IBM Operations Analytics Predictive Insights 1.3.5

Installation Guide

Note
Before using this information and the product it supports, read the information in "Notices" on page 57.

Contents

Preface

The purpose of this guide is to help you install Operations Analytics Predictive Insights.

After completing all steps documented in this guide, you will have a set of running Operations Analytics Predictive Insights components ready to configure into a fully functional system.

Audience

The audience for this manual is the network administrator or operations specialist responsible for installing Operations Analytics Predictive Insights.

To install Operations Analytics Predictive Insights successfully, a basic knowledge of the following is required:

- Administration of the Linux operating system.
- Administration of IBM InfoSphere Streams.
- Administration of the DB2 database management system.
- Administration of OMNIbus and OMNIbus WebGUI.
- Operations Analytics Predictive Insights

Components

IBM® Operations Analytics Predictive Insights consists of four main components.

The IBM Operations Analytics Predictive Insights components are:

- **The Database component**: is used to store configuration data, metadata and metric data.
- **The Analytic component**: performs data mediation and processes incoming data to discover any anomalies that are present.
- **The UI component**: presents any discovered anomalies through the IBM Dashboard Application Services Hub application or the IBM Tivoli Integrated Portal application.
- **The Mediation Tool**: is used to configure a data source and the data model that Operations Analytics Predictive Insights will monitor.

Operations Analytics Predictive Insights documentation includes the following guides:

- Release notes
- Installation Guide
- Upgrade Guide
- Administration Guide
- Error Messages Guide

Chapter 1. Introduction

Operations Analytics Predictive Insights is real-time performance analysis software for business services.

Operations Analytics Predictive Insights eliminates manual threshold and baseline configuration by providing a self-learning capability.

By analyzing data from various sources and integrating with existing monitoring products, Operations Analytics Predictive Insights learns the normal behavior of a business service and creates a performance model. When Operations Analytics Predictive Insights detects or forecasts anomalous behavior, an alarm is generated. Operations Analytics Predictive Insights offers out-of-the-box integration with Netcool® OMNIbus.

The Operations Analytics Predictive Insights system has four main components:

- **The Database component**: is used to store configuration data, metadata and metric data.
- **The Analytic component**: performs data mediation and processes incoming data to discover any anomalies that are present.
- **The UI component**: presents any discovered anomalies through the IBM Dashboard Application Services Hub application or the IBM Tivoli Integrated Portal application.
- **The Mediation Tool**: is used to configure a data source and the data model that Operations Analytics Predictive Insights will monitor.

Chapter 2. Preparing to install

Before you begin installing Operations Analytics Predictive Insights, you must complete a series of tasks to prepare your system.

Checking the installation prerequisites

Run the `prereq_scanner.sh` script to check various installation prerequisites for Operations Analytics Predictive Insights.

Before you begin

If you want to run the prerequisite scanner as a non-root user, enter the following command to add the `/usr/sbin` directory to the path variable so the Linux `mount`, `swapinfo`, and `psrinfo` commands are available to the script:

```
export PATH=$PATH:/usr/sbin
```

About this task

The `prereq_scanner.sh` script completes the following system validation checks:

- System: Checks that all system resources such as CPU, memory, free disk space, and operating system flavor and version meet the requirements to run Operations Analytics Predictive Insights. The script checks that your system meets the minimum requirements to run Operations Analytics Predictive Insights. For information on the additional system requirements to size Operations Analytics Predictive Insights for a specific number of KPIs, see *Hardware sizing* in the Performance and Sizing wiki
- Libraries and packages: Ensures that the required packages for Operations Analytics Predictive Insights and its prerequisites are installed in the correct location.
- Software: Checks that the correct version of DB2 is installed.

Procedure

1. Change to the directory that contains the `prereq_scanner.sh` script in one of the following locations:
   - The `predictiveInsightsInstaller1.3.5` directory within the directory where you downloaded and extracted Operations Analytics Predictive Insights
   - `$PI_HOME` after you install Operations Analytics Predictive Insights
2. To run the prerequisite scanner, type:

   ```
   ./prereq_scanner.sh
   ```
3. Enter the corresponding number to check the prerequisites for the specific component or components that you wish to install on the server.

Number	Checks prerequisites for:
1	The database component only
2	The analytics component only
3	The UI component running in a Dashboard Application Services Hub environment.

Number	Checks prerequisites for:
4	The UI component running in a Tivoli Integrated Portal environment.
5	The database, analytics, and UI components in a Dashboard Application Services Hub environment.
6	That database, analytics, and UI components in a Tivoli Integrated Portal environment.

Results

The prerequisite scanner logs the scan activity to a `precheck.log` file and writes the results of the scan to the `result.txt` file. Possible results are as follows:

Table 1. Prerequisite scanner results

Result	Explanation
Pass	If the target server meets all the prerequisites, the script returns a pass for the prerequisite check.
Warning	If the target server does not meet one or more of the prerequisites with a warning severity level, the script returns an overall warning results for the prerequisite check. With a warning result, you can complete the installation of Operations Analytics Predictive Insights, but the performance or operation of the system may be affected. Therefore, it is recommended that you take action to resolve the items with a warning status before you start the installation.
Fail	If the target server does not meet the prerequisites, the script returns fail for the prerequisite check. To resolve the failure, take the appropriate actions, for example, install the missing operating system packages, increase disk space, modify the configuration settings and so on.

Creating users to install Operations Analytics Predictive Insights

Create users to install Operations Analytics Predictive Insights and its prerequisites.

About this task

If you install Operations Analytics Predictive Insights on a single server, you can use a single or multiple user accounts to install the system requirements and the Operations Analytics Predictive Insights components. The following instructions use 2 accounts:

- `db2inst1` to install and administer DB2.

- scadmin to install the other system requirements and Operations Analytics Predictive Insights.

Create the db2inst1 user on the server on which you plan to install DB2. Create the scadmin user on all servers on which you plan to install Operations Analytics Predictive Insights components.

Procedure

1. To create the scadmin user account, log in as root and enter the following commands:

   ```
   groupadd scadmin
   useradd -g scadmin -d /home/scadmin -s /bin/bash scadmin
   passwd scadmin
   ```

2. As user root on the database server, create an OS user within the relevant group.

   ```
   groupadd db2iadm1
   useradd -g db2iadm1 -d /home/db2inst1 -s /bin/bash db2inst1
   passwd db2inst1
   ```

3. As root user on the database server, add the existing scadmin user to the same primary group as the DB2® instance owner, by default this user is *db2inst1*.

   For example, add the user scadmin to the group db2iadm1.

   ```
   usermod -G scadmin,db2iadm1 scadmin
   ```

4. On the database server, add the following source command into the ~scadmin/.bashrc file:

   ```
   if [ -f /home/db2inst1/sqllib/db2profile ]; then
   . /home/db2inst1/sqllib/db2profile
   fi
   ```

   The commands assume that:

   - *db2inst1* is the DB2 instance owner.
   - /home/db2inst1 is the home area of the DB2 instance owner
   - DB2 is installed in the /home/db2inst1/sqllib directory

Configuring fully qualified domain names for servers

Before you start the installation, ensure that each server that is to host an Operations Analytics Predictive Insights component has a fully qualified domain name.

Also, ensure that the host entry in each server's /etc/hosts file is in the following format:

```
<ip-address> <fully qualified domain name> <short host name>
```

Note: Do not install Operations Analytics Predictive Insights on a server that has an underscore (_) character in its host or domain name. The host name and domain name must conform to the name requirements described in Internet Official Protocol Standards RFC 952:

```
A "name" (Net, Host, Gateway, or Domain name) is a text string up to 24 characters drawn from the
sign (-), and period (.).  Note that periods are only allowed when they serve to delimit component
```

Setting ulimits

Setting the ulimits for your Operations Analytics Predictive Insights system.

Procedure

1. As root, create a file named `/etc/security/limits.d/90-nproc.conf` and add the following lines:

```
*          soft      nproc     100000
*          hard      nproc     100000
```

2. As root, create a file named `/etc/security/limits.d/91-nofile.conf` and add the following lines:

```
*          soft      nofile     100000
*          hard      nofile     100000
```

3. Add the following lines to the `.bashrc` file of the owner of the Analytics component (typically scadmin), so that each new shell that user opens has these updated settings.

```
ulimit -u 100000
ulimit -n 100000
```

Installing KSH and required libraries for Operations Analytics Predictive Insights

Operations Analytics Predictive Insights requires the installation of KSH and some libraries.

Before you begin

Note: This is not a statement of the libraries required by the Operations Analytics Predictive Insights pre-requirements, that is, DB2, InfoSphere Streams, and Netcool/OMNIbus. To find the required libraries for these products, you must run the product-specific dependency checker scripting or check the product-specific documentation.

About this task

The Analytics server requires the following packages:

- 64-bit packages:
  - atlas
  - compat-libgfortran-41
  - lapack
  - blas
  - glibc-devel

The Database server requires the following packages:

- 64-bit packages:
  - dapl
  - sg3_utils

The following packages are required on all servers in the topology:

- Packages:
  - compat-libstdc++-33
  - libstdc++

– compat-libstdc++-33.i686
– libstdc++.i686

KSH is also a software requirement.

Procedure

1. For each required library enter the command, `yum install`, followed by the name of that library.
2. If you see this error from yum when installing the 32-bit libstdc++ libraries:
   ```
   Error: Protected multilib versions: libstdc++
   ```
   Then run `yum update libstdc++` and re-try the install.
3. If KSH is not on your system, install it as follows:
   ```
   yum install ksh
   ```

Installing the prerequisite software

The version numbers of the prerequisite software and the order of installation.

Note: To ensure that you install the correct versions of the prerequisite software, download and install the following products. For more information, see *Downloading Operations Analytics Predictive Insights*

Table 2. eAssembly numbers for Operations Analytics Predictive Insights and its prerequisites

Title	eAssembly part number
IBM Operations Analytics Predictive Insights V1.3.5 Multiplatform English eAssembly	CJ0PWEN
IBM Operations Analytics Predictive Insights OMNIbus Components V8.1 Linux English eAssembly	CRS7HML

Prerequisite Versions

The following table lists the versions of the prerequisite software required if you want to use Operations Analytics Predictive Insights with Dashboard Application Services Hub.

Table 3. Prerequisite Versions for Dashboard Application Services Hub

Prerequisite	Version
IBM DB2 Workgroup Server Edition	10.5 FP3
IBM InfoSphere Streams	3.2
IBM Jazz for Service Management	1.1.2.1
IBM Netcool/OMNIbus Core	8.1.0.5
IBM Netcool/OMNIbus WebGUI	8.1.0.4
IBM Websphere	8.5.5.4

The following table lists the versions of the prerequisite software required if you want to use Operations Analytics Predictive Insights with Tivoli Integrated Portal.

Table 4. Prerequisite Versions for Tivoli Integrated Portal

Prerequisite	Version
IBM DB2 Workgroup Server Edition	10.5 FP3
IBM InfoSphere Streams	3.2
IBM Netcool/OMNIbus Core	7.4
IBM Netcool/OMNIbus WebGUI	7.4 FP4 *

* FP4 is optional but is the recommended version.

Installation Order

You must install the Operations Analytics Predictive Insights prerequisite software in the following order:

1. IBM DB2 Workgroup Server Edition 10.5 FP3
2. IBM InfoSphere Streams 3.2
3. IBM Jazz for Service Management 1.1.2.1
4. IBM Netcool/OMNIbus Core 8.1.0.5
5. IBM Netcool/OMNIbus WebGUI 8.1.0.4

   Note: If Netcool/OMNIbus is already installed, it is recommended that you create a new instance for Operations Analytics Predictive Insights.

The order of installation is the same for a single server installation or multi-server installation.

DB2

DB2 is a requirement of Operations Analytics Predictive Insights.

Document caveat

This installation guide provides a shortened version of the DB2 installation process.

Note: It must be noted the installation process prescribed in this documentation is not meant to replace the product-specific documentation. The installation process here contained for DB2 has been provided for the convenience of the end-user and should only be used if:

- You are performing a basic install of DB2, accepting all the default options.
- You are performing a trial installation of the Operations Analytics Predictive Insights product.

You must consult the official DB2 documentation if:

- You intend to use extra options or steps that are not the default as described in this document.
- You intend to install multiple instances of the required product

The official and complete IBM DB2 Installation instructions and release notes are available in the DB2 Knowledge Center.

Instructions on installing IBM DB2 using a response file are available in the DB2 Knowledge Center section: *Installing a DB2 database product using a response file*.

Install processes

The following are the two options for DB2 installation covered in this document:

- Install DB2 as non-root
- Install DB2 as root

Both of these options are covered in the following sections, only one of these options is to be pursued.

Information required for Operations Analytics Predictive Insights installation

The installation process for Operations Analytics Predictive Insights requires that you have your DB2 installation information at the ready.

The following table lists the DB2 information items that the Operations Analytics Predictive Insights installer requests as you pursue the installation process. It is a good practice to make note of all listed items as you install the DB2 database.

Table 5. DB2 details required by Operations Analytics Predictive Insights

Information item	Default
DB2 instance user name	`db2inst1`
Operations Analytics Predictive Insights Database name	`SCAPIDB`
Operations Analytics Predictive Insights Database server port number	`50000`
Operations Analytics Predictive Insights Database host	Current host
Operations Analytics Predictive Insights Database user	`scadmin`
Operations Analytics Predictive Insights Database user password	

Installing DB2 as non-root

DB2 is a requirement of Operations Analytics Predictive Insights.

Before you begin

Verify your operating system user process resource limits (ulimits). If the minimum ulimit values are not met, the DB2 engine can encounter unexpected operating resource shortage errors. These errors can lead to a DB2 database system outage. See the section **Operating system user limit requirements (Linux and UNIX)** in the DB2 Knowledge Center for details of the recommended ulimit values.

About this task

The DB2 installer automatically creates and configures a non-root instance during a non-root installation. As a non-root user, you can customize the configuration of the non-root instance during the installation. You can also use and maintain the installed DB2 database product without root privileges. The non-root installation of a DB2 database product has one DB2 instance with most features enabled by default.

A non-root installation can be useful for:

- Enterprises that have thousands of workstations and users who want to install a DB2 database product without consuming a system administrator's time
- Application developers who are not typically system administrators but use DB2 database products to develop applications
- Independent Software Vendors (ISVs) who develop software that does not require root user authority yet embeds a DB2 database product

After you install DB2 as a non-root user, it has most of the functions that are available when you install it as a root user. However, there are some differences and limitations. You must remove some of the limitations by running the db2rfe command as a root user.

Before you install any DB2 database product as a non-root user, be aware of the differences between root installations and non-root installations, and the limitations of non-root installations. For more information on non-root installation, see *Installing DB2 database servers as a non-root user* in the DB2 Knowledge Center.

The following tasks are described in order to allow you install DB2 as a non-root user:

Procedure

1. Prepare for DB2 installation by installing the required libraries.
2. Install DB2 using the non-root user account.
3. Enabling root-based features in non-root installations with db2rfe
4. If your DB2 installation connection has problems, runs some checks to verify your installation.

Prepare for DB2 installation as non-root:

You must create the non-root user to carry out the installation of DB2 and add the required files.

About this task

DB2 can be installed as a non-root user. The ongoing management of DB2 is done as the DB2 instance owner. Typically the DB2 instance owner is `db2inst1`.

For more information on DB2 installation prerequisites, see *Operating system user limit requirements (Linux and UNIX)* in the DB2 Knowledge Center.

Procedure

1. As `db2inst1`, copy the DB2 installation software to the directory in which you want to extract it.
2. Change the permissions on the folder, if necessary, to be owned by `db2inst1`.
3. As `db2inst1`, extract the DB2 installation software.

   For example:

   ```
   tar zxvf DB2_10.5.0.3_limited_Lnx_x86-64.tar.gz
   ```

   Note: The package filename is correct for DB2 installation version
4. As `db2inst1`, change to the `server_r` directory and run the DB2 prerequisites checker script.

   For example:

   ```
   ./db2prereqcheck -v 10.5.0.3
   ```

You can ignore alerts in relation to the following:

- `/lib/libpam.so*`
- `rdma`
- `InfiniBand`
- `modprobe.conf`
- `OpenSSH`
- `log_mtts_per_seg`

5. As `root`, install any packages that are called out as problems by the `db2prereqcheck` script.

   For example:

   ```
   yum install dapl
   yum install sg3_utils
   ```

6. Check if SELINUX is enabled, and if so disable it.

   For example:

   ```
   vi /etc/selinux/config
   SELINUX=disabled
   ```

7. Restart the server if the SELINUX setting was changed.
8. Modify the kernel parameters as described in the section, *Modifying kernel parameters (Linux)* of the DB2 Knowledge Center

DB2 installation as non-root:

Install DB2 as the non-root user `db2inst1`.

Before you begin

Verify your operating system user process resource limits (ulimits). If the minimum ulimit values are not met, the DB2 engine can encounter unexpected operating resource shortage errors. These errors can lead to a DB2 database system outage. See the section **Operating system user limit requirements (Linux and UNIX)** in the DB2 Knowledge Center for details of the recommended ulimit values.

Procedure

1. Log in as the non-root user `db2inst1`.
2. Change to the directory containing the installation software.

   For example:

   ```
   cd /home/db2inst1/server_r
   ```

3. As `db2inst1`, run the db2setup script:

   ```
   ./db2setup
   ```

4. Click **Install a Product** from the menu on the left of the screen.
5. Click **Install New > DB2 Workgroup Server Edition version 10.5 Fix Pack 3**.
6. Follow the installation wizard to complete the installation.

What to do next

The DB2 installation script prompts you to set up the DB2 instance environment. The instructions on how to do this are output by the DB2 installation script. The steps are best pursued in a new command terminal.

Enable root-based features in non-root installations with db2rfe:

There are several features and abilities in non-root installations that are initially unavailable but which can be enabled by running a the db2rfe command.

About this task

There are further limitations on non-root installations that can be overcome by running the db2rfe command. The following features and abilities are initially unavailable in non-root installations:

- Operating system-based authentication
- The ability to reserve service names in the `/etc/services` file

To enable them, use the `db2rfe_config_file.cfg` available in the unpacked `IOA_PI_1.3.5.tgz`

Procedure

To enable the features and abilities that are initially unavailable in non-root installations:

1. Unpack the Operations Analytics Predictive Insights software, `IOA_PI_1.3.5.tgz`, if you have not already done so.
2. Navigate to the `predictiveInsightsInstaller1.3.5` directory, that is within the directory in which you unpacked `IOA_PI_1.3.5.tgz`.
3. (Optional) Update the sample configuration file, `db2rfe_config_file.cfg`.

   The configuration file is used as input to the `db2rfe` command. Only update the sample configuration file provided if you wish to enable more options than the default file enables.The sample configuration file enables:

   - Operating system-based authentication
   - The ability to reserve service names in the `/etc/services` file

   If you wish to enable more options, perform the following steps:

   a. Copy the sample configuration file, `db2rfe_config_file.cfg`, to a different location, for example, `/home/db2inst1`.
   b. Consult DB2 documentation and update the configuration file as preferred.
   c. Update the file as appropriate.
4. Stop DB2. As db2inst1, run:

   ```
   db2stop
   ```
5. End the server to client process: As db2inst1, run:

   ```
   db2 terminate
   ```
6. Log in with root user authority.
7. Navigate to the `$HOME/sqllib/instance` directory, where `$HOME` represents the non-root user's home directory.
8. Run the `db2rfe` command referring to the sample or updated configuration file. For example:

   ```
   ./db2rfe -f /home/db2inst1/db2rfe_config_file.cfg
   ```

   Where:

   - `db2rfe_config_file.cfg` is the configuration file provided in the `IOA_PI_1.3.5.tgz` file.

- /home/db2inst1 is the directory to which you copied db2rfe_config_file.cfg. If you copied this to another directory, please update the command syntax to refer to your chosen directory.

DB2 post installation tasks:

Configure your DB2 installation so that it is running correctly.

Procedure

1. Stop DB2. As db2inst1, run:
   ```
   db2stop
   ```
2. End the server to client process: As db2inst1, run:
   ```
   db2 terminate
   ```
3. If the port is closed you may need to disable iptables on the DB2 server.
   As root, run the following commands:
   ```
   service iptables stop
   /sbin/chkconfig --del iptables
   ```
4. Check DB config to ensure SVCENAME is correct.
   Run the following command as db2inst1:
   ```
   db2 get dbm cfg | grep SVCENAME
   ```
   If SVCENAME does not match "db2c_db2inst1" then update using the following command:
   ```
   db2 update dbm cfg using SVCENAME db2c_db2inst1
   ```
5. Verify SVCENAME, as seen in step 4, exists for correct port in /etc/services file. If not then append it to /etc/services file.
   ```
   db2c_db2inst1 50000/tcp
   ```
6. Ensure the communication protocols for DB2 instance uses TCPIP.
   As db2inst1, run:
   ```
   db2set DB2COMM=tcpip
   ```
7. Start DB2:
   As DB2inst1 run command:
   ```
   db2start
   ```

What to do next

See the section *Verifying the installation using the command line processor (CLP)* in the DB2 Knowledge Center to confirm that DB2 was installed correctly.

Installing DB2 as root

DB2 is a requirement of Operations Analytics Predictive Insights.

About this task

DB2 can be installed as root. The ongoing management of DB2 is done as the DB2 instance owner. Typically, the DB2 instance owner is db2inst1.

Procedure

1. Copy the DB2 installation software to the directory in which you want to extract it.
2. Extract the DB2 installation software.
   For example:

```
tar zxf DB2_10.5.0.3_limited_Lnx_x86-64.tar.gz
```

Note: The package filename is correct for DB2 installation version

3. Change to the `server_r` directory and run the DB2 prerequisites checker script.

   For example:

   ```
   ./db2prereqcheck -v 10.5.0.3
   ```

   You can ignore alerts in relation to the following:

   - `/lib/libpam.so*`
   - `rdma`
   - `InfiniBand`
   - `modprobe.conf`

4. Install any packages that are called out as problems by the db2prereqcheck script.

   For example:

   ```
   yum install dapl
   yum install sg3_utils
   ```

5. Check if SELINUX is enabled, and if so disable it.

   For example:

   ```
   vi /etc/selinux/config
   SELINUX=disabled
   ```

6. Restart if the SELINUX setting was changed.
7. Modify the kernel parameters as described in the DB2 documentation, Modifying kernel parameters (Linux)
8. Change to the directory containing the installation software.

   For example:

   ```
   cd /home/db2inst1/server_r
   ```

9. Run the db2setup script:

   ```
   ./db2setup
   ```

   Note: This command opens the DB2 installation wizard and therefore must be run from a suitable XTERM or VNC window.

10. Click **Install a product** from the set of options displayed.
11. Click **Install New** > **DB2 Version 10.5 Fix Pack 3 Workgroup, Enterprise and Advanced Editions**.
12. Accept the defaults in the installation wizard until you are prompted to set user information for the DB2 instance owner. To set the DB instance owner, click the **Existing user** radio button and enter `db2inst1`. Follow the remainder of the wizard to complete the installation.

    Make note of any users and passwords that you specified.

InfoSphere Streams

InfoSphere® Streams is a requirement of Operations Analytics Predictive Insights.

Infosphere Streams versions

The following versions of Infosphere Streams are supplied with Operations Analytics Predictive Insights 1.3.5:

- Infosphere Streams 3.2
- Infosphere Streams 4.0.0

To decide which version of Infosphere Streams to install, consider whether you can use SSH in your environment. It is mandatory to use SSH with Infosphere Streams 3.2, whereas SSH use is optional with Infosphere Streams 4.0.0. It is recommended that you install Infosphere Streams 3.2 unless you are unable to use SSH in your environment.

Document caveat

This installation guide provides a shortened version of the InfoSphere Streams installation process.

Note: These installation instructions are for your convenience and are not meant to replace the product-specific documentation. Use these instructions only if:

- You are performing a basic installation of InfoSphere Streams, accepting all the default options.
- You are performing a trial installation of the Operations Analytics Predictive Insights product.

You must consult the official InfoSphere Streams documentation if:

- You intend to use extra options or steps that are not the default as described in this document.
- You intend to install multiple instances of the required product.

The official and complete installation and administration information for IBM InfoSphere Streams can be found in the IBM InfoSphere Streams Knowledge Center.

Console Installation of IBM InfoSphere Stream can be found in the IBM InfoSphere Streams Knowledge Center section: *Installing InfoSphere Streams*.

Information required for Operations Analytics Predictive Insights installation

The installation process for Operations Analytics Predictive Insights requires that you have your InfoSphere Streams install information at the ready.

The following table lists the InfoSphere Streams information items that the Operations Analytics Predictive Insights installer requests as you pursue the installation process. It is a good practice to make note of the required InfoSphere Streams installation information.

Table 6. InfoSphere Streams details required by the Operations Analytics Predictive Insights installer

Information item	Default
InfoSphere Streams user	scadmin
InfoSphere Streams user password	
InfoSphere Streams installation location	/home/scadmin/InfoSphereStreams

Installing InfoSphere Streams 3.2

Installing InfoSphere Streams 3.2 for Operations Analytics Predictive Insights.

Before you begin

1. As root, edit the /etc/selinux/config file to set SELinux to disabled.

   A change to this policy requires a restart of the Linux VM/Server

   For more information, see *Security-Enhanced Linux (SELinux) for IBM InfoSphere Streams* in the IBM InfoSphere Streams Knowledge Center.
2. Ensure that the installing user has executable permissions on the /tmp, /opt, and /home file systems.
3. Ensure that **su** from the root user does not require that you enter a password.
4. Check the /etc/hosts file to make sure that the server name is not on the same line as the loop back address.

   For example, if you have an address that looks like:

   ```
   127.0.0.1 localhost.localdomain localhost <server_name>
   ```

   Then, remove the server name so that it looks like:

   ```
   127.0.0.1 localhost.localdomain localhost
   ```

   You must not remove the loopback address.
5. Enter the following command to check that the sshd service is running:

   ```
   service sshd status
   ```
6. If the sshd service is not running, enter the following command to start it:

   ```
   service sshd start
   ```
7. Ensure that the installing user, for example, scadmin, has full permissions on the InfoSphere Streams installation software.
8. Change to the scadmin user, for example:

   ```
   su - scadmin
   ```
9. Extract the InfoSphere Streams installation software, for example:

   ```
   tar zxvf Streams-3.2.0.0-x86_64-el6.tar.gz
   ```
10. Change to the directory in which you unpacked the InfoSphere Streams installation software and as scadmin use the InfoSphere Streams dependency checker:

    ```
    cd <streams_unpack_folder>
    ./dependency_checker.sh
    ```

    You may receive an alert indicating that the perl-XML-Simple file is missing. If so, you can find the file in the <streams_unpack_folder>/rpm directory.

    To install a missing rpm, run the following command:

    ```
    yum install <rpm_name>.rpm
    ```

    To install any missing packages, run the following command:

    ```
    yum install <package_name>
    ```

Note: If root user permissions are required to install missing files, make sure that you switch back to your InfoSphere Streams user, `scadmin`, after you complete the installation.

Procedure

1. Run the installer as `scadmin`:

   ```
   cd <streams_unpack_folder>
   ./InfoSphereStreamsSetup.bin
   ```

   Accept all default values presented during setup. When the installation is complete the **Postinstallation Tasks** dialog is displayed, which lists the set of initial configuration tasks for InfoSphere Streams.
2. Run the following tasks only from the **First Steps**:
   - Configure the SSH environment
   - Generate public and private keys
   - Verify the Installation

   If the dialog does not open or must be reopened change to the directory `<streams_unpack_folder>` and run `FirstSteps.sh`, for example:

   ```
   cd /home/scadmin/InfoSphereStreams
   ./FirstSteps.sh
   ```
3. Add the following line to the `.bashrc` file for `scadmin`:

   ```
   if [ -f /home/scadmin/InfoSphereStreams/bin/streamsprofile.sh ]; then
   . /home/scadmin/InfoSphereStreams/bin/streamsprofile.sh
   fi
   ```

   Note: If you did not install InfoSphere Streams in the default location, `/home/scadmin/InfoSphereStreams`, enter the actual path to your installation in the `.bashrc` file.
4. Save and source the file:

   ```
   . ~/.bashrc
   ```
5. Ensure the version of Java that comes with InfoSphere Streams is the one that is used at run time:
   a. Update the **`JAVA_HOME`** and **`PATH`** to match the new Java.

      For example:

      ```
      PATH=/home/scadmin/InfoSphereStreams/java/bin:$PATH
      JAVA_HOME=/home/scadmin/InfoSphereStreams/java
      export PATH JAVA_HOME
      ```

      Note: Substitute the directory path if you installed InfoSphere Streams to a different location.
   b. Add the **`JAVA_HOME`** and **`PATH`** variables to the `~scadmin/.bashrc` and `~scadmin/.bash_profile` files.
6. Modify **`LD_LIBRARY_PATH`** by adding the following line to the `~scadmin/.bashrc` file:

   ```
   export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/usr/lib64:/usr/lib
   ```

Installing InfoSphere Streams 4.0.0

Installing InfoSphere Streams 4.0.0 for Operations Analytics Predictive Insights. It is recommended that you install InfoSphere Streams 4.0.0 only if you cannot use SSH, which is mandatory with InfoSphere Streams 3.2.

Before you begin

1. As root, edit the `/etc/selinux/config` file to set SELinux to disabled.

   A change to this policy requires a restart of the Linux VM/Server

   For more information, see *Security-Enhanced Linux (SELinux) for IBM InfoSphere Streams* in the IBM InfoSphere Streams Knowledge Center.
2. Ensure that the installing user has executable permissions on the `/tmp`, `/opt`, and `/home` file systems.
3. Ensure that **su** from the `root` user does not require that you enter a password.
4. Check the `/etc/hosts` file to make sure that the server name is not on the same line as the loop back address.

   For example, if you have an address that looks like:

   ```
   127.0.0.1 localhost.localdomain localhost <server_name>
   ```

   Then, remove the server name so that it looks like:

   ```
   127.0.0.1 localhost.localdomain localhost
   ```

   You must not remove the loopback address.
5. Ensure that the installing user, for example, `scadmin`, has full permissions on the InfoSphere Streams installation software.
6. Change to the `scadmin` user, for example:

   ```
   su - scadmin
   ```
7. Extract the InfoSphere Streams installation software, for example:

   ```
   tar zxvf IS_STRM_4.0.0_RHEL6_EN.tar.gz
   ```
8. Change to the directory in which you unpacked the InfoSphere Streams installation software and as `scadmin` use the InfoSphere Streams dependency checker:

   ```
   cd <streams_unpack_folder>
   ./dependency_checker.sh
   ```

   You may receive an alert indicating that the `perl-XML-Simple` file is missing. If so, you can find the file in the `<streams_unpack_folder>/rpm` directory.

   To install a missing rpm, run the following command:

   ```
   yum install <rpm_name>.rpm
   ```

   To install any missing packages, run the following command:

   ```
   yum install <package_name>
   ```

   Note: If root user permissions are required to install missing files, make sure that you switch back to your InfoSphere Streams user, `scadmin`, after you complete the installation.

Procedure

1. Run the installer as `scadmin`:

   ```
   cd <streams_unpack_folder>
   ./InfoSphereStreamsSetup.bin
   ```

   Accept all default values presented during setup.
2. When the installation is complete, the installer prompts you to open the Domain Manager UI. You do not need to open the UI as the Operations Analytics Predictive Insights start script, `start.sh`, creates a domain when it is run.
3. Add the following line to the `.bashrc` file for `scadmin`:

   ```
   if [ -f /home/scadmin/InfoSphereStreams/bin/streamsprofile.sh ]; then
   . /home/scadmin/InfoSphereStreams/bin/streamsprofile.sh
   fi
   ```

Note: If you did not install InfoSphere Streams in the default location, `/home/scadmin/InfoSphereStreams`, enter the actual path to your installation in the `.bashrc` file.

4. Save and source the file:

   ```
   . ~/.bashrc
   ```

5. Ensure the version of Java that comes with InfoSphere Streams is the one that is used at run time:
   a. Update the **JAVA_HOME** and **PATH** to match the new Java.

      For example:

      ```
      PATH=/home/scadmin/InfoSphereStreams/java/bin:$PATH
      JAVA_HOME=/home/scadmin/InfoSphereStreams/java
      export PATH JAVA_HOME
      ```

      Note: Substitute the directory path if you installed InfoSphere Streams to a different location.

   b. Add the **JAVA_HOME** and **PATH** variables to the `~scadmin/.bashrc` and `~scadmin/.bash_profile` files.

6. Modify **LD_LIBRARY_PATH** by adding the following line to the `~scadmin/.bashrc` file:

   ```
   export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/usr/lib64:/usr/lib
   ```

Jazz for Service Management

You must install IBM Jazz™ for Service Management 1.1.2.1 unless you already installed Tivoli® Integrated Portal with OMNIbus WebGUI 7.4.

To visualize the events generated by Operations Analytics Predictive Insights, you can use Dashboard Application Services Hub, which is bundled with Jazz for Service Management.

The installation procedure described in this section is a shortened version of the Jazz for Service Management installation. For more information on how to install Jazz for Service Management, see the Jazz for Service Management Knowledge Center.

Installing Jazz for Service Management

Instructions on how to install Jazz for Service Management so that it can be used with Operations Analytics Predictive Insights.

Procedure

1. Download and extract the following files:
   - `JAZZ_FOR_SM_1.1.2.1_FOR_LNX.zip`
   - `IBM_WAS_FOR_JSM_FOR_LNX_ML.zip`

   Extract both files to a directory on the server on which you plan to install Jazz for Service Management.

2. Complete the following steps to run the prerequisite scanner.
   a. Navigate to the directory in which you extracted the Jazz for Service Management zip file.
   b. To start launchpad, enter the following command:

      ```
      ./launchpad.sh
      ```

   c. Click **Tools** > **IBM Prerequisite Scanner** > **Run**
   d. Resolve any failures in the following sections:

- DSH - Dashboard Application Services Hub in JazzSM
- ODP - Common prerequisites in JazzSM

Note: You can ignore failures in other sections of the scanner output. For example:

```
network.availablePorts.db2instance FAIL PortsInUse:631,6001,60001,5901,523... 50000
os.servicesTCPavailablePorts.db2instance FAIL PortsInUse:50000 50000
DBType FAIL DB2 DB2ShdNotBeInstalled
```

If you run the prerequisite scanner as a non-root user, you can ignore the following failure:

```
user.isAdmin FAIL False True
```

3. Complete the following steps to install Jazz for Service Management.
   a. Navigate to the directory in which you extracted the Jazz for Service Management zip file.
   b. To start launchpad, enter the following command:
      ```
      ./launchpad.sh
      ```
   c. Click **Tools** > **Installation Manager**.
   d. Enter the location of IBM WebSphere® Application Server package repository. For example, `<extract_directory>/WASRepository/disk1/diskTag.inf`
   e. Click **Run**.
   f. When Installation Manager launches, click **Install**.
   g. Install the following packages:
      - IBM WebSphere Application Server
      - Jazz for Service Management extensions for IBM WebSphere 8.5
      - IBM Dashboard Application Service Hub
      - IBM WebSphere SDK Java™ Technology Edition
   h. Complete the Installation. When prompted to choose a program to start, select **None**.

      Note: The JazzSM installer creates the required profile so you do not need to create a profile when prompted to do so at the end of the installation.
4. Complete the following steps to configure Jazz for Service Management to support TLS 1.2.
   a. To log in to Dashboard Application Services Hub, type the following URL:
      ```
      https://<host>:<port>/ibm/console/logon.jsp
      ```

      where <host> is the host name of the Dashboard Application Services Hub server and <port> is the port number. The default port number is 16311.
   b. Click **Console Settings > WebSphere Administrative Console**.
   c. Click **Launch WebSphere Administrative Console**.
   d. Click **Security > SSL certificate and key management > SSL configurations > NodeDefaultSSLSettings > Quality of protection (QoP) settings**
   e. In the **Protocol** field, select TLSv1.2.
   f. Click **Apply**.
   g. Click **Save**.
   h. Edit the `<JAZZ_Profile_Home>/properties/ssl.client.props` file, where JAZZ_Profile_Home is `/opt/IBM/JazzSM/profile` by default.

i. Update the value of the com.ibm.ssl.protocol field to TLSv1.2. For example:
`com.ibm.ssl.protocol=TLSv1.2`

Information required for Operations Analytics Predictive Insights installation

The installation process for Operations Analytics Predictive Insights requires that you have your Jazz for Service Management install information at the ready.

The following table lists the Jazz for Service Management information items that the Operations Analytics Predictive Insights installer requests as you pursue the installation process. It is a good practice to make note of the required Jazz for Service Management installation information.

Table 7. Jazz for Service Management details required by the Operations Analytics Predictive Insights installer

Information item	Default
Jazz for Service Management / Dashboard Application Services Hub hostname	
User name and password of Dashboard Application Services Hub installer	
Dashboard Application Services Hub installation location	`/opt/IBM/JazzSM`
Dashboard Application Services Hub profile user name and password	

Netcool/OMNIbus

Netcool/OMNIbus is a required integration item for Operations Analytics Predictive Insights.

Document caveat

This installation guide provides a shortened and more basic version of the Netcool/OMNIbus installation process.

Note: The installation process prescribed in this documentation is not meant to replace the product-specific, comprehensive Netcool/OMNIbus installation documentation. The installation process here contained for Netcool/OMNIbus has been provided for the convenience of the end-user and should only be used if:

- You are performing a basic install of Netcool/OMNIbus, accepting all the default options.
- You are performing a trial installation of the Operations Analytics Predictive Insights product.

You must consult the official Netcool/OMNIbus documentation if:

- You intend to use extra options or steps that are not the default as described in this document.
- You intend to install multiple instances of the required product.
- You intend to pursue a silent, console or other installation type that is not the default as described in this document.

The official and complete Installation and administration information for Netcool/OMNIbus can be found in the Tivoli Netcool/OMNIbus Knowledge Center.

Console installation instructions for Netcool/OMNIbus can be found in the Tivoli Netcool/OMNIbus Knowledge Center section: *Installing in console mode (UNIX and Linux)*.

Information required for Operations Analytics Predictive Insights installation

The installation process for Operations Analytics Predictive Insights requires that you have certain Netcool/OMNIbus and Netcool/OMNIbus WebGUI installation information at the ready.

The following table lists the Netcool/OMNIbus and Netcool/OMNIbus WebGUI information items that the Operations Analytics Predictive Insights installer will request as you pursue the installation process. It is a good practice to make note of all information items as you install Netcool/OMNIbus and Netcool/OMNIbus WebGUI.

Table 8. Netcool/OMNIbus and Netcool/OMNIbus WebGUI details required by the Operations Analytics Predictive Insights installer

Information item	Default
OMNIbus server host name	Current host
OMNIbus server port number	`4100`
OMNIbus Object Server name	`NCOMS`
OMNIbus admin user name	`root`
OMNIbus admin user password	**Note:** It is possible to leave this password as an empty string. Entering this password incorrectly is not flagged immediately within the Operations Analytics Predictive Insights installer, but results in certain components not installing correctly.
Directory where WAAPI is installed	`/opt/IBM/tivoli/netcool/omnibus_webgui/waapi`

Table 9. Tivoli Integrated Portal details required by the Operations Analytics Predictive Insights installer

Information item	Default
Directory where Tivoli Integrated Portal is installed	`/opt/IBM/tivoli/tipv2`
Tivoli Integrated Portal user name	`tipadmin`
Tivoli Integrated Portal user password	

Installing the OMNIbus ObjectServer

The OMNIbus ObjectServer is the standard event management system that Operations Analytics Predictive Insights can use.

Before you begin

1. Download and install the OMNIbus prerequisite scanner to make sure you have all the OMNIbus requirements in place before you begin the installation.

The prerequisite scanner can be downloaded from Tivoli Netcool/OMNIbus Knowledge Center section *IBM Prerequisite Scanner*.

2. Run the prerequisite scanner to discover if there are any missing items that must be installed.
3. Install all packages which are marked as missing.

About this task

OMNIbus ObjectServer can be installed either by root or by a non-root user. If you choose to install as a non-root user, ensure the appropriate permissions on the install software and target location are given to the chosen non-root user. If you install as root, the ongoing management of OMNIbus must be done as root.

Note: If your OMNIbus and your Operations Analytics Predictive Insights Analytics component are on the same server and owned by the same user, do not set the `NCHOME` variable. This is in line with the Tivoli Netcool/OMNIbus Knowledge Center section *Setting Tivoli Netcool/OMNIbus environment variables (UNIX and Linux)*. The `NCHOME` environment variable specifies the home location for Tivoli Netcool/OMNIbus. Setting `NCHOME` may cause the probe to point to the wrong location and not run.

Procedure

1. Copy the OMNIbus ObjectServer installation software, `OMNIbus-v8.1.0.5-Core.linux64.zip` , to an empty directory.
2. Extract the zip file:

   ```
   unzip OMNIbus-v8.1.0.5-Core.linux64.zip
   ```

   Note: The package filename is correct for .
3. Start the graphical user interface installation wizard:

   ```
   ./install_gui.sh
   ```
4. Follow the installation wizard to complete the installation, selecting the default options.

   Note: When prompted, to choose which program to start, select **None**.

What to do next

1. After you have completed the installation, use the following command to test if all prerequisites are met for the OMNIbus ObjectServer:

   ```
   ldd /opt/IBM/tivoli/netcool/omnibus/platform/linux2x86/bin*/nco* | grep "not found"
   ```
2. To ensure that the **ldd** command resolves all dependent libraries, set the LD_LIBRARY_PATH both in the current shell and in ~/.bashrc.

   The following is an example of how this might be done:

   ```
   export LD_LIBRARY_PATH=/usr/lib64:/lib64:/opt/IBM/tivoli/netcool/omnibus/platform/linux2x86/li
   /opt/IBM/tivoli/netcool/platform/linux2x86/lib64:/usr/lib:/lib:
   /opt/IBM/tivoli/netcool/omnibus/platform/linux2x86/lib:
   /opt/IBM/tivoli/netcool/platform/linux2x86/lib:$LD_LIBRARY_PATH
   ```
3. Install any prerequisites that are identified as missing.

Configuring the OMNIbus ObjectServer

When the Omnibus initial installation is complete and before you install OMNIbus WebGUI, you must configure the ObjectServer.

Procedure

1. Change to the directory /opt/IBM/tivoli/netcool/etc.
2. Make a copy of the omni.dat file.

   For example, run the commend

   ```
   mv omni.dat omni.dat.ORIG
   ```
3. Run the command:

   ```
   sed s/omnihost/<yourObjServHost>/g omni.dat.ORIG > omni.dat
   ```
4. Change to the directory /opt/IBM/tivoli/netcool/bin.
5. Run the command:

   ```
   ./nco_igen -out /opt/IBM/tivoli/netcool/etc/interfaces
   ```
6. Change to the directory /opt/IBM/tivoli/netcool/omnibus/bin.
7. Run the following commands:

   ```
   ./nco_dbinit
   ```

Results

Configuration of the OMNIbus ObjectServer is now complete and it is ready to be started

Starting the OMNIbus ObjectServer

When the OMNIbus initial installation is complete and before you install OMNIbus WebGUI, you must start the ObjectServer.

Procedure

1. Change to the /opt/IBM/tivoli/netcool/omnibus/bin directory.
2. To start the ObjectServer, enter the following command:

   ```
   nohup ./nco_objserv &
   ```
3. To confirm that the ObjectServer is running, enter the following command:

   ```
   ./nco_sql -user root
   ```

   When prompted for a password, enter the OMNIbus root user password or press enter if the password is blank.

   A successful login confirms that the ObjectServer is running.
4. To exit, type quit.

Installing OMNIbus WebGUI

OMNIbus WebGUI is a set of visualization tools for OMNIbus that allow you to monitor and manage events.

About this task

You must use the same user that was used to install Jazz for Service Management. OMNIbus WebGUI can be installed by root or a non-root user. Ensure the appropriate permissions on the installation software and target location are given to the non-root user if you choose to install as non-root.

Procedure

1. Ensure that both Jazz for Service Management and the OMNIbus ObjectServer that you installed are started.
2. Copy the OMNIbus WebGUI installation software, OMNIbus-v8.1.0.4-WebGUI.linux64.zip, to an empty directory.
3. Extract the zip file:

```
unzip OMNIbus-v8.1.0.4-WebGUI.linux64.zip
```

4. Change to the `/eclipse` subdirectory of the Installation Manager installation directory and use the following command to start Installation Manager

   ```
   ./IBMIM
   ```

   To record the installation steps in a response file for use with silent installations on other computers, use the `-record response_file` option. For example:

   ```
   ./IBMIM -record install_1.xml
   ```

5. From the main menu, click **File** > **Preferences**.
6. Click **Add Repository**. Click **Browse** and go to the `...WebGUI/OMNIbusWebGUIRepository/repository.config` repository.
7. Click **OK**.
8. Click **Install**.
9. Follow the installation wizard to complete the installation. Select the default options and record any users and passwords that you enter.

   Note: You must add the WebGUI users that are created in the post installation steps to an ObjectServer repository and not a file repository.

What to do next

At the end of the WebGUI installation, click **Run the OMNIbus Web GUI Configuration Tool** and use the tool to configure WebGUI to point to your OMNIbus ObjectServer. In the tool wizard, replace localhost with the Fully Qualified Domain name of the ObjectServer. If necessary, update the port details for the ObjectServer connection and accept the defaults for the remaining configuration options.

Chapter 3. Installing Operations Analytics Predictive Insights

Use IBM Installation Manager to install or update Operations Analytics Predictive Insights.

You can install an Operations Analytics Predictive Insights component only on the server on which you are running the IBM Installation Manager. You can use IBM Installation Manager in administrator, nonadministrator, or group mode to install Operations Analytics Predictive Insights.

Table 10. Installation Manager user modes

Mode	Description
administrator	You can use administrator mode when you have root privileges. In administrator mode, you can use Installation Manager to install Operations Analytics Predictive Insights in a common location that is accessible by all users on a system. You can install only one administrator instance of Installation Manager on a computer. If you run the `install.sh` from the `predictiveInsightsInstaller1.3.5` folder as root, Installation Manager starts in administrator mode.
nonadministrator	In nonadministrator mode, you can install Operations Analytics Predictive Insights in a location that is accessible only by the user who installs Installation Manager. You can install only one instance of Installation Manager for each user on a computer. If you run the `install.sh` from the `predictiveInsightsInstaller1.3.5` folder as a non-root user, Installation Manager starts in nonadministrator mode.

Table 10. Installation Manager user modes (continued)

Mode	Description
group	In group mode, you can use Installation Manager to install Operations Analytics Predictive Insights as any user in a Linux group. However, you can update the Operations Analytics Predictive Insights installation only as the same user that completed the initial installation. To install Operations Analytics Predictive Insights in group mode, you must first install Installation Manager in group mode and then start Installation Manager in group mode. For more information, see the Installation Manager documentation on IBM® Knowledge Center.After you start Installation Manager in group mode, add the Operations Analytics Predictive Insights repository from the `predictiveInsightsInstaller1.3.5/offering` directory and follow the standard installation instructions for Operations Analytics Predictive Insights.

To

Selecting user accounts to install components

You can use the same user account to install all Operations Analytics Predictive Insights components. For example, you can use the `scadmin` account that you created earlier.

If you wish to use different accounts to install Operations Analytics Predictive Insights components, you must observe the following rules when selecting accounts:

- The database component must be installed by a user who has permissions to create a database in the DB2 instance that is installed.
- The Analytics component and Mediation Tool component must be installed by the same user that installed InfoSphere Streams.
- If you plan to use Tivoli Integrated Portal to display anomaly events, the UI component must be installed by the same user that installed WebGUI and Tivoli Integrated Portal.

Creating the installation directory

You must create the directory where you want to install Operations Analytics Predictive Insights. For example, to create a directory `/opt/IBM/scanalytics`:

Procedure

1. Enter the following command:
   ```
   mkdir /opt/IBM/scanalytics
   ```
2. Ensure that each user account that will be used to install Operations Analytics Predictive Insights on the server has read, write and execute permissions on this directory.

Setting the JAVA_HOME variable

Set JAVA_HOME for the required users.

About this task

The JAVA_HOME setting is best placed in the user's ~/.bash_profile, or similar profile file.

Note: If you are aware that non-default locations are used, then you must adjust accordingly the JAVA_HOME variable accordingly.

On the server to which you going to install the Operations Analytics Predictive Insights Analytics component, for the IBM InfoSphere Streams administrator, which by default is *scadmin*, set the JAVA_HOME variable.

Procedure

- Ensure the version of Java that comes with InfoSphere Streams is the one that is used at run time:
  1. Update the **JAVA_HOME** and **PATH** to match the new Java.

     For example:

     ```
     PATH=/home/scadmin/InfoSphereStreams/java/bin:$PATH
     JAVA_HOME=/home/scadmin/InfoSphereStreams/java
     export PATH JAVA_HOME
     ```

     Note: Substitute the directory path if you installed InfoSphere Streams to a different location.
  2. Add the **JAVA_HOME** and **PATH** variables to the ~scadmin/.bashrc and ~scadmin/.bash_profile files.
- If you are installing the Operations Analytics Predictive Insights Analytics component as root, you must also set the JAVA_HOME variable to InfoSphere Streams Java, as described in the previous step, for root user.

Extracting the OMNIbus ObjectServer Signer Certificate to a file

If the OMNIbus ObjectServer to which Operations Analytics Predictive Insights forwards alarms uses the Secure Sockets Layer (SSL) protocol, you must configure Operations Analytics Predictive Insights to connect to the ObjectServer over SSL.

About this task

You can configure alarm forwarding to an OMNIbus ObjectServer when you are installing the Operations Analytics Predictive Insights Analytics component. If the ObjectServer requires an SSL connection, you must specify the directory path to the SSL certificate that the ObjectServer uses. Before you install the Analytics component, you must export the ObjectServer certificate to a file so you can specify the directory path to the file when you install the Analytics component.

Procedure

1. To log in to your Visualization application, Dashboard Application Services Hub or Tivoli Integrated Portal, type the following URL:

   ```
   https://<host>:<port>/ibm/console/logon.jsp
   ```

where <host> is the host name of the server that your visualization application runs on and port is the port number that the application listens on. The default port number is as 16311.

2. Click **Console Settings** > **WebSphere Administrative Console**.
3. Click **Launch WebSphere Administrative Console**.
4. Click **Security** > **SSL Certificate and key management** > **> Key stores and certificates.**
5. Click **NodeDefaultTrustStore**.
6. Click **Signer Certificates**.
7. Click **Retrieve from port**.
8. In the **Host** field, enter the host name of the OMNIbus ObjectServer.
9. In the **Port**, enter the SSL port number that is used by the OMNIbus ObjectServer.
10. In the **Alias** field, enter an alias for the OMNIbus ObjectServer. You can enter an arbitrary string, which becomes the name of the credentials.
11. Click **Apply**.
12. Click **Save**.
13. Click **Signer Certificates**.
14. Click **Extract**.
15. In the **File name** field, assign a name to the certificate file.
16. Click **Apply**.

Installing Operations Analytics Predictive Insights on a single server

Installing all the Operations Analytics Predictive Insights components on one server.

Before you begin

Make sure that you have copied the installation package to the server. Also, ensure that you have configured a domain name for your server. During the installation of the UI component, you are required to specify a single sign-on domain.

You can install all Operations Analytics Predictive Insights components under a single user account through one instance of the IBM Installation Manager, or you can use separate user accounts. If you wish to use separate accounts, see the rules for using separate accounts in "Selecting user accounts to install components" on page 28.

Note: The installation script can install components only to the server on which it is running.

Procedure

1. Log in as the appropriate user and do the following:
   a. Open an xterm window on the server on which you are installing Operations Analytics Predictive Insights.
   b. Navigate to the directory that contains the extracted Operations Analytics Predictive Insights installation package.
   c. Change to the `predictiveInsightsInstaller1.3.5` directory.
   d. Enter the command `./install.sh`.

      The IBM Installation Manager is opened.

e. Click the **Install** option.

   The IBM Installation Manager displays the local installation packages.

f. Select **IBM Operations Analytics Predictive Insights** and click **Next**.

g. On the **Licenses** page, read the license agreements for Operations Analytics Predictive Insights. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements** and then click **Next**.

h. On the **Location** page, in the **Shared Resources Directory** field, type the path for the shared directory. The suggested default directory is `/opt/IBM/scanalytics/install_<user>/shared`.

   The IBM Installation Manager provides the ability to share components across products. Operations Analytics Predictive Insights does not share components with any other product. It is a requirement of the IBM Installation Manager that a shared directory be provided when you install it. The shared directory must be unique for each user who installs the IBM Installation Manager on the same server.

i. Click **Next**.

j. On the **Location** page, **Create a new package group** is the only available option for Operations Analytics Predictive Insights.

   In the **Installation Directory** field, type the path for the installation files. We suggest using default directory of `/opt/IBM/scanalytics/install_<user>/installer` and then click **Next**.

   If you choose to change **Installation Directory** from the default, note that the **Installation Directory** must be unique for each user who installs the IBM Installation Manager on the same server.

   The IBM Installation Manager displays all Operations Analytics Predictive Insights components that can be installed.

2. If you are installing all components under the same user account, select **Database**, **Analytics**, **Mediation tool**, and **UI**. If you want to use different user accounts to install components, select the component(s) you want to install under the current user account. Click **Next**. The IBM Installation Manager displays each distinct set of required information under a heading.

3. At **Database configuration**, enter the required information.

   Note the following points:

   - **Update to create DB on a specific location**: Optional setting by which you can specify an install location for the database that is not the default DB2 location. The directory must exist and be owned by the DB2 instance user.

4. Click **Validate** to confirm all settings are correct.

5. Click **Analytics configuration** and enter the required information.

   One of the required information items is a new topic name. The topic name must be one word consisting of alphanumeric characters, the underscore character can also be used, that is, '_', and the name must be between 3 and 10 characters long.#

   You must deploy each model that you create to a topic. Topics allow you to segment your data in ways that are relevant to your business. For example, you can use a topic to group data that originates from a specific service, application, or geography. The anomalies generated based on your data can then be grouped and displayed by topic.

6. Click **Validate** to confirm all settings are correct.

7. If you want to integrate Operations Analytics Predictive Insights with OMNIbus, click **Omnibus connection configuration** and enter the required information.

   Note: If you have a multi-tiered OMNIbus environment, for example, a collection ObjectServer, an aggregation ObjectServer, and a display ObjectServers, you can configure alarm forwarding to any one of these ObjectServers during the installation. After you complete the installation, and before extracting any data, you must run the `configure_omnibus` command against each ObjectServer in the environment.

   For more information, see *Configuring alarm forwarding from the Analytics server to an OMNIbus ObjectServer* in the *Configuration and Administration Guide*.
   If the OMNIbus ObjectServer requires a Secure Sockets Layer (SSL) connection, you must specify the directory path to ObjectServer's SSL certificate.
8. Click **Validate** to confirm all settings are correct.
9. Click **UI configuration**.

   You must select the application you wish to use to display anomalies generated by Operations Analytics Predictive Insights:

   - Tivoli Integrated Portal (TIP)
   - Dashboard Application Services Hub (DASH)

   Enter the required information for the application you have selected.

   When you select the **Dashboard Application Services Hub (DASH)** option you must also enter UI WebGUI configuration details, and UI local configuration details. The majority of items are populated by default, but you should note the following:

   - **Enter DASH profile user/password**: This must be populated by the user profile you created when installing Dashboard Application Services Hub.
   - **Enter single sign on key file password**: If you have configured single sign on (SSO) for the IBM WebSphere server on which Dashboard Application Services Hub is installed, enter the keyfile password used when SSO was configured. If SSO has never been configured previously, then specify a new password and note for any possible future configuration.
   - **Enter single sign-in domain**: This entry allows the installer to validate that both the UI component (for Dashboard Application Services Hub) and the Dashboard Application Services Hub itself are on servers that are in the same domain.
   - **UI WebGUI Config**: Populate **Enter WebGUI user** with the user details of the user that installed WebGUI, this is a user that has administrative access to WebGUI. Populate **Enter OMNIbus user** with the user details of the user that installed OMNIbus.

     Note: If you specify a WebGUI user other than ncoadmin, ensure that the particular user exists in Omnibus and has appropriate access before you proceed with the UI installation. If the WebGUI user does not exist in Omnibus, the installation of Dashboard Application Services Hub fails.
10. Click **Validate** to confirm all settings are correct.
11. Click **Mediation tool configuration** and enter the required information.
12. Click **Validate** to confirm all settings are correct.
13. Click **Next**. The IBM Installation Manager displays the installation summary information.

14. Click **Install**.

    Note: If you chose not to install all components under the current logged in user account, in step 2, you must repeat this procedure to install each remaining component under the desired user account.

Installing Operations Analytics Predictive Insights on multiple servers

How to install Operations Analytics Predictive Insights on multiple servers.

You can install the Operations Analytics Predictive Insights components on multiple servers. In a multi-server installation, you must comply with certain rules when deciding how to distribute components. For more information, see supported topologies.

Note: You can only install an Operations Analytics Predictive Insights component on the server on which you are running the IBM Installation Manager. Remote installation of components is not supported.

Installation order for a distributed installation

The order in which you must install components when Operations Analytics Predictive Insights is distributed on multiple servers.

If you plan to install the Operations Analytics Predictive Insights components on separate servers, you must install the components in the following order:

- Database
- Analytics
- UI

If you plan to partially distribute components, you can combine the installation of some components depending on how they are distributed:

- Database and Analytics components on same server, UI on separate server.
  - If you plan to use the same user account to install both the Database and Analytics components, you can install both components at the same time. The Installation Manager automatically installs the Database first. After the Database and Analytics components are installed, install the UI component.
- Database and UI components on same server, Analytics on separate server.
  - Install the Database component first. Next, install the Analytics component. Finally, install the UI component. If you plan to use the same user account to install both the Database and UI components, you must use the modify option in Installation Manager to install the UI.
- Analytics and UI component on same server, Database on separate server
  - Install the Database component first. If you plan to use the same user account to install both the Analytics and UI components, you can install both components at the same time. The Installation Manager automatically completes the Analytics installation first.

GUI installation

Installing Operations Analytics Predictive Insights with the Installation Manager GUI.

Installing the Database component

You must complete the following steps to install the Database component using the IBM® Installation Manager User Interface (UI).

Before you begin

The Operations Analytics Predictive Insights Database component can be installed by the database owner or by the `root` user.

Note: The installation script can install components only to the server on which it is running. Copy the installation package to the server on which you are installing the Database component.

Procedure

1. As the database owner, root, or a user that is part of the same group as the database owner, for example, `scadmin`, open an xterm window on the server.
2. Go to the directory that contains the extracted Operations Analytics Predictive Insights installation package.
3. Change to the `predictiveInsightsInstaller1.3.5` directory.
4. Enter the command `./install.sh`.

   The IBM Installation Manager is opened.
5. Click the **Install** option.

   The IBM Installation Manager displays the local installation packages.
6. Select **IBM Operations Analytics Predictive Insights** and click **Next**.
7. On the **Licenses** page, read the license agreements for Operations Analytics Predictive Insights. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements** and click **Next**.
8. On the **Location** page, in the **Shared Resources Directory** field, type the path for the shared directory. The default directory is `/opt/IBM/scanalytics/install_<user>/shared`.

   The IBM Installation Manager can share components across products. Operations Analytics Predictive Insights does not share components with any other product. It is a requirement of the IBM Installation Manager that a shared directory is provided when you install it. The shared directory must be unique for each user who installs the IBM Installation Manager on the same server.
9. Click **Next**.
10. On the **Location** page, **Create a new package group** is the only available option for Operations Analytics Predictive Insights.
11. In the **Installation Directory** field, type the path for the installation files and click **Next**. It is recommended that you use the default directory of `/opt/IBM/scanalytics/install_<user>/installer`.

    If you choose to change **Installation Directory** from the default, the **Installation Directory** must be unique for each user who installs the IBM Installation Manager on the same server.

    The IBM Installation Manager displays all Operations Analytics Predictive Insights components that can be installed.

12. By default, all components are selected for installation. Clear the check box beside each component other than **Database** and click **Next**. The IBM Installation Manager displays each distinct set of details required under a heading.
13. Click **Database creation configuration** and enter the requested information. The **Update to create DB on a specific location** is an optional setting that you can use to specify an installation location for the database that is not the default DB2 location. The directory must exist and be owned by the DB2 instance user.
14. Click **Validate** to confirm that all settings are correct.
15. Click **Next**. The IBM Installation Manager displays the installation summary information.
16. Click **Install**.

Installing the Analytics component

You must complete the following steps to install the Analytics component using the IBM® Installation Manager User Interface (UI).

Before you begin

Ensure that the installation package is on the server on which you are installing the Analytics component.

Ensure that the server has the following prerequisites installed:

-
- . This prerequisite is installed automatically when you install IBM® InfoSphere® Streams.

About this task

The Operations Analytics Predictive Insights Analytics component can be installed by the InfoSphere Streams administrator, which was set to be `scadmin` during the InfoSphere Streams installation, or by the `root` user.

Note: The installation script can install components only to the server on which it is running.

It is recommended that you install the Mediation tool on any server that you install the Analytics component and that you use the same user account to install both.

The Operations Analytics Predictive Insights Database component must be installed before the Analytics component can be installed. If you install the Database and Analytics components together, the Installation Manager automatically completes the Database installation first.

Procedure

1. As the `scadmin` or `root` user, open an xterm window on the server on which you want to install the Analytics component.
2. Go to the directory that contains the extracted Operations Analytics Predictive Insights installation package.
3. Change to the `predictiveInsightsInstaller1.3.5` directory.
4. Enter the following command: `./install.sh`

The IBM Installation Manager is launched.

5. If there is no other Operations Analytics Predictive Insights component installed on the server or if a component was installed with a different user account to that which you are using to install the Analytics component, click the **Install** option and complete steps a to o to install the Analytics component:
   a. After you click the **Install** option, the IBM Installation Manager displays the local installation packages. Select **IBM Operations Analytics Predictive Insights** and click **Next**.
   b. On the **Licenses** page, read the license agreements for Operations Analytics Predictive Insights. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements** and click **Next**.
   c. On the **Location** page, in the **Shared Resources Directory** field, type the path for the shared directory. The suggested default directory is `/opt/IBM/scanalytics/install_<user>/shared`.

      The IBM Installation Manager can share components across products. Operations Analytics Predictive Insights does not share components with any other product. It is a requirement of the IBM Installation Manager that a shared directory is provided when you install it. The shared directory must be unique for each user who installs the IBM Installation Manager on the same server.
   d. Click **Next**.
   e. On the **Location** page, **Create a new package group** is the only available option for Operations Analytics Predictive Insights.
   f. In the **Installation Directory** field, type the path for the installation files and click **Next**. It is recommended that you use the default directory of `/opt/IBM/scanalytics/install_<user>/installer`. If you want to change the default Installation Directory, note that the Installation Directory must be unique for each user who installs the IBM Installation Manager on the same server. The IBM Installation Manager displays all Operations Analytics Predictive Insights components that can be installed.
   g. By default, all components are selected for installation. Clear the check box beside each component other than **Analytics** and click **Next**. The IBM Installation Manager displays each distinct set of information required under a heading.
   h. Click **Database connection configuration** and enter the required information.
   i. Click **Validate** to confirm all settings are correct.
   j. Click **Analytics configuration** and enter the required information.

      One of the required information items is a new topic name. The topic name must be a single word between 3 and 10 characters long. It can contain alphanumeric characters and the underscore character.

      You must deploy each model that you create to a topic. Topics allow you to segment your data in ways that are relevant to your business. For example, you can use a topic to group data that originates from a specific service, application, or geography. The anomalies generated based on your data can then be grouped and displayed by topic.
   k. Click **Validate** to confirm that all settings are correct.
   l. If you want to integrate Operations Analytics Predictive Insights with OMNIbus, click **Omnibus connection configuration** and enter the required information.

Note: If you have a multi-tiered OMNIbus ObjectServer environment, for example, a collection ObjectServer, an aggregation ObjectServer, and a display ObjectServer, you can configure alarm forwarding to any one of these ObjectServers during the installation. After you complete the installation, and before extracting any data, you must run the `configure_omnibus` command against each ObjectServer in the environment.

For more information, see *Configuring alarm forwarding from the Analytics server to an OMNIbus ObjectServer* in the *Configuration and Administration Guide*.

If the OMNIbus ObjectServer requires a Secure Sockets Layer (SSL) connection, you must specify the directory path to ObjectServer's SSL certificate.

m. Click **Validate** to confirm that all settings are correct.

n. Click **Next**. The IBM Installation Manager displays the installation summary information.

o. Click **Install**.

6. If another Predictive Insights component was installed on the server with the same user account that you are using to install the Analytics component, click the **Modify** option and complete steps a to f to install the Analytics component.

   a. After you click the **Modify** option, the IBM Installation Manager displays the local installation packages.

   b. Select **IBM Operations Analytics Predictive Insights** and click **Next**.

   c. Select **Analytics** and click **Next**.

      Note: The check box beside any component that was previously installed is automatically checked. Do not clear the check box beside any component that was previously installed as this action causes the component to be uninstalled during the modify operation.

   d. If you want to integrate Operations Analytics Predictive Insights with OMNIbus, click **Omnibus connection configuration** and enter the required information.

      Note: If you have a multi-tiered OMNIbus ObjectServer environment, for example, a collection ObjectServer, an aggregation ObjectServer, and a display ObjectServer, you can configure alarm forwarding to any one of these ObjectServers during the installation. After you complete the installation, and before extracting any data, you must run the `configure_omnibus` command against each ObjectServer in the environment.

      For more information, see *Configuring alarm forwarding from the Analytics server to an OMNIbus ObjectServer* in the *Configuration and Administration Guide*.

   e. Click **Next**.

   f. Click **Modify**.

   g. Click **Finish** when the modify operation is complete.

What to do next

The Operations Analytics Predictive Insights version 1.3.5 analytics component is designed to handle the significant volume of KPIs that are typically generated by a large enterprise. For more information on the number of KPIs supported, see the Performance and Sizing wiki.

To add further Analytics instances to your Operations Analytics Predictive Insights installation.

1. Make sure the server that is to host the new Analytics component has the required prerequisites installed, as described in the *Before you begin* section.
2. Install the Analytics component as described in the *Procedure* section.
3. Install the Mediation tool to the same server as the new Analytics component, as described in "Installing the Mediation Tool" on page 41.

You must create at least one new topic for each Analytics server you install. The new topic or topics are used to select and segment the extra KPI data that you are going to analyze using this Analytics server. The first default topic is created when you install the Analytics component on a new server. For information on how to create supplementary topics, see *Creating a Topic* in the *Configuring and Administering Guide*.

Installing the UI component

You can use the IBM® Installation Manager User Interface to install the UI component.

Before you begin

If you want to integrate the UI component with Dashboard Application Services Hub, you can install the UI component on the same server as Dashboard Application Services Hub. Alternatively, you can install the UI component and Dashboard Application Services Hub on separate servers.

If you want to install multiple instances of the UI component with Dashboard Application Services Hub, you must meet the following requirements:

- You must install each instance of the UI on a separate server.
- You must configure each instance of the UI to use a different Dashboard Application Services Hub installation.
- You must configure all instances of the UI to use the same Operations Analytics Predictive Insights Database and the same OMNIbus Object Server.

If you want to install the UI component into an existing Tivoli Integrated Portal environment, you must install the UI component on the Tivoli Integrated Portal server.

If you want to install multiple instances of the UI component into Tivoli Integrated Portal, you must meet the following requirements:

- You must install each instance of the UI component into a separate Tivoli Integrated Portal installation.
- You must configure all instances of the UI to use the same Operations Analytics Predictive Insights Database and the same OMNIbus Object Server.

Before you begin installing the UI component, ensure that the following are complete:

- Both the Operations Analytics Predictive Insights Database and Analytics components are installed.
- The Analytics component is configured to forward events to OMNIbus. You can configure OMNIbus forwarding when you are installing the Analytics component or after with the `configure_omnibus.sh` script. For more information, see *Configuring OMNIbus alarm management* in the *Administering and Configuring* Guide.
- A domain name is configured for the server. During the installation of the UI component, you need to specify a single sign-on domain.
- Either Tivoli Integrated Portal with WebGUI 7.4 or Dashboard Application Services Hub with WebGUI 8.1, depending on which application you are using, is running. The UI installation process restarts Tivoli Integrated Portal or Dashboard Application Services Hub.
- You copied the installation package to the server on which you are installing the UI component.

Procedure

1. As the `scadmin` or `root` user, open an xterm window on the server on which you want to install the UI component.
2. Go to the directory that contains the extracted Operations Analytics Predictive Insights installation package.
3. Change to the `predictiveInsightsInstaller1.3.5` directory.
4. Enter the following command: `./install.sh`

   The IBM Installation Manager starts.
5. If no other Operations Analytics Predictive Insights component is installed on the server or if a component was installed with a different user account to that which you are using to install the UI component, click the **Install** option and complete steps a to m to install the Analytics component:
   a. After you click the **Install** option, the IBM Installation Manager displays the local installation packages. Select **IBM Operations Analytics Predictive Insights** and click **Next**.
   b. On the **Licenses** page, read the license agreements for Operations Analytics Predictive Insights. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements** and then click **Next**.
   c. On the **Location** page, in the **Shared Resources Directory** field, type the path for the shared directory. The recommended default directory is `/opt/IBM/scanalytics/install_<user>/shared`.

      The IBM Installation Manager can share components across products. Operations Analytics Predictive Insights does not share components with any other product. It is a requirement of the IBM Installation Manager that a shared directory is provided when you install it. The shared directory must be unique for each user who installs the IBM Installation Manager on the same server.
   d. Click **Next**.
   e. On the **Location** page, **Create a new package group** is the only available option for Operations Analytics Predictive Insights
   f. In the **Installation Directory** field, type the path for the installation files. It is recommended that you use the default directory of `/opt/IBM/scanalytics/install_<user>/installer` and then click **Next**. If you choose to change Installation Directory from the default, the Installation Directory must be unique for each user who installs the IBM Installation Manager on the same

server. The IBM Installation Manager displays all Operations Analytics Predictive Insights components that can be installed.

g. By default, all components are selected for installation. Clear the check box beside each component other than **UI** and click **Next**. The IBM Installation Manager displays each set of information that is required under a heading.

h. Click **Database connection configuration** and enter the required information.

i. Click **Validate** to confirm that all settings are correct.

j. Click **UI configuration** and enter the required information.

In the UI configuration dialog, you must first select the application that you want to use to display anomalies that are generated by Operations Analytics Predictive Insights:

- **Tivoli Integrated Portal (TIP)**
- **Dashboard Application Services Hub (DASH)**

When you select the **Dashboard Application Services Hub (DASH)** option you must also enter UI WebGUI configuration details, and UI local configuration details. Most items are populated by default. Note the following:

- **Enter DASH profile user/password**: Enter the user profile that you created when you installed Dashboard Application Services Hub.
- **Enter single sign on key file password**: If you configured Single Sign-On (SSO) for the IBM WebSphere server on which Dashboard Application Services Hub is installed, enter the keyfile password that was used when SSO was configured. A key file password encrypts the private key on the WebSphere server. If a password was not configured previously, you can enter a password or leave this field blank.
- **Enter single sign-in domain**: This entry allows the installer to validate that both the UI component for Dashboard Application Services Hub and the Dashboard Application Services Hub itself are on servers that are in the same domain.
- **UI WebGUI Config**: In the **Enter WebGUI user** field, enter the user details of the user that installed WebGUI. In the **Enter OMNIbus user** field, enter the details of the user that installed OMNIbus.

  Note: If you specify a WebGUI user other than ncoadmin, ensure that the user exists in a user repository that is in use in Dashboard Application Services Hub. Also, ensure that the user has OMNIbus administration access before you proceed with the UI installation.

k. Click **Validate** to confirm that all settings are correct.

l. Click **Next**. The IBM Installation Manager displays the installation summary information

m. Click **Install**.

6. If another Operations Analytics Predictive Insights component was installed on the server with the same user account that you are using to install the UI component, click the **Modify** option. The IBM Installation Manager displays the local installation packages. To complete the installation, follow steps a to e.

a. Select **IBM Operations Analytics Predictive Insights** and click **Next**.

b. Select **UI** and click **Next**.

Note: The check box beside any component that was previously installed is automatically checked. Do not clear the check box beside any component

that was previously installed as this action causes the component to be uninstalled during the modify operation.

c. Click **Next**.

d. Click **Modify**.

e. Click **Finish** when the modify operation is complete.

Installing the Mediation Tool

The Operations Analytics Predictive Insights Mediation Tool is used to configure the data presentation to Operations Analytics Predictive Insights. The Mediation tool can be installed on Windows or Linux systems.

Before you begin

Note: The installation script can install components only to the server on which it is running. Copy the installation package to the server on which you are installing the component.

It is recommended that you install the Mediation Tool on the same server as the Analytics component.

Note: If you can't access a graphical display on the server that hosts the Analytics component, you can install the Mediation Tool on a Linux desktop system, or on a Windows desktop system. For information on how to install the Mediation Tool on a Windows system, see "Installing the Mediation tool on Windows" on page 51. Installing to a Linux desktop system is performed in the same way as described in the following procedure.

About this task

To install the Mediation Tool, complete the following steps:

Procedure

1. As the `scadmin` or `root` user, open an xterm window on the server on which you want to install the Mediation tool.
2. Go to the directory that contains the extracted Operations Analytics Predictive Insights installation package.
3. Change to the `predictiveInsightsInstaller1.3.5` directory.
4. Enter the following command: `./install.sh`

   The IBM Installation Manager is launched.
5. If there is no other Operations Analytics Predictive Insights component installed on the server or if a component was installed with a different user account to that which you are using to install the Mediation tool, click **Install**. Complete steps a to k to install the Mediation Tool:

   a. After you click the **Install** option, the IBM Installation Manager displays the local installation packages. Select **IBM Operations Analytics Predictive Insights** and click **Next**.

   b. On the **Licenses** page, read the license agreements for Operations Analytics Predictive Insights. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements** and then click **Next**.

   c. On the **Location** page, in the **Shared Resources Directory** field, type the path for the shared directory. The recommended default directory is `/opt/IBM/scanalytics/install_<user>/shared`.

The IBM Installation Manager can share components across products. Operations Analytics Predictive Insights does not share components with any other product. It is a requirement of the IBM Installation Manager that a shared directory is provided when you install it. The shared directory must be unique for each user who installs the IBM Installation Manager on the same server.

d. Click **Next**.

e. On the **Location** page, **Create a new package group** is the only available option for Operations Analytics Predictive Insights.

f. In the **Installation Directory** field, type the path for the installation files and click **Next**. It is recommended that you use the default directory of `/opt/IBM/scanalytics/install_<user>/installer`. If you choose to change **Installation Directory** from the default, note that the **Installation Directory** must be unique for each user who installs the IBM Installation Manager on the same server.

The IBM Installation Manager displays all Operations Analytics Predictive Insights components that can be installed.

g. By default, all components are selected for installation. Clear the check box beside each component other than **Mediation tool** and click **Next**. The IBM Installation Manager displays each distinct set of information required under a heading.

h. Click **Mediation tool configuration** and enter the required information.

i. Click **Validate** to confirm that all settings are correct.

j. Click **Next**. The IBM Installation Manager displays the installation summary information.

k. Click **Install**.

6. If another Operations Analytics Predictive Insights component was installed on the server with the same user account that you are using to install the Mediation tool, click the **Modify** option. Complete steps a to f to install the Mediation Tool.

a. After you click the **Modify** option, the IBM Installation Manager displays the local installation packages.

b. Select **IBM Operations Analytics Predictive Insights** and click **Next**.

c. Select **Mediation tool** and click **Next**.

Note: The check box beside any component that was previously installed is automatically checked. Do not clear the check box for any component that was previously installed. If you clear the check box for a component that is already installed, it is uninstalled during the modify operation.

d. Click **Next**.

e. **Modify**

f. Click **Finish** when the modify operation is complete.

Console Installation

You can install Operations Analytics Predictive Insights in console mode if you cannot access a graphical display.

Installing the Database component

You must complete the following steps to install the Database component using the IBM® Installation Manager command-line interface.

Before you begin

The Operations Analytics Predictive Insights Database component can be installed by the database owner or by the `root` user.

Note: The installation script can install components only to the server on which it is running. Copy the installation package to the server on which you are installing the Database component.

Procedure

1. As the database owner, root, or a user that is part of the same group as the database owner, for example, `scadmin`, open a terminal session on the server.
2. Go to the directory that contains the extracted Operations Analytics Predictive Insights installation package.
3. Run the command:
   ```
   ./install.sh -c
   ```
   The IBM Installation Manager console installer is launched.

   Note: The console accepts both upper and lower case.
4. Type 1 to Install and press Enter.
5. Type 1 to select IBM Operations Analytics Predictive Insights 1.3.5 and press Enter.
6. Type 1 to choose version to install and press Enter.
7. Type `n` to select package and press Enter.
8. Type `a` to accept license agreement and press enter
9. Type `n` and press Enter.
10. To change Shared Resources location type `m`, or else type `n` to accept the default location, and press Enter. The suggested default directory is `/opt/IBM/scanalytics/install_<user>/shared`. The IBM Installation Manager can share components across products. Operations Analytics Predictive Insights does not share components with any other product. It is a requirement of the IBM Installation Manager that a shared directory is provided when you install it. The shared directory must be unique for each user who installs the IBM Installation Manager on the same server.
11. To change Packages location type `m`, or else type `n` to accept the default location, and press Enter. It is recommended that you use the default directory of `/opt/IBM/scanalytics/install_<user>/installer`. If you want to change the default Installation Directory, the directory must be unique for each user who installs the IBM Installation Manager on the same server. The IBM Installation Manager displays all Operations Analytics Predictive Insights components that can be installed.

12. By default, all components are selected for installation. Deselect all components other than Database and type `n`. The IBM Installation Manager displays each distinct set of required details under a heading.
13. Enter the connection details for the database. The **Update to create DB on a specific location** is an optional setting that you can use to specify an installation location for the database that is not the default DB2 location. The directory must exist and be owned by the DB2 instance user.
14. If validation fails, type `r` to re-enter values, or else type `n` to continue
15. Type `i` to install.
16. Type `f` to finish.
17. Type `x` to exit.

Installing the Analytics component

You must complete the following steps to install the Analytics component using the IBM® Installation Manager command-line interface.

Before you begin

Make sure that you have copied the installation package to the server on which you are installing the Analytics component.

Make sure the server has the following prerequisites installed:

-
- . This prerequisite is installed automatically when you install IBM® InfoSphere® Streams.

About this task

The Operations Analytics Predictive Insights Analytics component can be installed by the InfoSphere Streams administrator, which was set to be `scadmin` during the InfoSphere Streams install, or by the `root` user.

Note: The installation script can install components only to the server on which it is running. Copy the installation package to the server on which you are installing the component.

It is recommended that you use the same user account to install the Mediation tool and the Analytics component, that is, the InfoSphere Streams administrator.

The Operations Analytics Predictive Insights Database component must be installed before the Analytics component can be installed. If you install the Database and Analytics components together, the Installation Manager automatically completes the Database installation first.

Procedure

1. As the `scadmin` or `root` user, open a terminal session on the server on which you want to install the Analytics component.
2. Navigate to the directory that contains the extracted Operations Analytics Predictive Insights installation package.
3. Run the command:

   ```
   ./install.sh -c
   ```

   The IBM Installation Manager console installer is launched.

Note: The console accepts both upper and lower case.

4. If there is no other Operations Analytics Predictive Insights component installed on the server or if a component was installed with a different user account to that which you are using to install the Analytics component, type 1 to Install and press Enter. The IBM Installation Manager displays the local installation packages. Complete steps a to l to install the Analytics component.
   a. The IBM Installation Manager displays the local installation packages. Type 1 to select IBM Operations Analytics Predictive Insights 1.3.5 and press Enter.
   b. Type 1 to choose version to install and press Enter.
   c. Type n to select package and press Enter.
   d. Type a to accept license agreement and press Enter.
   e. Type n and press Enter.
   f. To change Shared Resources location type m, or else type n to accept the default location, and press Enter. The recommended default directory is /opt/IBM/scanalytics/install_<user>/shared. The IBM Installation Manager can share components across products. Operations Analytics Predictive Insights does not share components with any other product. It is a requirement of the IBM Installation Manager that a shared directory be provided when you install it. The shared directory must be unique for each user who installs the IBM Installation Manager on the same server.
   g. To change Packages location type m, or else type n to accept the default location, and press Enter. It is recommended that you use the default directory of /opt/IBM/scanalytics/install_<user>/installer. If you want to change the default Installation Directory, note that the Installation Directory must be unique for each user who installs the IBM Installation Manager on the same server. The IBM Installation Manager displays all Operations Analytics Predictive Insights components that can be installed.
   h. By default, all components are selected for installation. Deselect all components other than Analytics and type n. The IBM Installation Manager displays each distinct set of information required under a heading.

      If you want to integrate Operations Analytics Predictive Insights with OMNIbus, configure event forwarding for OMNIbus.

      Note: If you have a multi-tiered OMNIbus environment, for example, a collection ObjectServer, an aggregation ObjectServer, and a display ObjectServers, you can configure alarm forwarding to any one of these ObjectServers during the installation. After you complete the installation, and before extracting any data, you must run the configure_omnibus command against each ObjectServer in the environment.

      For more information, see *Configuring alarm forwarding from the Analytics server to an OMNIbus ObjectServer* in the *Configuration and Administration Guide*.

      If the OMNIbus ObjectServer requires a Secure Sockets Layer (SSL) connection, you must specify the directory path to ObjectServer's SSL certificate.
   i. If validation fail type r to re-enter values, or else type n to continue.
   j. Type i to install.
   k. Type f to finish.
   l. Type x to exit.

5. If another IBM Operations Analytics Predictive Insights component was installed on the server with the same user account that you are using to install the Analytics component, type 3 to Modify and press Enter. The IBM Installation Manager displays the local installation packages. Complete steps a to f to install the Analytics component:
   a. Type 1 to select IBM Operations Analytics Predictive Insights and press Enter.
   b. Type n to select package and press Enter.
   c. Type 2 to select the Analytics component and press Enter.

      Note: Any component that was previously installed is automatically checked. Do not deselect any component that was previously installed as this action causes the component to be uninstalled during the modify operation.
      The IBM Installation Manager displays each distinct set of information required under a heading.

      If you want to integrate Operations Analytics Predictive Insights with OMNIbus, configure event forwarding for OMNIbus.

      Note: If you have a multi-tiered OMNIbus environment, for example, a collection ObjectServer, an aggregation ObjectServer, and a display ObjectServers, you can configure alarm forwarding to any one of these ObjectServers during the installation. After you complete the installation, and before extracting any data, you must run the `configure_omnibus` command against each ObjectServer in the environment.

      For more information, see *Configuring alarm forwarding from the Analytics server to an OMNIbus ObjectServer* in the *Configuration and Administration Guide*.
   d. Type n and press Enter to start the installation.
   e. Type f and press Enter when the modify operation is complete.
   f. Type x to exit.

Installing the UI component

You can use the IBM® Installation Manager command-line interface to install the UI component.

Before you begin

If you want to integrate the UI component with Dashboard Application Services Hub, you can install the UI component on the same server as Dashboard Application Services Hub. Alternatively, you can install the UI component and Dashboard Application Services Hub on separate servers.

If you want to install multiple instances of the UI component with Dashboard Application Services Hub, you must meet the following requirements:

- You must install each instance of the UI on a separate server.
- You must configure each instance of the UI to use a different Dashboard Application Services Hub installation.
- You must configure all instances of the UI to use the same Operations Analytics Predictive Insights Database and the same OMNIbus Object Server.

If you want to install the UI component into an existing Tivoli Integrated Portal environment, you must install the UI component on the Tivoli Integrated Portal server.

If you want to install multiple instances of the UI component into Tivoli Integrated Portal, you must meet the following requirements:

- You must install each instance of the UI component into a separate Tivoli Integrated Portal installation.
- You must configure all instances of the UI to use the same Operations Analytics Predictive Insights Database and the same OMNIbus Object Server.

Before you begin installing the UI component, ensure that the following are complete:

- Both the Operations Analytics Predictive Insights Database and Analytics components are installed.
- The Analytics component is configured to forward events to OMNIbus. You can configure OMNIbus forwarding when you are installing the Analytics component or after with the `configure_omnibus.sh` script. For more information, see *Configuring OMNIbus alarm management* in the *Administering and Configuring* Guide.
- A domain name is configured for the server. During the installation of the UI component, you need to specify a single sign-on domain.
- Either Tivoli Integrated Portal with WebGUI 7.4 or Dashboard Application Services Hub with WebGUI 8.1, depending on which application you are using, is running. The UI installation process restarts Tivoli Integrated Portal or Dashboard Application Services Hub.
- You copied the installation package to the server on which you are installing the UI component.

Procedure

1. Open a terminal session on the server on which you want to install the UI component.
2. Go to the directory that contains the extracted Operations Analytics Predictive Insights installation package.
3. Run the command:

   ```
   ./install.sh -c
   ```

   The IBM Installation Manager console installer is launched.

   Note: The console accepts both upper and lower case.
4. If there is no other Operations Analytics Predictive Insights component installed on the server or if a component was installed with a different user account to that which you are using to install the UI component, type 1 to Install and press Enter. The IBM Installation Manager displays the local installation packages. Complete steps a to p to install the UI component.
   a. Type 1 to select IBM Operations Analytics Predictive Insights 1.3.5 and press Enter.
   b. Type 1 to choose version to install and press Enter.
   c. Type `n` to select package and press Enter.
   d. Type `a` to accept license agreement and press Enter.
   e. Type `n` and press Enter.

f. To change Shared Resources location, type `m`, or else type `n` to accept the default location, and press Enter. The recommended default directory is `/opt/IBM/scanalytics/install_<user>/shared`. The IBM Installation Manager can share components across products. Operations Analytics Predictive Insights does not share components with any other product. It is a requirement of the IBM Installation Manager that a shared directory be provided when you install it. The shared directory must be unique for each user who installs the IBM Installation Manager on the same server.

g. To change Packages location type `m`, or else type `n` to accept the default location, and press Enter. It is recommended that you use the default directory of `/opt/IBM/scanalytics/install_<user>/installer`. If you choose to change default Installation Directory, note that the Installation Directory must be unique for each user who installs the IBM Installation Manager on the same server. The IBM Installation Manager displays all Operations Analytics Predictive Insights components that can be installed.

h. By default, all components are selected for installation. Deselect all components other than **UI** and type `n`. The IBM Installation Manager displays each distinct set of details required under a heading.

i. Enter the connection details for your database as requested.

j. If validation fails, choose `r` to re-enter values, or else type `n` to continue.

k. Select the application you wish to use to display anomalies generated by Operations Analytics Predictive Insights. Type `1` to use Tivoli Integrated Portal (TIP) or type `2` to use Dashboard Application Services Hub (DASH).

l. Enter the details for the application you select.

m. Type `i` to install.

n. Type `f` to finish.

o. Type `x` to exit.

5. If another Operations Analytics Predictive Insights component was installed on the server with the same user account that you are using to install the UI component, type `3` to Modify and press Enter. The IBM Installation Manager displays the local installation packages. Complete steps a to f to install the UI component.

   a. Type `1` to select IBM Operations Analytics Predictive Insights and press Enter.

   b. Type `n` to select package and press Enter.

   c. Type `4` to select the UI component and press Enter.

   d. Type `n` and press Enter to start the installation.

   e. Type `f` and press Enter when the modify operation is complete.

   f. Type `x` to exit.

Installing the Mediation Tool

The Operations Analytics Predictive Insights Mediation Tool is used to configure the data presentation to Operations Analytics Predictive Insights. The Mediation tool can be installed on Windows or Linux systems.

Before you begin

Note: The installation script can install components only to the server on which it is running.

Make sure that you have copied the installation package to the server on which you are installing the component.

It is recommended that you install the Mediation Tool on the same server on which you installed the Analytics component.

Note: If you are unable to gain access to a graphical display on the server hosting the Analytics component, you can install the Mediation Tool on a Linux desktop system, or on a Windows desktop system. For details on installing the Mediation Tool on a Windows system, see "Installing the Mediation tool on Windows" on page 51. Installing to a Linux desktop system is performed in the same way as described in the following procedure.

About this task

To install the Mediation Tool in console mode, complete the following steps:

Procedure

1. As the InfoSphere Streams administrator or `root` user, open a terminal session on the server on which you want to install the Mediation tool.
2. Navigate to the directory that contains the extracted Operations Analytics Predictive Insights installation package.
3. Run the command:

   ```
   ./install.sh -c
   ```

   The IBM Installation Manager console installer is launched.

   Note: The console accepts both upper and lower case.
4. If there is no other IBM Operations Analytics Predictive Insights component installed on the server or if a component was installed with a different user account to that which you are using to install the Mediation tool, type 1 to Install and press Enter. The IBM Installation Manager displays the local installation packages. Complete steps a to k to install the Mediation tool.
   a. Type 1 to select IBM Operations Analytics Predictive Insights 1.3.5 and press Enter.
   b. Type 1 to choose version to install and press Enter.
   c. Type `n` to select package and press Enter.
   d. Type `a` to accept license agreement and press Enter.
   e. Type `n` and press Enter.
   f. To change Shared Resources location type `m`, or else type `n` to accept the default location, and press Enter. The recommended default directory is `/opt/IBM/scanalytics/install_<user>/shared`. The IBM Installation Manager can share components across products. Operations Analytics Predictive Insights does not share components with any other product. It is a requirement of the IBM Installation Manager that a shared directory be provided when you install it. The shared directory must be unique for each user who installs the IBM Installation Manager on the same server.
   g. To change Packages location type `m`, or else type `n` to accept the default location, and press Enter. The recommended default directory is `/opt/IBM/scanalytics/install_<user>/installer`. If you want to change the default Installation Directory, note that the Installation Directory must be unique for each user who installs the IBM Installation Manager on the same server. The IBM Installation Manager displays all Operations Analytics Predictive Insights components that can be installed.

h. By default, all components are selected for installation. Deselect all components other than **Mediation tool** and type `n`. The IBM Installation Manager displays each distinct set of information required under a heading.
i. Type `i` to install.
j. Type `f` to finish.
k. Type `x` to exit.

5. If another Operations Analytics Predictive Insights component was already installed on this server with the same user account that you are using to install the Mediation tool, type `3` to Modify and press Enter. The IBM Installation Manager displays the local installation packages. Complete steps a to f to install the Mediation tool.
   a. Type `1` to select IBM Operations Analytics Predictive Insights and press Enter.
   b. Type `n` to select package and press Enter.
   c. Type `3` to select the Mediation tool and press Enter.
   d. Type `n` and press Enter to start the installation.
   e. Type `f` and press Enter when the modify operation is complete.
   f. Type `x` to exit.

Post-installation - System status

After installation, Operations Analytics Predictive Insights is ready to configure into a working system.

The following elements are in place and ready to use when Operations Analytics Predictive Insights installation is complete:

- The administration CLI is usable by the Linux user account that installed Operations Analytics Predictive Insights, that is, the Operations Analytics Predictive Insights account, which is by default `scadmin`.
- OMNIbus columns are created in the ObjectServer to store and display anomaly information if you set up alarm forwarding from the Analytics component to an OMNIbus ObjectServer during the installation.

  Note: If you have an environment with multiple OMNIbus ObjectServers, you must create columns on each ObjectServer to store and display anomaly information. For more information, see Configuring alarm forwarding from the Analytics server to an OMNIbus ObjectServer.
- An OMNIbus mini-distribution is installed transparently as part of Operations Analytics Predictive Insights.
- The probe configuration files are updated to configure the connection to the Object Server.
- A default set of probe rules file is installed. The rules file stores all relevant attributes in the Object Server database.
- The right-click menu is configured in OMNIbus WebGUI during the UI component installation.
- Access rights are granted to view events in Operations Analytics Predictive Insights. The way in which rights are granted depends on whether you installed Operations Analytics Predictive Insights into Tivoli Integrated Portal or Dashboard Application Services Hub:

Dashboard Application Services Hub

- Two existing Omnibus groups, `Netcool_OMNIbus_User` and `Netcool_OMNIbus_Admin`, are granted rights to view Operations Analytics Predictive Insights events.
- The Dashboard Application Services Hub administrative user, `ncoadmin`, is added to the `Netcool_OMNIbus_Admin` group.

  Note: The password for the `ncoadmin` account defaults to the DASH profile user password, typically `smadmin`. However, if Tivoli Integrated Portal was previously installed on the server, the password for the `ncoadmin` account defaults to the `tipadmin` user password.

Tivoli Integrated Portal

- Two new groups, `predictiveInsightsUsers` and `predictiveInsightsAdmin`, are created in Omnibus. By default, both groups have rights to view Operations Analytics Predictive Insights events.
- Two new user roles, `predictiveInsightsAdmin` and `predictiveInsightsUser`, are created in Tivoli Integrated Portal. By default, both roles have rights to view Operations Analytics Predictive Insights events. The Tivoli Integrated Portal administrator, usually `tipadmin`, is given both roles.

Installing the Mediation tool on Windows

The Operations Analytics Predictive Insights Mediation tool can be installed on Windows as well as Linux.

Procedure

Instructions on how to install the Mediation tool on Windows.

1. Log on to the Windows environment to which you want to install the Mediation tool.
2. Extract the Operations Analytics Predictive Insights package from the media.
3. Open the `windowsMediationTool` folder within the extracted package. This folder contains the file `PredictiveInsights-MediationTooling-1.3.5-win32.zip`.
4. Extract the ZIP file to your desired installation location.
5. Open the folder to which you extracted the ZIP file, and in turn open the contained eclipse folder.
6. Double click on the `eclipse.exe` icon. When you open the tool, you will be asked to choose a workspace. Choose a directory unique to the Mediation tool.

What to do next

After you install Operations Analytics Predictive Insights you must complete some post installation tasks.

About this task

For information on the post installation tasks, see *Initial configuration of Operations Analytics Predictive Insights* in the *Operations Analytics Predictive Insights: Configuring and Administering* Guide.

Chapter 4. Uninstalling Operations Analytics Predictive Insights

How to uninstall the Operations Analytics Predictive Insights system.

Operations Analytics Predictive Insights offers both an interactive and a silent uninstallation.

Uninstalling Operations Analytics Predictive Insights

How to uninstall Operations Analytics Predictive Insights.

About this task

If you distributed the installation of Operations Analytics Predictive Insights components, that is, installed components on separate servers, you must uninstall components in the following order:

1. UI
2. Mediation tool
3. Analytics
4. Database

Note: You must uninstall each component as the user that installed that component. If you distributed the installation of these components, log on to each of the servers and run the following steps.

Procedure

1. Log on to the server as the appropriate user.
2. Go to the directory that contains the extracted Operations Analytics Predictive Insights installation package.
3. Change to the `predictiveInsightsInstaller1.3.5` directory.
4. Run `./install.sh`
5. Select **Uninstall**
6. Click **Next**.
7. Click the check box for Operations Analytics Predictive Insights.
8. Click **Next**.

   The next panel displays all the components that were installed as the current user.
9. To uninstall each component:
   a. Enter the requested passwords.
   b. Click **Validate**.
   c. Click **Next** when all conditions are satisfied.
10. When all component selections are validated, click **Uninstall**.

What to do next

If you are using Dashboard Application Services Hub, you must manually delete the pages that Operations Analytics Predictive Insights installed into Dashboard Application Services Hub. Complete the following steps to delete the pages:

1. Log in to Dashboard Application Services Hub as an administrative user, typically ncoadmin.
2. Go to **Console Settings** ->**Pages**.
3. Expand **Incidents** ->**Events**.
4. Click the check boxes for Detected Anomalies and Service Diagnosis Dashboard.
5. Click **Delete**.

Chapter 5. Installation log files

The log files that are created during the installation of Operations Analytics Predictive Insights.

The installation log file: `/tmp/tasp_install_<user><date>.log`

The command-line interface log file: `$PI_HOME/log/cli/cli_trace.log`.

Where $PI_HOME is the installation location of the analytics component.

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