

IBM InfoSphere Master Data Management  
Standard and Advanced Editions  
11.6

*Installation Guide*



**Note**

Before using this information and the product that it supports, read the information in [Notices and trademarks](#).

**Edition Notice**

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# Chapter 1. Installing IBM InfoSphere Master Data Management Standard and Advanced Editions (standard deployment)

During a standard deployment, the InfoSphere® MDM components are installed using IBM® Installation Manager, which ensures a simple and consistent installation experience. Use standard deployment when you want to have full control over the features and options that are installed.

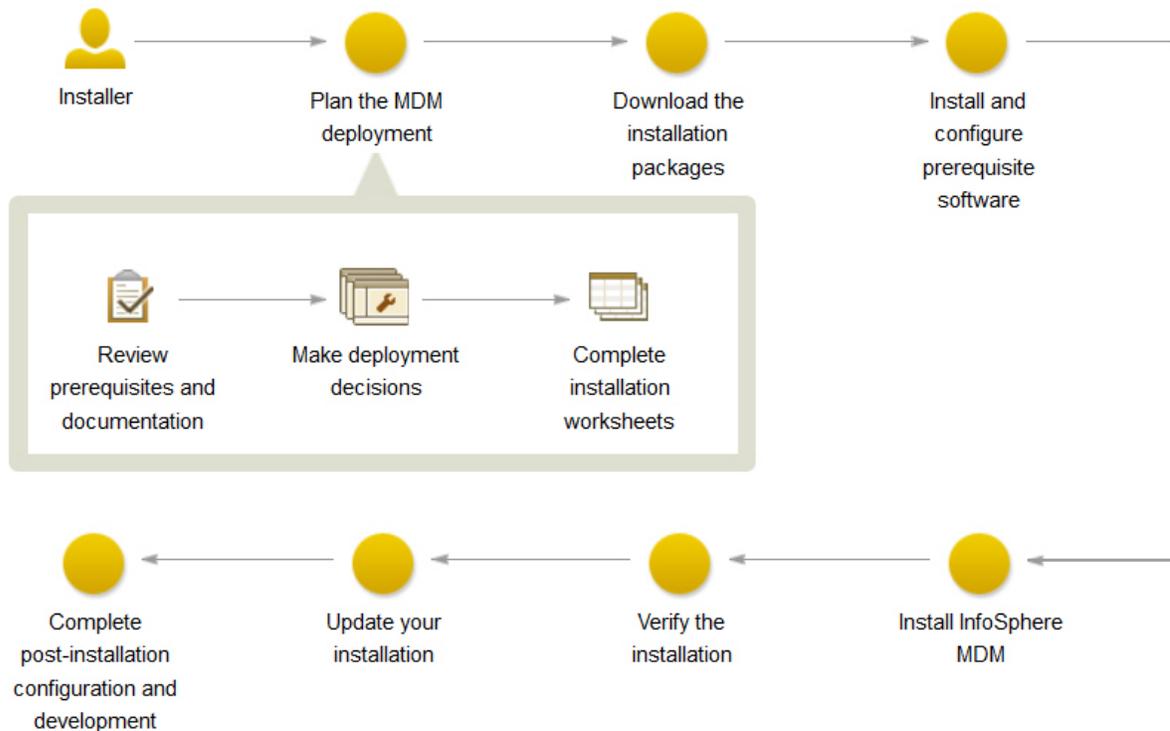


Figure 1. InfoSphere MDM Installation Overview

**Important :** Before you begin the process of installing InfoSphere MDM, review the known problems. Some of the known installation problems require you to complete specific preinstallation configuration tasks. Failure to complete these configuration tasks can result in a failed installation.

The installation topics describe how to prepare your environment, including the application server and database, for installation of InfoSphere MDM and how to install InfoSphere MDM. You can run an installation in graphical, console, or silent mode.

Before you begin installing InfoSphere MDM, ensure that you have downloaded all of the latest installation packages and fix packs required for your licensed edition and version. Refer to the [Download IBM InfoSphere Master Data Management](#) page to determine the part numbers that you should download from IBM Passport Advantage®.

IBM Installation Manager is also used to uninstall components and to modify an existing installation by adding or removing components.

**Tip :** You can download a [PDF version of the installation topics](#).

## Related information

[Download IBM InfoSphere Master Data Management installation packages based on edition InfoSphere MDM system requirements](#)

## Installation requirements

Use this list as a reference before you start the installation. If you are also installing IBM DB2®, IBM WebSphere® Application Server, or IBM Rational® Application Developer, the list also offers a guideline for choosing the correct features to install.

**Important :** For an accurate listing of supported hardware and software and required versions, always review the InfoSphere MDM [System Requirements page on ibm.com](#).

To install any of the features and applications, you must have IBM Installation Manager 1.7 or 1.8 installed on the system from which you are running the installation. IBM Installation Manager can be run only on a 64-bit machine.

The servers or workstations on which you install require a minimum of 30 GB available space.

If the feature or application that you want to install is not listed in this table, see the documentation for that feature to learn about specific requirements.

<i>Table 1. Installation requirements</i>	
<b>If you are planning to install this feature</b>	<b>You need this prerequisite:</b>
InfoSphere MDM Standard or Advanced Edition	<p>All servers and workstations on which you install and use InfoSphere MDM components have a supported operating system installed and configured. Use the product-specific documentation for guidance.</p> <p><b>Important :</b> Only Standard Edition deployments are supported on Microsoft Windows operating systems. You can install Advanced Edition, including MDM Workbench tooling, on Microsoft Windows, but only for local development environments. Production environments on Windows are not supported for Advanced Edition. For a detailed list of supported environments, see the <a href="#">System Requirements page on ibm.com</a>.</p> <p>Ensure that Microsoft Visual C++ 2012, 64-bit is installed.</p> <p><b>Tip :</b> For InfoSphere MDM installations on Microsoft Windows, you must manually install the Microsoft Visual C++ 2012 libraries:</p> <ol style="list-style-type: none"> <li>1. Download the Visual C++ 2012 library from the official Microsoft download web site.</li> <li>2. Install the Visual C++ 2012 libraries.</li> <li>3. Confirm the installation of Visual C++ 2012 from the Windows Control Panel &gt; Programs and Features.</li> <li>4. Restart the Windows machine.</li> <li>5. Begin the InfoSphere MDM installation process.</li> </ol>
MDM operational server	<p>This feature installs the core IBM WebSphere Application Server bundles, EBAs, and so on for your operational server.</p> <p>You must have the supported version of IBM WebSphere Application Server installed and an administrative profile (user name and password) created. After you install IBM WebSphere Application Server, use the preparing your application server topics to configure the server.</p> <p>Ensure that IBM Java™ SDK 1.8.0 is installed.</p> <p>Ensure that Microsoft Visual C++ 64 bit is installed.</p>

Table 1. Installation requirements (continued)

<b>If you are planning to install this feature</b>	<b>You need this prerequisite:</b>
MDM Database	<p>The database component creates the InfoSphere MDM tables and schema.</p> <p>You must have a supported database installed and configured with a user account name and password that you intend to use to connect to your MDM operational server.</p> <p>Use the product-specific documentation for guidance. After you install the database software, use the preparing database topics to configure the database to support InfoSphere MDM.</p>
User applications	<p>A supported web browser must be installed on the workstations that access the application.</p>
InfoSphere MDM Workbench	<p>You must install IBM Rational Application Developer for WebSphere (64-bit) before you install the workbench on your workstation.</p>
IBM Db2	<p>If you wish to configure a Db2 database as part of your InfoSphere MDM deployment, install IBM Db2 Enterprise Edition.</p>
IBM WebSphere Application Server	<p>Select these features to install for your application server:</p> <ul style="list-style-type: none"> <li>• IBM WebSphere Application Server <ul style="list-style-type: none"> <li>– IBM WebSphere Application Server Full Profile</li> <li>– IBM WebSphere Application Server SDK for Java Technology Edition 7</li> </ul> </li> </ul> <p>Ensure that IBM Java SDK 1.8.0 is installed.</p> <p>Always check the system requirements page for the supported version number.</p>
IBM Rational Application Developer (for use with the InfoSphere MDM Workbench)	<p>When you install IBM Rational Application Developer, you must select, at a minimum, these additional required features in IBM Installation Manager:</p> <ul style="list-style-type: none"> <li>• Web Developer Tools <ul style="list-style-type: none"> <li>– AJAX, Dojo, and HTML</li> <li>– JSF</li> <li>– JSP and servlet</li> </ul> </li> <li>• Enterprise Developer Tools <ul style="list-style-type: none"> <li>– Data access</li> <li>– OSGi application</li> </ul> </li> <li>• IBM WebSphere Application Server <ul style="list-style-type: none"> <li>– Development tools</li> <li>– Remote server stub</li> </ul> </li> </ul> <p>You must also make sure that the required 32-bit libraries are available on your 64-bit operating system.</p>

## Related tasks

### Installing InfoSphere MDM Workbench

Install MDM Workbench using these steps if you are only installing the MDM Workbench.

### Installing and configuring prerequisites

Before you install InfoSphere MDM, make sure that you complete the planning steps and meet the prerequisites.

### Acquiring and extracting the installation files

The installation media for installing InfoSphere MDM is available as downloadable installation image files.

## Related reference

### User applications and operational server associations

Certain user applications are designed to support either a virtual or physical MDM configuration.

## 32-bit libraries needed on 64-bit operating systems for Workbench installs

When you install InfoSphere MDM Workbench and IBM Rational Application Developer on a 64-bit workstation, you must have certain 32-bit libraries available on the workstation for a successful installation.

You must either install the 32-bit libraries that are listed here or install IBM Rational Application Developer in 64-bit mode before you install InfoSphere MDM features.

The required 32-bit libraries are:

- libatk-1.0.so.0
- libfontconfig.so.1
- libfreetype.so.6
- libgdk\_pixbuf-2.0.so.0
- libgdk-x11-2.0.so.0
- libglib-2.0.so.0
- libgmodule-2.0.so.0
- libgobject-2.0.so.0
- libgthread-2.0.so.0
- libgtk-x11-2.0.so.0
- libpango-1.0.so.0
- libpangoft2-1.0.so.0
- libpng12.so.0
- libselinux.so.1
- libX11.so.6
- libXcomposite.so.1
- libXcursor.so.1
- libXdamage.so.1
- libXext.so.6
- libXfixes.so.3
- libXft.so.2
- libXinerama.so.1
- libXi.so.6
- libXrandr.so.2
- libXrender.so.1
- libXtst.so.6

- libz.so.1

**Related tasks**

Installing InfoSphere MDM Workbench

Install MDM Workbench using these steps if you are only installing the MDM Workbench.



## Chapter 2. Installation overview

Most IBM InfoSphere Master Data Management components can be installed on a server or workstation, a combination of the two, or across multiple servers to support clustered environments.

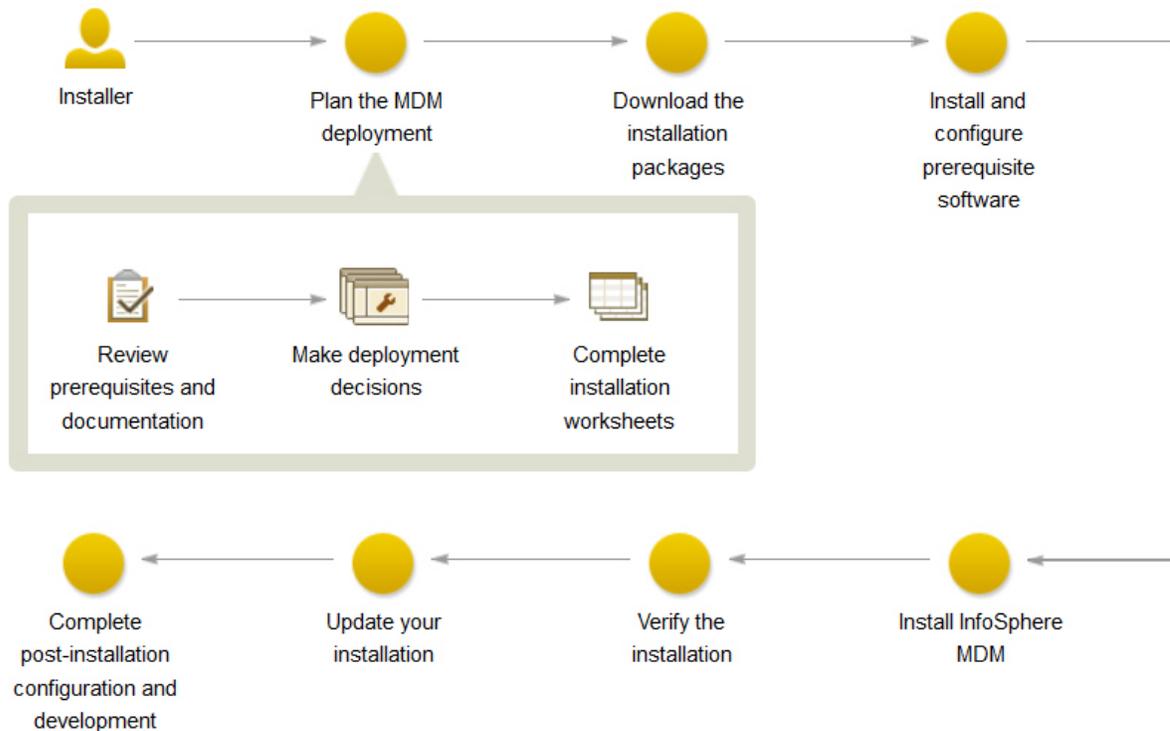


Figure 2. InfoSphere MDM Installation Overview

**Important :** Before you begin the process of installing InfoSphere MDM, review the known problems. Some of the known installation problems require you to complete specific preinstallation configuration tasks. Failure to complete these configuration tasks can result in a failed installation.

**Tip :** Use the [Download IBM InfoSphere Master Data Management](#) page to help determine the parts that you need for your licensed edition and version.

Once the installation environment has been prepared and all of the hardware and software prerequisites are in place, InfoSphere MDM installations consist of two parts:

1. Extracting InfoSphere MDM assets onto the file system and preparing the madconfig configuration tool. This step is performed by IBM Installation Manager.
2. Configuring InfoSphere MDM by running the installation configuration command line tool (`madconfig Configure_MasterDataManagement`).

The time that is required to install InfoSphere MDM depends on a number of factors and, as such, time estimates cannot be provided. Some factors that influence the amount of time to prepare and install can include:

- The number of components that are being installed.
- The number of servers or workstations in your environment.
- Your network load capacity if you are installing in a clustered environment.
- Whether IBM WebSphere Application Server is already installed.
- Whether your database software is already installed.

The application server, database server, and HTTP server can all be on the same server, or they can each be on their own server. The HTTP server is recommended, but is optional.

### Related concepts

[Verifying the base installation](#)

After installing, there are several methods to verify that the new deployment has been successful.

### Related information

[Download IBM InfoSphere Master Data Management](#)

## Installation process overview

After you start IBM Installation Manager to begin installing InfoSphere MDM, the installation process takes place as described here.

The following illustration shows a sample InfoSphere MDM deployment in a clustered environment.

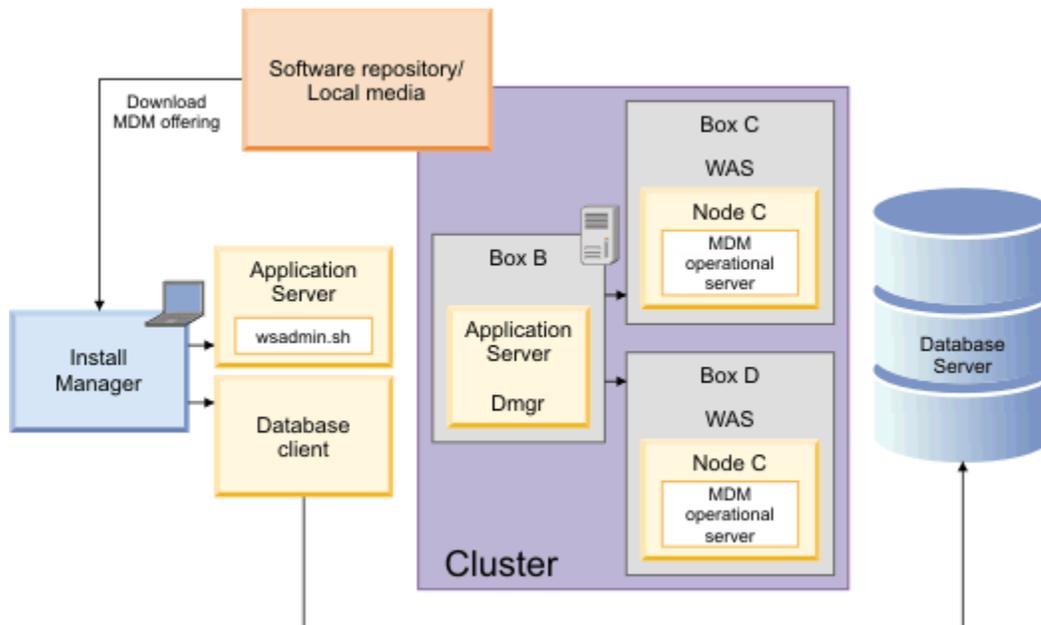


Figure 3. InfoSphere MDM installation in a clustered environment

1. Select the features that you want to install.

**Important :** The MDM Database and MDM operational server are both required components. The MDM Database includes the core database tables for the edition that you are installing. The MDM Operational Server provides critical processing functionality.

2. After you select the features and installation directory location, the installation application does some basic checks on the operating system, disk space, and supporting software before continuing with the installation. If the installation directory specified is an existing directory, IBM Installation Manager verifies whether there is an existing installation and, if found, warns you about overwriting the installation.
3. You are then prompted to enter information in a series of configuration panels. This information is used to automatically configure the MDM database and application server with specific connection information and to identify the cell, node, and servers on which the InfoSphere MDM artifacts are deployed.

If you are using a stand alone installation, the configuration panels do not display. Default values are used to automatically configure the database, application server, and operational server settings.

4. Static data is extracted into the `MDM_INSTALL_HOME` directory that you selected at the beginning of the process. Static data includes items like the Batch Processor, Management Agent, Management Console, and the **madconfig** utility scripts among other items.

5. Database tables and indexes are created.
6. The native components and web services are deployed to the application server. That means that all artifacts are deployed in all specified nodes.
7. The user interfaces and web applications that you selected for installation are also deployed to the application server. The installer packages web-based application WAR files into an EAR file and deploys the EAR file to the application server. During deployment, the application server unpacks the content of the EAR files.
8. Native configuration files `.cfg` are created.
9. After deployment, the database is bootstrapped.
10. Before the installation is complete, the installer completes a verification process by running transactions through the operational server.
11. To complete the installation process, you must run a command line tool (`madconfig Configure_MasterDataManagement`) to complete the application and environment configuration.

In addition to the verification tests that the installation application runs, you can use the Test Client to run test transactions to ensure a successful installation.

After the InfoSphere MDM installation is complete, you can opt to return and install any additional component by using the modify installation option.

## Features installed by IBM Installation Manager

The features that you can install are dependent upon the InfoSphere MDM edition that you choose.

This table shows the features that you can install with IBM Installation Manager. In this table, an asterisk \* indicates that the feature can be installed only on a workstation. Two asterisks \*\* indicate that the product is not supported for use with a Microsoft SQL Server database.

<i>Table 2. Installed InfoSphere MDM features</i>	
<b>If you install:</b>	<b>These features are available:</b>
InfoSphere MDM Standard Edition	MDM Database MDM Operational Server (includes Enterprise Service Oriented Architecture (ESOA) Toolkit, Java, and Web Services SDKs) User applications: <ul style="list-style-type: none"> <li>• Inspector</li> <li>• Enterprise Viewer</li> <li>• Web Reports</li> <li>• Provider Direct</li> <li>• Pair Manager*</li> </ul> Samples Patient - Advanced edition component (this item is automatically installed with Standard Edition and is not listed as an option on IBM Installation Manager)
InfoSphere MDM Advanced Edition	Advanced Edition includes all features that are listed for Standard Edition plus the Business Administration UI** application.

If you install:	These features are available:
InfoSphere MDM Workbench	MDM Workbench* (supports virtual, physical, and hybrid implementations). IBM Rational Application Developer is also bundled with InfoSphere MDM and must be installed before you install InfoSphere MDM Workbench.
IBM Db2	If you are planning to perform a stand alone installation, you can elect to install a Db2 database wrapper. The wrapper contains the native Db2 database installer and runs in silent mode through IBM Installation Manager.  If you plan to use a custom installation, then you must install Db2 on your own by using the native Db2 installer.
IBM WebSphere Application Server	IBM WebSphere Application Server is required for the implementation of InfoSphere MDM. If you do not have this application server installed, you can elect to install it when you install InfoSphere MDM. This feature is installed when you perform a stand alone installation.

In addition to InfoSphere MDM Standard Edition and Advanced Edition, other IBM MDM components, editions, and products are also installed using IBM Installation Manager. Those components are listed here and their installation instructions are provided in their online documentation.

- IBM Stewardship Center
- InfoSphere MDM Application Toolkit
- Master Data Policy Monitoring
- InfoSphere MDM Collaboration Server
- InfoSphere MDM Reference Data Management Hub and Custom Domain Hub

#### Related reference

[User applications and operational server associations](#)

Certain user applications are designed to support either a virtual or physical MDM configuration.

## Installation Startup Kit

The Installation Startup Kit includes files and scripts to help you prepare your environment before you install InfoSphere MDM.

You can extract the Installation Startup Kit from *Part 1* of the downloaded distribution assets (IBM InfoSphere Master Data Management Standard & Advanced Edition Multitplatform Multilingual <version> Part 1). The location that you extract the Startup Kit to will be referred to in this documentation as the `STARTUPKIT_INSTALL_HOME`.

#### Database creation and configuration

Run the database scripts in the Installation Startup Kit before you begin the InfoSphere MDM installation. The scripts automatically create the appropriate tables, table spaces, buffer pools, encoding specifications, and triggers that are required for your edition.

The installation application can create the necessary table spaces for your deployment. Alternatively, you can create them prior to installing InfoSphere MDM using the provided scripts.

**Tip :** Create one temporary table space for each block size. For example, if you have 16K table spaces, then create a 16K temporary table space.

- The scripts to create IBM DB2 databases and table spaces are located in `STARTUPKIT_INSTALL_HOME/CoreData/Full/DB2/Standard/dd1/`

- CreateDB.sql
- CreateTS.sql
- The scripts to create a DB2 for z/OS® database and install core and domain data:
  - *STARTUPKIT\_INSTALL\_HOME/CoreData/Full/DB2/ZOS/pds/*
  - *STARTUPKIT\_INSTALL\_HOME/Full/DB2/ZOS/pds/*

The scripts are configured to run from a TSO session using JCL scripts in the mainframe.
- Script to create an Oracle database: *STARTUPKIT\_INSTALL\_HOME/CoreData/Full/Oracle/Standard/ddl/create\_schema\_ora.sql*
- Script to create a Microsoft SQL Server database: *STARTUPKIT\_INSTALL\_HOME/CoreData/Full/SQLServer/ddl/CreateDB.sql*
- Microsoft SQL Server files that are used for XA transactions are located in *STARTUPKIT\_INSTALL\_HOME/SQLServer JTA*:
  - *sqljdbc.dll* files to support either 32-bit or 64-bit SQL Server are in *win32* and *win64\_amd64*
  - *instjdbc.sql*

### Enhanced installation debug logging

The Installation Startup Kit includes a properties file that you can use to enable enhanced debug logging to capture additional details of the InfoSphere MDM installation processes. This file is located at *STARTUPKIT\_INSTALL\_HOME/InstallationManagerDebug/log.properties*.

In addition to standard installation log events, enhanced debug logging captures detailed information about the following:

- Each file or plugin that IBM Installation Manager downloads from a web repository or retrieves from a local file system DISK repository.
- Each action that IBM Installation Manager performs, including:
  - running ANT actions
  - invoking Java classes
  - executing .sh scripts
- Processing for all IBM Installation Manager internal metadata.
- All user input data, including details of how this data is modified during install, uninstall, or rollback actions.

**Important :** After you have enabled enhanced debug logging, the logged information in *./InstallationManager/logs* can include password details entered by the user during the installation. Ensure that these logs are stored in a secure place to avoid password exposure.

Additionally, if there are any manual steps required to complete your installation, the enhanced debug logging will prompt you about the next steps to take. For example, if you selected the option to separate the installation and configuration, then the debug file will prompt you to run the *madconfig* scripts that will enable you to configure your installation.

If you use a silent installation to install InfoSphere MDM web application user interfaces, then the debugging messages will include the URLs of the deployed web applications.

To enable enhanced debug logging in *./InstallationManager/logs*, copy *STARTUPKIT\_INSTALL\_HOME/InstallationManagerDebug/log.properties* into *./InstallationManager/logs* before starting IBM Installation Manager to begin installing InfoSphere MDM.

### Messaging component setup

The Installation Startup Kit includes scripts that you can use to install the InfoSphere MDM messaging component when WebSphere MQ is on a machine that is different than the one where IBM Installation Manager is running, use the scripts *custSetupMQServer.mqsc* and *ChannelAuth.mqsc*.

### Prerequisite checking tool

The prerequisite checking command line tool helps to prevent you from beginning an installation that will be unable to successfully complete due to missing prerequisites. This tool has the following capabilities:

- Runs prerequisite checks for InfoSphere MDM installation.
- Performs basic data collection – Collects logs and configuration files.
- Performs extended data collection – Collects logs, configuration files, and metadata stored in the database

The prerequisite checking tool's data collection capabilities can be useful after installing InfoSphere MDM or if you need to troubleshoot an installation. The results of these collections are stored in a compressed file.

### Silent installation response files

The Installation Startup Kit includes sample response files (.res). These files are samples that can be used as templates for running silent installations. The sample response files are located in `STARTUPKIT_INSTALL_HOME` at the root level.

### Related tasks

[Installing InfoSphere MDM silently using a response file](#)

You can install InfoSphere MDM silently, where the installation choices are provided in an options file instead of in the interactive IBM Installation Manager panels. This type of installation is helpful when you are doing multiple identical installations.

[Installing and setting up the database](#)

You must complete this procedure to install and prepare your database before installing the InfoSphere MDM application.

[Checking prerequisites using the command line tool](#)

[Viewing Installation Manager log files](#)

The IBM Installation Manager application creates log files during the installation process. These logs can be viewed through a browser.

### Related reference

[Installing InfoSphere MDM using silent mode](#)

Silent installation mode uses predefined configuration files, known as response files, as input so that installations can be run and rerun with a minimal amount of human interaction.

## Multiple instance support

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Multiple instances of InfoSphere MDM is supported by installing the application in a clustered environment.

All InfoSphere MDM application instances in the clustered nodes within a WebSphere Application Server cell must be deployed with the same version of InfoSphere MDM product code and must have the same version of the InfoSphere MDM customization code.

- If you want to use the same physical machine (or LPAR) to deploy a second InfoSphere MDM application instance that is running a different version of InfoSphere MDM product code, you must create a second WebSphere Application Server cell and node profile.
- If you want to configure a simple functional test environment, you can use the same WebSphere Application Server cell and node to deploy multiple instances of InfoSphere MDM with the same version of InfoSphere MDM product code and different version of the InfoSphere MDM customization code.

**Restriction :** In this second configuration, if you uninstall any one of the InfoSphere MDM instances in the WebSphere Application Server cell, then the other InfoSphere MDM instances will no longer be functional. For this reason, do not attempt this configuration in a production environment.

### Related tasks

[Installing InfoSphere MDM into a clustered environment](#)

Use this procedure to run a custom installation of InfoSphere MDM into a clustered environment.

### Installing and configuring prerequisites

Before you install InfoSphere MDM, make sure that you complete the planning steps and meet the prerequisites.

## User accounts, groups, and defaults used by the installation application

When InfoSphere MDM is installed, default users and user groups are created on the application server.

### Users

Before you begin an installation of InfoSphere MDM, create a IBM WebSphere Application Server profile with security enabled. The user name and password can be anything that you want.

During installation, you can define whatever user name and password values you would like.

### Groups

The following table lists the groups and roles that are created by the installation application. You can add users to these groups through the IBM WebSphere Application Server Integrated Solutions Console (admin console).

InfoSphere MDM group	Description
mdm_admin	The Administrative role is equivalent to a super user. This group has full access to all interactions, operations, composite views, and attributes (segments).  The mdm_admin group is preconfigured to have full access to the MDM Workbench to import and deploy hub configurations, run Analytics reports, set user group permissions, and execute jobs on the hub.
mdm_default	This role allows user access to the application server container without granting any user-specific permissions. The Default group has access to interactions USRGETINFO, GRPGETINFO, USRSETPASS and has read only access to segments USRHEAD, GRPHEAD, GRPXAPP, GRPXCWV, GRPXIXN, and GRPXSEG. This group is assigned to a user when they log in and if not currently a member of any other defined group. This group cannot be granted permissions through the MDM Workbench configuration editor. This group cannot be configured in the MDM Workbench.
mdm_all_ops	This role allows user access to all InfoSphere MDM operations that are specific to an application, such as running certain administrative functions specific to the MDM Inspector application or enabling group members to access Web Reports.
mdm_all_cvws	This role allows user access to all composite views of the most current attributes for any member that shares a common Enterprise ID. Granting access to the composite views only does not provide access to Web Reports, interactions, operations, or attributes (segments).
mdm_all_ixns	This role allows user access to all InfoSphere MDM interactions, such as member interactions, task interactions, relationship interactions, and other interactions in the system. However, it does not grant access to Web Reports, operations, composite views, or attributes (segments).

Table 3. InfoSphere MDM user groups (continued)

InfoSphere MDM group	Description
mdm_all_segs_rw	<p>This role allows read and write access to all segments. This role provides permissions to perform edits and updates to records, such as editing attribute statuses, surviving entity ID numbers, and adding members to the database.</p> <p>If you want a certain user to always have read/write permissions to all attributes, for example, then you can assign that user to the mdm_all_segs_rw group. Doing so gives the user permission to read and write all attributes regardless of any permissions that might also be granted using the Security:Groups tab. It does not grant permission to access Web Reports, interactions, operations, or composite views.</p>
mdm_all_segs_ro	<p>This role allows read-only access to all segments. This role allows a user to search and view member records in MDM Inspector, but not to work on tasks. Granting a user permission to read only access to all segments does not grant access to Web Reports, interactions, operations, write permission to attributes, or composite views.</p>

**Related concepts**

[Account prerequisites](#)

Before you begin to install the product, you must have certain account prerequisites in place.

[Verifying the base installation](#)

After installing, there are several methods to verify that the new deployment has been successful.

**Related tasks**

[Creating a new user and adding the user to an MDM group](#)

Use this procedure to create a IBM WebSphere Application Server user and then add that user to an InfoSphere MDM group.

**Related reference**

[Database user accounts and connections](#)

All installations require at least one database user account.

**Related information**

[Managing users](#)

[Enabling user security for the operational server](#)

[Configuring users and user groups for virtual MDM](#)

## Password storage and exposure

During installation, passwords are encrypted by using WebSphere Application Server encryption.

All user interface applications and client applications have a user name and password to connect to the MDM operational server. These passwords are also encrypted by using the WebSphere Application Server encryption mechanism. If any of the passwords are changed on the application server, then you must also apply the change in the respective component properties file as well.

Be aware that when the installer generates response files that can be used for silent installations, these files contain user passwords in plain text. If plain text passwords stored in the files are against your organizational policies, use the graphical installation mode.

**Related information**

[Configuring secure MDM environments](#)

## Encoding passwords with WebSphere Application Server

If you must change a user name and password in a properties file after installation, use these steps to encode the new password.

### About this task

To prevent the password from being stored in clear text in your properties file, you can use WebSphere Application Server to encode the password.

### Procedure

1. Create a text file called `mypassword.txt`.
2. Add this line to the file: `mypassword=user_password` and save the file.
3. Run the following command to encode the password value:
  - For Microsoft Windows: `$NODE_HOME\bin\PropFilePasswordEncoder.bat path \mypassword.txt mypassword`
  - For Linux® and UNIX: `$NODE_HOME/bin/PropFilePasswordEncoder.sh path/ mypassword.txt mypassword`

Where `$NODE_HOME` represents the home directory of the WebSphere Application Server node and `path` represents the directory location of the `mypassword.txt` file.

4. Open the `mypassword.txt` file and copy the encoded password value to the password field in your properties file.

### Related information

[Configuring secure MDM environments](#)

## Directory structures

There are three directories you want to understand when you install and use InfoSphere MDM: the installation directory, the shared directory, and the application server directory.

When you run IBM Installation Manager, you choose an installation path. This path and root directory are defined in the installation topics as `MDM_INSTALL_HOME`. `MDM_INSTALL_HOME` contains resources that are unique to the installed package. Within this directory are subdirectories for each of the components that you selected for installation. It also has directories that are specific to the operating system on which you install.

The `MDMShared` directory contains resource files that are shared by multiple installed package groups. The contents can include resources that are needed to run IBM Installation Manager scripts, Java custom code libraries, and IBM Rational Application Developer for example. For more information about this directory, see [the online documentation for IBM Installation Manager](#).

The application server path to which the installed components are deployed is defined in the installation topics as `WAS_PROFILE_HOME`.

### MDM\_INSTALL\_HOME

Contents of the installation directory includes, but is not limited to, the subdirectories that are listed in the following table. The specific directories that you see depends on the features that you install.

Directory	Description
<code>aix</code> , <code>linux</code> , <code>solaris</code> , <code>win32</code> , <code>win64</code> , <code>zlinux</code>	These directories contain operating system-specific files.

Table 4. MDM\_INSTALL\_HOME directories (continued)

Directory	Description
BatchProcessor	Contains subdirectories and files that are required to run the Batch Processor tool. The Batch Processor is designed primarily to work with physical MDM data.
com.ibm.mdm.tools	Contains OSGi bundles. An MDM Workbench workspace can be configured to use these bundles so that reference models and Java class references can be resolved.
database	Contains static schema files.
documentation	Contains a <code>messages.properties</code> file in the <code>/nl/</code> subdirectory, which is used by the installer during run time. For example, it contains messages that are used by the installer progress monitor.
EnterpriseIntegrator	Contains subdirectories and files that are required to configure and use the InfoSphere MDM Healthcare Point of Service Integrator search application.
eventManagementClient	Contains subdirectories and files to support the Event Manager component. The Event Manager is a triggering component that can detect events and activities in MDM.
InstallableApps	Contains subdirectories and files for any installed user applications. Applications include, but are not limited to, Business Administration UI, Inspector, and Web Reports.
IVT	Contains subdirectories and scripts that are used to run the installation verification tests.
logs	Contains the logs that are recorded during the installation process.
ManagementAgent	Contains subdirectories and files that are used to run the configuration management agent, which is used to configure and manage several MDM features.
ManagementConsole	Contains subdirectories and files that are used by the Management Console. The Management Console is the user interface that supports the management agent.
MDMCollector	Contains subdirectories and files that are used to run IBM Support Assistant Data Collector.
mds	This directory contains files for virtual MDM (formerly IBM Initiate Master Data Service®). Java and Web Service SDK examples are installed in the <code>/lib/sdk/examples</code> directory. It also contains utilities in the <code>/scripts</code> directory, like the <b>madconfig</b> utility.
MessageBrokerSuite	Contains subdirectories and configuration files that are used to implement and manage the Message Broker components. Message Broker components are typically used in virtual implementations to support messaging between source systems and the operational server and MDM database.
PCDS	Contains subdirectories and files that support the Patient Clinical Data Search user interface.

<i>Table 4. MDM_INSTALL_HOME directories (continued)</i>	
<b>Directory</b>	<b>Description</b>
properties	Contents in this directory provide input parameters that are used when you reset the MDM database and server from MDM Workbench.
Samples	Contains mappings and source code files that can be used in development environments.
temp	Contains all database logs. After installation, if you reset the database, this directory is used to copy all temporary SQL files.
tmp	Contains temporary files that are used during the installation process.
Uninstall	This directory contains the scripts that are needed to uninstall the MDM components.
utils	Contains common entity name instance private key generator assets.

### **Related concepts**

[Adding or removing client applications and individual components](#)

IBM Installation Manager enables you to install individual components. This capability is useful when you want to install components on workstations or on a server that is different from the server on which you install the operational server and MDM database.

### **Related information**

[Event Manager](#)

[Configuration and Management components](#)

[Using the IBM Support Assistant Data Collector](#)

[Common features and entities](#)

[Evergreening batch jobs](#)

## **MAD\_ROOTDIR and MAD\_HOMEDIR use**

MAD\_ROOTDIR and MAD\_HOMEDIR are both terms and variables that are familiar to users of IBM Initiate Master Data Service. The definitions of these terms with regards to InfoSphere MDM installation and operational server changes.

In earlier versions of the product (before version 11.0), the MAD\_ROOTDIR contained the installed files, including all binary files. MAD\_HOMEDIR contained all instance configuration information. Now, however, the contents of the two directories are combined in a sense. MAD\_ROOTDIR contains both the installed binary files and the operational server configuration information. The concept of a pure MAD\_HOMEDIR is no longer valid.

In the documentation, the term *MDM\_INSTALL\_HOME* represents the root path where all InfoSphere MDM features are installed.

During the installation process, a working MAD\_ROOTDIR path is created in the *MDM\_INSTALL\_HOME* directory. The path is noted in documentation as *MDM\_INSTALL\_HOME/mds*. This path contains the configuration for the operational server installation and is the location from which all virtual MDM-related tools and utilities are run.

During deployment to the *WAS\_PROFILE\_HOME*, relevant binary files and a copy of the configuration are created in a runtime MAD\_ROOTDIR. In a sense, this location becomes your instance directory. The path to this runtime configuration is noted in the WebSphere Application Server JVM custom properties file as the `mad.root.dir` property.

The configuration in *MDM\_INSTALL\_HOME* is primarily there to support the command-line tools. The configuration in *WAS\_PROFILE\_HOME* is used by the operational server during run time. Editing the deployed files in *WAS\_PROFILE\_HOME* affects changes on the running operational server.

**Important :** Users of IBM Initiate Master Data Service must also understand that the concept of a single installation directory supporting multiple instances is no longer valid. You must have a separate installation for every instance of InfoSphere MDM that you require. For example, if you need instances for production, testing, and training, then you must have three separate installation directories and three separate deployments of the MDM operational server and database in your *WAS\_HOME\_PROFILE*.

In the Message Broker component topics, both *MAD\_ROOTDIR* and *MAD\_HOMEDIR* terms and variables are still used.

## Chapter 3. Installing the product

The installation instructions are the same for all InfoSphere MDM editions.

### Before you begin

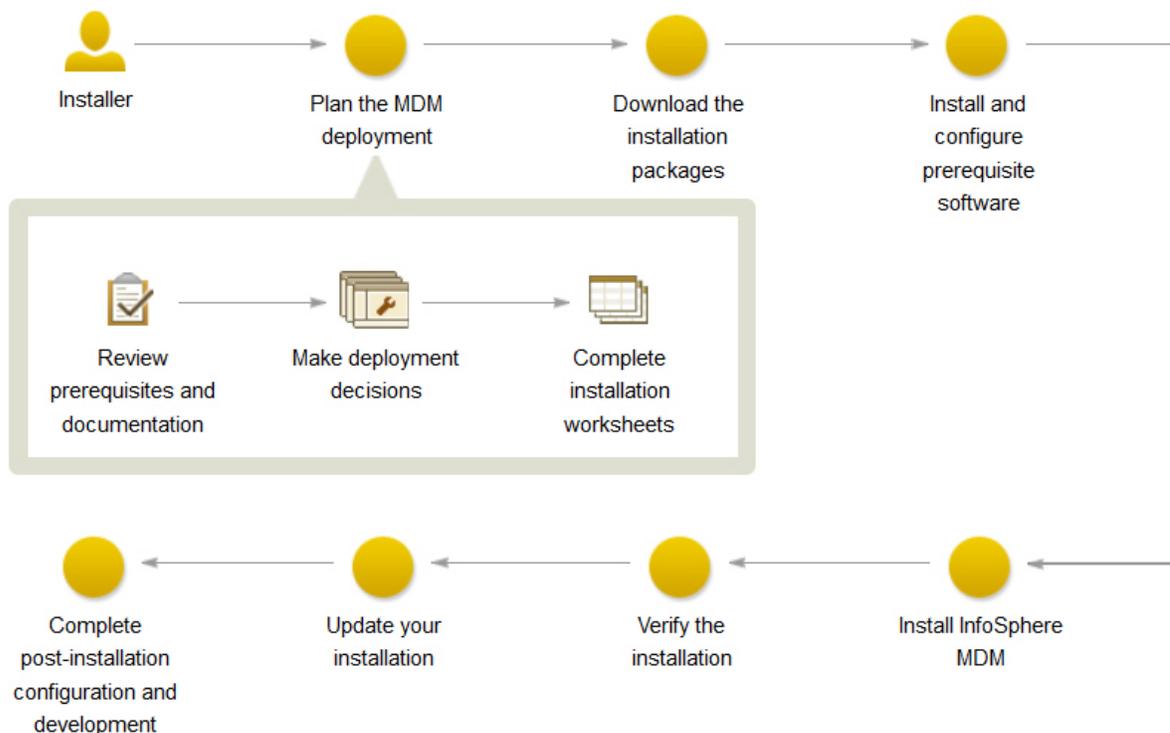


Figure 4. InfoSphere MDM Installation Overview

**Important :** Before you begin the process of installing InfoSphere MDM, review the known problems. Some of the known installation problems require you to complete specific preinstallation configuration tasks. Failure to complete these configuration tasks can result in a failed installation.

To install InfoSphere MDM on UNIX and Linux, you must be logged in as a non-root user.

Make sure that you meet these prerequisites:

- You have reviewed the known problems for InfoSphere MDM.
- Your environment meets the hardware and software requirements for components you plan to install.
- You have completed the installation worksheets.
- You have access to the InfoSphere MDM offering.
- You have completed the preparation steps.

### About this task

After you have completed the preparation steps to ensure that your installation environment and prerequisites are in place, the installation consists of two parts:

1. Extracting InfoSphere MDM assets onto the file system and preparing the madconfig configuration tool. This step is performed by IBM Installation Manager.
2. Configuring InfoSphere MDM by running the installation configuration command line tool (madconfig Configure\_MasterDataManagement).

## Procedure

1. Add the necessary repositories to IBM Installation Manager.
2. Extract your application and components using the Installation Manager wizard panels.
3. Configure your installation using the installation configuration command line tool (`madconfig Configure_MasterDataManagement`).

## Planning an installation

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Before you begin installing, you must make important decisions about your InfoSphere MDM deployment style. There are also several installation and configuration worksheets that can help you to plan and gather critical installation information.

## Graphical, console, or silent installation

You can install InfoSphere MDM in graphical mode, console mode, or silent mode. Consider which installation method works best for your environment.

### Graphical mode

If the computer on which you are running IBM Installation Manager can render a graphical user interface, then graphical mode is the preferred option. IBM Installation Manager displays a series of wizard screens that walk you through the selection of features and basic parameter configuration. It then provides a summary of the options that you selected before starting the installation.

### Console mode

If your computer cannot render a graphical user interface or if you would prefer to work in a text interface, then you might choose the console mode installation option. Console mode leverages IBM Installation Manager to provide a series of on-screen prompts that walk you through the selection of features and basic parameter configuration. Essentially, console mode installation is a text-based version of the graphical mode installation.

### Silent mode

If you are planning identical installations on multiple computers, you might consider the silent option. A silent installation is started from a command line and uses a response file. This option does not require you to specify the installation options. Instead, the installation options are read from a response file. You can create a response file manually or by using the graphical installation wizard, or you can modify one of the provided sample response files. A response file can be created without installing any software or during an installation. The steps that are taken in the installation process and errors that are encountered are logged to a file.

### Related tasks

[Installing InfoSphere MDM using graphical mode](#)

Use this procedure to install InfoSphere MDM using the graphical installation mode. The installation must be run in an environment that already has a database and an application server in place.

[Installing InfoSphere MDM using console mode](#)

### Related reference

[Installing InfoSphere MDM using silent mode](#)

Silent installation mode uses predefined configuration files, known as response files, as input so that installations can be run and rerun with a minimal amount of human interaction.

## Support for high availability environments

To support installation of InfoSphere MDM in high availability environments, you can configure multiple instances on multiple host servers. By doing so, if one server or instance goes down, the others can continue to process traffic.

The MDM operational server uses an IBM WebSphere Application Server container and can be deployed on single server or on a cluster as configured in the container. The cluster can be preconfigured on the server. The installer can detect a clustered environment and deploy to that environment.

You must also configure your databases for high availability. Each database type supports different high availability strategies. Refer to the database documentation for details and guidance.

Review the installation scenarios before you begin the installation to better understand how to support high availability and clustered environment requirements.

### Related concepts

#### [Installation scenarios](#)

This section contains some common installation scenarios that you can use as guidelines when installing InfoSphere MDM in similar environments.

#### [Custom installation deployment type](#)

### Related tasks

#### [Installing InfoSphere MDM](#)

Complete the tasks in this section to install and configure a full InfoSphere MDM deployment, including its prerequisites.

## Support for SSL encryption

InfoSphere MDM supports SSL enabled databases and SSL server encryption. This topic provides information and guidance about using SSL with InfoSphere MDM.

**Note :** During the installation process, IBM Installation Manager guides you through the setup of SSL encryption. The information contained in this topic is provided for reference and guidance, but there are no special, manual configuration steps required for standard InfoSphere MDM installations with SSL.

Secure Sockets Layer (SSL) is a standard security technology for establishing an encrypted link between a server and a client.

InfoSphere MDM supports SSL enabled databases to ensure a secure connection between the MDM database and the client. When SSL authentication is enabled, data is encrypted during transmission, preventing unauthorized individuals from intercepting data.

InfoSphere MDM also supports SSL for server side encryption. To connect to the server, authorized users must obtain the SSL certificate from the database server and import the certificate into a local trust store.

There are additional installation options and configurations required to enable SSL encryption.

- Enabling SSL when installing using IBM Installation Manager in GUI mode:
  - On the Database Configuration panel, select the **SSL Authentication** option, then provide the path of the SSL trust store file and the password for the trust store.

**Important :** When you install InfoSphere MDM with SSL enabled using IBM Installation Manager in GUI mode, the type of trust store is presumed to be PKCS12. If the trust store type is not PKCS12, then use silent mode installation instead.

- Enabling SSL when installing using silent installation mode:
  - Provide values for the following SSL related fields in a silent installation response file:
    - `user.db.ssl.enabled` - Set to `true` to enable SSL or `false` to disable SSL. This attribute is mandatory.

- `user.db.ssl.file.path` - Provide the path of the SSL trust store file.
- `user.db.ssl.password` - Provide the trust store password.
- `user.db.ssl.store.type` - Define the type of trust store, such as PKCS12 or JKS.

## SSL settings in WebSphere Application Server

When InfoSphere MDM is installed with an SSL enabled database, there are certain settings that are applied to WebSphere Application Server. The following properties are added as custom properties for the data sources:

- For DB2, DB2 for z/OS, and Oracle databases:
  - `DWLConfig` - `sslConnection` with a value of `true`
  - `DWLCustomer` - `sslConnection` with a value of `true`
  - `MDM` - `encryptionMethod` with a value of `SSL`
- For Microsoft SQL Server:
  - `DWLConfig` - `encryptionMethod` with a value of `SSL`
  - `DWLCustomer` - `encryptionMethod` with a value of `SSL`
  - `MDM` - `encryptionMethod` with a value of `SSL`

**Note :** The properties that are added depend on the type of database driver used. An `encryptionMethod` is used when the database driver is Data Direct. An `sslConnection` is used with native drivers.

Additionally, with an SSL enabled database, the following properties are added to the custom properties of the JVM of the WebSphere Application Server:

- `javax.net.ssl.trustStore` - The trust store path
- `javax.net.ssl.trustStorePassword` - The trust store password
- `javax.net.ssl.trustStoreType` - The trust store type

## SSL settings in the ODBC driver

The following properties and values are added to the ODBC driver with SSL is used with InfoSphere MDM:

- `EncryptionMethod` - 1 (indicating SSL)
- `TrustStore` - The trust store path
- `TrustStorePassword` - The trust store password
- `ValidateServerCertificate` - `false`

### Related tasks

[“Setting the SSL protocol version” on page 59](#)

WebSphere Application Server Network Deployment profiles must be configured to use the correct SSL protocol for your deployment. If the SSL protocol is set to the wrong version, the `madconfig` utility will be unable to communicate with WebSphere Application Server.

## Password requirements

When creating passwords for an InfoSphere MDM deployment, there are a number of rules and requirements that must be followed.

These guidelines apply to all passwords used in your InfoSphere MDM deployment including IBM WebSphere Application Server, databases, and other systems.

- Passwords cannot be longer than 31 characters.
- Passwords must not include the following special characters: `$ ! * [ ] ^ &`
- Passwords must be configured to never expire.
- Passwords must not be configured to require a change after the first login.

## Worksheets for installation and configuration

The installation worksheets list all of the values that you must specify during an InfoSphere MDM installation process. Completing the installation worksheets before you install the components can help you plan your installation, save time, and enforce consistency during the installation and configuration process.

Reuse the worksheets for each runtime environment that you plan to implement. For example, you might have a production environment, a test environment, and a training environment.

Use the worksheets for gathering key details about applications and components, including their base configuration settings that are defined within IBM Installation Manager. Any operational server, user application, or component configuration steps that are required outside of IBM Installation Manager are described in separate individual application or component topics.

### Related tasks

#### Installing InfoSphere MDM using graphical mode

Use this procedure to install InfoSphere MDM using the graphical installation mode. The installation must be run in an environment that already has a database and an application server in place.

#### Installing InfoSphere MDM into a clustered environment

Use this procedure to run a custom installation of InfoSphere MDM into a clustered environment.

## Installation directory worksheet

Use this worksheet to record the root directory of the host on which you want to install InfoSphere MDM.

If you install more runtime environments later, they might not point to the same database as the one used for the initial environment. If you are installing multiple runtime environments, reuse the installation worksheet to define the unique directory values for each environment.

If you are installing on Microsoft Windows:

- You must be running in Administrator mode for IBM Installation Manager to write to the Windows registry. Administrator mode is not used for IBM AIX® or Linux.
- On a Microsoft Windows 7 operating system, you must install MDM into a directory that is not virtualized.

The parameters that are listed in the following table equate to prompts or fields that you see in IBM Installation Manager.

<b>Parameter</b>	<b>Description</b>	<b>Your value</b>
Use the existing package group	Choose this option only for InfoSphere MDM Workbench installations so that it can be installed in the same package group as IBM Rational Application Developer.  You cannot modify the directory name if you choose this option.  Do not choose this option for the operational server installation.	

Table 5. InfoSphere MDM installation directory worksheet (continued)

Parameter	Description	Your value
Create a new package group	<p>This option is the default setting. IBM Installation Manager creates a default IBM/MDM directory under the root directory that you choose. Or, you can name the directory as you want.</p> <p>For example  <code>MDM_INSTALL_HOME/IBM/MDM_test</code> or  <code>MDM_INSTALL_HOME/IBM/MDM_prod</code></p>	

## DB2 or DB2 for z/OS data source worksheet

Use this data source worksheet to identify parameters for the IBM DB2 for Linux, UNIX, and Windows or IBM DB2 for z/OS data source to which your MDM operational server is connecting.

For virtual MDM, all IBM AIX, Linux, or Solaris data source information is stored in an `odbc.ini` file in the `MDM_INSTALL_HOME/conf` directory. The physical MDM does not require data source information to be stored.

When you define the names for your databases and user accounts, consider giving the associated database instance, user account, and data source configuration the same name. Using this naming convention can help other members of your organization and IBM Software Support understand the mapping between instances, accounts, and databases.

The parameters that are listed in the following table equate to prompts or fields that you see in IBM Installation Manager.

Table 6. IBM DB2 or DB2 for z/OS data source worksheet

Parameter	Description	Your value
Database type	Both DB2 for Linux, UNIX, and Windows and DB2 for z/OS are supported for all InfoSphere MDM editions. DB2 for Linux, UNIX, and Windows is supported for InfoSphere MDM. DB2 for z/OS is supported for InfoSphere MDM Custom Domain Hub, but not for InfoSphere MDM Reference Data Management Hub.	
Database host name	Identify the fully qualified address of the host on which the database is installed. The default is <code>localhost</code> .	
Database port	Identify the database port or use the default port number provided. The DB2 default is <code>50000</code> .	

Table 6. IBM DB2 or DB2 for z/OS data source worksheet (continued)

Parameter	Description	Your value
Database user name	<p>The database user name must have DBA privileges.</p> <p>Restrictions on length and supported characters for user names and passwords are dependent upon any restrictions that might be imposed by your operating system.</p>	
Database password	<p>Provide a password for the database user name.</p>	
Database name	<p>Provide a name that identifies the InfoSphere MDM database. The default is MDMDB.</p> <p>The name must consist of 12 or fewer alphanumeric characters. Underscore ( _ ) characters can be used in the name. Other characters are not supported.</p>	
Database home	<p>Provide the fully qualified directory where the database is installed. Provide the SQLLIB parent directory. For example:</p> <p>Windows: C:\Program Files\IBM\SQLLIB</p> <p>AIX, Linux, or Solaris: /home/db2inst1/sqllib</p>	
Database schema	<p>Specify the database schema name. By default the schema name is the same as the database application user.</p>	
Installing MDM Database manually	<p>If you are planning to install the physical MDM database manually, you can select the <b>Extract scripts for manual database installation</b> option. The installation application will extract the scripts that enable you to complete manual installation.</p> <p>Virtual MDM tables are installed even if this option is selected.</p> <p>This parameter is only available when the MDM database is being installed alone, without any other components.</p>	

Table 6. IBM DB2 or DB2 for z/OS data source worksheet (continued)

Parameter	Description	Your value
Tablespace names	<p>If you have created your tablespaces ahead of time, then you must take note of their names so that you can specify them in the installation application. The following tablespaces are required (default names are in parentheses):</p> <ul style="list-style-type: none"> <li>• 4K tablespace (<i>TBS4K</i>)</li> <li>• 8K tablespace (<i>TBS8K</i>)</li> <li>• 16K tablespace (<i>TBS16K</i>)</li> <li>• IndexSpace (<i>INDEXSPACE</i>)</li> <li>• EME tablespace (<i>EMESPACE1</i>)</li> <li>• PME tablespace (<i>EMESPACE2</i>)</li> <li>• LongSpace (<i>LONGSPACE</i>)</li> </ul>	

### Related tasks

#### Installing and setting up the database

You must complete this procedure to install and prepare your database before installing the InfoSphere MDM application.

#### Preparing a DB2 database

Use this procedure to set up an IBM DB2 database for an installation of InfoSphere MDM.

## Microsoft SQL Server data source worksheet

Use the Microsoft SQL Server data source worksheet to identify parameters for the data source to which your MDM operational server is connecting.

For InfoSphere MDM Standard Edition, all IBM AIX®, Linux, or Solaris data source information is stored in an `odbc.ini` file in the `MDM_INSTALL_HOME/conf` directory.

When you define the names for your databases and user accounts, consider giving the associated database instance, user account, and data source configuration the same name. You might also want to include the InfoSphere MDM version in your name. Using this naming convention can help other members of your organization and IBM Software Support understand the mapping between instances, accounts, and databases.



**Attention :** The Business Administration, Data Stewardship, and Product Management user applications are not supported for use with a Microsoft SQL Server database.

The parameters that are listed in the following table equate to prompts or fields that you see in IBM Installation Manager.

Table 7. Microsoft SQL Server data source worksheet

Parameter	Description	Your value
Database type	Microsoft SQL Server is supported for InfoSphere MDM Standard Edition only. The type must be MSSQLU.	

Table 7. Microsoft SQL Server data source worksheet (continued)

Parameter	Description	Your value
Database host name	Identify the fully qualified address of the host on which the database is installed. The default is localhost.	
Database port	Identify the database port or use the default port number provided. The Microsoft SQL Server default is 1433.	
Database user name	The database user name must have DBA privileges.  Restrictions on length and supported characters for user names and passwords are dependent upon any restrictions that might be imposed by your operating system.	
Database password	Provide a password for the database user name.	
Database name	Provide a name that identifies the MDM database. The default is MDMDB.	
Database schema	Specify the database schema name. By default the schema name is the same as the database application user.  The user name is case sensitive because Microsoft SQL Server uses case sensitive collation.  The default schema assigned to a user who logs in using Windows Authentication is dbo. When Windows Authentication is used during the InfoSphere MDM installation, the database objects will be created in a schema named dbo.	
Database server name	Specify the name of the database server to which the MDM database instance connects.	
Database file group	Specify the name of a file group for the database. A file group is a logical structure to group objects (collections of files) in a database. In Microsoft SQL Server, file groups are used to help with data placement and administrative tasks such as backup and restore operations.	

Parameter	Description	Your value
Use Windows Native Authentication	Choose whether you want the operational server to authenticate to the database by using Microsoft Windows credentials. The default is to use SQL Server credentials.  If you plan to use Windows Authentication, your DBA must set the default schema of the login user to the schema that will be used by IBM Installation Manager.	
Installing MDM Database manually	If you are planning to install the physical MDM database manually, select this option to extract the scripts that are used for manual installation.  Virtual MDM tables are installed even if this option is selected.	

### Related tasks

#### Installing and setting up the database

You must complete this procedure to install and prepare your database before installing the InfoSphere MDM application.

#### Preparing a Microsoft SQL Server database

Set up a Microsoft SQL Server database before beginning an installation of InfoSphere MDM.

## Oracle data source worksheet

Use the Oracle data source worksheet to identify parameters for the data source to which your MDM operational server is connecting.

For InfoSphere MDM Standard Edition, all IBM AIX, Linux, or Solaris data source information is stored in an `odbc.ini` file in the `MDM_INSTALL_HOME/conf` directory.

When you define the names for your databases and user accounts, consider giving the associated database instance, user account, and data source configuration the same name. You might also want to include the InfoSphere MDM version in your name. Using this naming convention can help other members of your organization and IBM Software Support understand the mapping between instances, accounts, and databases.

The parameters that are listed in the following table equate to prompts or fields that you see in IBM Installation Manager.

Parameter	Description	Your value
Database type	Oracle is supported for all InfoSphere MDM editions.	

Table 8. Oracle data source worksheet (continued)

Parameter	Description	Your value
Database host name	Identify the fully qualified address of the host on which the database is installed. The default is localhost.	
Database port	Identify the database port or use the default port number provided. The Oracle default is 1521.	
Database user name	The database user name must have DBA privileges. For Oracle, the DB user name and schema name must be the same.  Restrictions on length and supported characters for user names and passwords are dependent upon any restrictions that might be imposed by your operating system.	
Database password	Provide a password for the database user name.	
Database name	Provide the database name.	
Database home	Provide the fully qualified directory where the database is installed. For example:  Windows: C:\App\oracle\product\11.2.0\db_1  IBM AIX, Linux, or Solaris: /home/mdm/oracle/product/11.2.0/db_1	
Installing MDM Database manually	If you are planning to install the physical MDM database manually, you can select the <b>Extract scripts for manual database installation</b> option. The installation application will extract the scripts that enable you to complete manual installation.  Virtual MDM tables are installed even if this option is selected.  This option is only available when the MDM database is being installed alone, without any other components.	

Table 8. Oracle data source worksheet (continued)

Parameter	Description	Your value
Tablespace names	<p>If you have created your tablespaces ahead of time, then you must take note of their names so that you can specify them in the installation application. The following tablespaces are required (default names are in parentheses):</p> <ul style="list-style-type: none"> <li>• 8k tablespace1 (<i>TBS4K</i>)</li> <li>• 8k tablespace2 (<i>TBS8K</i>)</li> <li>• 8k tablespace3 (<i>TBS16K</i>)</li> <li>• IndexSpace (<i>IDXSPACE</i>)</li> <li>• EME tablespace (<i>EMESPACE1</i>)</li> <li>• PME tablespace (<i>EMESPACE2</i>)</li> <li>• LongSpace (<i>LOBSPACE</i>)</li> </ul>	

**Related tasks**

Installing and setting up the database

You must complete this procedure to install and prepare your database before installing the InfoSphere MDM application.

Preparing an Oracle database

Set up an Oracle database before beginning an installation of InfoSphere MDM.

**WebSphere Application Server installation worksheet**

Use the IBM WebSphere Application Server configuration worksheet to identify parameters for the application server that is used to host your MDM operational server.

The parameters that are listed in the following table equate to prompts or fields that you see in IBM Installation Manager.

Table 9. IBM WebSphere Application Server installation worksheet

Parameter	Description	Your value
Deployment type	<p>Specify the deployment type and note the IBM WebSphere Application Server profile name. Your options are <b>Network Deployment Edition</b> or <b>Base Edition (unmanaged)</b>.</p> <p>Network Deployment is used for server or cluster installations. A base deployment is typically used in workstation or demonstration installations.</p> <p>If you choose Network Deployment, the installer runs a sequence of commands against the IBM WebSphere Application Server deployment manager process to configure application servers and deploy applications. The deployment manager and node agents must be configured and running before the deployment can proceed. For example, use a profile name of Dmgr01.</p> <p>If you select Network Deployment, the installer can also run against an IBM WebSphere Application Server cluster. The installation program automatically detects the cluster. If the cluster is configured, the default is to deploy the applications on a cluster. You can select to deploy the applications on a single server instead.</p> <p>If you choose Base, then the operational server is deployed on server1 of the IBM WebSphere Application Server Base. The installer runs a sequence of commands against server1 to configure the application server and deploy applications. Make sure that server1 is running before you proceed with the deployment. For example, use a profile name of AppSrv1.</p>	
IBM WebSphere Application Server home	<p>Specify the fully qualified directory in which IBM WebSphere Application Server is installed. The default on Linux and UNIX is /opt/IBM/WebSphere/AppServer. The default on Microsoft Windows is C:\Program Files (x86)\IBM\WebSphere\AppServer.</p>	
IBM WebSphere Application Server profile home	<p>If you are using a base deployment, specify the fully qualified path of the application server profile home directory. The default on Linux and UNIX is /opt/IBM/WebSphere/AppServer/profiles. The default on Microsoft Windows is C:\Program Files (x86)\IBM\WebSphere\AppServer\profiles.</p>	

Table 9. IBM WebSphere Application Server installation worksheet (continued)

Parameter	Description	Your value
Federate into an existing Deployment Manager	If you want to federate a newly created managed node into an existing deployment manager, select the <b>Federate into an existing Deployment Manager</b> option.	
Deployment Manager profile name	Provide the deployment manager profile name. Ensure that the name is not already in use. This is only applicable if the deployment type is Network Deployment and the <b>Federate into an existing Deployment Manager</b> option is selected.	
Deployment Manager profile home	Specify the fully qualified path of the deployment manager profile home directory.	
Host name	Identify the fully qualified address of the host on which IBM WebSphere Application Server is installed. The default is localhost.	
SOAP port	Identify the SOAP port of the deployment manager on the remote computer, if you are using remote deployment. The default is 8879.	
User name	Identify the IBM WebSphere Application Server user name. The user must have administrative privileges.	
Password	The IBM WebSphere Application Server user password.	
Cell	Specify the IBM WebSphere Application Server cell where you want to deploy InfoSphere MDM.  If you have IBM WebSphere Application Server already installed and configured, you can click <b>Retrieve Host Details</b> during the installation process and have IBM Installation Manager retrieve the information for Cell, Node, and Server.	
Node	Specify the IBM WebSphere Application Server cell where you want to deploy InfoSphere MDM.  After you select the cell in IBM Installation Manager, all of the nodes within that cell are available in the list.	

Table 9. IBM WebSphere Application Server installation worksheet (continued)

Parameter	Description	Your value
Server	Specify the server where you want to deploy InfoSphere MDM.  After you select the node in IBM Installation Manager, all of the servers that are available for that node show in the list.  If you want to create a new server for deployment, you can specify the new name on the configuration panel and it is created in IBM WebSphere Application Server during the installation process.	
Managed node profile name	Provide the managed node profile name. Ensure that the name is not already in use. This is only applicable if the deployment type is Network Deployment.	
Managed node profile home	Specify the fully qualified path of the managed node profile home directory.	
Install MDM application on cluster	If you have an existing WebSphere Application Server cluster, this option is available on the configuration panel. Select this option if you want to install the InfoSphere MDM application in a clustered environment.	
Cluster	If you are installing in a clustered environment, select the cluster where you want to deploy your applications.	

### Related concepts

#### [Installing and setting up the application server](#)

You must prepare an application server before you begin the installation of the InfoSphere MDM application.

### InfoSphere MDM application configuration worksheet

Use the application configuration worksheet to identify parameters for the MDM operational server.

The parameters that are listed in the following table equate to prompts or fields that you see in IBM Installation Manager on the **Application Configuration** panel.

Table 10. MDM application installation worksheet

Parameter	Description	Your value
MDM application name	Specify the name of the MDM operational server. This name is used in IBM WebSphere Application Server. The default is E001.	

Table 10. MDM application installation worksheet (continued)

Parameter	Description	Your value
MDM user name	<p>Specify the user name that this instance of InfoSphere MDM will use to log into the MDM client applications and user interfaces.</p> <p><b>Note :</b> This user is not the WebSphere Application Server admin user who administers the InfoSphere MDM instance, and does not need to match that user name.</p>	
MDM user password	<p>Specify the password for the MDM user.</p>	
RMI port	<p>Specify the port on which the Remote Method Invocation (RMI) registry service listens for connections from other services. In a clustered environment, all nodes must use the same RMI port to communicate. The default is 9999.</p> <p><b>Note :</b> The MDM operational server uses RMI to receive and send transaction requests and responses.</p>	
Matching style	<p>Specify whether you want to use a probabilistic or deterministic matching style.</p>	
Enable multiple time zone deployment	<p>Select this option if your application is running across different time zones, or your data has time-sensitive values under different time zones.</p>	
Default time zone	<p>Select the client default time zone from the list. If a time zone is not specified, the application server time zone is used.</p>	

Table 10. MDM application installation worksheet (continued)

Parameter	Description	Your value
Messaging	<p>Specify the messaging type for your implementation.</p> <p>If you want to use the internal WebSphere messaging, select IBM WebSphere Default Messaging.</p> <p>Most virtual MDM configurations will select IBM WebSphere Default Messaging and install the Message Brokers feature.</p> <p>IBM WebSphere MQ is a separate enterprise product and must be installed before you install InfoSphere MDM. If you opt for IBM WebSphere MQ, specify values for the following parameters.</p>	
Message queue home	Specify the fully qualified directory of the messaging queue home. The default on Linux and UNIX is /usr/mqm. The default on Microsoft Windows is C:\Program Files (x86)\IBM\WebSphere\MQ.	
Queue manager name	Specify the name for the queue manager. For example, CUSTOMER.QUEUE.MANAGER.	
MQ host name	Specify the name of the server that is hosting WebSphere MQ.	
MQ port	Specify the WebSphere MQ listening port number.	
Channel name	Specify the channel name. Channels are used to transmit messages between queue managers.	
User name	Specify the WebSphere MQ user name.	
Password	Specify the password.	
Configure Messaging Server	Select this option to deploy your parameters and configure your messaging server.	

**Related information**

[Multi-time-zone support](#)

[Probabilistic vs. deterministic matching styles](#)

## User applications installation worksheet

Use this worksheet to record parameters for the user applications that you are planning to install.

Reuse this worksheet for each user application or note any differences between applications in the worksheet.

The parameters that are listed in the following table equate to prompts or fields that you see in IBM Installation Manager.

<i>Table 11. User application installation worksheet</i>		
Parameter	Description	Your value
Deployment type	Specify whether your IBM WebSphere Application Server deployment is Base or Network. Network deployment is used for server or cluster installations. A base deployment is typically used in workstation or demonstration installations.	
IBM WebSphere Application Server profile home	If you are using a base deployment, specify the fully qualified path of the application server profile home directory. The default is /opt/IBM/WebSphere/AppServer/profiles	
Host name	Specify the name of the IBM WebSphere Application Server where the MDM operational server is deployed.	
SOAP port	Specify the port number for the MDM operational server or use the default of 8879.	
User name	Specify the administrative user name for this application.	
Password	Specify the administrative user password.	
Cell	Specify the IBM WebSphere Application Server cell where you want to deploy the application. If you have IBM WebSphere Application Server already installed and configured, click <b>Retrieve Host Details</b> during the installation process to retrieve the information for Cell, Node, and Server.	
Node	Specify the IBM WebSphere Application Server node where you want to deploy the application.	

Parameter	Description	Your value
Server	Specify the IBM WebSphere Application Server server or servers where you want to deploy the application.	
Install MDM application on cluster	If you have an existing WebSphere Application Server cluster, this option is available on the configuration panel. Select this option if you want to install InfoSphere MDM application in a clustered environment.	
Cluster	If you are installing in a clustered environment, select the cluster where you want to deploy your applications.	

### Related tasks

#### [Installing the Business Administration UI](#)

Use this procedure to install the Business Administration UI. Administrators can use the Business Administration UI to manage certain elements of the MDM operational server without having to manually modify properties files or database tables.

### Related information

#### [Installing Inspector](#)

#### [Installing Enterprise Viewer](#)

#### [Installing Web Reports](#)

#### [Installing Provider Direct](#)

### ***User applications and operational server associations***

Certain user applications are designed to support either a virtual or physical MDM configuration.

The following table associates user applications with the InfoSphere MDM configuration that they support.

Virtual MDM applications	Physical MDM Applications
InfoSphere MDM Inspector	InfoSphere MDM Business Administration
InfoSphere MDM Enterprise Viewer	InfoSphere MDM Data Stewardship
InfoSphere MDM Web Reports	InfoSphere MDM Product Maintenance
InfoSphere MDM Provider Direct	
InfoSphere MDM Pair Manager	

**Note :** Not all of the user applications are installed through IBM Installation Manager panels.

### Related reference

#### [Features installed by IBM Installation Manager](#)

The features that you can install are dependent upon the InfoSphere MDM edition that you choose.

#### [Installation requirements](#)

Use this list as a reference before you start the installation. If you are also installing IBM DB2®, IBM WebSphere® Application Server, or IBM Rational® Application Developer, the list also offers a guideline for choosing the correct features to install.

## History installation worksheet

Use this worksheet to record parameters for your history trigger configuration.

History triggers are used by physical MDM operational servers.

There are two sets of triggers that generate data for physical MDM database history tables. The first set is for the core and domain tables. The second set is for the configuration management tables. Each set consists of history triggers and delete triggers.

The parameters that are listed in the following table equate to prompts or fields that you see in IBM Installation Manager.

<i>Table 13. History installation worksheet</i>		
<b>Parameter</b>	<b>Description</b>	<b>Your value</b>
Industry	<p>Specify the industry type that is supported in this implementation. You can specify only one type.</p> <p>There are four supported industry types. Each option installs the code tables and data for that industry type.</p> <ul style="list-style-type: none"> <li>• Insurance - Choose this option for lines of business such as Life, Health, Annuities, Pensions, Property and Casualty, and others.</li> <li>• Banking - Choose this option for lines of business such as Retail Banking, Commercial Banking, Credit Cards, Loans, and others.</li> <li>• Telecommunication - Choose this option for lines of business such as Wireless, Cable Television, Satellite Television, Internet, Telephone Services, and others.</li> <li>• Manufacturing - Choose this option for lines of business such as Precision Tools, Aerospace, Electrical, Heating, Mechanical, and others.</li> </ul>	

Table 13. History installation worksheet (continued)

Parameter	Description	Your value
History triggers	<p>There are three history trigger options. You can specify only one.</p> <ul style="list-style-type: none"> <li>• None. Choose this option if you do not want to install any triggers. Choosing this option prevents history from being stored in the database.</li> <li>• Simple. Choose this option to install only the update triggers. When a record is updated in the database, a copy of that record (before the update) is added to the history table. Past versions of the record are stored in the history table.</li> <li>• Compound. Choose this option if you want to install both insert and update triggers. When a record is added to the database, or when a record is updated in the database, a copy of the record is added to the history table. Copies of both the current and past versions of the record are stored in the history table.</li> </ul>	
Case sensitive searches	<p>By default, name searches for contracts, products, and categories are not case-sensitive. Check the <b>Enable case-sensitive searches</b> check box only if you want to place case-sensitive restrictions on your searches.</p> <p>Once this feature is activated, database objects are created and you cannot deactivate the option.</p>	
Code table languages	<p>Translated code table values used for predefined lists and error messages are included with the physical MDM operational server.</p> <p>English is the default language.</p>	
Application resource language	<p>Specify the corresponding language translations for the user interface to install.</p>	

**Related information**

[Non-case-sensitive search](#)

## Installation scenarios

This section contains some common installation scenarios that you can use as guidelines when installing InfoSphere MDM in similar environments.

**Note :** These scenarios are not meant to address every possible configuration or environment, but show the high level steps involved in deployments that involve multiple products and machines.

Before you install, ensure that the system or systems that you choose meet the necessary operating system, hardware, software, communications, disk, and memory requirements.

Before you begin any installation, ensure that these conditions are met:

- Ensure any Dmgx node agents are deployed and running.
- Ensure any AppSrv node agents are deployed and running. For some installation scenarios, the WebSphere Application Server AppSrv profile is called server1.
- Ensure the *JAVA\_HOME* and *PATH* environment variables are set correctly on each machine.
- For WebSphere Application Server Network Deployment, ensure the *DB2\_JDBC\_DRIVER\_PATH* application server variables are targeted to the respective nodes containing the DB2 JDBC drivers for the machines. This is not applicable if you are using WebSphere Application Server base.
- Know your machine host names and SOAP port numbers for Dmgx processing.
- Know your host name and bootstrap port number of the application server, where the InfoSphere MDM application was previously installed as a result of running the IBM Installation Manager.

### Related concepts

Support for high availability environments

To support installation of InfoSphere MDM in high availability environments, you can configure multiple instances on multiple host servers. By doing so, if one server or instance goes down, the others can continue to process traffic.

### Related tasks

Installing InfoSphere MDM into a clustered environment

Use this procedure to run a custom installation of InfoSphere MDM into a clustered environment.

Installing and configuring prerequisites

Before you install InfoSphere MDM, make sure that you complete the planning steps and meet the prerequisites.

## Scenario: Installing InfoSphere MDM on a WebSphere Application Server cluster, using an IBM DB2 database and IBM WebSphere MQ messaging

Use this scenario as a reference when planning and installing InfoSphere MDM on a WebSphere Application Server cluster with a DB2 database and IBM WebSphere MQ messaging. This scenario is applicable for DB2 on Microsoft Windows, Linux, or UNIX operating systems.

This scenario is accomplished through four procedures.

1. Prepare your DB2 database.
2. Prepare your application server.
3. Prepare IBM WebSphere MQ messaging.
4. Install InfoSphere MDM.

In this scenario, the topology is:

- Machine A:
  - WebSphere Application Server Deployment Manager
  - DB2 client software
  - IBM Installation Manager and InfoSphere MDM
- Machines B, C, and D:

- WebSphere Application Server managed nodes
- DB2 client software
- Machine E:
  - DB2 database
- Machine F:
  - IBM WebSphere MQ

### ***Preparing the IBM DB2 database***

Use this procedure to install and prepare your DB2 database as a second step in completing this scenario.

#### **About this task**

The resulting topology from this procedure is that machine E hosts the DB2 software and database, and machines A, B, C, and D have the DB2 client software.

#### **Procedure**

1. Install DB2 database. Use the IBM DB2 installation documentation as a guide.
  - a) Install DB2 on machine E.
  - b) Install DB2 client software on machines A, B, C, and D.
  - c) Catalog DB2 client on machine A to connect to the DB2 database server on machine E. Repeat this step for machines B, C, and D.
2. Create the database and table spaces by using the scripts that are provided in the Installation Startup Kit.

**Tip :** Extract the Installation Startup Kit from *Part 1* of the downloaded distribution assets (IBM InfoSphere Master Data Management Standard & Advanced Edition Multitplatform Multilingual <version> Part 1). The location that you extract the Startup Kit to will be referred to in this documentation as the *STARTUPKIT\_INSTALL\_HOME*.

3. Make sure that DB2 Client *\$HOME/sqllib/bin* is included in the PATH on machine A. This step is required for IBM Installation Manager to implement the *\$HOME/sqllib/bin/db2* utility when running the SQL scripts.

#### **Related tasks**

Installing and setting up the database

You must complete this procedure to install and prepare your database before installing the InfoSphere MDM application.

Preparing a DB2 database

Use this procedure to set up an IBM DB2 database for an installation of InfoSphere MDM.

#### **Related reference**

DB2 or DB2 for z/OS data source worksheet

Use this data source worksheet to identify parameters for the IBM DB2 for Linux, UNIX, and Windows or IBM DB2 for z/OS data source to which your MDM operational server is connecting.

### ***Preparing WebSphere Application Server Network Deployment***

For the first step in completing this installation scenario, install and prepare your application server.

#### **About this task**

The resulting topology from this procedure is that machine A has WebSphere Application Server Deployment Manager and machines B, C, and D have WebSphere Application Server managed nodes.

## Procedure

1. Install and configure WebSphere Application Server on machines A, B, C, and D. Use the WebSphere Application Server Network Deployment documentation as a guide.
2. Create two WebSphere Application Server clusters. CLUSTER1 for the MDM operational server and CLUSTER2 for the user applications.
3. Create a DB2\_JDBC\_DRIVER\_PATH WebSphere Application Server environment variable for each node in the cluster. The path must point to the JDBC drivers for each machine.  
For example, if the DB2 client and JDBC drivers are installed at `$USER_HOME/sql1lib/java`, specify the DB2\_JDBC\_DRIVER\_PATH equal to `$USER_HOME`.
4. Make sure that all managed nodes are properly synchronized before you begin installing InfoSphere MDM.
5. Make sure that you know the WebSphere Application Server Deployment Manager host name and SOAP port before you start the InfoSphere MDM installation. Use the WebSphere Application Server configuration worksheet to record your values.
6. Make sure your cluster is started before you begin the InfoSphere MDM installation.

## Related concepts

[Installing and setting up the application server](#)

You must prepare an application server before you begin the installation of the InfoSphere MDM application.

## Related tasks

[Preparing WebSphere Application Server Network Deployment for a managed server deployment](#)

[Set up IBM WebSphere Application Server Network Deployment for a managed server deployment.](#)

[Preparing your DB2 database to use InfoSphere MDM in a clustered environment](#)

[Set up your DB2 database for deployments with InfoSphere MDM in a clustered environment.](#)

## Related reference

[WebSphere Application Server installation worksheet](#)

Use the IBM WebSphere Application Server configuration worksheet to identify parameters for the application server that is used to host your MDM operational server.

## ***Preparing IBM WebSphere MQ***

Use this procedure to install and prepare IBM WebSphere MQ as a third step in completing this scenario.

## Procedure

1. Install IBM WebSphere MQ on machine F. Use the IBM WebSphere MQ installation documentation as a guide.
2. Create the WebSphere MQ queue manager, channel, and queues by using the `custSetupMQServer.mqsc` and `ChannelAuth.mqsc` scripts. These scripts are included in the Installation Startup Kit.

**Tip :** Extract the Installation Startup Kit from *Part 1* of the downloaded distribution assets (IBM InfoSphere Master Data Management Standard & Advanced Edition Multitplatform Multilingual `<version>` Part 1). The location that you extract the Startup Kit to will be referred to in this documentation as the `STARTUPKIT_INSTALL_HOME`.

## Related reference

[InfoSphere MDM application configuration worksheet](#)

Use the application configuration worksheet to identify parameters for the MDM operational server.

[Installation Startup Kit](#)

The Installation Startup Kit includes files and scripts to help you prepare your environment before you install InfoSphere MDM.

## **Installing InfoSphere MDM**

Use this procedure to install InfoSphere MDM and any selected user applications as the final step in completing this scenario.

### **About this task**

Make sure that your application server and database are started before you begin the InfoSphere MDM installation.

### **Procedure**

1. Start IBM Installation Manager on machine A and choose your InfoSphere MDM offering. Continue through the prompts.
2. Specify the InfoSphere MDM installation home and shared directories.  
For example, MDM\_INSTALL home - /usr/IBM/MDM/E001/mdm and Shared - /usr/IBM/MDM/E001/Shared
3. Choose the **MDM Database**, **MDM Operational Server**, and any user applications or other features you want to install.  
For example: select the **Applications** feature to install all user applications, or select specific applications.
4. On the **Database Configuration** panel, specify the database type and database parameters. You can choose whether you want to test the database connection by selecting **Test Connection** or select **No connection test required**.
5. On the **WebSphere Application Server Configuration** panel, specify the application server parameters. Select **Retrieve Host Details** to obtain your Cell, Node, and Server information. Select **Install MDM application on cluster**. Choose CLUSTER1 from the **Cluster** list.
6. On the **Application Configuration** panel, select **IBM WebSphere MQ** messaging and enter the parameters. Clear the **Configure messaging server** option to prevent IBM Installation Manager from creating a queue manager on machine A (because the queue manager is enabled on machine F).
7. On each individual user application configuration panel, provide the parameters. Select **Install MDM application on cluster**. Choose CLUSTER2 from the **Cluster** list.
8. Click **Verify Installation Requirements** to run the prerequisite checks. Review and correct any errors or warnings, then click **Recheck**.
9. When the verification checks pass successfully, click **Install**.
10. After running the Installation Manager process, run the installation configuration tool (madconfig script).
  - – On Microsoft Windows systems, run

```
madconfig Configure_MasterDataManagement
```
  - On Linux or UNIX systems, run

```
./madconfig.sh Configure_MasterDataManagement
```
11. Provide the details of your deployment as prompted by the installation configuration tool.  
The configuration tool will complete the configuration of your installation.
12. When the installation and initial configuration is complete, view the logs and use the installation verification tools.

### **Related concepts**

[Preparing IBM Installation Manager](#)

All components of the InfoSphere MDM editions are installed by using IBM Installation Manager.

[Worksheets for installation and configuration](#)

The installation worksheets list all of the values that you must specify during an InfoSphere MDM installation process. Completing the installation worksheets before you install the components can help you plan your installation, save time, and enforce consistency during the installation and configuration process.

#### Verifying the base installation

After installing, there are several methods to verify that the new deployment has been successful.

#### **Related tasks**

##### Installing InfoSphere MDM using graphical mode

Use this procedure to install InfoSphere MDM using the graphical installation mode. The installation must be run in an environment that already has a database and an application server in place.

##### Troubleshooting an installation

## **Scenario: Installing InfoSphere MDM on a WebSphere Application Server cluster, using an Oracle database and WebSphere Default Messaging**

Use this scenario as a reference when planning and processing an InfoSphere MDM installation on a WebSphere Application Server cluster. This scenario uses an Oracle database and WebSphere Default Messaging.

This scenario is accomplished through three procedures.

1. Prepare your application server.
2. Prepare your Oracle database.
3. Install InfoSphere MDM.

In this scenario, the topology is:

- Machine A:
  - WebSphere Application Server Deployment Manager
  - Oracle client software
  - IBM Installation Manager and InfoSphere MDM
- Machines B, C, and D:
  - WebSphere Application Server managed nodes
  - Oracle client software
- Machine E:
  - Oracle database

### ***Preparing the Oracle database***

Use this procedure to install and prepare your Oracle database as a second step in completing this scenario.

### **About this task**

The resulting topology from this procedure is that machine E hosts the Oracle software and database, and machines A,B,C, and D have the Oracle client software.

### **Procedure**

1. Install Oracle database. Use the Oracle installation documentation as a guide.
  - a) Install Oracle on machine E.
  - b) Install the Oracle client software on machines A, B, C, and D.
  - c) Point the TNS name on machine A to connect to the remote Oracle database server on machine E.
2. Create the database and table spaces by using the scripts that are provided in the Installation Startup Kit.

**Tip :** You can extract the Installation Startup Kit from the downloaded InfoSphere MDM package file `disk1.zip`.

**Important :** To install InfoSphere MDM with Oracle, your DB user name and schema name must be the same.

3. Make sure Oracle Client `sqlplus` is included in the PATH on machine A. This step is required for IBM Installation Manager to implement the `sqlplus` utility when running the SQL scripts.

### **Related tasks**

[Installing and setting up the database](#)

You must complete this procedure to install and prepare your database before installing the InfoSphere MDM application.

[Preparing an Oracle database](#)

Set up an Oracle database before beginning an installation of InfoSphere MDM.

### **Related reference**

[Oracle data source worksheet](#)

Use the Oracle data source worksheet to identify parameters for the data source to which your MDM operational server is connecting.

## ***Preparing WebSphere Application Server Network Deployment***

Use this procedure to install and prepare your application server as a first step in completing this scenario.

### **About this task**

The resulting topology from this procedure is that machine A has WebSphere Application Server Deployment Manager, and machines B, C, and D have WebSphere Application Server managed nodes.

### **Procedure**

1. Install and configure WebSphere Application Server on machines A, B, C, and D. Use the WebSphere Application Server Network Deployment documentation as a guide.
2. Create a WebSphere Application Server cluster named CLUSTER1 for the MDM operational server.
3. Create an `ORACLE_JDBC_DRIVER_PATH` WebSphere Application Server environment variable for each node in the cluster. The path must point to the JDBC drivers for each machine.  
For example, if the Oracle client and JDBC drivers are installed at `$USER_HOME/jdbc/lib/ojdbc6.jar`, specify the `ORACLE_JDBC_DRIVER_PATH` equal to `$USER_HOME`.
4. Make sure that all managed nodes are properly synchronized before you begin installing InfoSphere MDM.
5. Make sure that you know the WebSphere Application Server Deployment Manager host name and SOAP port before you start the InfoSphere MDM installation. Use the WebSphere Application Server configuration worksheet to record your values.
6. Make sure your cluster is started before you begin the InfoSphere MDM installation.

### **Related concepts**

[Installing and setting up the application server](#)

You must prepare an application server before you begin the installation of the InfoSphere MDM application.

### **Related tasks**

[Preparing WebSphere Application Server Network Deployment for a managed server deployment](#)

Set up IBM WebSphere Application Server Network Deployment for a managed server deployment.

[Preparing your Oracle database to use InfoSphere MDM in a clustered environment](#)

Set up your Oracle database to support installing InfoSphere MDM in a clustered environment.

### **Related reference**

[WebSphere Application Server installation worksheet](#)

Use the IBM WebSphere Application Server configuration worksheet to identify parameters for the application server that is used to host your MDM operational server.

## **Installing InfoSphere MDM**

Use this procedure to install InfoSphere MDM and any selected user applications as the final step in completing this scenario.

### **About this task**

Make sure that your application server and database are started before you begin the InfoSphere MDM installation.

### **Procedure**

1. Start IBM Installation Manager on machine A and choose your InfoSphere MDM offering. Continue through the prompts.
2. Specify the InfoSphere MDM installation home and shared directories.  
For example, MDM\_INSTALL Home - /usr/IBM/MDM/E001/mdm and Shared - /usr/IBM/MDM/E001/Shared
3. Choose the **MDM Database, MDM Operational Server**, and any user applications or other features you want to install.  
For example: select the **Applications** feature to install all user applications, or select specific applications.
4. On the **Database Configuration** panel, specify the database type and database parameters. You can choose whether you want to test the database connection by selecting **Test Connection** or select **No connection test required**.
5. On the **WebSphere Application Server Configuration** panel, specify the application server parameters. Select **Retrieve Host Details** to obtain your Cell, Node, and Server information. Select **Install MDM application on cluster**. Choose CLUSTER1 from the **Cluster** list.
6. On the **Application Configuration** panel, select **IBM WebSphere Default Messaging**.
7. On each individual user application configuration panel, provide the parameters. Select **Install MDM application on cluster**. Choose CLUSTER1 from the **Cluster** list.
8. Click **Verify Installation Requirements** to run the prerequisite checks. Review and correct any errors or warnings, then click **Recheck**.
9. When the verification checks pass successfully, click **Install**.
10. After running the Installation Manager process, run the installation configuration tool (madconfig script).
  - – On Microsoft Windows systems, run

```
madconfig Configure_MasterDataManagement
```
  - On Linux or UNIX systems, run

```
./madconfig.sh Configure_MasterDataManagement
```
11. Provide the details of your deployment as prompted by the installation configuration tool.  
The configuration tool will complete the configuration of your installation.
12. When the installation and initial configuration is complete, view the logs and use the installation verification tools.

### **Related concepts**

[Preparing IBM Installation Manager](#)

All components of the InfoSphere MDM editions are installed by using IBM Installation Manager.

[Worksheets for installation and configuration](#)

The installation worksheets list all of the values that you must specify during an InfoSphere MDM installation process. Completing the installation worksheets before you install the components can help

you plan your installation, save time, and enforce consistency during the installation and configuration process.

#### Verifying the base installation

After installing, there are several methods to verify that the new deployment has been successful.

#### **Related tasks**

##### Installing InfoSphere MDM using graphical mode

Use this procedure to install InfoSphere MDM using the graphical installation mode. The installation must be run in an environment that already has a database and an application server in place.

##### Troubleshooting an installation

## **Scenario: Installing InfoSphere MDM on a WebSphere Application Server Network Deployment on Windows with an SQL Server database**

Use this scenario as a reference when planning and processing a virtual MDM deployment of InfoSphere MDM on a WebSphere Application Server Network Deployment. This scenario uses a Microsoft SQL Server database and IBM WebSphere MQ messaging. This scenario is applicable for a Microsoft Windows operating system.

**Restriction :** Since this scenario is on a Windows system with SQL Server, only virtual MDM features are supported. Physical MDM is not supported in this scenario.

This scenario is accomplished through four procedures.

1. Prepare your application server.
2. Prepare your SQL Server database.
3. Prepare IBM WebSphere MQ messaging.
4. Install InfoSphere MDM.

In this scenario, the topology is:

- Machine A:
  - WebSphere Application Server Deployment Manager and WebSphere Application Server managed node
  - IBM WebSphere MQ
  - IBM Installation Manager and InfoSphere MDM
- Machine B:
  - SQL Server database

### ***Prepare Microsoft SQL Server database***

For the second step in completing this scenario, install and prepare your SQL Server database.

#### **Procedure**

1. Install SQL Server database on machine B. Use the Microsoft SQL Server installation documentation as a guide.
2. Create the database and table spaces by using the scripts that are provided in the InfoSphere MDM Installation Startup Kit.

**Tip :** You can extract the Installation Startup Kit from *Part 1* of the downloaded distribution assets (IBM InfoSphere Master Data Management Standard & Advanced Edition Multitplatform Multilingual <version> Part 1).

#### **Related tasks**

Installing and setting up the database

You must complete this procedure to install and prepare your database before installing the InfoSphere MDM application.

#### Preparing a Microsoft SQL Server database

Set up a Microsoft SQL Server database before beginning an installation of InfoSphere MDM.

#### **Related reference**

##### Microsoft SQL Server data source worksheet

Use the Microsoft SQL Server data source worksheet to identify parameters for the data source to which your MDM operational server is connecting.

### ***Prepare WebSphere Application Server Network Deployment***

As the first step in completing this scenario, install and prepare your application server.

#### **About this task**

The resulting topology from this procedure is that machine A has WebSphere Application Server Deployment Manager and a managed node.

#### **Procedure**

1. Install and configure WebSphere Application Server on machine A. Use the WebSphere Application Server Network Deployment documentation as a guide.
2. Make sure that your managed node is properly synchronized before you begin installing InfoSphere MDM.
3. Make sure that you know the WebSphere Application Server Deployment Manager host name and SOAP port before you start the InfoSphere MDM installation. Use the WebSphere Application Server configuration worksheet to record your values.
4. Make sure your application server is started before you begin the InfoSphere MDM installation.

#### **Related concepts**

##### Installing and setting up the application server

You must prepare an application server before you begin the installation of the InfoSphere MDM application.

#### **Related tasks**

##### Preparing WebSphere Application Server Network Deployment for a managed server deployment

Set up IBM WebSphere Application Server Network Deployment for a managed server deployment.

#### **Related reference**

##### WebSphere Application Server installation worksheet

Use the IBM WebSphere Application Server configuration worksheet to identify parameters for the application server that is used to host your MDM operational server.

### ***Preparing IBM WebSphere MQ***

Use this procedure to install and prepare IBM WebSphere MQ as a third step in completing this scenario.

#### **Procedure**

1. Install IBM WebSphere MQ on machine A. Use the IBM WebSphere MQ installation documentation as a guide.
2. Create the WebSphere MQ queue manager, channel, and queues by using the `custSetupMQServer.mqsc` and `ChannelAuth.mqsc` scripts. These scripts are included in the Installation Startup Kit.

**Tip :** You can extract the Installation Startup Kit from the downloaded package file `disk1.zip`.

## Installing InfoSphere MDM

Use this procedure to install InfoSphere MDM and any selected user applications as the final step in completing this scenario.

### About this task

Make sure that your application server and database are started before you begin the InfoSphere MDM installation.

### Procedure

1. Start IBM Installation Manager on machine A and choose your InfoSphere MDM offering. Continue through the prompts.
2. Specify the InfoSphere MDM installation home and shared directories.  
For example, MDM\_INSTALL home - c:\Program Files\IBM\MDM\E001\mdm and Shared - c:\Program Files\IBM\MDM\E001\Shared
3. Choose the **MDM Database**, **MDM Operational Server**, and any user applications or other features you want to install.  
For example: select the **Applications** feature to install all user applications, or select specific applications.  
**Tip** : Since this scenario is on a Windows system with SQL Server, you can only select virtual MDM user applications. Physical MDM is not supported in this scenario.
4. On the **Database Configuration** panel, specify the database type and database parameters. You can choose whether you want to test the database connection by selecting **Test Connection** or select **No connection test required**.
5. On the **WebSphere Application Server Configuration** panel, specify the application server parameters. Select **Retrieve Host Details** to obtain your Cell, Node, and Server information. Click **Verify MDM Instance on Server** to ensure that an InfoSphere MDM instance does not already exist.
6. On the **Application Configuration** panel, select **IBM WebSphere MQ** messaging and enter the parameters. Keep the **Configure messaging server** option selected to instruct IBM Installation Manager to create a queue manager on machine A.
7. On each individual user application configuration panel, provide the parameters.
8. Click **Verify Installation Requirements** to run the prerequisite checks. Review and correct any errors or warnings, then click **Recheck**.
9. When the verification checks pass successfully, click **Install**.
10. When the installation is complete, view the logs and use the installation verification tools.

### Related concepts

[Preparing IBM Installation Manager](#)

All components of the InfoSphere MDM editions are installed by using IBM Installation Manager.

[Worksheets for installation and configuration](#)

The installation worksheets list all of the values that you must specify during an InfoSphere MDM installation process. Completing the installation worksheets before you install the components can help you plan your installation, save time, and enforce consistency during the installation and configuration process.

[Verifying the base installation](#)

After installing, there are several methods to verify that the new deployment has been successful.

### Related tasks

[Installing InfoSphere MDM using graphical mode](#)

Use this procedure to install InfoSphere MDM using the graphical installation mode. The installation must be run in an environment that already has a database and an application server in place.

[Troubleshooting an installation](#)

## Scenario: Installing InfoSphere MDM Workbench on Windows, then connecting to a remote operational server

Use this scenario as a reference when planning and deploying an InfoSphere MDM development environment (MDM Workbench) installation on Microsoft Windows that connects to a remote InfoSphere MDM operational server and a remote database instance.

The steps outlined in this scenario are focused on the physical MDM aspect of InfoSphere MDM Workbench configuration and deployment.

**Important :** This scenario assumes that an operational server has already been installed on a remote machine.

This scenario is accomplished through the following procedures:

1. On a local machine, install the MDM Workbench.
2. Configure your local MDM Workbench instance to connect to the remote application server.
3. Configure your local MDM Workbench instance to connect to the remote database.
4. After completing development work, deploy your changes from MDM Workbench to the remote InfoSphere MDM instance.

In this scenario, the topology is:

- Machine A (local Microsoft Windows machine):
  - IBM Installation Manager and InfoSphere MDM Workbench
  - IBM Rational Application Developer
- Machine B (AIX server machine):
  - WebSphere Application Server Deployment Manager and WebSphere Application Server managed node
  - IBM Installation Manager and InfoSphere MDM operational server
  - IBM DB2 database

### Related tasks

Installing InfoSphere MDM using graphical mode

Use this procedure to install InfoSphere MDM using the graphical installation mode. The installation must be run in an environment that already has a database and an application server in place.

### ***Installing the local InfoSphere MDM development environment***

Prepare your local InfoSphere MDM development environment by installing MDM Workbench and IBM Rational Application Developer (RAD).

### **Before you begin**

If you have already installed Rational Application Developer, ensure that you install MDM Workbench and Rational Application Developer into the same package group.

**Tip :** To view a video demonstration of the steps described in this procedure, see <http://youtu.be/96CkbrwASik>.

### **Procedure**

1. Start IBM Installation Manager.
2. Add the MDM Workbench and Rational Application Developer repositories to IBM Installation Manager:
  - a) Click **File > Preferences**.  
The **Preferences** dialog opens.
  - b) Click **Add Repository...**

- c) Select the MDM Workbench .inf file from the directory that contains the InfoSphere MDM installation images.
  - d) Click **Add Repository...**
  - e) Select the Rational Application Developer .inf file from the directory that contains the InfoSphere MDM installation images.
  - f) Click **OK**.
3. On the IBM Installation Manager home screen, click **Install**.
  4. On the second **Install Packages** panel, select the Installation Directory into which you want to install the MDM Workbench. If you want to install in a directory other than the default, select the MDM Workbench and click **Browse** in the **Installation Directory** field.
 

**Note :** On Microsoft Windows 7 operating systems, install MDM Workbench into a directory that is not virtualized.
  5. Click **Next**.
  6. On the language panel, English is selected by default.
    - If you want any languages other than English, select the languages and click **Next**.
  7. Select the **IBM Rational Application Developer for WebSphere Software** and **IBM InfoSphere Master Data Management Workbench** packages to install and click **Next**.
  8. Click **Next** again to view the License panel. Read and accept the license, then click **Next**.
  9. Complete the remaining Installation Manager panels and review the installation summary information, then click **Verify Installation Requirements** to run the prerequisite checks. Review and correct any errors or warnings, then click **Recheck**.
  10. When the verification checks pass successfully, click **Install**.
  11. Click **Finish** to close IBM Installation Manager.
  12. After running the Installation Manager process, run the installation configuration tool (madconfig script).
    - – On Microsoft Windows systems, run
 

```
madconfig Configure_MasterDataManagement
```
    - On Linux or UNIX systems, run
 

```
./madconfig.sh Configure_MasterDataManagement
```
  13. Provide the details of your deployment as prompted by the installation configuration tool. The configuration tool will complete the configuration of your installation.
  14. When the installation and initial configuration is complete, view the logs and use the installation verification tools.

### Related tasks

#### Installing InfoSphere MDM using graphical mode

Use this procedure to install InfoSphere MDM using the graphical installation mode. The installation must be run in an environment that already has a database and an application server in place.

### **Configuring the remote server connection**

Create a new entry in the MDM Workbench Servers view to connect to the remote application server.

### Procedure

1. Open the MDM Workbench on your local machine.
2. Open the Servers view.
3. Right-click in the Servers view and choose **New > Server**.  
The **Define a New Server** dialog opens.
4. Select the server type and version, such as **IBM > WebSphere Application Server v8.5.5.2**.

5. Enter the host name of your remote server.
6. Type the server name.
7. Select the server runtime environment and click **Next**.
8. Select **Manually provide connection settings** (always selected for remote servers) and configure the connection settings with the correct port numbers.  
You must select at least one connection type and ensure that the correct port is specified.
9. Select **Security is enabled on this server**, then provide the user ID and password.
10. Type the application server name.
11. Click **Test Connection** to confirm that all of your connection settings are accurate, then click **Finish**.

### Related concepts

#### Installing and setting up the application server

You must prepare an application server before you begin the installation of the InfoSphere MDM application.

### **Configuring the remote database connection**

Configure a connection to the remote database so that you can test your InfoSphere MDM development and run any generated SQL.

### Procedure

1. In the MDM Workbench, open the **Data** perspective.
2. In the **Data Source Explorer** view, right-click on **Database Connections**.
3. Click **New...**  
The **New Connection** dialog opens.
4. On the **Connection Parameters** screen, provide the details of your remote database instance:
  - a) Select the database manager type.
  - b) Select the JDBC driver.
  - c) Type the database name.
  - d) Type the host address and port number.
  - e) Provide the client authentication user name and password.
  - f) Type the default schema name.
  - g) Confirm the connection URL.
5. After configuring the remote database instance, click **Test Connection** to confirm that your settings are correct.
6. Click **Finish**.

### Related tasks

#### Installing and setting up the database

You must complete this procedure to install and prepare your database before installing the InfoSphere MDM application.

### Related information

#### Running the SQL scripts to prepare for deployment

### **Deploying local changes to the remote InfoSphere MDM instance**

In this scenario, the MDM Workbench development process is identical to the normal process, but you must deploy your CBA to the remote operational server using the WebSphere Application Server Integrated Solutions Console (admin console).

### Procedure

1. Complete your MDM Workbench development tasks.

2. Ensure that you have generated the code for your project after adding it to the CBA.
3. Run the SQL scripts in the MDMSHaredResources/sql directory that corresponds to your remote database instance.
4. In the MDM Workbench, right-click the CBA project and click **Export**.
5. Select the export destination **OSGi > OSGi Composite Bundle (CBA)**. Verify that the bundles that you are exporting include your operational server module bundle.  
**Important :** Ensure that you are only exporting the customization bundles, and not the core referenced bundles from InfoSphere MDM. If you select all of the bundles when exporting the CBA, then you will have duplicates of the core bundles.
6. Click **Browse** and choose a location to save the CBA file, then click **Finish**.
7. Open the remote WebSphere Application Server Integrated Solutions Console and, in the navigation frame, click **Environment > OSGi bundle repositories > Internal bundle repository** and, at the top of the table, click **New**
8. Select the local file system and browse to where you saved the CBA you exported from the MDM Workbench, then click **OK**, then click **Save directly to the master configuration**.
9. In the navigation frame, click **Applications > Application Types > Business-level applications**
10. Click on the InfoSphere MDM application and select the EBA deployed asset (for example, `com.ibm.mdm.server.app_0001.eba`).  
This step can take several minutes.
11. From the right-hand column, click **Extensions for this composition unit**, then at the top of the table, click **Add**.
12. Select the check box next to the imported CBA, then click **Add** at the top of the table.  
It can take a few minutes to load the next page.
13. Click **Save directly to the master configuration**.  
This returns you to the composition unit page.
14. Near the bottom of the page, click the **Update to latest deployment**, examine the preview of changes, and then click **OK**.  
For your extension CBA, it should show a change from Not deployed to a version number.
15. Click **Next** through the options wizard, accepting the default options on each page, then click **Finish**.
16. Click **Save directly to the master configuration**.
17. Restart the remote InfoSphere MDM business level application (BLA).

### Related information

[Addition and extension deployment](#)

[Running the SQL scripts to prepare for deployment](#)

[Deploying a CBA to the operational server from admin console](#)

## Installing InfoSphere MDM

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Complete the tasks in this section to install and configure a full InfoSphere MDM deployment, including its prerequisites.

### About this task

To install InfoSphere MDM on UNIX and Linux, you must be logged in as a non-root user.

**Important :** Before you begin the process of installing InfoSphere MDM, review the [known problems](#). Some of the known installation problems require you to complete specific preinstallation configuration tasks. Failure to complete these configuration tasks can result in a failed installation.

InfoSphere MDM installations consist of two parts:

1. Extracting InfoSphere MDM assets onto the file system and preparing the madconfig configuration tool. This step is performed by IBM Installation Manager.

2. Configuring InfoSphere MDM by running the installation configuration command line tool (`madconfig Configure_MasterDataManagement`).

### Related concepts

#### Support for high availability environments

To support installation of InfoSphere MDM in high availability environments, you can configure multiple instances on multiple host servers. By doing so, if one server or instance goes down, the others can continue to process traffic.

## Acquiring and extracting the installation files

The installation media for installing InfoSphere MDM is available as downloadable installation image files.

### Before you begin

Use the [Download IBM InfoSphere Master Data Management](#) page to help determine the parts that you need for your licensed edition and version.

Use the information in the system requirements topic to determine the supported versions for WebSphere Application Server and fix packs.

### About this task

Before you begin installing InfoSphere MDM, ensure that you have downloaded all of the latest installation packages required for your licensed edition and version.

### Procedure

1. Refer to the [Download IBM InfoSphere Master Data Management](#) page to determine the part numbers that you should download from IBM Passport Advantage.
2. Download the installation image files from IBM Passport Advantage
3. Extract the files into a directory called MDM.

When you extract the files, they will be placed into a folder structure that reflects the parts that you have downloaded.

The various InfoSphere MDM editions and components correspond following archive files:

- InfoSphere MDM Standard and Advanced Editions: `advanced.zip`, which contains:
  - `mdm_installer-<version>-mdmseae_web.tar.gz`
  - `mdm_installer-<version>-at4bpm_web.tar.gz`
  - `mdm_installer-<version>-mdph_web.tar.gz`
- InfoSphere MDM Workbench: `com.ibm.im.mdm.workbench.offering-<version>.zip`
- InfoSphere MDM Reference Data Management Hub: `rdm.zip`, which contains `mdm_installer-<version>-rdm_web.tar.gz`

### Related reference

#### Installation requirements

Use this list as a reference before you start the installation. If you are also installing IBM DB2®, IBM WebSphere® Application Server, or IBM Rational® Application Developer, the list also offers a guideline for choosing the correct features to install.

### Related information

[System requirements for InfoSphere MDM](#)

[Download IBM InfoSphere Master Data Management](#)

## Installing and configuring prerequisites

Before you install InfoSphere MDM, make sure that you complete the planning steps and meet the prerequisites.

### About this task

- Review the readme file for system requirements and potential issues that might affect your installation.
- Read the release notes for information about supported product features or enhancements to the release.
- Review the installation scenarios section, and determine the installation topology that you are going to use.
- Review and complete the installation worksheets.
- Set up your installation media.
- Use a different database user for each deployment of the offering.
- Note the following items if you plan on using an IBM DB2 database:
  - For installation purposes, set up one or more restricted users on a system for database schema users. Because DB2 uses the operating system to authenticate a new user, use a user ID such as mdmdb1 with a restricted shell. This user is not required to be a member of any of the DB2 groups.
  - You can also do a simple installation by using a single ID for both the DB2 installation ID and the schema ID. The default ID is db2inst1. For more information, see your DB2 documentation.

Ensure that the following software prerequisites are installed and configured before installing InfoSphere MDM:

- WebSphere Application Server
- IBM Java SDK 1.8.0
- One of the following databases: IBM DB2, Oracle, or Microsoft SQL Server
- Microsoft Visual C++ 64 bit (for development environment installations only)

In addition to these general prerequisites, there are other specific prerequisite tasks for installing InfoSphere MDM. These tasks are outlined in the following topics.

### Related concepts

#### Installation scenarios

This section contains some common installation scenarios that you can use as guidelines when installing InfoSphere MDM in similar environments.

#### Custom installation deployment type

#### Multiple instance support

Multiple instances of InfoSphere MDM is supported by installing the application in a clustered environment.

#### Worksheets for installation and configuration

The installation worksheets list all of the values that you must specify during an InfoSphere MDM installation process. Completing the installation worksheets before you install the components can help you plan your installation, save time, and enforce consistency during the installation and configuration process.

### Related tasks

#### Installing InfoSphere MDM using graphical mode

Use this procedure to install InfoSphere MDM using the graphical installation mode. The installation must be run in an environment that already has a database and an application server in place.

### Related reference

#### Installation requirements

Use this list as a reference before you start the installation. If you are also installing IBM DB2®, IBM WebSphere® Application Server, or IBM Rational® Application Developer, the list also offers a guideline for choosing the correct features to install.

## Account prerequisites

Before you begin to install the product, you must have certain account prerequisites in place.

- You must be logged on with an account that owns the IBM WebSphere Application Server directories and binary files. The database JDBC drivers must be accessible by this account. The instructions in the preparation topics assume that you are doing the installation locally on the server.

### Restriction :

- When using WebSphere Application Server Base edition, you must run the installation using a single profile. The InfoSphere MDM installation does not support multiple Base profiles.
- When using WebSphere Application Server Network Deployment edition, the InfoSphere MDM installation does not support multiple Deployment Manager (dmgr) profiles.
- Install InfoSphere MDM as a non-root user:
  - For IBM WebSphere Application Server, use the *wasadmin* ID. This ID must own a DB2 client or a DB2 instance and be a member of the mqm management group.
  - For DB2:
    - The suggested installation method is to set up one or more restricted users on a system for database schema users. Because DB2 uses the operating system to authenticate to a new user, a user ID such as *mdmdb1* with a restricted shell is the best choice. This user is not required to be a member of any of the DB2 groups.
    - You can also do a simple installation by using a single ID for both the DB2 installation ID and the schema ID. The default ID is *db2inst1*. For more information about IBM DB2, see the product documentation.
  - A different database user and schema must exist for each deployment of InfoSphere MDM. Different databases for each deployment are not required.
  - When you install on IBM WebSphere Application Server, ensure that no server named *server* or cluster named *cluster* is being used on IBM WebSphere Application Server. The names *server* and *cluster* are used by the InfoSphere MDM installation.

### Related tasks

#### [Installing and setting up the database](#)

You must complete this procedure to install and prepare your database before installing the InfoSphere MDM application.

#### [Checking prerequisites using the command line tool](#)

### Related reference

#### [Database user accounts and connections](#)

All installations require at least one database user account.

#### [User accounts, groups, and defaults used by the installation application](#)

When InfoSphere MDM is installed, default users and user groups are created on the application server.

## Preparing IBM Installation Manager

All components of the InfoSphere MDM editions are installed by using IBM Installation Manager.

IBM Installation Manager uses defined repositories to determine what packages are available for you to install. These repositories point to your installation media.

Offerings must be manually added to the IBM Installation Manager repositories.

Continue with the tasks for installing IBM Installation Manager and adding your repositories.

## Related tasks

### Installing InfoSphere MDM into a clustered environment

Use this procedure to run a custom installation of InfoSphere MDM into a clustered environment.

### ***Installing IBM Installation Manager***

Use this procedure if IBM Installation Manager is not installed.

## About this task

Do not install IBM Installation Manager in admin mode.

## Procedure

1. From the Passport Advantage page for your InfoSphere MDM version and edition, download the IBM Installation Manager package.
2. Extract the compressed file.
3. From a command prompt, run the command to install in non-admin mode:
  - On Microsoft Windows systems: `userinst.exe`
  - On Linux, AIX, or Solaris systems: `userinst`
4. Complete the installation wizard.

## What to do next

Continue with adding offerings to IBM Installation Manager.

### ***Adding offerings to IBM Installation Manager***

Use this procedure to add InfoSphere MDM to the list of offerings that are installed by IBM Installation Manager.

## Before you begin

Make sure that you installed IBM Installation Manager and that you did not install it in admin mode.

## Procedure

1. Start IBM Installation Manager.
2. Click **File > Preferences**.
3. On the **Preferences** dialog, select **Repositories > Add Repository**.
4. On the **Add Repository** dialog, click **Browse**.
5. Locate and select the InfoSphere MDM packages that you want to install.  
For example, `download_path/MDM/repository.config`.
6. Add any additional offerings, such as IBM WebSphere Application Server, IBM DB2, or InfoSphere MDM Workbench.
7. On the **Add Repository** dialog, click **OK**.
8. On the **Preferences** dialog, click **OK**.

## What to do next

Continue with preparing for and installing the MDM operational server and applications.

## Installing and setting up the application server

You must prepare an application server before you begin the installation of the InfoSphere MDM application.

InfoSphere MDM components run inside WebSphere Application Server. The application server provides infrastructure for component-to-component communication, authentication, and logging.

You can choose to prepare a new application server or reuse an existing application server.

Review these prerequisites before you prepare the application server for InfoSphere MDM installation.

- Ensure that you installed any prerequisite software and that the correct environment is set up.
- Set the database utility for Db2 or Oracle to your system path. Microsoft SQL Server does not require this step.
- Review the application server configuration worksheet to understand the basic parameters that are requested during the installation process. Completing the worksheet ensures that you have the basic information necessary to complete the installation. For multiple instances, copy the worksheet and prepare a separate worksheet for each deployment.
- Use the `wasadmin` ID when you prepare the application server. If you are using Db2, this ID must own a Db2 client or a Db2 instance. The ID must be a member of the WebSphere MQ `mqm` group if you are using WebSphere MQ for messaging. This group is used to administer WebSphere MQ.
- Ensure that you set up the `WAS_HOME` and the `JAVA_HOME` Java path for IBM WebSphere Application Server.
- Ensure that there is no server named `server` or cluster named `cluster`.

**Important :** You must have the WebSphere Application Server deployment manager (Dmgr) JVM Heap size arguments set to 2048 MB and 4096 MB, as described in [this IBM Support article](#). To increase the heap size:

1. Open the WebSphere Application Server Integrated Solutions Console and go to **System Administration > Deployment Manager**.
2. Under **Server Infrastructure**, expand **Java and Process Management**, then click **Process definition**.
3. Under **Additional Properties**, click **Java Virtual Machine**.
4. Set the **Initial heap size** to 2048 MB and the **Maximum heap size** to 4096 MB.
5. Click **OK**, save your changes, and synchronize your changes with the nodes.

### Related tasks

[Installing InfoSphere MDM into a clustered environment](#)

Use this procedure to run a custom installation of InfoSphere MDM into a clustered environment.

### Related reference

[WebSphere Application Server installation worksheet](#)

Use the IBM WebSphere Application Server configuration worksheet to identify parameters for the application server that is used to host your MDM operational server.

## Updating Java

Before running the InfoSphere MDM installation, you must ensure that you have the correct version of Java and the Java Development Kit installed in your installation environment.

## About this task

InfoSphere MDM requires Java 1.8.0.

By default, WebSphere Application Server 8.5.5.6 creates profiles with Java 1.6. It is important that you update to Java 1.8.0 before you create the WebSphere Application Server profiles that will be used for InfoSphere MDM installation.

Java is distributed with the WebSphere Application Server installation packages.

## Procedure

1. Install Java 1.8.0. Be sure to select the optional SDK during installation.
2. Navigate to the \$WAS\_HOME folder. You should see a new folder named `java_<version>`.

**Important :** Ensure that the \$WAS\_HOME/java\_<version> folder exists before proceeding.

3. On UNIX or Linux operating systems, update the \$JAVA\_HOME path in your .profiles:

```
JAVA_HOME=$WAS_HOME/java_<version>
```

4. When running the managedprofile script to create your WebSphere Application Server profile, run the following command to set the default Java Development Kit to 1.8.0\_64:

```
managesdk.sh -setNewProfileDefault -sdkname 1.8.0_64
```

5. Verify that the version has been correctly updated by logging into the WebSphere Application Server Integrated Solutions Console (admin console) and navigating to **Deployment manager > Java SDKs**. Confirm that version 1.8.0\_64 is present in the list of resources and that its Default column value is set to true.

## Setting the SSL protocol version

WebSphere Application Server Network Deployment profiles must be configured to use the correct SSL protocol for your deployment. If the SSL protocol is set to the wrong version, the madconfig utility will be unable to communicate with WebSphere Application Server.

## About this task

Your deployment can use any of the following SSL protocol options: SSL\_TLS, SSL, SSLv2, SSLv3, TLS, TLSv1, TLSv1.2, or SSL\_TLSv2.

**Tip :** Avoid using the older versions of SSL or TLS.

**Important :** If you choose to use TLSv1.2, there are some extra configuration steps required. For details, see step “4” on page 59 in the following procedure and also the steps outlined in “[Enabling TLSv1.2 in standalone application server deployments](#)” on page 60 and “[Enabling TLSv1.2 in networked or clustered application server deployments](#)” on page 61.

## Procedure

1. Stop the node agent.
2. In the node agent WebSphere Application Server profile, edit the file `<WAS_PROFILE_HOME>/properties/ssl.client.props`.
3. Set the value of the `com.ibm.ssl.protocol` variable to one of the following:

- SSL
- SSLv2
- SSLv3
- SSL\_TLS
- SSL\_TLSv2
- TLS
- TLSv1
- TLSv1.2

For example:

```
com.ibm.ssl.protocol=TLSv1.2
```

4. If you set the SSL protocol to be TLSv1.2, there are some extra configuration steps required:

- a) In the node agent WebSphere Application Server profile, edit the file `<WAS_PROFILE_HOME>/config/cells/<WAS_CELL_NAME>/security.xml`.
- b) Set the value of `sslProtocol` to be `TLSv1.2`.

```
sslProtocol="TLSv1.2"
```

- c) Start the WebSphere Application Server integrated solutions console (admin console) and navigate to **Security > SSL Certificate and key management > SSL configurations**.
- d) On the **SSL Configuration** screen, enable the `TLSv1.2` protocol for the `CellDefaultSSLSettings`, `NodeDefaultSSLSettings`, and `XDADefaultSSLSettings` configuration items.
- e) Select **Configuration**, then select **Quality of protection (QoP) settings > Protocol**, then select `TLSv1.2` and click **OK**.
- f) In the deployment manager WebSphere Application Server profile, edit the file `<WAS_PROFILE_HOME>/properties/ssl.client.props`.
- g) Set the value of `com.ibm.ssl.protocol` to be `TLSv1.2`.

```
com.ibm.ssl.protocol=TLSv1.2
```

- h) Restart the deployment manager.
- i) Restart the node agent.
- j) Configure the application server to enable `TLSv1.2`:
  - If you are deploying on a standalone WebSphere Application Server instance, complete the steps outlined in [“Enabling TLSv1.2 in standalone application server deployments”](#) on page 60.
  - If you are deploying on a network deployment or clustered WebSphere Application Server instance, complete the steps outlined in [“Enabling TLSv1.2 in networked or clustered application server deployments”](#) on page 61.

## Related information

[Enabling TSL v1.2 on the virtual MDM Workbench](#)

*Enabling TLSv1.2 in standalone application server deployments*

This procedure outlines the IBM WebSphere Application Server configuration steps required to enable the `TLSv1.2` SSL protocol for standalone deployments.

## Before you begin

Complete the steps in [“Setting the SSL protocol version”](#) on page 59 before beginning this procedure.

## Procedure

1. Configure the standalone application server's SSL protocol to `TLSv1.2`:
  - a) Start the WebSphere Application Server integrated solutions console (admin console) and navigate to **Security > SSL Certificate and key management > SSL configurations**.
  - b) Click **NodeDefaultSSLSettings > Quality of protection (QoP) settings**, then select **TLSv1.2** from the **protocol** list.
  - c) Click **OK** and then **Save**.
2. Update the `ssl.client.props` configuration file for the node:
  - a) Browse to `<WAS_INSTALL_HOME>/profiles/<PROFILE_NAME>/properties` and edit the `ssl.client.props` file.
  - b) Locate the `com.ibm.ssl.protocol` property and change its value to `TLSv1.2`

```
com.ibm.ssl.protocol=TLSv1.2
```

3. In the node agent WebSphere Application Server profile, edit the configuration file `<WAS_PROFILE_HOME>/config/cells/<WAS_CELL_NAME>/security.xml` and change the value of `sslProtocol` to `TLSv1.2`.

```
sslProtocol=TLSv1.2
```

4. Stop and then restart the application server.
5. Deploy unrestricted SDK JCE policy files:
  - a) Download the extended cryptography files from [this IBM Support tech note](#).
  - b) Browse to `<WAS_INSTALL_HOME>/<JAVA_VERSION>/jre/lib/security` and ensure that the following security JAR files are present:
    - `US_export_policy.jar`
    - `local_policy.jar`
6. Update the configuration of `build-utils-engine.xml`.

The `build-utils-engine.xml` file is found in two locations, both of which must be updated:

  - a) Edit `build-utils-engine.xml` in both locations.
  - b) Search for calls to the macrodef `madenv_exc`.
  - c) Add the following new `arg` targets under the `execargs` in calls to `madenv_exc`:

```
<madenv_exec exe="{mad.java.home}/bin/java{os.exe.suffix}" failonerror="false"
logfile="{mad.jobset.log.file}" resultproperty="mad.jobset.retcode">
  <execargs>
    ...
    <arg value="-Dcom.ibm.SSL.ConfigURL=file:/// <WAS_PROFILE_HOME>/ /properties/
ssl.client.props">
    <arg value="-Dcom.ibm.SOAP.ConfigURL=file:///<WAS_PROFILE_HOME>/ /properties/
soap.client.props">
    <arg value="-isSecure"/>
    <arg value="false"/>
  </execargs>
  ...
</madenv_exec>
```

## Related tasks

[“Enabling TLSv1.2 in networked or clustered application server deployments” on page 61](#)

This procedure outlines the IBM WebSphere Application Server configuration steps required to enable the TLSv1.2 SSL protocol for networked or clustered deployments.

*Enabling TLSv1.2 in networked or clustered application server deployments*

This procedure outlines the IBM WebSphere Application Server configuration steps required to enable the TLSv1.2 SSL protocol for networked or clustered deployments.

## Before you begin

Complete the steps in [“Setting the SSL protocol version” on page 59](#) before beginning this procedure.

## Procedure

1. Configure the networked or clustered application server's SSL protocol to `TLSv1.2`:
  - a) Start the WebSphere Application Server integrated solutions console (admin console) and navigate to **Security > SSL Certificate and key management > SSL configurations**.
  - b) Click **CellDefaultSSLSettings > Quality of protection (QoP) settings**, then select **TLSv1.2** from the **protocol** list.
  - c) Click **OK** and then **Save**.

- d) Repeat the steps above for **DmgrDefaultSSLSettings** and all **NodeDefaultSSLSettings**.
  - e) When all updates are complete, run a manual synchronization from each node.
2. Update the `ssl.client.props` configuration file for the Dmgr and all nodes:
    - a) Browse to `<WAS_INSTALL_HOME>/properties` and edit the `ssl.client.props` file.
    - b) Locate the `com.ibm.ssl.protocol` property and change its value to `TLSv1.2`

```
com.ibm.ssl.protocol=TLSv1.2
```

3. In the node agent WebSphere Application Server profile, edit the configuration file `<WAS_PROFILE_HOME>/config/cells/<WAS_CELL_NAME>/security.xml` and change the value of `sslProtocol` to `TLSv1.2`.

```
sslProtocol=TLSv1.2
```

Repeat this step for the Dmgr and each node in the cluster.

4. Deploy unrestricted SDK JCE policy files:
  - a) Download the extended cryptography files from [this IBM Support tech note](#).
  - b) Browse to `<WAS_INSTALL_HOME>/<JAVA_VERSION>/jre/lib/security` and ensure that the following security JAR files are present:
    - `US_export_policy.jar`
    - `local_policy.jar`

5. Stop and then restart the deployment manager, nodes, and servers in the WebSphere Application Server profile where InfoSphere MDM is deployed.

6. Update the configuration of `build-utils-engine.xml`.

The `build-utils-engine.xml` file is found in two locations, both of which must be updated:

- `<MDM_INSTALL_HOME>/mds/scripts`
- `<WAS_PROFILE_HOME>/installedApps/<CELL>/MDM-native-<INSTANCE_ID>.ear/native.war/scripts`

- a) Edit `build-utils-engine.xml` in both locations.
- b) Search for calls to the macrodef `madenv_exc`.
- c) Add the following new `arg` targets under the `execargs` in calls to `madenv_exc`:

```
<madenv_exec exe="{mad.java.home}/bin/java{os.exe.suffix}" failonerror="false"
logfile="{mad.jobset.log.file}" resultproperty="mad.jobset.retcode">
  <execargs>
    ...
    <arg value="-Dcom.ibm.SSL.ConfigURL=file:/// <WAS_PROFILE_HOME>/ /properties/
ssl.client.props">
    <arg value="-Dcom.ibm.SOAP.ConfigURL=file:///<WAS_PROFILE_HOME>/ /properties/
soap.client.props">
    <arg value="-isSecure"/>
    <arg value="false"/>
  </execargs>
  ...
</madenv_exec>
```

## Related tasks

[“Enabling TLSv1.2 in standalone application server deployments” on page 60](#)

This procedure outlines the IBM WebSphere Application Server configuration steps required to enable the TLSv1.2 SSL protocol for standalone deployments.

## **Preparing WebSphere Application Server Network Deployment for a managed server deployment**

Set up IBM WebSphere Application Server Network Deployment for a managed server deployment.

### **About this task**

This procedure assumes that you have IBM WebSphere Application Server already installed.

### **Procedure**

1. Set the default Java SDK version to 1.8.0:

- On Microsoft Windows operating systems, run the command

```
WAS_INSTALL_HOME\bin\managesdk.bat -setNewProfileDefault -sdkname 1.8.0_64
```

- On UNIX or Linux operating systems, run the command

```
WAS_INSTALL_HOME/bin/managesdk.sh -setNewProfileDefault -sdkname 1.8.0_64
```

2. Create a deployment manager (dmgr).

a) Open a command prompt and browse to your IBM WebSphere Application Server installation directory.

b) At the command-line prompt, run this command from the `WAS_INSTALL_HOME\bin` directory:

```
For Microsoft Windows: manageprofiles.bat -create -profileName dmgrName -profilePath WAS_PROFILE_HOME\dmgrName -templatePath WAS_INSTALL_HOME\profileTemplates\management -serverType DEPLOYMENT_MANAGER -enableAdminSecurity true -adminUserName userName -adminPassword password
```

```
For Linux or UNIX: manageprofiles.sh -create -profileName dmgrName -profilePath WAS_PROFILE_HOME/dmgrName -templatePath WAS_INSTALL_HOME/profileTemplates/management -serverType DEPLOYMENT_MANAGER -enableAdminSecurity true -adminUserName userName -adminPassword password
```

3. Start the deployment manager by running this command from the `WAS_INSTALL_HOME\bin` directory:

```
Microsoft Windows: startManager.bat -profileName dmgrProfileName or Linux and UNIX: startManager.sh -profileName dmgrProfileName
```

4. Find out which ports are assigned for the deployment manager.

a) Open the `profiles/dmgrProfileName/logs/AboutThisProfile.txt` file.

b) Find the entry for the Management SOAP connector port and make note of this number.

c) Find the entry for the Integrated Solutions Console (admin console) port and make note of this number.

5. Create a node that is attached to the deployment manager by running this command from the `WAS_INSTALL_HOME\bin` directory:

```
For Microsoft Windows: manageprofiles.bat -create -profileName nodeProfileName -profilePath WAS_PROFILE_HOME\nodeProfileName -templatePath WAS_INSTALL_HOME\profileTemplates\managed -hostName hostName -nodeName nodeName -cellName cellName -dmgrHost dmgrHost -dmgrPort dmgrPort -dmgrAdminUserName userName -dmgrAdminPassword password
```

```
For Linux or UNIX: manageprofiles.sh -create -profileName nodeProfileName -profilePath WAS_PROFILE_HOME/nodeProfileName -templatePath WAS_INSTALL_HOME/profileTemplates/managed -hostName hostName -nodeName nodeName -cellName
```

```
cellName -dmgrHost dmgrHost -dmgrPort dmgrPort -dmgrAdminUserName userName -  
dmgrAdminPassword password
```

Where:

- *nodeProfileName* - is name of the node.
  - *username* - is the user you specified in step 2.
  - *password* - is the password you specified in step 2.
  - *dmgrPort* - is the management SOAP connector port number from step 4b.
6. Start the node by running this command from the *WAS\_INSTALL\_HOME\bin* directory: Microsoft Windows: `startNode.bat -profileName nodeProfileName` or Linux and UNIX: `startNode.sh -profileName nodeProfileName`
  7. Open IBM WebSphere Application Server Integrated Solutions Console and enable node synchronization.
    - a) Open a browser and go to `https://localhost:port/ibm/console`. The port number is the Integrated Solutions Console port number from step 3c.
    - b) If you encounter a warning that states that the connection is not trusted, you can ignore the message or add an exception as necessary for your browser.
    - c) Log in using the credentials from step 2.
    - d) Browse to **System administration > Console Preferences**.
    - e) Select **Synchronize changes with Nodes** and click **Apply**.
  8. Set the database driver path in the Integrated Solutions Console.
    - a) Go to **Environment > WebSphere variables**.
    - b) For each of the driver path entries that are named for your database type, click the entry. For example: **DB2\_JDBC\_DRIVER\_PATH**, **ORACLE\_JDBC\_DRIVER\_PATH**, or **MICROSOFT\_JDBC\_DRIVER\_PATH**.
    - c) Enter the path to the parent directory of your database client installation directory and click **OK**.

**Tip :** Replace single slashes with double slashes. For example, if the path is `C:/IBM/SQLLIB`, then enter `C://IBM//SQLLIB`.

For example:

      - For DB2, use `DB2_HOME/SQLLIB`
      - For Oracle, use `ORACLE_HOME/jdbc/lib`.
      - For Microsoft SQL Server, use `SQL_PLUS_HOME`.
    - d) Select **Save directly to the master configuration**.
  9. Ensure that the application server's **Start components as needed** option is not enabled:
    - a) From the Integrated Solutions Console, navigate to **Servers > Server Types > WebSphere Application Servers**.
    - b) Click on the server where InfoSphere MDM will be deployed.
    - c) In the Configuration panel, ensure that the **Start components as needed** option is not selected.

**Note :** If this option is enabled, you will encounter exceptions when the server starts after installing the InfoSphere MDM Enterprise Business Application .

### **Preparing WebSphere Application Server Network Deployment for an unmanaged server**

Set up IBM WebSphere Application Server Network Deployment for an unmanaged server deployment.

#### **About this task**

This procedure assumes that you have IBM WebSphere Application Server already installed.

## Procedure

1. Set the default Java SDK version to 1.8.0:

- On Microsoft Windows operating systems, run the command

```
WAS_INSTALL_HOME\bin\managesdk.bat -setNewProfileDefault -sdkname 1.8.0_64
```

- On UNIX or Linux operating systems, run the command

```
WAS_INSTALL_HOME/bin/managesdk.sh -setNewProfileDefault -sdkname 1.8.0_64
```

2. Create an unmanaged node on the application server that creates a server named **server1** on the node. Use this command from the `WAS_INSTALL_HOME\bin` directory:

- For Microsoft Windows:

```
manageprofiles.bat -create -profileName nodeProfileName -templatePath ..\profileTemplates\default -federateLater false -dmgrAdminUserName username -enableAdminSecurity true -adminUserName username -adminPassword password
```

- For Linux or UNIX:

```
manageprofiles.sh -create -profileName nodeProfileName -templatePath ../profileTemplates/default -federateLater false -dmgrAdminUserName username -enableAdminSecurity true -adminUserName username -adminPassword password
```

When you use an unmanaged server, the name of the node server is **server1**.

3. Start the node with this command from the `WAS_INSTALL_HOME\bin` directory:

Microsoft Windows: `startServer.bat -server1` or Linux and UNIX: `startServer.sh -server1`

4. Open the IBM WebSphere Application Server Integrated Solutions Console (admin console) and set the database driver path:

a) Go to **Environment > WebSphere variables**.

b) For each of the driver path entries that are named for your database type, click the entry. For example: **DB2\_JDBC\_DRIVER\_PATH**, **ORACLE\_JDBC\_DRIVER\_PATH**, or **MSSQLSERVER\_JDBC\_DRIVER\_PATH**.

c) Enter the path to the parent directory of your database installation directory and click **OK**. Replace single backslashes with double backslashes.

For example, if the path is `C:\IBM\SQLLIB`, then enter `C:\\IBM`.

d) Select **Save directly to the master configuration**.

5. Ensure that the application server's **Start components as needed** option is not enabled:

a) From the Integrated Solutions Console, navigate to **Servers > Server Types > WebSphere Application Servers**.

b) Click on the server where InfoSphere MDM will be deployed.

c) In the Configuration panel, ensure that the **Start components as needed** option is not selected.

**Note** : If this option is enabled, you will encounter exceptions when the server starts after installing the InfoSphere MDM Enterprise Business Application .

## Preparing WebSphere Application Server for base deployment

Set up IBM WebSphere Application Server for base deployment.

### About this task

If you are planning to use a base deployment, IBM Installation Manager creates a IBM WebSphere Application Server profile named `server1`. If you choose to use this profile, you do not have to create one before installation.

**Important :** Do not register *server1* as a Microsoft Windows service. If you do, then IBM Installation Manager cannot restart *server1* during the process of installing the InfoSphere MDM deployment modules.

This procedure assumes that you have the application server already installed.

## Procedure

1. Set the default Java SDK version to 1.8.0:

- On Microsoft Windows operating systems, run the command

```
WAS_INSTALL_HOME\bin\managesdk.bat -setNewProfileDefault -sdkname 1.8.0_64
```

- On UNIX or Linux operating systems, run the command

```
WAS_INSTALL_HOME/bin/managesdk.sh -setNewProfileDefault -sdkname 1.8.0_64
```

2. Create the IBM WebSphere Application Server base profile:

- To create the base profile using the profile management tool:
  - a. Go to the *WAS\_INSTALL\_HOME/bin/ProfileManagement* directory and run the profile management tool.
    - For Microsoft Windows, run *pmt.bat*
    - For Linux and UNIX, run *pmt.sh*
  - b. On the **Environment Selection** panel, click **Application Server** and click **Next**.
  - c. On the **Profile Creation Options** panel, select **Typical profile creation** and click **Next**.  
**Tip :** Optionally, if you do not want to use the default configuration, select **Advanced profile creation** and provide your configuration details. This procedure assumes a typical profile creation.
  - d. On the **Administrative Security** panel, make sure the **Enable administrative security** option is selected. Add a user name and password, and then click **Next**.
  - e. Review the summary and click **Create**. The profile management tool will create a base profile.
- To create the base profile using the command line, run the following command:

**Note :** Substitute the correct values for *WAS\_INSTALL\_HOME*, *was\_user*, and *was\_password*.

- For UNIX and Linux systems:

```
WAS_INSTALL_HOME/bin/manageprofiles.sh -create -templatePath  
WAS_INSTALL_HOME/profileTemplates/default -enableAdminSecurity true  
-adminUserName was_user -adminPassword was_password
```

- For Windows systems:

```
WAS_INSTALL_HOME\bin\manageprofiles.bat -create -templatePath  
WAS_INSTALL_HOME\profileTemplates\default -enableAdminSecurity true  
-adminUserName was_user -adminPassword was_password
```

**Note :** The following optional parameters enable you to provide more detail in the profile creation command:

- If you do not want to use the default profile path, you can add *-profilePath profile\_path* into the command.
- If you do not want to use the default profile name, you can add *-profileName profile\_name* into the command.

3. Ensure that the application server's **Start components as needed** option is not enabled:

- a) From the Integrated Solutions Console, navigate to **Servers > Server Types > WebSphere Application Servers**.

- b) Click on the server where InfoSphere MDM will be deployed.
- c) In the Configuration panel, ensure that the **Start components as needed** option is not selected.

**Note :** If this option is enabled, you will encounter exceptions when the server starts after installing the InfoSphere MDM Enterprise Business Application .

4. Start the server. You can use the First Steps console or a command line.

For example: `/opt/IBM/WebSphere/AppServerBASE/profiles/AppSrv01/bin/startServer.sh server1`

### **Creating a new user and adding the user to an MDM group**

Use this procedure to create an IBM WebSphere Application Server user and then add that user to an InfoSphere MDM group.

#### **About this task**

IBM Installation Manager creates all of the groups and an MDM admin user (mdmadmin) with the required rights and privileges. Use this procedure to add new users.

**Restriction :** In the event that the mdmadmin user has to be created before the installation (such as if the application server is set up and controlled by a third party and inherits all user accounts from a Federated Repository), then ensure that the mdmadmin password is 16 characters or less. Passwords longer than this will be truncated to 16 characters in the virtual MDM API before being passed to the application server for authentication. As a result, authentication will fail for virtual MDM clients.

Review the user accounts and groups topic for information about available groups.

#### **Procedure**

1. In the IBM WebSphere Application Server Integrated Solutions Console (admin console), go to **Users and Groups > Manage Users** and click **Create**.
2. On the **Create a User** page, type a user ID, name, and password.
3. Click **Group Membership**.
4. On the **Group Membership** page, search for groups with search key of '\*' and click **Search**.
5. In the **Available** column, highlight the groups to which you want the user to belong and click **Add** to move the group to the **Mapped To** column.
6. On the **Group Membership** page, click **Close**.
7. On the **Create a User** page, click **Create**.

#### **Related reference**

[User accounts, groups, and defaults used by the installation application](#)

When InfoSphere MDM is installed, default users and user groups are created on the application server.

#### **Related information**

[Managing users](#)

[Enabling user security for the operational server](#)

[Configuring users and user groups for virtual MDM](#)

*Change the security roles for the channels in MDM*

The security mechanism in MDM has some channel role configurations.

MDM accepts requests from these channels only if the role of the caller is configured in the respective product configurations:

- `/IBM/DWLCommonServices/Security/TrustedClientMode/Batch/roles`
- `/IBM/DWLCommonServices/Security/TrustedClientMode/EventManager/roles`
- `/IBM/DWLCommonServices/Security/TrustedClientMode/OtherChannels/roles`

By default these configurations have the default value `mdm_admin`. If the new user is created and is not assigned to the `mdm_admin` role, then a valid role of the created user must be configured by updating these configurations.

For more information, see the ‘Defining security services’ topic.

### Related information

[Security services](#)

## Installing and setting up the database

You must complete this procedure to install and prepare your database before installing the InfoSphere MDM application.

### About this task

When you define names for your databases and user accounts, consider giving the associated database instance, user account, and data source configuration the same name. You might also want to include the InfoSphere MDM version in the name. For example, you might name each of these elements `mdmprod_116` for the production database. Using this naming convention can help other members of your organization and IBM Software Support understand the mapping between instances, accounts, and databases.

### Procedure

1. Complete the applicable database worksheets that are listed as related reference.
2. Install the database software and create database user accounts with appropriate permissions. Use the documentation provided by the database vendor to complete your installation. Review the database user accounts topic before installing the database software.
3. Extract the Installation Startup Kit from *Part 1* of the downloaded distribution assets (IBM InfoSphere Master Data Management Standard & Advanced Edition Multitplatform Multilingual *<version>* Part 1). The location that you extract the Startup Kit to will be referred to in this documentation as the `STARTUPKIT_INSTALL_HOME`.

This toolkit provides scripts that you can use to create the MDM database.

4. Create the MDM database using one of the following methods:
  - Run the Installation Startup Kit script that is applicable to your database type. The scripts automatically create the appropriate table spaces, buffer pools, and encoding specifications that are required for your InfoSphere MDM edition. For details, see the related topics “[Preparing a DB2 database](#)” on page 69 and “[Preparing an Oracle database](#)” on page 74.
  - Manually create the database using another method.

**Note :** For details about the required database configuration and settings, see the related reference topics.

### Related concepts

[Account prerequisites](#)

Before you begin to install the product, you must have certain account prerequisites in place.

### Related tasks

[Installing InfoSphere MDM into a clustered environment](#)

Use this procedure to run a custom installation of InfoSphere MDM into a clustered environment.

### Related reference

[DB2 or DB2 for z/OS data source worksheet](#)

Use this data source worksheet to identify parameters for the IBM DB2 for Linux, UNIX, and Windows or IBM DB2 for z/OS data source to which your MDM operational server is connecting.

[Oracle data source worksheet](#)

Use the Oracle data source worksheet to identify parameters for the data source to which your MDM operational server is connecting.

[Microsoft SQL Server data source worksheet](#)

Use the Microsoft SQL Server data source worksheet to identify parameters for the data source to which your MDM operational server is connecting.

[Installation Startup Kit](#)

The Installation Startup Kit includes files and scripts to help you prepare your environment before you install InfoSphere MDM.

### ***Database user accounts and connections***

All installations require at least one database user account.

To bootstrap the database (which is typically done during installation), process an upgrade, define new entity types, or create implementation-defined segments, the database user account must have certain permissions. This primary user account must have permission to:

- Create table and drop table
- Create index and drop index
- Select, insert, update, and delete

After the database is bootstrapped and entity types and implementation-defined segments are configured, you can opt to restrict the user account if required. A restricted user account has only select, insert, update, and delete permissions.

Consider configuring a one-to-one relationship between the database user and the database so that users do not have access to multiple databases. This model provides a security layer that can prevent one database user from dropping the tables of another.

Record the database user account credentials; you need this information to complete the installation.

The database connection count is the sum of connections that are used by the operational server and by any entity managers that you plan to use. Some operational server or InfoSphere MDM Workbench processes also require more database connections, which are closed when the process is completed. Allow more connections for these processes in your configuration.

### **Related concepts**

[Account prerequisites](#)

Before you begin to install the product, you must have certain account prerequisites in place.

### **Related reference**

[User accounts, groups, and defaults used by the installation application](#)

When InfoSphere MDM is installed, default users and user groups are created on the application server.

[Pre-installation validation checks](#)

The InfoSphere MDM installer application runs tests to ensure that certain prerequisites and settings are in place before each installation begins.

### ***Preparing a DB2 database***

Use this procedure to set up an IBM DB2 database for an installation of InfoSphere MDM.

### **Before you begin**

- These steps assume that the database has already been installed.
- To create the MDM database, you must be logged in to DB2 with the admin user account that you created when you installed DB2.
- You must have the IBM DB2 Enterprise Server edition installed.



**Attention :** If you are installing InfoSphere MDM on z/OS, skip the database preparation steps and go to [“Installing on z/OS” on page 115](#).

## About this task

On InfoSphere MDM deployments using an IBM DB2 for Linux, UNIX, and Windows database, Unicode UTF-32 (CODEUNITS32) is the default string unit specification. CODEUNITS32 treats each character unit as 32 bits (4 bytes).

**Important :** If you customize the default database creation script to remove the CODEUNITS32 setting, you must also manually change an entry in the file `<MDM_INSTALL_HOME>/mds/sql/madddbx.dbp`. Under the [DB2] section, ensure that `colsizeaschar=F`. This change must be completed before running the `Configure_MasterDataManagement madconfig` target to deploy InfoSphere MDM.

## Procedure

1. Extract the Installation Startup Kit from *Part 1* of the downloaded distribution assets (IBM InfoSphere Master Data Management Standard & Advanced Edition Multitplatform Multilingual *<version>* Part 1). The location that you extract the Startup Kit to will be referred to in this documentation as the `STARTUPKIT_INSTALL_HOME`.
2. Modify the `CreateDB.sql` script.
  - a) Go to the `STARTUPKIT_INSTALL_HOME/CoreData/Full/DB2/ddl/` directory (where `STARTUPKIT_INSTALL_HOME` is the location of the extracted kit).
  - b) Open the `CreateDB.sql` file in a text editor.
  - c) Replace the variables in the script with values as described at the beginning of the script. Variables are enclosed in `<>`, such as `<DBNAME>`.  
For example, the `<TERRITORY>` variable in `CreateDB.sql` must be replaced with the appropriate country code. In the case of installations in the United States, replace `<TERRITORY>` with `US`.
3. Change to the DB2 admin user account.

### For Microsoft Windows:

- a) Open the **Start** menu and go to **All Programs > IBM DB2 > DB2COPY1** (default).
- b) Press Shift and right-click on **Command Window** and the select **Run as different user...**
- c) Enter the DB2 admin user name and password.

### For Linux and UNIX:

- a) Open the Linux or UNIX terminal.
  - b) At the command-line prompt, type `su - user` where `user` is the DB2 admin user.
4. Run the `CreateDB.sql` script to create the database.
    - a) Go to the directory where your `CreateDB.sql` file is located.
    - b) Run the applicable command.
      - **For Microsoft Windows:** `db2 -td; -f CreateDB.sql`
      - **For Linux and UNIX:** `db2 -tvf STARTUPKIT_INSTALL_HOME/database/CoreData/Full/DB2/Standard/ddl/CreateDB.sql`
  5. Modify the `CreateTS.sql` script.
    - a) Open the `CreateTS.sql` file in a text editor.
    - b) Replace the variables in the script with values as described at the beginning of the script. Variables are enclosed in `<>`, such as `<DBNAME>` or `<TABLE_MDS4K>`.
-  **Attention :** The values substituted for variables in this file must match how your database is set up, or the installer will not be able to complete successfully.
6. Run the `CreateTS.sql` to create your table spaces.
    - a) Run the applicable command.
      - **For Microsoft Windows:** `db2 -td; -f CreateTS.sql`

- **For Linux and UNIX:** `db2 -tvf STARTUPKIT_INSTALL_HOME/database/CoreData/Full/DB2/Standard/dd1/CreateTS.sql`

7. After you run `CreateTS.sql`, verify that your table space settings are as you expect.

**For Microsoft Windows:**

- Open a command prompt and type `db2cmd`
- Connect to database using this command: `db2 connect to MDMDB user DBUSER using DB2PWD`
- When you are connected, type: `db2 list tablespaces`

**For Linux and UNIX:**

- Open new terminal and type `db2`
- Connect to database using this command: `db2 connect to MDMDB user DBUSER using DB2PWD`
- When you are connected, type: `db2 list tablespaces`

**Related reference**

[DB2 or DB2 for z/OS data source worksheet](#)

Use this data source worksheet to identify parameters for the IBM DB2 for Linux, UNIX, and Windows or IBM DB2 for z/OS data source to which your MDM operational server is connecting.

*Preparing your DB2 database on a separate server from InfoSphere MDM*

Set up the IBM DB2 database for deployments where the database and InfoSphere MDM installations are on different servers.

**Procedure**

1. On the machine where you plan to install InfoSphere MDM, you must do the following:
  - a) Install the DB2 client software.
  - b) Catalog the remote database to the local server. Use the following commands, replacing the placeholders with appropriate values:

```
db2 catalog tcpip node <NODE_NAME> remote <DB_SERVER> server <PORT_NUMBER>
db2 catalog db <DB_NAME> as <DB_NAME> at node <NODE_NAME> authentication server
```

2. Use the WebSphere Application Server Integrated Solutions Console to create a `DB2_JDBC_DRIVER_PATH` WebSphere Application Server environment variable, pointing to the DB2 instance home on the local machine and targeting the node level.

*Preparing your DB2 database to use InfoSphere MDM in a clustered environment*

Set up your DB2 database for deployments with InfoSphere MDM in a clustered environment.

**Procedure**

1. Install the DB2 client software.
2. Catalog the database for every machine in the cluster.
3. Create a `DB2_JDBC_DRIVER_PATH` WebSphere Application Server environment variable that points to the DB2 home that is present locally on that machine for every node in the cluster.

### Configuring database user permissions for DB2 for z/OS

If your deployment of InfoSphere MDM uses IBM DB2 for z/OS, you must ensure that your database user ID has BINDADD and CREATE privileges on the MDM database.

## About this task

The DB2 Wire Protocol driver does not work properly unless the appropriate packages exist on every server to which you intend to connect. Your database user ID must have BINDADD and CREATE privileges so that the driver can create and bind packages.

**Note :** By default, the packages contain 200 dynamic sections and are created in the collection named NULLID.

If the bind packages are not in place, then the following message appears while testing connections for the InfoSphere MDM datasource on the operational server:

```
java.sql.SQLException: [IBM][DB2 JDBC Driver]Bind process is not active.  
Please ensure that the user has permissions to create packages.  
Packages cannot be created in an XA Connection. DSRA0010E: SQL State = HY000, Error Code = 0.
```

## Procedure

1. Log in as the database administrator (DBA) user.
2. Connect to the MDM database.
3. Grant BINDADD privileges to the database user (*dbuser*):

```
GRANT BINDADD TO dbuser
```

4. Grant CREATE privileges to the database user (*dbuser*):

```
GRANT CREATE ON COLLECTION * TO dbuser
```

5. Log out from the DBA user account.
6. Log in with the database user account.  
When the database user account connects to the database with the DB2 Wire Protocol driver, the correct package is created automatically.

## Related information

[The DB2 Wire Protocol Driver and Packages](#)

[Bind process is not active](#)

### Setting a DB2 utility path

If you are using an IBM DB2 database, you must set the database utility to your system path.

## Procedure

- At a command line, add the DB2 database utilities to the PATH variable on your system.

For example:

```
export PATH=DB2_HOME/sqllib/bin:$PATH
```

## What to do next

You can also add the export line to your user profile.

## Preparing a Microsoft SQL Server database

Set up a Microsoft SQL Server database before beginning an installation of InfoSphere MDM.

### About this task

To create the MDM database, you must be logged in to Microsoft SQL Server either with Windows Authentication or with the administrative user account that you created when you installed Microsoft SQL Server.

The user name that you use to log in will be used as the schema name during the InfoSphere MDM installation. The user name is case sensitive because SQL Server uses case sensitive collation. Accordingly, the user name that you provide in the IBM Installation Manager panels during installation must exactly match the original case of the user name.

If you plan to use Windows Authentication, your DBA must set the default schema of the login user to the schema that will be used by IBM Installation Manager.

The default schema assigned to a user who logs in using Windows Authentication is `dbo`. When Windows Authentication is used during the InfoSphere MDM installation, the database objects will be created in the schema named `dbo`.

**Tip :** When your SQL Server implementation uses Windows Authentication, do not enter the database user credentials during installation on Database Configuration panel in IBM Installation Manager.

### Procedure

1. Log in to Microsoft SQL Server either with Windows Authentication or with the administrative user account that you created when you installed Microsoft SQL Server.
2. Modify the `CreatedB.sql` script that is provided in the Installation Startup Kit.

**Tip :** Extract the Installation Startup Kit from *Part 1* of the downloaded distribution assets (IBM InfoSphere Master Data Management Standard & Advanced Edition Multitplatform Multilingual *<version>* Part 1). The location that you extract the Startup Kit to will be referred to in this documentation as the `STARTUPKIT_INSTALL_HOME`.

- a) Go to the `STARTUPKIT_INSTALL_HOME/CoreData/Full/SQLServer/dd1/` directory (where `STARTUPKIT_INSTALL_HOME` is the location of the extracted kit).
  - b) Open the `CreatedB.sql` file in a text editor.
  - c) Replace the variables in the script with values as described at the beginning of the script. Variables are enclosed in `<>`, such as `<DBNAME>`.
3. Run the `CreatedB.sql` script to create the database.

**Note :** When you use Windows Authentication rather than SQL authentication to access database, you must take one of the following actions:

- If the client and SQL Server are in same domain, the login user that the client uses must be added into the SQL Server Security logins.
  - If the client and SQL Server are in different domains, then the two domains must be trusted.
4. Copy the `sqljdbc.dll` file from `<MDM_INSTALL_HOME>/win64/SQLServer JTA/win64_amd64` to the `/Binn` directory for the instance of SQL Server that is running.
  5. Install the XA stored procedures that are used by the JDBC driver. From the `STARTUPKIT_INSTALL_HOME/native-<MDM version>/win64_amd64-release/SQLServer JTA` directory, run the `instjdbc.sql` script as the `sa` user.
  6. Enable MS DTC for XA transactions.

For Windows 7 and Windows 2008

- a) From the desktop, click the **Start** icon and open Component Services using one of these options.
  - Type `dcomcnfg` in the **Start Search** box.

- Type %windir%/system32/comexp.msc in the **Start Search** box.
  - b) Go to **Computers > My Computer > Distributed Transaction Coordinator**.
  - c) Right-click on **Local DTC** and select **Properties**.
  - d) On the **Local DTC Properties** dialog, open the **Security** tab.
  - e) Select **Enable XA Transactions** and click **OK**. This step restarts the MS DTC service.
  - f) Click **OK** on the **Local DTC Properties** dialog and close Component Services.
  - g) Restart Microsoft SQL Server to ensure that it syncs up with the MS DTC changes. Verify that **XATransactions=1** in Microsoft operating system registry.
7. Run the following SQL statements to enable snapshot isolation for SQL Server:

```
ALTER DATABASE <database_name> SET ALLOW_SNAPSHOT_ISOLATION ON
ALTER DATABASE <database_name> SET SINGLE_USER WITH ROLLBACK IMMEDIATE
ALTER DATABASE <database_name> SET READ_COMMITTED_SNAPSHOT ON
ALTER DATABASE <database_name> SET MULTI_USER
```

**Note :** These commands are critical if you intend to use LDAP security with WebSphere Application Server.

### Related reference

Microsoft SQL Server data source worksheet

Use the Microsoft SQL Server data source worksheet to identify parameters for the data source to which your MDM operational server is connecting.

*Preparing your Microsoft SQL Server database on a different server than InfoSphere MDM*

Set up your Microsoft SQL Server database when it is on a different server than your InfoSphere MDM installation.

### Procedure

- Install a Microsoft SQL Server client on the machine where you plan to install MDM.  
After you install the client, the client account is automatically added into the database user account. You are not required to set the MSSQLSERVER\_JDBC\_DRIVER\_PATH in your IBM WebSphere Application Server environment.

*Preparing your Microsoft SQL Server database to use InfoSphere MDM in a clustered environment*

Set up your Microsoft SQL Server database when you are installing InfoSphere MDM in a clustered environment.

### Procedure

- Install a Microsoft SQL Server client on every machine on which you plan to install InfoSphere MDM components.  
After you install the client, the client account is automatically added into the database user account. You are not required to set the MSSQLSERVER\_JDBC\_DRIVER\_PATH in your IBM WebSphere Application Server environment.

### Preparing an Oracle database

Set up an Oracle database before beginning an installation of InfoSphere MDM.

### Before you begin

- These steps assume that the database has already been installed.
- To create the MDM database, you must be logged in to Oracle with the database administrator user account that you created when you installed Oracle.
- To install InfoSphere MDM with Oracle, your database user name and schema name must be the same.

## Procedure

1. Verify that your character set is UTF-8. If it is not, create your database by using this command:  
**CREATE DATABASE***name***..CHARACTER SET AL32UTF8**
2. Set the character length semantics for Unicode. The variable NLS\_LANG\_SEMANTICS must be set to CHAR (the default setting is BYTE). Run this command: **ALTER SYSTEM SET NLS\_LENGTH\_SEMANTICS=CHAR SCOPE=BOTH**
3. If you are using a non-wire connect driver with an Oracle client, you must set the NLS\_LANG variable for the user that is connecting to the operational server. Set the variable to NLS\_LANG=AMERICAN\_AMERICA.AL32UTF8

**Important :** The remaining steps in this procedure are **optional**. If you do not wish to manually create the tablespaces, then you can skip the following steps, in which case the installation application will automatically create the tablespaces during installation.

4. Extract the Installation Startup Kit from *Part 1* of the downloaded distribution assets (IBM InfoSphere Master Data Management Standard & Advanced Edition Multitplatform Multilingual <version> Part 1). The location that you extract the Startup Kit to will be referred to in this documentation as the *STARTUPKIT\_INSTALL\_HOME*.
5. Modify the *create\_schema\_ora.sql* script that is provided in the Installation Startup Kit.
  - a) Go to *STARTUPKIT\_INSTALL\_HOME/CoreData/Full/Oracle/Standard/ddl/* directory (where *STARTUPKIT\_INSTALL\_HOME* is the location of the extracted kit).
  - b) Open the *create\_schema\_ora.sql* file in a text editor.  
The file contains the following variables that must be replaced with appropriate values:
  - c) If the database is being created on Microsoft Windows, replace the *<TABLESPACE\_LOCATION>* variable with the location of the table spaces. The location value should follow the syntax *<ORACLE\_HOME>\<DBNAME>*



**Attention :** If you are creating a database on Microsoft Windows, you must also change all forward slash characters (/) in file paths to backslash characters (\).

- d) In the *<ORACLE\_HOME>/oradata* folder, create an empty subfolder with a name that matches your *<DBNAME>* value.
- e) Set up the table space names:
  - To use the default table space values, replace the variables in the *create\_schema\_ora.sql* script with values as described at the top of the script. Variables are enclosed in angle brackets *<>*:
    - *<DBNAME>* - The database name.
    - *<NEWPASSWORD>* - The password for the database.
    - *<TABLE\_MDSSM>* - The table space name for small virtual module table data. The installation application expects the value to be TBS4K.
    - *<TABLE\_SPACE>* - The table space name for 8K user table data. The installation application expects the value to be TBS8K.
    - *<TABLE\_SPMDS>* - The table space name for 16K virtual MDM user table data. The installation application expects the value to be TBS16K.
    - *<INDEX\_SPACE>* - The table space name for index data. The installation application expects the value to be IDXSPACE.
    - *<TABLE\_SPPMD>* - The table space name for Probabilistic Matching Engine user table data. The installation application expects the value to be EMESPACE1.
    - *<TABLE\_SPPMI>* - The table space name for Probabilistic Matching Engine index data. The installation application expects the value to be EMESPACE2.
    - *<LONG\_SPACE>* - The table space name for CLOB and XML data types. The installation application expects the value to be LOBSPACE.
  - To use customized table space names:

- i) Create a database that uses your custom table space names.
- ii) Create or edit an InfoSphere MDM installation input response file and modify the table space name variables so that your custom table space names are mapped to the InfoSphere MDM installer:

```
<data key='user.L2.long.space.ora,com.ibm.mdm.advanced' value='LOBSPACE' />
<data key='user.L2.index.space.ora,com.ibm.mdm.advanced' value='IDXSPACE' />
<data key='user.L2.eme.sppmd.space,com.ibm.mdm.advanced' value='EMESPACE1' />
<data key='user.L2.eme.sppmi.space,com.ibm.mdm.advanced' value='EMESPACE2' />
```



**Attention :** InfoSphere MDM provides sample installation input response files that you can modify to define customized table spaces. For more information about the sample input response files, see [“Installing InfoSphere MDM using silent mode”](#) on page 103.

- iii) Start the InfoSphere MDM installer in either GUI mode or silent mode, including the following argument in the startup command so that the installer uses parameters from your modified input response file: `IBMIM -input ./mdm_input.res` (where `mdm_input.res` is the name of the silent input response file).

6. Run the script `create_schema_ora.sql` to create the Oracle schema.

## What to do next

If you omit the execution of the `create_schema_ora.sql` script, then you must alter the Oracle database system:

- Inside the `create_schema_ora.sql` script, make sure that the `ALTER SYSTEM SET open_cursors` statement is set as `ALTER SYSTEM SET open_cursors = 1500 SCOPE=BOTH;`
- Verify that the grants are done specifically as `GRANT CREATE SEQUENCE TO SCHEMA;`, replacing `SCHEMA` with the schema name.
- Configure the Oracle `CURSOR_SHARING` property to `CURSOR_SHARING=FORCE`.

### Related reference

[Oracle data source worksheet](#)

Use the Oracle data source worksheet to identify parameters for the data source to which your MDM operational server is connecting.

*Preparing your Oracle database on a different server than InfoSphere MDM*

Set up your Oracle database for deployments where the database and InfoSphere MDM installations are on different servers.

## Procedure

1. Install an Oracle client on the machine where you plan to install InfoSphere MDM.
2. Point the TNS entry in the client machine to the database server.
3. Use the WebSphere Application Server Integrated Solutions Console to create an `ORACLE_JDBC_DRIVER_PATH` environment variable that points to the Oracle database home on the local machine and targets the node level.

*Preparing your Oracle database to use InfoSphere MDM in a clustered environment*

Set up your Oracle database to support installing InfoSphere MDM in a clustered environment.

## Procedure

1. Install the Oracle client on every machine.
2. Point the TNS entry to the database server machine.
3. Create an `ORACLE_JDBC_DRIVER_PATH` WebSphere Application Server environment variable that points to the Oracle database home that is present locally on that machine for every node in the cluster.

### Setting an Oracle utility path

If you are using an Oracle database, you must set the database utility to your system path.

## Procedure

- At the command line, add the Oracle database utilities to the PATH variable on your system.

For example:

```
export ORACLE_HOME=ORACLE_HOME
export PATH=$ORACLE_HOME/bin:$PATH
```

## What to do next

You can also add the export lines to your user profile.

### **ODBC drivers installed with Standard Edition**

The ODBC drivers that are applied by the installation application when installing InfoSphere MDM Standard Edition are determined by the database type that you define.

A wire driver enables an operational server that supports a virtual MDM configuration to communicate with the database and write data to the schema. In this case, the operational server host requires installation of the applicable database client to enable bulk load operations.

The operational server includes the following ODBC drivers. Other drivers are not supported.

- Oracle Wire
- Oracle Net
- IBM DB2 Wire (DB2 and DB2 for z/OS)
- Microsoft SQL Server Wire

For Oracle databases, the properties passed to the **madconfig** utility during the installation process determine whether to install the Oracle Wire or Oracle Net driver. If empty values are passed for the database host, the Oracle Net driver is installed, which requires installation of the Oracle client on the operational server host.

**Tip :** When installing on a Microsoft Windows platform, if you want to manually create a separated ODBC data source rather than creating it through the installation application, you must invoke the command `madconfig.bat register_odbc` to ensure that the ODBC driver is registered successfully.

### **Related tasks**

[Enabling support for Oracle non-wired driver](#)

If you are using a virtual MDM and plan to use a non-wired Oracle database driver, complete these steps after you install the InfoSphere MDM database and features.

### **Manually installing the physical MDM database**

You can manually install the physical MDM database on DB2 for UNIX or Linux, DB2 for z/OS, and Oracle.

## About this task

You can always use IBM Installation Manager to create the physical MDM database. However, you also have the option to install it manually.

The virtual MDM database is always installed by using IBM Installation Manager.



**Attention :** The core database is required for InfoSphere MDM Advanced Edition (physical MDM). It is also required for some InfoSphere MDM Standard Edition (virtual MDM) transactions to process correctly. If you use IBM Installation Manager to install InfoSphere MDM, the required core database components are automatically installed. If you are using a Microsoft SQL Server database, be aware that InfoSphere MDM Standard Edition (virtual MDM implementations) is the only edition that is supported for SQL Server.

Before you begin the manual installation, read the following details and make any necessary decisions about creating table spaces and installing triggers.

### Table spaces

For DB2 databases on UNIX or Linux and Oracle databases, you can create table spaces for user data, user indexes, and user large objects to improve database performance. Placeholder values are provided in relevant scripts as *TABLE\_SPACE*, *INDEX\_SPACE*, and *LONG\_SPACE*. You can adjust the table space sizes in the provided scripts to the appropriate size for your production environment.

There are two separate table spaces for the InfoSphere MDM Probabilistic Matching Engine, requiring that the InfoSphere MDM Probabilistic Matching Engine table spaces have the same names as *TABLE\_SPACE* and *INDEX\_SPACE*, but with an additional letter *E* at the end of the table space name.

### Triggers

Two types of triggers are provided with the InfoSphere MDM installation: simple triggers and compound triggers. Select one of these types of triggers to install:

- **Simple triggers:** Create a copy of the *before* image of the current data to the HISTORY table when a base table is created, updated, or deleted. The HISTORY table contains only old records; it does not contain the current record in base table. If you choose to install simple triggers, you must install the simple update triggers. You can also install the simple delete triggers, which are optional.
- **Compound triggers:** Create a copy of the *before* and *after* images of the current data from the base table to the HISTORY table when a base table is inserted, updated, or deleted. The HISTORY table contains all old records and the current record in base table. If you choose to install compound triggers, you must install the insert and update triggers. You can also install the compound delete triggers, which are optional.
- **None:** No history triggers will be installed.

### Multi-time Zone (UTC)

If your application is running across different time zones, or your data has time values under different time zones, you must enable the multi-time zone feature.

Once this feature is activated, you cannot deactivate it.

If you do not require the multi-time zone feature, you must disable it when you install InfoSphere MDM.

### Case sensitive or non-case sensitive search capability

You can add the capability to search for contracts, products, and categories by name, but without case sensitivity restrictions. Once the non-case sensitive feature is activated, you cannot deactivate it. It is available on DB2 UDB, DB2 for z/OS version 9 and later, and Oracle.

### Procedure

1. Open IBM Installation Manager and click **Install**.
2. In the **Installation Packages** list, select **InfoSphere MDM Standard Edition or Advanced Edition** and click **Next**.
3. In the Features list, expand **InfoSphere MDM Standard Edition or Advanced Edition** and ensure that only **MDM Database** is selected. Click **Next**.
4. Complete the Database Configuration fields to provide the database type, location, and connection details, then select **Extract scripts for manual database installation**. Click **Install**.  
IBM Installation Manager will install virtual MDM data and extract SQL scripts that you can use to install physical MDM data.
5. Run the SQL scripts to install physical MDM data.
6. After the scripts have completed and the physical MDM data is installed, open IBM Installation Manager again and click **Modify**.
7. In the **Features** list, select **MDM Operational Server**, in addition to the already selected **MDM Database** feature, then click **Next**.

8. Click **Install** to complete the installation of the physical MDM database.

### *Setting the XA configuration in WebSphere Application Server to connect with DB2 for z/OS*

When manually installing the MDM database on DB2 for z/OS, use this procedure to set the XA configuration in IBM WebSphere Application Server.

## About this task

**Note :** You must change the sample values in this procedure to match your server environment.

## Procedure

1. Log in to the UNIX system as the root user and go to the DB2 instance directory. For example:  
`cd /usr/opt/db2_10_01/instance`
2. Run the following command from the instance directory to create an instance:  
`db2icrt -s client db2inst`
3. Log in as the instance user (db2inst1 in this example) after the instance is created and catalog the z/OS database.
4. Copy db2jcc\_license\_cisuz.jar from DB2 for z/OS to the client <DB2\_HOME>/sqllib/java folder.
5. Add the following line to your CLASSPATH:

```
<DB2_HOME>/sqllib/java/db2jcc.jar:<DB2_HOME>/sqllib/java/db2jcc_license_cisuz.jar
```

## Related tasks

### Installing the core database manually on DB2 for z/OS by using TSO and JCLs

You can use Job Control Language (JCL) to manually install the InfoSphere MDM core database on DB2 for z/OS.

### *z/OS database creation and installation*

When you are creating the subsystem and associating databases to it, keep in mind that InfoSphere MDM is developed on DB2 for z/OS with Unicode data and more than one language. You also need to set XA configuration.

To address Unicode, there are two setup options for you to choose from:

- 1. Set up one DB2 for z/OS subsystem with **UNICODE** parameter in the **DSNZPARM**, for example:

```
Unicode CCSID = 1208 CCSID of Unicode UTF-8 data.  
DEF ENCODING SCHEME = UNICODE  
LOCALE LC_CTYPE = UNI  
APPLICATION ENCODING = UNICODE
```

2. Work with the default DB2 for z/OS subsystem and rebind all MDM packages with Unicode by using `LOCALE LC_CTYPE = UNI .`, which is required for aggregate functions like UPPER and LOWER.
- If you are using a new DB2 subsystem, set all **DSNZPARM** to Unicode, including the **DSNHDECP** macro parameter **LC\_TYPE**. Unicode databases and access plans are required for full functionality.
  - Space allocation: before physical objects are created, it is necessary to provide space on DASD. To simplify storage allocation, the recommendation is to use storage groups under SMS. Create HLG MDMIBM for all z data files.
  - Table spaces and index spaces: for easier maintenance and to avoid performance issues, separate tables and their related indexes into different table spaces and index spaces. For small tables, use segmented table spaces; for large tables, use simple table spaces. You can also use partitioned table spaces.
  - Authorization and qualifier: Create and access all objects by using one authorization ID.
  - Buffer pools: if buffer pools do not exist, you must create them. A minimum size of 1000 is good. A sample SQL statement to create buffer pools is: `ALTER BUFFERPOOL (bp3) VPSIZE (1000);`

## XA configuration for DB2 for z/OS

Make sure that you complete the procedure for the WebSphere Application Server JDBC provider and data source. This procedure is necessary for WebSphere Application Server to work properly against DB2 for z/OS.

### *Granting connection privileges on DB2 for z/OS*

If you are manually installing a physical MDM database on DB2 for z/OS, use this procedure to grant the necessary connection privileges.

## Procedure

1. Ensure SYSADM is granted to the installation user for table spaces and initial database creation.
2. Ensure that the following list of privileges is granted to the installation user:



**Attention :** You must change the sample values in the procedure to match your server environment.

- GRANT CREATETAB, CREATETS ON DATABASE DSNDB04 TO <USER\_ID>;
- GRANT USE OF BUFFERPOOL BP0 TO <USER\_ID>;
- GRANT USE OF STOGROUP SYSDEFLT TO <USER\_ID>;
- GRANT USE OF TABLESPACE DSNDB04.SYSDEFLT TO <USER\_ID>;
- GRANT EXECUTE ON PLAN DSNESPCS TO <USER\_ID>;
- GRANT EXECUTE ON PLAN DSNESPRR TO <USER\_ID>;
- GRANT EXECUTE ON PLAN DSNEDCL TO <USER\_ID>;
- GRANT EXECUTE ON PLAN DSNHYCRD TO <USER\_ID>;
- GRANT SELECT ON SYSIBM.SYSDUMMY1 TO <USER\_ID>;
- GRANT EXECUTE ON PLAN DSNTIA<DB2 VERSION> TO <USER\_ID>;
- GRANT EXECUTE ON PROCEDURE SYSPROC.DSNWZP TO <USER\_ID>;
- GRANT EXECUTE ON PROCEDURE SYSPROC.DSNWSPM TO <USER\_ID>;
- GRANT EXECUTE ON PACKAGE DSNUTILS.DSNUTILS TO <USER\_ID>;
- GRANT EXECUTE ON PROCEDURE SYSPROC.DSNUTILS TO <USER\_ID>;
- GRANT EXECUTE ON PACKAGE DSNUTILU.DSNUTILU TO <USER\_ID>;
- GRANT EXECUTE ON PROCEDURE SYSPROC.DSNUTILU TO <USER\_ID>;

## Related tasks

Installing the core database manually on DB2 for z/OS by using TSO and JCLs

You can use Job Control Language (JCL) to manually install the InfoSphere MDM core database on DB2 for z/OS.

### *Oracle database setting*

When manually installing the physical MDM database on Oracle, if you omit the execution of the `create_schema_ora.sql` script then you must alter the Oracle database system.

Inside the `create_schema_ora.sql` script, make sure that the `ALTER SYSTEM SET open_cursors` statement is set as:

```
ALTER SYSTEM SET open_cursors = 1500 SCOPE=BOTH;
```

Also verify that the grants are done specially as `GRANT CREATE SEQUENCE TO <SCHEMA>;`

### *Manual installation of the physical MDM database on DB2 for Linux or UNIX*

You can manually install the physical MDM database on DB2 for Linux or UNIX.

There are separate instructions for installing the configuration and management database, and the core domain database.

Before you start the installation, read about manual installation of the database.

### *Installing the core database manually on DB2 for UNIX or Linux*

Install the core physical MDM database on DB2 for UNIX or Linux.

## Procedure

1. Go to the `MDM_INSTALL_HOME/database/CoreData/Full/DB2/Standard/dd1` directory.
2. Edit the scripts in this directory by replacing the placeholder values with the values to use in your database.

**Remember :** To run most scripts, use the command syntax

```
db2 -tvf SCRIPT_NAME -l LOG_FILE_NAME
```

where `SCRIPT_NAME` is the name of the script you are running, and `LOG_FILE_NAME` is the name of the history file where the commands are logged. If you must use a different command syntax, the syntax is shown in the procedure.

Change the placeholder values:

- a) Replace `DBNAME` with the database name you want to use.
  - b) Replace `TERRITORY` with the territory.
  - c) Replace the following tablespace placeholders:
    - `<INDEX_SPACE>` - The tablespace name for index data. The installation application expects the value to be `IDXSPACE`.
    - `<LONG_SPACE>` - The tablespace name for CLOB and XML data types. The installation application expects the value to be `LOBSPACE`.
    - `<TABLE_SPPMD>` - The tablespace name for Probabilistic Matching Engine user table data. The installation application expects the value to be `EMESPACE1`.
    - `<TABLE_SPPMI>` - The tablespace name for Probabilistic Matching Engine index data. The installation application expects the value to be `EMESPACE2`.
    - `<TABLE_MDS4K>` - The tablespace name for 4K user table data. The installation application expects the value to be `TBS4K`.
    - `<TABLE_SPACE>` - The tablespace name for 8K user table data. The installation application expects the value to be `TBS8K`.
    - `<TABLE_SPMDS>` - The tablespace name for 16K virtual MDM user table data. The installation application expects the value to be `TBS16K`.
  - d) Replace `SCHEMA` with the schema name assigned to hold the database assets.
  - e) Replace `DBUSER` with the database user ID that owns the schema.
  - f) Change the `DTYPE` placeholder value to one of the following values in lowercase:
    - banking
    - insurance
    - telco
    - manufacturing
  - g) `CONFIG_LANG` to the configuration language to be used.  
For example, for English, use `en`; for French, use `fr`.
  - h) `CODE_LANG` to the language of any additional code table data to be loaded.  
For example, for Japanese, use `ja`; for French, use `fr`.
3. Ensure that you have DBA privileges to run the `CreateDB.sql` script.
  4. Create the database and tablespaces, and grant required privileges to authorized users and schemas by running the `CreateDB.sql` file.

5. Create the tablespaces, and grant required privileges to authorized users and schemas by running the CreateTS.sql file. In this script, four extra tablespaces for InfoSphere MDM Probabilistic Matching Engine database objects are created. The names of the two tablespaces are created based on *TABLE MDS4K*, *TABLE\_SPACE*, *TABLE SPMDS*, *TABLE SPPMI*, *LONG SPACE* and *INDEX\_SPACE*. You can change them if you want.
6. Connect to the database you just created.
7. From the command line in *MDM\_INSTALL\_HOME/database/CoreData/Full/DB2/Standard/ddl*, run the scripts in the order listed:
  - a. CreateTables.sql: Creates all base tables and primary key definitions.
  - b. CreateTables\_H.sql: Creates all history tables and primary key definitions.
  - c. CreateIndexes.sql: Creates all indexes, including unique index constraints.
  - d. CreateFK.sql: Creates all foreign keys.
  - e. CreateCHK.sql: Creates all check constraints.
8. Determine whether you must enable the multi-time zone feature:

If your application is running across different time zones, or your data has time values under different time zones, you must enable the multi-time zone feature.

If you do not require the multi-time zone feature, you must disable it when you install InfoSphere MDM.

- To enable the multi-time zone feature:
  - a. Go to the *.ddl* subdirectory.
  - b. From the command line, run the script:

```
Create_function_utc_enabled.sql
```

- To disable the multi-time-zone feature:
  - a. Go to the *.ddl* subdirectory.
  - b. From the command line, run the script:

```
Create_function_utc_disabled.sql
```

9. Run the scripts for either compound triggers or simple triggers.

**Remember :** To run scripts to create triggers, use the command syntax

```
db2 -v -td@ -f SCRIPT_NAME -l LOG_FILE_NAME
```

where *SCRIPT\_NAME* is the name of the script you are running, and *LOG\_FILE\_NAME* is the name of the history file where the commands are logged. If you must use a different command syntax, the syntax is shown in the procedure.

- To install simple triggers, run the script:
    - a. CreateTriggers\_simple.sql: Installs simple triggers.
    - b. **Optional:** CreateTriggers\_delete\_simple.sql: Installs simple triggers for deletes.
  - To install compound triggers, run the script:
    - a. CreateTriggers\_compound.sql: Installs compound triggers for inserts and updates.
    - b. **Optional:** CreateTriggers\_delete\_compound.sql: Installs compound triggers for deletes.
10. To populate the code tables with English language data for the industry that is entered in the *DTYPE* placeholder and the configuration data in the language that is entered in the *CONFIG\_LANG* placeholder. Run the *ImpReqData.sql* script.

11. To populate the configuration manager table with English language data, the data path is entered in the `DEL_DATA_PATH` placeholder (if you did not modify the directory location, the path is 'data') and the logs are entered in the `DEL_DATA_LOGS` placeholder. Run the `ImpReqDataCfgMgr.sql` script.
12. Install supplemental sets of code table data. For the industry entered in the `DTYPE` placeholder and for language code that is entered in the `CODE_LANG` placeholder, run the script:

```
ImpCodeTableData.sql
```

Repeat this step for every language you are installing, including English.

13. **Optional:** To enable non-case sensitive searching, run the following script:

```
Insensitive_search_enabled.sql
```

*Installing the domain database manually on DB2 for Linux or UNIX*

Manually install the domain database on DB2.

## Before you begin

Before you start the installation:

- Make sure that you created the core database, and that you have the correct level of access to it. The domain database assets are added to the same database.
- Read the manual installation of the physical MDM database topic, and make the same decisions on the optional steps as you made when you install the core database.

## Procedure

1. Go to the `MDM_INSTALL_HOME/database/Full/DB2/Standard/ddl` directory.
2. Edit all of the scripts in this directory by replacing the placeholder values with the values you want to use in your database as follows:
  - a) Replace `DBNAME` with the database name you want to use.
  - b) Replace `SCHEMA` with the schema name assigned to hold the database assets.
  - c) Replace `TABLE_SPACE` with the table space name where base and history table data are to be stored.
  - d) Replace `INDEX_SPACE` with the table space name where indexed data is stored.
  - e) Replace `LONG_SPACE` with the table space name where long user column data like CLOB and XML is stored.
  - f) Replace `DBUSER` with the database user ID that owns the schema.
  - g) Change the `DTYPE` placeholder value to one of the following values in lowercase:
    - banking
    - insurance
    - telco
    - manufacturing
  - h) `CONFIG_LANG` to the configuration language to be used.  
For example, for English, use `en`; for French, use `fr`.
  - i) `CODE_LANG` to the language of any additional code table data to be loaded.  
For example, for Japanese, use `ja`; for French, use `fr`.



**Attention :** The `CreateDB.sql` statement creates two separate table spaces for the InfoSphere MDM Probabilistic Matching Engine, as follows: `TABLE_SPACE` and `INDEX_SPACE`.

3. Connect to the core database that you created.

**Remember :** To run most scripts, use the command syntax

```
db2 -tvf SCRIPT_NAME -l LOG_FILE_NAME
```

where *SCRIPT\_NAME* is the name of the script you are running, and *LOG\_FILE\_NAME* is the name of the history file where the commands are logged. If you must use a different command syntax, the syntax is shown in the procedure.

4. Run the following scripts in the order that they are listed from the command line in *MDM\_INSTALL\_HOME/database/Full/DB2/Standard/dd1*

- *CreateTables.sql*: Creates all base tables and primary key definitions.
- *CreateTables\_H.sql*: Creates all history tables and primary key definitions.
- *CreateIndexes.sql*: Creates all indexes, including unique index constraints.
- *CreateFK.sql*: Creates all foreign keys.
- *CreateCHK.sql*: Creates all check constraints.
- *Create\_eME.sql*: Creates all InfoSphere MDM Probabilistic Matching Engine objects. In this script, you must replace the two place holder for real table spaces and the index space name.

5. Run the scripts for either compound triggers or simple triggers:

**Remember :** To run scripts to create triggers, use the command syntax

```
db2 -v -td@ -f SCRIPT_NAME -l LOG_FILE_NAME
```

where *SCRIPT\_NAME* is the name of the script you are running, and *LOG\_FILE\_NAME* is the name of the history file where the commands are logged. If you must use a different command syntax, the syntax is shown in the procedure.

- To install simple triggers:
    - *CreateTriggers\_simple.sql* installs simple triggers
    - **Optional:** *CreateTriggers\_delete\_simple.sql* installs simple triggers for deletes.
  - To install compound triggers, run the scripts:
    - *CreateTriggers\_compound.sql* installs compound triggers for inserts and updates.
    - **Optional:** *CreateTriggers\_delete\_compound.sql* installs compound triggers for deletes.
6. To populate the code tables with English language data for the industry that is entered in the *DTYPE* placeholder and the configuration data in the language that is entered in the *CONFIG\_LANG* placeholder, run the script: *ImpReqData.sql*
7. To populate the configuration manager table with English language data, the data path is entered in the *DEL\_DATA\_PATH* placeholder (if you did not modify the directory location, the path is 'data') and the logs are entered in the *DEL\_DATA\_LOGS* placeholder. Run the *ImpReqDataCfgMgr.sql* script.
8. Install supplemental sets of code table data. For the industry entered in the *DTYPE* placeholder and for language code that is entered in the *CODE\_LANG* placeholder, run the script:

```
ImpCodeTableData.sql
```

Repeat this step for every language you are installing, including English.

9. If non-case sensitive searching is enabled in the core database, you must run the following script: *Insensitive\_search\_enabled.sql*.
10. Check the installation log files to verify that the installation is complete.

#### *Manual installation of the physical MDM database on DB2 for z/OS*

You can manually install the physical MDM database on DB2 for z/OS.

In DB2 for z/OS, the MDM database tables are distributed across thirteen databases to help ensure better performance and to balance the bufferpool workload by feature. For example, all tables for production are inside the PROD database, all tables for EventManager are inside the EMGR database, and so on. This partitioning strategy is used in DB2 for z/OS for all out-of-the box DDLs. You can redistribute the tables according your organization's internal policies.

**Tip :** Maintain a good bufferpool distribution to avoid congestion, deadlocks, and timeouts.

**Note :** The following tasks assume you are installing on AIX client application servers.

Before you start the installation, read the *Manually installing the physical MDM database* topic, including the notes and the information about z/OS database creation and installation, and make you consider all the issues presented.

*Installing the core database manually on DB2 for z/OS by using TSO and JCLs*

You can use Job Control Language (JCL) to manually install the InfoSphere MDM core database on DB2 for z/OS.

## Before you begin

This task contains a number of placeholder values. Make sure that you have the necessary system information before you begin. Contact your system administrator or developer for this information as necessary.

Create, or ensure that your system administrator or developer has created, a mainframe High Level Qualifier (HLQ) called MDMHLQ with 3 GB of space that is allocated to store all files and libraries for InfoSphere MDM. The HLQ is needed only for installation and can be dropped after you complete the install.

## About this task

These steps assume that you are using an AIX client application server.

**Tip :** The FTP commands defined in the following procedure assume an AIX to z/OS ISPF environment. To work from a different environment, you must convert the commands accordingly.

## Procedure

1. Go to the `MDM_INSTALL_HOME/database/CoreData/Full/DB2/ZOS/pds/ddllib` directory and take the following steps:
  - a) Modify the script `.netrc` to create and transfer the DDLs to the mainframe.
  - b) Replace `USER` with an authorized name to FTP to the mainframe.
  - c) Replace `PASSWORD` with the password for the authorized user.
  - d) Replace `HOSTNAME` with the host name of the mainframe.
  - e) Replace `MDMHLQ` with the HLQ that you created for installation on the mainframe.
  - f) Make sure that the permission of the file is `600`. If it is not, run the command `chmod 600 .netrc`. This `.netrc` file must be inside the `$HOME` directory.
  - g) Run the following command:

```
echo "\$ transferddl" | ftp hostname
```

The `MDMHLQ.MIHDDL.LIB` library is added to your system on the mainframe.

2. Go to the `MDM_INSTALL_HOME/database/CoreData/Full/DB2/ZOS/pds/jcllib` directory and take the following steps:
  - a) Modify the script `.netrc` to create and transfer the DDLs to the mainframe.
  - b) Replace `USER` with an authorized name to FTP to the mainframe.
  - c) Replace `PASSWORD` with the password for the authorized user.
  - d) Replace `HOSTNAME` with the host name of the mainframe.
  - e) Replace `MDMHLQ` with the HLQ that you created for installation on the mainframe.
  - f) Ensure that the permission of the file is `600`. If it is not, run the command `chmod 600 .netrc`. This `.netrc` file must be inside the `$HOME` directory.
  - g) Run the following command:

```
echo "\$ transferjcl" | ftp hostname
```

The *MDMHLQ.MIHJCL.LIB* library is added to your system on the mainframe.

3. Go to the *MDM\_INSTALL\_HOME/database/CoreData/Full/DB2/ZOS/pds* directory and take the following steps:
  - a) Modify the script *.netrc* to create and transfer the DDLs to the mainframe.
  - b) Replace *USER* with an authorized name to FTP to the mainframe.
  - c) Replace *PASSWORD* with the password for the authorized user.
  - d) Replace *HOSTNAME* with the host name of the mainframe.
  - e) Make sure that the permission of the file is *600*. If it is not, run the command `chmod 600 .netrc`. This *.netrc* file must be inside the *\$HOME* directory.
  - f) Run the following command:

```
echo "\$ transferbins" | ftp hostname
```

4. Log in to TSO on the database server.
5. Using TSO/ISPF, go to *MDMHLQ.MIHDDL.LIB* and edit each of the scripts in the data sets one at a time as follows:
  - a) Replace *DBA ACCOUNT* with a DB account with DBADM authority.
  - b) Replace *USER ACCOUNT* with a user account with the appropriate authority level.
  - c) Replace *STOGROUP\_NAME* with the storage group name.
  - d) Replace *db\_prefix* with the three-character database prefix assigned by the database administrative authority.
  - e) Replace *VCATNAME* with the actual VCAT name.

For more information, see the `CREATE STOGROUP` statement in the *MDMHLQ.MIHDDL.LIB* library data set member .

6. Using TSO/ISPF, browse to *MDMHLQ.MIHJCL.LIB* and modify the data set member *MDMICOR* to replace the following placeholder values with appropriate values for use in your database:
  - a) Replace *JOB NAME* with the name of the job.
  - b) Replace *db-hlq* with a valid DSN High Level Qualifier value.
  - c) Replace *SYSTEM* with a valid DB2 Subsystem ID.
  - d) Replace *USRQ* with the High Level Qualifier of the user account.
  - e) Replace *MDMHLQ* with the HLQ that you created for installation on the mainframe.
  - f) Replace *PLANNAME* with DB2 plan for the utility *DSNTEP2*.
  - g) Multiple time zone (MTZ) is disabled by default. If you want to `ENABLE MTZ`, then comment out the line `//SYSIN DD DSN=MDMHLQ.MIHDDL.LIB(Z08CRUTE),DISP=SHR` inside the *JCL MDMICOR* (see step 8). For *MDMICOR* job, return codes of 0 or 4 indicate that the JCL ran successfully.
  - h) Submit the *MDMICOR* JCL by using the `sub` command.  
Return codes of 0 or 4 indicate that the JCL ran successfully.

### Related tasks

[Setting the XA configuration in WebSphere Application Server to connect with DB2 for z/OS](#)  
When manually installing the MDM database on DB2 for z/OS, use this procedure to set the XA configuration in IBM WebSphere Application Server.

[Granting connection privileges on DB2 for z/OS](#)

If you are manually installing a physical MDM database on DB2 for z/OS, use this procedure to grant the necessary connection privileges.

### *Installing the domain database manually on DB2 for z/OS*

Manually install the domain database on DB2 for z/OS by editing several placeholder values.

## Before you begin

Before you start the installation:

- Make sure that you created the core database, and that you have the correct level of access to it. The domain database assets are added to the same database.
- Read the manual installation of the physical MDM database topic, and make the same decisions on the optional steps as you made when you install the core database.

This task contains a number of placeholder values. Make sure that you have the necessary system information before you begin. Contact your system administrator or developer for this information as necessary.

In the mainframe, the High Level Qualifier (HLQ) called *MDMHLQ*, has 3 GB of space that is allocated to store all files and libraries for InfoSphere MDM.

## About this task

**Tip :** The FTP commands defined in the following procedure assume an AIX to z/OS ISPF environment. To work from a different environment, you must convert the commands accordingly.

## Procedure

1. Go to the `MDM/database/Full/DB2/ZOS/pds/dd1lib` directory where the `WAS.jar` was expanded.
2. Modify the script `.netrc` to create and transfer the DDLs to the mainframe by taking the following steps.
  - a) Change *USER* with an authorized user name to FTP to the mainframe.
  - b) Change *PASSWORD* with the password for that user. Before you run the command, make sure that the permission of the file is `600`. If it is not, run the command `chmod 600 .netrc`. This `.netrc` file must be inside the `$HOME` directory.
  - c) Replace *MDMHLQ* with the name of the HLQ that you created for installation on the mainframe.
  - d) Run the following command:

```
echo "\$ transferddl" | ftp host-name
```

The library *MDMHLQ.MDMJCL.LIB* is added to your system on the mainframe.

3. Go to the `MDM/database/Full/DB2/ZOS/pds/jc1lib` directory and modify the script `.netrc` to create and transfer the DDLs to the mainframe by taking the following steps.
  - a) Replace *USER* with an authorized user name to FTP to the mainframe
  - b) Replace *PASSWORD* with the password for that user.
  - c) Change *HOSTNAME* with the host name of the mainframe.
  - d) Replace *MDMHLQ* with the name of the HLQ that you created for installation on the mainframe.
  - e) Make sure that the permission of the file is `600`. If it is not, run the command `chmod 600 .netrc`. This `.netrc` file must be inside the `$HOME` directory.
  - f) Run the following command:

```
echo "\$ transferjcl" | ftp host-name
```

The library *MDMHLQ.MDMJCL.LIB* is added to your system on the mainframe.

4. Log on to TSO on the database server.
5. Using TSO/ISPF, browse to *MDMHLQ.MDMDDL.LIB* and edit each of the scripts in the data sets one at a time to replace the following placeholder values with appropriate values for use in your database:
  - a) Replace *DBA ACCOUNT* with a DB account with DBADM authority. For example, run the CHG command: `CHG 'DBA ACCOUNT' 'DB2OPER' a11`
  - b) Replace *USER ACCOUNT* with a user account with the appropriate authority level.
  - c) Replace *STOGRROUP\_NAME* with the storage group name.
  - d) Replace *db\_prefix* with the three-character database prefix assigned by the database administrative authority.
  - e) Replace *MDMHLQ* with the name of the HLQ that you created for installation on the mainframe.
  - f) Replace *VCATNAME* with the actual VCAT name.

For more information, see the CREATE STOGRROUP statement in the data set member @01c1db of the *MDMHLQ.MDMDDL.LIB* library.

6. Using TSO/ISPF, go to *MDMHLQ.MDMJCL.LIB* and edit the data set member MDMIDOM to replace the following placeholder values with values appropriate to your database:
  - a) Replace *JOB NAME* with the name of the job.
  - b) Replace *db-hlq* with a valid DSN High Level Qualifier value.
  - c) Replace *SYSTEM* with a valid DB2 Subsystem ID.
  - d) Replace *USRQ* with the High Level Qualifier of the user account.
  - e) Replace *PLANNAME* with DB2 plan for the utility DSNTEP2.
  - f) Replace *MDMHLQ* with the name of the HLQ that you created for installation on the mainframe.
  - g) Submit the MDMIDOM JCL by using the sub command.  
Return codes of 0 or 4 indicate that the JCL ran successfully.

#### *Installing the core database manually on Microsoft SQL Server*

Use this procedure to install the full core database manually on Microsoft SQL Server.

### **About this task**

Before you start the installation, read about manual installation of the physical MDM database.

### **Procedure**

1. Go to the *MDM\_INSTALL\_HOME/database/CoreData/Full/SQLServer/dd1* directory.
2. Edit all of the scripts in this directory by replacing the placeholder values with the values you want to use in your database. Change the following placeholders:
  - *db\_name* to the name of the database
  - *MDMSEFG* to the name of the filegroup
  - *Logical\_FG\_Namex* to the name of the new file to be added to the filegroup and where x is a number starting from 1 if more than one filegroup must be created or added
  - *location* to the location of the filegroup “file”; for example:
    - Microsoft SQL Server 2008R2: `C:/Program Files/Microsoft SQL Server/MSSQL10_50.MSSQLSERVER/MSSQL/DATA`
    - Microsoft SQL Server 2012: `C:/Program Files/Microsoft SQL Server/MSSQL11.DBSQL2/MSSQL/DATA`
  - *dbuser* to a database object owner
  - *password* to the dbuser password
  - *schema* to the object owner

- *CODE\_LANG* to the language of any additional code table data to be loaded, for example: for Japanese, use ja or for French, use fr
  - *CONFIG\_LANG* to the configuration language to be used; for example, for English, use en or for French, use fr
  - *DTYPE* to the type of data to be loaded; specify one of the following values in lowercase: banking; insurance, manufacturing, telco
  - *mds\_home* to the location of your virtual MDM operational server
  - *datasource\_name* to the name of your database
  - *dbadmin user* to the name of the database user
  - *dbadmin password* to the password for your database user
3. From the command line in the *MDM\_INSTALL\_HOME/database/CoreData/Full/SQLServer/ddl* directory, run the commands in the order that they are listed.
- a) `Sqlcmd -S Server Name -U dbadmin user -P dbadmin password -i Create_DB.sql > logfile name`
  - b) `Sqlcmd -S Server Name -U dbuser -P password -d db_name -i CreateTablees.sql > logfile name`
  - c) `Sqlcmd -S Server Name -U dbuser -P password -d db_name -i CreateFK.sql > logfile name`
  - d) `Sqlcmd -S Server Name -U dbuser -P password -d db_name -i CreateIndexes.sql > logfile name`
  - e) `Sqlcmd -S Server Name -U dbuser -P password -d db_name -i CreateCHK.sql > logfile name`
4. Use IBM Installation Manager to load the data. On the features to install panel, select **MDM database**.

#### *Manual installation of the physical MDM database on Oracle*

You can manually install the physical MDM database on Oracle.

Before you start the installation, read manual installation of the physical MDM database topic.

#### *Installing the core database manually on Oracle*

Manually install the core database on Oracle.

## **Procedure**

1. Go to the *MDM\_INSTALL\_HOME/database/CoreData/Full/Oracle/Standard/ddl* directory.
2. Edit all of the scripts in this directory by replacing the placeholder values with the values you want to use in your database. Change the following placeholders:
  - a) *DBNAME* to the name of the database.
  - b) *SCHEMA* to a database user with the required privileges.
  - c) *NEWPASSWORD* to the password of the schema user.
  - d) Replace the following tablespace placeholders:
    - *<TABLE\_MDSSM>* - The table space name for small virtual module table data. The installation application expects the value to be TBS4K. The Installation Manager panels refer to this table space as **8k tablespace1**.
    - *<TABLE\_SPACE>* - The table space name for 8K user table data. The installation application expects the value to be TBS8K. The Installation Manager panels refer to this table space as **8k tablespace2**.
    - *<TABLE\_SPMDS>* - The table space name for 16K virtual MDM user table data. The installation application expects the value to be TBS16K. The Installation Manager panels refer to this table space as **8k tablespace3**.

- `<INDEX_SPACE>` - The table space name for index data. The installation application expects the value to be `IDXSPACE`. The Installation Manager panels refer to this table space as **IndexSpace**.
  - `<TABLE_SPPMD>` - The table space name for Probabilistic Matching Engine user table data. The installation application expects the value to be `EMESPACE1`. The Installation Manager panels refer to this table space as **EME tablespace**.
  - `<TABLE_SPPMI>` - The table space name for Probabilistic Matching Engine index data. The installation application expects the value to be `EMESPACE2`. The Installation Manager panels refer to this table space as **PME tablespace**.
  - `<LONG_SPACE>` - The table space name for CLOB and XML data types. The installation application expects the value to be `LOBSPACE`. The Installation Manager panels refer to this table space as **LongSpace**.
- e) `TABLESPACE_LOCATION` to the location where the table space is created. This is usually in the database directory that is in `ORACLE_HOME`. For example, `D:/Oracle/product/10.2.0/oradata/MDMDB` where `MDMDB` is the name of the database and `10.2.0` is the version of Oracle that is being used.
- f) `DTYPE` to the type of data to be loaded. Specify one of the following values in lowercase:
- banking
  - insurance
  - telco
  - manufacturing
- g) `CONFIG_LANG` to the configuration language to be used. For example, for English use `en`; for French use `fr`
- h) `CODE_LANG` to the language of any additional code table data to be loaded. For example, for Japanese use `ja`; for French use `fr`
- i) `DBUSER` to a database user with DBA Authority
- j) `DBPASSWORD` to the password of the dbuser
3. From the command line in `MDM_INSTALL_HOME/database/CoreData/Full/Oracle/Standard/ddl`, run the commands in the order that they are listed:
- a. `sqlplus DBUSER/DBPASSWORD@DBNAME @create_schema_ora.sql>> LOG_FILE_NAME` creates the database schema.
  - b. `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_tables_ora.sql>> LOG_FILE_NAME` creates the base tables and primary key definitions.
  - c. `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_hist_tables_ora.sql>> LOG_FILE_NAME` creates the history tables and primary key definitions.
  - d. `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_ix_ora.sql>> LOG_FILE_NAME` creates all indexes, including unique index constraints.
  - e. `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_fk_ora.sql>> LOG_FILE_NAME` creates the foreign keys.
  - f. `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_chk_ora.sql>> LOG_FILE_NAME` creates the check constraints.
  - g. `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_eME_ora.sql>> LOG_FILE_NAME` creates the InfoSphere MDM Probabilistic Matching Engine objects
4. If your application is running across different time zones, or your data has time values under different time zones, you must enable the multi-time zone feature. If the multi-time zone feature is not required, you must disable it when you install the database
- To enable the multi-time zone feature:
    - a. Go to the `.ddl` subdirectory.
    - b. From the command line, run the script:

```
sqlplus SCHEMA/NEWPASSWORD@DBNAME
@Create_function_utc_enabled.sql >> LOG_FILE_NAME
```

- To disable the multi-time-zone feature:

- a. Go to the `.ddl` subdirectory.
- b. From the command line, run the script:

```
sqlplus SCHEMA/NEWPASSWORD@DBNAME
@Create_function_utc_disabled.sql >> LOG_FILE_NAME
```

5. Run the commands for either compound triggers or simple triggers.

- To install simple triggers, run the scripts:

```
- sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_triggers_simple_ora.sql>>
LOG_FILE_NAME installs simple triggers
```

```
- Optional: sqlplus SCHEMA/NEWPASSWORD@DBNAME
@create_delete_triggers_simple_ora.sql>> LOG_FILE_NAME installs simple triggers
for deletes.
```

- To install compound triggers, run the scripts:

```
- sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_triggers_compound_ora.sql>>
LOG_FILE_NAME installs compound triggers for inserts and updates.
```

```
- Optional: sqlplus SCHEMA/NEWPASSWORD@DBNAME
@create_delete_triggers_compound_ora.sql>> LOG_FILE_NAME installs compound
triggers for deletes.
```

6. Convert the `ImpReqData.script` file to a shell script, and run the shell script from the command line. This script populates the required code tables and required system configuration tables with English code table data for the industry that is entered in the `DTYPE` placeholder, and the configuration data in the language that is entered in the `CONFIG_LANG` placeholder.

7. Choose whether to install code table data for languages other than English.

- If you are installing the product in English only, skip this step.
- To install code table data for languages other than English for the industry that is entered in the `DTYPE` placeholder and the language code that is entered in the `CODE_LANG` placeholder, convert the `Imp_CodeTables_Data.script` file to a shell script, and run the shell script from the command line. Repeat this step for each language you want to install.

8. **Optional:** To enable non-case sensitive searching, run the script:

```
sqlplus SCHEMA/NEWPASSWORD@DBNAME @Insensitive_search_enabled.sql >> LOG_FILE_NAME
```



**Attention :** The `create_schema_ora.sql` statement creates two separate table spaces for the InfoSphere MDM Probabilistic Matching Engine, as follows: `TABLE_SPACE>E` and `INDEX_SPACE>E`

### *Installing the domain database manually on Oracle*

Manually install the domain database on Oracle by replacing several placeholder values and running a number of commands.

## **Before you begin**

Before you start the installation:

- Make sure that you created the core database, and that you have the correct level of access to it. The domain database assets are added to the same database.
- Read the manual installation of the physical MDM database topic, and make the same decisions on the optional steps as you made when you install the core database.

## Procedure

1. Go to the `MDM_INSTALL_HOME/database/Full/Oracle/Standard/ddl` directory:
2. Edit all of the scripts in this directory by replacing the placeholder values with the values you want to use in your database as follows:
  - a) Replace `DBNAME` with the name of the database.
  - b) Replace `SCHEMA` with the schema name assigned to hold the database assets.
  - c) `NEWPASSWORD` to the password of the schema user.
  - d) `TABLE_SPACE` to the table space name where base and history table data will be stored.
  - e) `INDEX_SPACE` to a table space name where indexed data will be stored.
  - f) `LONG_SPACE` to a table space where long user column data like CLOB and XML will be stored
  - g) `TABLESPACE_LOCATION` to the location where the table space will be created. This is usually in the database directory that is in `ORACLE_HOME`. For example, `D:/Oracle/product/10.2.0/oradata/MDMDB` where `MDMDB` is the name of the database and `10.2.0` is the version of Oracle being used.
  - h) `DTYPE` to the type of data to be loaded. Specify one of the following values in lowercase:
    - banking
    - insurance
    - telco
    - manufacturing
  - i) `CONFIG_LANG` to the language to be used. For example, for English use `en`; for French use `fr`.
  - j) `CODE_LANG` to the language of any additional code table data to be loaded. For example, for Japanese use `ja`; for French use `fr`.
3. From the command line in `MDM_INSTALL_HOME/database/Full/Oracle/Standard/ddl`, run these commands in the order that they are listed:
  - a) `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_tables_ora.sql>> LOG_FILE_NAME` creates the base tables and primary key definitions
  - b) `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_hist_tables_ora.sql>> LOG_FILE_NAME` creates the history tables and primary key definitions
  - c) `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_ix_ora.sql>> LOG_FILE_NAME` creates all indexes, including unique index constraints
  - d) `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_fk_ora.sql>> LOG_FILE_NAME` creates the foreign keys
  - e) `sqlplus SCHEMA/NEWPASSWORD@DBNAME> @create_chk_ora.sql>> LOG_FILE_NAME` creates the check constraints
  - f) `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_eME_ora.sql>> LOG_FILE_NAME` creates the InfoSphere MDM Probabilistic Matching Engine objects.

**Important :** Before you run the `create_eME_ora.sql` script in the next step, edit the script and replace the place holders `TABLE_SPACE` and `INDEX_SPACE` with the table space and index space names created for the InfoSphere MDM Probabilistic Matching Engine database objects.
4. Run the scripts for either compound triggers or simple triggers:
  - To install simple triggers:
    - `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_triggers_simple_ora.sql>> LOG_FILE_NAME` installs simple triggers
    - **Optional:** `sqlplus SCHEMA/NEWPASSWORD@DBNAME @create_delete_triggers_simple_ora.sql>> LOG_FILE_NAME` installs simple triggers for deletes
  - To install compound triggers, run the scripts:

- sqlplus SCHEMA/NEWPASSWORD@DBNAME @create\_triggers\_compound\_ora.sql>> LOG\_FILE\_NAME installs compound triggers for inserts and updates.
  - **Optional:** sqlplus SCHEMA/NEWPASSWORD@DBNAME @create\_delete\_triggers\_compound\_ora.sql>> LOG\_FILE\_NAME installs compound triggers for deletes.
5. Convert the ImpReqData . script file to a shell script, and run the shell script from the command line. This script populates the required code tables and required system configuration tables with English code table data for the industry that is entered in the *DTYPE* placeholder, and the configuration data in the language that is entered in the *CONFIG\_LANG* placeholder.
  6. Choose whether to install code table data for languages other than English.
    - If you are installing the product in English only, skip this step.
    - To install code table data for languages other than English for the industry that is entered in the *DTYPE* placeholder and the language code that is entered in the *CODE\_LANG* placeholder, convert the Imp\_CodeTables\_Data . script file to a shell script, and run the shell script from the command line. Repeat this step for each language you want to install.
  7. To populate the configuration manager table with English language data, the data path is entered in the *DEL\_DATA\_PATH* placeholder (if you did not modify the directory location, the path is /data) and the logs are entered in the *DEL\_DATA\_LOGS* placeholder. Convert the ImpReqDataCfgMgr . script file to a shell script, and run the shell script from the command line. This script populates the required system configuration tables with English data.
  8. If you enabled non-case sensitive searching in the core database, you must run the following script:

```
Sqlplus SCHEMA/NEWPASSWORD@DBNAME @Insensitive_search_enabled.sql >> LOG_FILE_NAME
```

## Configuring WebSphere Application Server embedded messaging

The InfoSphere MDM application uses Message Driven Beans (MDBs) that, on startup of the enterprise bundle archive (EBA), look for their associated activation specifications and a JMS provider.

If a JMS provider does not exist, the MDBs timeout and fail to start. To simplify the installation and configuration process, the InfoSphere MDM installation automatically configures a JMS provider and engine.

If you have an existing WebSphere Application Server embedded messaging (message bus) already configured, or if you are installing InfoSphere MDM on z/OS, there are some steps that you must complete before you begin the installation.

If you are installing on z/OS and you do not have an existing messaging bus, then there are additional steps that you must complete after you install InfoSphere MDM.

### Related tasks

[Configuring your message bus on z/OS after installation](#)

If you did not have an existing WebSphere embedded messaging (message bus) created before installation, then you must complete this procedure after you install InfoSphere MDM on z/OS.

### **Preparing an existing WebSphere Application Server messaging bus for InfoSphere MDM installation on z/OS**

If you are installing InfoSphere MDM on z/OS, the database user for the InfoSphere MDM installation must have permission to create tables and table spaces. If they do not, the WebSphere Application Server might not successfully create the Service Integration Bus (SIB) tables.

### About this task

If you have an existing WebSphere Application Server messaging bus and you are installing with a user that does not have table and table space creation permissions, you must complete these steps before you begin the InfoSphere MDM installation.

If you do not have an existing messaging bus, then proceed with first installing InfoSphere MDM and then completing the steps in [“Configuring your message bus on z/OS after installation ”](#) on page 118.

## Procedure

1. Open WebSphere Application Server Integrated Solutions Console (admin console).
2. Go to **Service Integration > Buses > your application bus > Bus Members**.
3. On the bus members page, click **your application bus member > your application SIB server > Message Store**.
4. Clear the **Create tables** option to prevent WebSphere Application Server from attempting to create the SIB tables.
5. Verify that the **Schema Name** points to your InfoSphere MDM schema. If not, change the schema name.
6. Click **Apply** and then click **Save directly to the master configuration**.
7. Stop the application server.
8. Create the SIB tables for your instance by modifying the ZSIB.sql file for your schema, prefix, and database owner. In the file, replace <SCHEMA> with your schema name, <PREFIX> with your three character prefix, and <DBA ACCOUNT> with your database owner. Run the SQL as DB Owner.
9. Synchronize your nodes and start the application server.

## Related tasks

[Installing on z/OS](#)

Use this procedure if you are installing with IBM DB2 for z/OS.

## ***Preparing an existing WebSphere Application Server messaging bus for InfoSphere MDM installation***

If you are installing on an operating system other than z/OS, the installer can successfully create the SIB tables because special permission is not required. If you are pointing your existing messaging bus to an instance of InfoSphere MDM, ensure that the messaging data source and the schema name in the message store are pointing to the InfoSphere MDM schema.

## About this task

Use this procedure to point the messaging schema to the InfoSphere MDM schema before you begin installation.

## Procedure

1. Open the WebSphere Application Server Integrated Solutions Console (admin console).
2. Go to **Service Integration > Buses > your application bus > Bus Members**.
3. On the bus members page, click **your application bus member > your application SIB server > Message Store**.
4. Verify that the **Schema Name** points to your InfoSphere MDM schema. If not, change the schema name.
5. Click **Apply** and then click **Save directly to the master configuration**.
6. Synchronize your nodes and restart the application server.

## Manually installing the InfoSphere MDM messaging server component

You can use IBM Installation Manager to create the InfoSphere MDM messaging server component, or you can install it manually.

### About this task

Use IBM Installation Manager to install the InfoSphere MDM messaging component if IBM WebSphere MQ is on the same machine as the one on which you plan to run the installer to install the MDM operational server component.

The InfoSphere MDM messaging server component is installed by IBM Installation Manager by default when you choose WebSphere MQ messaging provider rather than WebSphere Application Server default messaging provider on the MDM application configuration panel.

### Procedure

1. Navigate to the directory where you have saved the downloaded InfoSphere MDM packages.
2. Open *Part 1* of the distribution assets (IBM InfoSphere Master Data Management Standard & Advanced Edition Multitplatform Multilingual <version> Part 1) and extract the subfolder `StartUpToolkit` to a directory of your choice. We will refer to this directory location as `STARTUPKIT_INSTALL_HOME`.
3. Obtain the `custSetupMQServer.mqsc` script from the `STARTUPKIT_INSTALL_HOME` directory.
4. Create and start the queue manager to be used by the InfoSphere MDM messaging server component (replace `MDM1011.QMANAGER` with whatever name you choose):

```
/usr/mqm/bin/crtmqm MDM1011.QMANAGER
```

Skip this step if you intend to use an existing queue manager.

5. Start the queue manager:

```
/usr/mqm/bin/stmqm MDM1011.QMANAGER
```

6. Prepare `custSetupMQServer.mqsc` by replacing the `CHANNEL_NAME` placeholder in the `custSetupMQServer.mqsc` script with the actual value of the WebSphere MQ channel to be used.
7. Create the InfoSphere MDM messaging server component configuration objects:

```
/usr/mqm/bin/runmqsc < $HOME/custSetupMQServer.mqsc MDM1011.QMANAGER
```

Replace the `CHANNEL_NAME` placeholder in the `custSetupMQServer.mqsc` script with the actual value of the WebSphere MQ channel to be used.

8. Create a JMS publish/subscribe channel for the MDM queue manager:

```
/usr/mqm/bin/runmqsc < /usr/mqm/java/bin/MQJMS_PSQ.mqsc MDM1011.QMANAGER
```

9. Start the queue listener:

```
/usr/mqm/bin/runmqslsr -m MDM1011.QMANAGER -t TCP -p 1414&
```

You can use any valid port number for the WebSphere MQ listener port.

## Set the locale and character encoding on target computers

Globalization settings are automatically set for physical operational servers during installation. For operational servers with virtual configurations, there are some settings that you must manually make after installation.

Unicode settings are made when you run the create database script applicable for your database type. Language settings are made during the installation. Use this procedure to set any additional settings for operational servers if you plan to implement a language other than US English.

Log files that are created by the operational server are in ASCII encoding. Code points that are not encompassed by ASCII are in the standard Unicode form of U+XXXX.

Ensure that the following Unicode items were set by the create database script:

- Microsoft SQL Server: new MAD\_DBTYPE is “mssqlu”
- Oracle: CREATE DATABASE *dname*...CHARACTER SET AL32UTF8. You must also set the character length semantics for Unicode. Set the variable NLS\_LANG\_SEMANTICS to CHAR (the default setting is BYTE). Use the command:  

```
ALTER SYSTEM SET NLS_LENGTH_SEMANTICS=CHAR SCOPE=BOTH
```

If you are using a non-wire connect driver with an Oracle client, you must also set this variable for the user who is connecting to the operational server. (A non-wire connect driver uses Oracle client libraries.)  
NLS\_LANG=AMERICAN\_AMERICA.AL32UTF8
- IBM DB2: CREATE DATABASE *dname* USING CODESET UTF-8 TERRITORY *territory code*. For example:  
create database prod using codeset UTF-8 territory us, where prod is the database name and us is the territory.

After you install the MDM operational server, you must manually set the MAD\_ENCODING variable for your virtual MDM configuration. This variable is set in the `com.ibm.mdm.mds.jni.cfg` configuration file.

Translated strings are stored in the `/smt` directory. These files, such as `fr_FR.smt` or `en_US.smt`, contain the interaction messages that are returned to clients. To set the language for the translated strings, you must also set the MAD\_SMTLIST environment variable in the `com.initiate.server.system.cfg` configuration file. This variable points to the appropriate `*.smt` file. If you use multiple languages, you can separate the languages with a comma in the variable property.

When the MAD\_SMTLIST option is set to multiple languages (smtcode), the operational server can potentially load multiple languages (strings) at one time. However, the InfoSphere MDM components display the strings for only one language at a time. For example, the same operational server is configured to send a French client French messages and an English client English messages.

If client software is not configured to use an alternative language, only operational server level information is returned in the chosen language. Translation or globalization of the data that is stored in the MDM database, such as dates, are not converted when displayed in user applications. Rather, this information displays in the locale in which it was received from the source.

## Installing InfoSphere MDM using graphical mode

Use this procedure to install InfoSphere MDM using the graphical installation mode. The installation must be run in an environment that already has a database and an application server in place.

### Before you begin

**Note :** If you prefer to install using a non-graphical installation mode, skip directly to the appropriate topic:

- [Installing using console mode](#)
- [Installing using silent mode](#)

Make sure that you meet these prerequisites:

- You have completed all of the installation preparation tasks, including preparing your IBM WebSphere Application Server and database.
- Your configured passwords meet all of [the requirements](#).
- You have installed IBM Java SDK 1.8.0.
- You have installed Microsoft Visual C++ 64 bit.
- You have installed IBM Installation Manager and added the necessary repositories.
- Your IBM WebSphere Application Server deployment manager and node are started.

- Your database is started.
- You have installed IBM Rational Application Developer if you are installing InfoSphere MDM Workbench on a workstation.

If you are installing on Microsoft Windows:

- You must be running in Administrator mode for IBM Installation Manager to write to the Windows registry. Administrator mode is not used for IBM AIX or Linux.
- On a Microsoft Windows 7 operating system, you must install MDM into a directory that is not virtualized.

**Important :** You must have the WebSphere Application Server deployment manager (Dmgr) JVM Heap size arguments set to 2048 MB and 4096 MB, as described in [this IBM Support article](#). To increase the heap size:

1. Open the WebSphere Application Server Integrated Solutions Console and go to **System Administration > Deployment Manager**.
2. Under **Server Infrastructure**, expand **Java and Process Management**, then click **Process definition**.
3. Under **Additional Properties**, click **Java Virtual Machine**.
4. Set the **Initial heap size** to 2048 MB and the **Maximum heap size** to 4096 MB.
5. Click **OK**, save your changes, and synchronize your changes with the nodes.

On InfoSphere MDM deployments using an IBM DB2 for Linux, UNIX, and Windows database, Unicode UTF-32 (CODEUNITS32) is the default string unit specification. CODEUNITS32 treats each character unit as 32 bits (4 bytes).

**Important :** If you customize the default database creation script to remove the CODEUNITS32 setting, you must also manually change an entry in the file `<MDM_INSTALL_HOME>/mds/sql/maddbx.dbp`. Under the [DB2] section, ensure that `colsizeaschar=F`. This change must be completed before running the `Configure_MasterDataManagement madconfig` target to deploy InfoSphere MDM.

## About this task

**Note :** If you are installing a clustered deployment, skip directly to [Installing in a clustered environment](#).

**Note :** If you are installing on a z/OS system, skip directly to [“Installing on z/OS”](#) on page 115.

If you have IBM Rational Application Developer installed, make sure that you do not install InfoSphere MDM into the same package group.

## Procedure

1. Review the prerequisites listed earlier in this topic and ensure that you have completed all of the necessary preparation steps. These steps are not optional.
2. Optionally, enable enhanced debug logging in `./InstallationManager/logs` by copying `STARTUPKIT_INSTALL_HOME/InstallationManagerDebug/log.properties` into `./InstallationManager/logs`.

**Important :** After you have enabled enhanced debug logging, the logged information in `./InstallationManager/logs` can include password details entered by the user during the installation. Ensure that these logs are stored in a secure place to avoid password exposure.

3. Start IBM Installation Manager.
4. On the IBM Installation Manager home screen, click **Install**.
5. On the **Install Packages** panel, select the **InfoSphere MDM Standard Edition or Advanced Edition** option and any additional features that you require. Click **Next**.
6. Review and accept the license agreement, then click **Next**.
7. Depending on your operating system, you may be asked to define the Shared Resource directory.

InfoSphere MDM should not share a resource directory with other applications. Ensure that this is not the case.

8. Choose whether to install into an existing package group or create a new package group.

**Tip :** If you are unsure of what to choose, then accept the default. Most installations should create a new package group.

**Important :** If you have IBM Rational Application Developer installed, make sure that you do not install InfoSphere MDM into the same package group. Select **Create a new package group**.

9. On the same panel, define the **Installation Directory** into which you want to install each component. If you choose to install a component in a directory other than the default, select that component and click **Browse** in the **Installation Directory** field. Click **Next**.

**Important :** On Microsoft Windows 7 operating systems, the Program Files directory is virtualized and requires administrative privileges. To be able to run the application without administrative privileges, you must install into a directory that is not virtualized.

10. On the language panel, English is always selected. If you want to support any languages in addition to English, select them. Click **Next**.
11. On the features panel, select the InfoSphere MDM features, applications, and optional components to install.

Review the disk space information, then click **Next**.

12. On the next set of panels, enter the configuration information:

**Tip :** Use your completed installation worksheets for guidance. As you move through each of these configuration panels, the screen displays a green checkmark icon or a red X icon to indicate whether the panel has been completed successfully.

- a) On the **Database Configuration** panel:

- Enter the database details. If your database home value is valid, then the **Test Connection** button becomes active.

**Tip :** If you are using a Microsoft SQL Server database that uses Windows Authentication, do not enter the database user credentials on this panel. The credentials are automatically populated by the installation application.

- If you are using Oracle RAC database, select the **Service Name** option.
- If you wish to enable SSL encryption for the MDM database, select the **SSL Authentication** check box, then provide the SSL trust store path and password.

**Note :** The SSL trust store type is presumed to be PKCS12. If you wish to use a different type of trust store, perform a silent installation instead of using the graphical installation mode.

- Click **Test Connection**. The database must be accessible and running for the test to be successful.

**Note :** If you do not wish to test the connection, select **No connection test required**.

- If you wish to save your settings in a script so that you can manually and repeatedly install the MDM database again, select **Extract scripts for manual database installation**.

- b) On the **Database Table Spaces** panel, define your database table spaces:

- Select **Copy database details from the database configuration panel** to repeat the database details that you entered in the previous panel.
- Decide whether to use existing table spaces or create new ones, then select either **Use existing table spaces** or **Create new table spaces**.

**Tip :** Consider whether existing table spaces are dedicated for InfoSphere MDM only or are general purpose table spaces. If they are general purpose, then create new table spaces that will be dedicated for InfoSphere MDM.

- If you choose to create new table spaces, then you must either choose from a list of suggested names or define new names.

**Note :** If you did not select **Test Connection** on the previous panel, then the lists will not be prepopulated with existing table space names. In this case, the default names will be used.

- c) On the **History Configuration** panel, select the industry type, history triggers, and language options necessary for your business requirements.
- d) On the **WebSphere Application Server Configuration** panel:
- Select whether you are installing InfoSphere MDM into a Base edition or Network Deployment edition instance of WebSphere Application Server, depending on what edition you configured during the prerequisite installation steps.
  - Enter the required details of the WebSphere Application Server instance where InfoSphere MDM will be installed.
  - Manually specify the server details or select **Retrieve Host Details** to obtain your cell, node, and server information. Use each drop down list to select the retrieved cell, node, and server.
  - If you wish to define a new server, select the **Specify New Server Name** option, then provide a name for the new server instance.
  - For Network Deployment edition installations, if you wish to install the application in a cluster deployment, define the cluster name and select **Install MDM application on cluster**.
- Tip :** In clustered network deployments, the server name for each web application must be different.
- Click **Verify MDM Instance on Server** to ensure that there is not already an InfoSphere MDM application installed on the server.

**Restriction :** You cannot deploy more than one InfoSphere MDM application instance on each server.

**Note :** If you do not wish to verify the application instance, you can select **No MDM instance verification required**. This option should only be used if you fully understand the risk that the installation may fail if another InfoSphere MDM instance is present.

- e) On the **Messaging Configuration** panel, select the messaging type to use for this installation. Your selection depends on which messaging service you have configured during the prerequisite installation steps.

If you select IBM WebSphere MQ, then you will be asked to provide the details of your existing WebSphere MQ instance.

**Note :** If you installed a remote WebSphere MQ instance (on a different machine than the one where you are running IBM Installation Manager), make sure that you clear the **Configure a local IBM WebSphere MQ instance** option to prevent the installer from creating a local queue manager. Keep the option selected if you do want to create a queue manager.

- f) On the **MDM Application Configuration** panel:
- Provide the new application name, user password, and RMI port. The installation application will use these details to set up InfoSphere MDM.
  - Select either **Probabilistic matching** or **Deterministic matching** for your matching style.
  - If your application is running across different time zones or your data has time-sensitive values under different time zones, select **Enable multiple time zone deployment** and select a **Default time zone**.
- g) If you are installing any of the InfoSphere MDM web application user interfaces, use the corresponding panel for each to define the application settings:
- Select **Retrieve details from WebSphere Application Server configuration panel** to copy the application server details that you defined on the main application WebSphere Application Server configuration panel.

**Restriction :** If you are installing on WebSphere Application Server Base edition, you cannot select both **Retrieve details from WebSphere Application Server configuration panel** and the

**Retrieve Host Details** button. After selecting the **Retrieve details from WebSphere Application Server configuration panel** option, do not click **Retrieve Host Details**.

- Provide all of the required deployment parameters for each application. These parameter values will be similar to those that you have already provided for the main application.
- If you wish to specify a new server name for this web application, select **Specify New Server Name** and define the new name.

**Note :** If you choose to do this, you must define a different server name for each of the web applications that you configure.

- For WebSphere Application Server Network Deployment edition installations, if you wish to install the application in a cluster deployment, define the cluster name and select **Install MDM application on cluster**.

**Tip :** In clustered network deployments, the server name for each web application must be different.

- If you wish to enable SSL encryption for the application, select **Enable SSL**.

h) Click **Install**.

The installation application installs InfoSphere MDM. Depending on your configuration selections, the installation process can take a significant amount of time.

13. On the final IBM Installation Manager panel:

- To automatically launch the installation configuration tool immediately after closing IBM Installation Manager, select **Configure Master Data Management**.
- To open the log file viewer, click **View Log Files**.

14. Click **Finish**, then close IBM Installation Manager.

Now you must complete the configuration of your new installation.

If you selected the option to launch the installation configuration tool on the final Installation Manager panel, then the console will open. If you did not select the option, or if the console fails to open automatically, then you must manually launch the console:

- From a command line, navigate to *MDM\_INSTALL\_HOME*/mds/scripts and run the following command to open the installation configuration tool.
  - On Microsoft Windows systems, run

```
madconfig Configure_MasterDataManagement
```

- On Linux or UNIX systems, run

```
./madconfig.sh Configure_MasterDataManagement
```

Upon being launched, the installation configuration tool prompts you to provide the necessary information to complete the installation configuration.

15. Provide the details of your deployment as prompted by the installation configuration tool.

After you provide the user credentials for WebSphere Application Server and the database as prompted, the installation configuration tool performs a set of pre-configuration validation tests to validate your installation environment. These validation tests help to ensure that all of the required components are in place to complete the installation and configuration smoothly.

If the pre-configuration validation is successful, the configuration tool completes the configuration of your installation.

## What to do next

After installation, if you want to add or remove a feature (for example, add an application or another language translation), or modify any of your configuration settings, run the madconfig target `Modify_MDM`.

## Related concepts

### Graphical, console, or silent installation

You can install InfoSphere MDM in graphical mode, console mode, or silent mode. Consider which installation method works best for your environment.

### Worksheets for installation and configuration

The installation worksheets list all of the values that you must specify during an InfoSphere MDM installation process. Completing the installation worksheets before you install the components can help you plan your installation, save time, and enforce consistency during the installation and configuration process.

### Verifying the base installation

After installing, there are several methods to verify that the new deployment has been successful.

## Related tasks

### Installing and configuring prerequisites

Before you install InfoSphere MDM, make sure that you complete the planning steps and meet the prerequisites.

### Installing on z/OS

Use this procedure if you are installing with IBM DB2 for z/OS.

### Troubleshooting an installation

## Installing InfoSphere MDM using console mode

### Before you begin

Make sure that you meet these prerequisites:

- You have completed all of the installation preparation tasks, including preparing your IBM WebSphere Application Server and database.
- You have installed IBM Installation Manager and added the necessary repositories.
- Your IBM WebSphere Application Server deployment manager and node are started.
- Your database is started.
- You have installed Microsoft Visual C++ 64 bit.
- You have installed IBM Rational Application Developer if you are installing InfoSphere MDM Workbench on a developer workstation.

If you are installing on Microsoft Windows:

- You must be running in Administrator mode for IBM Installation Manager to write to the Windows registry. Administrator mode is not used for IBM AIX or Linux.
- On a Microsoft Windows 7 operating system, you must install MDM into a directory that is not virtualized.

**Important :** You must have the WebSphere Application Server deployment manager (Dmgr) JVM Heap size arguments set to 2048 MB and 4096 MB, as described in [this IBM Support article](#). To increase the heap size:

1. Open the WebSphere Application Server Integrated Solutions Console and go to **System Administration > Deployment Manager**.
2. Under **Server Infrastructure**, expand **Java and Process Management**, then click **Process definition**.
3. Under **Additional Properties**, click **Java Virtual Machine**.
4. Set the **Initial heap size** to 2048 MB and the **Maximum heap size** to 4096 MB.
5. Click **OK**, save your changes, and synchronize your changes with the nodes.

## About this task

**Note :** If you are installing a clustered deployment, skip directly to [Installing in a clustered environment](#).

**Note :** If you are installing on a z/OS system, skip directly to [“Installing on z/OS” on page 115](#).

If you have IBM Rational Application Developer installed, make sure that you do not install InfoSphere MDM into the same package group.

## Procedure

1. Review the prerequisites listed earlier in this topic and ensure that you have completed all of the necessary preparation steps. These steps are not optional.
2. Optionally, enable enhanced debug logging in `INSTALLATION_MANAGER_HOME/logs` by copying `STARTUPKIT_INSTALL_HOME/InstallationManagerDebug/log.properties` into `./InstallationManager/logs`.

**Important :** After you have enabled enhanced debug logging, the logged information in `./InstallationManager/logs` can include password details entered by the user during the installation. Ensure that these logs are stored in a secure place to avoid password exposure.

3. Start IBM Installation Manager in console mode:
  - a) From a command prompt, navigate to `INSTALLATION_MANAGER_HOME/eclipse/tools`
  - b) Run the command `imcl -c`
4. Select option 1, Install.
5. Select the InfoSphere MDM edition to install and any additional features that you require (such as Workbench, if you are installing a workstation).
6. Review and accept the license agreement.
7. Choose whether to install into an existing package group or create a new package group.

**Tip :** If you are unsure of what to choose, then accept the default. Most installations should create a new package group.

**Important :** If you have IBM Rational Application Developer installed, make sure that you do not install InfoSphere MDM into the same package group. Select the Create a new package group option.

8. Define the installation directory into which you want to install each component.
9. Select the languages for this deployment.

English is always selected. If you want to support any languages in addition to English, select them.
10. Select the InfoSphere MDM features, applications, and optional components to install.
11. Enter the database configuration details, as prompted.
12. Enter the database table space configuration details, as prompted.
13. Define the industry type, history triggers, and language options necessary for your business requirements.
14. Enter the required details of the WebSphere Application Server instance where InfoSphere MDM will be installed.
15. Select the messaging type to use for this installation and, if you choose IBM WebSphere MQ, define the details of your WebSphere MQ instance.
16. Provide the remaining InfoSphere MDM deployment and configuration details as prompted by the console.
17. Provide the details of your InfoSphere MDM application configuration, as prompted.
18. If this deployment includes any of the InfoSphere MDM web application user interfaces, enter the configuration and deployment settings for each application, as prompted.
19. The installation console will run a series of validation tests. If necessary, take any corrective action to address any warnings or errors.
20. When all of the validation tests pass successfully, choose the Install option.

The installation application installs InfoSphere MDM. Depending on your configuration selections, the installation process can take a significant amount of time.

A success message indicates that the installation has succeeded and the installation verification tests have successfully completed. You can also view the log files to verify a successful installation. If the installation is not successful, view the log files and use the information in the troubleshooting topics to assist you.

Now you must complete the configuration of your new installation.

21. From a new command line, navigate to `MDM_INSTALL_HOME/mds/scripts` and run the following command to open the installation configuration tool:

- On Microsoft Windows systems, run

```
madconfig Configure_MasterDataManagement
```

- On Linux or UNIX systems, run

```
./madconfig.sh Configure_MasterDataManagement
```

**Note :** If you are deploying under CODEUNIT32 for an IBM DB2 for z/OS database, include the `-Duser.db.large.unicode=yes` modifier. For example:

```
./madconfig.sh Configure_MasterDataManagement -Duser.db.large.unicode=yes
```

Upon being launched, the installation configuration tool prompts you to provide the necessary information to complete the installation configuration.

22. Provide the details of your deployment as prompted by the installation configuration tool.

After you provide the user credentials for WebSphere Application Server and the database as prompted, the installation configuration tool performs a set of [pre-configuration validation tests](#) to validate your installation environment. These validation tests help to ensure that all of the required components are in place to complete the installation and configuration smoothly.

If the pre-configuration validation is successful, the configuration tool completes the configuration of your installation.

## What to do next

After installation, if you want to add or remove a feature (for example, add an application or another language translation), or modify any of your configuration settings, run the `madconfig` target `Modify_MDM`.

### Related concepts

[Graphical, console, or silent installation](#)

You can install InfoSphere MDM in graphical mode, console mode, or silent mode. Consider which installation method works best for your environment.

## Installing InfoSphere MDM using silent mode

Silent installation mode uses predefined configuration files, known as response files, as input so that installations can be run and rerun with a minimal amount of human interaction.

IBM Installation Manager can generate a response file while you are running the interactive installation program in graphical or console mode. You can edit an existing response file or create your own.

Silent installations, like graphical and console installations, consist of two parts:

1. Extracting InfoSphere MDM assets onto the file system and preparing the `madconfig` configuration tool. In both graphical and silent installations, this step is performed by IBM Installation Manager.
2. Configuring InfoSphere MDM by running the installation configuration command line tool (`madconfig Configure_MasterDataManagement`).

**Tip :** Unlike a graphical installation, however, silent installations provide you with the option to run both steps (extract and configure) together in a single stage. To achieve this, configure the response file to automatically start the installation configuration tool:

1. Open the response file in a text editor.
2. Modify the following variable so that the value is `true`:

```
<!-- Launching configuration process from Installation Manager -->  
<data key='user.L2.launch.config.from.silent.install.flag,com.ibm.mdm.advanced'  
value='true' />
```

To change the setting so that the configuration tool does not start automatically, change the value of the variable to be `false`.

### Related concepts

[Graphical, console, or silent installation](#)

You can install InfoSphere MDM in graphical mode, console mode, or silent mode. Consider which installation method works best for your environment.

### Related tasks

[Viewing the installation logs](#)

During the installation process, logs are created in the `MDM_INSTALL_HOME/logs` directory. Use these logs to help you when troubleshooting or verifying your installation.

[Troubleshooting an installation](#)

[Uninstalling in silent mode](#)

Use this procedure to uninstall InfoSphere MDM components in silent mode.

### Related reference

[Installation Startup Kit](#)

The Installation Startup Kit includes files and scripts to help you prepare your environment before you install InfoSphere MDM.

## Customizing a silent mode response file

Use this procedure to customize your silent mode installation response file.

### About this task



**Attention :** Although code examples might show with line breaks in the following content, the text between `< . . . />` must be entered in the response file as one line without breaks.

For more information about working in silent mode and using response files, see [the online documentation for IBM Installation Manager](#).

### Procedure

1. Open the response file in a text editor.
2. Specify the InfoSphere MDM features and components that you wish to install with this deployment.
3. Specify the `MDM_INSTALL_HOME` target directory and the IBM Installation Manager shared directory.
4. Specify the database parameters for this deployment.
5. Specify the application server parameters for this deployment.
6. Specify the messaging server parameters for this deployment.
7. Specify the parameters for the optional web application components, as required:
  - Business Administration UI
  - Inspector
  - Enterprise Viewer
  - Web Reports
8. Specify the parameters for applying fix packs.

## What to do next

For details about any of these steps, refer to the following topics.

### Related tasks

#### [Uninstalling in silent mode](#)

Use this procedure to uninstall InfoSphere MDM components in silent mode.

#### [Installing InfoSphere MDM silently using a response file](#)

You can install InfoSphere MDM silently, where the installation choices are provided in an options file instead of in the interactive IBM Installation Manager panels. This type of installation is helpful when you are doing multiple identical installations.

#### *Specifying features and components for a silent installation*

Specify the InfoSphere MDM features and components that will be silently installed when a response file is run.

## Before you begin



**Attention :** Although code examples might show line breaks, the text between `< . . . />` brackets must be entered in the response file as one line without breaks.

## Procedure

1. Open a response file.
2. Locate the following sections of the response file and edit the values to remove any features or components that you do not wish to install in this deployment:

```
<!-- Installable features -->
  <data key='user.L2.mdm.feature.list,com.ibm.mdm.advanced'
value='com.ibm.im.mdm.db.feature,com.ibm.im.mdm.app.feature,com.ibm.mdm.ba.webapp.feature,com
.ibm.mdm.ds.webapp.feature,com.ibm.mdm.pui.webapp.feature,com.ibm.mdm.inspector.webapp.featur
e,com.ibm.mdm.ev.webapp.feature,com.ibm.mdm.wb.webapp.feature,com.ibm.mdm.pd.webapp.feature,'
/>
...
<!-- InfoSphere MDM Standard Edition or Advanced Edition 11.4.0.03000 -->
  <offering profile='InfoSphere MDM Standard Edition or Advanced Edition'
id='com.ibm.mdm.advanced' version='11.4.0.FP03IF000_20150414-0916'
features='com.ibm.im.mdm.db.feature,com.ibm.im.mdm.app.feature,com.ibm.mdm.ba.webapp.feature,
com.ibm.mdm.ds.webapp.feature,com.ibm.mdm.pui.webapp.feature,com.ibm.mdm.inspector.webapp.featur
e,com.ibm.mdm.ev.webapp.feature,com.ibm.mdm.wb.webapp.feature,com.ibm.mdm.pd.webapp.featur
e' installFixes='none' />
```

#### *Specifying installation directories for silent installation*

Specify the InfoSphere MDM installation target directory and IBM Installation Manager shared resource directory that will be used when a response file is run.

## Before you begin



**Attention :** Although code examples might show line breaks, the text between `< . . . />` brackets must be entered in the response file as one line without breaks.

## Procedure

1. Open a response file.
2. Locate the following variables and edit the values to specify the `MDM_INSTALL_HOME` target directory:

```
<profile id='InfoSphere MDM Standard Edition or Advanced Edition'
installLocation='/opt/IBM/MDM/L008/mdm'>
  <data key='eclipseLocation' value='/opt/IBM/MDM/L008/mdm' />
  ...
  <data key='user.install.location.path,com.ibm.mdm.advanced' value='/opt/IBM/MDM/L008/
mdm' />
```

3. Locate the following variable and edit the value to specify the IBM Installation Manager shared resource directory:

```
<variable name='sharedLocation' value='/opt/IBM/MDM/L008/Shared' />
```

**Tip :** Use a new shared resource directory rather than using an existing one, such as the one used by your WebSphere Application Server instance.

4. Locate the following variables and edit the values to specify the installation's unique instance identifier name:

```
<data key='user.instance.identifier,com.ibm.mdm.advanced' value='L008' />  
<data key='user.was.application,com.ibm.mdm.advanced' value='L008' />
```

### *Specifying database parameters for silent installation*

Specify the database parameters that will be configured when a response file is run.

## Before you begin



**Attention :** Although code examples might show line breaks, the text between `< . . . />` brackets must be entered in the response file as one line without breaks.

## Procedure

1. Open a response file.
2. Locate the following variables and edit the values to specify the database parameters.

**Note :** The following sample values show an Oracle database configuration. For sample IBM DB2 or Microsoft SQL Server configurations, refer to the sample response files.

```
<!-- Database server parameters-->  
<data key='user.db.type,com.ibm.mdm.advanced' value='ORACLE' />  
<data key='user.db.name,com.ibm.mdm.advanced' value='rhoradb1' />  
<data key='user.db.name.remote,com.ibm.mdm.advanced' value='rhoradb1' />  
<data key='user.db.host,com.ibm.mdm.advanced' value='rhoradb1.torolab.ibm.com' />  
<data key='user.db.port,com.ibm.mdm.advanced' value='1522' />  
<data key='user.db.user,com.ibm.mdm.advanced' value='V12INS17' />  
<data key='user.db.password,com.ibm.mdm.advanced' value='go2bali1' />  
<data key='user.db.type.cm,com.ibm.mdm.advanced' value='ORACLE' />  
<data key='user.db.name.cm,com.ibm.mdm.advanced' value='rhoradb1' />  
<data key='user.db.name.remote.cm,com.ibm.mdm.advanced' value='rhoradb1' />  
<data key='user.db.schema.cm,com.ibm.mdm.advanced' value='V12INS17' />  
<data key='user.db.host.cm,com.ibm.mdm.advanced' value='rhoradb1.torolab.ibm.com' />  
<data key='user.db.port.cm,com.ibm.mdm.advanced' value='1522' />  
<data key='user.db.user.cm,com.ibm.mdm.advanced' value='V12INS17' />  
<data key='user.db.password.cm,com.ibm.mdm.advanced' value='go2bali1' />  
<data key='user.oracle.home,com.ibm.mdm.advanced' value='/home/oracle/app/oracle/product/  
12.1.0/client_1' />  
<data key='user.oracle.home.cm,com.ibm.mdm.advanced' value='/home/oracle/app/oracle/  
product/12.1.0/client_1' />  
<data key='user.db.auth.native,com.ibm.mdm.advanced' value='false' />  
<data key='user.tns.name,com.ibm.mdm.advanced' value='rhoradb1' />  
<data key='user.db.schema,com.ibm.mdm.advanced' value='V12INS17' />  
<data key='user.user.db.url,com.ibm.mdm.advanced'  
value='jdbc:oracle:thin:@rhoradb1.torolab.ibm.com:1522:rhoradb1' />  
<data key='user.user.db.url.cm,com.ibm.mdm.advanced'  
value='jdbc:oracle:thin:@rhoradb1.torolab.ibm.com:1522:rhoradb1' />  
<data key='user.mdm.data.type,com.ibm.mdm.advanced' value='insurance' />  
<data key='user.trigger.type,com.ibm.mdm.advanced' value='None' />  
<data key='user.delete.trigger.type,com.ibm.mdm.advanced' value='None' />  
<data key='user.code.lang.list,com.ibm.mdm.advanced' value='en' />  
<data key='user.code.lang.list.mds,com.ibm.mdm.advanced' value='en' />  
<data key='user.customer.lang.type,com.ibm.mdm.advanced' value='en' />  
<data key='user.insensitive.search,com.ibm.mdm.advanced' value='false' />  
<data key='user.L2.long.space,com.ibm.mdm.advanced' value='LONGSPACE1' />  
<data key='user.L2.index.space,com.ibm.mdm.advanced' value='INDEXSPACE1' />  
<data key='user.L2.eme.sppmd.space,com.ibm.mdm.advanced' value='EMESPACE1' />  
<data key='user.L2.eme.sppmi.space,com.ibm.mdm.advanced' value='EMESPACE2' />  
<data key='user.L2.table.space.ora,com.ibm.mdm.advanced' value='TBS8K' />  
<data key='user.L2.long.space.ora,com.ibm.mdm.advanced' value='LOBSPACE' />  
<data key='user.L2.index.space.ora,com.ibm.mdm.advanced' value='IDXSPACE' />
```

## Specifying application server parameters for silent installation

Specify the application server parameters that will be configured when a response file is run.

### Before you begin



**Attention :** Although code examples might show line breaks, the text between `<.../>` brackets must be entered in the response file as one line without breaks.

### Procedure

1. Open a response file.
2. Locate the following variables and edit the values to specify the WebSphere Application Server parameters for the MDM Operational Server:

```
<!-- Application server parameters for backend deployment-->
<data key='user.L1.was.home,com.ibm.mdm.advanced' value='/opt/IBM/WebSphere/
AppServer8.5' />
<data key='user.was.type,com.ibm.mdm.advanced' value='ND' />
<data key='user.create.was.profile,com.ibm.mdm.advanced' value='false' />
<data key='user.was.profile.created,com.ibm.mdm.advanced' value='false' />
<data key='user.federate.was.profile,com.ibm.mdm.advanced' value='false' />
<data key='user.deploy.host,com.ibm.mdm.advanced' value='mdmlrh503.torolab.ibm.com' />
<data key='user.deploy.port,com.ibm.mdm.advanced' value='8879' />
<data key='user.deploy.vHost,com.ibm.mdm.advanced' value='mdm_vHost' />
<data key='user.was.cell,com.ibm.mdm.advanced' value='mdmlrh503Cell01' />
<data key='user.was.node,com.ibm.mdm.advanced' value='mdmlrh503Node01' />
<data key='user.was.server,com.ibm.mdm.advanced' value='mdm-s-L008' />
<data key='user.was.cluster,com.ibm.mdm.advanced' value='None' />
<data key='user.was.cluster.flag,com.ibm.mdm.advanced' value='false' />
<data key='user.was.security,com.ibm.mdm.advanced' value='1' />
<data key='user.was.security.on.off,com.ibm.mdm.advanced' value='on' />
<data key='user.was.user,com.ibm.mdm.advanced' value='mdmadmin' />
<data key='user.was.password,com.ibm.mdm.advanced' value='mdmadmin' />
<data key='user.security.user.name,com.ibm.mdm.advanced' value='mdmadmin' />
<data key='user.security.user.password,com.ibm.mdm.advanced' value='mdmadmin' />
```

3. Locate the following variables and edit the values to specify the deployment target parameters:

- If your deployment is on a WebSphere Application Server cluster:

```
<data key='user.was.cell,com.ibm.mdm.advanced' value='mdmlrh503Cell01' />
<data key='user.was.node,com.ibm.mdm.advanced' value='None' />
<data key='user.was.server,com.ibm.mdm.advanced' value='None' />
<data key='user.was.cluster,com.ibm.mdm.advanced' value='CL01' />
...
<data key='user.was.cluster.flag,com.ibm.mdm.advanced' value='true' />
```

- If your deployment is on a single WebSphere Application Server:

```
<data key='user.was.cell,com.ibm.mdm.advanced' value='mdmlrh503Cell01' />
<data key='user.was.node,com.ibm.mdm.advanced' value='mdmlrh503Node01' />
<data key='user.was.server,com.ibm.mdm.advanced' value='mdm-s-L008' />
<data key='user.was.cluster,com.ibm.mdm.advanced' value='None' />
...
<data key='user.was.cluster.flag,com.ibm.mdm.advanced' value='false' />
```

4. If you are deploying on WebSphere Application Server base edition, locate the following parameter and edit the value to specify the WebSphere Application Server profile location:

```
<data key='user.was.profile.home,com.ibm.mdm.advanced' value='/opt/IBM/WebSphere/AppServer/
profiles/AppSrv01' />
```

**Note :** If you are deploying on WebSphere Application Server Network Deployment edition, the profile location defined by this value is be ignored and the location will be obtained automatically instead.

5. Locate the following variables and edit the values to specify the WebSphere Application Server administration security user and password:

```
<data key='user.was.user,com.ibm.mdm.advanced' value='mdmadmin' />
<data key='user.was.password,com.ibm.mdm.advanced' value='mdmadmin' />
```

6. Locate the following variables and edit the values to specify the WebSphere Application Server RunAs application security user and password:

```
<data key='user.security.user.name,com.ibm.mdm.advanced' value='mdmadmin' />
<data key='user.security.user.password,com.ibm.mdm.advanced' value='mdmadmin' />
```

**Important :** The parameter representing WebSphere Application Server security should always have a value of on. Installing InfoSphere MDM with WebSphere Application Server security disabled is not supported.

```
<data key='user.was.security.on.off,com.ibm.mdm.advanced' value='on' />
```

### *Specifying messaging server parameters for silent installation*

Specify the messaging server parameters that will be configured when a response file is run.

## Before you begin



**Attention :** Although code examples might show line breaks, the text between `< . . . />` brackets must be entered in the response file as one line without breaks.

## Procedure

1. Open a response file.
2. Locate the following variables and edit the values to specify the messaging server parameters for the MDM Operational Server:

```
<!-- Messaging server parameters-->
<data key='user.messaging.host,com.ibm.mdm.advanced' value='mdmlrh503.torolab.ibm.com' />
<data key='user.messaging.port,com.ibm.mdm.advanced' value='1417' />
<data key='user.messaging.user,com.ibm.mdm.advanced' value='ws8admin' />
<data key='user.messaging.password,com.ibm.mdm.advanced' value='go2aruba' />
<data key='user.messaging.qm,com.ibm.mdm.advanced' value='QM.L008' />
<data key='user.messaging.channel,com.ibm.mdm.advanced' value='CH.L008' />
<data key='user.messaging.home,com.ibm.mdm.advanced' value='/opt/mqm' />
<data key='user.messaging.type,com.ibm.mdm.advanced' value='WMQ' />
<data key='user.config.messaging.server,com.ibm.mdm.advanced' value='true' />
<data key='user.default.messaging.flag,com.ibm.mdm.advanced' value='true' />
```

3. Locate the following variables and edit the values to define whether your InfoSphere MDM deployment will use the WebSphere Application Server default messaging or WebSphere MQ:

- For WebSphere Application Server default messaging:

```
<data key='user.messaging.type,com.ibm.mdm.advanced' value='WEM' />
...
<data key='user.default.messaging.flag,com.ibm.mdm.advanced' value='true' />
```

- For WebSphere MQ:

```
<data key='user.messaging.type,com.ibm.mdm.advanced' value='WMQ' />
...
<data key='user.default.messaging.flag,com.ibm.mdm.advanced' value='false' />
```

If your implementation uses WebSphere MQ as the messaging provider, then the installation application can:

- Create the WebSphere MQ provider on WebSphere Application Server
- Create the Queue Manager and destination queues
- Start all required processes on WebSphere MQ server

Additionally, if the WebSphere MQ server is located on the same machine as the installation application, and if the installation application has the appropriate permissions, then the installation can also create MQ objects and manage MQ processes as necessary.

- a. To allow the installation application to create the Queue Manager and destination queues, and start all required processes, set the parameter as follows:

```
<data key='user.config.messaging.server,com.ibm.mdm.advanced' value='true' />
```

- b. To prevent the installation application from creating the Queue Manager and destination queues, and starting all required processes, set the parameter as follows:

```
<data key='user.config.messaging.server,com.ibm.mdm.advanced' value='false' />
```

When the value is set to false, then you must manually create the Queue Manager and destination queues, and manually start all of the processes. This must be completed before you start the silent installation process.

### *Specifying Business Administration UI parameters for silent installation*

Specify the Business Administration UI parameters that will be configured when a response file is run.

## Before you begin



**Attention :** Although code examples might show line breaks, the text between `<... />` brackets must be entered in the response file as one line without breaks.

## Procedure

1. Open a response file.
2. Locate the following variables and edit the values to specify the application server parameters for the Business Administration UI web application:

```
<data key='user.was.type.ba,com.ibm.mdm.advanced' value='ND' />
<data key='user.was.profile.home.ba,com.ibm.mdm.advanced' value='/usr/IBM/WebSphere/
AppServer/profiles/AppSrv01' />
<data key='user.deploy.port.ba,com.ibm.mdm.advanced' value='8879' />
<data key='user.deploy.host.ba,com.ibm.mdm.advanced' value='localhost' />
<data key='user.was.cell.ba,com.ibm.mdm.advanced' value='gollum4.torolab.ibm.comCell01' />
<data key='user.was.node.ba,com.ibm.mdm.advanced' value='Node01' />
<data key='user.was.server.ba,com.ibm.mdm.advanced' value='TEST_BA' />
<data key='user.was.cluster.ba,com.ibm.mdm.advanced' value='None' />
<data key='user.was.cluster.flag.ba,com.ibm.mdm.advanced' value='false' />
<data key='user.was.security.ba,com.ibm.mdm.advanced' value='1' />
<data key='user.was.security.on.off.ba,com.ibm.mdm.advanced' value='on' />
<data key='user.was.user.ba,com.ibm.mdm.advanced' value='mdmadmin' />
<data key='user.was.password.ba,com.ibm.mdm.advanced' value='mdmp1' />
```

### *Specifying Inspector parameters for silent installation*

Specify the Inspector application parameters that will be configured when a response file is run.

## Before you begin



**Attention :** Although code examples might show line breaks, the text between `<... />` brackets must be entered in the response file as one line without breaks.

## Procedure

1. Open a response file.
2. Locate the following variables and edit the values to specify the application server parameters for the Inspector web application:

```
<data key='user.was.type.inspector,com.ibm.mdm.advanced' value='ND' />
<data key='user.was.profile.home.inspector,com.ibm.mdm.advanced' value='/usr/IBM/
WebSphere/AppServer/profiles/AppSrv01' />
<data key='user.deploy.port.inspector,com.ibm.mdm.advanced' value='8879' />
<data key='user.deploy.host.inspector,com.ibm.mdm.advanced' value='localhost' />
<data key='user.was.cell.inspector,com.ibm.mdm.advanced'
value='gollum4.torolab.ibm.comCell01' />
<data key='user.was.node.inspector,com.ibm.mdm.advanced' value='Node01' />
```

```

<data key='user.was.server.inspector,com.ibm.mdm.advanced' value='TEST_INS' />
<data key='user.was.cluster.inspector,com.ibm.mdm.advanced' value='None' />
<data key='user.was.cluster.flag.inspector,com.ibm.mdm.advanced' value='false' />
<data key='user.was.security.inspector,com.ibm.mdm.advanced' value='1' />
<data key='user.was.security.on.off.inspector,com.ibm.mdm.advanced' value='on' />
<data key='user.was.user.inspector,com.ibm.mdm.advanced' value='mdmadmin' />
<data key='user.was.password.inspector,com.ibm.mdm.advanced' value='mdmp1' />
<data key='user.use.ssl.inspector,com.ibm.mdm.advanced' value='false' />

```

### *Specifying Enterprise Viewer parameters for silent installation*

Specify the Enterprise Viewer parameters that will be configured when a response file is run.

## Before you begin



**Attention :** Although code examples might show line breaks, the text between <... /> brackets must be entered in the response file as one line without breaks.

## Procedure

1. Open a response file.
2. Locate the following variables and edit the values to specify the application server parameters for the Enterprise Viewer web application:

```

<data key='user.was.type.ev,com.ibm.mdm.advanced' value='ND' />
<data key='user.was.profile.home.ev,com.ibm.mdm.advanced' value='/usr/IBM/WebSphere/
AppServer/profiles/AppSrv01' />
<data key='user.deploy.port.ev,com.ibm.mdm.advanced' value='8879' />
<data key='user.deploy.host.ev,com.ibm.mdm.advanced' value='localhost' />
<data key='user.was.cell.ev,com.ibm.mdm.advanced' value='gollum4.torolab.ibm.comCell01' />
<data key='user.was.node.ev,com.ibm.mdm.advanced' value='Node01' />
<data key='user.was.server.ev,com.ibm.mdm.advanced' value='TEST_EV' />
<data key='user.was.cluster.ev,com.ibm.mdm.advanced' value='None' />
<data key='user.was.cluster.flag.ev,com.ibm.mdm.advanced' value='false' />
<data key='user.was.security.ev,com.ibm.mdm.advanced' value='1' />
<data key='user.was.security.on.off.ev,com.ibm.mdm.advanced' value='on' />
<data key='user.was.user.ev,com.ibm.mdm.advanced' value='mdmadmin' />
<data key='user.was.password.ev,com.ibm.mdm.advanced' value='mdmp1' />
<data key='user.use.ssl.ev,com.ibm.mdm.advanced' value='false' />

```

### *Specifying Web Reports parameters for silent installation*

Specify the Web Reports parameters that will be configured when a response file is run.

## Before you begin



**Attention :** Although code examples might show line breaks, the text between <... /> brackets must be entered in the response file as one line without breaks.

## Procedure

1. Open a response file.
2. Locate the following variables and edit the values to specify the application server parameters for the Web Reports application:

```

<data key='user.was.type.wb,com.ibm.mdm.advanced' value='ND' />
<data key='user.was.profile.home.wb,com.ibm.mdm.advanced' value='/usr/IBM/WebSphere/
AppServer/profiles/AppSrv01' />
<data key='user.deploy.port.wb,com.ibm.mdm.advanced' value='8879' />
<data key='user.deploy.host.wb,com.ibm.mdm.advanced' value='localhost' />
<data key='user.was.cell.wb,com.ibm.mdm.advanced' value='gollum4.torolab.ibm.comCell01' />
<data key='user.was.node.wb,com.ibm.mdm.advanced' value='Node01' />
<data key='user.was.server.wb,com.ibm.mdm.advanced' value='TEST_WR' />
<data key='user.was.cluster.wb,com.ibm.mdm.advanced' value='None' />
<data key='user.was.cluster.flag.wb,com.ibm.mdm.advanced' value='false' />
<data key='user.was.security.wb,com.ibm.mdm.advanced' value='1' />
<data key='user.was.security.on.off.wb,com.ibm.mdm.advanced' value='on' />
<data key='user.was.user.wb,com.ibm.mdm.advanced' value='mdmadmin' />

```

```
<data key='user.was.password.wb,com.ibm.mdm.advanced' value='mdmp1' />
<data key='user.use.ssl.wb,com.ibm.mdm.advanced' value='false' />
```

### *Specifying statistics collection parameters for silent installation*

Specify the InfoSphere MDM system statistics collection parameters that will be configured when a response file is run.

## Before you begin



**Attention :** Although code examples might show line breaks, the text between `< . . . />` brackets must be entered in the response file as one line without breaks.

## Procedure

1. Open a response file.
2. Locate or add the following data keys and edit the values to specify the application server parameters for the statistics collection feature:

```
<data key='user.kafka.statistics.enable,com.ibm.mdm.advanced.0.4' value='no' />
<data key='user.kafka.zk.host,com.ibm.mdm.advanced.0.4' value='' />
<data key='user.kafka.zk.port,com.ibm.mdm.advanced.0.4' value='' />
<data key='user.kafka.cluster.enable,com.ibm.mdm.advanced.0.4' value='' />
<data key='user.kafka.cluster.servers,com.ibm.mdm.advanced.0.4' value='' />
<data key='user.kafka.standalone.host,com.ibm.mdm.advanced.0.4' value='' />
<data key='user.kafka.standalone.port,com.ibm.mdm.advanced.0.4' value='' />
```

**Note :** By default, the statistics collection feature is disabled. To enable the statistics collection feature, set the `user.kafka.statistics.enable` data key to yes, and then provide the server connection values for the relevant remaining data keys.

3. If you intend to use silent installation files for an upgrade installation, you must also include the data key entries listed in step 2 in the upgrade response file.

### *Specifying fix pack parameters for silent installation*

Specify the InfoSphere MDM fix pack options that will be silently installed when a response file is run.

## Before you begin



**Attention :** Although code examples might show line breaks, the text between `< . . . />` brackets must be entered in the response file as one line without breaks.

## Procedure

1. Open a response file.
2. Locate the following variables and edit the values to specify the fix pack options:

```
<!-- Fix Pack control-->
<data key='user.L2.fixpack.engine.backup.default.val,com.ibm.mdm.advanced' value='Y' />
<data key='user.L2.fixpack.ui.backup.default.val,com.ibm.mdm.advanced' value='Y' />
<data key='user.L2.fixpack.db.fix.apply.default.val,com.ibm.mdm.advanced' value='Y' />
<data key='user.L2.fixpack.engine.redeploy.val,com.ibm.mdm.advanced' value='Y' />
<data key='user.L2.server.status.check.val,com.ibm.mdm.advanced' value='Y' />
```

- To disable fix packs being installed through silent installation mode, modify the following parameter so that the value is N:

**Tip :** Use this option if you plan on applying a fix pack manually.

```
<data key='user.L2.fixpack.engine.backup.default.val,com.ibm.mdm.advanced' value='N' />
```

- To skip applying the database portion of a fix pack, modify the following parameter so that the value is N:

**Tip :** Use this option if you plan on patching the database manually, but want the fix pack updates to be applied to the application.

```
<data key='user.L2.fixpack.db.fix.apply.default.val,com.ibm.mdm.advanced' value='N' />
```

- To disable the server status checks that are routinely performed while fix packs are applied, modify the following parameter so that the value is N:

```
<data key='user.L2.server.status.check.val,com.ibm.mdm.advanced' value='N' />
```

### ***Disabling the installer splash screen during silent installation***

Use this procedure to disable the IBM Installation Manager splash screen for silent installations. This task must be completed for the silent installation to run successfully.

### **About this task**

Follow these steps to add the **-nosplash** parameter in the `IBMIM.ini` file.

### **Procedure**

1. Go to the `INSTALLATIONMANAGER_INSTALL_HOME/eclipse` directory.
2. Open the `IBMIM.ini` file.
3. Add the **-nosplash** parameter.

For example:

- Microsoft Windows:

```
-toolId ibmim
-accessRights nonAdmin
-vm
/home/ws7admin/IBM/InstallationManager/eclipse/jre_5.0.1.sr8a_20080811c/jre/bin/java
-nosplash
-vmargs
-Xms40m
-Xmx512m
-Xquickstart
-Xgcpolicy:gencon
```

- Linux and UNIX:

```
vi IBMIM.ini
/opt/IBM/InstallationManager/eclipse/jre_6.0.0.sr9_20110208_03/jre/bin/java
-nosplash
-vmargs
-Xquickstart
-Xgcpolicy:gencon
```

4. Save and close the file.

### ***Installing InfoSphere MDM silently using a response file***

You can install InfoSphere MDM silently, where the installation choices are provided in an options file instead of in the interactive IBM Installation Manager panels. This type of installation is helpful when you are doing multiple identical installations.

### **Before you begin**

Make sure that you complete the steps in [“Disabling the installer splash screen during silent installation”](#) on page 112.

Make sure that you meet these prerequisites:

- You have completed all of the installation preparation tasks, including preparing your IBM WebSphere Application Server and database.
- You have installed IBM Java SDK 1.8.0

- You have installed Microsoft C++ 64 bit
- You have installed IBM Installation Manager and added the necessary repositories.
- Your IBM WebSphere Application Server deployment manager and node are started.
- Your database is started.
- You have installed IBM Rational Application Developer if you are installing InfoSphere MDM Workbench on a workstation.

If you are installing on Microsoft Windows:

- You must be running in Administrator mode for IBM Installation Manager to write to the Windows registry. Administrator mode is not used for IBM AIX or Linux.
- On a Microsoft Windows 7 operating system, you must install MDM into a directory that is not virtualized.

**Important :** You must have the WebSphere Application Server deployment manager (Dmgr) JVM Heap size arguments set to 2048 MB and 4096 MB, as described in [this IBM Support article](#). To increase the heap size:

1. Open the WebSphere Application Server Integrated Solutions Console and go to **System Administration > Deployment Manager**.
2. Under **Server Infrastructure**, expand **Java and Process Management**, then click **Process definition**.
3. Under **Additional Properties**, click **Java Virtual Machine**.
4. Set the **Initial heap size** to 2048 MB and the **Maximum heap size** to 4096 MB.
5. Click **OK**, save your changes, and synchronize your changes with the nodes.

## About this task

A properties file is generated when you run the interactive installation program. To use a silent installation, you must edit the properties file or create your own file by editing one of the sample response files.

## Procedure

1. Extract the Installation Startup Kit from *Part 1* of the downloaded distribution assets (IBM InfoSphere Master Data Management Standard & Advanced Edition Multilingual <version> Part 1). The location that you extract the Startup Kit to will be referred to in this documentation as the `STARTUPKIT_INSTALL_HOME`.
2. To use a sample response file, go to `STARTUPKIT_INSTALL_HOME`.  
Response files have a `.res` extension. Use the file that is applicable to your operating system.
3. Edit the response file and make any necessary changes before you start the installation.
4. Start the installation with the applicable command:
  - Use this command to run IBM Installation Manager and then generate the corresponding response file:

```
IBMIM -record recordedFile
```

- Use this command to run IBM Installation Manager in silent mode:

```
IBMIM -acceptLicense -silent -input inputFile
```

5. If an unrecoverable problem occurs during the silent installation, look for the cause of the problem in the log files in the `MDM_INSTALL_HOME/logs/logs` directory. After you correct the issue, run the silent installation again.

## Related tasks

[Customizing a silent mode response file](#)

Use this procedure to customize your silent mode installation response file.

#### [Troubleshooting an installation](#)

#### [Uninstalling in silent mode](#)

Use this procedure to uninstall InfoSphere MDM components in silent mode.

#### **Related reference**

#### [Installation Startup Kit](#)

The Installation Startup Kit includes files and scripts to help you prepare your environment before you install InfoSphere MDM.

### ***Modifying an installation using silent mode***

Use this procedure to modify an existing silent installation.

#### **About this task**

To use a silent installation to modify an existing installation, you must edit your installation response file.



**Attention :** Although code examples might show with line breaks in the following content, the text between `< . . . />` must be entered in the response file as one line without breaks.

#### **Procedure**

- To modify your installation, set the modify parameter to `true` and list the features that you want to add.  
For example:

```
<install modify='true'>
<offering id='com.ibm.mdm.advanced' version='11.5.0.v20160412-1501'
profile='IBM InfoSphere Master Data Management'
features='com.ibm.mdm.install.iu.localization.feature,com.ibm.im.mdm.db.feature,
com.ibm.im.mdm.app.feature,com.ibm.mdm.ba.webapp.feature,com.ibm.mdm.pd.webapp.feature,
com.ibm.mdm.wb.webapp.feature,com.ibm.mdm.ev.webapp.feature,
com.ibm.mdm.inspector.webapp.feature,com.ibm.mdm.ba.webapp.sample.feature'
installFixes='none' />
</install>
```

### ***Creating a response file while you are running a graphical installation***

Use this procedure to capture responses and create a response file when you are running IBM Installation Manager in graphical mode.

#### **Before you begin**

The password values in the file are encrypted. If the password value is changed in the system, you must input the correct password value to the response file before you use it for a silent installation. You can enter a new unencrypted value for the password, and the system encrypts it when the file is used during installation.

#### **Procedure**

1. Create the response file by starting the installation with the following command:

```
../IBMIM -record $YOUR_PATH/mysilent.res
```

**Tip :** Do not use the `-skipInstall` parameter when recording the response file. Using the `-skipInstall` parameter can prevent the recording of some dynamically obtained installation data, resulting in an incomplete response file.

2. After the installation has completed and the response file has been created, open the file.
3. Delete or comment out the following line if it is included in the response file:

```
<data key='user.L2.db.driver.path,com.ibm.mdm.rdm' value='${DB2_JDBC_DRIVER_PATH}/java' />
```

**Important :** If this line is left in the response file, then silent installations using this response file will fail.

### **Creating a response file without installing the product**

Using IBM Installation Manager and the `-skipinstall` option, you can record an InfoSphere MDM response file without installing the product.

### **About this task**

The `-skipInstall` parameter has the following benefits:

- No files are actually installed, which speeds up the process of recording installation options.
- If you use a temporary data location with the `-skipInstall` parameter, then Installation Manager writes the installation registry to the specified data location while recording. When you start Installation Manager again without the `-skipInstall` parameter, you can use your response file to install in the real installation registry.

**Restriction :** Do not use the `-skipInstall` option on the actual agent data location used by Installation Manager. This is unsupported. Use a clean, writable location, and then reuse that location for future recording sessions.

### **Procedure**

1. Start IBM Installation Manager from the command line using the `-skipInstall` and `-record` options, using the following format:

```
./IBMIM -skipInstall <user_home>/var/temp/imRegistry -record <response_file_name>
```

For example:

```
./IBMIM -skipInstall home/var/temp/imRegistry -record MDMResponse_file.xml
```

2. Provide the details of your product installation as prompted by the Installation Manager panels.
3. Click **Install** to complete the process.  
Because of the `-skipinstall` option, clicking **Install** generates a silent response file instead of actually installing the product.

### **Installing on z/OS**

Use this procedure if you are installing with IBM DB2 for z/OS.

### **Before you begin**

Make sure that you meet these prerequisites:

- You added the InfoSphere MDM offering to IBM Installation Manager.
- You completed the preparation tasks for creating the database and application server.
- You completed the “[Preparing an existing WebSphere Application Server messaging bus for InfoSphere MDM installation on z/OS](#)” on page 93.
- The IBM WebSphere Application Server (deployment manager and node) and database are started.

**Note :** In DB2 for z/OS, the MDM database tables are distributed across thirteen databases to help ensure better performance and to balance the bufferpool workload by feature. For example, all tables for production are inside the PROD database, all tables for EventManager are inside the EMGR database, and so on. This partitioning strategy is used in DB2 for z/OS for all out-of-the box DDLs. You can redistribute the tables according your organization's internal policies.

**Tip :** Maintain a good bufferpool distribution to avoid congestion, deadlocks, and timeouts.

## About this task

The installation process on DB2 for z/OS requires two distinct sessions. In the first session, you extract and run the JCLs that are used to manually install the physical MDM database.

After the physical database load is complete, the second installation session installs the virtual part of the MDM database, the operational server, and any other features you select.

The installation uses a three character prefix (*db\_prefix*). This prefix must match the last three characters of the schema name or database user ID (assuming the schema and user ID are the same).

*<db\_prefix>*ZMDS is the virtual MDM database.

## Procedure

1. Ensure that the user ID that you are using to run the installation has the correct privileges.
  - a) Ensure that the user has rights to the MDM database.
  - b) Grant BINDADD privileges on the database to the user.

```
GRANT BINDADD TO db_user
```

- c) Grant CREATETAB privileges on the database to the user.

```
GRANT CREATE ON COLLECTION * TO db_user
```

**Note :** The *db\_user* user name is used in the InfoSphere MDM JCL and DDL scripts as the schema name to create all MDM tables. The *user account* is granted USE OF TABLESPACE and CREATETAB privileges for all MDM databases in the DDL scripts.

For the first session, extract and run the physical MDM JCLs. Extract the **Installation Startup Kit** to extract the InfoSphere MDM DB2 for z/OS assets to the *STARTUPKIT\_INSTALL\_HOME* directory.

2. Navigate to the directory where you have saved the downloaded InfoSphere MDM packages.
3. Open *Part 1* of the distribution assets (IBM InfoSphere Master Data Management Standard & Advanced Edition Multitplatform Multilingual *<version>* Part 1) and extract the subfolder StartUpToolkit to a directory of your choice. We will refer to this directory location as *STARTUPKIT\_INSTALL\_HOME*.
4. Go to *STARTUPKIT\_INSTALL\_HOME*.
5. Copy the MDM Operational Server z/OS assets from the *STARTUPKIT\_INSTALL\_HOME/CoreData/Full/DB2/ZOS/pds* and *STARTUPKIT\_INSTALL\_HOME/Full/DB2/ZOS/pds* directories to the z/OS system.

For the second session, install the **MDM Operational Server** and other features:

6. Start IBM Installation Manager and click **Install** on the home panel.
7. On the **Install Packages** panel, select the edition and click **Next**.
8. Continue through the prompts to accept the license agreement, select an installation location, and select a language.



**Attention :** If you have IBM Rational Application Developer installed, make sure that you do not install InfoSphere MDM into the same package group. On the **Install Packages** panel, select **Create a new package group**.

9. Select the **MDM Operational Server, MDM Database**, and any other features you want to install.
10. Enter the configuration information:
  - On the database configuration panel, select **DB2 for z/OS** and provide the database details.
  - For IBM WebSphere Application Server configuration, make sure that you enter the information that you used during application server preparation. Use the *mdmadmin* user and password. Click **Verify MDM Instance on Server** before you exist the panel.

- On the **Messaging Server** panel, select **IBM WebSphere Default Messaging** or **MQ Messaging Provider**. For information about manually installing SIB tables on WebSphere Application Server, see the *Creating data store tables* topic in the [WebSphere Application Server online documentation](#).
11. Review the installation summary information to ensure that the details are accurate, then click **Verify Installation Requirements** to run the prerequisite checks.  
The checks will help to ensure that your environment and configuration is sufficient to successfully complete the installation.
  12. Take corrective action to address any warnings or errors in the prerequisite checks, then click **Install**.
  13. On the final IBM Installation Manager panel, click **View Log Files** if you want to open the log file viewer.
  14. Click **Finish** and close IBM Installation Manager.
  15. From a command line, navigate to `MDM_INSTALL_HOME/mds/scripts` and run the following command to open the installation configuration tool:

- On Microsoft Windows operating systems:

```
madconfig Configure_MasterDataManagement
```

- On Linux or UNIX based operating systems:

```
./madconfig.sh Configure_MasterDataManagement
```

**Note :** If you are deploying under CODEUNIT32 for an IBM DB2 for z/OS database, include the `-Duser.db.large.unicode=yes` modifier. For example:

```
./madconfig.sh Configure_MasterDataManagement -Duser.db.large.unicode=yes
```

Upon being launched, the installation configuration tool prompts you to provide the necessary information to complete the installation configuration.

16. Provide the details of your deployment as prompted by the installation configuration tool.

After you provide the user credentials for WebSphere Application Server and the database as prompted, the installation configuration tool performs a set of [pre-configuration validation tests](#) to validate your installation environment. These validation tests help to ensure that all of the required components are in place to complete the installation and configuration smoothly.

If the pre-configuration validation is successful, the configuration tool completes the configuration of your installation.

## What to do next

A success message on the final installer panel indicates that the verification tests were automatically run as part of the installation process. You can also view the log files to verify a successful installation. If the installation is not successful, view the log files and use the information in the troubleshooting topics to assist you.

### Related tasks

#### [Installing InfoSphere MDM using graphical mode](#)

Use this procedure to install InfoSphere MDM using the graphical installation mode. The installation must be run in an environment that already has a database and an application server in place.

#### [Installing InfoSphere MDM into a clustered environment](#)

Use this procedure to run a custom installation of InfoSphere MDM into a clustered environment.

#### [Preparing an existing WebSphere Application Server messaging bus for InfoSphere MDM installation on z/OS](#)

If you are installing InfoSphere MDM on z/OS, the database user for the InfoSphere MDM installation must have permission to create tables and table spaces. If they do not, the WebSphere Application Server might not successfully create the Service Integration Bus (SIB) tables.

### **Configuring your message bus on z/OS after installation**

If you did not have an existing WebSphere embedded messaging (message bus) created before installation, then you must complete this procedure after you install InfoSphere MDM on z/OS.

#### **About this task**

After the installation completes, an error displays stating that the Install Verification Test did not pass. You can ignore this error if you complete these steps.

#### **Procedure**

1. Open the WebSphere Application Server Integrated Solutions Console (admin console).
2. Go to **Service Integration > Buses > your application bus > Bus Members**.
3. On the bus members page, click **your application bus member > your application SIB server > Message Store**.
4. Clear the **Create tables** option.
5. Click **Apply** and then click **Save directly to the master configuration**.
6. Synchronize your nodes and restart the application server. Stopping the server prevents WebSphere Application Server from attempting to create and connect to the SIB tables.
7. Create the SIB tables for your instance by modifying the ZSIB.sql file for your schema, prefix, and database owner. In the file, replace <SCHEMA> with your schema name, <PREFIX> with your three character prefix, and <DBA ACCOUNT> with your database owner. Run the SQL as DB Owner.

**Note :** The value of <PREFIX> is typically the last three characters of the schema name.

8. Restart your application server.
9. From the `MDM_INSTALL_HOME/IVT` directory, run the `Verify.sh` script.  
For example, use the command: `verify.sh DB_Schema DB_Password WAS_user WAS_password`
10. View the installation response files to ensure that the IVT was successful.  
Response files are in the `MDM_INSTALL_HOME/IVT/testCases/xml/response` and `MDM_INSTALL_HOME/IVT/testCases/xml_virtual/response` directories.

#### **Related concepts**

[Configuring WebSphere Application Server embedded messaging](#)

The InfoSphere MDM application uses Message Driven Beans (MDBs) that, on startup of the enterprise bundle archive (EBA), look for their associated activation specifications and a JMS provider.

### **Installing InfoSphere MDM into a clustered environment**

Use this procedure to run a custom installation of InfoSphere MDM into a clustered environment.

#### **Before you begin**

Make sure that you meet these prerequisites:

- You have defined unique names for each member in the cluster.
- You have completed all of the installation preparation tasks, including preparing your IBM WebSphere Application Server and database.
- You have installed IBM Installation Manager and added the necessary repositories.
- Your IBM WebSphere Application Server deployment manager and node are started.
- Your database is started.

- You have installed IBM Rational Application Developer if you are installing InfoSphere MDM Workbench on a workstation.

If you are installing on Microsoft Windows:

- You must be running in Administrator mode for IBM Installation Manager to write to the Windows registry. Administrator mode is not used for IBM AIX or Linux.
- On a Microsoft Windows 7 operating system, you must install MDM into a directory that is not virtualized.

**Important :** You must have the WebSphere Application Server deployment manager (Dmgr) JVM Heap size arguments set to 2048 MB and 4096 MB, as described in [this IBM Support article](#). To increase the heap size:

1. Open the WebSphere Application Server Integrated Solutions Console and go to **System Administration > Deployment Manager**.
2. Under **Server Infrastructure**, expand **Java and Process Management**, then click **Process definition**.
3. Under **Additional Properties**, click **Java Virtual Machine**.
4. Set the **Initial heap size** to 2048 MB and the **Maximum heap size** to 4096 MB.
5. Click **OK**, save your changes, and synchronize your changes with the nodes.

## About this task

**Tip :** Review the installation scenarios before you begin a clustered installation. While the scenarios might not exactly fit your environment, they can offer a guideline for installation.

## Procedure

1. Review the prerequisites listed earlier in this topic and ensure that you have completed all of the necessary preparation steps. These steps are not optional.
2. Verify that these items are completed for your application server:
  - a) WebSphere Application Server is installed on each required machine in your cluster.
  - b) The necessary clusters are created in WebSphere Application Server.
  - c) If you are using a DB2 or Oracle database, you must set the JDBC\_DRIVER\_PATH environment variable.
  - d) Synchronize all managed nodes.
  - e) Note the WebSphere Application Server host name and port in your installation worksheet.
3. Verify that your database and database client software are installed on the necessary machines, and that the database is started.
4. If you are using IBM WebSphere MQ messaging, complete these steps for each machine in the cluster. If you are using IBM WebSphere Default Messaging, continue to the next step.
  - a) Verify that WebSphere MQ is installed.
  - b) Run the `custSetupMQServer.mqsc` and `ChannelAuth.mqsc` scripts to create the WebSphere MQ queue manager, channel, and queues. These scripts are part of the Installation Startup Kit, which you can extract from *Part 1* of the distribution assets (IBM InfoSphere Master Data Management Standard & Advanced Edition Multitplatform Multilingual *<version> Part 1*).
5. Open IBM Installation Manager and click **Install**.
6. On the **Install Packages** panel, select the edition and click **Next**.
7. Continue through the prompts to accept the license agreement, select an installation location, and select languages.
8. Configure your InfoSphere MDM installation details:

**Tip :** Use your completed installation worksheets for guidance. As you move through each of these configuration panels, the screen displays a green check mark or red x to indicate whether the panel has been completed successfully.

a) On the **Database Configuration** panel:

- Enter the database details. If your database home value is valid, then the **Test Connection** button becomes active.
- Click **Test Connection**. The database must be accessible and running for the test to be successful.
- After a successful connection test, you can set up table spaces. Select either **Use existing tablespaces** or **Create new tablespaces**. If you choose to create new table spaces, then you must define the new names.

b) On the **History Configuration** panel, select the industry, triggers, and language options necessary for your business requirements.

c) On the **WebSphere Application Server Configuration** panel:

- Enter the information that you used to set up your application server.
- Select **Retrieve Host Details** to obtain your cell, node, and server information. Use each drop down list to select the retrieved cell, node, and server. If you need to provide a different value, you can type it in the field.
- Click **Verify MDM Instance on Server**.

d) On the **Application Configuration** panel:

- Provide the new application name, user password, and RMI port. The installation application will use these details to set up InfoSphere MDM.
- Select either **Probabilistic matching** or **Deterministic matching** for your matching style.
- If your application is running across different time zones or your data has time-sensitive values under different time zones, select **Enable multiple time zone deployment** and select a **Default time zone**.
- Select the messaging type to use for this installation. If you select IBM WebSphere MQ, then you will be asked to provide the details of your WebSphere MQ instance.

**Tip :** If you installed WebSphere MQ on a different machine than the one where you are running IBM Installation Manager, make sure that you clear the **Configure messaging server** option to prevent the installer from creating a queue manager. Keep the option selected if you do want to create a queue manager.

e) On the **Install Configuration Review** panel:

- Select the install type. You can either choose to automatically configure the application components as part of the main installation process or run scripts after the main installation to configure them later.
- Expand the Properties headings to review the details that you have configured for this installation.
- Click **Verify Installation Requirements** to run a number of prerequisite checks. The checks will help you to confirm that your environment and configuration is sufficient to successfully complete the installation.
- Review the prerequisite validation test results. Click **Show details** to see more information of for each test, and follow the provided links to view the log file and help for each result.

**Tip :** You can ignore warnings by clicking **Show details**, then selecting **Ignore the warning. I understand the risks**. Errors cannot be ignored.

- If necessary, take any corrective action to address any warnings or errors, then click **Recheck Status**.
- When the checks pass successfully, click **Install**.

The installation application will install InfoSphere MDM. Depending on your configuration, the installation process can take a significant amount of time.

9. On the final IBM Installation Manager panel, click **View Log Files** if you want to open the log file viewer.
10. Click **Finish**, then close IBM Installation Manager.
11. From a command line, navigate to `MDM_INSTALL_HOME/mds/scripts` and run the following command to open the installation configuration tool:
  - On Microsoft Windows systems, run

```
madconfig.bat Configure_MasterDataManagement
```
  - On Linux or UNIX systems, run

```
madconfig.sh Configure_MasterDataManagement
```
12. Provide the details of your deployment as prompted by the installation configuration tool. The configuration tool will complete the configuration of your installation.
13. For Microsoft Windows installations, the ODBC datasource will be available only on the server in which InfoSphere MDM is installed. To create the ODBC datasource in other servers that have nodes that are part of the cluster, perform the following steps with a user that is authorized to modify the Windows registry:
  - a) Browse to `<WAS_PROFILE_HOME>/installedApps/<CELL>/MDM-native-<INSTANCE_ID>.ear/native.war/scripts`.
  - b) Invoke the madconfig target `register_odbc`:

```
madconfig register_odbc
```
  - c) Invoke the madconfig target `create_datasource` along with a value for the property `mad.db.dsn`:

```
madconfig create_datasouce -Dmad.db.dsn=<DATABASE_NAME>_<INSTANCE_ID>
```

**Note :** The value for `mad.db.dsn` can be obtained from `<WAS_PROFILE_HOME>/installedApps/<CELL>/MDM-native-<INSTANCE_ID>.ear/native.war/conf/com.ibm.mdm.mds.jni.cfg` as part of value for property `MAD_CONNSTR`.
  - d) When prompted, provide values for the following parameters:
    - Database type
    - Database host
    - Database port
    - Database name
    - Schema name

## Results

A success message on the final installer panel indicates that the verification tests were automatically run as part of the installation process. You can also view the log files to verify a successful installation. If the installation is not successful, view the log files and use the information in the troubleshooting topics to assist you.

## What to do next

After installation, if you want to add or remove a feature (for example, add an application or another language translation), or modify any of your configuration settings, run the madconfig target `Modify_MDM`.

## Related concepts

### [Worksheets for installation and configuration](#)

The installation worksheets list all of the values that you must specify during an InfoSphere MDM installation process. Completing the installation worksheets before you install the components can help you plan your installation, save time, and enforce consistency during the installation and configuration process.

### [Preparing IBM Installation Manager](#)

All components of the InfoSphere MDM editions are installed by using IBM Installation Manager.

### [Installing and setting up the application server](#)

You must prepare an application server before you begin the installation of the InfoSphere MDM application.

### [Installation scenarios](#)

This section contains some common installation scenarios that you can use as guidelines when installing InfoSphere MDM in similar environments.

### [Verifying the base installation](#)

After installing, there are several methods to verify that the new deployment has been successful.

### [Multiple instance support](#)

Multiple instances of InfoSphere MDM is supported by installing the application in a clustered environment.

## Related tasks

### [Installing and setting up the database](#)

You must complete this procedure to install and prepare your database before installing the InfoSphere MDM application.

### [Installing on z/OS](#)

Use this procedure if you are installing with IBM DB2 for z/OS.

### [Modifying an installation](#)

Use this procedure to add or remove InfoSphere MDM components on a workstation or server that already has components of the same version installed.

### [Troubleshooting an installation](#)

## Installing a remote deployment

Use this procedure to install InfoSphere MDM in a remote deployment scenario. You can install InfoSphere MDM from a remote virtual machine.

## Before you begin

For example, if there is a WebSphere Application Server cluster installed on three virtual machines (VM1, VM2, and VM3), and you wish to install InfoSphere MDM on the cluster, you can run the installation and configuration tools remotely from a separate virtual machine (VM4).

In the example scenario, there are four virtual machines that must be set up as follows:

- VM1, VM2, and VM3 are in a WebSphere Application Server cluster.
- VM1 has WebSphere Application Server Deployment Manager.
- VM2 has WebSphere Application Server Managed Node 1.
- VM3 has WebSphere Application Server Managed Node 2.
- VM4, the remote deployment machine, has both WebSphere Application Server Deployment Manager and Managed Node profiles installed.

**Note :** VM4 cannot have any other WebSphere Application Server profiles installed.

- On VM4, the Dmgr and node agent do not need to be started.

## Procedure

1. On the remote deployment machine (VM4), complete the procedure for [installing the product](#) and define the target installation directories to be on the remote cluster.
2. In between the steps for installing InfoSphere MDM with IBM Installation Manager and running the configuration tool (`madconfig Configure_MasterDataManagement`), start the remote WebSphere Application Server cluster.

## Installing in high availability environments

To set up InfoSphere MDM to operate in a high availability environment, configure multiple instances on multiple host servers.

### About this task

To install InfoSphere MDM in a high availability environment, configure your installation to work on a WebSphere Application Server cluster.

If you wish to place your InfoSphere MDM servers in different geographic locations, then they must be installed either in different active clusters (*multiple clusters*) or different active WebSphere Application Servers in different cells (*multiple instances*). In the case of multiple instances, a load balancer may be needed to balance requests and handle failover.

**Important :** Even in high availability configurations, there is a risk that the failure of a cluster or server may lead to the failure of any transactions being processed at the time of the failure. When using WebSphere default messaging, any messages that are currently in-process can be lost.

The remainder of this topic describes how to set up the following high availability scenarios:

- InfoSphere MDM is installed on *multiple clusters* that share a single MDM schema. In this scenario, there are four servers set up in the following configuration:
  - Cluster 1 - Node 1 - Server 1
  - Cluster 1 - Node 2 - Server 2
  - Cluster 2 - Node 3 - Server 3
  - Cluster 2 - Node 4 - Server 4
- InfoSphere MDM is installed on *multiple instances* that share a single MDM schema. In this scenario, there are two servers using different cells.

Use the following steps to set up the scenarios.

## Procedure

- **Scenario one:** Install on *multiple clusters*.
  - a) Install InfoSphere MDM on cluster one. Verify that the physical MDM and virtual MDM test cases are successful in the IVT folder.
  - b) Shut down cluster one.
  - c) Perform a full database backup.
  - d) Drop all of the tables from the database schema.
  - e) Install InfoSphere MDM on cluster two, pointing the installation to the same clean schema as the cluster one installation. Again, verify that the physical MDM and virtual MDM test cases are successful in the IVT folder.

**Note :** The installation application creates two records in the schema.APPINSTANCE table, one for each cluster:

```
values(1,1006,'Server3',current_timestamp,'installer')
values(2,1006,'Server4',current_timestamp,'installer')
```

- f) Shut down cluster two.
- g) Manually configure the MDM configuration repository to support both clusters:
  - Use the server name as the instance name (such as server3 and server4).
  - Update the instance ID for cluster two:

```
update schema.APPINSTANCE set instance_id=201, last_update_dt=current_timestamp where
instance_name='Server3';
update schema.APPINSTANCE set instance_id=202, last_update_dt=current_timestamp where
instance_name='Server4';
update schema.CONFIGELEMENT set instance_id=201, value='3',
last_update_dt=current_timestamp where instance_id=1 and name='/IBM/DWLCommonServices/
KeyGeneration/instancePKIdentifier';
update schema.CONFIGELEMENT set instance_id=202, value='4',
last_update_dt=current_timestamp where instance_id=2 and name='/IBM/DWLCommonServices/
KeyGeneration/instancePKIdentifier';
```

- Create instances for each member in cluster one:

```
insert into schema.APPINSTANCE values(101,1006,'Server1',current_timestamp,'installer')
insert into schema.APPINSTANCE values(102,1006,'Server2',current_timestamp,'installer')
insert into schema.CONFIGELEMENT values(2001,1006,'/IBM/DWLCommonServices/
KeyGeneration/instancePKIdentifier','1',,101,CURRENT_TIMESTAMP,'INSTALLATION','0',);
insert into schema.CONFIGELEMENT values(2002,1006,'/IBM/DWLCommonServices/
KeyGeneration/instancePKIdentifier','2',,102,CURRENT_TIMESTAMP,'INSTALLATION','0',);
```

- Ensure that the instance name for each member is configured in the WebSphere Application Server variables at the server level:

```
MDM_INSTANCE_NAME=Server1 for server1 in Cluster1.
MDM_INSTANCE_NAME=Server2 for server2 in Cluster1.
MDM_INSTANCE_NAME=Server3 for server3 in Cluster2.
MDM_INSTANCE_NAME=Server4 for server4 in Cluster2.
```

- h) If your implementation uses WebSphere default messaging, ensure that each cluster's SIB data store uses different schema:
  - a. Open the WebSphere Application Server administration console.
  - b. Navigate to **Buses > <bus-name> > Messaging engines > <engine-name> > Data store > Schema name.**
  - c. Modify the schema name for cluster one to a different name, such as schema1.
- i) Restart cluster one.
- j) Rerun the installation verification script (`verify.sh`) to verify that both physical MDM and virtual MDM test cases are successful in the IVT folder.
- k) Restart cluster two.
- l) Rerun the installation verification script (`verify.sh`) to verify that both physical MDM and virtual MDM test cases are successful in the IVT folder.
- **Scenario two:** Install on *multiple instances*.
  - a) Install InfoSphere MDM on server one in node one and cell one. Verify that the physical MDM and virtual MDM test cases are successful in the IVT folder.
  - b) Shut down server one.
  - c) Perform a full database backup.
  - d) Drop all of the tables from the database schema.
  - e) Install InfoSphere MDM on server two in node two and cell two, pointing the installation to the same clean schema as the server one installation. Again, verify that the physical MDM and virtual MDM test cases are successful in the IVT folder.
 

**Note :** The installation application will not create any records in the schema.APPINSTANCE table.
  - f) Shut down server two.
  - g) Manually configure the MDM configuration repository to support both instances:

- Create an application instance for each server:

```
insert into schema.APPINSTANCE values(101,1006,'Server1',current_timestamp,'installer')
insert into schema.APPINSTANCE values(102,1006,'Server2',current_timestamp,'installer')
insert into schema.CONFIGELEMENT values(1001,1006,'/IBM/DWLCommonServices/
KeyGeneration/instancePKIdentifier','1',,101,CURRENT_TIMESTAMP,'INSTALLATION','0',);
insert into schema.CONFIGELEMENT values(1002,1006,'/IBM/DWLCommonServices/
KeyGeneration/instancePKIdentifier','2',,102,CURRENT_TIMESTAMP,'INSTALLATION','0',);
```

**Note :** When inserting information into the APPINSTANCE and CONFIGELEMENT tables, ensure that the DEPLOYMENT\_ID value (1006) matches the corresponding primary key in the APPDEPLOYMENT table.

- Add an instance name for each server in the WebSphere Application Server, at the server level:

```
MDM_INSTANCE_NAME=Server1 for server one in node one and cell one.
MDM_INSTANCE_NAME=Server2 for server two in node two and cell two.
```

- h) Set a value for the MDM\_INSTANCE\_NAME variable for each application server where InfoSphere MDM is installed.
  - a. In the WebSphere Application Server Integrated Solutions Console (admin console), go to **Environment > WebSphere Variables**.
  - b. Set the value of the MDM\_INSTANCE\_NAME variable to be the same as the server name.
- i) If your implementation uses WebSphere default messaging, ensure that each instance's SIB data store uses different schema.
  - For Db2, you must create a schema and grant CREATEIN, ALTERIN, and DROPIN privileges to the MDM database user on this schema. Then create the schema:
    - a. Open the WebSphere Application Server administration console.
    - b. Navigate to **Buses > <bus-name> > Messaging engines > <engine-name> > Data store > Schema name**.
    - c. Modify the schema name for server one to a different name, such as server1.
  - For Oracle, the user name and schema name must be the same:
 

**Tip :** To use Oracle with different user names and schema names, you must use a logon trigger.

    - a. Create new database user for Oracle.
    - b. Create a new JAAS - J2C authentication data entry in WebSphere Application Server corresponding to that user.
    - c. In the WebSphere Application Server Integrated Solutions console (admin console), go to **Buses > <BUS> > Messaging engines > <MESSAGING\_ENGINE> > Data store** and provide the name of the new user as the schema name and provide the new JAAS entry as the Authentication alias.
    - d. Restart the server.
- j) Restart server one.
- k) Rerun the installation verification script (verify.sh) to verify that both physical MDM and virtual MDM test cases are successful in the IVT folder.
- l) Restart server two.
- m) Rerun the installation verification script (verify.sh) to verify that both physical MDM and virtual MDM test cases are successful in the IVT folder.

## Pre-installation validation checks

The InfoSphere MDM installer application runs tests to ensure that certain prerequisites and settings are in place before each installation begins.

The validation checking tool helps to prevent you from beginning an installation that will be unable to successfully complete due to any missing prerequisites.

**Tip :** Run the validation checks from within IBM Installation Manager graphical installation mode by clicking **Verify Installation Requirements** on each validation panel.

The installation application runs the following validation checks.

<i>Table 14. System checks</i>		
<b>Validation check</b>	<b>Description</b>	<b>Resolution</b>
Installation disk space verification	This check validates that there is sufficient disk space to install InfoSphere MDM in the <i>MDM_INSTALL_HOME</i> directory.	Ensure that there is at least 2 GB of disk space available in the <i>MDM_INSTALL_HOME</i> location.
Memory verification for running the installation application	This check validates that there is sufficient memory to run the installation. This message is a warning only.	Ensure that the system that you are installing on has at least 8 GB of RAM.  <b>Note :</b> You can choose to ignore this warning, but the installation may fail.

<i>Table 15. Database checks</i>		
<b>Validation check</b>	<b>Description</b>	<b>Resolution</b>
Database version verification	This check validates that the database version is supported.  <b>Note :</b> If you opted to skip the database connection test on the database panel, then this check will not be performed.	Ensure that the database for this installation is one of the database versions listed in the InfoSphere MDM system requirements.
Disk space verification for the database	This check validates that there is sufficient disk space available for the MDM database in the default database location (the database home folder).	Ensure that there is at least 6 GB of disk space for the database.  <b>Note :</b> This requirement only considers the basic disk space requirements for database creation.
Database parameters verification	This check validates that all of your database connection credentials (such as host, port, user, and password) are correct by attempting to connect to the database. This check also validates that the character set for the database is Unicode (UTF-8).  <b>Note :</b> If you opted to skip the database connection test on the database panel, then this check will not be performed.	Ensure that the specified database user can connect to the database using the host name, port, and specified database credentials. Each of these parameters must be correct, and the required JARs must be available to connect the client to the database server.  <ul style="list-style-type: none"> <li>• For DB2 databases, ensure that your codeset is UTF-8.</li> <li>• For Oracle databases, ensure that the value of NLS_CHARACTERSET is AL32UTF8.</li> </ul> <p>For details about the specific reasons that this check failed, refer to the log file.</p>

Table 15. Database checks (continued)

Validation check	Description	Resolution
Database buffer pools verification	This check determines whether the database buffer pools meet the InfoSphere MDM system requirements.	<p>Ensure that the database buffer pools meet the InfoSphere MDM system requirements.</p> <p>For details about the specific reasons that this check failed, refer to the log file.</p>
Database user permission verification	<p>This check validates that the specified database user exists and has the required permissions.</p> <p><b>Note :</b> If you opted to skip the database connection test on the database panel, then this check will not be performed.</p>	<p>Ensure that the database user being used for the installation has all of the required permissions.</p> <p>For details about the specific reasons that this check failed, refer to the log file.</p> <p>MDM database users must have the ability to create and edit table spaces, tables, triggers, functions, views, procedures, and sequences. For details about the required database permissions, install the InfoSphere MDM Startup Toolkit and refer to the operations run by the database setup scripts:</p> <ul style="list-style-type: none"> <li>• DB2: <code>STARTUP_TOOLKIT_HOME\database\CoreData\Full\DB2\Standard\ddl\CreateTS.sql</code></li> <li>• Oracle: <code>STARTUP_TOOLKIT_HOME\database\CoreData\Full\Oracle\Standard\ddl\create_schema_ora.sql</code></li> </ul> <p><b>Note :</b> Permissions are specific to DB2 and Oracle.</p>
Table space definition verification	<p>This check validates that the required database table spaces are present in the database.</p> <p><b>Note :</b> If you opted to skip the database connection test on the database panel, then this check will not be performed.</p>	<p>Ensure that the table spaces exist in the database and are defined correctly.</p> <p>Refer to the log file for information about missing table spaces.</p> <p><b>Note :</b> Table spaces are specific to DB2 and Oracle.</p>

Table 15. Database checks (continued)

Validation check	Description	Resolution
ODBC datasource verification	<p>This check determines whether an ODBC datasource exists in a Microsoft Windows registry. This check will fail with an error if an ODBC datasource already exists.</p> <p><b>Note :</b> For non-Windows systems, this check will always pass.</p>	<p>If an ODBC datasource exists in your Windows registry, remove the datasource:</p> <ol style="list-style-type: none"> <li>1. Open the Windows Registry Editor by running the command <code>regedit</code>.</li> <li>2. Find the entry <code>HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBC.INI</code>.</li> <li>3. Expand <code>ODBC.INI</code>, locate the ODBC datasource entry, then right-click it and select <b>Delete</b>.</li> <li>4. Under <code>ODBC.INI</code>, select the ODBC Data Sources entry. In the display pane, all of the subentries are shown.</li> <li>5. Locate the ODBC datasource entry in the list of subentries. Right-click the entry and select <b>Delete</b>.</li> </ol>
Database name verification	<p>This check validates that the database exists on the database server and matches the name provided on the database configuration panel.</p> <p><b>Note :</b> This validation is performed on DB2 for z/OS database installations only.</p> <p><b>Note :</b> If you opted to skip the database connection test on the database panel, then this check will not be performed.</p>	<p>Ensure that the database exists and that the database details that you provided are correct.</p>
Database state verification	<p>This check validates that there are no preexisting MDM data tables in the database schema. If the schema is already populated, then a warning message is displayed.</p> <p><b>Tip :</b> Do not attempt to install InfoSphere MDM into a database that is already populated with MDM data. Installing over an existing database can result in the data being lost if there is an installation failure.</p>	<p>Ensure that your database starts with an empty schema before installing InfoSphere MDM. The installation will create the MDM tables.</p> <p>If you intend to perform an upgrade installation, refer to the <i>Upgrading from a previous version</i> topic (see the related links at the end of this topic).</p> <p><b>Note :</b> You can choose to ignore this warning, but data may be lost if the installation fails.</p>

Table 16. Operational server checks

Validation check	Description	Resolution
WebSphere Application Server version verification	<p>This check validates that the correct version of WebSphere Application Server is installed and available.</p> <p>There are two potential failure scenarios for this validation:</p> <ul style="list-style-type: none"> <li>• <i>Not connected</i> - The installation verification tool cannot connect to WebSphere Application Server.</li> <li>• <i>Old version</i> - The WebSphere Application Server version is not supported.</li> </ul>	<p>If the failure message indicates that the validation check cannot connect, double-check the connection details that you specified. The log file indicates the reasons that the connection failed.</p> <p>If the failure message indicates that the version is not supported, then you must install the correct version of WebSphere Application Server. The log file indicates both the detected version and the required version.</p>
Disk space verification for the profile	<p>This check validates that there is sufficient disk space to install the InfoSphere MDM operational server in the <i>MDM_INSTALL_HOME</i> location. A failure of this validation prompts a warning.</p>	<p>Ensure that there is enough disk space available in the <i>MDM_INSTALL_HOME</i> location.</p> <p>The required amount of disk space varies depending on the features that you choose to install. For details about the specific requirements for your installation, refer to the log file.</p> <p><b>Note :</b> You can choose to ignore this warning, but the installation may fail.</p>
SOAP connection timeout verification	<p>This check validates that the <code>soap.client.props</code> file is present and that the SOAP connection timeout value (<code>com.ibm.SOAP.requestTimeout</code>) is sufficient. A failure of this validation prompts a warning.</p>	<p>If the warning message indicates that the <code>soap.client.props</code> file is not found, then refer to the log file for details.</p> <p>If the warning message indicates that the SOAP connection timeout value is not long enough, set the value of <code>com.ibm.SOAP.requestTimeout</code> to one of the following values:</p> <ul style="list-style-type: none"> <li>• a number greater than or equal to 1800</li> <li>• 0, which indicates that there will be no timeout</li> </ul> <p><b>Note :</b> You can choose to ignore this warning, but the installation may fail.</p>
WebSphere Application Server status verification	<p>This check validates that WebSphere Application Server is running.</p>	<p>Ensure that WebSphere Application Server is running. Refer to the log file for details about the reason that this check failed.</p>

### Related tasks

[Checking prerequisites using the command line tool](#)

### Related reference

[Database user accounts and connections](#)

All installations require at least one database user account.

### Related information

[InfoSphere MDM system requirements](#)

[Upgrading from a previous version](#)

## Pointing a new installation to an existing MDM database

You can install InfoSphere MDM and configure it to work with an existing or upgraded MDM database.

### About this task

You may wish to point a new installation to an existing database if you are configuring a developer environment or a high availability deployment. This capability is also a key part of performing product upgrades.

This capability is only available if the existing database is at the same release version as the InfoSphere MDM installation. If your existing MDM database is for an older release than the current application version, then refer to the [upgrade documentation](#) instead of the following procedure.

### Procedure

1. Install and extract the InfoSphere MDM assets:
  - a) Start IBM Installation Manager.
  - b) Choose **Install** mode.
  - c) Complete the installation wizard, providing all necessary parameters for your deployment, including database and application server details.  
IBM Installation Manager will extract and configure files.
  - d) Exit IBM Installation Manager.
2. Configure InfoSphere MDM, excluding the database configuration from the process:
  - a) From a command line, navigate to `MDM_INSTALL_HOME/mds/scripts`.
  - b) Run the following command to open the installation configuration tool while excluding additional database configuration steps.
    - On Microsoft Windows systems, run

```
madconfig Configure_MasterDataManagement -Duser.install.db.manuall=true
```
    - On Linux or UNIX systems, run

```
./madconfig.sh Configure_MasterDataManagement -Duser.install.db.manuall=true
```
  - c) Provide the details of your deployment as prompted by the installation configuration tool.  
The configuration tool will complete the configuration of your installation.

### Related tasks

[Upgrading from a previous version](#)

[Installing InfoSphere MDM using graphical mode](#)

Use this procedure to install InfoSphere MDM using the graphical installation mode. The installation must be run in an environment that already has a database and an application server in place.

## Enabling support for Oracle non-wired driver

If you are using a virtual MDM and plan to use a non-wired Oracle database driver, complete these steps after you install the InfoSphere MDM database and features.

### Before you begin

Complete the steps in [“Deploying the MDM Native Component feature on remote Windows server”](#) on page 131.

### Procedure

1. On the machine where you installed the native Oracle client and drivers and deployed the native EAR file:
  - a) Configure the operating system environment variable as: `ORACLE_HOME=PATH_TO_ORACLE_HOME`.
  - b) Configure the operating system environment variable as:
    - For Microsoft Windows: `LIB=PATH_TO_ORACLE_HOME/lib`
    - For IBM AIX: `LIBPATH=PATH_TO_ORACLE_HOME/lib`
    - For other operating systems: `LD_LIBRARY_PATH=PATH_TO_ORACLE_HOME/lib`
2. Go to the native `.war/scripts` directory and run these commands:
  - a) `madconfig remove_datasource -Dmad.db.dsn=DB_NAME_MDM_INSTANCE_ID`
  - b) `madconfig create_datasource -Dmad.db.type=oracle -Dmad.db.dsn=DB_NAME_MDM_INSTANCE_ID-Dmad.db.server=TNS_NAME`

The **create\_datasource** command prompts you to enter a database host. You can leave that prompt blank and press Enter.
3. If you have a clustered environment, repeat the steps on each cluster member.

### Related reference

[ODBC drivers installed with Standard Edition](#)

The ODBC drivers that are applied by the installation application when installing InfoSphere MDM Standard Edition are determined by the database type that you define.

## Deploying the MDM Native Component feature on remote Windows server

The Master Data Management Native Component feature is the ODBC data source that virtual MDM configurations require to operate successfully.

### About this task

If you are planning to install the MDM operational server and implement a virtual MDM configuration on a WebSphere Application Server cluster and a Microsoft Windows operating system, there are steps that you must take after you install your operational server.

The installer automatically runs the **madconfig create\_datasource** target to create an ODBC data source on a remote server by using an ANT agent. However, the ANT agent does not have permission to modify the Windows registry.

If you are running IBM Installation Manager and WebSphere Application Server deployment manager on machine A and must deploy your operational server and virtual configuration to managed nodes on other machines (for example B, C, and D), use this procedure. This procedure manually creates the ODBC data source on each of the remote Windows servers after you first run IBM Installation Manager to install your operational server.

## Procedure

1. Run IBM Installation Manager on machine A and install the MDM operational server.
2. From a command line on machine A, navigate to `MDM_INSTALL_HOME/mds/scripts` and run the following command to open the installation configuration tool:

- On Microsoft Windows operating systems:

```
madconfig Configure_MasterDataManagement
```

- On Linux or UNIX based operating systems:

```
./madconfig.sh Configure_MasterDataManagement
```

3. Provide the details of your deployment as prompted by the installation configuration tool.  
The configuration tool will complete the configuration of your installation.
4. On machine B, go to your `<WAS_PROFILE_HOME>\installedApps\<YOUR_CELL_NAME>\<MDM-native-IDENTIFIER>.ear\native.war\scripts` directory.
5. Open a command-line prompt.
6. Type this command: `madconfig.bat register_odbc`.
7. Type this command: `madconfig.bat create_datasource -Dmad.db.type=DBTYPE -Dmad.db.name=DBNAME -Dmad.db.port=DBPORT -Dmad.db.host=DBHOST -Dmad.db.dsn=DSN`

Where:

- *DBTYPE*: is your database type; specify DB2, ORACLE, or MSSQLU on machine B
- *DBHOST*: is your database host name or IP address on machine B
- *DBPORT*: is your database port on machine B
- *DBNAME*: is your database name on machine B, for example `mdmins11`
- *DSN*: the data source name; DSN naming convention is `<DB_NAME>_<MDM_INSTANCE_IDENTIFIER>.<MDM_INSTANCE_IDENTIFIER>`. must match the **MDM application name** value that you entered on the **Application Configuration** panel during installation on machine A.

8. Repeat steps 2 - 5 for each additional machine in your cluster (for example, C and D).

## Configuring the MDM statistics collection feature

The MDM statistics collection feature is configured by the `Configure_MasterDataManagement` `madconfig` target during the configuration phase of InfoSphere MDM installation.

### Before you begin

To learn about the MDM statistics collection feature, see [Collecting entity and transaction statistics](#).

Before configuring and enabling statistics collection, review the associated [known issues and limitations for the feature](#).

### About this task

The `Configure_MasterDataManagement` script provides you with an option to configure the MDM statistics collection feature. If you have not yet configured your InfoSphere MDM deployment, you can configure MDM statistics collection as part of running `Configure_MasterDataManagement`. However, if you already configured your deployment, run the `madconfig` target `configure_mdm_statistics` instead.

**Restriction :** The MDM statistics collection feature is not supported on z/OS operating systems. This is due to the fact that statistics collection relies on the Apache Kafka Streams application, which does not support z/OS. If you install InfoSphere MDM on z/OS, you must either:

- Copy the `<MDM_INSTALL_HOME>/KafkaProcessor` folder to another machine that can connect to your Kafka Server.
- or
- Copy the `<MDM_INSTALL_HOME>/KafkaProcessor` folder directly to the Kafka Server machine.

## Procedure

1. During the initial part of the configuration, the configuration script provides you with the option to select to configure the statistics collection feature or not. Enter yes to include statistics collection as part of the configuration.
2. The statistics collection feature supports two environment configurations: distributed or standalone. When prompted, select the configuration type that suits your deployment.  
For more information about distributed and standalone configurations, see [Configuring statistics connectors](#).

3. Provide values for the following properties when prompted by the configuration script:

- Apache zookeeper host
- Apache zookeeper port
- If a distributed deployment was selected, a comma-separated list of the Apache Kafka cluster member host and port values. For example:  
9.121.242.68:9091,9.121.242.69:9092,9.121.242.69:9093
- If a standalone deployment was selected, provide the Apache Kafka host and port values

The configuration uses this information to create the statistics resource environment provider and to run the associated statistics configuration scripts.

For reference, here is a list of all the configuration scripts associated with statistics collection:

- For Microsoft Windows operating systems:
  - `statistics-streams.bat`
  - `statistics-topics.bat`
  - `statistics-connect-standalone.bat`
- For UNIX and Linux operating systems:
  - `statistics-streams.sh`
  - `statistics-topics.sh`
  - `statistics-connect-standalone.sh`
  - `statistics-connect-distributed.sh`
  - `statistics-connectors-provision.sh`

Here is a list of all the configuration properties files associated with statistics collection

- `statistics-connect-distributed.properties`
- `statistics-connect-log4j.properties`
- `statistics-connect-standalone.properties`
- `statistics-entity-connector.properties`
- `statistics-streams.properties`
- `statistics-streams-log4j.properties`
- `statistics-transaction-connector.properties`

**Note :** For information about these scripts and files, see [Collecting entity and transaction statistics](#).

4. After installation, verify the creation of the statistics resource environment provider:
  - a) In a browser window, log in to the WebSphere Application Server Integrated Solutions Console (admin console).

- b) Navigate to **Resource environment providers > MDMStatisticsKafkaResourcesProvider > Resource environment entries > MDMStatisticsKafkaResourceReference > CustomProperties**
- c) In the **bootstrap.servers** field, ensure that the value matches the Kafka host and port information that you provided during configuration.

## Installing a hybrid MDM solution

If you plan to use InfoSphere MDM as a hybrid MDM solution, you must install InfoSphere MDM Advanced Edition, and then complete some post-installation tasks to set up the hybrid deployment.

### About this task

The hybrid MDM deployment style of InfoSphere MDM is installed using the same process as the Advanced Edition (which includes both virtual MDM and physical MDM deployment styles). The hybrid MDM features must be configured after installing the application.

### Procedure

1. Complete the installation procedures to deploy InfoSphere MDM Standard and Advanced Editions.
2. Enable hybrid MDM features by completing the procedures documented in the *Post installation configuration* section of the documentation.
3. Configure your hybrid MDM solution using the procedures documented in the *Developing for Standard and Advanced Editions > Hybrid MDM* section of the of the documentation.

### Related information

[Hybrid configuration](#)

[Hybrid MDM](#)

## Verifying the base installation

---

After installing, there are several methods to verify that the new deployment has been successful.

The Installation Verification Tool (IVT) runs a verification routine to test the installation by running three physical transactions to add a person, an organization, and a contract, and one virtual transaction. If these transactions are successful, then the installation completes successfully.

To review the transaction responses that the installation verification tests generate, see the response files in the following folders:

- Physical MDM responses: `<MDM_INSTALL_HOME>/testCases/xml/response`
- Virtual MDM responses: `<MDM_INSTALL_HOME>/testCases/xml_virtual/response`

To review the logs, the list of test cases run, and their statuses, see the log files in `<MDM_INSTALL_HOME>/IVT/logs`.

You can use the Test Client to run test transactions to ensure that InfoSphere MDM is installed correctly.

### Related tasks

[Installing InfoSphere MDM using graphical mode](#)

Use this procedure to install InfoSphere MDM using the graphical installation mode. The installation must be run in an environment that already has a database and an application server in place.

[Installing InfoSphere MDM into a clustered environment](#)

Use this procedure to run a custom installation of InfoSphere MDM into a clustered environment.

[Troubleshooting an installation](#)

### Related reference

[Installation overview](#)

Most IBM InfoSphere Master Data Management components can be installed on a server or workstation, a combination of the two, or across multiple servers to support clustered environments.

User accounts, groups, and defaults used by the installation application

When InfoSphere MDM is installed, default users and user groups are created on the application server.

## Verifying the installation with the Test Client on WebSphere Application Server

Verify your installation with the application server Test Client, which completes a number of preset test cases.

### About this task

The Test Client only supports DB2 and Oracle databases.

### Procedure

1. In the `TestClient.properties` file in the `MDM_INSTALL_HOME/IVT/properties` folder, enter the user name at `user=` and the password at `password=` if application security is enabled.
2. Edit any other required properties to create the parameters for the test you want to run. For information about the properties you can edit, see the test client properties topic.
3. Go to the `MDM_INSTALL_HOME/IVT` directory:
4. Clear the data by following the steps for your installation type:

- Run the following script at the command line to clear the data if you installed InfoSphere MDM on Oracle:

```
sqlplus <DB_USER>/<DB_PASSWORD>@TNS@./sql/clearOperationData.sql
```

- Take these steps to clear the data if you installed InfoSphere MDM on DB2:
  - a. Connect to the DB2 database.
  - b. Clear the DB2 data by running the following script at the command line:

```
db2 -tvf ./sql/deleteIVTdata
```

5. From the command line, to run the test cases, run the script:

`TestClient.sh TEST_CHANNEL XML_FOLDER [USER_NAME PASSWORD]` where:

- `TEST_CHANNEL` is the method to send the test cases to the server, either:
  - For RMI, enter `rmi`
  - For HTTP, enter `soap`
  - For JMS, enter `jms`
- `XML_FOLDER` is the folder that contains the XML test cases that you want to run, either:
  - For TCRM test cases, enter `./testCases/xml`
  - For virtual MDM test cases, enter `./testCases/xml_virtual`
  - For admin test cases, enter `./testCases/xml_admin`
  - For TCRM composite test cases, enter `./testCases/xml_composite`
  - For a messaging test case, enter `./testCases/xml_msg`
- If security is enabled, enter the user name to log on to the system at `USER_NAME`
- If security is enabled, enter the password for the user name at `PASSWORD`

For example, to run the admin test cases on WebSphere Application Server through HTTP with security not enabled, enter

```
TestClient.sh soap testCases/xml_admin
```

6. When the test is complete, you can see the results in the following directories:

- To see the responses that were created by the tests, check the `./response` folder for each test case (such as `./testCases/xml/response`).
- To see the logs, the list of test cases run, and their statuses, check the log files in `MDM_INSTALL_HOME/IVT/logs`.

### Example

The following table shows the tests, with corresponding command lines, that you can run:

To run the test:	Use the command:
To provide a request file to run single TCRM test case	<code>TestClient.sh rmi ./testCases/xml/TCRMaddPerson.xml</code>
To run JMS test cases	Provide the queue connection factory, request queue name, and response queue name in the <code>TestClientJMS.properties</code> file, then run <code>TestClient.sh jms ./testCases/xml</code>
To run messaging test cases	<ul style="list-style-type: none"> <li>• For Oracle:               <ol style="list-style-type: none"> <li>1. Run <code>./sql/Oracle/update_event_active.sql</code> to activate an event</li> <li>2. Restart WebSphere Application Server</li> <li>3. Run <code>TestClientWL.sh rmi ./testCases/xml_msg</code></li> </ol> </li> <li>• For DB2:               <ol style="list-style-type: none"> <li>1. Run <code>IVT/sql/db2/update_event_active.sql</code> to activate an event</li> <li>2. Restart the WebSphere Application Server</li> <li>3. Run <code>TestClientWL.sh rmi ./testCases/xml_msg</code></li> </ol> </li> </ul>
To run the admin test cases	<code>TestClient.sh rmi ./testCases/xml_admin</code>

## Test Client properties

You can edit the entries in the `TestClient.properties` file in the `MDM_INSTALL_HOME/IVT/properties` folder to set the parameters for the test.

To set the parameter for:	Set the following parameter to:
To run test cases without sorting	<code>sort=</code>
To sort the test cases by directory. See <code>regex=</code> for sort criteria	<code>sort=d</code>
To sort the test cases. See <code>regex=</code> for sort criteria	<code>sort=f</code>

<i>Table 18. Properties that can be set in the Test Client properties file (continued)</i>	
<b>To set the parameter for:</b>	<b>Set the following parameter to:</b>
To sort directories and test cases. See regex=for sort criteria	sort=d f
To extract the first match as sorting comparison key. The sort order is based on the key. The default is to extract the last digital number from request file.	regex= [0-9]*[0-9]\$
To sort by string order	regex=
To add a user name	user=
To add a password	password=
To test the extracted value by using a regular expression	java -cp ./lib/TestClient.jar -regex tcrctest_001
For information about using Java to run test cases	java -cp ./lib/TestClient.jar ?
To use the MDM JMS adapter, enter the queue connection factory name	QueueConnectionFactory=
Enter the request queue destination name	RequestQueue=
Enter the response queue destination name	ResponseQueue=

## Installation logs

There are two types of logs that are created during the installation process. One set logs IBM Installation Manager related information and the other logs InfoSphere MDM related information.

The location of IBM Installation Manager logs depends on how the application was installed. If IBM Installation Manager was installed in admin mode (root user on UNIX), the logs are in `/var/ibm/InstallationManager/logs`. If the application was not installed in admin mode, the logs are in `$HOME/var/ibm/InstallationManager/logs`.

You can also specify a location for the IBM Installation Manager logs by updating the Agent Location variable (`cic.appDataLocation`) in the `config.ini` file. The `config.ini` is in the `InstallationManager_INSTALL_HOME/eclipse/configuration` directory.

InfoSphere MDM logs are in the `MDM_INSTALL_HOME/logs/database` directory.

The following directories contain logs that are created when the physical MDM database SQL scripts are run (by manual installation and by the installer):

- `MDM_INSTALL_HOME/logs/database/DomainData`
- `MDM_INSTALL_HOME/logs/database/CoreData`
- `MDM_INSTALL_HOME/logs/database/CMData`

Log files that are created by bootstrapping a virtual MDM database that uses ODBC are in `MDM_INSTALL_HOME/logs/database/Virtual`

## Viewing Installation Manager log files

The IBM Installation Manager application creates log files during the installation process. These logs can be viewed through a browser.

### Before you begin

You must have a browser available to view the log files. If you are on a server that does not have a browser, copy the logs to a workstation.

To enable enhanced debug logging in `./InstallationManager/logs`, copy `STARTUPKIT_INSTALL_HOME/InstallationManagerDebug/log.properties` into `./InstallationManager/logs` before starting IBM Installation Manager to begin installing InfoSphere MDM.

**Important :** After you have enabled enhanced debug logging, the logged information in `./InstallationManager/logs` can include password details entered by the user during the installation. Ensure that these logs are stored in a secure place to avoid password exposure.

### About this task

The logs contain messages with INFO, DEBUG, WARNING, or ERROR labels. If the installation is successful, all messages have an INFO or DEBUG label. Messages that are identified as WARNING or ERROR must be reviewed.

**Tip :** For more information about using IBM Installation Manager logs to troubleshoot an installation, see the related links at the end of this topic.

### Procedure

1. Go to the `./InstallationManager/logs` directory.
2. Open the `index.xml` file.
3. From the **All Log Files** table, click a link that corresponds to the IBM Installation Manager session that installed InfoSphere MDM.
4. Locate the following link: **Custom operation MDM Operational Server, verifying install location in unit mdmv.app.set.install.location**.

That link, and subsequent links, show installation process messages.

5. Look for messages that are identified as WARNING or ERROR. The messages must be reviewed to identify potential problems with your installation.
6. Click a link to view native log file representations of an installation process segment.

Such processes can include running custom Java code to manage InfoSphere MDMfiles, to run the **madconfig** utility Ant-based tool that in turn runs SQL scripts, and to implement the WebSphere Application Server MBean API that deploys InfoSphere MDM deployment archives like EBA and EAR files, and other actions.

### Results

If you have messages that are identified as WARNING or ERROR, try to determine the cause of the issue by searching for Java or Ant exception errors. If you locate a workaround for the WARNING or ERROR, attempt to fix the installation or contact IBM Software Support.

#### Related tasks

[Troubleshooting an installation](#)

#### Related reference

[Installation Startup Kit](#)

The Installation Startup Kit includes files and scripts to help you prepare your environment before you install InfoSphere MDM.

#### Related information

[IBM Installation Manager: Troubleshooting installations](#)

## Viewing the installation logs

During the installation process, logs are created in the `MDM_INSTALL_HOME/logs` directory. Use these logs to help you when troubleshooting or verifying your installation.

### About this task

Logs are stored in `.xml` files with the date and time of the installation as the file name. For example, a file with the name `20170212_1101.xml`, indicates the installation occurred on February 12, 2017 at 11:01. You can access the logs in two different ways.

### Procedure

- On the final IBM Installation Manager panel after the installation is complete, click **View Log File**.
- Go to the `MDM_INSTALL_HOME/logs` directory and open the `.xml` file.

### Related concepts

[Adding or removing client applications and individual components](#)

IBM Installation Manager enables you to install individual components. This capability is useful when you want to install components on workstations or on a server that is different from the server on which you install the operational server and MDM database.

### Related tasks

[Troubleshooting an installation](#)

### Related reference

[Installing InfoSphere MDM using silent mode](#)

Silent installation mode uses predefined configuration files, known as response files, as input so that installations can be run and rerun with a minimal amount of human interaction.

## Modifying an installation

---

Use this procedure to add or remove InfoSphere MDM components on a workstation or server that already has components of the same version installed.

### About this task

InfoSphere MDM does not support the Modify mode of IBM Installation Manager. If you wish to modify an installation to add or remove components, you must use the `madconfig` target `Modify_MDM`.

### Procedure

1. On the machine where you wish to add or remove components, open a command line, and browse to `MDM_INSTALL_HOME/mds/scripts`.
2. Run the following command to open the Modify MDM tool:

- On Microsoft Windows operating systems:

```
madconfig Modify_MDM
```

- On Linux or UNIX based operating systems:

```
./madconfig.sh Modify_MDM
```

3. Follow the onscreen prompts to add or remove components.

### Related concepts

[Adding or removing client applications and individual components](#)

IBM Installation Manager enables you to install individual components. This capability is useful when you want to install components on workstations or on a server that is different from the server on which you install the operational server and MDM database.

### Related tasks

[Installing InfoSphere MDM into a clustered environment](#)

Use this procedure to run a custom installation of InfoSphere MDM into a clustered environment.

[Troubleshooting an installation](#)

[Separating configuration from installation](#)

## Adding or removing client applications and individual components

IBM Installation Manager enables you to install individual components. This capability is useful when you want to install components on workstations or on a server that is different from the server on which you install the operational server and MDM database.

If you elect to install an individual component on a machine with other InfoSphere MDM components that are already installed, run the madconfig Modify\_MDM target:

1. From a command line, browse to *MDM\_INSTALL\_HOME*/mds/scripts.
2. Run the following command to add or remove components from the installation:

- On Microsoft Windows systems, run

```
madconfig Modify_MDM
```

- On Linux or UNIX systems, run

```
./madconfig.sh Modify_MDM
```

3. Follow the onscreen prompts to add or remove user interface components.

If you are installing on Microsoft Windows:

- You must be running in Administrator mode for IBM Installation Manager to write to the Windows registry. Administrator mode is not used for IBM AIX or Linux.
- On a Microsoft Windows 7 operating system, you must install MDM into a directory that is not virtualized.

After installing your feature, verify a successful installation by viewing the log files.

When the InfoSphere MDM web interfaces are installed and running, you can access them with a web browser at the following URLs:

### Business Administration UI

`https://<host name>:<port>/CustomerBusinessAdminWeb/faces/login.jsp`

### MDM AE/SE UI

`https://<host name>:<port>/mdm-aese`

### Inspector

`https://<host name>:<port>/inspector/common/login.ihtml`

### Enterprise Viewer

`https://<host name>:<port>/accessweb/empi/MITLogin.jsp`

### Web Reports

`https://<host name>:<port>/webreports/common/login.html`

**Note :** The *<hostname>* and *<port>* values differ depending on the details of each installation. By default, the typical workstation installation uses port 9443 in each URL, but other types of installations can use different ports. Use the WebSphere Application Server Integrated Solutions Console (admin console) to look up each actual port value.

### Related tasks

[Modifying an installation](#)

Use this procedure to add or remove InfoSphere MDM components on a workstation or server that already has components of the same version installed.

#### Uninstalling a single component

Use the `Modify_MDM` madconfig target to uninstall a single InfoSphere MDM application or component.

#### Viewing the installation logs

During the installation process, logs are created in the `MDM_INSTALL_HOME/logs` directory. Use these logs to help you when troubleshooting or verifying your installation.

#### Troubleshooting an installation

#### Separating configuration from installation

### **Related reference**

#### Directory structures

There are three directories you want to understand when you install and use InfoSphere MDM: the installation directory, the shared directory, and the application server directory.

### **Related information**

#### Configuring application security for web applications

## **Installing the Business Administration UI**

Use this procedure to install the Business Administration UI. Administrators can use the Business Administration UI to manage certain elements of the MDM operational server without having to manually modify properties files or database tables.

### **Before you begin**

Before installing the Business Administration UI, ensure that you meet these prerequisites:

- Your environment meets the hardware and software requirements for this component.
- You completed the IBM Installation Manager preparation steps.
- You reviewed and completed the user applications installation worksheet.
- You have IBM WebSphere Application Server installed and running.
- If you are upgrading from an earlier version of the application and have custom settings in your property files, make a copy of the files.

### **About this task**

The Business Administration application can be installed on either a server or workstation. It can also be installed on a remote machine by choosing a remote WebSphere Application profile.

**Restriction :** This application is not supported for use with a Microsoft SQL Server database.

You have two options available for installing a user application: install a new deployment using IBM Installation Manager or modify an existing deployment using a madconfig script. The install option assumes that you are installing the application on a clean server or workstation. That means that the server or workstation does not have any InfoSphere MDM components that are already installed (for example the MDM operational server, database component, or another user application). If any InfoSphere MDM components are present on the machine on which you are installing the application, you must use the `Modify_MDM` madconfig target.

### **Procedure**

- To install InfoSphere MDM including the Business Administration UI component:
  - a) Start IBM Installation Manager and select **Install**.
  - b) Continue through the panels to accept the license agreement, select the installation directory, and the language.

- c) On the **Business Administration UI** panel, deselect the option **Skip entering installation input data for Business Admin UI**. Click **Next**.
- d) Enter the configuration information for the application.
- e) Review the installation summary information and click **Install**.
- f) Click **Finish** when the installation is complete and close IBM Installation Manager.
- g) From a command line, navigate to *MDM\_INSTALL\_HOME*/mds/scripts and run the following command to open the installation configuration tool:
  - On Microsoft Windows operating systems:
 

```
madconfig Configure_MasterDataManagement
```
  - On Linux or UNIX based operating systems:
 

```
./madconfig.sh Configure_MasterDataManagement
```
- h) Provide the details of your deployment as prompted by the installation configuration tool. The configuration tool will complete the configuration of your installation.
- i) Open the IBM WebSphere Application Server Integrated Solutions Console (admin console) and verify that the application is deployed to the server specified during installation.
- To modify an existing installation to add or remove the Business Administration UI component:
  - a) On the machine where you wish to add or remove components, open a command line, and browse to *MDM\_INSTALL\_HOME*/mds/scripts.
  - b) Run the following command to open the Modify MDM tool:
    - On Microsoft Windows systems, run
 

```
madconfig Modify_MDM
```
    - On Linux or UNIX systems, run
 

```
./madconfig.sh Modify_MDM
```
  - c) Follow the onscreen prompts to add or remove user interface components.
  - d) Open the IBM WebSphere Application Server Integrated Solutions Console (admin console) and verify that the application is deployed to the server specified during installation.

## What to do next

To access the Business Administration UI after it has been installed and started, navigate your web browser to the following URL (replacing *<hostname>* and *<port>* with the appropriate values): `https://<hostname>:<port>/CustomerBusinessAdminWeb/faces/login.jsp`

Learn more about using Business Administration UI by reviewing the related concept.

### Related reference

[User applications installation worksheet](#)

Use this worksheet to record parameters for the user applications that you are planning to install.

### Related information

[Using the Administration application](#)

[Configuring application security for web applications](#)

## Installing the MDM AE/SE user interface

When you install InfoSphere MDM, the MDM AE/SE user interface is installed with the InfoSphere MDM operational server by default.

Since the MDM AE/SE user interface features use the same configuration as the InfoSphere MDM operational server, the IBM Installation Manager does not have an additional configuration panel for the MDM AE/SE user interface.

After the extraction phase of an InfoSphere MDM installation is completed by IBM Installation Manager, the MDM AE/SE user interface installation artifacts are found in the following folders:

- `<MDM_INSTALL_HOME>/consent/consentUI` contains the user interface files
- `<MDM_INSTALL_HOME>/consent/consentIGC` contains the other MDM AE/SE user interface files

During the configuration phase of the installation, the `Configure_MasterDataManagement` madconfig file configures and deploys the MDM AE/SE user interface application along with any other user interfaces selected for deployment. During the configuration process, you can check the progress of the deployment in the component status area. There is no need for you to provide any specific input to configure and deploy MDM AE/SE user interface functionality.

When the installation is complete, the deployed MDM AE/SE user interface appears in the list of deployed applications on WebSphere Application Server with the name `mdm_consentmgmt_app-<instance ID>`.

To access the MDM AE/SE user interface after it has been installed and started, navigate your web browser to the following URL:

`https://<MDM host name>:<secure port>/mdm-aese`

The default user name for the MDM AE/SE user interface is `mdmadmin` and the default password is `mdmadmin`.

**Important :** To ensure security, change the default password to a more secure one after your initial login. Learn more about the MDM AE/SE user interface features by reviewing the related topics.

## Uninstalling the MDM AE/SE user interface

The MDM AE/SE user interface is uninstalled when the `Uninstall_MDM` madconfig target is run. There are no additional steps required to remove the MDM AE/SE user interface application.

## Redeploying the MDM AE/SE user interface

If you wish to reset the MDM AE/SE user interface preferences to the default configuration, you can redeploy the application.

1. Run the `redeploy_user_interface` madconfig target

- On Microsoft Windows systems, run

```
madconfig redeploy_user_interface
```

- On Linux or UNIX systems, run

```
./madconfig.sh redeploy_user_interface
```

2. When prompted, select the MDM AE/SE user interface for redeployment.

## Upgrading the MDM AE/SE user interface

The MDM AE/SE user interface is upgraded along with the rest of the InfoSphere MDM product during overall product upgrades. There are no additional steps required to upgrade the MDM AE/SE user interface.

## Related information

[Consent Management overview](#)

[Managing consent](#)

## Installing InfoSphere MDM Workbench

Install MDM Workbench using these steps if you are only installing the MDM Workbench.

### Before you begin

Make sure that you meet these prerequisites:

- Your environment meets the hardware and software requirements.
- You completed the IBM Installation Manager preparation steps.
- You installed IBM Rational Application Developer.
- You installed InfoSphere MDM.
- The login that you use on the computer must have permission to write to the registry.

### About this task

MDM Workbench is used by implementers and administrators to manage the InfoSphere MDM environment. By using this application, you can manage algorithms, create composite views, edit data dictionary tables, and develop member logical models, flows, and mappings to data sources.

MDM Workbench is an Eclipse-based technology and runs on computers that use Microsoft Windows.

You must have IBM Rational Application Developer installed to use the workbench.

### Procedure

1. Shut down IBM Rational Application Developer if it is running.
2. Start IBM Installation Manager.
3. On the IBM Installation Manager home screen, click **Install**.
4. On the **Install Packages** panel, select **IBM InfoSphere Master Data Management Workbench** and click **Next**.
5. Accept the license agreement.
6. Select the package group where IBM Rational Application Developer is installed and click **Next**.
7. Click **Install**.
8. Click **Finish** when complete.

### What to do next

You can now use MDM Workbench to configure your operational server.

#### Related tasks

[Viewing the installation logs](#)

#### Related reference

[32-bit libraries needed on 64-bit operating systems for Workbench installs](#)

When you install InfoSphere MDM Workbench and IBM Rational Application Developer on a 64-bit workstation, you must have certain 32-bit libraries available on the workstation for a successful installation.

[Installation requirements](#)

Use this list as a reference before you start the installation. If you are also installing IBM DB2®, IBM WebSphere® Application Server, or IBM Rational® Application Developer, the list also offers a guideline for choosing the correct features to install.

### **Related information**

[MDM Workbench basics](#)

[Managing configuration projects](#)

[Extending physical MDM capabilities with the Workbench](#)

### **Setting Workbench server definitions**

Within the InfoSphere MDM Workbench, configure parameters for your WebSphere Application Server to ensure that your installation runs smoothly.

### **About this task**

Set certain parameters within MDM Workbench to reflect the underlying function of the application and its configuration.

Begin by choosing the option to **Run server with resources on Server**. This option installs and copies the full application and its server-specific configuration from the Workbench into the directories of the server. This option reflects the way that the application and configuration are deployed to the production environment. In particular, a CBA is physically built, packaged, and deployed in the internal bundle repository of the WebSphere Application Server.

Second, choose the option to **Never publish automatically**. If you do not choose this option, a time-consuming publishing operation occurs every time a simple change occurs in the workspace.

Third, unchecking the option to **Start server with a generated script** allows MDM logging to occur without issues.

### **Procedure**

1. In the Servers view, double-click your WebSphere Application Server to open the server editor.
2. On the Publishing settings for WebSphere Application Server page, navigate to the **Modify the publishing settings** list.
3. Choose the option for **Run server with resources on Server**.
4. On the Publishing page, navigate to the **Modify settings for publishing** list.
5. Choose the option for **Never publish automatically**.
6. On the Overview page, navigate to the **Optimize server start for development** list.
7. Uncheck the check box for **Start server with a generated script**.
8. Type `Ctrl+S` to save the server configuration settings.
9. Close the editor.
10. Start the server:
  - a) In the Servers view, right-click the server.
  - b) Select **Start**.

### **Samples installation**

The samples include mappings and source code files that demonstrate the consumption of InfoSphere MDM.

Samples are available from the following locations:

- Code snippets in the documentation
- Packaged as a downloadable part on IBM Passport Advantage

Within the downloaded InfoSphere MDM Sample package, the samples are contained in a file named `IBMInfoSphereMasterDataManagement_Samples_<version>.zip`. Extract this file to access the sample files.

**Related information**

[Sample list](#)

# Backing up and restoring InfoSphere MDM

To aid in disaster recovery or restoring your customizations and configuration after an upgrade, it's a good idea to keep a backup of your InfoSphere MDM deployment, including the application server profiles, MDM database, and any customized extensions or additions.

## About this task

Because each installation is different, this documentation does not attempt to provide detailed steps for performing backups. Use your preferred archiving and backup tools.

Backing up InfoSphere MDM is especially important before upgrading your deployment.

## Procedure

- To back up your deployment:
  - Back up the InfoSphere MDM database component according the backup instructions provided by your database vendor.
  - Back up the InfoSphere MDM application server component using the IBM WebSphere Application Server profile backup and restore capabilities:
    1. Stop the deployment manager, node agents, and servers or cluster.
    2. Back up the WebSphere Application Server profiles. For example:

```
<WAS_HOME>/bin/manageprofiles.sh -backupProfile -profileName Dmgr01 -backupFile ~/profiles/Dmgr01_MDMv1160.zip  
<WAS_HOME>/bin/manageprofiles.sh -backupProfile -profileName AppSrv01 -backupFile ~/profiles/AppSrv01_MDMv1160.zip
```
  - 3. Restart the deployment manager, node agents, and servers or cluster.
- Back up all custom CBAs containing additions and extensions that have been deployed to your InfoSphere MDM instance.
- Back up all customizations done to MDM applications and components, including the native engine.
- Back up your *WAS\_PROFILE\_HOME* directory.
- To restore your deployment from a backup:
  - Restore the InfoSphere MDM database component according the instructions provided by your database vendor.
  - Restore the InfoSphere MDM application server component using the WebSphere Application Server profile backup and restore capabilities:
    1. Stop the deployment manager, node agents, and servers or cluster.
    2. Restore the WebSphere Application Server profiles. For example:

```
<WAS_HOME>/bin/manageprofiles.sh -restoreProfile -backupFile ~/profiles/Dmgr01_MDMv1160.zip  
  
<WAS_HOME>/bin/manageprofiles.sh -restoreProfile -backupFile ~/profiles/AppSrv01_MDMv1160.zip
```
    3. Restart the deployment manager, node agents, and servers or cluster.

## Related tasks

### [Upgrading to the latest feature pack release](#)

To upgrade your Version 11.6 release to the latest feature pack, first back up your current database and customizations, then download the assets, extract them using IBM Installation Manager, and configure them using the upgrade madconfig target.



---

## Chapter 5. Upgrading from V11.5 or an earlier V11.6 release to the latest feature pack release

When IBM releases a feature pack for InfoSphere MDM, you can apply it using IBM Installation Manager and the Upgrade\_MasterDataManagement madconfig target.

### About this task

InfoSphere MDM Version 11.6 represents an important shift in the way that IBM delivers updates to InfoSphere MDM. Product updates are now delivered using a continuous delivery strategy, meaning that new features and enhancements are now provided in smaller feature packs rather than having to wait to be included in a larger release. As a result, you can more quickly obtain new product features and more easily update your deployment to take advantage of them.

**Tip :** To upgrade from Version 11.5 to Version 11.6, run the madconfig script Upgrade\_MasterDataManagement. For information about upgrading to Version 11.6 release from Version 11.4 or earlier, see [Upgrading from a previous version](#).

To apply a feature pack, you must download and extract the feature pack artifacts, then run a command line tool to configure the feature pack.

**Tip :** For details about the included enhancements and known issues for each feature pack, see [the IBM Support web site](#).

---

## Upgrading to the latest feature pack release

To upgrade your Version 11.6 release to the latest feature pack, first back up your current database and customizations, then download the assets, extract them using IBM Installation Manager, and configure them using the upgrade madconfig target.

### Before you begin

- Update your installation of IBM Installation Manager to version 1.8.1 or above.
- Review the lists of known issues and issues fixed in the latest release. These lists are available [on the IBM Support web site](#).
- During the update, you may have to log in to an ibm.com® server using your IBM ID. If you do not have an IBM ID, you can [register for one](#).

**Note :** For instructions about installing a new InfoSphere MDM deployment, see [“Installing InfoSphere MDM”](#) on page 53.

### About this task

Beginning in InfoSphere MDM 11.6, upgrades are released as feature packs. Feature packs are different from fix packs. In a fix pack model, updates are applied to existing applications. In feature pack upgrades, all MDM applications and components are uninstalled and then reinstalled.

**Note :** For those familiar with the processes used in older versions of InfoSphere MDM, take note that the previous upgrade approach, as well as the approach for applying fix packs using the madconfig target Apply\_Fixpack, are no longer valid. This change is effective starting with InfoSphere MDM Version 11.6.

Upgrading to the latest feature pack is a three stage process:

1. Back up any customizations from your existing deployment, including the database and the application server.
2. Use IBM Installation Manager to download and extract the feature pack assets.

3. Install and configure the extracted feature pack assets using Installation Manager and the command line installation configuration tool. This final stage of the feature pack upgrade is comprised of two parts:

- Installing (extracting) the feature pack using IBM Installation Manager in *Install* mode in a new *MDM\_INSTALL\_HOME* directory.

**Note :** After this step, the previous InfoSphere MDM version's home directory and the new feature pack's home directory remain different.

- Configuring the feature pack by invoking the installation configuration tool (the `Upgrade_MasterDataManagement madconfig` target). The tool loads the MDM Database and the WebSphere Application Server input parameters from the previous InfoSphere MDM version's property files and then applies the MDM Database delta to the new installation and redeploys all deployment modules on WebSphere Application Server.

**Note :** At the end of the configuration stage, the new version of the *MDM\_INSTALL\_HOME* becomes active and the previous version is not used anymore, even though it remains in the file system.

As part of the `Upgrade_MasterDataManagement` target, each MDM application is uninstalled and installed one by one. When the applications are uninstalled, any customizations done to MDM applications are lost. Other customizations will remain. The MDM application customizations must be reapplied after the upgrade has completed.

**Tip :** Create a backup of your *WAS\_PROFILE\_HOME* directory so that you can easily reapply your customizations after the upgrade completes.

## Procedure

1. Create backups of your current customizations and configuration. These backups are especially important if you have customized the virtual MDM configuration, user interface applications, or data source.
  - a) Back up any customized InfoSphere MDM CBAs that are deployed on the server.
  - b) Back up your InfoSphere MDM database and application server components.
  - c) Back up your *WAS\_PROFILE\_HOME* directory.

**Tip :** If you encounter any issues while running the `Upgrade_MasterDataManagement` target, you can roll back the upgrade by restoring your backed up copies of *WAS\_PROFILE\_HOME* and your MDM database.

2. Locate the feature pack release on a source such as IBM Fix Central or IBM Passport Advantage and download it to a local directory. Extract the files.
3. Start IBM Installation Manager.
4. Go to **File > Preferences > Repositories** and add the files that you downloaded and extracted earlier. Click **Apply** and **OK**.
5. Click **Install**.
6. On the **Install Packages** panel, select **InfoSphere MDM Standard Edition or Advanced Edition**. Click **Next**.
7. Validate the prerequisites for the selected package, then click **Next**.
8. Review and accept the license agreement, then click **Next**.

IBM Installation Manager will take as many of the installation settings from the previous installation as possible. If prompted, provide any additional details. For more information on these settings, see [“Installing InfoSphere MDM using graphical mode”](#) on page 96.
9. On the **Install Packages** panel, select **InfoSphere MDM Standard Edition or Advanced Edition > InfoSphere MDM upgrade**.
10. Select **Create a new package group** and enter a new path for the installation (*NEW\_MDM\_INSTALL\_HOME*). Click **Next**.
11. Select the languages that you want to install, then click **Next**.

12. On the **Select the Features to Install** panel, select **InfoSphere MDM Upgrade**. Click **Next**.
13. Review the ReadMe, then click **Next**.
14. Set the location of the WebSphere Application Server Profile Home, then click **Next**.
15. Review the installation summary information, then click **Install**.

IBM Installation Manager extracts the feature pack artifacts into the file system. You will find the extracted files in `NEW_MDM_INSTALL_HOME`.

16. Start all of the InfoSphere MDM servers, web applications, and application server.
17. Open a command prompt and navigate to `NEW_MDM_INSTALL_HOME/mds/scripts`.

**Important :** Ensure that you are logged in as a user with permissions to run database command line utilities (db2, sqlplus, etc). The database upgrade requires these permissions.

18. Run the following command to start the installation configuration tool:

- On Microsoft Windows systems, run

```
madconfig Upgrade_MasterDataManagement
```

- On Linux or UNIX systems, run

```
./madconfig.sh Upgrade_MasterDataManagement
```

19. Provide the details of your deployment as prompted by the installation configuration tool.  
The configuration tool will complete the configuration of your upgraded deployment.
20. **Fix pack V11.6.0.5 or earlier:** If your implementation of InfoSphere MDM uses an IBM Db2 for z/OS database, then you must manually update the database.  
For more information, see [Upgrading an existing Db2 for z/OS database](#).
21. Restart all of the InfoSphere MDM servers, web applications, and application server.
22. [Run the installation verification tests](#) to confirm that the feature pack upgrade was successful.
23. Redeploy any customized InfoSphere MDM CBAs that you backed up at the beginning of this procedure.
24. Reapply any additional customizations that were configured in your previous installation of InfoSphere MDM.

## What to do next

After installing the InfoSphere MDM feature pack release, you must also download and apply the corresponding MDM Workbench feature pack, if applicable.

1. Browse to [www.ibm.com/support/fixcentral/](http://www.ibm.com/support/fixcentral/)
2. In the product selector menu, choose **InfoSphere Master Data Management**, and then select the appropriate installed version and platform. Click **Continue**.
3. In the list of feature packs, search for Workbench.
4. Download the latest Workbench feature pack, then apply it using IBM Installation Manager.

## Related tasks

### [Backing up and restoring InfoSphere MDM](#)

To aid in disaster recovery or restoring your customizations and configuration after an upgrade, it's a good idea to keep a backup of your InfoSphere MDM deployment, including the application server profiles, MDM database, and any customized extensions or additions.

## Related information

[IBM Installation Manager: Updating packages using wizard mode](#)

[IBM Installation Manager: Internet preferences](#)



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## Chapter 6. Troubleshooting installations of Standard or Advanced Editions

If an installation of InfoSphere MDM Standard or Advanced Editions fails, you can review the troubleshooting guidance provided in this section and review the known errors.

### Symptoms

After the installation is complete, you might see error messages in IBM Installation Manager on the **Installation Complete** panel. You might also see errors in the installation logs or from the installation verification tests.

A success message on the final installer panel indicates that the verification tests were automatically run as part of the installation process.

For database, application server, or IBM Installation Manager problems, use their tools to diagnose and correct individual error conditions.

### Resolving the problem

1. Review the messages in the installation logs to locate error conditions.
2. Review the error conditions that are described in the error topics for solutions or workarounds. The documented errors are not a comprehensive list of all the errors that you might encounter. If the error that you are seeing in your logs is not listed, contact IBM Software Support.
3. After you correct the errors, rerun the installation program.

### Related tasks

[Verifying the installation with the Test Client on WebSphere Application Server](#)

[Viewing the installation logs](#)

---

## Troubleshooting the MDM database

One of the major components of an InfoSphere MDM implementation is the database. Problems can occur during installation or configuration of the MDM database that require investigation and correction.

InfoSphere MDM supports the following database platforms:

- Oracle Database
- IBM DB2
- IBM DB2 for z/OS (partial installation support, for the application server component only)
- Microsoft SQL Server (supported by InfoSphere MDM Standard Edition only)

From InfoSphere MDM Version 11.0 onwards, there is a combined schema for Standard Edition (virtual MDM) and Advanced Edition (physical MDM). The combined InfoSphere MDM database installation creates 953 tables. There are 153 tables to support virtual MDM and the remaining tables support physical MDM. Optionally, the installation also creates a set of database triggers. These triggers are used in Advanced Edition deployments.

The MDM database has the following configuration restrictions:

- Changing the number of tablespaces for DB2 and Oracle database are not supported.
- Using different schemas for physical MDM data and virtual MDM data is not supported.

## Database creation scripts

All of the InfoSphere MDM Advanced Edition database scripts (for all database platforms) are located in the `<MDM_INSTALL_HOME>/database` folder, grouped as either *Core* or *Full*.

- The Core subfolder contains only scripts required for the core physical MDM data.
- The Full subfolder contains all of the scripts required for core physical MDM and all of the MDM domain data.

## Database creation logs

All of the InfoSphere MDM database object creation logs are available in the folder `<MDM_INSTALL_HOME>/logs/database`.

- `/CMDData` stores logs that correspond to physical MDM configuration and management object creation.
- `/CoreData` stores logs that correspond to physical MDM core data.
- `/DomainData` stores logs that correspond to physical MDM domain data. The physical MDM domains manage information related to parties, products, and accounts.
- `/RDMScripts` stores logs that correspond to InfoSphere MDM Reference Data Management Hub.
- `/Virtual` stores logs that correspond to virtual MDM data.

**Note :** Depending on the details of your installation, you may not have all of the subfolders shown here.

If you encounter any problems when creating the database, look for corresponding `.err` files in the subfolders of `<MDM_INSTALL_HOME>/logs/database`.

If your implementation of InfoSphere MDM uses the WebSphere Application Server default messaging engine, then there will be extra SIB tables. These SIB tables are created by WebSphere Application Server when the server that hosts InfoSphere MDM is started. If you are using same schema multiple times because of previous failed installations, remember to remove these tables after every installation.

If your installation encounters errors when creating virtual MDM tables, look in the folder `<MDM_INSTALL_HOME>/logs/database/Virtual`. If the installation has not rolled itself back after a failure, then look for log files at the location `<MDM_INSTALL_HOME>/mds/log` to find information about why the rollback did not occur.

To recreate the virtual MDM database tables, try running the virtual MDM madconfig target. To run the madconfig target:

1. Open a command-line prompt from the `<MDM_INSTALL_HOME>/mds/scripts` folder.
2. Run the virtual MDM madconfig target:

```
./madconfig.sh bootstrap_datasource
```

## Troubleshooting the application server

Each InfoSphere MDM installation relies on WebSphere Application Server. When issues occur during installation or configuration of the application server, they can cause problems or installation failures with InfoSphere MDM.

The InfoSphere MDM application server component includes:

- WebSphere Application Server configuration resources that the InfoSphere MDM enterprise applications use to connect to the MDM database, the messaging engine, and so on.
- InfoSphere MDM enterprise applications and business level applications that must be deployed.

### WebSphere Application Server configuration resources

Since InfoSphere MDM is a J2EE Application, the application resources configured in its enterprise applications include the following:

### **JDBC Data Providers**

Two JDBC providers are created during the InfoSphere MDM installation: one for physical MDM and another for virtual MDM. A third JDBC provider, called the Derby JDBC Provider, is created when the WebSphere Application Server profile is created. All three providers must exist to successfully complete an InfoSphere MDM installation.

### **Data sources**

The InfoSphere MDM installation creates three data sources: MDM, DWLConfig, and DWLCustomer. Each of these data sources is configured by the installation and should pass a connection test.

### **JMS Providers**

The installation creates two JMS providers: one for WebSphere Application Server default messaging and one for the WebSphere MQ messaging provider.

### **Queue Connection Factory**

The installation creates several queue connection factories. The queue connection factories create connections between various MDM sources and the JMS providers.

### **Topic Connection Factory**

The installation creates three topic connection factories. The topic connection factories create connections to the JMS providers for items such as notifications.

### **Queues**

The installation creates several queues that InfoSphere MDM uses to route messages and transaction information to JMS.

### **Topics**

The installation creates topics that InfoSphere MDM uses to route information to JMS.

### **Activation Specs**

The installation creates JMS activation specifications that are associated with MDM functionality (message-driven beans).

## **Application server security and role mapping**

The installation creates WebSphere Application Server users and groups, and maps the users to the appropriate groups. Based on the user name provided in the Installation Manager panel, the installation creates the WebSphere Application Server user.

The InfoSphere MDM security groups are *ServiceProvider* and *ServiceConsumer*.

## **Troubleshooting the InfoSphere MDM application**

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In the WebSphere Application Server Integrated Solutions Console (admin console), an InfoSphere MDM installation includes resources in three Application Types: enterprise applications, business-level applications, and assets.

### **Enterprise application**

The InfoSphere MDM enterprise application includes the following resources:

- MDM-native - the main InfoSphere MDM platform and core resources.
- MDM-web-services-virtual - the virtual MDM web services.
- MDM-web-services - the physical MDM web services.
- MDM-old-web-services - legacy support for the legacy physical MDM web services.

### **Business-level applications**

If the InfoSphere MDM deployment includes user interfaces, then each user interface has a corresponding business-level application. Depending on the specifics of your implementation, the business-level application resources are shown in the WebSphere Application Server Integrated Solutions Console. Enterprise applications are also included in the business-level application list, as follows:

- MDM-native
- MDM-old-web-services
- MDM-operational-server-EBA
- MDM-web-services
- MDM-web-services-virtual
- ba-App
- enterpriseviewer
- inspector
- webreports

For any successful InfoSphere MDM deployment, all of the installed applications must be in the deployed and running state.

## Assets

An InfoSphere MDM deployment includes the following assets:

- `com.ibm.mdm.hub.server.app-<deployment_ID>.eba`
- `com.ibm.mdm.server.resources.properties-<deployment_ID>.jar`

## Configuration Manager updates

Once the application server components are deployed, the last step in engine deployment is to enter instance details in the Configuration Manager tables.

**Note :** This step must be done for the combined InfoSphere MDM Standard and Advanced Edition engine, so cannot be ignored.

The Configuration Manager component for physical MDM consists of several tables:

### APPDEPLOYMENT

This table should only have one row, which describes this deployment. Columns include Deployment\_ID, Application\_ID, Name, and last update information.

### APPINSTANCE

This table should be empty unless there is a WebSphere Application Server cluster being used. If a cluster is being used, then there will be one row per node in the cluster. Columns include Instance\_ID, Deployment\_ID, Name, and last update information.

### APPSOFTWARE

This table should only contain one row. The Name column should be the specified application instance value, such as E001. Columns include Application\_ID, Name, and last update information.

**Tip :** If there are multiple instances or a mismatch between installed applications and instances, you can often resolve this by ensuring that the marked instance name matches the EBA deployed name. This situation can occur if multiple installation attempts are performed in the same database without fully uninstalling or cleaning up the database between installation attempts.

1. Use sqldeveloper or its equivalent to create a row in the APPSOFTWARE table with the current instance name, if it does not already appear. Delete any other rows from this table.

```
update APPSOFTWARE set NAME='com.ibm.mdm.hub.server-<instance name>',
LAST_UPDATE_DT=CURRENT_TIMESTAMP where NAME='com.ibm.mdm.hub.server-<old_instance_name>';
delete from APPSOFTWARE where NAME='com.ibm.mdm.hub.server';
```

2. Restart the server and log in.
3. Review the system logs

## Troubleshooting installation errors and warnings

---

InfoSphere MDM installation failures are often identified by an error message that appears during the installation of the application.

If you are using IBM Installation Manager to install InfoSphere MDM, then an installation failure will result in a complete rollback to remove the failed installation.

In case of such an error, an Installation Manager popup message will appear during the installation. After you acknowledge the message, Installation Manager will perform a full installation rollback, during which it will uninstall whatever parts of the application were installed before the problem occurred.

### Diagnosing installation problems using log files

After you identify that an installation attempt was unsuccessful, it is important to find out the exact reason for the problem. Log files are an important tool to help diagnose these issues. The following log files are created during an InfoSphere MDM installation and can provide critical information in the search for a problem:

- Installation Manager log files
- madconfig command line tool log files
- WebSphere Application Server log files

### Correcting errors and warnings from the Installation Manager log files

The Installation Manager log files are usually located in the `$HOME/var/ibm/InstallationManager/logs` folder. Installation Manager Logs are stored in a hierarchy with the following file as the entry point: `$HOME/var/ibm/InstallationManager/logs/index.xml`. Use a browser to view the Installation Manager logs.

1. Copy the `$HOME/var/ibm/InstallationManager/logs` folder to a local desktop.
2. Open `$HOME/var/ibm/InstallationManager/logs/index.xml` using a browser.
3. Scroll down in the file until you see blue links. Each link represents a step in the InfoSphere MDM installation process.

In case of a successful install, all of the links have the status INFO. If any of the links in the log file have a status of ERROR or WARNING, this means that the installation may have been unsuccessful.

If the InfoSphere MDM installation rolled back with an error that appears in one of the log files:

1. Find the problem using the logs.
2. Fix the problem and rerun the installation.

To find and then fix an installation problem, you must first figure out the exact reason that the error or warning occurred. Locate and open the native log file linked to the error or warning. For example, consider the following warning message, which is linked to `./native/20150219_1719j.log`:

```
WARNING | CRIMA1079W | Problem with executing "/usr/IBM/MDM/MDM114/mdm/mds/scripts/madconfig.sh"
operation (status=1). See agent output log for more information:
/home/ws8admin/var/ibm/MDM114/logs/native/20150219_1719j.log
```

When you open the linked log file, `./native/20150219_1719j.log`, you can see the details of the problem. After you view the details of the problem, then you can try to correct the issue. If you know how to fix the problem, then fix it and rerun the installation. If you do not know how to fix the problem, then you may need to investigate further or contact IBM Support.

### Locating other installation logs

Additional sets of installation logs can be found outside the Installation Manager logging system and in a different location under the `MDM_INSTALL_HOME` folder.

- `<MDM_INSTALL_HOME>/mds/logs` is the location of the virtual MDM data installation logs from the `madconfig` command line tool.
- `<MDM_INSTALL_HOME>/logs/database/CoreData` and `<MDM_INSTALL_HOME>/logs/database/DomainData` contain logs created during the installation of physical MDM data.

## Locating logs corresponding to the key installation steps

The Installation Manager log entries (links) corresponding to the most important InfoSphere MDM installation steps. All of the links shown here are depicted when they implemented successfully, and not showing any ERROR or WARNING statuses. Being aware of these log entries may help you to identify a problem if any of these entries appear in your log files with ERROR or WARNING statuses.

## Troubleshooting failed installation verification tests

After Installation Manager finishes installing InfoSphere MDM, it may show an error or warning from the Installation Verification Test (IVT). These issues should be addressed.

Often, an IVT failure can be fixed, especially if the issue is located in the application layer. The first step is to determine exactly what the problem is. Navigate to the application log files at `<MDM_INSTALL_HOME>/logs/database` and look for `.err` files under various folders. If there are any database problems, they should be found in that location.

## Troubleshooting IVT failures using the WebSphere Application Server logs

Some WebSphere Application Server logs that indicate problems that may not be obvious in the InfoSphere MDM logs. This is true in the cases of the following examples, which each can cause IVT failures.

### SIB tables missing or created with an older instance

If your installation has missing SIB tables or SIB tables that were created with an older instance, then the WebSphere Application Server logs will have errors such as the following example and will also have BlueprintContainer errors:

```
[2/7/14 15:51:54:023 PST] 00000058 DWLExceptionU E javax.jms.JMSEException:
CWSIA0241E: An exception was received during the call to the method
JmsManagedConnectionFactoryImpl.createConnection:
com.ibm.websphere.sib.exception.SIResourceException:
CWSIT0008E: A successful connection was made to the bootstrap server at
localhost:7276:BootstrapBasicMessaging but the server returned an error condition:
CWSIT0088E: There are currently no messaging engines in bus MDM.SIB.server1 running.
Additional failure information: CWSIT0103E: No messaging engine was found that matched
the following parameters: bus=MDM.SIB.server1, targetGroup=null, targetType=BusMember,
targetSignificance=Preferred, transportChain=InboundBasicMessaging, proximity=Bus..
at
com.ibm.ws.sib.api.jms.impl.JmsManagedConnectionFactoryImpl.createConnection(JmsManagedConne
ctionFactoryImpl.java:195)
```

### Resolution

1. Stop the server or cluster.
2. Delete the SIB tables from the MDM database. There should be nine tables starting with SIB\*.
3. Restart the server or cluster.
4. Run IVT again.

These steps will recreate the SIB tables with new entries and refresh the instance.

### Authorization failure for mdmadmin or MDM user

If there is an authorization failure, then the WebSphere Application Server logs will have errors such as the following example:

```
[4/29/14 20:07:39:710 CDT] 00000140 SecurityColla A
SECJ0053E: Authorization failed for tmwdchou01.tmw.com:389/mdmadmin while invoking
(Bean)com.ibm.mdm.hub.server-
E001..11.0.0..com.ibm.mdm.server.dwlcommonservlets.ejb..11.0.0.FP00IF000_20131005-0518.war#c
```

```

om.ibm.mdm.server.dwlcommonservlets.ejb..11.0.0.FP00IF000_20131005-0518.war#DWLServiceContro
ller
processRequest:java.util.HashMap,java.io.Serializable:1
is not granted any of the required roles: ServiceConsumer ServiceProvider
[4/29/14 20:07:39:714 CDT] 00000140 AxisEngine E org.apache.axis2.engine.AxisEngine
receive
An error was detected during JAXWS processing
org.apache.axis2.AxisFault: An error was detected during JAXWS processing
at org.apache.axis2.jaxws.server.JAXWSMessageReceiver.receive(JAXWSMessageReceiver.java:208)
at org.apache.axis2.engine.AxisEngine.receive(AxisEngine.java:208)
at
org.apache.axis2.transport.http.HTTPTransportUtils.processHTTPPostRequest(HTTPTransportUtils
.java:172)

```

## Resolution

1. Log on to the WebSphere Application Server Integrated Solutions Console (admin console).
2. Navigate to **Business-level applications > MDM-operational-server-EBA-E001 > com.ibm.mdm.hub.server.app-E001\_0001.eba > Security role to user or group mapping**.
3. Click **Map Special Subjects > All Authenticated in Application's Realm** to the ServiceConsumer.
4. Click **Map users...**, then select **mdmadmin** from LDAP server and map it to ServiceProvider.
5. Navigate to **Business-level applications > MDM-operational-server-EBA-E001 > com.ibm.mdm.hub.server.app-E001\_0001.eba > RunAs roles for users**.
6. Add the mdmadmin user to both the ServiceProvider and ServiceConsumer.

## The MDM engine instance cannot be found (BlueprintContainer error)

If the MDM engine instance cannot be found, then the WebSphere Application Server logs will have errors such as the following example:

```

[12/9/14 15:51:38:439 IST] 00000078 BlueprintCont E
org.apache.aries.blueprint.container.BlueprintContainerImpl$1
run Unable to start blueprint container for bundle com.ibm.mdm.server.extrules.default
due to unresolved dependencies [(objectClass=com.ibm.mdm.server.config.api.ConfigManager)]
java.util.concurrent.TimeoutException
at org.apache.aries.blueprint.container.BlueprintContainerImpl
$1.run(BlueprintContainerImpl.java:328)
at
org.apache.aries.blueprint.utils.threading.impl.DiscardableRunnable.run(DiscardableRunnable.
java:48)
at java.util.concurrent.Executors$RunnableAdapter.call(Executors.java:450)
at java.util.concurrent.FutureTask$Sync.innerRun(FutureTask.java:314)
at java.util.concurrent.FutureTask.run(FutureTask.java:149)
at java.util.concurrent.ScheduledThreadPoolExecutor$ScheduledFutureTask.access
$301(ScheduledThreadPoolExecutor.java:109)
at java.util.concurrent.ScheduledThreadPoolExecutor
$ScheduledFutureTask.run(ScheduledThreadPoolExecutor.java:217)
at java.util.concurrent.ThreadPoolExecutor$Worker.runTask(ThreadPoolExecutor.java:906)
at java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:929)
at java.lang.Thread.run(Thread.java:796)

```

This happens when the EBA name in WebSphere Application Server and the Configuration Manager tables are different. This situation can occur when you reinstall InfoSphere MDM, reusing the same database multiple times without cleaning it between installations.

Check the Configuration Manager table APPSOFTWARE and verify the EBA name. The EBA name value should match the EBA name in WebSphere Application Server.

## Resolution

1. Open DB2 or another applicable database command line and connect to the MDM database.
2. Modify the APPSOFTWARE table as follows:

```
Update APPSOFTWARE set name="com.ibm.mdm.hub.server-E010" where APPLICATION_ID=1004;
```

3. Commit the change to the database.
4. Restart the WebSphere Application Server instance.
5. Rerun IVT.

## The Standard Edition native component is not available in WebSphere Application Server

The InfoSphere MDM Standard Edition native component is installed on WebSphere Application Server as MDM-native-<instance>.ear. This file is extracted into the WAS\_HOME folder as follows when the server starts: <WAS\_HOME>/profiles/<PROFILE\_NAME>/installedApps/<CELL\_NAME>/MDM-native-E0010.ear

This native component is used by the Standard Edition engine for virtual MDM. The native component must have the correct configuration to enable the Standard Edition engine to work correctly. A copy of the component is also kept at <MDM\_INSTALL\_HOME>/mds and the configuration of both of these instances must be synchronized.

In some cases, an error may cause the MDM-native-E0010.ear to not be extracted into WAS\_HOME, meaning that the folder is not created. This will cause the following error to occur:

```
Caused by: com.dwl.base.exception.DWLBaseException: com.dwl.base.exception.DWLBaseException:
com.dwl.base.exception.DWLBaseException: Could not locate business object: VirtualMDMBObj
at
com.dwl.base.xml.DWLDocumentHandlerHelper.createObject(DWLDocumentHandlerHelper.java:1358)
at
com.dwl.base.xml.DWLDocumentHandlerHelper.populateTopObject(DWLDocumentHandlerHelper.java:12
21)
at com.dwl.base.xml.DWLDocumentHandlerHelper.endElement(DWLDocumentHandlerHelper.java:891)
at
com.dwl.tcrm.coreParty.xmlHandler.TCRMDocumentHandler.endElement(TCRMDocumentHandler.java:16
0)
at com.ibm.xml.xci.sax.serializer.SAXCursor.writeClosingTag(SAXCursor.java:225)
... 71 more
```

### Resolution

1. Restart the server.
2. Ensure that the following folder exists and contains the virtual MDM native component:  
<WAS\_HOME>/profiles/<PROFILE\_NAME>/installedApps/<CELL\_NAME>/MDM-native-E0010.ear
3. If the correct content is present in this folder, rerun IVT. The error should go away. If not, skip to step 7.
4. If the correct content is not present, then navigate to <MDM\_INSTALL\_HOME>/mds/scripts and run the following command:

```
madconfig install_native_engine_ear -propertyfile
../..properties/install_native_engine_ear.properties
```

5. Restart the server.
6. Rerun IVT.
7. If the issue persists, then check whether the installation configuration includes Microsoft SQL Server and LDAP. If so, then contact your database administrator (DBA) to run the following SQL scripts.

**Note :** These scripts are only required if you are using SQL Server. Turn on snapshot isolation for SQL Server. This only needs to be done once.

```
ALTER DATABASE <database name> SET ALLOW_SNAPSHOT_ISOLATION ON
ALTER DATABASE <database name> SET SINGLE_USER WITH ROLLBACK IMMEDIATE
ALTER DATABASE <database name> SET READ_COMMITTED_SNAPSHOT ON
ALTER DATABASE <database name> SET MULTI_USER \
```

After the scripts have been run, then restart the application server.

8. If the issue is still not fixed, then uninstall and reinstall InfoSphere MDM.

## Installation errors

---

The errors that are listed are a sampling of the errors that you might encounter during MDM installation. This list is not a comprehensive list of all the errors. If the error that you are seeing in your logs is not listed, contact IBM Software Support.



**Attention :** The log content that you see in the error topics are only examples. Actual log file names, paths, time stamps, and so on that you see in your implementation are different from what is shown in the examples.

### Related information

[IBM Installation Manager documentation](#)

## Installation error: Access is denied for the checkIfAppExists operation on AppManagement MBean

Access is denied for the checkIfAppExists operation on AppManagement MBean.

### Description

During an uninstall, if the wrong SOAP password is entered on the uninstall panel, the uninstall can fail. If this problem occurs, the installer interrupts the uninstall session and shown an error message.

The error message is similar to this IBM Installation Manager log file example message:

```
Error uninstalling. CRIMA1076E: Error executing
"/opt/IBM/MDM/E455/mdm/mds/scripts/madconfig.sh" operation (status=255).
See agent output log for more information:
/home/var/ibm/InstallationManager_LocalTesting_AE007/logs/native/TIME_STAMP.log
CRIMA1076E: Error executing "/opt/IBM/MDM/E455/mdm/mds/scripts/madconfig.sh"
operation (status=255). See agent output log for more information:
/home/var/ibm/InstallationManager_LocalTesting_AE007/logs/native/TIME_STAMPa.log
CRIMA1076E: Error executing "/opt/IBM/MDM/E455/mdm/mds/scripts/madconfig.sh"
operation (status=1). See agent output log for more information:
/home/var/ibm/InstallationManager_LocalTesting_AE007/logs/native/20130506_1551b.log
CRIMA1076E: Error executing "/opt/IBM/MDM/E455/mdm/mds/scripts/madconfig.sh"
operation (status=1). See agent output log for more information:
/home/var/ibm/InstallationManager_LocalTesting_AE007/logs/native/TIME_STAMPc.log
CRIMA1076E: Error executing "/opt/IBM/MDM/E455/mdm/mds/scripts/madconfig.sh"
operation (status=255). See agent output log for more information:
/home/var/ibm/InstallationManager_LocalTesting_AE007/logs/native/TIME_STAMP.log
CRIMA1076E: Error executing "/opt/IBM/MDM/E455/mdm/mds/scripts/madconfig.sh" operation
(status=255). See agent output log for more information:
/home/var/ibm/InstallationManager_LocalTesting_AE007/logs/native/TIME_STAMP.log
```

Buildfile: build.xml

uninstall\_mds\_ws\_api:

```
.....
trustFilePwd is *****
com.ibm.websphere.management.exception.AdminException:
  at com.ibm.websphere.management.application.AppManagementProxy.proxyInvoke
(AppManagementProxy.java:192)
  at com.ibm.websphere.management.application.AppManagementProxy.checkIfAppExists
(AppManagementProxy.java:269)
  at com.ibm.mdm.de.config.appserver.core.MDSAppDeploy.checkIfAppExists
(MDSAppDeploy.java:165)
  at com.ibm.mds.de.config.appserver.configurator.MSDDeployAppConfigurator.configure
(MSDDeployAppConfigurator.java:24)
  at
com.ibm.mdm.de.config.appserver.remoteclient.command.MSDDeployAppRemoteCommand.performUninstall
(MSDDeployAppRemoteCommand.java:36)
  at com.ibm.mdm.de.config.appserver.remoteclient.command.MSDDeployAppRemoteCommand.execute
(MSDDeployAppRemoteCommand.java:22)
  at com.ibm.mdm.de.config.appserver.remoteclient.MDSRemoteClient.execute
(MDSRemoteClient.java:26)
  at com.ibm.mdm.de.ant.task.UninstallMDSWSAPITask.execute(UninstallMDSWSAPITask.java:84)
  at org.apache.tools.ant.UnknownElement.execute(UnknownElement.java:275)
  at org.apache.tools.ant.Task.perform(Task.java:364)
```

## Solution

If the uninstallation of the MDM database was successful, but the uninstall of the InfoSphere MDM operational server failed, then you must uninstall the operational server manually.

1. Uninstall the InfoSphere MDM deployment modules, business-level applications, by using IBM WebSphere Application Server Integrated Solutions Console.
2. Uninstall the `com.ibm.mdm.hub.server.app-<>.eba` and `com.ibm.mdm.server.resources.properties-<>.jar` assets by using IBM WebSphere Application Server Integrated Solutions Console.
3. Uninstall the local repository bundles: `com.ibm.mdm.mds.api.app`, `com.ibm.mdm.mds.jni.app`, `com.ibm.mdm.server.jaxrpcws.cba`, and `com.ibm.mdm.thirdparty.cba` by using IBM WebSphere Application Server Integrated Solutions Console.
4. Delete the deployment target (server or cluster) to drop InfoSphere MDM configuration objects such as JDBC Providers, data sources, and messaging provider.

## Installation error: AdminTask

An AdminTask error can cause an installation failure.

### Description

This problem might cause the InfoSphere MDM installation to fail and trigger a complete installation rollback. This issue might happen when you are installing the Business Administration UI application as part of the InfoSphere MDM installation. The issue is related to the ability of the IBM WebSphere Application Server Deployment Manager to interact with the InfoSphere MDM installation application. If encountered, the installation session is stopped, an error message is issued, and the installation rollback is triggered.

The warning message is similar to this IBM Installation Manager log file example message:

```
Error occurred in phase: install SU: com.ibm.mdm.ba.webapp 11.0.0.v20130410-1220
IU: com.ibm.mdm.ui.ba.config.server_create.config.objects.on.server
null->11.0.0.v20130410-1220
Message: Error executing the /usr/IBM/WebSphere/AppServer8502ND/bin/wsadmin.sh
command: status=105. For more information, see the agent log file:
/home/ws8admin/var/ibm/InstallationManager_H001/logs/native/TIME_STAMP.log

WASX7209I: Connected to process "dmgr" on node myCellManager01 using SOAP connector;
The type of process is: DeploymentManager
WASX8011W: AdminTask object is not available.
WASX7303I: The following options are passed to the scripting environment and are available
as arguments that are stored in the argv variable:
"[myCell01, None, myNode01, mdm-s3-H080, default_host]"
Setting up application server and VirtualHost for WCC UIs...
Cell name           :myCell01
Cluster name        :None
Node name           :myNode01
Server name         :mdm-s3-H080
VirtualHost Name    :default_host
Setting up server mdm-s3-H080 at node myNode01 in cell myCell01...
Server 'mdm-s3-H080' does not exist. Creating new server from template 'default'...

server is 'mdm-s3-H080'
Adding new alias with ports to virtual host...
WC_defaulthost Port to be added : 9080
WC_defaulthost_secure Port to be added : 9443
Added new alias with ports to virtual host!!

Added ORB timeout for server:mdm-s3-H080
modify cookie security
create property com.ibm.ws.webcontainer.HTTPOnlyCookies
WASX7017E: Exception received while running file
"/usr/IBM/MDM/H080/Shared/tmp/script/wccUISetupAppServer.py";
exception information: com.ibm.bsf.BSFException: exception from Jython:
Traceback (innermost last):
File "<string>", line 198, in ?
File "<string>", line 131, in createProperty
NameError: AdminTask
```

WASX7341W: No "save" was performed before the interactive scripting session exited; configuration changes will not be saved.

## Solution

1. Increase the IBM WebSphere Application Server Deployment Manager JVM heap size to 1024/2048.
2. Run the MDM installation again.
3. Avoid use of the IBM WebSphere Application Server Integrated Solutions Console during the MDM installation.

## Installation error: AdminTask object is not available

AdminTask object is not available.

## Description

This error can cause the IVT response file to show a failure because of a problem that occurred when the installer attempt to process Role Mapping settings. This problem is related to the ability of IBM WebSphere Application Server Deployment Manager to interact with the InfoSphere MDM installation application. If this problem occurs, the installer can reach the end of the installation, but indicates that IVT (Installation Verification Tool) is not successful.

IVT shows the following exception:

```
CORBA NO_PERMISSION 0x0 No; nested exception is:
  org.omg.CORBA.NO_PERMISSION:
  >> SERVER (id=5b5ab1aa, host=evg01.torolab.ibm.com) TRACE START:
  >> org.omg.CORBA.NO_PERMISSION: java.rmi.AccessException: ; nested exception is:
    com.ibm.websphere.csi.CSIAccessException: SECJ0053E: Authorization failed
for defaultWMMFileBasedRealm/mdmadmin while invoking
(Home)com.ibm.mdm.hub.server-
E457..11.0.0..com.ibm.mdm.server.dwlcommonservlets.ejb..11.0.0.FP00IF000_20130503-1713.war
#com.ibm.mdm.server.dwlcommonservlets.ejb..11.0.0.FP00IF000_20130503-1713.war
#DWLServiceController create::2 is not granted any of the required roles:
ServiceConsumer ServiceProvider vmcid: 0x0 minor code: 0 completed: No
  >> at
com.ibm.ws.security.core.SecurityCollaborator.performAuthorization(SecurityCollaborator.java:626)
  >> at
com.ibm.ws.security.core.EJSSecurityCollaborator.preInvoke(EJSSecurityCollaborator.java:265)
  >> at
com.ibm.ejs.container.EJSContainer.EjbPreInvokeForStatelessCreate(EJSContainer.java:4561)
  >> at
com.dwl.base.requestHandler.beans.EJSRemoteCSLDWLServiceControllerHome_2c54996d.create
(EJSRemoteCSLDWLServiceControllerHome_2c54996d.java)
  >> at
com.dwl.base.requestHandler.beans._EJSRemoteCSLDWLServiceControllerHome_2c54996d_Tie.create
(_EJSRemoteCSLDWLServiceControllerHome_2c54996d_Tie.java:1)
  >> at
com.dwl.base.requestHandler.beans._EJSRemoteCSLDWLServiceControllerHome_2c54996d_Tie._invoke
(_EJSRemoteCSLDWLServiceControllerHome_2c54996d_Tie.java)
  >> at com.ibm.CORBA.iiop.ServerDelegate.dispatchInvokeHandler(ServerDelegate.java:669)
  >> at com.ibm.CORBA.iiop.ServerDelegate.dispatch(ServerDelegate.java:523)
  >> at com.ibm.rmi.iiop.ORB.process(ORB.java:523)
  >> at com.ibm.CORBA.iiop.ORB.process(ORB.java:1575)
  >> at com.ibm.rmi.iiop.Connection.doRequestWork(Connection.java:3039)
  >> at com.ibm.rmi.iiop.Connection.doWork(Connection.java:2922)
  >> at com.ibm.rmi.iiop.WorkUnitImpl.doWork(WorkUnitImpl.java:64)
  >> at com.ibm.ws.giop.threadpool.WorkQueueElement.dispatch(WorkQueueElement.java:165)
  >> at com.ibm.ws.giop.filter.GiopFilterChain.processMessage(GiopFilterChain.java:203)
  >> at com.ibm.ws.giop.threadpool.PooledThread.handleRequest(PooledThread.java:81)
  >> at com.ibm.ws.giop.threadpool.PooledThread.run(PooledThread.java:102)
  >> at com.ibm.ws.util.ThreadPool$Worker.run(ThreadPool.java:1814)
  >> SERVER (id=5b5ab1aa, host=evg01.torolab.ibm.com) TRACE END.
vmcid: 0x0 minor code: 0 completed: No
```

The warning message is similar to this IBM Installation Manager log file example message:

```
Problem with executing "/usr/IBM/WebSphere/AppServer8502ND/bin/wsadmin.sh"
operation (status=105). See agent output log for more information:
/home/ws8admin/var/ibm/InstallationManager_H001/logs/native/TIME_STAMP.log
```

```
/home/ws8admin/var/ibm/InstallationManager_H001/logs/native/TIME_STAMP.log
```

```

shows message similar to following
WASX7209I: Connected to process "dmgr" on node myCellManager01 using SOAP
connector; The type of process is: DeploymentManager
WASX8011W: AdminTask object is not available.
WASX7303I: The following options are passed to the scripting environment and
are available as arguments that are stored in the argv variable:
"[--blaname, MDM-operational-server-EBA-H085, --ebaPrefix, com.ibm.mdm.hub.server.app,
--blouser, mdmadmin, --wsName, MDM-web-services-H085,
--blapwd, mdmadmin]"
Configuring application security
-----
AdminBLA:                               List composition units in a BLA
BLA ID (or BLA name):                   MDM-operational-server-EBA-H085
Optional parameter:
    Display description:
Usage: AdminBLA.listCompUnits("MDM-operational-server-EBA-H085", "")
Return: List the composition units within the specified business-level application.
-----

```

```

Exception: exceptions.NameError AdminTask
WASX7017E: Exception received while running file
"/usr/IBM/MDM/H085/Shared/tmp/script/RoleMapping.py"; exception information:
com.ibm.bsf.BSFException: exception from Jython:
Traceback (innermost last):
File "<string>", line 144, in ?
File "<string>", line 28, in retrieveCompUnitID
File "/usr/IBM/WebSphere/AppServer8502ND/scriptLibraries/application/V70/AdminBLA.py",
line 763, in listCompUnits
ScriptLibraryException: : 'exceptions.NameError AdminTask'

```

## Solution

1. Increase the IBM WebSphere Application Server Deployment Manager JVM heap size to 1024/2048.
2. Run the InfoSphere MDM installation again.
3. Avoid use of the IBM WebSphere Application Server Integrated Solutions Console during the InfoSphere MDM installation.

## Installation error: Bind process is not active

[DB2 JDBC Driver]Bind process is not active.

### Description

On IBM DB2 for z/OS, the DB2 Wire Protocol driver does not work properly unless the appropriate packages exist on every server to which you intend to connect. Your user ID must have BINDADD privileges so that the driver can create and bind packages. If the bind packages are not in place, then the following message is shown when testing connections for the InfoSphere MDM datasource on the operational server:

```

java.sql.SQLException: [IBM][DB2 JDBC Driver]Bind process is not active.
Please ensure that the user has permissions to create packages.
Packages cannot be created in an XA Connection. DSRA0010E: SQL State = HY000, Error Code = 0.

```

### Solution

Ensure that your database user ID has BINDADD privileges on the MDM database:

1. Log in as the database administrator (DBA) user.
2. Connect to the MDM database.
3. Grant BINDADD privileges to the database user (*dbuser*).
4. Log out from the DBA user account.
5. Log in with the database user account. When the database user account connects to the database with the DB2 Wire Protocol driver, the correct package is created automatically.

**Note :** By default, the packages contain 200 dynamic sections and are created in the collection named NULLID.

For additional details on this issue, see the related links.

### Related information

[The DB2 Wire Protocol Driver and Packages](#)

## Installation error: Blank page displays after logging in to UI

After you log in to a web based InfoSphere MDM user interface such as the Business Administration UI, you might encounter a blank page.

### Description

Authentication error message can be found in the IBM WebSphere Application Server SystemOut.log file. The blank page can be caused by a security role to user/group mapping for the application. To verify whether the blank page is a role mapping issue:

1. Open the IBM WebSphere Application Server Integrated Solutions Console.
2. From **Applications > Application Types > WebSphere enterprise applications**, select the UI application.
3. Click **Security role to user/group mapping** and verify that all roles are set to **None**.

### Solution

1. On the UI application page, select the role.
2. Click **Map Special subjects** and then select **All Authenticated in Application's Realm**.
3. Click **OK** to save.
4. Restart the server.

## Installation error: Cannot add asset com.ibm.mdm.hub.server.app.eba

Cannot add the asset com.ibm.mdm.hub.server.app-*name*.eba.

### Description

This error means the IVT response file is not available because there was a problem in deploying the Enterprise Bundle Archive (EBA). During InfoSphere MDM installation, if the IBM WebSphere Application Server is unable to deploy the com.ibm.mdm.hub.server.app-*name*.eba file, this error is logged. The EBA file is one of the InfoSphere MDM installation deployment archives. If this issue occurs, the installer can process to the end of the installation tasks and install InfoSphere MDM, but an indication that the IVT (Installation Verification Tool) is not successful is given. The error message can be seen in the IBM Installation Manager log file.

The error message is similar to this IBM Installation Manager log file example message:

```
Custom operation MDM Operational Server, deploying enterprise business application (EBA) on target
server1 in unit com.ibm.mdm.mdm_config.install.eba.win completed:
output in TIME_STAMP.log
```

```
Buildfile: build.xml
```

```
install_mdm_eba:
Creating new property file: C:\IBM\E443\MDM\properties\install_mdm_eba.properties
Updating property file: C:\IBM\E443\MDM\properties\install_mdm_eba.properties
```

```

Updating property file: C:\IBM\E443\MDM\properties\install_mdm_eba.properties
Expanding: C:\IBM\E443\MDM\InstallableApps\com.ibm.mdm.hub.server.app.eba into
C:\IBM\E443\MDM\tmp\mdm_eba_temp_TIME_STAMP
##### entering ConfigEBATask #####
baseDir is ../../tmp/mdm_eba_temp_TIME_STAMP/
ebaID is E443
versionFilePath is ./MDM_VERSION
Begin to modify the file.
Begin to read the File.
Read the file successfully.
Begin to write the modified file.
Write the modified file successfully.
Modify the file successfully.
Begin to read version.
Read the file successfully: 11.0.0
Begin to record version.
Record version successfully: C:\IBM\E443\MDM\mds\scripts\.\MDM_VERSION
.....
Set cuSourceID parameter to assetname=com.ibm.mdm.hub.server.app-E443.eba
Failed from asyncCmdClientHelper.processCommandParameters(cmd).
com.ibm.wsspi.management.bla.op.OpExecutionException: CWSAL0022E: Cannot add asset
com.ibm.mdm.hub.server.app-E443.eba because bundles that it requires
are not downloaded. To start the bundle download, save changes to the
master configuration after importing the asset.
    at com.ibm.ws.management.bla.commands.ADTCommand.finishOp(ADTCommand.java:320)
    at com.ibm.ws.management.bla.commands.ADTCommand.opCompleted(ADTCommand.java:428)
    at com.ibm.wsspi.management.bla.op.Operation.notifyListeners(Operation.java:170)
    at com.ibm.wsspi.management.bla.op.Operation.execute(Operation.java:242)
    at
com.ibm.wsspi.management.bla.op.compound.CompoundOperation.execute(CompoundOperation.java:83)
    at com.ibm.ws.management.bla.commands.ADTCommand$OperationScheduler.run(ADTCommand.java:672)
    at java.lang.Thread.run(Thread.java:773)
.....

```

## Solution

1. Make sure that the machine where you are deploying InfoSphere MDM meets the hardware requirements and has at least 8G of RAM.
2. Shutdown other none-essential applications, especially applications that are running JVMs.
3. Uninstall InfoSphere MDM and install it again.

## Installation error: httpPort property cannot be blank

The httpPort property cannot be blank

### Description

This issue might cause the InfoSphere MDM installation to fail and trigger a complete installation rollback.

There are two possible cases that can cause this issue to arise:

- During InfoSphere MDM installation, the IBM WebSphere Application Server node agent is unable to process interactions with the InfoSphere MDM installation application.
- The HTTP transport chain has been disabled for the server to use as a deployment target while installing InfoSphere MDM deployment modules.

If these situations occur, the installation session is interrupted and the installation application gives an error message before the installation rollback is triggered.

The warning message is similar to this IBM Installation Manager log file example message:

```

Error occurred in phase: install SU: com.ibm.mdm.application.server.component.config.server
11.0.0.FP00IF000_20130502-1800 IU: com.ibm.mdm.mdm_config.install.ws.api.unix
null->999.999.999.1127209126
Message: Error executing "/opt/IBM/MDM/E453/mdm/mds/scripts/madconfig.sh"
operation (status=1). See agent output log for more information:
/home/var/ibm/InstallationManager_LocalTesting_AE007/logs/native/TIME_STAMP.log

```

Buildfile: build.xml

```
install_mds_ws_api:
Creating new property file: /opt/IBM/MDM/E453/mdm/properties/install_mds_ws_api.properties
Updating property file: /opt/IBM/MDM/E453/mdm/properties/install_mds_ws_api.properties
```

```
BUILD FAILED
/opt/IBM/MDM/E453/mdm/mds/scripts/build-utils-app.xml:1508:
The following error occurred while executing this line:
/opt/IBM/MDM/E453/mdm/mds/scripts/build-utils-config.xml:618:
ERROR: httpPort property cannot be blank.
```

Total time: 1 second

## Solution

- Make sure that the IBM WebSphere Application Server node agent is up and running. Start the node agent and run the InfoSphere MDM installation again. If you are deploying in a clustered environment, start all nodes in the cluster.
- Make sure that the IBM WebSphere Application Server node agent is properly synchronized with the Deployment Manager. Synchronize the node agent and run the InfoSphere MDM installation again. If you are deploying in a clustered environment, synchronize all nodes in the cluster.
- Make sure that the HTTP transport chain has not been disabled for the server to use as a deployment target:
  1. In the WebSphere Application Server Integrated Solutions Console, go to **Servers > Server Types > WebSphere application servers > <cluster member name> > Ports**.
  2. In the list of available ports, locate **WC\_defaulthost** and click **View associated transports**.
  3. Go into **HttpQueueInboundDefault**, select **Enable**, then click **OK** and save your changes.
  4. Go into **WCInboundDefault**, select **Enable**, then click **OK** and save your changes.
  5. Complete the preceding steps for each cluster member, then restart the whole cluster.

**Tip :** Restarting cluster members will not work. You must restart the whole cluster.
- If you are deploying in a clustered environment, make sure that the defined cluster member names are unique.

## Installation error: Incorrect Java SDK version

When installing InfoSphere MDM, the WebSphere Application Server profiles must use Java SDK version 1.7.

### Description

When an unsupported version of the Java SDK is in place, the following message will be displayed:

```
java.lang.UnsupportedClassVersionError:
JVMCFRE003 bad major version; class=com/ibm/mdm/de/ant/task/EncryptDBPasswordTask, offset=6
```

### Solution

Install Java SDK version 1.7 before beginning the InfoSphere MDM installation. For details, see [Updating Java](#).

## Uninstallation error: Installer does not drop virtual MDM tables

When uninstalling InfoSphere MDM with an IBM DB2 for z/OS, the installer does not drop the virtual MDM tables.

### Solution

You must manually drop the tables. A full list of the virtual MDM tables can be found in the `MDM_INSTALL_HOME/mds/sql/mpihub.db2z.sto` file.

## Installation error: 'java.lang.RuntimeException: Application could not be initialized

`java.lang.RuntimeException: Application could not be initialized. Application Name and Version could not be resolved.`

### Description

This issue might cause the IVT (Installation Verification Tool) response file to show null because the InfoSphere MDM configuration repository data is missing after the InfoSphere MDM installation is complete. This issue is related to a failure during the database table creation and data population process. If this problem occurs, the installer can complete the InfoSphere MDM installation and indicate that the IVT response file is null.

The error message is similar to this example message from the IBM WebSphere Application Server `SystemOut.log` file.

```
TIME_STAMP] 0000006f TopologySessi E java.lang.RuntimeException: Application could
not be initialized. Application Name and Version could not be resolved.
    at com.dwl.management.config.cache.CachingLoaderHelperImpl.initApplication
(CachingLoaderHelperImpl.java:171)
    at com.dwl.management.config.cache.CachingLoaderHelperImpl.getApplicationName
(CachingLoaderHelperImpl.java:185)
```

### Solution

1. Search the installation log files, stored in `MDM_INSTALL_HOME/logs/database`, for a possible cause of this error. Search for the following text to locate the messages that are known to be related to this error:
  - Custom operation MDM Operational Server, updating data in Configuration Repository tables in unit `com.ibm.mdm.mdm_config.update.appsoftware.table.unix` completed:
  - Custom operation MDM Operational Server, Updating Configuration Repository to setup matching type in unit `com.ibm.mdm.mdm_config.update.PME.tables` completed:
2. Fix any database connection problems.
3. Uninstall InfoSphere MDM and install it again.

## Installation error: OutOfMemoryError - PermGen space

When there is not enough memory for the PermGen space in the default WebSphere Application Server `ws_ant.sh` process, this error occurs.

### Description

This issue affects Solaris environments. Any InfoSphere MDM installation that includes one or more user interface applications can fail with the following error in the IBM Installation Manager native log file:

```
[timestamp] [main] INFO
```

```
com.ibm.mdm.de.config.appserver.core.MDMWebAppDeploy.roleMapping(Line:214) - =====
java.lang.OutOfMemoryError: PermGen space
PermGen space
```

## Solution

Prior to installing InfoSphere MDM, increase the memory size for the PermGen space:

1. Open `$WAS_HOME/bin/ws_ant.sh`.
2. Add `"-XX:MaxPermSize=256m"` as a Java command line argument in the `ws_ant.sh` file:

```
eval "$JAVA_EXE" "-XX:MaxPermSize=256m"
```

## Installation error: SSL handshake failure

When installing InfoSphere MDM in silent installation mode on a machine that does not support graphical user interfaces, the SSL handshake failure message can appear, causing the installation to fail.

### Description

During InfoSphere MDM installation, if the IBM WebSphere Application Server **SSL handshake** popup window cannot open as expected, then the node agent cannot process interactions with the InfoSphere MDM installation application. This issue causes the InfoSphere MDM installation to fail and trigger a complete installation rollback.

The warning message is similar to this IBM Installation Manager log file example message:

```
Updating property file: /app_2/IBM/MDM/KM1Dev05/mdm/properties/sync_nodes.properties
##### entering SyncNodesTask #####
wasUser is mdmadmin
wasPwd is *****
hostname is M2848
port is 28879
trustFile is /m1/mdm/WebSphere85dev/AppServer/etc/DummyClientTrustFile.jks
trustFilePwd is *****
node is None
CWPKI0308I: Adding signer alias "CN=M2848, OU=Root Certifica" to local
           keystore "null" with the following SHA digest:
           33:1A:02:2A:C1:10:77:AD:09:3F:FF:CB:F8:8B:49:53:22:3F:5A:89

CWPKI0022E: SSL HANDSHAKE FAILURE: A signer with SubjectDN "CN=M2848, OU=c1_mdm_dev,
OU=dm_c1_mdm_dev,
O=ACME5, C=US" was sent from target host:port "10.87.17.230:28879".
The signer may need to be added to local trust store
"/m1/mdm/WebSphere85dev/AppServer/etc/DummyClientTrustFile.jks" located in SSL configuration
alias "null" loaded from
SSL configuration file "null". The extended error message from the SSL handshake exception is:
"PKIX path building failed: java.security.cert.CertPathBuilderException:
PKIXCertPathBuilderImpl could not build a valid CertPath.; internal cause is:
    java.security.cert.CertPathValidatorException: The certificate issued by CN=M2848,
OU=Root Certificate, OU=01_mdm_dev, OU=dm_c1_mdm_dev, O=ACME5,
C=US is not trusted; internal cause is:
    java.security.cert.CertPathValidatorException: Certificate chaining error".
CWPKI0040I: An SSL handshake failure occurred from a secure client. The server's SSL signer has
to be
added to the client's trust store. A retrieveSigners utility is provided
to download signers from the server but requires administrative
permission. Check with your administrator to have this utility run to
setup the secure environment before running the client. Alternatively,
the com.ibm.ssl.enableSignerExchangePrompt can be enabled in ssl.client.props
for "DefaultSSLSettings" in order to allow acceptance of the signer during the
connection attempt.
Exception in com.ibm.mdm.de.ant.task.SyncNodesTask
com.ibm.websphere.management.exception.ConnectorException: ADMC0016E: The system cannot create a
SOAP
connector to connect to host M2848 at port 28879.
ADMC0016E: The system cannot create a SOAP connector to connect to host M2848 at port 28879.
##### existing SyncNodesTask #####
```

## Solution

1. Apply one of the following workarounds:

- Add the server's SSL signer to the client's trust store:
  - a. Use the retrieveSigners utility to download the signers from the server.
  - b. Add the signer to the client's trust store.

**Note :** The retrieveSigners utility requires administrative permissions. Check with your administrator to run this utility to set up the secure environment before running the client.

- Allow acceptance of the signer during connection attempts:
  - In the `ssl.client.props` file for DefaultSSLSettings, enable the `com.ibm.ssl.enableSignerExchangePrompt` property to allow acceptance of the signer during the connection attempt.

2. Run the InfoSphere MDM installation again.

## Uninstallation error: The system cannot create a SOAP connector to connect to host localhost at port 88xx

The system cannot create a SOAP connector to connect to host localhost at port 88xx.

### Description

The uninstall function does not verify whether the IBM WebSphere Application Server Dmgr (for Network Deployment) or Server (for Base Deployment) is running before processing the uninstall. If they are not running when you uninstall InfoSphere MDM, the installer cannot create a SOAP connector to connect to the host. The uninstall process can proceed with success, but none of the IBM WebSphere Application Server related resources are deleted.

The error message is similar to this IBM Installation Manager log file example message:

```
com.ibm.websphere.management.exception.ConnectorException: ADMC0016E:
The system cannot create a SOAP connector to connect to host localhost at port 8881.
    at com.ibm.websphere.management.AdminClientFactory.createAdminClientPrivileged
(AdminClientFactory.java:634)
    at com.ibm.websphere.management.AdminClientFactory.access$000(AdminClientFactory.java:126)
    at com.ibm.websphere.management.AdminClientFactory$1.run(AdminClientFactory.java:209)
    at com.ibm.ws.security.util.AccessController.doPrivileged(AccessController.java:63)
    at
com.ibm.websphere.management.AdminClientFactory.createAdminClient(AdminClientFactory.java:205)
    at
com.ibm.mdm.de.config.appserver.remoteclient.MDSRemoteClient.init(MDSRemoteClient.java:43)
    at
com.ibm.mdm.de.config.appserver.remoteclient.MDSRemoteClient.execute(MDSRemoteClient.java:21)
    at com.ibm.mdm.de.ant.task.UninstallMDSWSAPITask.execute(UninstallMDSWSAPITask.java:84)
    at org.apache.tools.ant.UnknownElement.execute(UnknownElement.java:275)
    at org.apache.tools.ant.Task.perform(Task.java:364)
    at org.apache.tools.ant.Target.execute(Target.java:341)
    at org.apache.tools.ant.Target.performTasks(Target.java:369)
    at org.apache.tools.ant.Project.executeSortedTargets(Project.java:1216)
    at org.apache.tools.ant.Project.executeTarget(Project.java:1185)
    at org.apache.tools.ant.helper.DefaultExecutor.executeTargets(DefaultExecutor.java:40)
    at org.apache.tools.ant.Project.executeTargets(Project.java:1068)
    at org.apache.tools.ant.Main.runBuild(Main.java:668)
    at org.apache.tools.ant.Main.startAnt(Main.java:187)
    at org.apache.tools.ant.Main.start(Main.java:150)
    at org.apache.tools.ant.Main.main(Main.java:240)
    at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
    at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:60)
    at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:37)
    at java.lang.reflect.Method.invoke(Method.java:611)
    at com.ibm.ws.bootstrap.WSLauncher.main(WSLauncher.java:277)
Caused by: java.lang.reflect.InvocationTargetException
    at sun.reflect.NativeConstructorAccessorImpl.newInstance0(Native Method)
    at
sun.reflect.NativeConstructorAccessorImpl.newInstance(NativeConstructorAccessorImpl.java:56)
    at
sun.reflect.DelegatingConstructorAccessorImpl.newInstance(DelegatingConstructorAccessorImpl.java
```

```

:39)
    at java.lang.reflect.Constructor.newInstance(Constructor.java:527)
    at
com.ibm.websphere.management.AdminClientFactory.createAdminClientPrivileged(AdminClientFactory.j
ava:456)
    ... 24 more
Caused by: com.ibm.websphere.management.exception.ConnectorNotAvailableException:
[SOAPException: faultCode=SOAP-ENV:Protocol; msg=;
targetException=java.net.MalformedURLException]
    at
com.ibm.ws.management.connector.soap.SOAPConnectorClient.reconnect(SOAPConnectorClient.java:422)
    at
com.ibm.ws.management.connector.soap.SOAPConnectorClient.<init>(SOAPConnectorClient.java:222)
    ... 29 more
Caused by: [SOAPException: faultCode=SOAP-ENV:Protocol; msg=;
targetException=java.net.MalformedURLException]
    at org.apache.soap.rpc.Call.WASinvoke(Call.java:529)
    at com.ibm.ws.management.connector.soap.SOAPConnectorClient
$4.run(SOAPConnectorClient.java:380)
    at com.ibm.ws.security.util.AccessController.doPrivileged(AccessController.java:118)
    at
com.ibm.ws.management.connector.soap.SOAPConnectorClient.reconnect(SOAPConnectorClient.java:365)
    ... 30 more

```

## Solution

When uninstalling InfoSphere MDM, make sure that the IBM WebSphere Application Server Dmgr and AppSrv (Network Deployment) or Server (Base Deployment) are running.

## Installation error: Virtual MDM IVT failure

When running Installation Verification Tests (IVT) on virtual MDM, the tests can fail with the following message if the application server has not been properly started:

```

com.dwl.base.exception.DWLBaseException: Could not locate business object:
VirtualMDMBObj

```

## Description

After the installation of InfoSphere MDM has completed, the IVT of virtual MDM can fail if the application server did not start correctly.

This issue affects InfoSphere MDM installations on Microsoft Windows with WebSphere Application Server Base edition.

## Solution

1. Manually start the application server (`server1`).
2. Rerun the Installation Verification Tests by running the IVT script `MDM_INSTALL_HOME\IVT\verify.bat`.



---

## Chapter 7. Uninstalling InfoSphere MDM

Use IBM Installation Manager to uninstall your edition or remove individual components.

If you want to remove the entire edition (operational server, database, and components), run the `madconfig Uninstall_MDM` command, then use the IBM Installation Manager **Uninstall** option.

If you want to remove only selected components, use the **Modify** option, then run the `madconfig Configure_MasterDataManagement` command.

---

### Uninstalling your InfoSphere MDM instance

---

Use this procedure to uninstall the full InfoSphere MDM product instance.

#### Before you begin

If you are planning to later reinstall this InfoSphere MDM runtime environment and use the same database instance that it uses, make sure that you create a backup image of the database as a precaution.

In the environment that you want to uninstall, stop each runtime InfoSphere MDM instance (operational server, entity manager instance, client application, and so on).

#### About this task

Using the IBM Installation Manager uninstall option removes the entire offering. If you want to remove only selected components such as one of the web-based user interface applications, use the **Modify** option.

#### Procedure

1. Navigate to `<MDM_INSTALL_HOME>\mds\scripts` and run the `Uninstall_MDM` `madconfig` script to clean up the configuration files:

- On Microsoft Windows systems, run

```
madconfig Uninstall_MDM
```

- On Linux or UNIX systems, run

```
./madconfig.sh Uninstall_MDM
```

**Important :** Be careful when running the `Uninstall_MDM` `madconfig` script. Running `Uninstall_MDM` removes the configuration of all features, and not just the configuration of a particular component.

2. Start IBM Installation Manager and click **Uninstall**.
3. Select the InfoSphere MDM package and click **Next**.
4. Review the summary information and click **Uninstall**.
5. Click **Finish**.

#### What to do next

The uninstall process does not remove the composite bundle archive (CBA) from the internal bundle repository. You must manually remove the CBA in IBM WebSphere Application Server Integrated Solutions Console (admin console).

#### Related tasks

[Removing the CBA from internal bundle repository](#)

Uninstalling InfoSphere MDM does not remove the composite bundle archive (CBA) from the internal bundle repository. You must manually remove it after you finish running the uninstall process.

[Troubleshooting an installation](#)

## Uninstalling a single component

---

Use the `Modify_MDM madconfig` target to uninstall a single InfoSphere MDM application or component.

### About this task

For details of this task, see [“Adding or removing client applications and individual components”](#) on page 140.

### What to do next

The uninstall process does not remove the composite bundle archive (CBA) from the internal bundle repository. Manually remove the CBA using the IBM WebSphere Application Server Integrated Solutions Console (admin console).

### Related concepts

[Adding or removing client applications and individual components](#)

IBM Installation Manager enables you to install individual components. This capability is useful when you want to install components on workstations or on a server that is different from the server on which you install the operational server and MDM database.

### Related tasks

[Removing the CBA from internal bundle repository](#)

Uninstalling InfoSphere MDM does not remove the composite bundle archive (CBA) from the internal bundle repository. You must manually remove it after you finish running the uninstall process.

[Troubleshooting an installation](#)

## Uninstalling in silent mode

---

Use this procedure to uninstall InfoSphere MDM components in silent mode.

### About this task

A properties file is generated when you are running an interactive uninstall. To use a silent uninstall, you must edit this file or create your own file.



**Attention :** Although code examples might show with line breaks in the following content, the text between `<... />` must be entered in the response file as one line without breaks.

### Procedure

1. To uninstall, replace the `<install modify='false'>` and `</install>` tags in your response file with `uninstall`.

For example:

```
<uninstall modify='false'>
<offering id='com.ibm.mdm.advanced' version='versionNumber' profile='IBM InfoSphere Master
Data Management' features='com.ibm.mdm.install.iu.localization.feature,
com.ibm.im.mdm.db.feature,com.ibm.im.mdm.app.feature,
com.ibm.im.mdm.native.feature,com.ibm.mdm.ba.webapp.feature,com.ibm.mdm.inspector.webapp.featur
e,
com.ibm.mdm.ev.webapp.feature,com.ibm.mdm.wb.webapp.feature,com.ibm.mdm.pd.webapp.feature,
com.ibm.im.mdm.pair.manager.feature,com.ibm.im.mdm.message.broker.feature,com.ibm.im.mdm.ei.f
eature,
com.ibm.mdm.ba.webapp.sample.feature,com.ibm.im.mdm.eutc' />
</uninstall>
```

2. Replace the default profile value with real profile values.

For example:

Before the change:

```
<data key='user.was.profile.home,com.ibm.mdm.advanced'  
value='/opt/IBM/WebSphere/AppServer/profiles/AppSrv01' />  
<data key='user.was.profile.home.ba,com.ibm.mdm.advanced'  
value='/opt/IBM/WebSphere/AppServer/profiles/AppSrv01' />  
<data key='user.was.profile.home.inspector,com.ibm.mdm.advanced'  
value='/opt/IBM/WebSphere/AppServer/profiles/AppSrv01' />  
<data key='user.was.profile.home.wb,com.ibm.mdm.advanced'  
value='/opt/IBM/WebSphere/AppServer/profiles/AppSrv01' />  
<data key='user.was.profile.home.ev,com.ibm.mdm.advanced'  
value='/opt/IBM/WebSphere/AppServer/profiles/AppSrv01' />  
<data key='user.was.profile.home.pd,com.ibm.mdm.advanced'  
value='/opt/IBM/WebSphere/AppServer/profiles/AppSrv01' />
```

After the change:

```
<data key='user.was.profile.home,com.ibm.mdm.advanced'  
value='/home/wsadmin/WAS8502NDClusterProfiles/DmgrCL1' />  
<data key='user.was.profile.home.ba,com.ibm.mdm.advanced'  
value='/home/wsadmin/WAS8502NDClusterProfiles/DmgrCL1' />  
<data key='user.was.profile.home.inspector,com.ibm.mdm.advanced'  
value='/home/wsadmin/WAS8502NDClusterProfiles/DmgrCL1' />  
<data key='user.was.profile.home.wb,com.ibm.mdm.advanced'  
value='/home/wsadmin/WAS8502NDClusterProfiles/DmgrCL1' />  
<data key='user.was.profile.home.ev,com.ibm.mdm.advanced'  
value='/home/wsadmin/WAS8502NDClusterProfiles/DmgrCL1' />  
<data key='user.was.profile.home.pd,com.ibm.mdm.advanced'  
value='/home/wsadmin/WAS8502NDClusterProfiles/DmgrCL1' />
```

3. Make sure that the following three features are always included in the response when you run a silent uninstall:

```
com.ibm.mdm.install.iu.localization.feature,com.ibm.mdm.server.swtag.feature,  
com.ibm.mdm.server.bundles.feature
```

4. If you use a sample response file from the Installation Startup Kit and want to modify it for a silent uninstall, add the following features:

```
com.ibm.mdm.server.swtag.feature,com.ibm.mdm.server.bundles.feature
```

For example:

```
<uninstall modify='false'>  
<offering id='com.ibm.mdm.advanced'  
version='versionNumber'  
profile='IBM InfoSphere Master Data Management'  
features='com.ibm.mdm.install.iu.localization.feature,com.ibm.mdm.server.swtag.feature,  
com.ibm.mdm.server.bundles.feature,com.ibm.im.mdm.db.feature,  
com.ibm.im.mdm.app.feature,com.ibm.mdm.ba.webapp.feature'  
installFixes='none' />  
</uninstall>
```

## What to do next

The uninstall process does not remove the composite bundle archive (CBA) from the internal bundle repository. You must manually remove the CBA in IBM WebSphere Application Server Integrated Solutions Console.

### Related tasks

[Customizing a silent mode response file](#)

Use this procedure to customize your silent mode installation response file.

[Installing InfoSphere MDM silently using a response file](#)

You can install InfoSphere MDM silently, where the installation choices are provided in an options file instead of in the interactive IBM Installation Manager panels. This type of installation is helpful when you are doing multiple identical installations.

### Related reference

[Installing InfoSphere MDM using silent mode](#)

Silent installation mode uses predefined configuration files, known as response files, as input so that installations can be run and rerun with a minimal amount of human interaction.

## Removing the CBA from internal bundle repository

---

Uninstalling InfoSphere MDM does not remove the composite bundle archive (CBA) from the internal bundle repository. You must manually remove it after you finish running the uninstall process.

### Procedure

1. Log in to the IBM WebSphere Application Server Integrated Solutions Console (admin console).
2. Go to **Environment > OSGI bundle repositories > Internal bundle repository**.
3. Select the MDM.ear CBAs and click **Delete**.

### Related tasks

Uninstalling your InfoSphere MDM instance

Use this procedure to uninstall the full InfoSphere MDM product instance.

Uninstalling a single component

Use the `Modify_MDM` madconfig target to uninstall a single InfoSphere MDM application or component.

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IBM does not warrant that systems and products are immune from the malicious or illegal conduct of any party.

IBM does not believe that any single process can be completely effective in helping identify and address security vulnerabilities. IBM has a multilayered approach:

- An ongoing, internal initiative promotes consistent adoption of security practices in development of products and services, with the goal of continually improving the quality and security characteristics of all IBM products and services. This initiative is described in the IBM Redguide *Security in Development: The IBM Secure Engineering Framework*, which contains public information about software development practices from IBM.
- Tests and scans of IBM products use various IBM technologies to proactively identify and remediate defects and vulnerabilities, including high or greater criticality vulnerabilities. Remediation takes place within IBM-defined response target timeframes for analysis, impact assessment, and fix delivery.
- The IBM Product Security Incident Response Team (PSIRT) manages the receipt, investigation, and internal coordination of security vulnerability information that is related to IBM offerings. The IBM PSIRT team acts as a focal point that security researchers, industry groups, government organizations, vendors, and customers can contact through the IBM PSIRT portal to report potential IBM product security vulnerabilities. This team coordinates with IBM product and solutions teams to investigate and identify the appropriate response plan.
- A global supply-chain integrity program and framework provide buyers of IT products with a choice of accredited technology partners and vendors in the Open Group Trusted Technology Forum (OTTF).

Because security of computer systems and computer software is a very complex issue, IBM does not provide information about development practices for individual products other than what is found in standard product documentation or as published through IBM's public activities.

Public information about software development practices recommended by IBM is documented in the IBM Secure Engineering Framework. This information is a compilation of practices from across IBM business units and development teams.

In most cases, published vulnerabilities are documented at timely intervals through [IBM Security Bulletins](#) that include the associated Common Vulnerability Scoring System (CVSS) base score. In some cases, IBM might contact customers directly and discreetly regarding specific vulnerabilities.

Customers who want to further validate the vulnerability of IBM Software beyond the assessments that are performed internally by IBM are welcome to conduct their own scans against licensed software. They may use the tool of their choice within the existing software licensing terms. For example, scanning is acceptable, but reverse compiling or reverse engineering IBM Software is not authorized except as expressly permitted by law without the possibility of contractual waiver.

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## Contacting IBM

You can contact IBM for customer support, software services, product information, and general information. You also can provide feedback to IBM about products and documentation.

The following table lists resources for customer support, software services, training, and product and solutions information.

Resource	Description and location
Product documentation for InfoSphere MDM	You can search and browse across the InfoSphere MDM documents at <a href="http://www.ibm.com/support/knowledgecenter/SSWSR9_11.4.0">http://www.ibm.com/support/knowledgecenter/SSWSR9_11.4.0</a> .
Product documentation for InfoSphere MDM Custom Domain Hub, including InfoSphere MDM Reference Data Management	You can search and browse across the InfoSphere MDM Custom Domain Hub documents at <a href="http://www.ibm.com/support/knowledgecenter/SSLSQH_11.4.0">http://www.ibm.com/support/knowledgecenter/SSLSQH_11.4.0</a> .
IBM Support Portal	You can customize support information by choosing the products and the topics that interest you at <a href="http://www.ibm.com/support/">www.ibm.com/support/</a> .
Software services	You can find information about software, IT, and business consulting services, on the solutions site at <a href="http://www.ibm.com/businesssolutions/">www.ibm.com/businesssolutions/</a> .
My IBM	You can manage links to IBM web sites and information that meet your specific technical support needs by creating an account on the My IBM site at <a href="http://www.ibm.com/account/">www.ibm.com/account/</a> .
Training and certification	You can learn about technical training and education services designed for individuals, companies, and public organizations to acquire, maintain, and optimize their IT skills at <a href="http://www.ibm.com/software/sw-training/">www.ibm.com/software/sw-training/</a> .
IBM representatives	You can contact an IBM representative to learn about solutions at <a href="http://www.ibm.com/connect/ibm/us/en/">www.ibm.com/connect/ibm/us/en/</a> .

### Providing feedback

The following table describes how to provide feedback to IBM about products and product documentation.

Type of feedback	Action
Product feedback	You can provide general product feedback through the Consumability Survey at <a href="https://www.ibm.com/survey/oid/wsb.dll/studies/consumabilitywebform.htm">https://www.ibm.com/survey/oid/wsb.dll/studies/consumabilitywebform.htm</a> .

Table 20. Providing feedback to IBM (continued)

<b>Type of feedback</b>	<b>Action</b>
Documentation feedback	To comment on the product documentation: <ul style="list-style-type: none"><li>• Click <b>Add Comment</b> on the topic in IBM Knowledge Center</li><li>• Click the <b>Feedback</b> link on the topic in IBM Knowledge Center</li><li>• Use the online reader comment form: <a href="http://www.ibm.com/software/data/rcf/">www.ibm.com/software/data/rcf/</a></li><li>• Send an email: <a href="mailto:comments@us.ibm.com">comments@us.ibm.com</a></li></ul>



