solution installer.



## Adding each node computer to the hosts file on all computers

If you are installing on a Red Hat Enterprise Linux operating system by using the solution installer, you must ensure that each node computer can communicate properly. You must add all node computers to the hosts file on each node computer.

For example, the hosts file on the data node computer must include the Predictive Analytics node, the Cognos Analytics (CA) node, and the Integration Bus node computers.

### Procedure

1. On each node computer, open the `/etc/hosts` file.
2. Ensure that each node computer is listed in the file. For example, ensure that your hosts files contain entries in the following pattern:

```
127.0.0.1 localhost.localdomain localhost
###.###.### analytics_node_name.domain.com analytics_node_name
###.###.### ca_node_name.domain.com ca_node_name
###.###.### data_node_name.domain.com data_node_name
###.###.### integrationbus_node_name.domain.com integrationbus_node_name
```

3. Save and close the file.

## Modifying the sudoers file for the user who runs the installation

To install IBM Predictive Customer Intelligence on a Red Hat Enterprise Linux operating system by using the solution installer, you must be either the **root** user or be a user with **sudo** permissions on each node computer. To run the installation as a user with **sudo** permissions, you must add that user to the sudoers file on each node computer.

### Procedure

1. Log in as **root** user.
2. Open the sudoers file for editing. For example, enter `visudo -f /etc/sudoers`.
3. Add the following line for your user:  
`username ALL=(ALL) ALL`
4. Save and close the file.
5. Repeat these steps on each computer on which you install an IBM Predictive Customer Intelligence node.

## Synchronizing the time on each Linux node computer

If you are installing on a Red Hat Enterprise Linux operating system by using the solution installer, you must ensure that each node computer is synchronized to the same time.

For more information, see the Red Hat documentation ([https://access.redhat.com/documentation/en-US/Red\\_Hat\\_Enterprise\\_Linux/6/html/Deployment\\_Guide/sect-Date\\_and\\_Time\\_Configuration-Command\\_Line\\_Configuration-Network\\_Time\\_Protocol.html](https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/6/html/Deployment_Guide/sect-Date_and_Time_Configuration-Command_Line_Configuration-Network_Time_Protocol.html)).

---

## Prerequisites for Redhat Enterprise Linux 7

If you are doing a manual install on the Redhat Enterprise Linux 7 operating system, ensure that the following tasks are completed.

## Creating directories

You must create a directory on each computer on which you plan to install a IBM Predictive Customer Intelligence component.

### Procedure

Create an `/opt/IBM` directory on each computer on which you are going to install an IBM Predictive Customer Intelligence component.

## Disabling the firewall

Before doing a manual install, you must disable the Redhat Enterprise Linux 7 operating system firewall.

### Procedure

Log on to each computer that you plan to install IBM Predictive Customer Intelligence on and type the following command:

```
systemctl disable firewalld
```

---

## Chapter 2. Upgrading from IBM Predictive Customer Intelligence Version 1.1 to Version 1.1.1

You can upgrade from an IBM Predictive Customer Intelligence Version 1.1 installation to IBM Predictive Customer Intelligence Version 1.1.1

**Note:** to migrate from a previous version of IBM Predictive Customer Intelligence to Version 1.1, refer to the migration topics in the Version 1.1 documentation for instructions.

---

### Upgrading your BI Node to IBM Cognos Analytics 11

You can upgrade your Business Intelligence node to IBM Cognos Analytics 11.

You can install Cognos Analytics 11 on an existing BI node or, alternatively, create a new CA node.

### Upgrading server software on Microsoft Windows operating systems

Follow these steps to upgrade server software on Microsoft Windows operating systems on your BI node to IBM Cognos Analytics 11.

#### Procedure

1. Go to the location where you decompressed the PCI 1.1.1 Server Software (for Windows) and install the server component. See “Installing IBM Cognos Analytics” on page 45.
2. Create a new content store database named CA11CS on the data node. See “Install IBM DB2 software on the data node computer” on page 33.
3. Configure and start IBM Cognos Analytics. See “Configure and start IBM Cognos Analytics” on page 45.
4. Export your content from the existing BI Content Store. See Exporting Data From the Content Store ([http://www.ibm.com/support/knowledgecenter/SSEP7J\\_10.2.2/com.ibm.swg.ba.cognos.dg\\_sdk.10.2.2.doc/i\\_d15e256925.html](http://www.ibm.com/support/knowledgecenter/SSEP7J_10.2.2/com.ibm.swg.ba.cognos.dg_sdk.10.2.2.doc/i_d15e256925.html))
5. Import the content to the CA11CS content store. See Move your content to the new version of the product ([http://www.ibm.com/support/knowledgecenter/SSEP7J\\_11.0.0/com.ibm.swg.ba.cognos.inst\\_cr\\_winux.11.0.0.doc/c\\_upgrd\\_moveyourcontent.html#similar\\_upgrade](http://www.ibm.com/support/knowledgecenter/SSEP7J_11.0.0/com.ibm.swg.ba.cognos.inst_cr_winux.11.0.0.doc/c_upgrd_moveyourcontent.html#similar_upgrade)).
6. You can optionally delete any existing software on the BI node that you no longer need (for example, Business Intelligence, WebSphere Application Server, and WebSphere HTTP server).

### Upgrading server software on Linux operating systems

Follow these steps to upgrade server software on Linux operating systems on your BI node to IBM Cognos Analytics 11.

#### Procedure

1. Go to the location where you decompressed the PCI 1.1.1 Server Software (for Linux) and install the server component. See “Installing IBM Cognos Analytics” on page 45.

2. Create a new content store database named CA11CS on the data node. See “Install IBM DB2 software on the data node computer” on page 33.
3. Configure and start IBM Cognos Analytics. See “Configure and start IBM Cognos Analytics” on page 45.
4. Export your content from the existing BI Content Store. See Exporting Data From the Content Store ([http://www.ibm.com/support/knowledgecenter/SSEP7J\\_10.2.2/com.ibm.swg.ba.cognos.dg\\_sdk.10.2.2.doc/i\\_d15e256925.html](http://www.ibm.com/support/knowledgecenter/SSEP7J_10.2.2/com.ibm.swg.ba.cognos.dg_sdk.10.2.2.doc/i_d15e256925.html))
5. Import the content to the CA11CS content store. See Move your content to the new version of the product ([http://www.ibm.com/support/knowledgecenter/SSEP7J\\_11.0.0/com.ibm.swg.ba.cognos.inst\\_cr\\_winux.11.0.0.doc/c\\_upgrd\\_moveyourcontent.html#similar\\_upgrade](http://www.ibm.com/support/knowledgecenter/SSEP7J_11.0.0/com.ibm.swg.ba.cognos.inst_cr_winux.11.0.0.doc/c_upgrd_moveyourcontent.html#similar_upgrade)).
6. You can optionally delete any existing software on the BI node that you no longer need (for example, Business Intelligence, WebSphere Application Server, and WebSphere HTTP server).

## Upgrading client software on Microsoft Windows operating systems

Follow these steps to upgrade client software on Microsoft Windows operating systems on your client nodes to IBM Cognos Analytics 11.

### Procedure

1. Go to the location where you decompressed the PCI 1.1.1 Client Software. See “Installing Framework Manager for IBM Predictive Customer Intelligence” on page 62.
2. Install any additional client software to the default installation folder. Optionally, you can install to a custom folder depending on your installation requirements.
3. Optionally, you can uninstall the Business Intelligence 10.2.2 client software as it is no longer needed.

---

## Chapter 3. Install IBM Predictive Customer Intelligence by using the solution installer

Use the solution installer to deploy the IBM Predictive Customer Intelligence component programs on computers or virtual machines that are running 64-bit Red Hat Enterprise Linux Server Edition version 6 (x86\_64 with update 5, 6, or 7) operating systems. For other operating systems, you must install the product manually.

**Important:** If you are installing IBM Predictive Customer Intelligence from the USB hard disk drive, download and use the Solution Installer 1.1 Linux Red Hat English component from IBM Passport Advantage® to ensure that you are using the latest version of the installer. For more information about downloading components, see Downloading IBM Predictive Customer Intelligence 1.1.1 ([www.ibm.com/support/docview.wss?uid=swg24042227](http://www.ibm.com/support/docview.wss?uid=swg24042227)).

The solution installer runs on a Red Hat Enterprise Linux version 6 (x86\_64 with update 5, 6, or 7) operating system. It provides a web interface that you use to define, validate, and install your environment.

You define your environment by identifying node computers, and dragging the component programs onto the nodes. The solution installer provides guidance for where you can add components and you can use it to validate the environment that you define.

If you want to deploy the IBM Predictive Customer Intelligence component programs on other operating systems, you must use a manual installation. For more information, see Chapter 4, “Manually install IBM Predictive Customer Intelligence,” on page 33.

**Note:** If you want to customize the installation of certain components, such as distributing IBM Cognos Analytics on different computers, you can use the manual installation instructions. For more information, see the installation documentation for the component.

Also, if you want to configure multiple nodes of IBM SPSS Collaboration and Deployment Services, you must use a manual installation of IBM Predictive Customer Intelligence. The solution installer allows only one instance of IBM SPSS Collaboration and Deployment Services in a configuration.

For more information about manually installing IBM Predictive Customer Intelligence, see Chapter 4, “Manually install IBM Predictive Customer Intelligence,” on page 33.

**Important:** If you use the solution installer, the operating system for the computer where you run the solution installer must be set to use English as the language. The solution installer does not run on other languages. Also, the client computers must also be using English as the language.

---

## Downloading and decompressing the installation files

You must download the IBM Predictive Customer Intelligence solution from IBM Passport Advantage, and then decompress the files to run the solution installer.

For more information about the files that you must download, see Downloading IBM Predictive Customer Intelligence 1.1.1 ([www.ibm.com/support/docview.wss?uid=swg24042227](http://www.ibm.com/support/docview.wss?uid=swg24042227)).

### Procedure

1. Access the IBM Passport Advantage web site.

**Tip:** If you receive an error, try using a different web browser to access Passport Advantage.

2. Sign in and navigate to the software downloads page.
3. Find the eImages for IBM Predictive Customer Intelligence.
4. Download an eImage by selecting the check box beside the name. When the download is complete, a **Download Complete** message is displayed. The location of the downloaded files are displayed in the message window.
5. Decompress the eImage files.
6. Decompress the `prd_cust_int_sol_instl_1.1.1_186.tar.gz` file.

The file is decompressed to a directory that is named `PCI_1.1.1_linux`. You must copy the server `tar.gz` files into the `PCI_1.1.1_linux` directory.

7. Copy the 3 other `tar.gz` files to the `PCI_1.1.1_linux/SolutionInstaller/NodeRoot/Downloads/Software` directory.

The 3 `tar.gz` files that you need are named `prd_cust_intel_svr_1.1.1_1_186_en.tar.gz`, `prd_cust_intel_svr_1.1.1_2_186_en.tar.gz`, and `prd_cust_intel_svr_1.1.1_3_186_en.tar.gz`.

8. You can manually decompress the files, or run the `PCI1.1.1_UncompressTarball.sh` script to decompress the files.

To run the script, enter `sh PCI1.1.1_UncompressTarball.sh`.

To manually decompress the files, enter `tar xvf filename.tar.gz`.

---

## Opening firewall ports for the solution installer

You can run the `firewall.sh` script to open the ports that are required on the computer on which you are running the IBM Predictive Customer Intelligence solution installer.

You must also open ports on the target, or client, computers on which you are installing a IBM Predictive Customer Intelligence node. You can use the `client_firewall.sh` script to open the required ports.

The `firewall.sh` script opens the following ports on the solution installer computer:

- 8080 incoming
- 443 incoming
- 9683 incoming
- 22 outgoing

On the target, or client computers, the `client_firewall.sh` script opens the following ports:

- 8080 outgoing
- 443 incoming
- 9683 outgoing
- 22 incoming

### Procedure

1. Log on to the computer that contains the solution installer node as the root user or as a user with sudo permissions.
2. Back up your existing firewall settings by typing the following command:  
`/etc/init.d/iptables save.`
3. Go to the directory where you decompressed the solution installer files, and run the firewall script by typing the following command: `sh firewall.sh`. For example, go to the `PCI_1.1.1_linux/SolutionInstaller` directory.
4. Copy the `client_firewall.sh` file onto each computer on which you are going to install an IBM Predictive Customer Intelligence node.
5. Log on to each computer on which you are going to install an IBM Predictive Customer Intelligence node as the root user or as a user with sudo permissions.
6. Back up your existing firewall settings by typing the following command:  
`/etc/init.d/iptables save.`
7. Go to the directory where you copied the `client_firewall.sh` file, and run the script by typing the following command: `sh client_firewall.sh`.

---

## Starting the solution installer

You run the IBM Predictive Customer Intelligence solution installer on a Red Hat Enterprise Linux operating system. Use the solution installer to define the environment you want to install. After the solution installer is running, you can access the installer interface from another computer by using a web browser and start defining the environment.

**Note:** Ensure that you copy the solution installer files to a directory in which you have permissions to execute files.

**Important:** Ensure that the operating system on which you run the solution installer is set to use English as the language. The solution installer does not run on other languages. Also, the client computers must also be using English as the language.

### Procedure

1. Log on to the computer where you decompressed the installation files as the root user or as a user with sudo permissions.
2. Go to the `SolutionInstaller` directory where you decompressed the solution installer files.
3. Enter the following command: `sh setup.sh`.

After the solution installer starts, open a web browser on another computer, and go to the solution installer URL: `https://servername:8080/UI/index.html`.

**Important:** Do not use a web browser on the computer on which you are running the solution installer or any computer on which a IBM Predictive Customer Intelligence component is being installed. You must use a web browser on another computer.

The computer on which you are using the browser to access the solution installer must have a screen resolution that is greater than 1024 by 760.

The solution installer runs on Google Chrome 44, or later, or Mozilla Firefox 38 or later, web browsers. It does not run on Internet Explorer.

Ensure that you are using an English language web browser to access the solution installer URL.

---

## Using the solution installer

You use the solution installer to define your IBM Predictive Customer Intelligence environment you want to install.

You define the environment by identifying node computers and adding the software that you want installed on each node. You create an installation configuration for your solution by dragging nodes onto a canvas and then dragging components into the nodes.

You can save your configurations. For more information, see “Saving and opening configurations” on page 21.

You can also load predefined configurations. For more information, see “Using predefined configurations” on page 22.

**Note:** You cannot install more than one instance of IBM SPSS Collaboration and Deployment Services by using the solution installer. If you want to install multiple IBM SPSS Collaboration and Deployment Services instances, you must install them manually. For more information, see Chapter 4, “Manually install IBM Predictive Customer Intelligence,” on page 33.

**Important:** The solution installer runs on Google Chrome 44 or later or Mozilla Firefox 38 or later. It does not run on Internet Explorer.

For more information about supported software, see the IBM Software Product Compatibility Reports ([www.ibm.com/support/docview.wss?uid=swg27044319](http://www.ibm.com/support/docview.wss?uid=swg27044319)).

### Procedure

1. Open the solution installer in a web browser.

After the solution installer is running, you can access the URL from any computer from a Firefox or Chrome web browser.

The URL is `https://servername:8080/UI/index.html`, where *servername* is the name of the computer where you ran the solution installer.

**Important:** Do not use a web browser on the computer on which you are running the solution installer or any computer on which a IBM Predictive Customer Intelligence component is being installed. You must use a web browser on another computer.

Ensure that you are using an English language web browser to access the solution installer URL.

2. On the license information page, click **Accept**.



**CAUTION:**

**Declining the license allows you to uninstall the solution installer and remove all of the files from the solution installer directory.**

3. Select **New Configuration**, and click **OK**.
4. From the **Mandatory Software List** pane, drag a **Node** object onto the **Configuration Editor** pane.

A visual representation of an empty node is displayed.

If you are installing IBM Predictive Customer Intelligence on four nodes, you must drag four **Node** objects onto the **Configuration Editor** pane.

5. In the **Property Editor** pane, select the node object, and enter the following information.
  - a. Enter a name for the node in **Name**, and press the Enter key. For example, enter CA node.
  - b. Enter the server name in **Host Name**, and press the Enter key.

**Important:** Unless you are using a single node configuration, ensure that the host names or IP addresses are for different computers. Do not use the same computer for more than one **Node** object.

- c. Enter the user who has access to install the components in **User Name**, and press the Enter key. For example, enter root or a user with sudo permissions.
- d. Enter the user's password in **User Password**, and press the Enter key.
- e. Repeat these steps for each node object that you add. For example, if you are installing IBM Predictive Customer Intelligence on four nodes, you must repeat these steps for each of the four node objects.

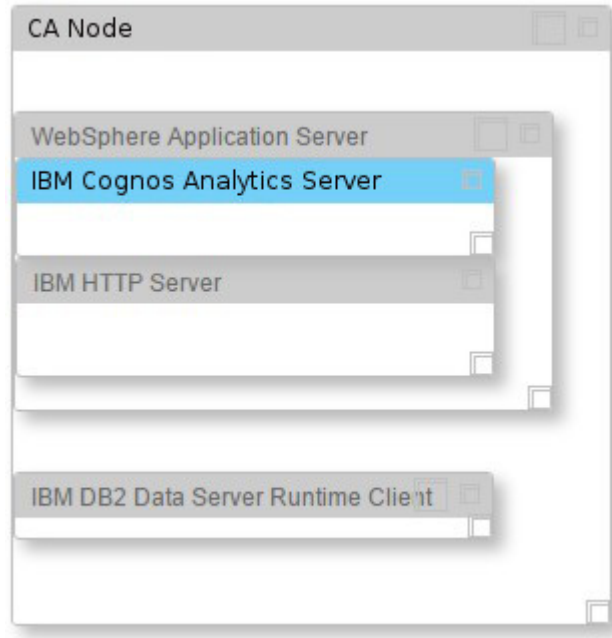
**Important:** You must enter any mandatory information for nodes and other objects as indicated. Ensure that you review all of the properties to ensure that the values, both mandatory and optional, are valid.

Ensure that you press the Enter key after you type a value for a property.

6. From the **Mandatory Software List** pane, create your environment by dragging each object onto the appropriate node in the **Configuration Editor** pane.

**Tip:** Valid drop zones are indicated in the **Configuration Editor** pane.

Some restrictions are built into the placement of objects. Valid drop zones are indicated by a highlight in the Configuration Editor. Certain objects may require other objects to be on the node before it can be dropped. For example, if you are adding IBM Integration Bus to a node, then you must already have WebSphere MQ on that node, and the IBM Integration Bus object must be placed within the WebSphere MQ object.



**Tip:** Example environments are provided in the predefined configurations that are included with the installation files. For more information, see “Using predefined configurations” on page 22.

**Note:** If you add the **IBM DB2 Data Server Runtime Client** component to the same node as the **IBM DB2 Enterprise Server** component, the **IBM DB2 Data Server Runtime Client** component will not be installed.

7. After you add an object, select it, and modify any values in the **Property Editor** pane.

For example, when you add WebSphere Application Server to a node, you must provide the following information:

- **WebSphere Install Directory** is the location where WebSphere Application Server is to be installed.
- **WebSphere Application Port** is the port number that you want to use for WebSphere Application Server.
- **WAS Profile Admin User Name** is the administrator user's user name for WebSphere Application Server.
- **WAS Profile Admin Password** is the password for the administrator user.

## Property Editor

### WebSphere Application Server

Required data is missing.

WebSphere Install Directory:

WebSphere Application Port:

WAS Profile Admin User Name:

WAS Profile Admin Password:

**Important:** Ensure that you press the Enter key after you type a value for a property.

8. From the **Optional Software List**, drag the objects to the node on which you want the installation files copied. The optional software is not installed by the solution installer. You must install the software manually. The installation files are copied to the node you drag them to.

The optional software installation files are copied to the `/opt/IBM/OptSoftware` directory on the node computer, unless you change the default path.

9. As you build your environment, click **Validate** to identify errors or incomplete information.
10. After all nodes are defined and each node is validated, click **Run**.

**Important:** After you click the **Run** button, **do not close** the browser window until the installation completes. If you close the browser, you cannot re-initiate the session.

However, the installation does proceed even with the browser closed. But you cannot monitor the progress.

If the browser window closes, do the following steps:

- a. Do nothing until enough time elapses to allow the installation to complete. Allow the installation at least 2 hours to complete.
- b. Open a new browser window, and open the solution installer again.
- c. Re-create the configuration that you used or open the saved session that you used. You must ensure that all of the values that you entered in the fields are the same as the configuration that you used when the browser window closed.
- d. Rerun the installation. The solution installer verifies that all of the components are installed.

After the solution installer completes, verify that the components are working. For more information, see “Configure the server components and test the installation” on page 27.

**Tip:** If you click **Validate** before all the mandatory content is added, a message indicates that the node is not valid. For example, if you validate the CA Node before you add the **IBM DB2 Data Server Runtime Client** component, then a message indicates that the node is not yet valid.

## Configuration properties for the solution installer

You must provide some configuration properties for each of the mandatory software components.

If you select any components from the **Optional Software List**, you must provide a deployment location for the installation files. You must manually install any item that you select from the **Optional Software List**.

### IBM DB2 Enterprise Server properties

#### DB2 Server Install Directory

The location where IBM DB2 is to be installed on the data node computer.

Default: /opt/ibm/db2/V10.5

#### DB2 Database Port Number

The port number that is used by IBM DB2.

Default: 50000

#### DB2 Server Admin User Name

The user ID that runs the administration server.

Default: dasusr1

This user must not exist on the computer.

#### DB2 Server Admin Password

The password for the user ID that runs the administration server.

The password cannot contain more than 8 characters and it must be lowercase.

#### DB2 Server Admin Home Directory

The home directory for the user ID that runs the administration server.

This directory is on the data node computer's file system.

Default: /home/dasusr1

#### DB2 Instance Owner User Name

The user ID that controls the DB2 processes and owns the directories that are used by the database instance.

Default: db2inst1

This user must not exist on the computer.

#### DB2 Instance Owner Password

The password for the DB2 instance owner user.

The password cannot contain more than 8 characters and it must be lowercase.

#### DB2 Instance Owner Home Directory

The home directory for the DB2 instance owner user. This directory is on the data node computer's file system.

Default: /home/db2inst1

**DB2 Fenced User Name**

The user ID that can run user-defined functions and store procedures.

Default: db2fenc1

This user must not exist on the computer.

**DB2 Fenced User Password**

The password for the DB2 fenced user.

The password cannot contain more than 8 characters and it must be lowercase.

**DB2 Fenced User Home Directory**

The home directory for the DB2 fenced user.

Default: /home/db2fenc1

**Database: SPSS properties****SPSS Database Name**

The SPSS database that is used by the components that are installed on the Predictive Analytics node computer.

This component must be contained within **IBM DB2 Enterprise Server**.

Default: SPSSDB

**Database: Cognos Analytics Content Manager properties****Content Manager Database Name**

The IBM Cognos content store database.

This component must be contained within **IBM DB2 Enterprise Server**.

Default: CA11CS

**IBM DB2 Data Server Runtime Client properties**

The **IBM DB2 Data Server Runtime Client** component must be installed on each node, except for the data node computer.

**Note:** If you add the **IBM DB2 Data Server Runtime Client** component to the same node as the **IBM DB2 Enterprise Server** component, the **IBM DB2 Data Server Runtime Client** component will not be installed.

**DB2 RTC Install Directory**

The location where the IBM DB2 client is to be installed.

Default: /opt/ibm/db2/V10.5

**DB2 RTC Instance User Name**

The user ID for the DB2 client.

Default: db2inst1

This user must not exist on the computer.

**DB2 RTC Instance Password**

The password for the DB2 client instance owner user.

**DB2 Client Instance Home Directory**

The home directory for the DB2 client instance owner user.

Default: /home/db2inst1

## **WebSphere Application Server properties**

WebSphere Application Server must be installed on the node where you installed IBM SPSS Collaboration and Deployment Services Server.

### **WebSphere Install Directory**

The location where the WebSphere Application Server is to be installed.

Default: /opt/IBM/WebSphere/AppServer

### **WebSphere Application Port**

The HTTP port number that is used by the WebSphere Application Server profile.

Default: 9080

### **WAS Profile Admin User Name**

The administrative user name for the WebSphere Application Server profile.

### **WAS Profile Admin Password**

The password for the administrative user.

## **IBM HTTP Server properties**

### **HTTP Server Install Directory**

The location where IBM HTTP Server is to be installed.

Default: /opt/IBM/HTTPServer

### **HTTP Server Port Number**

The port number that is used by HTTP Server.

Default: 81

## **IBM Cognos Analytics Server**

### **IBM Cognos Analytics Server Install Directory**

The location where IBM Cognos Analytics is to be installed.

Default: /opt/ibm/cognos/analytics

## **IBM SPSS Modeler Server properties**

### **SPSS Modeler Server Install Directory**

The location where IBM SPSS Modeler Server is to be installed.

Default: /opt/IBM/SPSS/ModelerServer/17.1

## **IBM SPSS Statistics Server properties**

### **SPSS Statistics Server Install Directory**

The location where IBM SPSS Statistics Server is to be installed.

Default: /opt/IBM/SPSS/StatisticsServer23

## **IBM SPSS Data Access Pack properties**

### **SPSS Data Access Pack Install Directory**

The location where IBM SPSS Data Access Pack is to be installed.

Default: /root/SDAP711

## IBM SPSS C&DS Server (including ADM) properties

IBM SPSS C&DS Server (including ADM) must be contained within WebSphere Application Server in the Configuration Editor.

### SPSS C&DS Server Install Directory

The location where IBM SPSS Collaboration and Deployment Services Server and Analytic Decision Management are to be installed.

Default: /opt/IBM/SPSS/Deployment/7.0/Server

### SPSS C&DS Server Admin User Name

The IBM SPSS Collaboration and Deployment Services administrative user.

Default: admin

### SPSS C&DS Server Admin Password

The password for the IBM SPSS Collaboration and Deployment Services administrative user.

Default: admin

## WebSphere MQ properties

### WebSphere MQ Home Directory

The WebSphere MQ home directory.

Default: /home

### WebSphere MQ Account User Name

The WebSphere MQ user.

Default: mqmuser

### WebSphere MQ Account Password

The WebSphere MQ user account password.

## IBM Integration Bus properties

IBM Integration Bus must be contained within WebSphere MQ in the Configuration Editor.

### Integration Bus Install Directory


The location where IBM Integration Bus is to be installed.

Default: /opt/IBM

## Saving and opening configurations

You can save IBM Predictive Customer Intelligence configurations and open existing configurations in the solution installer.

### Procedure

1. To save a configuration:
  - a. In the solution installer, define your configuration.
  - b. Enter a name in the **Save Configuration** box, and click the **Save Configuration** icon .
2. To open a saved configuration:
  - a. Click **Open**, and browse to the saved configuration file, and click **Open**.

## Using predefined configurations

You can use predefined configurations to help you define your IBM Predictive Customer Intelligence environment. Predefined configurations are provided for common IBM Predictive Customer Intelligence environments.

### Procedure

1. Open the solution installer in a web browser.

After the solution installer is running, you can access the URL from any computer from a Firefox or Chrome web browser.

The URL is `https://servername:8080/UI/index.html`, where *servername* is the name of the computer where you ran the solution installer.

**Important:** Do not use a web browser on the computer on which you are running the solution installer or any computer on which a IBM Predictive Customer Intelligence component is being installed. You must use a web browser on another computer.

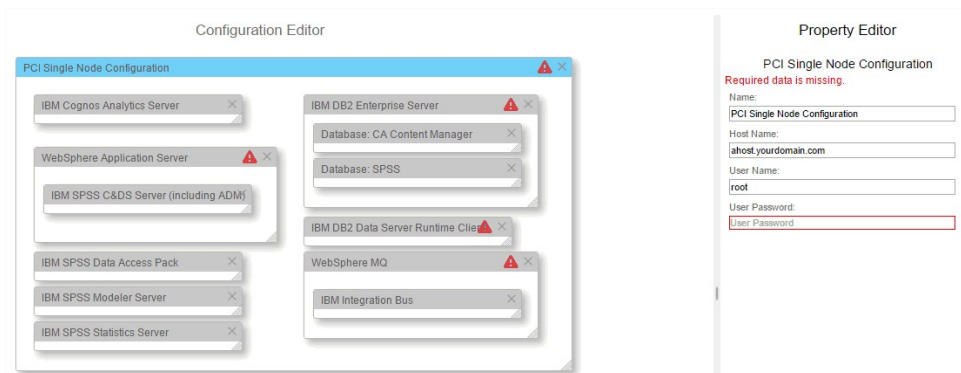
Ensure that you are using an English language web browser to access the solution installer URL.

2. Select **Predefined Configurations**, and click **OK**.
3. Select the configuration that you want to install, and click **OK**.
  - A **PCI 4 Node Configuration** provides a typical IBM Predictive Customer Intelligence environment on four nodes: a data node, a Cognos Analytics node, a Predictive Analytics node, and an Integration Bus node.
  - A **PCI Distributed CDS Node Configuration** provides an environment on five nodes, where IBM SPSS Collaboration and Deployment Services is installed on its own node rather than on the Predictive Analytics node computer as in the **PCI 4 Node Configuration**.
  - A **PCI Single Node Configuration** provides an environment where all of the components are installed on a single computer.

**Note:** A single-node configuration is intended for a demonstration or testing environment. It should not be used for a production environment.

The configuration is displayed in the **Configuration Editor** pane.

Icons appear on each component where configuration information is required. For example, where you must provide user names or passwords.



**Important:** Ensure that you change the server names to an actual server in your environment. Default values are provided.



4. Ensure all of the properties are valid for your environment for each of the components and the nodes in the configuration.

---

## Starting the installation

The IBM Predictive Customer Intelligence solution installer installs the component products on each node computer. Before you start the installation, you can validate the configuration.

### Procedure

1. In the solution installer, open the configuration that you want to install.

2. Click **Validate**.

Any errors or missing information is displayed. You must correct the error or provide the information before you can run the installation.

3. Click **Run**.

---

## Computer firewall settings for the server components after installation

Each IBM Predictive Customer Intelligence node that is installed on a Linux operating system requires certain ports to be opened for the server components to operate in a multi-computer solution. You must configure your firewall settings for each specific node.

### Opening the firewall ports for a single node configuration

If you installed IBM Predictive Customer Intelligence on a single node, you must open ports for all of the components.

The following ports must be open:

- 45088
- 58313
- 28054
- 3022
- tungsten-https
- glrpc
- corbaloc
- 59356
- 9043
- 9044
- 9060
- 9061
- 9080
- 9081
- 9362
- vrace
- 9663
- http
- 81 (if you used the default port number for HTTP Server in the solution installer)
- boks

- boks\_clntd
- boks\_servm
- boks\_servc
- ibm-mqseries
- ibm-db2
- db2c\_db2inst1

For more information about IBM SPSS Modeler port numbers, see the [How many ports are utilized when a Modeler Client connects to Modeler Server? document \(www.ibm.com/support/docview.wss?uid=swg21488421\)](http://www.ibm.com/support/docview.wss?uid=swg21488421).

## Procedure

1. Log in to the Predictive Analytics node computer as the **root** user or as a user with **sudo** permissions.

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 commands:

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 45088 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 58313 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 28054 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 3022 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport tungsten-https -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport glrpc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport corbaloc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 59356 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9043 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9044 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9060 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9061 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9080 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9081 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9362 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport vrace -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9663 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport http -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 81 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks_clntd -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks_servm -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks_servc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport ibm-mqseries -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport ibm-db2 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport db2c_db2inst1 -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.

## Configuring your firewall settings for the Predictive Analytics node computer

You must ensure that certain ports are open on the Predictive Analytics node computer for IBM Predictive Customer Intelligence.

The following ports must be open:

- 45088
- 58313
- 28054
- 3022
- tungsten-https
- glrpc
- corbaloc
- 59356
- 9043
- 9060
- 9080

For more information about IBM SPSS Modeler port numbers, see the How many ports are utilized when a Modeler Client connects to Modeler Server? document ([www.ibm.com/support/docview.wss?uid=swg21488421](http://www.ibm.com/support/docview.wss?uid=swg21488421)).

## Procedure

1. Log in to the Predictive Analytics node computer as the **root** user or as a user with **sudo** permissions.
2. Back up your existing firewall settings. For example, `/etc/init.d/iptables save`.
3. Add rules for the ports with the following commands:

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 45088 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 58313 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 28054 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 3022 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport tungsten-https -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport glrpc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport corbaloc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 59356 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9043 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9060 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9080 -j ACCEPT
```

4. Save your firewall settings. For example, `/etc/init.d/iptables save`.
5. Restart your firewall. For example, `/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.

## Configuring your firewall settings for the CA node computer

You must ensure that certain ports are open on the Cognos Analytics (CA) node computer for IBM Predictive Customer Intelligence.

The following ports must be open:

- 9362
- vrace
- 9663
- corbaloc
- 9043
- glrpc

- http
- tungsten-https
- 9060
- 9080

## Procedure

1. Log in to the CA node computer as the **root** user or as a user with **sudo** permissions.
2. Back up your existing firewall settings. For example, `/etc/init.d/iptables save`.
3. Add rules for the ports with the following commands:
 

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9362 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport vrace -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9663 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport corbaloc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9043 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport glrpc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport http -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport tungsten-https -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9060 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9080 -j ACCEPT
```
4. Save your firewall settings. For example, `/etc/init.d/iptables save`.
5. Restart your firewall. For example, `/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.

## Configuring your firewall settings for the Integration Bus node computer

You must ensure that certain ports are open on the Integration Bus node computer for IBM Predictive Customer Intelligence.

The following ports must be open:

- boks
- boks\_clntd
- boks\_servm
- boks\_servc
- ibm-mqseries

## Procedure

1. Log in to the Integration Bus node computer as the **root** user or as a user with **sudo** permissions.
2. Back up your existing firewall settings. For example, `/etc/init.d/iptables save`.
3. Add rules for the ports with the following commands:
 

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks_clntd -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks_servm -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks_servc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport ibm-mqseries -j ACCEPT
```
4. Save your firewall settings. For example, `/etc/init.d/iptables save`.
5. Restart your firewall. For example, `/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.

## 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 Customer Intelligence.

The following ports must be open:

- `ibm-db2`
- `db2c_db2inst1`
- `50001`

### Procedure

1. Log in to the data node computer as the **root** user or as a user with **sudo** permissions.
2. Back up your existing firewall settings. For example, `/etc/init.d/iptables save`.
3. Add rules for the ports with the following commands:  

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport ibm-db2 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport db2c_db2inst1 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 50001 -j ACCEPT
```
4. Save your firewall settings. For example, `/etc/init.d/iptables save`.
5. Restart your firewall. For example, `/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.

---

## Configure the server components and test the installation

After the installation of the IBM Predictive Customer Intelligence 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 IBM Predictive Customer Intelligence 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

Log on to the data node computer.

1. Open a terminal window, and change to the database instance owner user. For example, `su - db2inst1`.
2. Enter the following command to list the databases on the computer:  
`db2 list database directory`

For an installation on a Red Hat Linux operating systems that used the solution installer, the following databases are listed:

- `COG102CS`
- `SPSSDB`

## Configuring IBM Cognos Analytics on a single node installation

If you installed IBM Predictive Customer Intelligence on a single node by using the solution installer, you must add the IBM Cognos Analytics and DB2 client paths to the **LD\_LIBRARY\_PATH** environment variable in WebSphere Application Server.

### Procedure

1. Open a web browser.
2. In the address bar, type the address for the WebSphere Admin Console.  
The Admin console address is: `http://servername:9060/ibm/console` where *servername* is the name or IP address for the computer where you installed the IBM Predictive Customer Intelligence server components.
3. If security is enabled, enter the **User ID** and **Password**, and click **Log in**.
4. Expand **Servers > Server Types > WebSphere application servers**, and click **server1**.
5. Under **Server Infrastructure**, expand **Java and Process Management**, and click **Process Definition**.
6. Under **Additional Properties**, click **Environment Entries**.
7. Click **LD\_LIBRARY\_PATH**.
8. In the **Value** box, add the following value:  
`/opt/ibm/cognos/c10_64/bin64:/opt/ibm/db2/V10.5/lib32/`

**Important:** If you did not use the default installation locations, ensure that you use the appropriate paths.

9. Click **Apply**, and then click **Save**.
10. Restart the WebSphere Application Server instance.

## Configuring IBM HTTP Server for IBM Cognos Analytics

You can optionally configure IBM HTTP Server to use as the IBM Cognos Analytics portal. IBM HTTP Server is installed by the solution installer, but you must configure it.

### Procedure

1. Go to the HTTP Server conf directory. For example, go to the `/opt/IBM/HTTPServer/conf` directory.
2. Open the `httpd.conf` file in a text editor.
3. Add the following lines to file:

```
ScriptAlias /ibmcognos/cgi-bin "Cognos_installation/cgi-bin"  
<Directory "Cognos_installation/cgi-bin">  
    Options Indexes MultiViews  
    AllowOverride None  
    Order allow,deny  
    Allow from all  
</Directory>
```

```
Alias /ibmcognos "Cognos_installation/webcontent"  
<Directory "Cognos_installation/webcontent">  
    Options Indexes MultiViews  
    AllowOverride None  
    Order allow,deny  
    Allow from all  
</Directory>
```

**Note:** Ensure that you add the `/ibmcognos/cgi-bin` ScriptAlias before the `/ibmcognos` Alias.

For example, add the following lines:

```
ScriptAlias /ibmcognos/cgi-bin "/opt/ibm/cognos/c10_64/cgi-bin"
<Directory "/opt/ibm/cognos/c10_64/cgi-bin">
    Options Indexes MultiViews
    AllowOverride None
    Order allow,deny
    Allow from all
</Directory>

Alias /ibmcognos "/opt/ibm/cognos/c10_64/webcontent"
<Directory "/opt/ibm/cognos/c10_64/webcontent">
    Options Indexes MultiViews
    AllowOverride None
    Order allow,deny
    Allow from all
</Directory>
```

4. Save and close the file.
5. Go to the HTTP Server bin directory. For example, go to the `/opt/IBM/HTTPServer/bin` directory.
6. Enter the following commands: `./apachectl stop`.
7. Enter the following commands: `./apachectl start`.

## Results

After the services start, you can access the IBM Cognos Analytics portal by going to `http://servername:81/ibmcognos` in a web browser.

If you changed the default port number to 80 for IBM HTTP Server, you do not have to include the port number in the URL. For example, you can enter `http://servername/ibmcognos`.

## Configure the Integration Bus node components

To configure the Integration Bus node components, you must create a broker, a queue manager, and an execution group. You must also set authorizations for the user that runs the broker and queue manager. Authorization is required when the client is running on a different computer than the server components.

### Creating a broker and queue manager

You create a broker for IBM Predictive Customer Intelligence from the command line.

You must assign a user for the broker and queue manager. The user must be a local administrator user.

On Linux operating systems, some additional settings might be required to configure WebSphere MQ. For more information, see the WebSphere MQ documentation ([www.ibm.com/support/knowledgecenter/SSFKSJ\\_8.0.0/com.ibm.mq.ins.doc/q008520\\_.htm](http://www.ibm.com/support/knowledgecenter/SSFKSJ_8.0.0/com.ibm.mq.ins.doc/q008520_.htm)).

### Procedure

1. Log onto the Integration Bus node and, in a terminal window, change to the user that you created. For example, `su mqmuser`.
2. Enter the following command to create the queue manager: `crtmqm queue_manager_name`.

For example, to create a queue manager that is named **pciqmgr**, enter: `crtmqm pciqmgr`.

3. Enter the following command to start the queue manager: `strmqm queue_manager_name`.

For example, to start the queue manager that is named **pciqmgr**, enter: `strmqm pciqmgr`.

4. Enter the following command to create an integration node: `mqsicreatebroker broker_name -q queue_manager_name`.

For example, to create a broker that is named **pcibroker**, enter: `mqsicreatebroker pcibroker -q pciqmgr`.

5. Enter the following command to start the broker: `mqsisstart broker_name` For example, to start a broker that is named **pcibroker**, enter: `mqsisstart pcibroker`.

6. Enter the following command to create an execution group: `mqsicreateexecutiongroup broker_name -e executiongroupname` For example, to create an execution group that is named **pciigroup**, enter: `mqsicreateexecutiongroup pcibroker -e pciigroup`.

## Enabling remote access for the queue manager

For IBM Predictive Customer Intelligence, you must start the queue manager command line processor to enable remote access to the queue manager.

### Procedure

1. Log onto the Integration Bus node and, in a terminal window, change to the user that you created. For example, `su mqmuser`.

2. Enter the following command to start the queue manager: `runmqsc queue_manager_name`

The command line processor is running after you see the message "Starting MQSC for queue manager *queue\_manager\_name*".

3. Enter the following lines, and press Enter after each line:

```
START LISTENER
ALTER QMGR CHLAUTH(ENABLED)
SET CHLAUTH(SYSTEM.BKR.CONFIG) TYPE(ADDRESSMAP) ADDRESS('*')
MCAUSER('mqmuser')
SET CHLAUTH(SYSTEM.BKR.CONFIG) TYPE(BLOCKUSER) USERLIST('*NOACCESS')
END
```

**Important:** The `ADDRESS('*')` value in the command allows connections from any IP address. Consider restricting the access to a single computer. For more information about these values, see the WebSphere MQ documentation.

4. If you want to use a specific port number for the listener, enter the following command:

```
runmq1sr -t tcp -m queue_manager_name -p port_number
```

Ensure that you open the listener port number. If you did not specify a port number, the default port number is 1414 for the first broker you create.

## Testing the installation of the server components on a single node installation

You can test the installation of the IBM Predictive Customer Intelligence server components by accessing some of the component portals.



For example, you can open the IBM Cognos Analytics portal. If the portal opens, IBM Cognos Analytics is installed and running. You can also access the SPSS configuration tool on the Predictive 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://servername:9080/p2pd/servlet`, where *ca\_node\_name* is the name or IP address for the computer where you installed the IBM Predictive Customer Intelligence server components.  
The Content Manager status says **Running**.
3. In the address bar, type the address for the IBM Cognos Analytics portal.  
Alternatively, if you did not configure IBM HTTP Server, you can access the IBM Cognos Analytics portal from the dispatcher URL: `http://servername:9080/p2pd/servlet/dispatch/`.  
Alternatively, if you configured IBM HTTP Server, the address is `http://servername:81/ibmcognos`.
4. In the address bar, type the address for the SPSS administration console.  
The address is `http://analytics_node_name:9081/config`, where *analytics\_node\_name* is the name or IP address for the Predictive Analytics node computer.



---

## Chapter 4. Manually install IBM Predictive Customer Intelligence

When you manually install IBM Predictive Customer Intelligence, you install each component individually by using the installation program that is provided with each component.

---

### Downloading and decompressing the installation files

You must download the IBM Predictive Customer Intelligence solution files from IBM Passport Advantage. For a manual installation, you must install each component individually.

For more information about the files that you must download, see Downloading IBM Predictive Customer Intelligence 1.1.1 ([www.ibm.com/support/docview.wss?uid=swg24042227](http://www.ibm.com/support/docview.wss?uid=swg24042227)).

#### Procedure

1. Access the IBM Passport Advantage web site.

**Tip:** If you receive an error, try using a different web browser to access Passport Advantage.

2. Sign in and navigate to the software downloads page.
3. Find the eImages for IBM Predictive Customer Intelligence.
4. Download an eImage by selecting the check box beside the name. When the download is complete, a **Download Complete** message is displayed. The location of the downloaded files is displayed in the message window.
5. Decompress the eImage files.
  - For an installation on Microsoft Windows operating systems, decompress the `prd_cust_intel_svr_1.1.1_1_win_en.tar.gz`, `prd_cust_intel_svr_1.1.1_2_win_en.tar.gz`, and `prd_cust_intel_svr_1.1.1_3_win_en.tar.gz` files.
  - For an installation on Linux operating systems, decompress the `prd_cust_intel_svr_1.1.1_1_l86_en.tar.gz`, `prd_cust_intel_svr_1.1.1_2_l86_en.tar.gz`, and `prd_cust_intel_svr_1.1.1_3_l86_en.tar.gz` files.
6. Copy the component installation files to each computer on which you want to install the component.

---

### Install IBM DB2 software on the data node computer

You must install IBM DB2 Enterprise Server Edition version 10.5 Fix Pack 5. IBM DB2 is used for product databases, such as the IBM Cognos Analytics content store database, the IBM SPSS database, and for client application data.

After you install the database software, you must create a database for the IBM SPSS components.

#### Installing IBM DB2 Enterprise Server

You must install IBM DB2 Enterprise Server Edition.

**Note:** On Linux operating systems, the setup wizard is a graphical installer that requires an X Windows System (X11) to display the graphical user interface.

### Procedure

1. Go to the DB2 directory where you decompressed the IBM Predictive Customer Intelligence installation files.
2. On Microsoft Windows operating systems:
  - a. Double-click `v10.5fp5_ntx64_server_t.exe` to decompress the installation files.
  - b. Go to the `SERVER_T` directory where you decompressed the files, and double-click `setup.exe`.
3. On Linux operating systems:
  - a. Decompress the `v10.5fp5_linuxx64_server_t.tar.gz` by using the following command: `tar xvf v10.5fp5_linuxx64_server_t.tar.gz`.
  - b. Go to the `server_t` directory.
  - c. Start the installer: `./db2setup`.
4. In the **DB2 Setup Launchpad**, click **Install a Product**.
5. Under **DB2 Version 10.5 Fix Pack 5 Workgroup, Enterprise and Advanced Editions**, click **Install New**.
6. Select **Typical** for the installation type.
7. On the **Select the installation, response file creation, or both** page, accept the default or select **Install DB2 Server Edition on this computer**.
8. Follow the steps in the wizard to install and configure your database server. For more information about any of the settings, see the IBM DB2 documentation on IBM Knowledge Center ([www.ibm.com/support/knowledgecenter/SSEPGG\\_10.5.0/com.ibm.swg.im.dbclient.install.doc/doc/c0023452.html](http://www.ibm.com/support/knowledgecenter/SSEPGG_10.5.0/com.ibm.swg.im.dbclient.install.doc/doc/c0023452.html)).

## Adding the IBM DB2 license

You must add the DB2 license after you install IBM DB2 Enterprise Server for IBM Predictive Customer Intelligence.

### Procedure

1. Go to the DB2 folder where you decompressed the IBM Predictive Customer Intelligence installation files.
2. Decompress the file that is named `DB2_ESE_AUSI_QS_Activ_10.5.0.5.zip`.
3. On Microsoft Windows operating systems:
  - a. Click **Start > IBM DB2 DB2COPY1 (Default) > DB2 Command Window - Administrator**.
  - b. Type the following command and press Enter:

```
db2licm -a decompressed_folder_location\ese_u\db2\license\  
db2ese_u.lic
```

For example, if you decompressed the file in the default location, the command would be: `db2licm -a C:\IBM\PCI\PCI_1.1.1_Server_SW\DB2\DB2_ESE_AUSI_QS_Activ_10.5.0.5\ese_u\db2\license\db2ese_u.lic`
  - c. Type the following command to validate that the license was added:

```
db2licm -l
```
4. On Linux operating systems:
  - a. Change to the database administrator user. For example, `su db2inst1`.

- b. Go to the directory where you decompressed the DB2\_ESE\_AUSI\_QS\_Activ\_10.5.0.5.zip file.
- c. Type the following command and press Enter:  
db2licm -a ese\_u/db2/license/db2ese\_u.lic
- d. Type the following command to validate that the license was added:  
db2licm -l

## Creating a database for the SPSS components

After you install the IBM DB2 database server for IBM Predictive Customer Intelligence, you must create a database for the SPSS components.

### Procedure

1. On the computer where you installed IBM DB2, do one of the following:
  - On Microsoft Windows operating systems, log on as the DB2 instance owner user, and click **Start > IBM DB2 > DB2COPY1 (Default) > DB2 Command Window - Administrator**.
  - On Linux operating systems other than Red Hat Enterprise Linux 7, open a terminal window.
  - On the Red Hat Enterprise Linux 7 operating system, open a terminal window and change to the database administrator user. For example, `su db2inst1`.
2. For the Red Hat Enterprise Linux 7 operating system, enter the command `db2start`.
3. Create a database by entering one of the following commands:
  - For operating systems other than Red Hat Enterprise Linux 7,  

```
DB2 CREATE DATABASE SPSSDB ON path USING CODESET UTF-8
TERRITORY US COLLATE USING SYSTEM
```

*path* can be a file path or just a drive letter. For example, on Microsoft Windows operating systems:

```
DB2 CREATE DATABASE SPSSDB ON C: USING CODESET UTF-8
TERRITORY US COLLATE USING SYSTEM
```
  - For the Red Hat Enterprise Linux 7 operating system,  

```
DB2 CREATE DATABASE 'SPSSDB'
```
4. Connect to the database by entering one of the following commands:
  - For operating systems other than Red Hat Enterprise Linux 7,  

```
DB2 CONNECT TO SPSSDB
```
  - For the Red Hat Enterprise Linux 7 operating system,  

```
DB2 CONNECT TO 'SPSSDB'
```
5. Enter the following commands to create the bufferpools for the database. Enter each command individually.
 

```
DB2 CREATE Bufferpool CDS8K IMMEDIATE SIZE 250 AUTOMATIC PAGESIZE 8 K
```

```
DB2 CREATE REGULAR TABLESPACE CDS8K PAGESIZE 8 K MANAGED BY AUTOMATIC
STORAGE EXTENTSIZE 8 OVERHEAD 10.5 PREFETCHSIZE 8 TRANSFERRATE 0.14
BUFFERPOOL CDS8K DROPPED TABLE RECOVERY ON
```

```
DB2 CREATE Bufferpool CDSTEMP IMMEDIATE SIZE 250 PAGESIZE 32 K
```

```
DB2 CREATE SYSTEM TEMPORARY TABLESPACE CDSTEMP PAGESIZE 32 K MANAGED BY AUTOMATIC
STORAGE EXTENTSIZE 16 OVERHEAD 10.5 PREFETCHSIZE 16 TRANSFERRATE 0.14
BUFFERPOOL "CDSTEMP"
```

6. For the Red Hat Enterprise Linux 7 operating system, enter the following command:  
DB2 CONNECT RESET

---

## Install software on the Predictive Analytics node computer

For IBM Predictive Customer Intelligence, install SPSS software on the Predictive Analytics node computer.

### Installing IBM DB2 client software on the Predictive Analytics node computer

You must install IBM DB2 client software on the IBM Predictive Customer Intelligence Predictive Analytics node computer.

**Note:** On Linux operating systems, the setup wizard is a graphical installer that requires an X Windows System (X11) to display the graphical user interface.

#### Procedure

1. Go to the DB2 folder where you decompressed the IBM Predictive Customer Intelligence installation files.
2. On Microsoft Windows operating systems:
  - a. Double-click `v10.5fp5_ntx64_rtc1.exe` and follow the steps in the wizard.
  - b. Click **Install**.
3. On Linux operating systems:
  - a. Decompress the `v10.5fp5_linux64_rtc1.tar.gz` file by using the following command: `tar xvf v10.5fp5_linux64_rtc1.tar.gz`.
  - b. Go to the `rtc1` directory.
  - c. Start the installer: `./db2setup`.
  - d. In the DB2 Setup Launchpad, click **Install a Product**.
  - e. Under **IBM Data Server Runtime Client Version 10.5 Fix Pack 5**, click **Install New**.
  - f. Select **Typical** for the installation type.
  - g. Select **Install IBM Data Server Runtime Client on this computer**.

### Installing IBM Installation Manager on the Predictive Analytics node computer

Install IBM Installation Manager before you install other IBM Predictive Customer Intelligence software.

#### Procedure

1. Go to the `InstallationMgr` directory where you decompressed the IBM Predictive Customer Intelligence installation files.
2. Decompress the Installation Manager installation file.
3. Start the installer:
  - On Microsoft Windows operating systems, double-click `install.exe`.
  - On Linux operating systems, enter `./install`.
4. Follow the steps to install IBM Installation Manager.

## Installing WebSphere Application Server on the Predictive Analytics node computer

You install WebSphere Application Server by using IBM Installation Manager.

### Procedure

1. Go to the WAS directory where you decompressed the IBM Predictive Customer Intelligence installation files.
2. Decompress the WebSphere Application Server installation files.  
You must decompress all of the compressed files: WASND\_v8.5.5\_1of3.zip, WASND\_v8.5.5\_2of3.zip, and WASND\_v8.5.5\_3of3.zip.
3. Start IBM Installation Manager.
  - On Microsoft Windows operating systems, click **Start > All Programs > IBM Installation Manager > IBM Installation Manager**.
  - On Linux operating systems, start IBM Installation Manager from the **Application Browser** or go to the `/opt/IBM/InstallationManager/eclipse` directory, and run `./IBMIM`.
4. Click **File > Preferences**.
5. Click **Add Repository**.
6. Browse to the location where you decompressed the WebSphere Application Server installation files.
7. In the directory where you decompressed the installation files, select `repository.config`, click **OK** to close the dialog.
8. In IBM Installation Manager, click **Install**.
9. Under **IBM WebSphere Application Server Network Deployment**, select **Version 8.5.5.0**.
10. Click **Next**, and follow the steps in IBM Installation Manager to install the product.
11. When prompted for **Which program do you want to start?**, select **Profile Management Tool to create a profile**, and click **Finish**.
12. In the **WebSphere Customization Toolbox 8.5** window, click **Create**.
13. Select **Application Server**, and click **Next**.
14. Select **Typical profile creation**, and click **Next**.
15. Follow the steps in the wizard to configure your application server. For more information about any of the settings, see the WebSphere Application Server documentation.

**Note:** After the installation is complete, do not start the WebSphere Application Server services.

### Upgrading WebSphere Application Server

You update the WebSphere Application Server by using IBM Installation Manager.

### Procedure

1. Go to the WAS directory where you decompressed the IBM Predictive Customer Intelligence installation files.
2. Decompress the WebSphere Application Server fix pack installation files.  
You must decompress all of the compressed files: 8.5.5-WS-WAS-FP0000006-part1.zip and 8.5.5-WS-WAS-FP0000006-part2.zip.
3. For the Red Hat Enterprise Linux 7 operating system, move the part2 unzipped files into the part1 folder.

4. Start IBM Installation Manager.
  - On Microsoft Windows operating systems, click **Start > All Programs > IBM Installation Manager > IBM Installation Manager**.
  - On Linux operating systems, start IBM Installation Manager from the **Application Browser** or go to the `/opt/IBM/InstallationManager/eclipse` directory, and run `./IBMIM`.
5. Click **File > Preferences**.
6. Click **Add Repository**.
7. Browse to the location where you decompressed the installation files.
8. In the directory where you decompressed the WebSphere Application Server fix pack installation files, select `repository.config`, click **OK** to close the dialog.
9. In **IBM Installation Manager**, click **Update**.
10. Select **IBM WebSphere Application Server V8.5**, and click **Next**.
11. Follow the steps in **IBM Installation Manager** to install the product.
12. Click **Finish**.

## Installing IBM SPSS Collaboration and Deployment Services Server

You install IBM SPSS Collaboration and Deployment Services Server on the IBM Predictive Customer Intelligence Predictive Analytics node computer.

If you want to install multiple IBM SPSS Collaboration and Deployment Services instances, see the product documentation ([www.ibm.com/support/knowledgecenter/SS69YH\\_7.0.0/cads\\_config\\_ddita/model\\_management/thin/pes\\_clustering.dita](http://www.ibm.com/support/knowledgecenter/SS69YH_7.0.0/cads_config_ddita/model_management/thin/pes_clustering.dita)).

### Procedure

1. Go to the `SPSS_CDS` directory where you decompressed the IBM Predictive Customer Intelligence installation files.
2. Decompress the `spss_cnds_svr_7.0_mp_ml.zip` file.
3. Start IBM Installation Manager.
  - On Microsoft Windows operating systems, click **Start > All Programs > IBM Installation Manager > IBM Installation Manager**.
  - On Linux operating systems, start IBM Installation Manager from the **Application Browser** or go to the `/opt/IBM/InstallationManager/eclipse` directory, and run `./IBMIM`.
4. Click **File > Preferences**.
5. Click **Add Repository**.
6. Browse to the location where you decompressed the installation files.
7. In the `Server_Repository` directory where you decompressed the installation files, select `repository.config`, click **OK** to close the dialog.
8. In IBM Installation Manager, click **Install**.
9. Under **Installation Packages**, select the following components.
  - **IBM SPSS Collaboration and Deployment Services - Remote Scoring Server**
  - **IBM SPSS Collaboration and Deployment Services - Repository Server**
  - **IBM SPSS PMML Scoring Adapter**



10. Click **Next**, and follow the steps in IBM Installation Manager to install the products.
11. On the **Common Configurations** page, enter the following information:
  - URL** Enter the name or IP address of the Predictive Analytics node computer and the port number and click **Finish**. For example, enter `http://servername:9080`.
  - Username**  
Enter the SPSS admin user name that you used when you installed the IBM SPSS Collaboration and Deployment Services Server.
  - Password**  
Enter the SPSS admin user's password.
12. Click **Install**.
13. In the **Which programs do you want to start** box, select **IBM SPSS Collaboration and Deployment Services Configuration Tool**, and click **Finish**.
14. In the **IBM SPSS Collaboration and Deployment Services Configuration Tool**, click **Next**.
15. On the **Application Server** page, enter the information for IBM WebSphere Application Server, and click **Next**.  
For the **WebSphere profile directory** value, the default location on Microsoft Windows operating systems is `C:\Program Files (x86)\IBM\WebSphere\AppServer\profiles\AppSrv01`. On Linux operating systems, the default is `/opt/IBM/WebSphere/AppServer/profiles/AppSrv01`.
16. On the **Database** page, enter the information for the SPSSDB database, and click **Next**.  
The default port number on Microsoft Windows and Red Hat Enterprise Linux 7 operating systems is 50000. On other Linux operating systems, the default port number is 50001.
17. On the **Encryption** page, enter a password, and click **Next**.
18. On the **Repository Admin** page, enter a password for the SPSS admin user, and click **Next**.
19. On the **Deployment mode** page, select **Automatic**, and click **Next**.
20. On the **Configuration summary** page, click **Configure**.
21. Click **Finish**.

## Installing IBM SPSS Enterprise View Driver software

Install IBM SPSS Collaboration and Deployment Services Enterprise View Driver software on the IBM Predictive Customer Intelligence Predictive Analytics node computer.

This component has been deprecated since the release of IBM Predictive Customer Intelligence version 1.1. For more information about replacement options, see Appendix F, "Deprecated components for PCI 1.1," on page 109.

### Procedure

1. Go to the `SPSS_CDS\Drivers` directory where you decompressed the IBM Predictive Customer Intelligence installation files.
2. Decompress the installation files.
3. Go to the `Enterprise_View_Driver_64` directory.
4. Start the installer.

- On Microsoft Windows operating systems, double-click `setupWindows64-amd64.exe`.
  - On Linux operating systems, enter the following command:  
`./setupLinux64-amd64.bin`.  
 If you cannot run the executable, change the permissions by entering the following before you run the command: `chmod +x setupLinux64-amd64.bin`.
5. Follow the steps in the wizard to install the driver.

## Installing IBM SPSS Modeler Server software

Install and update IBM SPSS Modeler Server software on the IBM Predictive Customer Intelligence Predictive Analytics node computer.

### Procedure

1. Go to the `SPSS_Modeler_Server` directory where you decompressed the IBM Predictive Customer Intelligence installation files.
2. Start the installer.
  - On Microsoft Windows operating systems, decompress `spss_mod_svr_17.1_win_ml.zip`, and double-click `setup.exe`.
  - On Linux operating systems, enter the following command:  
`./spss_mod_svr_17.1_lx86_ml.bin`.  
 If you cannot run the executable, change the permissions by entering the following before you run the command: `chmod +x spss_mod_svr_17.1_lx86_ml.bin`.
3. On the **Server Mode** page, select **Production Mode**.
4. Follow the steps in the wizard to install the server.

## Installing IBM SPSS Modeler Premium Server software

Install and update IBM SPSS Modeler Premium Server software on the IBM Predictive Customer Intelligence Predictive Analytics node computer

### Before you begin

Ensure that you install IBM SPSS Modeler Server software before you install IBM SPSS Modeler Premium Server software.

### Procedure

1. Go to the `SPSS_Modeler_Server` directory where you decompressed the IBM Predictive Customer Intelligence installation files.
2. Start the installer.
  - On Microsoft Windows operating systems, decompress `spss_mod_prm_svr_17.1_win_ml.zip`, and double-click `setup.exe`.
  - On Linux operating systems, decompress `spss_mod_prm_svr_17.1_lx86_ml.zip`, go to the directory where you decompressed the files, and enter the following command:  
`./premium_server_linux64.bin`.  
 If you cannot run the executable, change the permissions by entering the following before you run the command: `chmod +x premium_server_linux64.bin`.
3. Follow the steps in the wizard to install the server.

## Installing IBM SPSS Modeler adapters for Collaboration and Deployment Services

Install IBM SPSS Modeler adapters for Collaboration and Deployment Services software on the IBM Predictive Customer Intelligence Predictive Analytics node computer.

### Procedure

1. Go to the SPSS\_CDS/Adapters directory where you decompressed the IBM Predictive Customer Intelligence server installation files.
2. Decompress the installation files.
  - On Microsoft Windows operating systems, decompress `spss_mod_17.1_cndsadp_7.0_win_ml.zip`.
  - On Linux operating systems, decompress `spss_mod_17.1_cndsadp_7.0_lx86ml.zip`.
3. Start IBM Installation Manager.
  - On Microsoft Windows operating systems, click **Start > All Programs > IBM Installation Manager > IBM Installation Manager**.
  - On Linux operating systems, start IBM Installation Manager from the **Application Browser** or go to the `/opt/IBM/InstallationManager/eclipse` directory, and run `./IBMIM`.
4. Click **File > Preferences**.
5. Click **Add Repository**.
6. Browse to the location where you decompressed the installation files.
7. In the `disk1` folder, select `diskTag.inf`, click **OK** to close the dialog.
8. In IBM Installation Manager, click **Install**.
9. Under **Installation Packages**, select **IBM SPSS Modeler Adapters for Collaboration and Deployment Services**.
10. Click **Next**, and follow the steps in IBM Installation Manager to install the product.
11. On the **Install Packages** page, select **Use the existing package group**, select **IBM SPSS Collaboration and Deployment Services 7.0**, and click **Next**.
12. On the **Common Configurations** page, enter the SPSS administrator user and password, and click **Next**.
13. Click **Install**, and click **Finish**.

## Installing IBM Analytical Decision Management software

Install IBM Analytical Decision Management software on the IBM Predictive Customer Intelligence Predictive Analytics node computer.

A sample Analytical Decision Management application is provided with the installation files. The sample application is provided in a compressed file that is named `ADM_80_Demo.zip`. For more information about the sample file, see the Analytical Decision Management documentation ([www.ibm.com/support/knowledgecenter/SS6A3P\\_8.0.0](http://www.ibm.com/support/knowledgecenter/SS6A3P_8.0.0)).

### Procedure

1. Go to the ADM directory where you decompressed the IBM Predictive Customer Intelligence server installation files.
2. Decompress the installation files: `ibm_adm_17.0_mp_ml.zip`.
3. Start IBM Installation Manager.

- On Microsoft Windows operating systems, click **Start > All Programs > IBM Installation Manager > IBM Installation Manager**.
  - On Linux operating systems, start IBM Installation Manager from the **Application Browser** or go to the `/opt/IBM/InstallationManager/eclipse` directory, and run `./IBMIM`.
4. Click **File > Preferences**.
  5. Click **Add Repository**.
  6. Browse to the location where you decompressed the installation files.
  7. In the `adm_repository` folder, select `repository.config`, and click **OK** to close the dialog.
  8. In IBM Installation Manager, click **Install**.
  9. Under **Installation Packages**, select **IBM Analytical Decision Management**.
  10. Click **Next**, and follow the steps in IBM Installation Manager to install the product.
  11. On the **Install Packages** page, select **Use the existing package group**, select **IBM SPSS Collaboration and Deployment Services 7.0**, and click **Next**.
  12. On the **Install Packages** page, select **Production** for the **Installation Type**. Ensure that all of the options under **IBM Analytical Decision Management Applications** are selected.
  13. On the **Common Configurations** page, enter the SPSS administrator user and password, and click **Next**.
  14. Click **Install**.
  15. Click **Finish**.

## Installing IBM SPSS Data Access Pack

Install the IBM SPSS Data Access Pack software on the IBM Predictive Customer Intelligence Predictive Analytics node computer.

### Before you begin

You must stop the IBM WebSphere Application Server profile where IBM SPSS products are installed and stop IBM SPSS Modeler Server before you install the Data Access Pack.

### Procedure

1. Stop the WebSphere Application Server instance.
  - On Microsoft Windows operating systems, click **Start > All Programs > IBM WebSphere > Profiles > AppSrv01 > Stop the server**.
  - On Linux operating systems, go to the WebSphere Application Server profile `bin` directory, and enter the following command: `./stopServer.sh server1`.  
The default path to is `/opt/IBM/WebSphere/AppServer/profiles/AppSrv01/bin`.
2. Stop IBM SPSS Modeler Server.
  - On Microsoft Windows operating systems, stop the service from **Control Panel > Administrative Tools > Services**.
  - On Linux operating systems, go to the `/usr/IBM/SPSS/ModelerServer/17.0` directory, and enter the following command: `./modelersrv.sh stop`.

For more information, see the IBM SPSS Modeler documentation ([www.ibm.com/support/docview.wss?uid=swg27043831](http://www.ibm.com/support/docview.wss?uid=swg27043831)).

3. Go to the SPSS\_DAP directory where you decompressed the IBM Predictive Customer Intelligence server installation files.
4. Decompress the installation file SPSS\_DATA\_ACCESS\_PACK\_7.1.1\_MP\_EN.zip.
5. Start the installer.
  - On Microsoft Windows operating systems, go to the Win64 directory, and double-click SDAP\_7.1\_win64.exe.
  - On Linux operating systems, go to the Linux directory, and run the following command: `./SDAP_7.1_Linux64.bin`.  
If you cannot run the executable, change the permissions by entering the following before you run the command: `chmod +x SDAP_7.1_Linux64.bin`.
6. Follow the steps in the wizard to install the Data Access Pack.
7. Start the WebSphere Application Server instance.
  - On Microsoft Windows operating systems, click **Start > All Programs > IBM WebSphere > Profiles > AppSrv01 > Start the server**.
  - On Linux operating systems, go to the WebSphere Application Server profile bin directory, and enter the following command: `./startServer.sh server1`.  
The default path is `/opt/IBM/WebSphere/AppServer/profiles/AppSrv01/bin`.
8. Start IBM SPSS Modeler Server.
  - On Microsoft Windows operating systems, start the service from **Control Panel > Administrative Tools > Services**.
  - On Linux operating systems, go to the `/usr/IBM/SPSS/ModelerServer/17.0` directory, and enter the following command: `./modelersrv.sh start`.

## Installing IBM SPSS Statistics Server software

Install IBM SPSS Statistics Server software on the IBM Predictive Customer Intelligence Predictive Analytics node computer.

### Procedure

1. Go to the SPSS\_Stats\_Server directory where you decompress the IBM Predictive Customer Intelligence server installation files.
2. Start the installer.
  - On Microsoft Windows operating systems, decompress SPSS\_SERVER\_23.0\_MW\_ML.zip, and in the SPSS\_SERVER\_23.0\_MW\_ML directory, double-click setup.exe.
  - On Linux operating systems, enter the following command:  
`./SPSSSS23_LINUX_X86-64_ML.bin`.  
If you cannot run the executable, change the permissions by entering the following before you run the command: `chmod +x SPSSSS23_LINUX_X86-64_ML.bin`.
3. Follow the steps in the wizard to install the software.
4. On the **Server Mode** page, select **Production Mode**.
5. On the **IBM SPSS Statistics - Essentials for Python** page, click **Yes**, and then click **Next**.

## Installing IBM SPSS Statistics Collaboration and Deployment Services adapters

Install IBM SPSS Statistics Collaboration and Deployment Services adapter software on the IBM Predictive Customer Intelligence Predictive Analytics node computer.

## Procedure

1. Go to the SPSS\_CDS\Adapters directory where you decompressed the IBM Predictive Customer Intelligence server installation files.
2. Decompress SPSS\_23.0\_CDSA\_7.0\_MP\_ML.zip.
3. Start IBM Installation Manager.
  - On Microsoft Windows operating systems, click **Start > All Programs > IBM Installation Manager > IBM Installation Manager**.
  - On Linux operating systems, start IBM Installation Manager from the **Application Browser** or go to the /opt/IBM/InstallationManager/eclipse directory, and run ./IBMIM.
4. Click **File > Preferences**.
5. Click **Add Repository**.
6. Browse to the location where you decompressed the installation files.
7. In the CnDS70/repository directory, select repository.config, and click **OK** to close the dialog.
8. In IBM Installation Manager, click **Install**.
9. Under **Installation Packages**, select **IBM SPSS Collaboration and Deployment Services - Server Adapter for Statistics**.
10. Click **Next**, and follow the steps in IBM Installation Manager to install the product.
11. On the **Install Packages** page, select **Use the existing package group**, select **IBM SPSS Collaboration and Deployment Services 7.0**, and click **Next**.
12. On the **Common Configurations** page, enter the SPSS administrator user and password, and click **Next**.
13. Click **Install**.
14. Click **Finish**.

---

## Install software on the Cognos Analytics node computer

You must install an IBM DB2 client and IBM Cognos Analytics on the IBM Predictive Customer Intelligence Cognos Analytics node computer.

If you want to customize the installation of IBM Cognos Analytics, such as distributing the installation among different computers, see the product documentation ([http://www.ibm.com/support/knowledgecenter/SSEP7J\\_11.0.0/com.ibm.swg.ba.cognos.inst\\_cr\\_winux.11.0.0.doc/c\\_installservercompsdistributed.html](http://www.ibm.com/support/knowledgecenter/SSEP7J_11.0.0/com.ibm.swg.ba.cognos.inst_cr_winux.11.0.0.doc/c_installservercompsdistributed.html)).

## Installing IBM DB2 client software on the CA node computer

You must install IBM DB2 client software on the IBM Predictive Customer Intelligence Cognos Analytics node computer.

**Note:** On Linux operating systems, the setup wizard is a graphical installer that requires an X Windows System (X11) to display the graphical user interface.

## Procedure

1. Go to the DB2 folder where you decompressed the IBM Predictive Customer Intelligence installation files.
2. On Microsoft Windows operating systems:
  - a. Double-click v10.5fp5\_ntx64\_rtc1.exe and follow the steps in the wizard.

- b. Click **Install**.
3. On Linux operating systems:
  - a. Decompress the `v10.5fp5_linuxx64_rtcl.tar.gz` file by using the following command: `tar xvf v10.5fp5_linuxx64_rtcl.tar.gz`.
  - b. Go to the `rtcl` directory.
  - c. Start the installer: `./db2setup`.
  - d. In the DB2 Setup Launchpad, click **Install a Product**.
  - e. Under **IBM Data Server Runtime Client Version 10.5 Fix Pack 5**, click **Install New**.
  - f. Select **Typical** for the installation type.
  - g. Select **Install IBM Data Server Runtime Client on this computer**.

## Installing IBM Cognos Analytics

Install IBM Cognos Analytics software on the IBM Predictive Customer Intelligence Cognos Analytics node computer.

By default IBM Cognos Analytics is installed to:

- on Microsoft Windows operating systems: `<drive>\Program Files\ibm\cognos\analytics`
- on Linux operating systems: `/opt/ibm/cognos/analytics`.

To download IBM Cognos Analytics, see IBM Knowledge Center (<http://www.ibm.com/support/docview.wss?uid=swg24042511>).

### Procedure

Install IBM Cognos Analytics.

1. Go to the CA directory where you decompressed the IBM Predictive Customer Intelligence server installation files.
2. On Microsoft Windows operating systems, double-click `ca_srv_win64_11.0.2.16042816.exe`.
3. Follow the steps of the InstallAnywhere wizard to install the server software.
4. On Linux operating systems, enter the command: `./ca_srv_linuxi38664_11.0.2.16042816.bin`. If you cannot run the executable, change the permissions by entering the following before you run the command: `chmod +x ca_srv_linuxi38664_11.0.2.16042816.bin`.
5. Follow the steps in the wizard to install the server software.
6. On the **Install Type, Customer** page, keep the default setting:
  - **Application Tier**
  - **Gateway Tier**

**Note:** Do not install the **Cognos Content Database** component.

7. Clear the **Start IBM Cognos Configuration** box, and click **Finish**.

## Configure and start IBM Cognos Analytics

After you install IBM Cognos Analytics, you must create a content store database, save your configuration settings, and start the services.

## Copying the JDBC files for IBM DB2

You must copy three jar files from your IBM DB2 installation to your IBM Cognos Analytics installation location.

### Procedure

Copy the `db2jcc.jar`, `db2jcc4.jar`, and `db2jcc_license.jar` files from the `DB2_client_installation\java` directory to the following directories:

- For operating systems other than Red Hat Enterprise Linux 7, `Cognos_Installation\drivers`
- For the Red Hat Enterprise Linux 7 operating system, `/opt/ibm/db2/v10.5/java`

## Configuring IBM Cognos Analytics

You configure IBM Cognos Analytics by using IBM Cognos Configuration.

For more information about configuring IBM Cognos CA, see the Cognos Analytics **Installation FAQ 11.0.0** ([http://www.ibm.com/support/knowledgecenter/SSEP7J\\_11.0.0/kc\\_gen/com.ibm.swg.ba.cognos.cbi.doc\\_analytics\\_toc-gen5.html](http://www.ibm.com/support/knowledgecenter/SSEP7J_11.0.0/kc_gen/com.ibm.swg.ba.cognos.cbi.doc_analytics_toc-gen5.html)).

### Before you begin

On Linux operating systems, you must have a **JAVA\_HOME** value set. Set **JAVA\_HOME** to the Java™ that is provided with IBM Cognos Analytics Server. For example, set your **JAVA\_HOME** environment variable to `/opt/ibm/cognos/analytics/jre`.

### Procedure

1. Start IBM Cognos Configuration.
  - On Microsoft Windows operating systems, click **Start > All Programs > IBM Cognos Analytics > IBM Cognos Configuration**.
  - On Linux operating systems, go to the `Cognos_install_location/bin64` directory, and enter the following command: `./cogconfig.sh`.  
For example, go to `/opt/ibm/cognos/analytics/bin64`.
2. On Microsoft Windows operating systems, in the **Explorer** pane, select **Environment**, and replace `localhost` with the name or IP address of your computer in the following fields:
  - **Gateway URI** (If you are using a port number other than 80 for the web server, ensure that you also change the port number value to the port number for IBM HTTP Server.)
  - **Dispatcher URIs for Gateway**
  - **External dispatcher URI**
  - **Internal dispatcher URI**
  - **Dispatcher URI for external applications**
  - **Content Manager URIs**
3. Scroll down to the category **Other URI Settings** and click **Configuration Server**. Set the value to the local server by right-clicking and then clicking **Reset to Default**.
4. On Linux operating systems:
  - a. On the **Configure IBM Cognos Environment** page, ensure that you enter the correct host information. The port numbers will need to be updated based on your environment (if the port numbers are not the default values). These values are applied to the IBM Cognos Configuration **Environment** settings.



Ensure that you enter the port number in the URLs:

- **Internal dispatcher URI**
- **External dispatcher URI**
- **Content Manager URIs**
- **Dispatcher URIs for gateway**
- **Dispatcher URI for external applications**

For example, change `http://localhost:9300/p2pd/servlet/dispatch` to `http://servername:9080/p2pd/servlet/dispatch`.

For the **Content Manager URIs** and **Dispatcher URIs for Gateway** values, click the edit icon to change the values.

In the **Gateway URI** box, change **localhost** to the name or IP address of your computer, and leave the port number unchanged.

- b. Click **Next**, and then click **Finish**
5. Leave IBM Cognos Configuration open.

## Creating a content store database for IBM Cognos Analytics

You create a database script on your IBM Predictive Customer Intelligence Cognos Analytics node computer when you configure IBM Cognos Analytics. You use the script to create the content store database on your data node computer.

### Procedure

1. In IBM Cognos Configuration, configure a content store database.

**Note:** The information that you enter is used to generate a script that you use to create the content store database on the data node computer.

- a. In the **Explorer** pane, under **Data Access > Content Manager**, click **Content Store**.
- b. In the **Database server and port number** field, enter the name of the computer and the port number on which you installed IBM DB2 Enterprise Server. For example, enter `servername:50000`, where `servername` is the name of the data node computer and 50000 is the default port number that is used by IBM DB2.

On Linux operating systems, the default port number is 50001.

- c. Click the **Value** field next to the **User ID and password** property, click the edit icon, and enter the **User ID** and **Password** for your IBM DB2 user, and click **OK**.
- d. In the **Properties** pane, for the **Database name** property, enter a name for your content store database.

The default name is `cm`.

**Restriction:** Do not use a name longer than 8 characters and use only letters, numbers, underscores, or hyphens in the name.

2. Right-click **Content Store**, and click **Generate DDL**.

The DDL file, `createDb.sql`, is created in the `Cognos_installation\configuration\schemas\content\db2` directory.

3. Copy `createDb.sql` from the CA node computer to the data node computer.
4. On your data node computer, create the content store database.
  - a. Log on to the data node computer as a DB2 user with privileges to create a database or change to the database instance owner.

- b. On Microsoft Windows operating systems, click **Start > IBM DB2 > DB2COPY1 (Default) > DB2 Command Window - Administrator**.
  - c. On Linux operating systems, open a terminal window.
  - d. Type `db2 -tvf path\createDb.sql`, and press Enter.
5. In IBM Cognos Configuration, click **File > Save**.
  6. Test the connection to the content store database. In IBM Cognos Configuration, in the **Explorer** pane, under **Data Access > Content Manager**, right-click **Content Store**, and click **Test**.

**Note:** If the connection does not succeed, you must correct any issues before you can start the IBM Cognos Analytics services.

7. On Microsoft Windows operating systems, leave IBM Cognos Configuration open.

### Starting the IBM Cognos Analytics services

You can start the IBM Cognos Analytics services by using IBM Cognos Configuration.

#### Procedure

1. On Microsoft Windows operating systems, in IBM Cognos Configuration, click **Actions > Start**.
2. On Linux operating systems:
  - a. Log in to the CA node computer as **root**.
  - b. Go to the Cognos Analytics installation directory. For example, go to `/opt/ibm/cognos/analytics/bin64`.
  - c. Enter the following command: `./cogconfig.sh -s`.

**Note:** It can take some time for the IBM Cognos Analytics services to start for the first time.

---

## Install software on the Integration Bus node computer

You must install WebSphere MQ and IBM Integration Bus on the IBM Predictive Customer Intelligence Integration Bus node computer.

### Installing IBM DB2 client software on the Integration Bus node computer

You must install IBM DB2 client software on the IBM Predictive Customer Intelligence Integration Bus node computer.

#### Procedure

1. Go to the DB2 folder where you decompressed the IBM Predictive Customer Intelligence installation files.
2. On Microsoft Windows operating systems:
  - a. Double-click `v10.5fp5_ntx64_rtcl.exe` and follow the steps in the wizard.
  - b. Click **Install**.
3. On Linux operating systems:
  - a. Decompress the `v10.5fp5_linuxx64_rtcl.tar.gz` file by using the following command: `tar xvf v10.5fp5_linuxx64_rtcl.tar.gz`.
  - b. Go to the `rtcl` directory.
  - c. Start the installer: `./db2setup`.

- d. In the DB2 Setup Launchpad, click **Install a Product**.
- e. Under **IBM Data Server Runtime Client Version 10.5 Fix Pack 5**, click **Install New**.
- f. Select **Typical** for the installation type.
- g. Select **Install IBM Data Server Runtime Client on this computer**.

## Installing IBM MQ

Install IBM MQ (formerly WebSphere MQ) on the IBM Predictive Customer Intelligence Integration Bus node computer.

**Note:** If you are installing the software as a domain user account instead of a local administrator, you must provide a domain user account with authority to query information about user accounts. For more information, see the IBM MQ documentation ([www.ibm.com/support/knowledgecenter/SSFKSJ\\_8.0.0](http://www.ibm.com/support/knowledgecenter/SSFKSJ_8.0.0)).

### Procedure

1. Log on to the computer where you are installing IBM MQ as a local administrator on Microsoft Windows operating systems, or as root or a user with sudo permissions on Linux operating systems.
2. Go to the MQ directory where you decompressed the IBM Predictive Customer Intelligence server installation files.
3. Decompress the installation files.
  - On Microsoft Windows operating systems, decompress `WS_MQ_V8.0.0.2_FOR_WINDOWS_EIMAGE.zip`.
  - On Linux operating systems, decompress `WS_MQ_V8.0.0.2_LINUX_ON_X86_64_I.tar.gz`.
4. On Microsoft Windows operating systems:
  - a. Go to the directory where you decompressed the files, and double-click `Setup.exe`.
  - b. Click **Software Requirements**, and ensure that you are using a supported operating system.
  - c. Click **Network Configuration**, and select **No for Configuring WebSphere MQ for Windows domain users**.
  - d. Click **WebSphere MQ Installation**, and click **Launch IBM Websphere MQ Installer**.
  - e. Select **Typical** for the **Setup Type**, and follow the steps in the wizard to install the server software.
  - f. When the installation is complete, click **Finish**.  
The **Prepare WebSphere MQ Wizard** appears.
  - g. Follow the steps in the wizard.  
When you are prompted to identify a domain controller, select **No** if you are installing as a local administrator account, and click **Next**.
  - h. Click **Finish**.
5. On Linux operating systems:
  - a. Go to the server directory where you decompressed the files.
  - b. Run the `mqlicense.sh` script, and accept the agreement. For example, enter `./mqlicense.sh`.
  - c. To install all of the components to the default location, `/opt/mqm`, enter the following command: `rpm -ivh MQSeries*.rpm`.

For more information and examples, see the IBM MQ documentation on IBM Knowledge Center ([www.ibm.com/support/knowledgecenter/SSFKSJ\\_8.0.0/com.ibm.mq.ins.doc/q008640\\_.htm](http://www.ibm.com/support/knowledgecenter/SSFKSJ_8.0.0/com.ibm.mq.ins.doc/q008640_.htm)).

## Updating IBM MQ

Follow these steps to install the IBM MQ Fix Pack.

### Procedure

1. Go to the MQ directory where you decompressed the IBM Predictive Customer Intelligence server installation files.
2. Decompress the IBM MQ fix pack installation files.
  - On Microsoft Windows operating systems, decompress 8.0.0-WS-MQ-Windows-FP0003b.zip.
  - On Linux operating systems, decompress 8.0.0-WS-MQ-LinuxX64-FP0003b.tar.gz.
3. Run the installer:
  - On Microsoft Windows operating systems, double-click WS-MQ-8.0.0-FP0003.exe.  
In the **Installation type** page, select **Load files and apply fix pack**.
  - On Linux operating systems, install the rpm packages.  
To install all of the fix pack files, enter the following command: `rpm -ivh MQSeries*.rpm`.  
For more information, see the IBM MQ documentation on IBM Knowledge Center ([www.ibm.com/support/knowledgecenter/SSFKSJ\\_8.0.0/com.ibm.mq.mig.doc/q008050\\_.htm](http://www.ibm.com/support/knowledgecenter/SSFKSJ_8.0.0/com.ibm.mq.mig.doc/q008050_.htm))

## Installing IBM Integration Bus

Install IBM Integration Bus and IBM Integration Explorer on the IBM Predictive Customer Intelligence Integration Bus node computer.

### Before you begin

Ensure that you install WebSphere MQ before you install IBM Integration Bus.

On Linux operating systems, you must set up the appropriate user security to install IBM Integration Bus. For more information, see IBM Knowledge Center ([www.ibm.com/support/knowledgecenter/SSMKHH\\_10.0.0/com.ibm.etools.mft.doc/bh26031\\_.htm](http://www.ibm.com/support/knowledgecenter/SSMKHH_10.0.0/com.ibm.etools.mft.doc/bh26031_.htm)).

### Procedure

1. Go to the IntegrationBus directory where you decompressed the IBM Predictive Customer Intelligence server installation files.
2. On Microsoft Windows operating systems, double-click 10.0.0-IIB-WINX64-FP0001.exe, and follow the steps in the IBM Integration Bus installation wizard.
3. On Linux operating systems:
  - a. Decompress 10.0.0-IIB-LINUX64-FP0001b.tar.gz.
  - b. Copy the iib-10.0.0.1 directory where you decompressed the files to the program directory. For example, copy the iib-10.0.0.1 directory to the /opt/IBM directory.
  - c. In the iib-10.0.0.1 directory, enter `./iib make registry global accept license` and click **Accept** to accept the license agreement and complete the software installation.

**Tip:** After the installation is complete, enter the following to verify the installation: `./iib verify all`.

- d. Create a user for the software, and add the user to the **mqm** and **mqbrkrs** groups that were created during the installation. For example, create a user that is named **mqmuser**.

## Creating a broker and queue manager

You create a broker for IBM Predictive Customer Intelligence from the command line.

You must assign a user for the broker and queue manager. The user must be a local administrator user.

On Linux operating systems, some additional settings might be required to configure WebSphere MQ. For more information, see the WebSphere MQ documentation ([www.ibm.com/support/knowledgecenter/SSFKSJ\\_8.0.0/com.ibm.mq.ins.doc/q008520\\_.htm](http://www.ibm.com/support/knowledgecenter/SSFKSJ_8.0.0/com.ibm.mq.ins.doc/q008520_.htm)).

### Procedure

1. On Microsoft Windows operating systems, log on to the Integration Bus node as a local administrator user. On Linux operating systems, change to the user that you created. For example, change to the **mqmuser**.
2. Enter the following command to create the queue manager: `crtmqm queue_manager_name`.  
For example, to create a queue manager that is named **pciqmgr** on Microsoft Windows operating systems, enter: `crtmqm pciqmgr`.  
On Linux operating systems, depending on your profile, you might have to go to the `/opt/mqm/bin` directory and enter `./crtmqm pciqmgr`.
3. Enter the following command to start the queue manager: `strmqm queue_manager_name`.  
For example, to start the queue manager that is named **pciqmgr** on Microsoft Windows operating systems, enter: `strmqm pciqmgr`.
4. Start the `mqsic` console:
  - On Microsoft Windows operating systems, go to the `installation_location\IIB\10.0.0.1\server\bin` directory, and run `mqsicCommandConsole.exe`.
  - On Linux operating systems, go to the `server/bin` directory where you copied the IBM Integration Bus files, and source the `mqsiprofile` file. For example, go to the `/opt/IBM/iib-10.0.0.1/server/bin` directory, and enter the following command: `source mqsiprofile`.
5. Create a broker or integration node:
  - On Microsoft Windows operating systems, enter the following command to create a broker: `mqsicreatebroker broker_name -i LocalSystem -q queue_manager_name`.
  - On Linux operating systems, enter the following command to create an integration node: `mqsicreatebroker broker_name -q queue_manager_name`.  
For example, to create a broker that is named **pcibroker** on Microsoft Windows operating systems, enter: `mqsicreatebroker pcibroker -i LocalSystem -q pciqmgr`.
6. Enter the following command to start the broker: `mqsistart broker_name` For example, to start a broker that is named **pcibroker**, enter: `mqsistart pcibroker`.
7. Enter the following command to create an execution group: `mqsicreateexecutiongroup broker_name -e executiongroupname` For example,

to create an execution group that is named **pciigroup**, enter:  
mqsicreateexecutiongroup pcibroker -e pciigroup.

## Enabling remote access for the queue manager

For IBM Predictive Customer Intelligence, you must start the queue manager command line processor to enable remote access to the queue manager.

### Procedure

1. On Microsoft Windows operating systems, in the `mqsiCommandConsole`, enter the following command to start the queue manager: `runmqsc queue_manager_name`
2. On Linux operating systems, as the user you created, enter the following command to start the queue manager: `runmqsc queue_manager_name`

The command line processor is running after you see the message "Starting MQSC for queue manager `queue_manager_name`".

3. Enter the following lines, and press Enter after each line:

```
START LISTENER
ALTER QMGR CHLAUTH(ENABLED)
SET CHLAUTH(SYSTEM.BKR.CONFIG) TYPE(ADDRESSMAP) ADDRESS('*')
MCAUSER('mqmuser')
SET CHLAUTH(SYSTEM.BKR.CONFIG) TYPE(BLOCKUSER) USERLIST('*NOACCESS')
END
```

**Important:** The `ADDRESS('*')` value in the command allows connections from any IP address. Consider restricting the access to a single computer. For more information about these values, see the WebSphere MQ documentation.

4. If you want to use a specific port number for the listener, enter the following command:

```
runmqslsr -t tcp -m queue_manager_name -p port_number
```

Ensure that you open the listener port number. If you did not specify a port number, the default port number is 1414 for the first broker you create.

---

## Computer firewall settings for the server components after installation

Each IBM Predictive Customer Intelligence node that is installed on a Linux operating system requires certain ports to be opened for the server components to operate in a multi-computer solution. You must configure your firewall settings for each specific node.

### Configuring your firewall settings for the Predictive Analytics node computer

On Linux operating systems, you must ensure that certain ports are open on the Predictive Analytics node computer for IBM Predictive Customer Intelligence.

The following ports must be open:

- 45088
- 58313
- 28054
- 3022
- tungsten-https
- glrpc

- corbaloc
- 59356
- 9043
- 9060
- 9080

**Note:** If you installed SPSS Modeler 17.1, you must open port 28055.

For more information about IBM SPSS Modeler port numbers, see the How many ports are utilized when a Modeler Client connects to Modeler Server? document ([www.ibm.com/support/docview.wss?uid=swg21488421](http://www.ibm.com/support/docview.wss?uid=swg21488421)).

## Procedure

1. Log in to the Predictive Analytics node computer as the **root** user or as a user with **sudo** permissions.
2. Back up your existing firewall settings. For example, on SUSE Linux operating systems, enter `iptables-save`. On Red Hat Enterprise Linux operating systems, enter `/etc/init.d/iptables save`.
3. Add rules for the ports with the following commands:
 

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 45088 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 58313 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 28054 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 3022 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport tungsten-https -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport glrpc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport corbaloc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 59356 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9043 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9060 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9080 -j ACCEPT
```

If you installed SPSS Modeler 17.1, add the following rule:

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 28055 -j ACCEPT
```
4. Save your firewall settings. For example, on SUSE Linux operating systems, enter `iptables-save`. On Red Hat Enterprise Linux operating systems, enter `/etc/init.d/iptables save`.
5. Restart your firewall. For example, on SUSE Linux operating systems, enter `SuSEfirewall2 start`. On Red Hat Enterprise Linux operating systems, enter `/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.

## Configuring your firewall settings for the CA node computer

On Linux operating systems, you must ensure that certain ports are open on the Cognos Analytics (CA) node computer for IBM Predictive Customer Intelligence.

The following ports must be open:

- 9362
- vrace
- 9663
- corbaloc
- 9043

- glrpc
- http
- tungsten-https
- 9060
- 9080

## Procedure

1. Log in to the CA node computer as the **root** user or as a user with **sudo** permissions.
2. Back up your existing firewall settings. For example, on SUSE Linux operating systems, enter `iptables-save`. On Red Hat Enterprise Linux operating systems, enter `/etc/init.d/iptables save`.
3. Add rules for the ports with the following commands:
 

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9362 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport vrace -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9663 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport corbaloc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9043 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport glrpc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport http -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport tungsten-https -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9060 -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 9080 -j ACCEPT
```
4. Save your firewall settings. For example, on SUSE Linux operating systems, enter `iptables-save`. On Red Hat Enterprise Linux operating systems, enter `/etc/init.d/iptables save`.
5. Restart your firewall. For example, on SUSE Linux operating systems, enter `SuSEfirewall2 start`. On Red Hat Enterprise Linux operating systems, enter `/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.

## Configuring your firewall settings for the Integration Bus node computer

On Linux operating systems, you must ensure that certain ports are open on the Integration Bus node computer for IBM Predictive Customer Intelligence.

The following ports must be open:

- boks
- boks\_clntd
- boks\_servm
- boks\_servc
- ibm-mqseries

## Procedure

1. Log in to the Integration Bus node computer as the **root** user or as a user with **sudo** permissions.
2. Back up your existing firewall settings. For example, on SUSE Linux operating systems, enter `iptables-save`. On Red Hat Enterprise Linux operating systems, enter `/etc/init.d/iptables save`.
3. Add rules for the ports with the following commands:



```

iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks_clntd -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks_servm -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport boks_servc -j ACCEPT
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport ibm-mqseries -j ACCEPT

```

4. Save your firewall settings. For example, on SUSE Linux operating systems, enter `iptables-save`. On Red Hat Enterprise Linux operating systems, enter `/etc/init.d/iptables save`.
5. Restart your firewall. For example, on SUSE Linux operating systems, enter `SuSEfirewall2 start`. On Red Hat Enterprise Linux operating systems, enter `/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.

## 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 Customer Intelligence.

The following ports must be open:

- `ibm-db2`
- `db2c_db2inst1`
- `50001`

### Procedure

1. Log in to the data node computer as the **root** user or as a user with **sudo** permissions.
2. Back up your existing firewall settings. For example, on SUSE Linux operating systems, enter `iptables-save`. On Red Hat Enterprise Linux operating systems, enter `/etc/init.d/iptables save`.
3. Add rules for the ports with the following commands:  
`iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport ibm-db2 -j ACCEPT`  
`iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport db2c_db2inst1 -j ACCEPT`  
`iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 50001 -j ACCEPT`
4. Save your firewall settings. For example, on SUSE Linux operating systems, enter `iptables-save`. On Red Hat Enterprise Linux operating systems, enter `/etc/init.d/iptables save`.
5. Restart your firewall. For example, on SUSE Linux operating systems, enter `SuSEfirewall2 start`. On Red Hat Enterprise Linux operating systems, enter `/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 5. Client component installation

There are several client components that are included with IBM Predictive Customer Intelligence. 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. Install the client components only after you successfully install the server components.

---

### Client components

Client components for IBM Predictive Customer Intelligence are available to be installed.

For more information about installing and using the client components, see the documentation provided with the component.

#### Database connectivity

IBM Data Server Runtime Client must be installed to enable connectivity to the databases.

#### Predictive modeling and decision management

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

- IBM SPSS Collaboration and Deployment Services Deployment Manager
- IBM SPSS Modeler Client Premium

Optionally, install the following components:

- IBM SPSS Statistics Client

**Note:** The default client installation that is provided with IBM Predictive Customer Intelligence does not support using the client through a remote desktop. If you intend to use the SPSS Statistics client on a remote desktop, you must install the concurrent license manager and ensure that the Statistics client uses the token from the license manager. For more information, see the IBM SPSS Statistics Concurrent License Administrator's Guide ([ftp://public.dhe.ibm.com/software/analytics/spss/documentation/statistics/23.0/en/client/InstallationDocuments/Linux/Concurrent\\_License\\_Administrator\\_Guide.pdf](ftp://public.dhe.ibm.com/software/analytics/spss/documentation/statistics/23.0/en/client/InstallationDocuments/Linux/Concurrent_License_Administrator_Guide.pdf)).

- IBM SPSS Collaboration and Deployment Services Documentation
- IBM Analytical Decision Management Documentation
- IBM SPSS Modeler Premium Documentation

#### Cognos Analytics

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

**Note:** You must install IBM Data Server Runtime Client before you can use IBM Cognos Framework Manager. Ensure that you restart the computer after you install the IBM Data Server Runtime Client, and that you catalog the databases before you use Framework Manager. Framework Manager is a 32-bit application, and requires the 32-bit IBM Data Server Runtime Client.

Optionally, install the following components:

- IBM Cognos Analytics Samples
- IBM Cognos Dynamic Query Analyzer
- IBM Cognos for Microsoft Office
- IBM Cognos Lifecycle Manager

## Integration Bus

Install the following components:

- Integration Bus Toolkit
- WebSphere MQ for Windows

Use the Integration Bus Toolkit to create, manage, deploy, and delete message flows and associated resources in a development environment.

---

## Downloading and decompressing the client installation files

You must download the IBM Predictive Customer Intelligence client installation files from IBM Passport Advantage. You must install each client component manually.

For more information about the files that you must download, see [Downloading IBM Predictive Customer Intelligence 1.1.1 \(www.ibm.com/support/docview.wss?uid=swg24042227\)](http://www.ibm.com/support/docview.wss?uid=swg24042227).

### Procedure

1. Access the IBM Passport Advantage web site.

**Tip:** If you receive an error, try using a different web browser to access Passport Advantage.

2. Sign in and navigate to the software downloads page.
3. Find the eImages for IBM Predictive Customer Intelligence.
4. Download an eImage by selecting the check box beside the name. When the download is complete, a **Download Complete** message is displayed. The location of the downloaded files is displayed in the message window.
5. Decompress the eImage files.  
Decompress the `prd_cust_intel_clt_1.1.1_1_win_en.tar.gz` and `prd_cust_intel_clt_1.1.1_2_win_en.tar.gz` files.
6. Copy the component installation files to each computer on which you want to install the component.

---

## 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 Customer Intelligence.

## Procedure

1. Go to the directory where you decompressed the client installation files.
2. In the SPSS\_CDS directory, decompress spss\_cnds\_depMgr\_64b\_7.0\_win\_ml.zip.
3. In the Deployment\_Manager\_64 directory, double-click install.exe.
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 Collaboration and Deployment Services Deployment Manager 7 Installation ([www.ibm.com/support/knowledgecenter/SS69YH\\_7.0.0/cads\\_manager\\_install\\_ddita/model\\_management/thick/thick\\_install\\_overview.dita](http://www.ibm.com/support/knowledgecenter/SS69YH_7.0.0/cads_manager_install_ddita/model_management/thick/thick_install_overview.dita)).

## Adding server connections 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. Click **Start > All Programs > IBM SPSS Collaboration and Deployment Services Deployment Manager 7.0 > Deployment Manager 7.0**.
2. Click **File > New > Content Server Connection**.
3. In the **Connection Name** box, enter a name for your Collaboration and Deployment Services repository. For example, enter SPSS.
4. In the **Server URL** box, enter the name or IP address of the Predictive Analytics node computer and the port number, and click **Finish**. For example, enter `http://servername:9080`.

You can use the *servername* or the IP address for the Predictive Analytics node computer.

The default port number that is used by the WebSphere Application Server instance is 9080. If another port number was used, ensure that you use the correct port number.

5. Double-click the connection name that you created.
6. In the **User ID** box, enter the SPSS admin user that you used when you installed IBM SPSS Collaboration and Deployment Services Server.
7. In the **Password** box, enter the SPSS admin user's password.
8. Click **OK**.
9. Click **File > New > Administered Server Connection**.
10. In the **Name** box, enter a name for the repository server, and click **Next**. For example, enter SPSS.
11. In the **Server URL** box, enter the name or IP address of the Predictive Analytics node computer and the port number, and click **Finish**. For example, enter `http://servername:9080`.

The default port number that is used by the WebSphere Application Server instance is 9080. If another port number was used, ensure that you use the correct port number.

12. Double-click the server connection name that you created.

13. In the **User ID** box, enter the SPSS admin user that you used when you installed IBM SPSS Collaboration and Deployment Services Server.
14. In the **Password** box, enter the SPSS admin user's password.
15. Click **OK**.

## Adding users and groups and server definitions 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 and a modeler user for IBM Predictive Customer Intelligence. You must also add a server definition.

### Procedure

1. In Deployment Manager, on the **Content Explorer** tab, double-click the SPSS connection that you created. Log in if you are prompted to.
2. Expand **Resource Definition**.
3. Add an administrator user.
  - a. Right-click **Credentials**, and click **New > Credentials Definition**.
  - b. In the **Name** box, enter `admin`, and click **Next**.
  - c. In the **User ID** box, enter `admin`.
  - d. In the **Password** box, enter a password.
  - e. In the **Security Provider** box, select **Local User Repository**.
  - f. Click **Finish**.
4. Add a modeler user. The user is a local user account on the Predictive Analytics node computer.
  - a. Right-click **Credentials**, and click **New > Credentials Definition**.
  - b. In the **Name** box, enter `modeler`, and click **Next**.
  - c. In the **User ID** box, enter a local user on the Predictive Analytics node computer.
  - d. In the **Password** box, enter a password for that user.
  - e. In the **Security Provider** box, select **Local User Repository**.
  - f. Click **Finish**.
5. Add a **Content Repository Server** server definition.
  - a. In **Resource Definitions**, right-click **Servers**, and click **New > Server Definition**.
  - b. In the **Name** box, enter `localhost`.
  - c. In the **Type** box, select **Content Repository Server**.
  - d. Click **Next**.
  - e. In the **Server URL** box, enter the name or IP address of the Predictive Analytics node computer and the port number, and click **Finish**. For example, enter `http://servername:9080`  
 The default port number that is used by the WebSphere Application Server instance is 9080.
6. Add a **Modeler Server** definition.
  - a. Right-click **Servers**, and click **New > Server Definition**.
  - b. In the **Name** box, enter `modeler`, and click **Next**.
  - c. In the **Type** box, select **Modeler Server**, and click **Next**.

- d. In the **Host** box, enter the name or IP address of the Predictive Analytics node computer.
  - e. In the **Port** box, enter 28054.
- Note:** If the connection is not successful, restart Modeler Server.
- f. In the **Default data path** box, enter the path to the data folder on Predictive Analytics node computer. For example, enter C:\Program Files\IBM\SPSS\ModelerServer\17.
  - g. Click **Finish**.
7. On the **Server Administration** tab, expand **Users and Groups**, and double-click **Local User Repository**.
  8. Click **New Group**.
    - a. In **Group Name**, enter administrator.
    - b. Select **Show all available users**.
    - c. In **Available Users**, select admin, and move the user to the **Group contains Users** box.
    - d. Click **OK**.

---

## Installing IBM SPSS Modeler Client

You must install IBM SPSS Modeler Client to configure the Next Best Action Optimizer connectors for IBM Predictive Customer Intelligence.

To use SPSS Modeler Client, you must obtain a license. For more information about obtaining an SPSS Modeler Client license, see the Welcome to GetSPSS web site ([www.ibm.com/software/analytics/spss/support/get\\_spss.html](http://www.ibm.com/software/analytics/spss/support/get_spss.html)).

### Procedure

1. Go to the directory where you decompressed the client installation files.
2. Install SPSS Modeler Client.
  - a. In the SPSS\_Modeler\_Client directory, decompress the version of the client that you want to install.  
 You can install the 32- or 64-bit versions of the version 17.1 client.  
 To install the 32-bit version, decompress the `spss_modgld_keyls_32b17.1_win_ml.zip`.  
 To install the 64-bit version, decompress the `spss_modgld_keyls_64b17.1_win_ml.zip`.
  - b. In the decompressed folder, double-click `setup.exe`.
  - c. Follow the steps in the wizard to install the client component.

---

## Installing IBM SPSS Modeler Premium Client

Install IBM SPSS Modeler Premium Client on a Microsoft Windows operating system.

You must have SPSS Modeler Client installed before you can install SPSS Modeler Premium Client.

### Procedure

1. Go to the directory where you decompressed the client installation files.
2. Install SPSS Modeler Premium Client.

- a. In the SPSS\_Modeler\_Client directory, decompress the client that you want to install.  
You can install the 32- or 64-bit versions of the version 17.1 client.  
To install the 32-bit version, decompress the spss\_mod\_prm\_clt\_32b\_17.1\_win\_ml.zip.  
To install the 64-bit version, decompress the spss\_mod\_prm\_clt\_64b\_17.1\_win\_ml.zip.
- b. In the decompressed folder, double-click setup.exe.
- c. Follow the steps in the wizard to install the client component.

---

## Installing the Integration Bus client

Install the IBM Predictive Customer Intelligence Integration Bus client.

### Procedure

1. Go to the directory where you decompressed the client installation files.
2. In the IntegrationBus directory, decompress the installation file that is named IIB\_10.0.0.1\_WINDOWS\_X86-64.zip.
3. In the decompressed directory, go to the EAsmb1\_Image directory and double-click IIBSetup10.0.0.1.exe.
4. Follow the directions, and click **Install**.

---

## Installing Framework Manager for IBM Predictive Customer Intelligence

Install IBM Cognos Framework Manager to create or edit models and publish packages for IBM Cognos Analytics.

On Microsoft Windows operating systems, if you install Framework Manager to the same computer as where you installed IBM Cognos Analytics, you must install Framework Manager to a different location. Framework Manager is a 32-bit application and cannot be installed to the same location as the 64-bit IBM Cognos Analytics server components.

### Procedure

1. Go to the directory where you decompressed the client installation files.
2. In the CA directory run ca\_model\_win32\_11.0.2.16042816.exe.
3. Follow the steps in the wizard to install the product.
4. In IBM Cognos Configuration, in the **Explorer** panel, select **Environment**.
5. In the **Gateway URI** value, change localhost to the name or IP address of the Cognos Analytics (CA) node computer.  
If you installed the server components on Red Hat Enterprise Linux using the solution installer and you did not configure IBM HTTP Server, the **Gateway URI** should be http://servername:9080/p2pd/servlet/dispatch.
6. In the **Dispatcher URI for external applications** value, change localhost to the name or IP address of the Cognos Analytics (CA) node computer.
7. Click **File > Save**.



---

## Chapter 6. Updating SPSS Modeler

If you previously installed IBM Predictive Customer Intelligence, you have SPSS Modeler 17, SPSS Modeler Server Premium 17, and the SPSS Modeler 17 Adapters for Collaboration and Deployment Services installed. You can upgrade these components to version 17.1.

The updated components include:

- IBM SPSS Modeler 17.1
- IBM SPSS Modeler Server Premium 17.1
- IBM SPSS Modeler Batch 17.1
- IBM SPSS Modeler 17.1 Collaboration and Deployment Services Adapter 7.0
- IBM SPSS Modeler 17.1 Scoring Adapter for DB2, Netezza<sup>®</sup>, and Teradata
- IBM SPSS Solution Publisher 17.1
- IBM SPSS Client Premium 17.1
- IBM SPSS Client Gold Keyless 17.1
- IBM SPSS Analytic Server 2.1 for BigInsights<sup>®</sup> 4.1
- IBM SPSS Analytic Server 2.1 for Hortonworks Data Platform 2.3

The required components for IBM Predictive Customer Intelligence are IBM SPSS Modeler Server, IBM SPSS Modeler Server Premium, IBM SPSS Modeler Collaboration and Deployment Services Adapter, and the IBM SPSS Modeler Client (Premium and Keyless). The other components are optional.

---

### Updating components to SPSS Modeler

If you already have SPSS Modeler 17 installed, you must stop the SPSS Modeler 17 services, install the SPSS Modeler 17.1 components, and then start the SPSS Modeler 17.1 components.

SPSS Modeler 17.1 is installed to a different directory than SPSS Modeler 17 by default. SPSS Modeler 17.1 also uses a different port number than SPSS Modeler 17. SPSS Modeler 17.1 uses port number 28055, while SPSS Modeler 17 uses port number 28054.

After you start the SPSS Modeler 17.1 components, you can uninstall SPSS Modeler 17, if you want.

#### Procedure

1. Stop the SPSS Modeler 17 services.  
For more information, see “Stopping services on the Predictive Analytics node computer” on page 86.
2. Install the SPSS Modeler 17.1 components.  
See the following topics:
  - a. “Installing IBM SPSS Modeler Server software” on page 40.
  - b. “Installing IBM SPSS Modeler Premium Server software” on page 40.
  - c. “Installing IBM SPSS Modeler adapters for Collaboration and Deployment Services” on page 41.

3. If you are installing on a Linux operating system, ensure that you open port 28055. For example, enter the following command:
 

```
iptables -I INPUT -m state --state NEW -m tcp -p tcp --dport 28055 -j ACCEPT
```
4. Start the SPSS Modeler 17.1 services.
  - On Microsoft Windows operating systems:
    - a. Click **Start > All Programs > IBM WebSphere > IBM WebSphere Application Server V8.5 > Profiles > AppSrv01 > Start the server** or **Start > All Programs > IBM WebSphere > IBM WebSphere Application Server V8.5 > Profiles > CNDSprofile > Start the server.**
    - b. Click **Start > Control Panel > Administrative Tools > Services.**
    - c. Select **IBM SPSS Modeler Server 17.1**, and click **Start Service.**
  - On Linux operating systems:
    - a. Go to the WebSphere Application Server profile bin directory. For example, go to `/opt/IBM/WebSphere/AppServer/profiles/AppSrv01/bin`, if you used the default name, or `/opt/IBM/WebSphere/AppServer/profiles/CNDSprofile/bin`, if you used the solution installer.
    - b. Enter the following command: `./startServer.sh server1.`
    - c. Go to the IBM SPSS Modeler Server 17.1 directory. For example, go to `/usr/IBM/SPSS/ModelerServer/17.1.`
    - d. Enter the following command: `./modelersrv.sh start.`
5. Optional: Uninstall SPSS Modeler 17 server software.  
For more information, see “Uninstalling components from the Predictive Analytics node computer” on page 91.
6. Install the SPSS Modeler 17.1 client components.  
See the following topics:
  - a. “Installing IBM SPSS Modeler Client” on page 61.
  - b. “Installing IBM SPSS Modeler Premium Client” on page 61.

---

## Chapter 7. Artifacts installation

The IBM Predictive Customer Intelligence artifacts include Next Best Action Optimizer (NBAOPT) and IBM Enterprise Marketing Management (EMM) connectors. You must copy the connectors to the computers on which the components are installed.

The artifacts also include the Analytic Solution Foundation.

---

### Downloading and decompressing the artifact installation files

The IBM Predictive Customer Intelligence artifact installation files are provided with the solution installation files. You must deploy the artifact content manually.

For more information about the files that you must download, see Downloading IBM Predictive Customer Intelligence 1.1.1 ([www.ibm.com/support/docview.wss?uid=swg24042227](http://www.ibm.com/support/docview.wss?uid=swg24042227)).

#### Procedure

1. Access the IBM Passport Advantage web site.

**Tip:** If you receive an error, try using a different web browser to access Passport Advantage.

2. Sign in and navigate to the software downloads page.
3. Find the eImages for IBM Predictive Customer Intelligence.
4. Download an eImage by selecting the check box beside the name. When the download is complete, a **Download Complete** message is displayed. The location of the downloaded files is displayed in the message window.
5. Decompress the artifact eImage file `prd_cust_intel_art_1.1.1_win_en`.

---

### Integration with Next Best Action Optimizer

You can integrate IBM Next Best Action Optimizer (NBAOPT) with your IBM Predictive Customer Intelligence solution to further optimize your recommended actions.

NBAOPT segregates customers by lifetime value, and then provides recommendations to retain customers.

#### Next Best Action Optimizer (NBAOPT)

Many companies across many industries (such as telecommunications, retail, and insurance) classify customers into different groups for marketing campaigns, targeted actions, and optimized use of resources. Classification helps Customer Relationship Management (CRM) departments to conduct promotional campaigns to retain customers, cross-sell, and up sell.

Traditional methods of classifying customers use standard customer and product segmentation strategies along with manually defined rules on an ad hoc basis. Often, the processes that govern these methods do not consider the following factors:

- Uncertainty in the behavior of the target entities
- Value and response to the prior actions
- The current state of the entity in relation to the organization
- Expected long-term rewards

NBAOPT addresses these problems by using a scalable data analytics and optimization engine. NBAOPT automatically generates an action allocation policy that is optimized for long term expected reward, subject to resource, legal and business constraints. The allocation policy can be used for targeted marketing, CRM, debt collection, retention, cross-sell, up-sell, and so on.

For more information, see *Next Best Action Optimizer (NBAOPT) Lifetime Value Maximizer & Collections Maximizer User Guide*.

## How NBAOPT is used in a Predictive Customer Intelligence solution

NBAOPT works alongside IBM SPSS Modeler. When the NBAOPT connector is installed, NBAOPT connector items are added to the IBM SPSS Modeler menu so that you can run the NBAOPT Studio. In NBAOPT Studio, you set up the data for analysis. Then, you start the analysis, which performs the following actions:

- Segregates customers by lifetime value
- Provides recommended actions to retain customers, which are based on their lifetime value segment

This analytical process exports model nuggets in PMML format (Predictive Model Markup Language, an XML-based file format). Model nuggets can be used for scoring data for prediction, or analyzing data. From the PMML file that is created in NBAOPT Studio, you create an enhanced SPSS streaming SPSS Modeler that contains segmentation and recommendations. You can also generate visualizations of the results.

## Configuring the Next Best Action Optimizer connectors

Use the Next Best Action Optimizer (NBAOPT) connectors with IBM SPSS Modeler for IBM Predictive Customer Intelligence. With the NBAOPT connectors installed, you can run NBAOPT Studio from IBM SPSS Modeler.

You must copy the NBAOPT connectors to the location where IBM SPSS Modeler Client is installed.

### Procedure

Copy the `pci.NBAOPT` directory where you decompressed the artifacts to the `ext\lib` directory where IBM SPSS Modeler Client is installed. For example, copy the `pci.NBAOPT` directory to the `C:\Program Files\IBM\SPSS\Modeler\16\ext\lib` directory.

After you copy the folder, you should have the following path:

```
C:\Program Files\IBM\SPSS\Modeler\16\ext\lib\pci.NBAOPT
```

## Open NBAOPT Studio from IBM SPSS Modeler

You can open IBM Next Best Action Optimizer (NBAOPT) Studio from IBM SPSS Modeler.

## Before you begin

NBAOPT, and the NBAOPT connector must be installed. For information on installing the NBAOPT connector, see *IBM Predictive Customer Intelligence Installation Guide*.

## Procedure

1. In IBM SPSS Modeler, click **Tools > NBA Optimizer**, and select **NBAOPT Studio**.
2. The first time that you start NBAOPT Studio, you are asked to specify the location of the NBAOPT Studio executable file. Click **Browse** to locate the file, and click **Select**.

## What to do next

In NBAOPT Studio, you set up data for analysis and generate the PMML files that the NBAOPT connector creates the IBM SPSS streams from. For information on how to use NBAOPT Studio, see the *Next Best Action Optimizer (NBAOPT) Lifetime Value Maximizer & Collections Maximizer User Guide*, and the *Next Best Action Optimizer (NBAOPT) Lifetime Value Maximizer & Collections Maximizer Tutorial Guide*.

## Generating streams from PMML files

IBM Next Best Action Optimizer (NBAOPT) model results are generated in PMML format, an XML format that can be used by a number of tools, including IBM SPSS Modeler. The NBAOPT engine generates SPSS-compliant PMML files for scoring.

## Procedure

1. In IBM SPSS Modeler, click **Tools > NBA Optimizer**, and select **Generate Stream from the PMML Files**.
2. Browse for the PMML file location, for example: C:\NBAOPT\Configurations\demo\_insurance\Modeling\Model1\SPSS. If multiple PMML files are present in the folder, multiple streams are generated.

The generated streams can have multiple branches. The number of branches depends on the number of action groups that are specified for a configuration. For example, if there are two actions, Channel and Product, two actions are specified during the scoring process.

3. Click **Generate Stream**.

In the example, two streams are generated and are named based on the PMML file names. The number of streams created is dependent on the number of PMML files.

These files are stored in `<model_folder>/SPSS`.

## What to do next

After the stream is generated, and before you run the stream, configure the stream.

## Example SPSS stream

This is an example of an IBM SPSS stream that is generated from PMML files

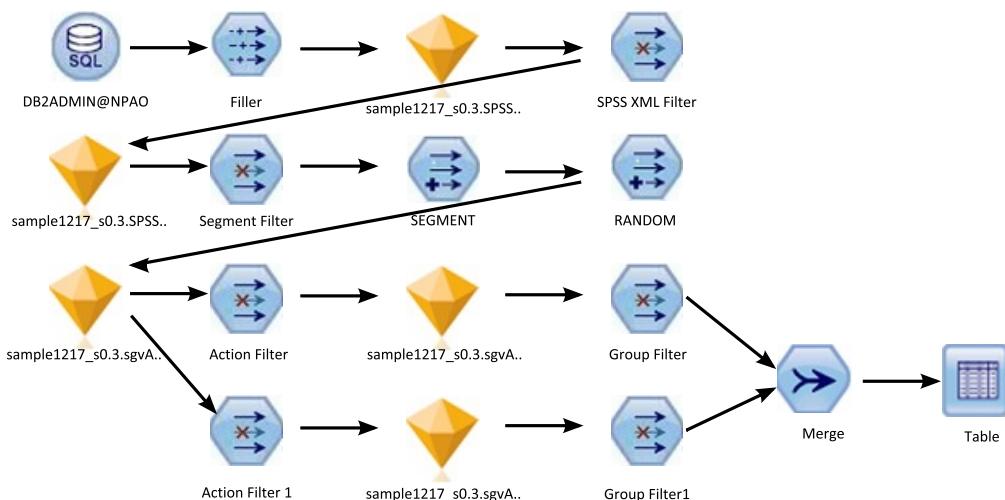


Figure 2. Example IBM SPSS stream generated from PMML files



### Database source node

The database source node is used to import data from ODBC sources.



### Model nuggets

A model nugget is a container for a model. It is used for scoring data to generate predictions or to allow further analysis of the model properties.

The nuggets are imported via PMML files that are generated from the NBAOPT engine.



### Filler nodes

Filler nodes are used to replace field values and change storage.



### Filter nodes

Filter nodes are used to filter (discard) fields, rename fields, and map fields from one source node to another.



### Derive node

The derive node gives you the ability to create new fields from existing fields.



### Merge node

The merge node merges multiple action group nugget branches.

For more information, see IBM SPSS Modeler Help ([www.ibm.com/support/knowledgecenter/SS3RA7\\_17.0.0/modeler\\_mainhelp\\_client\\_ddita-gentopic1.dita](http://www.ibm.com/support/knowledgecenter/SS3RA7_17.0.0/modeler_mainhelp_client_ddita-gentopic1.dita)).

## Configuring the IBM SPSS stream

When an IBM SPSS stream is generated from PMML files, you must configure the stream before you can deploy it.

### Procedure

1. In IBM SPSS Modeler, open the stream to configure.
2. Double-click the database source node and add the **Data source** name and the **Table name** to the database source node (mandatory).
3. Verify the database settings by clicking **Preview**.
4. Double-click the filter nodes to exclude fields that are not to be included in the stream.
5. Double-click the merge node to set the merge key (mandatory if there is a merge node). In the **Merge** tab, move fields into the **Keys for merge** list.
6. Set the filler node to replace database blank values (optional). For example, you can replace blank values with an empty string, such as `to_string(@FIELD)`.
7. Add extra nodes to the stream if required.

For example, if a field has a different data type in the database table, and the NBAOPT Studio Mining Type configuration, you must add a derive node to convert the character type to numeric.

Check that the derive field name matches the model nugget field name, if it does not, change the derive field name to match.

8. Run the stream to verify the stream output table. In IBM SPSS Modeler, from the **Tools** menu, click **Run**.

For more information, see IBM SPSS Modeler Help ([www.ibm.com/support/knowledgecenter/SS3RA7\\_17.0.0/clementine/buildingstreams\\_container.dita](http://www.ibm.com/support/knowledgecenter/SS3RA7_17.0.0/clementine/buildingstreams_container.dita)).

### What to do next

Add the configured stream to the IBM Collaboration and Deployment Services repository file, and configure the scoring service. For more information, see IBM SPSS Collaboration and Deployment Services User Guide ([www.ibm.com/support/knowledgecenter/SS69YH\\_7.0.0/cads\\_manager\\_ddita/model\\_management/thick/scoring\\_configuration\\_overview.dita](http://www.ibm.com/support/knowledgecenter/SS69YH_7.0.0/cads_manager_ddita/model_management/thick/scoring_configuration_overview.dita)).

After the scoring service is configured, the IBM Collaboration and Deployment Services can access the scoring service, and other applications can use the scoring service to get the next best action based on the input fields values.

---

## Integration with the IBM Enterprise Marketing Management suite

IBM Predictive Customer Intelligence integrates with the IBM Enterprise Marketing Management suite. The components that Predictive Customer Intelligence integrates with are IBM Campaign, IBM Interact and IBM Marketing Platform.

### IBM Campaign

IBM Campaign is a web-based Enterprise Marketing Management (EMM) solution that enables users to design, run, and analyze direct marketing campaigns.

### IBM Interact

With IBM Interact, users can retrieve personalized offers and customer profile information in real-time.

## IBM Marketing Platform

The IBM Marketing Platform provides security, configuration, and dashboard features for IBM Enterprise Marketing Management products.

## Configuring the Enterprise Marketing Management connectors

If you are using IBM Enterprise Marketing Management (EMM), IBM Predictive Customer Intelligence provides two connectors between IBM Interact and IBM SPSS Collaboration and Deployment Scoring Service. The connectors override the score that is supplied by the IBM EMM campaign and also extend IBM Interact's learning module to monitor visitor actions and propose optimal offers.

To configure the connectors, you must copy them to the EMM installation location.

Do not configure the connectors if you are not using IBM Enterprise Marketing Management.

**Important:** The EMM connectors can be used only with IBM Enterprise Marketing Management version 9.0 or 9.1.

### Procedure

Copy the artifacts from the EMMConnectors directory where you decompressed the artifacts to the Connectors directory where EMM is installed. For example, Microsoft Windows operating systems, copy the files to the *IBM\_EMM\_Interact\_install\_location*\Connectors directory. On Linux operating systems, copy the files to the /opt/IBM/EMM/Interact/Connectors.

## IBM Interact connectors

IBM Interact integrates with customer facing systems (touchpoints) such as web sites and call centers, and enables users to retrieve personalized offers and visitor profile information in real time.

IBM Predictive Customer Intelligence provides two connectors between IBM Interact and IBM SPSS Collaboration and Deployment Scoring Service:

- The External callout connector calls an SPSS model at runtime, and is contained within the expression of an advanced rule for a Marketer Score, overriding the score supplied by the IBM Enterprise Marketing Management campaign.
- The External learning connector extends IBM Interact's native learning module to monitor visitor actions and propose optimal offers. It prioritizes IBM Campaign offers based on an SPSS model's prediction of their final score. The connector passes specific configurable parameters as input to the SPSS Scoring Service.

## The External Learning connector

The External Learning connector is used to override the marketer's score in IBM Interact with a customized score from IBM SPSS Collaboration and Deployment Services. The customized score is used to prioritize the offers for customers. When the customer facing touchpoint puts in an offer request to IBM Interact, it triggers the external learning connector. A touchpoint can be a call center web application, a mobile application, a batch command, and so on.

The following process is initiated:



1. The connector Java class calls the IBM SPSS Collaboration and Deployment Services scoring service that is based on the configuration setting of the current channel.
2. If, in the configuration file, the current channel is set to be monitored, the corresponding channel in the IBM SPSS Scoring Service is configured to update the channel offers' score number.
3. The External Learning connector uses IBM Interact runtime session profile data as SPSS Scoring Service input parameters.
4. The connector gets the scores from the SPSS scoring service and overwrites the Interact offers scores with the SPSS scores.
5. After the Interact offer's score is updated by the SPSS score, the offer list is sorted by the new final scoring number in descending order. The offer list is returned as the final offer list.

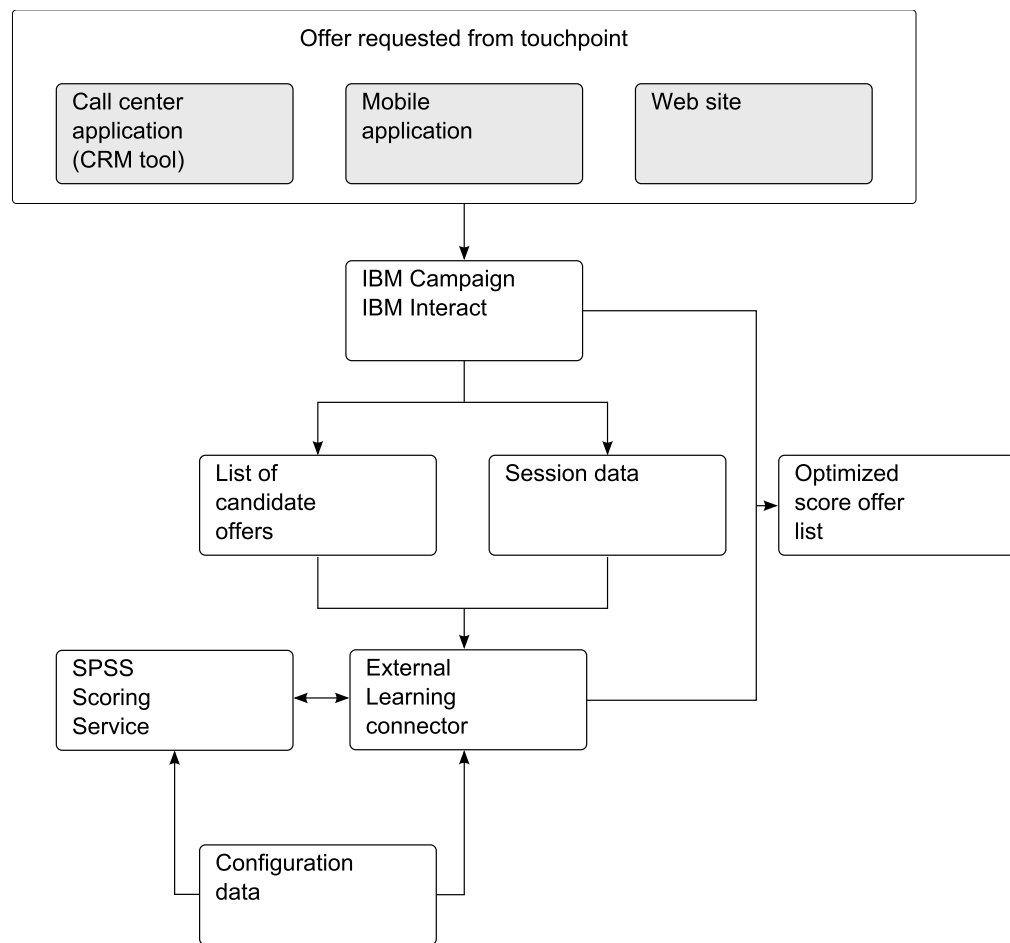


Figure 3. How the external learning connector works

## Configuring the External Learning connector configuration file

An interactive channel is a touchpoint with your customer, such as a call center or a website. It is the communication channel with your customers. By using the IBM Interact API, you integrate IBM Interact with your touchpoints to present offers to customers based on their action in the touchpoint.

## Procedure

1. Stop the IBM Enterprise Marketing Management (EMM) runtime server.
2. Create the following file structure on your IBM EMM server:  
For Windows operating systems:
  - <EMM Interact Installation Folder>\connectors
  - <EMM Interact Installation Folder>\logsBy default, the installation folder is \IBM\EMM\Interact  
For Linux operating systems:
  - <EMM Interact Installation Folder>/connectors/
  - <EMM Interact Installation Folder>/logsBy default, the installation folder is /opt/IBM/EMM/Interact
3. Copy the LearningConnector\_config.properties file and UnicaSPSSLearningConnector.jar to the Connectors folder.
4. Edit the LearningConnector\_config.properties file for your environment. For more information, see “Sample External Learning connector configuration file.”
5. In the runtime environment for the IBM Marketing Platform tool, select **Settings, Configuration**, and expand **IBM EMM, Interact**, and **offerserving**.
6. Set **optimizationType** to ExternalLearning.
7. Configure the External Learning class:
  - a. Under **offerserving**, select **External Learning Config**.
  - b. Set **class** to the Java class name. For example:  
<com.ibm.unica.connector.>SPSSLearning
  - c. Set **classPath** to the Java JAR file location. For example, for Windows:  
<Interact\_Install\_location>\UnicaSPSSLearningConnector.jar, and for Linux: <Interact\_Install\_location>/UnicaSPSSLearningConnector.jar
8. Restart the IBM EMM runtime server for these changes to take effect.

## Sample External Learning connector configuration file

The following example is a sample External Learning connector configuration file. Modify this sample for your environment.

```
CADS_ADDRESS=<Collaboration_deployment_services_server_address>
CADS_PORT=9080
CADS_USER=admin
CADS_PASSWORD=spss
UNICA_INTERACTJSSERVICE_URL=http://<IBM_EMM_URL>:9080/
interact/servlet/InteractJSService
LEARNING_CHANNELS=Mobile,Mob;Telco,Telco Call Center;Insurance,Insurance

SERVICENAME_Telco=ExternalLearning
INPUTTABLE_Telco=db2admin@TELCO
PARAMETERS_Telco=CUSTOMERID,double,CUSTOMERID;CHURN_SCORE,double,CHURN_SCORE;
CUSTOMER_LIFE_TIME_VALUE_RATIO,double,CUSTOMER_LIFE_TIME_VALUE_RATIO;
SENTIMENT_SCORE,double,SENTIMENT_SCORE;NUMBER_OF_CLOSED_COMPLAINTS,integer,
NUMBER_OF_CLOSED_COMPLAINTS;NUMBER_OF_OPEN_COMPLAINTS,integer,
NUMBER_OF_OPEN_COMPLAINTS;GROUP_LEADER_TYPE2,double,GROUP_LEADER_TYPE2;
GROUP_LEADER_CONFIDENCE_TYPE2,DOUBLE,GROUP_LEADER_CONFIDENCE_TYPE2;
INFLUENCER_SCORE,double,INFLUENCER_SCORE;SEGMENT,string,SEGMENT;
RESPONSE,integer,#VALUE#null;OFFER_CATEGORY_NAME,string,#VALUE#null
OUTPUTNAME_Telco=FinalScore
INPUT_OFFERNAMECOL_Telco=OFFER

SERVICENAME_Insurance=INSU_CHURN
INPUTTABLE_Insurance=INSURNC.INSURANCE_VIEW
PARAMETERS_Insurance=POLICYHOLDER_ID,integer,#VALUE#1016091;GENDER,string,#VALUE#F;
```

```

EMPLOYMENT_STATUS,string,#VALUE#employed;INCOME,double,#VALUE#144541;
HOUSEHOLD_NUMBER_OF_CHILDREN,integer,#VALUE#2;HOUSEHOLD_NUMBER_OF_INSURED_CARS,integer,
#VALUE#0;NUMBER_OF_POLICIES_IN_HOUSEHOLD,integer,#VALUE#1;HOUSEHOLD_TENURE,double,
#VALUE#5.15;INSURANCE_LINES,integer,#VALUE#1;LATEST_NOTE_ATTITUDE,double,#VALUE#3;
AVERAGE_NOTE_ATTITUDE,double,#VALUE#2;NUMBER_OF_CLAIMS_FILED,double,#VALUE#2;
CUSTOMER_FINANCIAL_SEGMENT,string,#VALUE#Financially Sophisticated;
OUTPUTNAME_Insurance=CHURN_SCORE
INPUT_OFFERNAMECOL_Insurance=#NONE#

```

```

SERVICENAME_Mobile=SequenceAnalysis
INPUTTABLE_Mobile=NBA.CUSTOMER_RELATIONSHIP_HISTORY
PARAMETERS_Mobile=CUSTOMERID,integer,CUSTOMERID;SEQUENCE,integer,#VALUE#1;
PRODUCT,string,LASTOFFER;
OUTPUTNAME_Mobile=RECOMMENDATION
INPUT_OFFERNAMECOL_Mobile=#NONE#

```

For information on how to modify this file, see “Add a new learning channel,” and “Add an IBM SPSS Scoring Service to an offer (External Learning connector).” Also, see *IBM Interact Administrator’s Guide*.

### Add a new learning channel

To add a new learning channel, add the learning name and channel name to the **LEARNING\_CHANNELS** parameter.

For example:

```
LEARNING_CHANNELS=Mobile,Mob;Telco,Telco Call Center;Insurance,Insurance
```

Where:

- The first value is the learning channel name (Telco), the second value is the channel name (Telco Call Center).
- Values are separated by commas and parameters are separated by semi-colons.

### Add an IBM SPSS Scoring Service to an offer (External Learning connector)

To add an IBM SPSS Scoring Service, add the following parameters to the LearningConnector\_config.properties file.

- **SERVICENAME\_%THE LEARNING NAME%**
- **INPUTTABLE\_%THE LEARNING NAME%**
- **PARAMETERS\_%THE LEARNING NAME%**
- **OUTPUTNAME\_%THE LEARNING NAME%**
- **INPUT\_OFFERNAMECOL\_%THE LEARNING NAME%**

The parameter name has three elements that are separated by commas:

- The input parameter name.
- The data type and the source column name (profile table column name).
- The direct value that uses #VALUE# to identify it. You can also use the channel profile table column value as SPSS input parameter values.

You can set the input parameter to null, by using #VALUE# of null, for example:

```
RESPONSE,integer,#VALUE#null;OFFER_CATEGORY_NAME,string,#VALUE#null
```

Parameters are separated by semicolons.

The value for **OUTPUTNAME\_%THE LEARNING NAME%** can be "DEFAULT". You do not need to provide the name of the output column name; the first output parameter is taken as the output score results.

For example, you can set the output columns with either method that is shown, and you get the same result:

- OUTPUTNAME\_Mobile=RECOMMENDATION
- OUTPUTNAME\_Mobile=DEFAULT

The value of **INPUT\_OFFERNAMECOL\_%THE LEARNING NAME%** can be an input parameter column name or "#NONE#". When the value is set to a specific input parameter column name, the External Learning connector passes the IBM Interact channel offer name to the corresponding column for the SPSS scoring service as an input parameter to get the specific offer name score to update the corresponding offer for Interact channel final score. When the input offer name column is set to "#NONE#", only the first IBM Interact channel offer final score is updated with the IBM SPSS Scoring Service score.

For example, when three offers are requested from a touchpoint, IBM Interact returns three offers, shown in the following table.

*Table 1. Example showing the scores returned from IBM Interact and from the IBM SPSS Scoring Service*

| Offer name             | IBM Interact final score | IBM SPSS score |
|------------------------|--------------------------|----------------|
| Premium phone          | 90                       | 85             |
| Premium family plan    | 80                       | 88             |
| Add a second line free | 70                       | 65             |

The External Learning connector passes all of the configured parameters and the offer name to the SPSS Scoring Service. It returns three new scores: 85, 88 and 65 from IBM SPSS for these three offers.

The IBM SPSS score is used as the final score and is sorted in descending order, shown in the following table.

*Table 2. Example showing the final score and sort order*

| Offer name             | IBM Interact final score |
|------------------------|--------------------------|
| Premium family plan    | 88                       |
| Premium phone          | 85                       |
| Add a second line free | 65                       |

## The External Callout connector

By using the External Callout connector, you can override a single offer's score by calling an IBM SPSS Scoring Service. Also, using the External Callout connector, you can invoke the IBM SPSS score to present eligible offers.

To enable the External Callout connector, perform the following steps:

1. Register the External Callout connector in the IBM Enterprise Marketing Management (EMM) configuration.
2. Add the IBM SPSS Scoring Service information to the External Callout connector's configuration file.

## Configuring the External Callout connector

IBM Interact helps customers get offers based on user characteristics and history. The offers are generated by algorithms. You can configure IBM Interact to override the offer's score by calling an SPSS Model.

### Procedure

1. Stop the IBM Enterprise Marketing Management (EMM) runtime server.
2. Create the following file structure on your IBM EMM server:

- <EMM Interact Installation Folder>/connectors/
- <EMM Interact Installation Folder>/logs

By default, the installation folder is /opt/IBM/EMM/Interact

3. Copy the ExternalConnector\_config.properties file and UnicaSPSSExternalConnector.jar to the Connectors folder.
4. Edit the ExternalConnector\_config.properties file for your environment. For more information, see "Sample External Callout connector configuration file" on page 76.
5. In the runtime environment for the IBM Marketing Platform, select **Settings, Configuration**, and expand **IBM EMM, Interact, Flowchart**, and **External Callouts**.
6. To set the configuration properties, click **External Callout** and configure the parameters as follows:

#### Category name

GetSPSSScore

**class** com.ibm.unica.connector.GetSPSSScore

#### classpath

- <EMM Interact Installation Folder>/connectors/  
UnicaSPSSExternalConnector.jar

By default, the installation folder is /opt/IBM/EMM/Interact

Save the changes.

7. Select the campaign settings, by clicking **Campaign, Campaigns**.
8. Select the link for the campaign that you are configuring, such as Insurance.
9. Click the <Campaign name> **Strategy** tab, for example, **Insurance Strategy**.
10. For each **Eligible Segment**, such as Insurance High Risk Customer, Insurance High Value Customer, click **Adv Opt**.
11. In the **Advanced Options** window, select **Use the following expression as the marketing score**.
12. In the Expression box, type an expression to be used for the marketing score. You can either use modified versions of the examples shown, or from the **Functions, Variables and Operators** list, select **Extension Functions, EXTERNALCALLOUT** and click **Use**. For more information, see "About the ExternalCallout API" topic in the *IBM Interact 9.1 Administrator's Guide*.

Example expression for an Insurance campaign:

```
NUMBER(EXTERNALCALLOUT('GetSPSSScore', 'GetChurnScore', db2admin.CUSTOMERID,
db2admin.GENDER, db2admin.EMPLOYMENT_STATUS, db2admin.INCOME, 1,
db2admin.NUMBER_OF_INSURED_CARS, db2admin.NUMBER_OF_POLICIES_IN_HOUSEHOLD,
db2admin.HOUSEHOLD_TENURE, db2admin.INSURANCE_LINES, db2admin.LATEST_NOTE_ATTITUDE,
db2admin.AVERAGE_NOTE_ATTITUDE, db2admin.NUMBER_OF_CLAIMS_FILED,
db2admin.CUSTOMER_SEGMENTS, 0)) * 100
```

The External Callout API has a mandatory number of configurable arguments that must be provided. The mandatory number of arguments setting in the

configuration file is as set in the value of the property **ExternalConnector\_NumberOfArguments**. In the example shown, the value is 15. When there are fewer SPSS scoring service input parameters than the configure setting of **ExternalConnector\_NumberOfArguments**, add ",0" to the expression to ensure that there are the same number of arguments in the external callout expression.

13. Deploy the changes to the server.
14. Restart the IBM EMM runtime server.

### Sample External Callout connector configuration file

The following example is a sample External Callout connector configuration file. Modify this sample for your environment.

```
CADS_ADDRESS=<Collaboration_deployment_services_server_address>
CADS_PORT=9080
CADS_USER=admin
CADS_PASSWORD=spss
ExternalConnector_NumberOfArguments=15

SERVICENAME_GetChurnScore=INSU_CHURN
INPUTTABLE_GetChurnScore=INSURNC.INSURANCE_VIEW
PARAMETERS_GetChurnScore=POLICYHOLDER_ID,double;GENDER,string;
EMPLOYMENT_STATUS,string;INCOME,double;HOUSEHOLD_NUMBER_OF_CHILDREN,integer;
HOUSEHOLD_NUMBER_OF_INSURED_CARS,integer;NUMBER_OF_POLICIES_IN_HOUSEHOLD,integer;
HOUSEHOLD_TENURE,double;INSURANCE_LINES,integer;LATEST_NOTE_ATTITUDE,double;
AVERAGE_NOTE_ATTITUDE,double;NUMBER_OF_CLAIMS_FILED,double;
CUSTOMER_FINANCIAL_SEGMENT,string;
OUTPUTNAME_GetChurnScore=CHURN_SCORE

SERVICENAME_GetCreditRating=dWStream
INPUTTABLE_GetCreditRating=trainingdata.csv
PARAMETERS_GetCreditRating=Age,double;Income_level,string;Education,string;
Car_loans,string;
OUTPUTNAME_GetCreditRating=DEFAULT

SERVICENAME_GetReco=SequenceAnalysis
INPUTTABLE_GetReco=NBA.CUSTOMER_RELATIONSHIP_HISTORY
PARAMETERS_GetReco=CUSTOMERID,integer;SEQUENCE,integer;PRODUCT,string;
OUTPUTNAME_GetReco=RECOMMENDATION

SERVICENAME_GetCreditScore=CreditCardDefault
INPUTTABLE_GetCreditScore=NBA.CUSTOMER
PARAMETERS_GetCreditScore=CUSTOMERID,integer;AGE,integer;EDUCATION,string;
YEARSEMPLOYED,integer;INCOME,ineger;CARDDEBT,double;OTHERDEBT,double;
DEFAULTED,integer;ADDRESS,string;
OUTPUTNAME_GetCreditScore=DEFAULTPROPENSITY
```

For information about how to add an IBM SPSS Scoring Service to this file, see "Add an IBM SPSS Scoring Service to an offer (External Callout connector)." Also, see *IBM Interact Administrator's Guide*.

### Add an IBM SPSS Scoring Service to an offer (External Callout connector)

To add an IBM SPSS Scoring Service, add the following parameters to the ExternalConnector\_config.properties file.

- **SERVICENAME\_**%THE EXTERNAL CONFIG NAME%
- **INPUTTABLE\_**%THE EXTERNAL CONFIG NAME%
- **PARAMETERS\_**%THE EXTERNAL CONFIG NAME%
- **OUTPUTNAME\_**%THE EXTERNAL CONFIG NAME%

The parameter name has two elements that are separated by commas:

- The input parameter name
- The data type

The parameters are separated by a semicolon.

The value for **OUTPUTNAME\_%THE SCORING SERVICE FUNCTION%** can be "DEFAULT". You do not need to provide the name of the output column name; the first output parameter is taken as the output scoring results. For example, the following methods of setting the output column get the same result:

- OUTPUTNAME\_GetReco=RECOMMENDATION
- OUTPUTNAME\_GetReco=DEFAULT

## Troubleshooting EMM connector deployments

If you run IBM Enterprise Marketing Management version 9.0, there is an error in the deployment section for IBM Campaign and IBM Interact. The error applies to deploying WAR files.

### About this task

Make the following configuration changes for IBM Campaign and IBM Interact WAR files.

### Procedure

1. On the server where IBM EMM is installed, go to the WebSphere Integrated Solutions Console.
2. In the server's **Application > Enterprise Applications** section, select the WAR file that you deployed.
3. Select **Class loading and update detection** and set the following **General Properties** on the **Configuration** tab:
  - For **Class loader order**, select **Classes loaded with local class loader first (parent last)**.
  - For **WAR class loader policy**, select **Class loader for each WAR file in application**.

---

## Configure the Analytic Solution Foundation

You can deploy the Analytic Solution Foundation to your IBM Predictive Customer Intelligence environment.

You can use the Analytic Solution Foundation to extend the customer analytics database that is provided with IBM Predictive Customer Intelligence or to create orchestrations that define how data flows from an event to a customer profile.

The Analytic Solution Foundation is composed of a data model and a web application that must be deployed in WebSphere Application Server with Java SDK 1.7.

A data dictionary is available for the IBM Predictive Customer Intelligence data model that is provided with the solution. You can download the data dictionary (PCI1.1.1\_DataModel.xls) from the Predictive Customer Intelligence 1.1.1 product documentation page ([www.ibm.com/support/docview.wss?uid=swg27048306](http://www.ibm.com/support/docview.wss?uid=swg27048306)).

For more information about the Analytic Solution Foundation, see the Analytic Solution Foundation Developer Guide ([www.ibm.com/support/docview.wss?uid=swg27045826](http://www.ibm.com/support/docview.wss?uid=swg27045826)).

## Creating the Analytic Solution Foundation database and loading the data

You must create a database and load the metadata so that you can view the data model from the Analytic Solution Foundation web application.

### Procedure

1. Go to the directory where you decompressed the IBM Predictive Customer Intelligence artifact files, and in the `Analytic_Solution_Foundation_1.5.1.0/ASF_1.5.1.0` directory, copy `create-foundation-ui-schema-for-db2.ddl` to the data node computer.
2. In the `PCIDataModel` directory, copy the `PCI_ASF_metadata.zip` file to the data node computer, and decompress the file.
3. On the computer where you installed IBM DB2, do one of the following:
  - On Microsoft Windows operating systems, log on as the DB2 instance owner user, and click **Start > IBM DB2 > DB2COPY1 (Default) > DB2 Command Window - Administrator**.
  - On Linux operating systems other than Red Hat Enterprise Linux 7, open a terminal window.
  - On the Red Hat Enterprise Linux 7 operating system, open a terminal window and change to the database administrator user. For example, `su db2inst1`.
4. Enter the following command to create a database:

```
DB2 CREATE DATABASE DB_NAME ON path USING CODESET UTF-8
TERRITORY US COLLATE USING SYSTEM PAGESIZE 8 K
```

*DB\_NAME* is a name for your database. The name must be 8 characters or less.  
*path* can be a file path or just a drive letter.

For example, on Microsoft Windows operating systems if your database name is **FNDTUI**:

```
DB2 CREATE DATABASE FNDTUI ON C: USING CODESET UTF-8
TERRITORY US COLLATE USING SYSTEM PAGESIZE 8 K
```
5. Connect to the database you created by using the following command:

```
DB2 CONNECT TO DB_NAME
```
6. Go to the directory where you copied the `create-foundation-ui-schema-for-db2.ddl` file.
7. Enter the following command to create the tables in the database:

```
db2 -tvf create-foundation-ui-schema-for-db2.ddl
```
8. Go to the directory where you decompressed the `PCI_ASF_metadata.zip` file.
9. Enter the following command to create the tables and load the data:
  - On Microsoft Windows operating systems, enter `Load_Data.bat DB_NAME`.
  - On Linux operating systems, enter `sh Load_Data.sh DB_NAME`.

## Installing IBM Installation Manager for the Analytic Solution Foundation

You must install IBM Installation Manager on the computer where you install WebSphere Application Server with Java SDK 1.7 for the Analytic Solution Foundation application.



## Procedure

1. Go to the `InstallationMgr` directory where you decompressed the IBM Predictive Customer Intelligence installation files.
2. Decompress the Installation Manager installation file.
3. Start the installer:
  - On Microsoft Windows operating systems, double-click `install.exe`.
  - On Linux operating systems, enter `./install`.
4. Follow the steps to install IBM Installation Manager.

## Installing IBM WebSphere SDK Java Technology Edition for Analytic Solution Foundation

You install IBM WebSphere SDK Java Technology Edition into an existing WebSphere Application Server instance.

### Procedure

1. Go to the `WAS_JDK` directory where you decompressed the IBM Predictive Customer Intelligence installation files.
2. Decompress the installation files.  
You must decompress `7.1.3.0-WAS-IBMWASJAVA-part1.zip` and `7.1.3.0-WAS-IBMWASJAVA-part2.zip`.
3. Start IBM Installation Manager.
  - On Microsoft Windows operating systems, click **Start > All Programs > IBM Installation Manager**.
  - On Linux operating systems, start IBM Installation Manager from the **Application Browser** or go to the `/opt/IBM/InstallationManager/eclipse` directory, and run `./IBMIM`.
4. Click **File > Preferences**.
5. Click **Add Repository**.
6. Browse to the location where you decompressed the Java SDK installation files.
7. In the directory where you decompressed the installation files, select `repository.config`, click **OK** to close the dialog.
8. In IBM Installation Manager, click **Install**.
9. Select **IBM WebSphere SDK Java Technology Edition (Optional)**.
10. Click **Next**, and follow the steps in IBM Installation Manager to install the product.

## Configuring IBM WebSphere SDK Java Technology Edition for Analytic Solution Foundation

After you install IBM WebSphere SDK Java Technology Edition, you must configure it for the Analytic Solution Foundation.

### Procedure

1. Open a web browser.
2. In the address bar, type the address for the WebSphere Admin Console for the instance where you installed IBM WebSphere SDK Java Technology Edition.  
The Admin console address is `http://servername:9060/ibm/console`.
3. If security is enabled, enter the **User ID** and **Password**, and click **Log in**.

4. Expand **Servers > Server Types > WebSphere application servers**, and click **server1**.
5. Under **Server Infrastructure**, expand **Administration**, and click **Java SDKs**.
6. Select **1.7.1\_64**, and click **Make Default**.
7. Click **Save**.
8. Restart the WebSphere Application Server instance.

## **Installing the Analytic Solution Foundation web application**

You must install the Analytic Solution Foundation web application to WebSphere Application Server.

For more information about installing the web application, see the Analytic Solution Foundation Developer Guide ([www.ibm.com/support/docview.wss?uid=swg27045826](http://www.ibm.com/support/docview.wss?uid=swg27045826)).

---

## Chapter 8. Product license files

After you manually install IBM Predictive Customer Intelligence, you must ensure that the appropriate `swidtag` file and `license` directory exists on each computer on which you installed an IBM Predictive Customer Intelligence component.

---

### Copying the component license files to each component computer

The `swidtag` file and `license` directory must exist on each server node computer and each computer on which you install a client that is used with IBM Predictive Customer Intelligence.

`swidtag` files are provided for both production and non-production use of IBM Predictive Customer Intelligence. You must copy the appropriate `swidtag` file for your usage.

**Note:** Do not rename the directory or files

If you installed on a Red Hat Enterprise Linux operating system by using the solution installer, the license files are automatically copied to each server node computer.

#### Procedure

1. On the computer where you decompressed the artifact files, go to the `iso-swid` or `iso-swid_NonProduction` directory, and decompress the file, if applicable.
2. Copy the `swidtag` file to each computer on which you installed an IBM Predictive Customer Intelligence component.  
For example, on Microsoft Windows operating systems, copy the file so that you have a `C:\IBM\PCI1.1.1\iso-swid` directory that contains a `swidtag` file. On Linux operating systems, you would have an `/opt/IBM/PCI1.1.1/iso-swid` directory that contains a `swidtag` file.
3. From the root directory where you decompressed the artifact files, locate and double-click the **IBM PCI Software License Agreement** shortcut icon. The software license utility is displayed.
4. To proceed to the software license agreement, click **Next**.

**Note:** select a language using the **Select a language** drop-down list to view the agreement in a preferred language and click **OK**.

5. View or print the software license agreement and accept the terms. Click **Next**.

**Note:** if you choose to not accept the license agreement terms, click **Cancel** and exit the utility. No license files are copied.

6. Click **Finish**. Your license files are placed on the current drive in the `\IBM\PCI1.1.1\license` folder.

#### Results

The following folders must exist on each computer on which you installed an IBM Predictive Customer Intelligence component:

- On Microsoft Windows operating systems (both server and client components):

C:\IBM\PCI1.1.1\license (containing the product license files)

C:\IBM\PCI1.1.1\iso-swid (containing the product swidtag file)

- On Linux operating systems where a server component is installed:

/opt/IBM/PCI1.1.1/license (containing the product license files)

/opt/IBM/PCI1.1.1/iso-swid (containing the product swidtag file)

---

## Updating your software tag file if you change product usage

If you change your usage of IBM Predictive Customer Intelligence, such as to a non-production environment from a production environment, you must switch the software tags for your installation.

You must copy the appropriate software tag file to each computer on which an IBM Predictive Customer Intelligence server or client component is installed.

### Procedure

1. On the computer where you decompressed the artifact files, go to the `iso-swid` or `iso-swid_NonProduction` directory, and decompress the file, if applicable.
2. Copy the swidtag file to each computer on which you installed an IBM Predictive Customer Intelligence component and replace the existing file.

For example, on Microsoft Windows operating systems, copy the file so that you have a `C:\IBM\PCI1.1.1\iso-swid` directory that contains a swidtag file. On Linux operating systems, you would have an `/opt/IBM/PCI1.1.1/iso-swid` directory that contains a swidtag file.

---

## Chapter 9. Use accelerators and industry customer intelligence solutions

To help you get started with IBM Predictive Customer Intelligence, you can download and install accelerators. To get started with production ready applications, you can also download and install industry customer intelligence solutions.

---

### Downloading and installing accelerators

Accelerators are available to help you apply your IBM Predictive Customer Intelligence solution to your business needs. You must download the accelerators from IBM developerWorks (<http://www.ibm.com/developerworks>).

For access to the IBM Predictive Customer Intelligence accelerators, see [Accessing IBM Predictive Customer Intelligence accelerators \(www.ibm.com/support/docview.wss?uid=swg21985953\)](http://www.ibm.com/support/docview.wss?uid=swg21985953).

Information about installing an accelerator is provided in a separate document. Each document is available on IBM Knowledge Center ([www.ibm.com/support/knowledgecenter/SSCJHT\\_1.1.1](http://www.ibm.com/support/knowledgecenter/SSCJHT_1.1.1)), under the Create and Author section.

---

### Downloading and installing industry customer intelligence solutions

Industry customer intelligence solutions are also available for IBM Predictive Customer Intelligence. You must download the solutions from IBM Passport Advantage.

#### Procedure

1. Go to IBM Passport Advantage ([www.ibm.com/software/passportadvantage](http://www.ibm.com/software/passportadvantage)).
2. Sign in and navigate to the software download page.
3. Find and download the eAssembly for your industry customer intelligence solution.

#### What to do next

Information about installing and using the industry customer intelligence solution is available from IBM Knowledge Center ([www.ibm.com/support/knowledgecenter/SSCJHT\\_1.0.1](http://www.ibm.com/support/knowledgecenter/SSCJHT_1.0.1)).



---

## Chapter 10. Stop and start solution software services

IBM Predictive Customer Intelligence is an integrated solution that includes many products. If you must stop the services, you must do so in the correct order. The product services must also be started in the correct order.

---

### Stop solution services

You must stop the IBM Predictive Customer Intelligence node services in a specific order.

Stop the node services in the following order:

1. Cognos Analytics (CA) node
2. Integration Bus node
3. Predictive Analytics node
4. data node

### Stopping services on the CA node computer

You must stop the IBM Cognos Analytics services on the IBM Predictive Customer Intelligence Cognos Analytics (CA) node computer.

#### Procedure

1. On Microsoft Windows operating systems:
  - a. Click **Start > All Programs > IBM Cognos Analytics > IBM Cognos Configuration**.
  - b. Click **Actions > Stop**.
2. On Linux operating systems:
  - a. Log in to the CA node computer as **root**.
  - b. Go to the Cognos Analytics installation directory. For example, go to `/opt/ibm/cognos/analytics/bin64`.
  - c. Enter the following command:

```
./cogconfig.sh -stop
```

### Stopping services on the Integration Bus node computer

You must stop the IBM Integration Bus services on the IBM Predictive Customer Intelligence Integration Bus node computer.

#### Procedure

1. On Microsoft Windows operating systems:
  - a. Go to the IBM Integration Bus bin directory.
  - b. Run `mqsicommandconsole.exe`.
  - c. Enter the following command: `mqsistop pcibroker`.
  - d. Enter the following command to verify that the services have stopped: `mqsilist pcibroker`.
2. On Linux operating systems:
  - a. Log in to the Integration Bus node computer as **root**.

- b. Change to the **mqmuser** user. For example, enter the following command: `su - mqmuser`.
- c. Go to the IBM Integration Bus bin directory.
- d. Enter the following command: `./mqsisstop pcibroker -i`.
- e. Enter the following command to verify that the services have stopped: `./mqsilist pcibroker -e pcigroup`.

## Stopping services on the Predictive Analytics node computer

You must stop the IBM SPSS services on the IBM Predictive Customer Intelligence Predictive Analytics node computer.

### Procedure

1. On Microsoft Windows operating systems:
  - a. Click **Start > All Programs > IBM WebSphere > IBM WebSphere Application Server V8.5 > Profiles > AppSrv01 > Stop the server**.
  - b. Click **Start > Control Panel > Administrative Tools > Services**.
  - c. Select **IBM SPSS Modeler Server 17.0**, and click **Stop Service**.
2. On Linux operating systems:
  - a. Log in to the Predictive Analytics node computer as **root**.
  - b. Go to the WebSphere Application Server profile bin directory. For example, go to `/opt/IBM/WebSphere/AppServer/profiles/AppSrv01/bin`, if you used the default name, or `/opt/IBM/WebSphere/AppServer/profiles/CNDSprofile/bin`, if you used the solution installer.
  - c. Enter the following command: `./stopServer.sh server1`
  - d. Go to the IBM SPSS Modeler Server directory. For example, go to `/opt/IBM/SPSS/ModelerServer/17.0`.  
If you manually installed and accepted the defaults, the path is `/usr/IBM/SPSS/ModelerServer/17.0`.
  - e. Enter the following command: `./modelersrv.sh stop`
  - f. To verify whether any services are still running enter the following command: `ps -ef | grep statisticsd`
  - g. To stop any services that are still running enter the following command: `kill -9 'cat statisticsd.pid'`

## Stopping services on the data node computer

You must stop the IBM DB2 instance on the IBM Predictive Customer Intelligence data node computer.

### Procedure

1. On Microsoft Windows operating systems:
  - a. Log in to the data node computer as the IBM DB2 administrator user.
  - b. Click **Start > IBM DB2 > DB2COPY1 (Default) > DB2 Command Window - Administrator**.
  - c. Enter the following command to stop the DB2 administration server: `db2stop`
2. On Linux operating systems:
  - a. Log in to the data node computer as **root**.
  - b. In a terminal window, type the following command to change the DB2 instance owner: `su - db2inst1`



- c. Enter the following command to stop the DB2 administration server:  
db2stop

---

## Start solution services

You must start the IBM Predictive Customer Intelligence node services in a specific order.

Start the node services in the following order:

1. data node
2. Predictive Analytics node
3. Integration Bus node
4. Cognos Analytics (CA) node

## Starting services on the data node computer

You must start the IBM DB2 instance on the IBM Predictive Customer Intelligence data node computer.

### Procedure

1. On Microsoft Windows operating systems:
  - a. Log in to the data node computer as the IBM DB2 administrator user.
  - b. Click **Start > IBM DB2 > DB2COPY1 (Default) > DB2 Command Window - Administrator**.
  - c. Enter the following command to stop the DB2 administration server:  
db2start
2. On Linux operating systems:
  - a. Log in to the data node computer as **root**.
  - b. In a terminal window, type the following command to change the DB2 instance owner: `su - db2inst1`
  - c. Enter the following command to stop the DB2 administration server:  
db2start

## Starting services on the Predictive Analytics node computer

You must start the IBM SPSS services on the IBM Predictive Customer Intelligence Predictive Analytics node computer.

### Procedure

1. On Microsoft Windows operating systems:
  - a. Click **Start > All Programs > IBM WebSphere > IBM WebSphere Application Server V8.5 > Profiles > AppSrv01 > Start the server**.
  - b. Click **Start > Control Panel > Administrative Tools > Services**.
  - c. Select **IBM SPSS Modeler Server 17.0**, and click **Start Service**.
  - d. Select **IBM SPSS Statistics Server 23.0**, and click **Start Service**.
2. On Linux operating systems:
  - a. Log in to the Predictive Analytics node computer as **root**.
  - b. Go to the WebSphere Application Server profile bin directory. For example, go to `/opt/IBM/WebSphere/AppServer/profiles/AppSrv01/bin`, if you used the default name, or `/opt/IBM/WebSphere/AppServer/profiles/CNDSprofile/bin`, if you used the solution installer.
  - c. Enter the following command: `./startServer.sh server1`.

- d. Go to the IBM SPSS Modeler Server directory. For example, go to `/opt/IBM/SPSS/ModelerServer/17.0`.  
If you manually installed and accepted the defaults, the path is `/usr/IBM/SPSS/ModelerServer/17.0`.
- e. Enter the following command: `./modelersrv.sh start`
- f. Go to the IBM SPSS Statistics Server directory. For example, go to `/opt/IBM/SPSS/StatisticsServer23/bin`.
- g. Enter the following command: `./start_statistics_server`.  
You can run the command as `./start_statistics_server -d` if you want to run the application as a daemon process.

## Starting services on the Integration Bus node computer

You must start the IBM Integration Bus services on the IBM Predictive Customer Intelligence Integration Bus node computer.

### Procedure

1. On Microsoft Windows operating systems:
  - a. Go to the IBM Integration Bus bin directory.
  - b. Run `mqsicommandconsole.exe`.
  - c. Enter the following command: `mqsistart pcibroker`.
  - d. Enter the following command to verify that the services have started: `mqsilist pcibroker`.
  - e. Enter the following commands:  
START LISTENER  
END
2. On Linux operating systems:
  - a. Log in to the Integration Bus node computer as **root**.
  - b. Change to the **mqmuser** user. For example, enter the following command: `su - mqmuser`.
  - c. Go to the IBM Integration Bus bin directory.
  - d. Enter the following command: `./mqsistart pcibroker -i`.
  - e. Enter the following command to verify that the services have started: `./mqsilist pcibroker -e pcigroup`.
  - f. Enter the following commands:  
START LISTENER  
END

## Starting services on the CA node computer

You must start the IBM Cognos Analytics services on the IBM Predictive Customer Intelligence Cognos Analytics (CA) node computer.

### Procedure

1. On Microsoft Windows operating systems:
  - a. Click **Start > All Programs > IBM Cognos Analytics > IBM Cognos Configuration**.
  - b. Click **Actions > Start**.
2. On Linux operating systems:
  - a. Log in to the CA node computer as **root**.

- b. Go to the Cognos Analytics installation directory. For example, go to `/opt/ibm/cognos/analytics/bin64`.
- c. Enter the following command:  
`./cogconfig.sh -s`



---

## Chapter 11. Uninstallation of the server components

Follow the uninstall instructions for each of the IBM Predictive Customer Intelligence components to uninstall the product.

---

### Uninstalling components from the Predictive Analytics node computer

Follow the uninstall instructions for each component on the IBM Predictive Customer Intelligence Predictive Analytics node computer.

#### Procedure

1. To uninstall IBM DB2, see the IBM DB2 documentation ([www.ibm.com/support/knowledgecenter/SSEPGG\\_10.5.0/com.ibm.db2.luw.qb.server.doc/doc/c0059726.html](http://www.ibm.com/support/knowledgecenter/SSEPGG_10.5.0/com.ibm.db2.luw.qb.server.doc/doc/c0059726.html)).
2. To uninstall IBM SPSS Collaboration and Deployment Services, see the IBM SPSS documentation ([www.ibm.com/support/knowledgecenter/SS69YH\\_7.0.0](http://www.ibm.com/support/knowledgecenter/SS69YH_7.0.0)).
  - a. On Microsoft Windows operating systems, from the **Start** menu, click **All Programs > IBM Installation Manager > IBM Installation Manager**.
  - b. On Linux operating systems, go to the `/opt/IBM/InstallationManager/eclipse` directory, and run `./IBMIM`.
  - c. Click **Uninstall**, and follow the steps to uninstall the product.
3. To uninstall WebSphere Application Server, see the WebSphere documentation ([www.ibm.com/support/knowledgecenter/SSEQTP\\_8.5.5](http://www.ibm.com/support/knowledgecenter/SSEQTP_8.5.5)).
  - 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 ([www.ibm.com/support/knowledgecenter/SSDV2W\\_1.8.3/com.ibm.silentinstall12.doc/topics/r\\_uninstall\\_cmd.html](http://www.ibm.com/support/knowledgecenter/SSDV2W_1.8.3/com.ibm.silentinstall12.doc/topics/r_uninstall_cmd.html)).
  - a. On Microsoft Windows operating systems, in the Control Panel, click **Programs and Features**, select **IBM Installation Manager**, and click **Uninstall**.
  - b. On Linux operating systems, go to the `/var/ibm/InstallationManager/uninstall` directory, and run `uninstall`.
  - c. Follow the steps to uninstall IBM Installation Manager.
5. Remove the `licence` and `iso-swid` directories.

---

### Uninstalling components from the CA node computer

Follow the uninstall instructions for each component on the IBM Predictive Customer Intelligence Cognos Analytics (CA) node computer.

## Procedure

1. To uninstall IBM DB2, see the IBM DB2 documentation ([www.ibm.com/support/knowledgecenter/SSEPGG\\_10.5.0/com.ibm.db2.luw.qb.server.doc/doc/c0059726.html](http://www.ibm.com/support/knowledgecenter/SSEPGG_10.5.0/com.ibm.db2.luw.qb.server.doc/doc/c0059726.html)).
2. To uninstall IBM Cognos Analytics, see the IBM Cognos Analytics documentation ([http://www.ibm.com/support/knowledgecenter/SSEP7J\\_11.0.0/com.ibm.swg.ba.cognos.inst\\_cr\\_winux.11.0.0.doc/c\\_uninstallingcognos8single.html](http://www.ibm.com/support/knowledgecenter/SSEP7J_11.0.0/com.ibm.swg.ba.cognos.inst_cr_winux.11.0.0.doc/c_uninstallingcognos8single.html))
  - a. On Microsoft Windows operating systems, from the **Start** menu, click **All Programs > IBM Cognos Analytics > Uninstall IBM Cognos > Uninstall IBM Cognos**, and follow the steps to uninstall the product.
  - b. On Linux operating systems, go to the `/opt/ibm/cognos/analytics/uninstall` directory, type `./uninst -u`, and press Enter.
3. To uninstall IBM HTTP Server, if installed, see the IBM HTTP Server for WebSphere Application Server documentation ([www.ibm.com/support/knowledgecenter/SSEQTJ\\_8.5.5](http://www.ibm.com/support/knowledgecenter/SSEQTJ_8.5.5)).
  - a. On Microsoft Windows operating systems, from the **Start** menu, click **All Programs > IBM Installation Manager > IBM Installation Manager**.
  - b. On Linux operating systems, go to the `/opt/IBM/InstallationManager/eclipse` directory, and run `./IBMIM`.
  - c. Click **Uninstall**, and follow the steps to uninstall the product.
4. To uninstall WebSphere Application Server, if installed, see the WebSphere documentation ([www.ibm.com/support/knowledgecenter/SSEQTP\\_8.5.5](http://www.ibm.com/support/knowledgecenter/SSEQTP_8.5.5)).
  - 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 ([www.ibm.com/support/knowledgecenter/SSDV2W\\_1.8.3/com.ibm.silentinstall12.doc/topics/r\\_uninstall\\_cmd.html](http://www.ibm.com/support/knowledgecenter/SSDV2W_1.8.3/com.ibm.silentinstall12.doc/topics/r_uninstall_cmd.html)).
  - a. On Microsoft Windows operating systems, in the Control Panel, click **Programs and Features**, select **IBM Installation Manager**, and click **Uninstall**.
  - b. On Linux operating systems, go to the `/var/ibm/InstallationManager/uninstall` directory, and run `uninstall`.
  - c. Follow the steps to uninstall IBM Installation Manager.
6. Remove the `licence` and `iso-swid` directories.

---

## Uninstalling components from the Integration Bus node computer

Follow the uninstall instructions for each component on the IBM Predictive Customer Intelligence Integration Bus node computer.

### Procedure

1. To uninstall IBM DB2, see the IBM DB2 documentation ([www.ibm.com/support/knowledgecenter/SSEPGG\\_10.5.0/com.ibm.db2.luw.qb.server.doc/doc/c0059726.html](http://www.ibm.com/support/knowledgecenter/SSEPGG_10.5.0/com.ibm.db2.luw.qb.server.doc/doc/c0059726.html)).

2. To uninstall IBM Integration Bus, see the IBM Integration Bus documentation ([www.ibm.com/support/knowledgecenter/SSMKHH\\_10.0.0/com.ibm.etools.mft.doc/ah01860\\_.htm](http://www.ibm.com/support/knowledgecenter/SSMKHH_10.0.0/com.ibm.etools.mft.doc/ah01860_.htm)).
3. To uninstall WebSphere MQ, see the WebSphere MQ documentation ([www.ibm.com/support/knowledgecenter/SSFKSJ\\_8.0.0/com.ibm.mq.ins.doc/q009410\\_.htm](http://www.ibm.com/support/knowledgecenter/SSFKSJ_8.0.0/com.ibm.mq.ins.doc/q009410_.htm)).
4. Remove the licence and iso-swid directories.

---

## Uninstalling components from the data node computer

Follow the uninstall instructions for each component on the IBM Predictive Customer Intelligence data node computer.

### Procedure

1. To uninstall IBM DB2, see the IBM DB2 documentation ([www.ibm.com/support/knowledgecenter/SSEPGG\\_10.5.0/com.ibm.db2.luw.qb.server.doc/doc/c0059726.html](http://www.ibm.com/support/knowledgecenter/SSEPGG_10.5.0/com.ibm.db2.luw.qb.server.doc/doc/c0059726.html)).
2. Remove the licence and iso-swid directories.

---

## Uninstalling the solution installer

If you used the solution installer to install the IBM Predictive Customer Intelligence on Red Hat Enterprise Linux operating systems, you can uninstall the solution installer by running a script.

When you uninstall the solution installer, the processes that are used by the solution installer are stopped and removed from your computer. Also, all of the files in the solution installer directory are removed. This includes the IBM Predictive Customer Intelligence server component installation files that you copied into the solution installer directory. If you want to preserve those files, you must copy them to another directory before you uninstall the solution installer.

Also, you can run a script on each node computer where you installed an IBM Predictive Customer Intelligence component to remove the solution installer processes. Ensure that you copy the `cleanupClient.sh` file before you uninstall the solution installer.

**Note:** Uninstalling the solution installer does not uninstall the IBM Predictive Customer Intelligence component applications. If you want to uninstall those components, you must use each component's uninstallation programs.

### Procedure

1. To remove the solution installer processes on the client node computers, do the following steps:
  - a. From the `SolutionInstaller` directory, copy the `cleanupClient.sh` file onto each computer on which you installed an IBM Predictive Customer Intelligence component.
  - b. Go to the directory where you copied the file.
  - c. Enter the following command: `sh cleanupClient.sh`.
2. To remove the solution installer, do the following steps:
  - a. Optional: Go to the `PCI_1.1.1_linux/SolutionInstaller/NodeRoot/Downloads/Software` directory, and copy `prd_cust_intel_svr_1.1.1_186_en.tar.gz`,

prd\_cust\_intel\_svr\_1.1.1\_2\_186\_en.tar.gz, and  
prd\_cust\_intel\_svr\_1.1.1\_3\_186\_en.tar.gz to another directory, outside of  
the PCI\_1.1.1\_linux/SolutionInstaller directory.

- b. Go to the PCI\_1.1.1\_linux/SolutionInstaller directory.
- c. Enter the following command: sh cleanup.sh.



---

## Appendix A. Accessibility features

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

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

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

### Report output

In IBM Cognos Administration, you can enable system-wide settings to create accessible report output. For more information, see the *IBM Cognos Analytics Administration and Security Guide*. In IBM Cognos Report Studio, you can enable settings to create accessible output for individual reports. For more information, see the *IBM Cognos Report Studio User Guide*. You can access the previously mentioned documents at IBM Knowledge Center ([www.ibm.com/support/knowledgecenter](http://www.ibm.com/support/knowledgecenter)).



---

## Appendix B. Troubleshooting

This section contains troubleshooting information for the IBM Predictive Customer Intelligence installation.

---

### Troubleshooting a problem

Troubleshooting is a systematic approach to solving a problem. The goal of troubleshooting is to determine why something does not work as expected and how to resolve the problem.

Review the following table to help you or customer support resolve a problem.

*Table 3. Troubleshooting actions and descriptions*

| Actions  | Description   |
|--|---|
| A product fix might be available to resolve your problem.  | Apply all known fix packs, or service levels, or program temporary fixes (PTF).   |
| Look up error messages by selecting the product from the IBM Support Portal, and then typing the error message code into the <b>Search support</b> box ( <a href="http://www.ibm.com/support/entry/portal/">www.ibm.com/support/entry/portal/</a> ). | Error messages give important information to help you identify the component that is causing the problem.   |
| Reproduce the problem to ensure that it is not just a simple error.  | If samples are available with the product, you might try to reproduce the problem by using the sample data.   |
| Ensure that the installation successfully finished.  | The installation location must contain the appropriate file structure and the file permissions. For example, if the product requires write access to log files, ensure that the directory has the correct permission. |
| Review all relevant documentation, including release notes, technotes, and proven practices documentation.   | Search the IBM Knowledge Center to determine whether your problem is known, has a workaround, or if it is already resolved and documented.  |
| Review recent changes in your computing environment.   | Sometimes installing new software might cause compatibility issues.   |

If the items in the table did not guide you to a resolution, you might need to collect diagnostic data. This data is necessary for an IBM technical-support representative to effectively troubleshoot and assist you in resolving the problem. You can also collect diagnostic data and analyze it yourself.

### Troubleshooting resources

Troubleshooting resources are sources of information that can help you resolve a problem that you are having with an IBM product.

#### Support Portal

The IBM Support Portal is a unified, centralized view of all technical support tools and information for all IBM systems, software, and services.

The IBM Support Portal lets you access all the IBM support resources from one place. You can tailor the pages to focus on the information and resources that you need for problem prevention and faster problem resolution. Familiarize yourself with the IBM Support Portal by viewing the demo videos ([https://www.ibm.com/blogs/SPNA/entry/the\\_ibm\\_support\\_portal\\_videos](https://www.ibm.com/blogs/SPNA/entry/the_ibm_support_portal_videos)).

Find the content that you need by selecting your products from the IBM Support Portal ([www.ibm.com/support/entry/portal](http://www.ibm.com/support/entry/portal)).

Before contacting IBM Support, you will need to collect diagnostic data (system information, symptoms, log files, traces, and so on) that is required to resolve a problem. Gathering this information will help to familiarize you with the troubleshooting process and save you time.

## **Service request**

Service requests are also known as Problem Management Reports (PMRs). Several methods exist to submit diagnostic information to IBM Software Technical Support.

To open a PMR or to exchange information with technical support, view the IBM Software Support Exchanging information with Technical Support page ([www.ibm.com/software/support/exchangeinfo.html](http://www.ibm.com/software/support/exchangeinfo.html)).

## **Fix Central**

Fix Central provides fixes and updates for your system's software, hardware, and operating system.

Use the pull-down menu to navigate to your product fixes on Fix Central ([www.ibm.com/systems/support/fixes/en/fixcentral/help/getstarted.html](http://www.ibm.com/systems/support/fixes/en/fixcentral/help/getstarted.html)). You may also want to view Fix Central help.

## **IBM developerWorks**

IBM developerWorks<sup>®</sup> provides verified technical information in specific technology environments.

As a troubleshooting resource, developerWorks provides easy access to the most popular practices, in addition to videos and other information: developerWorks ([www.ibm.com/developerworks](http://www.ibm.com/developerworks)).

## **IBM Redbooks**

IBM Redbooks<sup>®</sup> are developed and published by the IBM International Technical Support Organization, the ITSO.

IBM Redbooks ([www.redbooks.ibm.com](http://www.redbooks.ibm.com)) provide in-depth guidance about such topics as installation and configuration and solution implementation.

## **Software support and RSS feeds**

IBM Software Support RSS feeds are a quick, easy, and lightweight format for monitoring new content added to websites.

After you download an RSS reader or browser plug-in, you can subscribe to IBM product feeds at IBM Software Support RSS feeds (<https://www.ibm.com/software/support/rss>).

## Log files

Log files can help you troubleshoot problems by recording the activities that take place when you work with a product.

## Error messages

The first indication of a problem is often an error message. Error messages contain information that can be helpful in determining the cause of a problem.

---

## Browser window closes while you are running an installation from the solution installer

After you click the **Run** button, **do not close** the browser window until the installation completes. If you close the browser, you cannot re-initiate the session. However, the installation does proceed even with the browser closed. But you cannot monitor the progress.

If the browser window closes, do the following steps:

1. Do nothing until enough time elapses to allow the installation to complete. Allow the installation at least 2 hours to complete.
2. Open a new browser window, and open the solution installer again.
3. Re-create the configuration that you used or open the saved session that you used. You must ensure that all of the values that you entered in the fields are the same as the configuration that you used when the browser window closed.
4. Rerun the installation. The solution installer verifies that all of the components are installed.

After the solution installer completes, verify that the components are working. For more information, see “Configure the server components and test the installation” on page 27.

---

## Solution installer error “Deployment failed by the error occurred due to => FATAL;”

You are using the solution installer to install on a Red Hat Enterprise Linux operating system, and you see the following error message: “Deployment failed by the error occurred due to => FATAL;”.

This message can occur for several reasons.

1. The operating system is not compatible with the solution installer. You must be using 64-bit Red Hat Enterprise Linux Server Edition version 6.5 or 6.6 (x86\_64) operating systems.

For more information, see the IBM Software Product Compatibility Reports ([www.ibm.com/support/docview.wss?uid=swg27044319](http://www.ibm.com/support/docview.wss?uid=swg27044319)).

2. The required RPMs are not installed on the target computer.

For more information, see “Installing required operating system packages on the CA node computer” on page 4 and “Installing required operating system packages on the Integration Bus node computer” on page 5.

3. The required ports are not open in the operating system firewall.  
For more information, see “Opening firewall ports for the solution installer” on page 12.
4. If you are installing to a single-node or four-node architecture, and the log file indicates that there is a missing database parameter for the IBM SPSS Collaboration and Deployment Services Server configuration, go back to the solution installer and click **Run** again.

---

## Solution installer error “There is no connection to the server”

You are using the solution installer to install on a Red Hat Enterprise Linux operating system, and you see the following error message: “There is no connection to the server”.

This message can occur for several reasons.

1. The required ports are not open in the operating system firewall.  
For more information, see “Opening firewall ports for the solution installer” on page 12.
2. NodeJS is not running on the computer where you are running the solution installer.  
Check whether there are any processes still running by running the following command: `ps -elf | grep node`.  
Enter the following command to stop the processes: `killall node`.  
Then, restart NodeJS by going to the `SolutionInstaller` directory, and running the following command: `nohup node NodeJS/server.js > NodeJS/server.log 2>&1 &`

---

## Modeler Server type not displaying in resource definitions

In IBM Predictive Customer Intelligence, 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.

---

## “The port 9683 is already in use” error when you run the solution installer after you reinstalled it

You have reinstalled the solution installer after you used the `cleanup.sh` script, and when you run the solution installer you get the following error message:

The port 9683 is already in use. You must run the solution installer on a system where the port 9683 is not in use.

This message occurs because one of the services that is used by the solution installer is still running.

To resolve this error, restart your machine, and then run the `setup.sh` script again.

---

## Appendix C. Troubleshooting IBM Cognos Business Intelligence 10.2.x

You can troubleshoot problems with the IBM Predictive Customer Intelligence installation using IBM Cognos Business Intelligence 10.2.x.

---

### Error installing IBM Cognos BI

The IBM Cognos Business Intelligence installer on Linux operating systems requires that you have the OpenMotif package installed.

If you do not have OpenMotif installed, the following message is displayed when you run the IBM Cognos BI installer:

```
STDERR: ./issetup: error while loading shared libraries: libXm.so.4: cannot
open shared object file: No such file or directory
```

For more information, see the IBM support page ([www.ibm.com/support/docview.wss?uid=swg21612290](http://www.ibm.com/support/docview.wss?uid=swg21612290)).

---

### Saving IBM Cognos BI report files to local file system

Use the following procedure to save IBM Predictive Customer Intelligence reports generated in IBM Cognos Business Intelligence to the local file system. For example, if you want to save the CSV output for the top 250 subscriber list in the Telecommunications Customer Management with Mobile Service Insights industry accelerator, you can configure IBM Cognos BI to save the file each time the report is run. The report is saved on the BI node computer.

#### Procedure

1. Log on to the Cognos Analytics node computer.
2. Create a directory in which to save your report outputs.
3. Enable saving report output to the file system in IBM Cognos Configuration.
  - a. Enter the following command to load the profile that is needed for IBM Cognos BI, and press Enter:


```
. ~/.bash_profile
```

The `.bash_profile` file contains the environment variables that are needed to start IBM Cognos Configuration.
  - b. Go to the `/opt/ibm/cognos/c10_64/bin64` directory.
  - c. Type the following command:

```
./cogconfig.sh
```

IBM Cognos Configuration starts.
  - d. Click **Actions > Edit Global Configuration**.
  - e. On the **General** tab, enter the path to the directory you created in **Archive Location File System Root**.

The path must be in the format of `file://(file-system-path)`. For example, `file:///usr/reports`.
  - f. Click **OK**.
  - g. In the **Explorer** window, expand **Data Access**, and click **Content Manager**.

- h. Set **Save report outputs to a file system** to **True**.
  - i. In the **Explorer** window, click **Environment**, and ensure that the server name or IP address for the BI node computer is used in the URI settings. Using localhost in the URI settings can cause errors if you are saving the report output to a shared directory.
  - j. Click **File > Save**.
  - k. Restart the IBM Cognos services.
4. Enable saving reports in IBM Cognos Administration.
- a. Open a web browser.
  - b. Go to the IBM Cognos BI portal URL. For example, go to `http://bi_node_name/ibmcognos/`.
  - c. On the **Welcome** page, click **Administer IBM Cognos Content**.
  - d. On the **Configuration** tab, click **Dispatchers and Services**.
  - e. Click the **Define File Systems Locations** button  .
  - f. Click **New**.
  - g. In **Name**, enter a name for the location. This name will appear when you run the reports.
  - h. In **File system location**, enter the path to the directory you created. For example, `/usr/reports`.
  - i. Click **Finish**, and **Close**.
5. Select the output location for a report.
- a. In IBM Cognos Connection, select a report, and click **Schedule**.
  - b. In the **Options** section, select **Override the default values**.
  - c. In the **Delivery** section, enable **Save to the file system**, and click **Edit the options**.
  - d. On the options page, in **Location**, select the output location.
  - e. Click **OK**.
- After the report is run, the output will be available in the file system directory you configured.



---

## Appendix D. Supporting programs licensed with IBM Predictive Customer Intelligence 1.1.1

The following supporting programs are licensed with IBM Predictive Customer Intelligence 1.1.1.

### Supporting programs

IBM Cognos Analytics Administrator

IBM Cognos Analytics Software Development Kit

IBM Cognos Cube Designer

IBM Cognos Framework Manager

IBM Cognos Analytics Samples

IBM Cognos Lifecycle Manager

IBM Cognos for Microsoft Office

IBM Cognos Supplementary Languages Documentation

IBM Cognos Dynamic Query Analyzer

IBM SPSS Analytical Decision Management

IBM SPSS Analytical Decision Management Application

IBM SPSS Analytic Server

IBM SPSS Modeler Premium

IBM SPSS Modeler Server Premium

IBM SPSS Modeler Solution Publisher

IBM SPSS Statistics Standard

IBM SPSS Statistics Server Standard

IBM SPSS Statistics - Essentials for Python

IBM SPSS Collaboration and Deployment Services Adapters for Statistics

IBM SPSS Collaboration and Deployment Services

IBM SPSS Collaboration and Deployment Services Deployment Manager

IBM SPSS Collaboration and Deployment Services - Real Time Scoring

IBM SPSS Collaboration and Deployment Services Deployment Portal

IBM SPSS Data Access Pack

IBM SPSS Concurrent Licensing Tools

IBM DB2 Enterprise Server Edition 10.5

IBM WebSphere Application Server Network Deployment

IBM WebSphere MQ

IBM Integration Bus

IBM Installation Manager and Packaging Utility for the Rational Software Development Platform

IBM ILOG CPLEX Optimization Studio

IBM ILOG CPLEX Enterprise Server

---

## Appendix E. Programs not authorized by the IBM Predictive Customer Intelligence 1.1.1 license

The following programs are not authorized with IBM Predictive Customer Intelligence 1.1.1, and the use of these programs is not authorized by the IBM Predictive Customer Intelligence 1.1.1 license.

BM Cognos Analysis for Microsoft Excel

IBM Cognos Analysis Studio

IBM Cognos Business Intelligence Transformer

IBM Cognos Connection Installer for IBM Cognos Insight

IBM Cognos Data Manager Connector

IBM Cognos Insight

IBM Cognos Metric Designer

IBM Cognos Metric Studio

IBM Cognos Metrics Manager

IBM Cognos Migration Tools

IBM Cognos PowerPlay Client

IBM Cognos PowerPlay Server

IBM Cognos PowerPlay Studio

IBM Cognos Query Studio

IBM Cognos TM1 Package Connector

IBM Connections

IBM DB2 Workgroup Server Edition

IBM Tivoli Directory Integrator Identity Edition

IBM DB2 Workgroup Server Edition Version (IBM DB2) (of IBM SPSS Modeler Premium, IBM SPSS Modeler Server Premium)

IBM WebSphere Application Server Developer Tools for Eclipse (of IBM WebSphere Application Server Network Deployment)

J2SE Rule Execution Server (of IBM WebSphere Application Server Network Deployment)

IBM Data Studio (of IBM DB2 Enterprise Server Edition)

IBM WebSphere MQ (of IBM DB2 Enterprise Server Edition)

PureScale Feature (of IBM DB2 Enterprise Server Edition)

IBM General Parallel File System (GPFS) for AIX (of IBM DB2 Enterprise Server Edition)

IBM General Parallel File System (GPFS) for Linux Multiplatform (of IBM DB2 Enterprise Server Edition)

IBM Tivoli Storage Flashcopy Manager (of IBM DB2 Enterprise Server Edition)

Embedded version of IBM WebSphere Application Server ("embedded WebSphere Application Server") (of IBM Tivoli System Automation for Multiplatforms (of IBM DB2 Enterprise Server Edition)

IBM Cloudscape V10 (of IBM Tivoli System Automation for Multiplatforms 3.2 (of IBM DB2 Enterprise Server Edition Version))

Embedded WebSphere Application Server (of IBM Tivoli Directory Server 6.3 - Client Only (component) (of IBM DB2 Enterprise Server Edition Version))

IBM InfoSphere Change Data Capture (of IBM InfoSphere Data Replication (component) (of IBM DB2 Enterprise Server Edition))

IBM InfoSphere Change Data Capture (of IBM InfoSphere Data Replication (component) (of IBM DB2 Enterprise Server Edition)

IBM InfoSphere Replication Server (of IBM InfoSphere Data Replication (component) (of IBM DB2 Enterprise Server Edition) )

IBM Tivoli Directory Integrator (of IBM Tivoli Directory Server - Client Only (component) (of IBM DB2 Enterprise Server Edition))

WebSphere Application Server (of IBM Tivoli Directory Server - Client Only (component) (of IBM DB2 Enterprise Server Edition))

IBM DB2 Workgroup Server Edition Version (of IBM Tivoli Directory Server - Client Only (component) (of IBM DB2 Enterprise Server Edition Version))

IBM DB2 Enterprise Server Edition Version (of IBM Tivoli Directory Serve - Client Only (component) (of IBM DB2 Enterprise Server Edition Version))

IBM InfoSphere Data Replication (component) (of IBM InfoSphere Federation Server (component) (of IBM DB2 Enterprise Server Edition Version))

IBM WebSphere MQ (of IBM InfoSphere Federation Server (component) (of IBM DB2 Enterprise Server Edition Version))

IBM DB2 Connect, Application Server Edition (of IBM InfoSphere Federation Server (component) (of IBM DB2 Enterprise Server Edition Version))

IBM WebSphere eXtreme Scale (of IBM WebSphere Application Server Network Deployment)

The Intelligent Management functions (of WebSphere Application Server Network Deployment): Application Edition Management, Server Health Management, SLA Based Dynamic Clustering, Intelligent Routing and SLA Enforcement.



---

## Appendix F. Deprecated components for PCI 1.1

Some components that are packaged with IBM Predictive Customer Intelligence have been deprecated since the release of IBM Predictive Customer Intelligence version 1.1. If you use these components, replacements are available.

In IBM Predictive Customer Intelligence version 1.1, the following included components are deprecated:

| Included deprecated component   | Replacement component  |
|---|--|
| IBM SPSS Collaboration and Deployment Services Enterprise View Driver             | Analytic Data View feature within IBM SPSS Collaboration and Deployment Services V6.0 or greater |
| IBM SPSS Collaboration and Deployment Services Portlet and Web Part               | IBM SPSS Collaboration and Deployment Services Deployment Portal or web services APIs            |
| Web installer for Collaboration and Deployment Services Deployment Manager client | Install Anywhere installer   |

For more information, see the "Statement of direction" section of the IBM SPSS Collaboration and Deployment Services V6.0 announcement letter.





---

## Appendix G. Performance tuning for IBM Predictive Customer Intelligence

The topics in this appendix provide examples of configuration changes that might help improve performance of your IBM Predictive Customer Intelligence installation.

---

### Tune WebSphere Application Server for IBM Predictive Customer Intelligence

Performance tuning settings for WebSphere Application Server include JVM tuning, thread pools, connection pools, web container settings, logging, and web server monitoring.

#### JVM tuning

Setting an appropriate Java virtual machine (JVM) heap size can improve performance for IBM Predictive Customer Intelligence. Also, garbage collection is an integral Java runtime service. Increasing the JVM heap size can reduce the number of garbage collection occurrences and provide a 10 percent gain in performance.

#### Heap size

The heap size should be set to an optimal value. It should not exceed 80% of the physical memory available on the computer. Doing so would enable paging and increase processor usage, which affects the performance of WebSphere Application Server.

For IBM Predictive Customer Intelligence, use 4096 MB.

The Max Heap Size is the maximum heap size that would be allocated to the server. It is important that the value is less than the available physical memory.

For IBM Predictive Customer Intelligence, use 7128 MB.

#### Garbage collection

Parallel garbage collection is a technique that uses several dedicated threads for garbage collection. This method improves garbage collection pause time, which increases processor efficiency and improves performance.

This process can be activated by setting the `-Xgcthreads` value to the number of processors on the computer. For example, set `-Xgcthreads:number_of_processors`. However, this method is not entirely suited for concurrent users.

For concurrent users, use `-Xgcpolicy:optavgpause`.

#### Thread pools

Thread pools enable server components to reuse threads. Reusing threads eliminates the need to create new threads at run time, and creating new threads expends time and resources.

## Web container thread pool

The web container thread pool is used for HTTP requests that come from the client. Set the number of threads to double the number of users that might be expected to access the application concurrently.

For example, for IBM Predictive Customer Intelligence, set the minimum value to 3000 and the maximum to 5000.

## Connection pools

Connection pools are associated with data source configuration for web applications, and it is used to direct JDBC calls within the application.

When a user makes a request over the web to a resource, the resource accesses the data source. Because users connect and disconnect frequently with applications on the internet, the application requests for data access can surge to considerable volume. Consequently, the total data store overhead quickly becomes high for web-based applications, and performance deteriorates. However, when connection pooling capabilities are used, the web applications can realize performance improvements of up to 20 times the normal results.

With data sources, most user requests do not incur the overhead of creating a new connection because the data source can locate and use an existing connection from a pool of connections. When the request is satisfied and the response is returned to the user, the resource returns the connection to the connection pool for reuse.

For example, for IBM Predictive Customer Intelligence, set the minimum value to 1000 and the maximum to 3000.

## Web container configuration

Web container configuration settings can improve IBM Predictive Customer Intelligence performance.

### Enable servlet caching

The server caches servlet output during application execution. A cache entry contains not only the output, but also the side effects of the invocation. These side effects include calls to other servlets and metadata about the entry, such as timeout and entry priority information.

## Web container custom properties

For the `HTTPQueueInboundDefault` property, there are two settings:

### Maximum pool connections

The number of connections that are expected to be responded to by the application server. Ideally, this value should be equal to or more than the number of clients that are expected to use the system. The maximum number that can be set is 20000.

### Maximum persistent requests per connection

Persistent connections specify that an outgoing HTTP response should use a persistent connection instead of a connection that closes after one request

or response exchange occurs. A performance boost can be achieved by increasing the number of persistent connections that are allowed on a single HTTP connection.

## Logging and performance monitoring

For IBM Predictive Customer Intelligence, turning off logging and performance monitoring in a production environment can improve performance.

---

## Tune IBM Unica for IBM Predictive Customer Intelligence

You can improve performance of IBM Predictive Customer Intelligence by modifying settings for IBM Unica.

### EHCACHE configuration settings

EHCACHE is the built-in cache manager for IBM Unica Interact that is used to improve performance. It is possible to configure the settings that are used by EHCACHE to optimize its value for the runtime server group.

The number of sessions in memory depends on the following factors:

- The expected number of sessions per second.
- The total amount of time each session is supposed to last.

For example, if you expect 50 sessions a second, and each session is expected to last 20 minutes, then modify the settings to support 60,000 sessions at a time.

### Java Serialization API rather than SOAP API

For IBM Predictive Customer Intelligence, the Java Serialization API provides better throughput and a shorter response time than the SOAP API.

### Threads for interactive flowcharts

Every interactive flowchart requires at least one thread to run.

IBM Predictive Customer Intelligence, set the `MaxNumberOfFlowchartThreads` value to be at least the maximum number of concurrent users that are expected on the IBM Interact client. And set the `MinNumberOfFlowchartThreads` value to be the same as the maximum value. Set the `MaxNumberOfProcessThreads` value to be at least the `MaxNumberOfFlowchartThreads`.

For example, set the `MaxNumberOfFlowchartThreads` and `MinNumberOfFlowchartThreads` to 500. And set `MaxNumberOfProcessThreads` to 550.

---

## Tuning IBM Cognos BI 10.x for IBM Predictive Customer Intelligence

You can apply settings in IBM Cognos Business Intelligence 10.x to improve performance for IBM Predictive Customer Intelligence reports. The settings are made in IBM Cognos Administration.

Additionally, if you are using IBM Cognos Business Intelligence 10.2.1 with Fix Pack 3 or higher, it is recommended that you modify settings in a configuration file on the BI Node computer.

### Procedure

1. Open a web browser.

2. Go to the IBM Cognos BI portal URL. For example, go to [http://bi\\_node\\_name/ibmcognos/](http://bi_node_name/ibmcognos/).
3. On the **Welcome** page, click **Administer IBM Cognos Content**.
4. On the **Configuration** tab, click **Dispatchers and Services**.
5. Click the name of your IBM Cognos BI dispatcher instance. For example, click [http://bi\\_node\\_name:9080/p2pd](http://bi_node_name:9080/p2pd).
6. Click the **Set Properties** button for the **QueryService**.
7. Click the **Settings** tab.
8. Change the following settings so that the value is 1/3 of the total physical memory of the BI node computer.
  - **Initial JVM heap size for the query service (MB)**
  - **JVM heap size limit for the query service (MB)**
9. Click **OK**.
10. If you are using IBM Cognos Business Intelligence 10.2.1 with Fix Pack 3 or higher installed, do the following steps:
  - a. On the BI node computer, go to the configuration\xqe directory where IBM Cognos BI is installed. For example, go to `. For example, /opt/IBM/cognos/c10_64/configuration/xqe`.
  - b. Open `dmr.properties` in a text editor.
  - c. Ensure that the following options are set:
    - `cacheResultSets=false`
    - `pushdownExtAggregatesToRelational=true`
    - `enablePushdownThroughCustomSet=true`
    - `pushdownTopBottomCountToRelational=true`
    - `pushdownTopPercentSumToRelational=true`
  - d. Save and close the file.
11. Restart the IBM Cognos BI services.
12. Additionally, the following options might also provide performance benefits:
  - Increasing the Business Intelligence and data node computer hardware configuration, such as adding memory or CPUs. For example, increasing to 128 GB of RAM for the BI node computer.
  - Upgrading IBM Cognos Business Intelligence to the latest fix packs.
  - Tuning your database server to have the best query performance.
  - When you use Top Count against a large data set, you might want to create additional data marts that identify and preload the top N dimensions by the relevant measures. Schedule the loading process for off hours.
  - If you develop custom list reports and need to improve performance, use relational query subjects, rather than the dimensional model. For an example, see the Subscriber List report in the Telecommunications Customer Management with Mobile Service Insights industry accelerator.

---

## Notices

This information was developed for products and services offered worldwide.

This material may be available from IBM in other languages. However, you may be required to own a copy of the product or product version in that language in order to access it.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service. This document may describe products, services, or features that are not included in the Program or license entitlement that you have purchased.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing  
IBM Corporation  
North Castle Drive  
Armonk, NY 10504-1785  
U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

Intellectual Property Licensing  
Legal and Intellectual Property Law  
IBM Japan Ltd.  
19-21, Nihonbashi-Hakozakicho, Chuo-ku  
Tokyo 103-8510, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Software Group  
Attention: Licensing  
3755 Riverside Dr.  
Ottawa, ON  
K1V 1B7  
Canada

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

This Software Offering does not use cookies or other technologies to collect personally identifiable information.

---

## Trademarks

IBM, the IBM logo and ibm.com are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at “ Copyright and trademark information ” at [www.ibm.com/legal/copytrade.shtml](http://www.ibm.com/legal/copytrade.shtml).

The following terms are trademarks or registered trademarks of other companies:

- Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.
- Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.
- Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.
- UNIX is a registered trademark of The Open Group in the United States and other countries.
- Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.