

Oracle® Communications Design Studio

Installation Guide

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Preface

This guide contains the procedures and information system administrators need to install Oracle Communications Design Studio.

To install and use Design Studio, system administrators must also install third-party software packages. Refer to the documentation distributed with the third-party packages for installation instructions.

Audience

This guide is intended for system administrators who use the preconfigured installation in the Design Studio software package to install the Design Studio feature, create a distributable archive file, and instruct individual users within an organization how to download and extract that preconfigured installation. Preconfigured installations simplify installation for individual users, reduce download times, and ensure correct installation.

Related Documents

For more information, see the following documents in the Design Studio documentation set:

- *Design Studio Concepts*: Explains how to use Design Studio to manage and configure data for use across Oracle Communications service fulfillment products. This guide provides a conceptual understanding of Design Studio.
- *Design Studio System Administrator's Guide*: Describes information about administering Design Studio. This guide includes information about configuring deployment settings for test environments, backing up and restoring Design Studio data, and automating builds.
- *Design Studio Developer's Guide*: Provides an overview of Design Studio platform tools, and information about working with design patterns, externally created schemas, and source control. Finally, it provides information about deploying to production environments.
- *Design Studio Security Guide*: Provides an overview of security considerations, information about performing a secure installation, and information about implementing security measures in Design Studio.
- *Design Studio Help*: Provides step-by-step instructions for tasks you perform in Design Studio.

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Document Revision History

The following table lists the revision history for this guide:

Version	Date	Description
E75693-01	July 2016	Initial release.

Design Studio Installation Overview

This chapter provides a general overview of installing Oracle Communications Design Studio.

Overview of the Design Studio Installation Procedure

To install Design Studio, you download and unzip an archive file, which contains (but is not limited to) the Design Studio feature and a preconfigured update site.

The installation procedure follows these steps:

1. Review the system requirements.
Ensure that your installation meets the minimum hardware, software, operating system, and JDK version requirements. See ["Design Studio System Requirements"](#) for more information.
2. Perform the pre-installation tasks.
Before installing Design Studio, you must install the prerequisite software. See ["Installing Prerequisite Software"](#) for more information.
3. Create and distribute a preconfigured Design Studio environment.
Provide your Design Studio users with a preconfigured installation for quick installation. See ["Installing and Configuring Design Studio"](#) for more information about obtaining the Design Studio software package, configuring the installation, and working with the preconfigured environment.

About the Design Studio Software Package

The Design Studio software package is an archive file that you download from the Oracle software delivery website. The Design Studio software package includes the following:

- A preconfigured update site, which includes the Design Studio feature. The Design Studio feature includes Design Studio Platform and all product features and plug-ins.
The update site folder structure is compatible with the Eclipse Software Update feature. See ["About Update Sites"](#) for more information.
- Sample command-line build scripts.
- Application software developer's kit (SDK) functions, which provide the resources required to configure a project library list and to build Order and Service Management (OSM), Unified Inventory Management (UIM), and Network

Integrity application projects in Design Studio. For more information about each application SDK, see *OSM Developer's Guide*, *UIM Developer's Guide*, and *Network Integrity Developer's Guide*, all available at the Oracle Help Center.

- UIM base projects and Network Integrity base projects. These projects are contained in ZIP files that you import into Design Studio.
- Cartridge Management Tool scripts and OSM migration scripts.
- Installation scripts (for Windows and Linux) that you can run to automatically install the Design Studio feature and to configure the Design Studio environment. When you run the script, you will provide the JDK and OEPE bundle locations and the middleware home location (for example, Weblogic 12c).

Oracle recommends that system administrators, when installing all new releases and patches, obtain a new Design Studio software package, perform a new installation, and distribute a new preconfigured installation to all Design Studio users. This method ensures that all users in the organization upgrade simultaneously and that all users are working with the identical platform, Java, and Design Studio feature versions.

Note: System administrators must ensure that the individual Design Studio users all work with the same version of Design Studio.

About Update Sites

Design Studio installations require an update site. An update site is a repository of Design Studio features and their supporting plug-ins, and uses a specific format that works with the Eclipse update manager. The update site is a preconfigured set of directories in the **update** folder, which includes the **artifacts.jar** and the **content.jar** files. These JAR files identify the features and supporting plug-ins available in the update site.

Oracle recommends that system administrators use the update site packaged in the Design Studio software package.

Design Studio System Requirements

This chapter lists the minimum system requirements necessary for individual Design Studio users to successfully install and run Oracle Communications Design Studio.

See ["Hardware Sizing Guidelines"](#) for information about hardware sizing recommendations.

Software Requirements

This section describes the software requirements required to install and use Design Studio.

Operating System Requirements

[Table 2–1](#) lists the operating systems supported by Design Studio.

Table 2–1 *Operating System Requirements*

Product	Version
Windows 7	64-bit (recommended)
Windows 7	32-bit

Additional Software Requirements

[Table 2–2](#) lists the additional software required to install and use Design Studio.

Table 2–2 *Additional Software Requirements*

Product	Version
Oracle Enterprise Pack for Eclipse	Version 12.2.1 (or later), based on Eclipse Mars (4.5.1)
Java Runtime Environment and Java Developer Kit	Java 8 (use the latest service pack)
Eclipse Business Intelligence, Reporting, and Charting feature	Eclipse Mars (4.5.1)

Hardware Requirements

[Table 2–3](#) lists the minimum hardware required to install and use Design Studio.

Application performance is directly related to processor performance and memory. For larger projects, consider increasing the processor power and the initial memory and maximum memory settings for the Java heap size.

Table 2–3 Minimum Hardware Requirements

Component	Requirement
Processor	Minimum Intel dual core (or equivalent)
Memory	Recommended 2 GB or above
Monitor	Screen Resolution: <ul style="list-style-type: none">■ Recommended: Full HD (1920x1080), 32-bit color, 16:9 ratio■ Minimum: 1366x768 or 1280x800

Design Studio Product Compatibility

Design Studio is compatible with specific Oracle Communications applications releases. The *Design Studio Product Compatibility Matrix* is available on the Oracle Help Center. For more information, click the link below, then click the appropriate release:

<http://docs.oracle.com/en/industries/communications/design-studio/index.html>

Design Studio Feature Dependencies

The Design Studio installation is an aggregation of individual features. When you install Design Studio, you install the full feature set (you do not install individual features). The following Design Studio individual features are included in the installation:

- Design Studio Platform
- Design Studio Domain Modeling
- Design Studio for Activation
- Design Studio for Activation SRT
- Design Studio for IP Service Activator
- Design Studio for Order and Service Management
- Design Studio for Order and Service Management Orchestration
- Design Studio Integration (includes the Design Studio Activation Task feature)
- Design Studio for Network Integrity
- Design Studio for Unified Inventory Management
- Oracle Communications Design Studio Design Pattern
- Oracle Communications Design Studio Guided Assistance
- Oracle Communications Design Studio Reference Reports

Installing Prerequisite Software

This chapter describes the software that you are required to install before installing Oracle Communications Design Studio.

About Installing Prerequisite Software

Before installing Design Studio, do the following:

Note: The following setup instructions are intended for system administrators. Individual Design Studio users should contact an administrator for instructions on obtaining and installing a preconfigured archive file.

1. Install Oracle Enterprise Pack for Eclipse 12.2.1 (or later) based on Eclipse Mars (4.5.1).

See "[Installing Oracle Enterprise Pack for Eclipse](#)" for more information.

2. Install the Oracle JDK.

Download the latest update of JDK 8 for the required platform from the Oracle Technology Network Web site:

<http://www.oracle.com/technology>

For information on installing the JDK, see the JDK installation documentation.

3. Install the Java 8 Runtime Environment.

See "[Installing Java Runtime Environment](#)" for more information.

4. Configure the Eclipse startup properties.

See "[Configuring Eclipse Startup Properties](#)" for more information.

5. Verify the Eclipse installation.

See "[Verifying the Eclipse Installation](#)" for more information.

6. Locate the Oracle WebLogic Server installation directory.

The Design Studio installation script requires you to define the **MIDDLEWARE_HOME** variable (for example, **C:\Oracle\Middleware**) and the **WEBLOGIC_HOME** variable (for example, **C:\Oracle\Middleware\wlserver**). Additionally, Order and Service Management users require access to WebLogic server libraries when building cartridge projects in Design Studio.

When defining these variables, you can point to an existing installation, or you can copy the libraries required by Design Studio and include those directories in your local Design Studio installation. If copying, copy all of the files and folders in the Oracle Fusion Middleware home directory (for example, **C:\Oracle\Middleware**), and paste those files into a local Fusion Middleware home directory (such as **C:\Oracle\Middleware**).

See the *OSM Installation Guide* for information about which version of WebLogic Server you require. The *OSM Installation Guide* is available on the Oracle Help Center:

<http://docs.oracle.com/en/industries/communications/order-service-management/index.html>

See the Oracle Fusion Middleware page on Oracle Help Center for information about installing WebLogic Server:

<http://docs.oracle.com/en/middleware/middleware.html>

Note: Do not install a WebLogic Server domain specifically for Design Studio.

Installing Oracle Enterprise Pack for Eclipse

To download and install Oracle Enterprise Pack for Eclipse:

1. Go to the Oracle Technology Network website:

<http://www.oracle.com/technetwork/developer-tools/eclipse/downloads/index.html>

Note: The Oracle Technology Network website is occasionally updated with new versions of Oracle Enterprise Pack for Eclipse. If you are looking for a version previous to the one that appears here, click the **Oracle Enterprise Pack for Eclipse Previous Releases** link at the bottom of the page.

2. Read and accept the license agreement, then select the **Windows (64-bit)** link.

Note: Oracle Mobile Application Framework (MAF) supports application development for iOS and Android. Design Studio does not require MAF. Select the MAF bundle only if you require iOS and Android application development support in your Eclipse installation.

3. Download the archive file to an installation location and unzip the file.

For example, unzip the file into a new directory called *DesignStudio*.

Installing Java Runtime Environment

Design Studio requires the Java 8 Runtime Environment.

Note: You must match the Java 8 version to the Oracle Enterprise for Eclipse version. For example, if you installed the Oracle Enterprise for Eclipse 32-bit version, you must install the Java 8 32-bit version; a 64-bit Oracle Enterprise for Eclipse version requires a 64-bit Java version.

To install Java 8 Runtime Environment:

1. Do one of the following:

- Locate an existing Java 8 Runtime Environment installation.

Java 8 Runtime Environment typically resides in the **Program Files/Java** folder.

- Obtain the Java version from the Oracle Technology website at:

<http://www.oracle.com/technetwork/java/javase/downloads/index.html>

2. Copy the JRE 1.8 folder (for example, **jre1.8.0_66**) into the *Eclipse_Home* folder, where *Eclipse_Home* is the directory in which Eclipse is installed.

The JRE 1.8 folder must be copied to the same location where the **eclipse.exe** file is saved.

Note: If Eclipse does not locate the JRE folder in the *Eclipse_Home* directory, it attempts to find the JRE using the JAVA_HOME windows environment variable.

Oracle recommends that you save a version directly in the *Eclipse_Home* directory to ensure that individual Design Studio users run Design Studio with a supported Java version. Saving the Java version to JAVA_HOME does not ensure that individual users will run Design Studio with a supported Java version, and the Java version may be changed by installations initiated by other programs.

3. Rename the JRE 1.8 folder to **jre**.

Configuring Eclipse Startup Properties

System administrators control Eclipse startup by configuring properties in the **eclipse.ini** file, located in the Eclipse root directory. By editing **eclipse.ini**, system administrators can:

- Mitigate potential memory problems by defining the **MaxPermSize** JVM flag correctly. See the Design Studio Help for information about troubleshooting memory issues.

For more information about JVM flags, see the discussion about running eclipse in the *Eclipse Workbench User Guide*.

- Define the initial memory and maximum memory settings for the Java heap size.

A heap is the common pool of free memory available to a program. If Eclipse is using more memory than is available, increase the heap size allocated by the JVM to Eclipse. Increasing the heap size may eliminate **OutOfMemoryError** instances when Eclipse attempts to instantiate objects. To define the initial amount of memory the JVM allocates to Eclipse, use the **-Xms** setting. To define the

maximum amount of memory that the JVM can allocate to Eclipse, use the **-Xmx** setting.

In the following example, a system administrator configures the **eclipse.ini** file settings for machines with at least 4 GB of memory:

Example 3-1 eclipse.ini File

```
-startup
plugins/org.eclipse.equinox.launcher_1.3.0.v20130125-144918.jar
--launcher.library
plugins/org.eclipse.equinox.launcher.win32.win32.x86_64_1.1.200.v20130117-173747
-showsplash
org.eclipse.platform
--launcher.defaultAction
openFile
--launcher.appendVmargs
-vmargs
-XX:NewRatio=5
-XX:+UseAdaptiveSizePolicy
-XX:+UseParallelGC
-XX:MaxPermSize=512m
-Xms128m
-Xmx1024m
-Dsun.lang.ClassLoader.allowArraySyntax=true
```

See "[Memory Guidelines](#)" for more information. For more information about the **eclipse.ini** file, see:

<http://wiki.eclipse.org/Eclipse.ini>

Memory Guidelines

If a typical individual Design Studio user will run Eclipse on a 4 GB machine running Windows 7 (64-bit), system administrators can define the **-Xmx** option up to **-Xmx3096m**.

For individual users working on machines with 1024 MB of memory or with a 32-bit operating system, define the **-Xmx** option as **-Xmx512M**. In this scenario, the size of cartridges that individual users can develop in Design Studio will be limited.

Individual users working on a 64-bit version of Eclipse on Windows 7 64-bit can define the maximum memory values higher than 1024 MB, enabling full use of available memory. For example, a 4 GB machine running 64-bit can use a setting of **-Xmx3096m**.

If out-of-memory errors occur at startup (because of an increase to the maximum allocated heap that the operating system is unable to support), close Design Studio, reduce the **-Xmx** value, and reopen Design Studio. Oracle recommends reducing the value gradually to ensure that Design Studio starts with the greatest heap space possible.

Verifying the Eclipse Installation

To verify that the Eclipse platform installed successfully:

1. Double-click the **eclipse.exe** file.

The Workspace Launcher dialog box appears.

2. Specify a workspace.

You can select a temporary folder or accept the default location. However, each individual Design Studio user should identify the appropriate working directory on their local machine. To help Design Studio users identify in which directory configuration information should be stored on their computer, system administrators can specify in the Workspace Launcher dialog box a location where most users will want to place their configuration files. The directory and folder structure that the installation administrator specifies in this step will become the default value for the **Workspace** field in the Workspace Launcher.

3. Click **OK**.

The Welcome screen appears.

4. Select **Help**, then **About Eclipse Platform**.
5. Verify the Eclipse version.

Installing and Configuring Design Studio

This chapter provides information about installing Oracle Communications Design Studio. Oracle recommends that system administrators create a preconfigured installation and distribute that installation to individual Design Studio users.

Creating and Distributing Design Studio Preconfigured Installations

To create preconfigured installations for individual users to download and install, system administrators:

1. Obtain the Design Studio software package file.
 - The Design Studio software package for new releases are available on the Oracle software delivery website:
<http://edelivery.oracle.com>
 - The Design Studio software package for patches are available on the My Oracle Support website:
<https://support.oracle.com>
2. Open the Oracle Enterprise Pack for Eclipse application.
See ["Installing Oracle Enterprise Pack for Eclipse"](#) for more information.
3. Install the **Business Intelligence, Reporting, and Charting** feature.
See ["Installing the Business Intelligence, Reporting, and Charting Feature"](#) for more information.
4. Run an installation script to automatically install the Design Studio feature and to configure the Design Studio environment.
See ["Running the Design Studio Installation Script"](#) for more information.

Note: You can install the Design Studio feature and configure the environment without running the installation script. For more information, see ["Installing the Oracle Communications Design Studio Feature"](#) and ["Configuring Design Studio as the Primary Application"](#).

5. Import required base projects into the workspace.
If you ran an installation script to automatically install the Design Studio feature, the base projects are located in the **cartridges** folder at the root level of the Design Studio installation (defined in the **DESIGN_STUDIO_HOME** variable). If you installed the Design Studio feature without running the script, the base projects

are located in the **cartridges** folder at the root level of the Design Studio software package. See application documentation for more information about required base projects. See the Design Studio Help at the Oracle Help Center for information about importing projects:

<http://docs.oracle.com/en/industries/communications/design-studio/index.html>

6. (Optional) Install custom report designs.
See ["Installing Custom Reports"](#) for more information.
7. Configure the automatic update preferences.
System administrators disable access to the update site and to automatic update functionality to prevent Design Studio users from updating to different feature versions. See ["Configuring Update Preferences"](#) for more information.
8. Create an archive file containing the Eclipse folder and all subdirectories.
9. Instruct individual Design Studio users to download and extract the distributable archive file.
10. Instruct individual users to define their local **MIDDLEWARE_HOME** variable and **WEBLOGIC_HOME** variable with the same values defined for these variables in the **build.properties** file.

Users need to update these variables only if they have defined them locally at a location different than the path defined in the **build.properties** file.

Users define these values in the Design Studio Preferences page. See the Design Studio Help for more information about defining Order and Service Management and Application Integration Architecture (AIA) preferences.
11. Instruct individual Design Studio users working with Network Integrity projects to configure the MIB directory.

For information about defining Network Integrity preferences in Design Studio, see *Network Integrity Developer's Guide*.
12. Instruct individual users creating custom Web services for Unified Inventory Management (UIM) projects to complete the required preliminary setup.

See *UIM Web Services Developer's Guide* for more information.

Installing the Business Intelligence, Reporting, and Charting Feature

You install the Business Intelligence, Reporting, and Charting feature to develop report designs and generate reports that Design Studio users can use to review detailed information about an implemented solution. For example, you can design reports that capture the name, type, description, and relationships of projects, entities, and data elements. Design Studio users can generate these reports and share solution modeling information among team members.

To install the Business Intelligence, Reporting, and Charting feature:

1. In the Oracle Enterprise Pack for Eclipse application, from the **Help** menu, select **Install New Software**.
The Available Software dialog box appears.
2. In the **Work with** field, click the menu and select the following update site:
Mars - <http://download.eclipse.org/releases/mars>

A list of features available from the site appears.

3. Select **Business Intelligence, Reporting and Charting**.

4. Click **Next**.

The Install Details dialog box appears.

5. Review the installation details.

6. Click **Next**.

The Review Licenses dialog box appears.

7. Review and accept the license agreement.

8. Click **Finish**.

9. When prompted, click **Yes** to restart Eclipse.

Running the Design Studio Installation Script

The Design Studio software package includes installation scripts that you can run to automatically install the Design Studio feature and to configure the Design Studio environment.

Note: When defining variables in the following procedure, do not use back slashes or spaces in the path names. Use forward slashes instead of back slashes.

To automatically install the Design Studio feature and to configure the Design Studio environment:

1. Close the Oracle Enterprise Pack for Eclipse application.
2. Navigate to the Design Studio software package that you downloaded from the Oracle software delivery website.
3. In the root folder, open the **build.properties** file.
4. Modify the following properties with values specific to your environment:
 - **DESIGN_STUDIO_WORKSPACE**, which identifies the location of Design Studio workspace directory in which your model configuration will be saved (for example, **C:/DesignStudio/7.3.2/workspace**). Design Studio automatically creates this workspace at the location that you specify.
 - **DESIGN_STUDIO_HOME**, which identifies the directory to which the application SDK functions and base projects are installed by the script (for example, **C:/DesignStudio/7.3.2**). This root directory will contain the application SDK functions and base projects on completion of the script.
 - **WEBLOGIC_HOME**, which identifies the location of your WebLogic installation (for example, **C:/Oracle/Middleware/wlserver_10.3**).
 - **MIDDLEWARE_HOME**, which identifies the location of the Oracle Fusion Middleware installation (for example, **C:/Oracle/Middleware**).
5. Do one of the following:
 - For Windows installations, right-click the **install.bat** file, select **Edit**, and change the values for the **OEPE_ECLIPSE_HOME** and **JAVA_HOME** variables to be specific to your installation environment. The **JAVA_HOME**

variable must point to the **JDK** folder. For example:

JAVA_HOME=C:/Program Files/Java/jdk1.8.0_66

OEPE_ECLIPSE_

HOME=C:/DesignStudio/7.3.2/oepe-birt-mars-12.2.1-win32-x86_64

Run the **install.bat** batch file to install the Design Studio feature and to configure the environment.

- For Linux installations, edit the **OEPE_ECLIPSE_HOME**, **JAVA_HOME**, and **ANT_HOME** variables in the **install.sh** file to be specific to your environment, and then run the **install.sh** file to install the Design Studio feature and to configure the environment.
6. Open Design Studio.
If the installation script completed successfully, the product branding on the splash screen is changed from Oracle Enterprise Pack for Eclipse to Oracle Design Studio.
 7. In the Workspace Launcher dialog box **Workspace** field, verify that the path name points to the workspace identified by the **DESIGN_STUDIO_WORKSPACE** variable.
 8. Click **OK**.

The Design Studio feature is now installed, and the environment is configured with:

- A workspace, as defined by the **DESIGN_STUDIO_WORKSPACE** variable (assuming a workspace with the same name did not pre-exist).
- Class path variables and a Java compliance level (1.8), as defined by variables you defined:
 - The Oracle WebLogic Server home, as defined by the **WEBLOGIC_HOME** variable: **WL_LIB=\${WEBLOGIC_HOME}/lib**
 - The UIM SDK home: **UIM_LIB=\${DESIGN_STUDIO_HOME}/sdk/UIM/lib**
 - The Oracle Fusion Middleware home, as defined by the **MIDDLEWARE_HOME** variable: **ORACLE_MIDDLEWARE_HOME=\${MIDDLEWARE_HOME}**
 - The Java SDK home, as defined by the **JAVA_HOME** variable.
 - The OSM SDK home: **OSM_SDK_HOME=\${DESIGN_STUDIO_HOME}/sdk/OSM**
- The application SDK functions and base projects are installed to the an **SDK** folder at the root directory of the Design Studio home path, as defined by the **DESIGN_STUDIO_HOME** variable. The **SDK** folder includes SDK functions required to configure a project library list and to build Order and Service Management (OSM), Unified Inventory Management (UIM), and Network Integrity application projects in Design Studio.
- A **cartridges** folder is installed at the root directory of the Design Studio home path, as defined by the **DESIGN_STUDIO_HOME** variable. The **cartridges** folder includes UIM base projects and Network Integrity base projects. These projects are contained in ZIP files that you import into Design Studio.

Design Studio is compatible with specific Oracle Communications application releases. For more information, see the *Design Studio Product Compatibility Matrix* on the Oracle Help Center. Click the link below, then click the appropriate release:

<http://docs.oracle.com/en/industries/communications/design-studio/index.html>

Installing the Oracle Communications Design Studio Feature

System administrators install the Oracle Communications Design Studio feature into the preconfigured installation and provide users with an archive file prepopulated with this feature.

Note: Complete this procedure if you did not run the installation script to automatically install the Design Studio feature and to configure the Design Studio environment.

To install the Oracle Communications Design Studio feature:

1. Start Design Studio.
2. From the **Help** menu, select **Install New Software**.

The Available Software dialog box appears.

3. Enter the location where you extracted the Design Studio archive file **update** folder.

Do one of the following:

- In the **Work with** field, enter the URL that describes the location where you extracted the Design Studio archive file **update** folder. For example:
file:///folder1/folder2/
- Click the **Add** button, then click the **Local** button to navigate to the location of to select the **update** folder.

After you specify the URL, the list of features available at that location appears.

4. Select **Oracle Communications Design Studio**.
5. (Optional) Select **Oracle Communications Design Studio Reference Reports**.

Install the **Oracle Communications Design Studio Reference Reports** feature if you want the installation to include Design Studio reference report designs. Design Studio includes a set of reference report designs that provide a foundational set of capabilities. You can use these report designs as is or as a starting point for customizing your own reports. For example, you can customize the report designs for content, layout, or branding.

Before you can install the **Oracle Communications Design Studio Reference Reports** feature, you must first install the **Business Intelligence, Reporting and Charting** feature. See "[Installing the Business Intelligence, Reporting, and Charting Feature](#)" for more information.

6. Deselect the **Contact all update sites during install to find required software** option.
7. Click **Next**.
The Install Details dialog box appears.
8. Review the installation details.
9. Click **Next**.

The Review Licenses dialog box appears.

10. Accept the license agreement.
11. Click **Finish**.
12. When prompted, click **Yes** to restart Eclipse.
13. Verify the installation.

See ["Verifying Design Studio Feature Installation"](#) for more information.

14. Instruct individual Design Studio users to configure all applicable Oracle WebLogic Server, Java, and SDK home directories.

Individual Design Studio users working with Order and Service Management (OSM) projects must configure the Oracle WebLogic Server, Java, and SDK home directories. For information about defining OSM general preferences, see the *Modeling OSM Processes Help* in Design Studio.

Individual users extending the data model for Unified Inventory Management projects must complete the required preliminary setup. See *UIM Developer's Guide* for more information.

Installing Custom Reports

If you have developed your own report designs using the BIRT report designer, and if you have packaged the designs into features using the guidelines described in the *Design Studio Developer's* guide, you can select the features for installation. After installation, your custom reports will appear in the list of available reports in the Design Studio Generate Reports wizard. See the *Design Studio Developer's Guide* for more information about developing custom reports.

1. Start Design Studio.
2. From the **Help** menu, select **Install New Software**.

The Available Software dialog box appears.

3. Enter the location where you saved the update site that includes your customer report design feature.

Do one of the following:

- In the **Work with** field, enter the URL that resolves to the folder representing the update site. For example:
file:///folder1/folder2/
- Click the **Add** button, then click the **Local** button to navigate to the location of the update site with the custom report design feature.

After you specify the update site location, the list of features available at that location appears.

4. (Optional) Select the feature that includes your custom report designs.
5. Deselect the **Contact all update sites during install to find required software** option.
6. Click **Next**.

The Install Details dialog box appears.

7. Review the installation details.
8. Click **Next**.

The Review Licenses dialog box appears.

9. Review and accept the license agreement.
10. Click **Finish**.
11. If prompted, click **OK** to confirm the installation of unsigned content.
12. When prompted, click **Yes** to restart Eclipse.

Configuring Design Studio as the Primary Application

System administrators can edit the **eclipse.ini** file and the **config.ini** file to change the product branding from Eclipse to Design Studio. Configuring Design Studio as the primary application ensures that your users cannot uninstall Design Studio.

Note: Complete this procedure if you did not run the installation script to automatically install the Design Studio feature and to configure the Design Studio environment.

To configure Design Studio as the primary application:

1. Open the *Eclipse_Home*/**configuration/config.ini** file, where *Eclipse_Home* is the directory in which Eclipse is installed.
2. Make the following changes:

- a. Change:

```
osgi.splashPath = platform:/base/plugins/org.eclipse.platform
```

to:

```
osgi.splashPath = platform:/base/plugins/com.mslv.studio.branding
```

- b. Change:

```
eclipse.product=org.eclipse.platform.ide
```

to:

```
eclipse.product=com.mslv.studio.branding.Studio
```

3. Save and close the file.
4. Open the *Eclipse_Home*/**eclipse.ini** file, where *Eclipse_Home* is the directory in which Eclipse is installed.
5. Make the following changes:

Change:

```
-showsplash  
org.eclipse.platform
```

to:

```
-showsplash  
platform:/base/plugins/com.mslv.studio.branding
```

6. Save and close the file.

Configuring Update Preferences

System administrators disable access to the update sites and to automatic update functionality to prevent Design Studio users from updating to different feature versions. System administrators must ensure that the individual Design Studio users all work with the same set of installed features and remain on the same versions of those features.

To configure update preferences:

1. Start Design Studio.
2. From the **Windows** menu, select **Preferences**.
The Preferences dialog box appears.
3. In the left column tree view, expand the **Install/Update** option and select **Automatic Updates**.
The Automatic Updates page appears.
4. Ensure that the **Automatically find new updates and notify me** option is deselected.
5. In the left column tree view, select **Available Software Sites**.
The Available Software Sites page appears.
6. Deselect all software sites.
7. Click **OK**.

Verifying Design Studio Feature Installation

To verify the installation:

1. Start Design Studio.
2. From the **Help** menu, select **About Design Studio**.
The About Design Studio dialog box appears.
3. Click **Installation Details**.
The Installation Details dialog box appears, listing all of the features currently installed.
4. On the **Installed Software** tab, verify that the Oracle Communications Design Studio feature is included.

Upgrading Design Studio, Productized Cartridges, and Cartridge Packs

This chapter describes how to upgrade Oracle Communications Design Studio and Design Studio projects, and how to upgrade productized cartridges and cartridge packs.

See *Design Studio Concepts* for more information about working with productized cartridges and other predefined data models. See *UIM Cartridge Guide* for more information about cartridge packs.

Upgrading Design Studio

When upgrading Design Studio, ensure that Design Studio component and project backups are up-to-date. Also, determine how to upgrade projects and design environments for all users simultaneously. Finally, communicate changes and steps required by users to ensure a smooth transition.

To upgrade Design Studio:

1. Plan your upgrade.
See ["Planning the Upgrade Process"](#) for more information.
2. Prepare for the upgrade.
See ["Preparing for the Upgrade"](#) for more information.
3. Perform the upgrade.
See ["Performing the Upgrade"](#) for more information.
4. Perform post-upgrade tasks.
See ["Performing Post-Upgrade Tasks"](#) for more information.

Planning the Upgrade Process

When planning your Design Studio upgrade, consider the following:

- Which resources need to be backed up?
Before upgrading to a new Design Studio version, back up the current Design Studio environment and project data files so that you can return to the current version, if necessary.
- Are all users on the same release version?

All individual Design Studio users should upgrade to the new version from the same existing version. Users working in different versions may have project artifacts that are not compatible with the new version. Users must upgrade to new versions simultaneously, and all projects must be upgraded to the new version. Upgraded projects are not compatible with previous versions of Design Studio.

- What will happen if the upgrade fails?

Errors that occur during an upgrade can create an unstable environment. Before beginning the upgrade process ensure that you are able to return the system to the initial state in the event of a failure. If an upgrade fails, collect all pertinent information to send to your support team, and return the system to the initial state prior to attempting the upgrade process again.

See *Design Studio System Administrator's Guide* for information about backing up and restoring Design Studio.

Preparing for the Upgrade

When preparing for your Design Studio upgrade:

- Define project references if you are upgrading to Design Studio (releases 7.2.4 and later) from releases prior to 7.2.0. See ["Defining Project References"](#) for more information.
- Prepare the source control repository. See ["Preparing the Source Control Repository"](#) for more information.
- Back up Design Studio projects. See ["Backing Up Projects"](#) for more information.

Defining Project References

Upgrading to Design Studio from releases prior to 7.2.0 requires that you define project references (within your existing version of Design Studio) prior to the upgrade. Defining project references requires that you specify the dependencies for each project to ensure that all dependent projects are upgraded in the correct order. See the Design Studio Help in your previous version of Design Studio for information about defining project references.

Note: If you are upgrading Design Studio from release 7.2.0 or from any release subsequent to 7.2.0, existing project references should already be defined correctly. Oracle recommends that you verify that your existing project references are set up correctly prior to your upgrade.

Before upgrading, restructure your projects to reduce or eliminate mutual and cyclic dependencies. Mutual or cyclic project dependencies may cause problems during upgrade. You can determine project dependencies by closing a project, performing a clean build, and reviewing the broken reference problem markers that highlight cross-project relationships.

To define project references before upgrading from releases prior to release 7.2.0:

1. Start your existing version of Design Studio.
2. From the **Studio** menu, select **Show Design Perspective**.
3. Click the **Studio Projects** tab.
4. In the Studio Projects view, select a Design Studio project.

5. (Optional) If using a source control system, check-out the **.project** file of the selected project.
Many source control systems use optimistic locking and do not require an explicit file check-out. See the source control system documentation for details specific to your system.
6. In the Studio Projects view, right-click the selected project and select **Properties**.
The Properties dialog box appears.
7. In the left-column menu tree, select **Project References**.
A list of all projects defined in the workspace appears.
8. Select all dependent projects that the source project references.
9. Click **OK**.
10. (Optional) If using a source control system, check-in the modified **.project** file of the selected project.

Preparing the Source Control Repository

To prepare the source control repository, ensure that all of your Design Studio users check-in (or discard) any uncommitted project data file changes.

Note: Oracle recommends that you use a source control system. See *Design Studio Developer's Guide* for information about incorporating source control into your backup strategy.

To identify a clear transition point, tag or branch all Design Studio projects in the source control repository prior to the upgrade. This ensures that you are able to determine the Design Studio application version required to build previous versions of your cartridges and cartridge packs. Additionally, tagging or branching provides a clear restore point if the upgrade fails.

See the source control system documentation for tag and branch details specific to your system.

Backing Up Projects

Back up all projects before upgrading Design Studio. Ensure that you include all Design Studio components and project data files (preferably in source control). Instruct your individual Design Studio users to export the workspace preferences that they want to restore in a new workspace.

See *Design Studio System Administrator's Guide* for information about backing up Design Studio.

Performing the Upgrade

Upgrade Design Studio for all users and build systems simultaneously. Projects opened in a new version will be upgraded for use in the new version and will no longer work predictably in old versions.

To upgrade Design Studio:

1. Obtain a new Design Studio software package.

- Design Studio software packages for new releases are available on the Oracle software delivery website:
<http://edelivery.oracle.com>
 - Design Studio software packages for patches are available on the My Oracle Support website:
<https://support.oracle.com>
2. Install the new version to a new location.

Installing to a new location minimizes conflicts that can occur when installing over an existing installation. Make the new installation available to all users and update automated build systems to point to the new location. See "[Installing and Configuring Design Studio](#)" for more information.
 3. Create a new distributable archive file for your users.
 4. Upgrade Design Studio projects.

See "[Upgrading Projects](#)" for more information.
 5. Instruct users to download the new distributable archive file and extract it to a new location.
 6. Instruct users to create new workspaces with upgraded projects.
 7. Upgrade Design Studio build systems to use the new version.

Upgrading Projects

You must perform a one-time upgrade of your projects. Additionally, you must obtain and import the latest versions of all sealed productized cartridges if you want to use the cartridges in the updated version.

When upgrading projects, you may be required to update cartridge project target versions, depending on the version for which your existing cartridge projects are built and the version of Design Studio to which you are upgrading. The project target version indicates the version of the run-time application instance to which the cartridge project will be deployed. Design Studio builds your project to be compatible with the run-time software version you specify on the Project editor Properties tab. See the Design Studio Help for more information about the Project editor and for more information about the Target Version field. See your application documentation for information about application server version compatibility and for target version instructions specific to each application.

During the upgrade process, Design Studio automatically detects old project versions and completes all necessary project upgrades in the workspace. When the upgrade process completes, Design Studio saves the information about the upgrade process in the **project-dir/upgradeLog/upgrade.log** file. All information about the upgrade process, including notifications about failed upgrades, is included in this file.

Upgraded projects are not compatible with previous Design Studio versions. Ensure that you upgrade copies of projects or use source control. Project upgrades should be performed once by a single team member. The upgraded project should then be distributed to other users.

Note: Before you upgrade projects created in versions prior to Design Studio release 7.2.0, you must define all project references in your original version of Design Studio. See "[Defining Project References](#)" for more information.

To upgrade projects:

1. Complete all upgrade preparation steps.

See ["Preparing for the Upgrade"](#) for more information.

2. Check-out all project data files from the source control system.
3. Ensure that the project data files are writable.

Some source control systems use an optimistic locking strategy and require no additional steps for implicit check-outs. Other source control systems may require explicit check-out of each project data file. See the documentation specific to your source control system for more information.

4. Start Design Studio and create a new workspace.

Because workspaces contain caching and version-specific content, Oracle recommends that you create a new workspace when upgrading.

5. Determine the order in which you will upgrade the projects.

Start with projects with no dependencies. Upgrade dependent projects first or in conjunction with those projects that define dependencies.

6. Start the upgrade.

You start the upgrade process any time you open a project that requires an upgrade to the current Design Studio version. For example, you start the upgrade process when you:

- Start Design Studio
- Switch workspaces
- Open a closed project
- Import projects with the Design Studio import wizard

If an open project requires an upgrade, the Upgrade Project wizard appears, listing all projects and dependent projects that require an upgrade.

7. Confirm that the projects are in the correct order.

If the projects are not upgraded in the proper order, the upgrade process can fail and leave the project in an unknown state. Design Studio determines the correct order in which to upgrade the projects based on the dependencies defined for the project (the lowest project in the dependency hierarchy is upgraded first). If you have not properly defined the project dependencies, you must manually set up the proper order.

If the projects are not in the correct order, do one of the following:

- Select a project and click **Move Up** or **Move Down** to change the order of the projects.
- Cancel the upgrade process, return to your previous version of Design Studio, and define the project dependencies.

See ["Defining Project References"](#) for information about how to define project references.

8. (Inventory projects only) Click **Next**.

When upgrading Design Studio for Inventory and Design Studio for Network Integrity projects, the wizard displays any characteristics that require a name change.

9. (Inventory projects only) Click **Next** and then select the **Target Version**.

Cartridge project target versions specify the version of the run-time application instance to which a cartridge project will be deployed. Design Studio builds your project to be compatible with the run-time software version specified in this field. After you import a project, you can change the **Target Version** value on the Project editor **Properties** tab. Design Studio automatically sets the Java execution environment based on the selected target version.

10. Click **Finish**.

The upgrade process completes and the Display Upgrade Log dialog box appears.

11. Do one of the following:

- Click **Yes** to review the generated upgrade log file.
- Click **No** to complete the upgrade process without reviewing the generated log file. You can view the update logs at a later time.

12. (Optional) If the upgrade fails, review the upgrade logs to determine the cause of the failure, and then do the following:

- a. Roll back the system to the pre-upgrade state
- b. Resolve the cause for the failure
- c. Retry the upgrade

13. After a successful upgrade, commit the changes to the source control system.

Note: If you cancel the project upgrade before the upgrade process completes (by clicking the Upgrade Project wizard **Cancel** button) the project remains open in the workspace. You must close and reopen the project to attempt the upgrade again before working in the project. Do not perform any work in a project that has failed to successfully complete the upgrade process. See the Design Studio Help for information about opening and closing projects.

Note: When upgrading Design Studio for Inventory cartridge projects that include changes to tool tips or characteristic display names, you must redeploy the UIM application server when you deploy the cartridge that contains the changes.

Performing Post-Upgrade Tasks

After the upgrade, do the following:

1. Review and archive upgrade logs.
2. Perform a clean build of each project.
3. Initiate command-line builds on automated build systems.
4. Distribute the new Design Studio version.
5. Instruct all individual Design Studio users to import the upgraded projects into a clean workspace.
6. Remove old Design Studio application installations.

Upgrading Productized Cartridges and Cartridge Packs

This section describes how to upgrade a productized cartridge or a cartridge pack to a new version.

About Productized Cartridge and Cartridge Pack Upgrades

Before upgrading to a new version of a productized cartridge or cartridge pack, ensure that the uncommitted changes for all Design Studio projects in the source control system are checked-in or discarded.

If you are upgrading more than one cartridge or cartridge pack, perform the upgrades individually. Start with projects with no dependencies. Upgrade dependent projects first or in conjunction with those projects that define dependencies. Ensure that the workspace includes all related projects during the upgrade.

Additionally, ensure that you tag or branch all Design Studio projects in the source control repository prior to the upgrade to identify a clear transition point. Tagging or branching provides a clear restoration point in the event of a failed upgrade.

Finally, ensure that a current backup is available for all Design Studio projects. See *Design Studio System Administrator's Guide* for more information.

Upgrading Productized Cartridges and Cartridge Packs

To upgrade a productized cartridge or cartridge pack:

1. Back up the cartridge project or cartridge pack project that you intend to upgrade.
2. Start Design Studio.
3. From the **Studio** menu, select **Show Design Perspective**.
4. From the **Project** menu, deselect **Build Automatically**.

Temporarily disabling the automatic build prevents unnecessary builds and problem markers during the upgrade procedure.

5. Click the **Studio Projects** tab.
6. In the Studio Projects view, right-click the project to be upgraded and select **Delete**.

The Confirm Project Delete dialog box appears.

7. Select the **Also delete contents under** option.

Selecting this option removes the current version of the project from your local file system.

8. Click **Yes**.

The project content is deleted from the workspace and the local file system.

9. Right-click in the Studio Projects view and select **Import**, and then select **Import Project**.

The Import Projects dialog box appears.

10. Do one of the following:
 - If your project is contained in an archive file (for example, in a TAR file or ZIP file), select **Select archive file**.
 - Otherwise, select **Select root directory**.

11. Click **Browse**.
12. Locate the directory containing the new version of the project and select it.
13. Click **OK**.
14. In the Projects area, select the project to import.
15. Ensure that the **Copy projects into workspace** check box is selected.
16. Click **Finish**.

The project is added to your workspace.
17. From the **Project** menu, select **Clean**.

The Clean wizard appears.
18. Select **Clean all projects** and then select **Start a build immediately**.
19. Click **OK**.

A dialog box appears, showing the progress of the build activity. The projects in the workspace are cleaned and a full build is performed on all projects. The build completion time depends on the size of workspace.
20. From the **Project** menu, select **Build Automatically**.
21. Resolve warning and error markers.

New warnings and errors may appear following a project upgrade. Markers may be caused by changes to the data model, such as type changes, name changes, or deprecation or removal of content. Use the **Refactoring** menu actions (such as **Resolve** and **Replace With**) to facilitate problem marker resolution. See the Design Studio Help for more information about refactoring data element names and locations.
22. (Optional) If using a source control system, synchronize the new versions.

See "[Synchronizing Project Versions](#)" for more information.

Synchronizing Project Versions

If you are using a source control system to manage revisions of productized cartridges and cartridge packs, you can synchronize the new version.

To synchronize new project versions:

1. In Design Studio, right-click in the Studio Projects view and select **Team**, then select **Share Project**.
2. Follow the steps in the wizard to share the project to the same repository location as the previous project version.
3. Resolve conflicts following synchronization using local file and directory versions.
4. Commit content to the repository.

See your source control system documentation for information about sharing projects and resolving synchronization conflicts.

Note: If you encounter a blocking issue, do not check-in the changes. If necessary, you can cancel the upgrade by rolling back to the latest version under source control.

Upgrading Existing Cartridge Projects to the Current Release

Cartridge projects designed for a specific server release must match the preferred execution environment of the application server. To retarget existing cartridge projects for deployment to the current release application server, you must manually update the cartridge target version to the current release number and update the cartridge execution environment to the current supported Java version.

To upgrade existing cartridge projects to the current release:

1. Install Java and add entries for each installed JRE used in development.

To install Java and add Java entries:

- a. Install Java.

See ["Installing Java Runtime Environment"](#) for more information.

- b. In Design Studio, from the **Window** menu, select **Preferences**.

The Preferences page appears.

- c. Select **Java**, and then select **Installed JREs**.

- d. Add an entry for each JRE that you intend to use during cartridge project development.

2. Update the cartridge project target version.

To update the cartridge project target version:

- a. From the Studio Projects view, double-click a Project entity to open the entity in the Project editor.

- b. In the **Target Version** field, select the current version.

3. Update the cartridge project execution environment.

To update the cartridge project execution environment:

- a. From the Studio Projects view, right-click a Project entity and select **Properties**.

The Properties dialog box appears.

- b. Select **Java Build Path**, and then click the **Libraries** tab.

- c. Select **JRE System Library** and then click **Edit**.

The Editor Library dialog box appears.

- d. Select the **Execution environment** option, and then select the current Java version from the list.

- e. Click **Finish** and then click **OK**.

- f. Perform a clean build.

See Design Studio Help for information about performing clean builds.

Hardware Sizing Guidelines

This appendix provides guidelines for the recommended minimum hardware requirements to achieve daily service. Use these guidelines to calculate the required hardware for the Oracle Communications Design Studio users to whom you will distribute a preconfigured installation.

Because vendors continuously update their hardware models, check vendor websites for the latest models and specifications. All hardware estimates are guidelines based on Oracle Communications performance lab testing and deployment experience.

Note: The sizing estimates contained in this appendix are based on the assumptions of proper application configuration and tuning, in a manner consistent with leading practices of Oracle Communications consulting and performance engineering. This information is provided for informational purposes only and is not intended to be, nor shall it be construed as a commitment to deliver Oracle programs or services. This appendix shall not form the basis for any type of binding representation by Oracle and shall not be construed as containing express or implied warranties of any kind. You understand that information contained in this appendix will not be a part of any agreement for Oracle programs and services. Business parameters and operating environments vary substantially from customer to customer and as such not all factors, which may impact sizing, have been accounted for in this appendix.

Hardware Sizing Guidelines Overview

Use the following procedure to determine the recommended minimum hardware required to achieve daily service:

1. Review the number of ASAP atomic actions, the Order and Service Management (OSM) order complexity, the number of Inventory services, and the number of Network Integrity model entities in all of your application cartridges.

The number and type of these entities determine whether your implementation falls into the small, medium, or large category. See ["Design Studio Implementation Size Definitions"](#) for more information.

2. Calculate your Design Studio requirement score for the implementation size.

See ["Design Studio Hardware Requirement Scores"](#) for more information.

3. Use the Design Studio hardware requirement score to determine the hardware size category that your installation requires.

See ["Design Studio Hardware Requirement Size Categories"](#) for more information.

4. Refer to the minimum hardware requirements for your hardware size category.

See ["Recommended Minimum Hardware Requirements"](#) for more information.

Design Studio Implementation Size Definitions

[Table A-1](#) illustrates how Oracle defines Design Studio implementation size definitions, based on the total number of entities of all application cartridges.

Table A-1 *Design Studio Implementation Size Definitions*

Application Cartridge	Small	Medium	Large
ASAP number of atomic actions	Fewer than 50	50 to 300	More than 300
OSM order complexity (x1000)	Fewer than 10	10 to 75	More than 75
Inventory number of services	Fewer than 30	30 to 60	More than 60
Network Integrity number of model entities	Fewer than 40	40 to 80	More than 80

Note: Order complexity is calculated by adding the total number of order data nodes and the total number of task data nodes in all OSM application cartridges.

Design Studio Hardware Requirement Scores

To help determine your hardware requirements, a Design Studio requirement score is applied to each application implementation size. Use [Table A-2](#) to determine your total Design Studio hardware requirement score.

Table A-2 *Design Studio Requirement Scores*

Application	Small Cartridges	Medium Cartridges	Large Cartridges
ASAP	1	2	4
OSM	2	6	7
Inventory	2	4	6
Network Integrity	1	1	2

Design Studio Hardware Requirement Size Categories

The sum of the Design Studio hardware requirement scores for all application cartridges determines the hardware size category for your installation. [Table A-3](#) displays the ranges for each hardware requirement size category.

Table A-3 *Hardware Requirement Size Categories*

Hardware Size Category	Small Category	Medium Category	Large Category
Design Studio Requirement Score	1 to 5	6 to 15	16 and above

Recommended Minimum Hardware Requirements

The minimum hardware requirement recommendation for your installation is determined by the hardware sizing category. See the following topics for more information:

- [Small Hardware Sizing Category 32-Bit Hardware Requirements](#)
- [Medium Hardware Sizing Category 64-Bit Hardware Requirements](#)
- [Large Hardware Sizing Category 64-Bit Hardware Requirements](#)

Small Hardware Sizing Category 32-Bit Hardware Requirements

[Table A-4](#) displays the minimum hardware requirements recommended for the small hardware sizing category.

Table A-4 Minimum Hardware Requirements for the Small Hardware Sizing Category

Hardware	Specifications
Processor	2.0 GHz dual-core processor
System memory	2 GB
Disk space	20 GB
Screen resolution	1024 X 768 with 256 colors minimum

Medium Hardware Sizing Category 64-Bit Hardware Requirements

[Table A-5](#) displays the hardware requirements recommended for the medium hardware sizing category.

Table A-5 Minimum Hardware Requirements for the Medium Hardware Sizing Category

Hardware	Specifications
Processor	2.66 GHz dual-core processor
System memory	4 GB
Disk space	40 GB
Screen resolution	1024 X 768 with 256 colors minimum

Large Hardware Sizing Category 64-Bit Hardware Requirements

[Table A-6](#) displays the hardware requirements recommended for the large hardware sizing category.

Table A-6 Minimum Hardware Requirements for the Large Hardware Sizing Category

Hardware	Specifications
Processor	3 GHz dual-core processor
System memory	8 GB
Disk space	80 GB
Screen resolution	1024 X 768 with 256 colors minimum

Example: Determining Hardware Sizing Categories

The following example describes how to determine the hardware sizing category for an installation that contains ASAP, OSM, and UIM application cartridges.

To determine the hardware sizing category for an installation:

1. Count the number of ASAP atomic actions in all ASAP application cartridges.
In this example, there are 151 atomic actions.
2. Determine the implementation size for your ASAP cartridges.
In this example, 151 atomic actions is equal to a medium size implementation, as defined in [Table A-1](#).
3. Calculate the Design Studio requirement score for the ASAP implementation size.
In this example, a medium size ASAP implementation receives a score of 2, as defined in [Table A-2](#).
4. Determine the OSM order complexity for all OSM application cartridges.
In this example, there are 88 order data nodes and 304 task data nodes. The order complexity is the sum of the order data and task data nodes, or 392.
5. Determine the implementation size for your OSM cartridges.
The order complexity is 392, which is equal to a small size implementation, as defined in [Table A-1](#).
6. Calculate the Design Studio requirement score for the OSM implementation size.
In this example, a small size OSM implementation receives a score of 2, as defined in [Table A-2](#).
7. Calculate the number of Inventory services in all Inventory application cartridges.
In this example, there are 26 Inventory services.
8. Determine the implementation size for your Inventory cartridges.
The number of Inventory services is 26, which is equal to a small size implementation, as defined in [Table A-1](#).
9. Calculate the Design Studio requirement score for the Inventory implementation size.
In this example, a small size Inventory implementation receives a score of 2, as defined in [Table A-2](#).
10. Calculate the number of Network Integrity model entities in all Network Integrity application cartridges.
In this example, there are 82 Network Integrity model entities.
11. Determine the implementation size for your Network Integrity cartridges.
The number of Network Integrity model entities is 82, which is equal to a large size implementation, as defined in [Table A-1](#).
12. Calculate the Design Studio requirement score for the Network Integrity implementation size.
In this example, a large size Network Integrity implementation receives a score of 2, as defined in [Table A-2](#).
13. Calculate the sum of the ASAP, OSM, Inventory, and Network Integrity Design Studio requirement scores.
Each application implementation received a requirement score of 2, the sum of which is equal to 8.
14. Determine the hardware sizing category of your installation.

In this example, the hardware sizing category is medium, as defined in [Table A-3](#).

- 15.** Review the recommended hardware sizing category minimum requirements for your installation.

For this example, the installation falls into the medium size hardware sizing category, and the recommendations are defined in [Table A-5](#).

