

# Oracle® Health Sciences Central Designer Installation Guide



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# Preface

This preface contains the following sections:

- [Documentation accessibility](#)
- [Related resources](#)
- [Diversity and Inclusion](#)
- [Access to Oracle Support](#)
- [Additional copyright information](#)

## Documentation accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

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# 1

## Architectural overview of the environment

In this chapter:

- [Introduction to the Oracle Central Designer software](#)
- [Physical architecture](#)
- [Web farm capabilities](#)

### Introduction to the Oracle Central Designer software

The Oracle Central Designer software consists of:

- **Oracle Central Designer server application**—Communicates with the client applications through web services.
- **Oracle Central Designer client application**—Provides a collaborative environment for designing clinical studies and deploying them to the Oracle InForm application.
- **Oracle Central Designer Administrator client application**—Provides an environment for setting up administrative information, such as users, roles, and system configuration information.

### Physical architecture

The physical configuration of the Oracle Central Designer software includes:

- A database server machine.
- One or more application server machines. For more information, see [Web farm capabilities](#).
- One or more client machines.

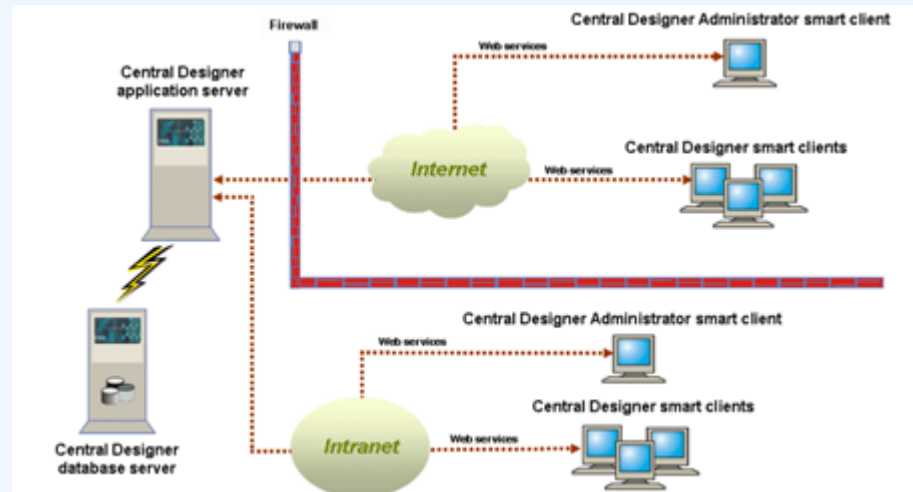
There are three configuration options for the Oracle Central Designer software.

Configuration	Description
Single-tier	The application server, database server, and client applications run on the same machine.
Two-tier	The application server and database server run on the same machine, and the client applications run on another machine.
Three-tier	The database server, application server, and client applications each run on a separate machine.



 **Note:**

- For optimum performance, Oracle recommends a three-tier configuration.
- If the application server and database server are on the same computer, you must install the Oracle Server software and Oracle Client software in the same home.



## Web farm capabilities

You can expand the performance capabilities of the Oracle Central Designer application server by adding multiple servers in a farm configuration. This configuration is called a web farm. A web farm setup distributes requests from the client applications among multiple application servers. A web farm is useful for the following reasons:

- A large number of requests that might impact performance can be spread out among multiple application servers, thus improving performance.
- Multiple application servers allow for redundancy and failover protection.

In a web farm configuration, all application servers can process any request. However, certain operations are run asynchronously using the Oracle Central Designer Job Scheduler. The Job Scheduler is installed on every application server, but only one Job Scheduler can process jobs, and only one service is enabled to process requests. The Job Scheduler service that processes all requests is called the primary Job Scheduler. You can change the primary Job Scheduler at any time. Oracle recommends setting the Job Scheduler on the most powerful machine in the web farm as the primary.

 **Note:**

You must use the same port number, which you specify during installation, for all application servers within a web farm. If one of the application servers uses a different port number, the Job Scheduler will not work if the machine is set to run the primary Job Scheduler. By default, the port number is 53000.

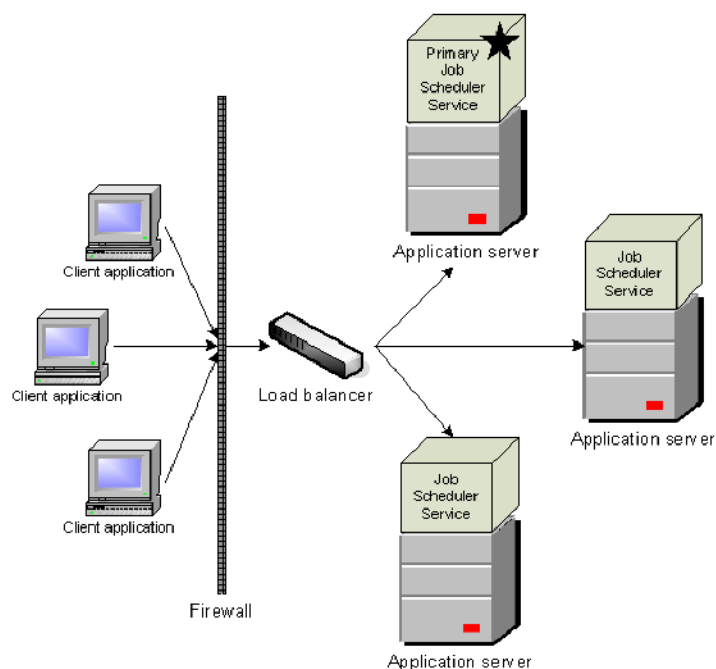
For more information, see:

- [Illustration of a web farm configuration](#)
- [Information that is stored in the database](#)
- [About adding application servers](#)
- [Managing web farm capabilities](#)

## Illustration of a web farm configuration

The following tasks are performed in a web farm configuration:

- The client applications send requests through a firewall to a load balancer. The load balancer distributes requests among application servers.
- The job scheduler services on all of the application servers run; however, only the primary job scheduler processes requests. The other job scheduler services do not accept any requests. Examples of tasks that require the job scheduler service include importing and validation.
- All tasks that do not require the job scheduler service are distributed among the application servers.



## Information that is stored in the database

Units information and report definitions are stored in the database and are used by all application servers in a web farm.

- You can export the units information to a file and then modify and import the file. You perform this task in the Oracle Central Designer Administrator application.
- If you have created custom reports, you must back up the Report configuration section of the `DesignerWebServices.config` file before upgrading and then import it into the database.

For more information about working with this information, see the *Administrator Guide*.

## About adding application servers

You can add additional application servers to a web farm environment at any time, even if you did not configure your first application server to support a web farm.

When you install a second application server, the installation recognizes the existing application server installation. The Job Scheduler service on the existing application server is set as the primary by default, but you can set the Job Scheduler for the second (or higher) application server as the primary during the installation of its application server.

You install additional application servers the same way that you install the first application server. The installation process configures the application server computers as a web farm. For more information, see *Installing the Central Designer application server*.

## Managing web farm capabilities

After a web farm is installed, you can manage it using the Oracle Central Designer Administrator software. You perform the following tasks in the Oracle Central Designer Administrator software:

- Viewing the servers that are in the web farm.
- Determining and changing the primary job scheduler.
- Working with Event Log messages for the web farm, including:
  - Viewing the messages.
  - Changing the default limit for the number of entries in the log.
  - Deleting all entries in the log.
- Modifying the file for report definitions.
- Modifying units information.

For more information, see the *Administrator Guide*.

# 2

## Checklists for software installation

In this chapter:

- [Checklist—Planning the server installation](#)
- [Checklist—Planning the client installations](#)

### Checklist—Planning the server installation

Use the following checklist to help plan the Oracle Central Designer application server and database server installations.

1. Determine if the setup is single-tier or multi-tier.  
For more information, see *Physical architecture*.
2. Make sure all system requirements, including .NET Framework requirements, have been met for the application server.  
For more information, see:
  - Application Server requirements in the *Oracle Central Designer System requirements guide*.
  - Verifying that all required IIS roles are installed.
  - Verifying that the correct version of Microsoft .NET Framework is installed.
3. Make sure all system requirements, including required Oracle database parameters, have been met for the database server.  
For more information, see:
  - Database Server requirements in the *Oracle Central Designer System requirements guide*.
  - Install the Oracle database software on the database server.
4. Register the .NET assemblies to the Global Assembly Cache (GAC).  
For more information, see:
  - Registering .NET assemblies.
  - Database patch Release Notes.
5. On the database server, create the database and tablespaces.  
The database and tablespaces must be created prior to installing the Oracle Central Designer software. For more information, see *Create the database and tablespaces*.
6. On the database server, configure the Open Cursors setting.  
For more information, see *Configuring the Open Cursors setting for a database instance*.
7. On the database server, configure the Cursor Sharing setting.  
For more information, see *Configuring the Cursor Sharing setting for a database instance*.

8. On the database server, grant the appropriate rights to database administrators.  
For more information, see Required rights for database administrators.
9. On the database server, create the Oracle Central Designer database user.  
For more information, see Creating the Oracle Central Designer database user.
10. Configure the application server for optimal performance.  
For more information, see Configuring the application server for optimal performance.
11. On the database server, configure the listener to accept connections for the new database.  
For more information, see Configuring the listener to accept connections for the new database.
12. Determine the security level to be used for communication between the client applications and the application server.  
For more information, see Securing communication with Transport Layer Security (TLS).
13. Determine if you will implement a web farm.  
For more information, see Web farm capabilities.
14. Increase the default value of the MS DTC timeout on the application server.  
For more information, see Increasing the Microsoft Distributed Transaction Coordinator timeout.
15. Monitor the tablespace in the database.  
If the tablespace becomes full, expand the tablespace by adding another data file.
16. Make sure that the IIS Admin Service and World Wide Web Publishing Services are running.  
If the services are not running, the installation fails. The IIS Admin Service does not have to run for the duration of the installation. However, you must start it before you click the **Next** button on the Copying Files screen.

 **Note:**

Do not use the **iisreset** command from the MMC or a command prompt after the installation or upgrade completes, or the IIS settings that were set by the installer are lost. Instead, use the **net start** command to start the services.

17. Install a certificate for signing web service authorizations, and a certificate for signing deployment packages and Oracle InForm web service authorizations.  
For more information, see Installing certificates for signing web service authorizations and deployment packages.
18. If necessary, install the root certificate and intermediate certificate or certificates, and install the main certificate as the root certificate.  
For more information, see:
  - Installing root and intermediate certificates.

- Installing the main certificate as the root certificate.
19. To secure the web server and prevent clickjacking on the `http://<server name>/CentralDesignerInstall` page, from which you install the Oracle Central Designer and Oracle Central Designer Administrator applications, configure the HTTP response header in IIS.
- For more information, see [Configuring the IIS HTTP response header setting](#).
20. If you perform automated deployments to Oracle InForm studies hosted by Oracle, make sure the Microsoft Windows setting Automatic Root Certificates Update is turned on.
- Automatic Root Certificates Update is turned on by default in Microsoft Windows 2019. For more information, see the Microsoft website (<http://technet.microsoft.com>).
21. Install the application server.
- For more information, see:
- Installing the Oracle Central Designer application server.
  - Performing a silent installation.
22. Configure SMTP settings for sending email notifications related to automated deployment events.
- For more information, see [Configuring SMTP settings for automated deployment email notifications](#).
23. Verify the installation of the application server.
- For more information, see [Verifying the installation of the application server](#).

## Checklist—Planning the client installations

Use the following checklist to help plan the installations of the client applications.

The Oracle Central Designer and Oracle Central Designer Administrator applications are ClickOnce applications. You start a ClickOnce application by clicking a link from a Microsoft Edge window.

When you click a link for either application, the Oracle Central Designer server checks whether the release that is installed on the server matches the files that are cached on your computer:

- If the server has been newly installed or has been upgraded after your last logon, the files that are necessary to run the application are cached on your computer, and then are used to open the application.
  - If the server has not been updated since your last logon, the cached files on your computer are used to open the application.
1. Make sure all system requirements, including .NET Framework requirements, have been met for the client computers.
- For more information, see:
- *Oracle Central Designer System requirements* guide.
  - Verifying that the correct version of Microsoft .NET Framework is installed.
2. For clients using Microsoft Edge browser version 79 or later, enable ClickOnce support.
- For more information, see [Enabling ClickOnce support for Microsoft Edge version 79 or later](#).

3. Make sure the clocks on the application server computer, database server computer, and client computers are synchronized.

For more information, see [Synchronizing clocks on server and client computers](#).

4. Start the client applications.

For more information, see:

- [Starting the Oracle Central Designer client application](#).
- [Starting the Central Designer Administrator client application](#).

# 3

## Planning your installation

In this chapter:

- [Installing certificates for signing web service authorizations and deployment packages](#)
- [About installing root and intermediate certificates](#)
- [Verifying that all required IIS roles are installed](#)
- [Verifying that the correct version of Microsoft .NET Framework is installed](#)
- [Enabling ClickOnce support for Microsoft Edge version 79 or later](#)
- [Synchronizing clocks on server and client computers](#)
- [Hardware networking switches](#)
- [Configuring the IIS HTTP response header setting](#)
- [Configuring the application server for optimal performance](#)
- [Enabling TLS 1.2 for .NET Framework on Central Designer application servers](#)

## Installing certificates for signing web service authorizations and deployment packages



### Note:

When creating a private key for the Oracle Central Designer certificate, allow for all key usage purposes, such as digital signature, key encipherment, and data encipherment. If you do not do this, the Job Scheduler issues a Bad key error when it starts, and the same error appears in Oracle Central Designer when accessing objects.

You must install a certificate for each of the following purposes:

- Signing the web service authorizations.
- Signing deployment packages and Oracle InForm web service authorizations on the Oracle Central Designer server.

Oracle recommends using certificates issued by trusted commercial Certificate Authorities.

Install certificates to the **LOCAL\_MACHINE\MY** store. Each certificate in the certification path must be 2048 bytes. For more information about converting existing certificates, see the Microsoft support website.

### For each certificate:

1. Open a command prompt window.



2. Run the following command:

```
certutil -f -importpfx -csp "Microsoft Enhanced RSA and AES  
Cryptographic Provider" <full path to the pfx file> NoExport
```

3. Enter the password for the PFX file, and press **Enter**.

The Oracle Central Designer installation process grants Full Control to access the certificate private keys to the IIS AppPool\DefaultAppPool user and the NETWORK SERVICE user.

If a user other than the IIS AppPool\DefaultAppPool user is running the DefaultAppPool application pool, you must grant the user Full Control to access the private keys, or the user is unable to sign using the certificates. This content is used in the STEP Certificate for web service authorizations topic.

**To grant a user other than IIS AppPool\DefaultAppPool Full Control to the private keys, for each certificate:**

1. Select **Start**, enter `mmc`, and press **Enter**.  
The Microsoft Management console appears.
2. Select **File > Add/Remove Snap-in**.  
The Add or Remove Snap-ins dialog box appears.
3. In the list of available snap-ins, select **Certificates**.
4. Click **Add**.  
The Add dialog box appears.
5. Click **Computer account**.
6. Click **Next**.
7. Click **Local Computer**.
8. Click **Finish**.
9. Click **OK**.
10. In the left pane of the console, select **Certificates (Local Computer) > Personal > Certificates**.
11. Right-click the certificate and select **All Tasks > Manage Private Keys**.
12. Click **Add > Locations**, and then select the computer name.
13. Click **Advanced > Find Now**, select the user, and grant them Full Control.  
If the user does not appear in the search results, type the user name in the Select Users or Groups dialog box.
14. Click **OK**.

## About installing root and intermediate certificates

You might need to install additional certificates for the following situations:

- When the main certificate you installed contains an intermediate certificate, a root certificate, or both in its certification path.

- When the PFX file you imported contains an intermediate certificate, a root certificate, or both embedded within it. In this case, the certificates might not have been installed in the correct locations.

For more information, see:

- [Determining whether to install additional certificates](#)
- [Installing root and intermediate certificates](#)
- [Installing the main certificate as the root certificate](#)

## Determining whether to install additional certificates

To check whether you need to install the additional certificates, double-click the main certificate and select the **Certification Path** tab. If you see:

- **Three or more certificates**—Install the root certificate and one or more intermediate certificates.  
For more information, see [Installing root and intermediate certificates](#).
- **Two certificates**—Install the root certificate.  
For more information, see [Installing root and intermediate certificates](#).
- **One certificate**—Install the main certificate from the PFX as the root certificate.  
For more information, see [Installing the main certificate as the root certificate](#).

## Installing root and intermediate certificates

Perform this procedure for both the root certificate and one or more intermediate certificates.

1. Open the Microsoft Management console:
  - a. Open a Command Prompt window.
  - b. Enter `mmc`, and then press **Enter**.
2. Select **File > Add/Remove Snap-in**.  
The Add or Remove Snap-ins dialog box appears.
3. From the list of available snap-ins, select **Certificates**.
4. Click **Add**.  
The Add dialog box appears.
5. Click **Computer account**.
6. Click **Next**.
7. Click **Local Computer**.
8. Click **Finish**.
9. Click **OK**.
10. In the left pane of the console, select **Certificates (Local Computer)**.
11. Click the **Personal** folder.
12. Double-click the main certificate you previously imported and select the **Certification Path** tab.
13. Do one of the following:

- To install the root certificate, double-click the root certificate.
  - To install the intermediate certificate, double-click the intermediate certificate and select the **Details** tab.
14. Click **Copy to File** and do the following:
    - a. Deselect **Do not export the private key**.
    - b. Select the default file type.
    - c. Select **DER encoded binary**.
    - d. Navigate to the location in which to save the certificate.
    - e. Click **OK**.
  15. In the left pane of the console, select one of the following:
    - If you are installing an intermediate certificate, select **Intermediate Certification Authorities**.
    - If you are installing the root certificate, select **Trusted root Certification Authorities**.
  16. Right-click the **Certificates** folder and select **All Tasks > Import**.  
The Certificate Import Wizard appears.
  17. Click **Next**.
  18. Select the CER file for the certificate you are installing, either the intermediate or root certificate.
  19. Click **Next** to accept the default options for the remaining wizard pages.

## Installing the main certificate as the root certificate

1. Open the Microsoft Management console:
  - a. Open a Command Prompt window.
  - b. Enter `mmc`, and then press **Enter**.
2. Select **File > Add/Remove Snap-in**.  
The Add or Remove Snap-ins dialog box appears.
3. From the list of available snap-ins, select **Certificates**.
4. Click **Add**.  
The Add dialog box appears.
5. Click **Computer account**.
6. Click **Next**.
7. Click **Local Computer**.
8. Click **Finish**.
9. Click **OK**.
10. In the left pane of the console, select **Certificates (Local Computer)**.
11. Click the **Personal** folder.
12. Double-click the main certificate you previously imported and select the **Certification Path** tab.

13. To install the main certificate as the root certificate, double-click the main certificate.
14. Click **Copy to File** and do the following:
  - a. Deselect **Do not export the private key**.
  - b. Select the default file type.
  - c. Select **DER encoded binary**.
  - d. Navigate to the location in which to save the certificate.
  - e. Click **OK**.
15. In the left pane of the console, select **Trusted root Certification Authorities**.
16. Right-click the **Certificates** folder and select **All Tasks > Import**.  
The Certificate Import Wizard appears.
17. Click **Next**.
18. Select the CER file for the root certificate.
19. Click **Next** to accept the default options for the remaining wizard pages.

## Verifying that all required IIS roles are installed

1. Select **Start > Apps > Server Manager > IIS**.
2. Under Roles and Features, make sure the following **Web Server (IIS)** roles required by Oracle Central Designer are installed:

### Web Server

- Web Server\Common HTTP Features
- Web Server\Common HTTP Features\Default Document
- Web Server\Common HTTP Features\Directory Browsing
- Web Server\Common HTTP Features\HTTP Errors
- Web Server\Common HTTP Features\Static Content
- Web Server\Application Development
- Web Server\Application Development\.NET Extensibility 4.7 or higher
- Web Server\Application Development\Application Initialization
- Web Server\Application Development\ASP
- Web Server\Application Development\ASP.NET 4.7 or higher
- Web Server\Application Development\CGI
- Web Server\Application Development\ISAPI Extensions
- Web Server\Application Development\ISAPI Filters
- Web Server\Application Development\Server Side Includes
- Web Server\Health and Diagnostics
- Web Server\Health and Diagnostics\HTTP Logging
- Web Server\Security
- Web Server\Security\Request Filtering

- Web Server\Performance
- Web Server\Performance\Static Content Compression

#### Management Tools

- Management Tools\IIS Management Console
- Management Tools\IIS Management Service
- Management Tools\IIS Scripts and Tools
- Management Tools\IIS 6 Management Compatibility
- Management Tools\IIS 6 Management Compatibility\IIS 6 Metabase Compatibility
- Management Tools\IIS 6 Management Compatibility\IIS 6 WMI Compatibility
- Management Tools\IIS 6 Management Compatibility\IIS 6 Scripting Tools
- Management Tools\IIS 6 Management Compatibility\IIS 6 Management Console

## Verifying that the correct version of Microsoft .NET Framework is installed

For information about the required versions of Microsoft .NET Framework, see the *Oracle Central Designer system requirements* guide. If a required version of .NET Framework is not installed, install it.

#### Note:

If you have a version of .NET Framework prior to the required version for this release, you do not need to uninstall it before installing the required version.

- To find .NET Framework versions by viewing the registry:
  1. Select **Start**, enter **regedit.exe**, and press **Enter**.
  2. In the Registry Editor, go to  
`HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\.NET Framework Setup\NDP.`  
 The installed versions are listed under the NDP subkey.  
 If .NET Framework is installed, the folder contains folders whose names begin with **v**, followed by the .NET Framework version number. For example:
    - **v4.0**—indicates that .NET Framework 4.0 is installed.
- To find .NET Framework versions by using Windows Explorer, paste the following text into the Windows Explorer address bar: `%systemroot%\Microsoft.NET\Framework64.`  
 If .NET Framework is installed, the folder contains folders listing the installed versions.

## Enabling ClickOnce support for Microsoft Edge version 79 or later

1. In Microsoft Edge, go to `edge://flags/#edge-click-once`, and select **Enable** from the drop-down list.
2. Restart your browser.

## Synchronizing clocks on server and client computers

The clocks on the client computers, application server computer, and database server computer are not required to be in the same time zone, but they must be no more than 24 hours apart relative to the Coordinated Universal Time (UTC). Oracle recommends that the clocks be no more than 10 minutes apart.

## Hardware networking switches

Some hardware networking switches change the incoming URL before passing the request to the Oracle Central Designer server. For example, if the address entered during a client installation is **https://abc.com**, a switch might change the URL in the following ways:

- A switch that performs hardware SSL/TLS processing might change the URL to **http://abc.com**.
- A switch that performs load balancing might change the URL to **http://PhysicalServer1**.

When the application server is installed in an environment that includes a hardware networking switch, the URL that you enter for the **Web server URL root** field must match the URL that the networking switch uses to address the application server. From the previous examples, the required URLs must be:

- In the first example, **http://abc.com**.
- In the second example, **http://PhysicalServer1**.



### Note:

The application server must be able to use the address that you enter for the **Web server URL root** field to address itself.

## Configuring the IIS HTTP response header setting

To secure the web server and prevent clickjacking on the `http://<server name>/CentralDesignerInstall` page, from which you install the Oracle Central Designer and Oracle Central Designer Administrator applications, configure the HTTP response header in IIS.

1. Open the Internet Information Services (IIS) Manager.
2. In the Connections section on the left, expand the **Sites** folder.
3. Select **Default Web Site**.

4. In the Default Web Site Home pane, in the IIS section, double-click **HTTP Response Headers**.
5. In the Actions section on the right, click **Add**.  
The Add Custom HTTP Response Header dialog box appears.
6. Enter the following:
  - Name—X-Frame-Options
  - Value—SAMEORIGIN
7. Click **OK**.

## Configuring the application server for optimal performance

Oracle recommends performing the following modifications on the Oracle Central Designer application server to optimize performance.

- [Configure the worker process recycling settings for Windows](#)
- [Configure the worker process health settings for Windows](#)
- [Increase the default Microsoft Distributed Transaction Coordinator timeout](#)

### Configure the worker process recycling settings for Windows

1. Select **Start > Internet Information Services (IIS) Manager**.
2. Expand the tree for the local computer and select **Application Pools**.
3. Right-click **DefaultAppPool** and select **Recycling**.
4. Configure the following settings:
  - Verify that only **Regular time intervals (in minutes)** is selected.
  - Verify that a value of 1740 is entered for that setting.

### Configure the worker process health settings for Windows

1. Select **Start > Internet Information Services (IIS) Manager**.
2. Expand the tree for the local computer and select **Application Pools**.
3. Right-click **DefaultAppPool** and select **Advanced Settings**.
4. Under **Process Model**, set **Shutdown time limit (seconds)** to match the timeout for the client application (the default is 1200 seconds).

### Increase the default Microsoft Distributed Transaction Coordinator timeout

Oracle recommends that you increase the Microsoft Distributed Transaction Coordinator (MS DTC) timeout because the default Windows timeout setting of 60 seconds might be insufficient for some Oracle Central Designer processes.

1. Select **Start > Component Services**.
2. Open **Component Services > Computers**.

3. Right-click **My Computer**, and select **Properties**.
4. Select the **Options** tab.
5. Change the value of the **Transaction timeout (seconds)** field to 3600 (the default is 60).
6. Click **OK**.
7. Select **Start > Services**.
8. Stop and restart all IIS services.

## Enabling TLS 1.2 for .NET Framework on Central Designer application servers

If TLS 1.2 is enabled on any Oracle InForm where automated deployments are performed, you must update the Windows registry to enable TLS 1.2 for .NET Framework on the Oracle Central Designer application servers.

1. On all Oracle Central Designer application servers, open a command prompt as an Administrator and run the command `reg add "HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\.NETFramework\v4.0.30319" /v SchUseStrongCrypto /t REG_DWORD /d 00000001`
2. Restart the Oracle Central Designer application server.



# 4

## Preparing the database server

Before installing the Oracle Central Designer software, you must:

- Install and configure the Oracle database software on the database server.
- Create the necessary database instance and tablespaces.

In this chapter:

- [Install the Oracle database software on the database server](#)
- [Registering .NET assemblies](#)
- [Create the database and tablespaces](#)
- [Configuring the listener to accept connections for the new database](#)
- [Configuring the Open Cursors setting for a database instance](#)
- [Configuring the Cursor Sharing setting for a database instance](#)
- [Use the performance tuning capabilities that are available with the Oracle database software](#)
- [Required rights for database administrators](#)
- [Creating the Oracle Central Designer database user](#)

## Install the Oracle database software on the database server

After the database server requirements are met, you can install the Oracle database software. Use the Oracle database software installation documentation as needed. For more information about required Oracle database software versions, see the *Oracle Central Designer system requirements* guide.



### Note:

If the application server and database server are on the same computer, you must install the Oracle Server software and Oracle Client software in the same home, or the Oracle Central Designer server installation will not work.

For more information, see:

- [Mandatory configuration](#)  
Most of the default Oracle settings can be used for the Oracle Central Designer database. However, the following Oracle configuration must be used.

## Mandatory configuration

Most of the default Oracle settings can be used for the Oracle Central Designer database. However, the following Oracle configuration must be used.

Page	Option	Value
Database Components	Oracle Text, a standard database component.	Selected. <b>Tip:</b> The Oracle database software installation requires that you install Oracle Data Mining if you install Oracle Text. If you do not want to install Oracle Data Mining, you can install Oracle Text manually after completing the Oracle database installation.
--	Oracle Java Virtual Machine (JVM)	Selected.
Character Sets	Database Character Set	AL32UTF8 - Unicode 4.0 UTF universal character set, UTF-8 compliant.
--	National Character Set	AL16UTF16 - Unicode UTF-16 universal character set.
Parameters	CURSOR_SHARING parameter	FORCE
--	OPEN_CURSORS parameter	500

#### Additional configuration information

In production databases at Oracle, the DB\_BLOCK\_SIZE Oracle parameter is set to 16k (16384 bytes).

## Registering .NET assemblies

You must register the .NET assemblies to the Global Assembly Cache (GAC) after the initial installation, and each time you apply a patch.

- Oracle.DataAccess.dll
- Policy files that redirect older Oracle.DataAccess.dll versions to the one installed

To add the assemblies to the GAC:

1. Open a command prompt as an Administrator.
2. Navigate to the directory that contains the assembly to add to the GAC (`<oracle_home>\ODP.NET\bin\4`).
3. Execute the following command:

```
oraprovcfg.exe /action:gac /providerpath:Oracle.DataAccess.dll
```

4. Navigate to the directory that contains the policy files to add to the GAC (`<oracle_home>\ ODP.NET\PublisherPolicy\4`).

**5. Execute the following commands:**

```
OraProvCfg.exe /action:gac /  
providerpath:Policy.4.112.Oracle.DataAccess.dll
```

```
OraProvCfg.exe /action:gac /  
providerpath:Policy.4.121.Oracle.DataAccess.dll
```

```
OraProvCfg.exe /action:gac /  
providerpath:Policy.4.122.Oracle.DataAccess.dll
```

## Create the database and tablespaces

After you install the Oracle database software, create the database instance and tablespaces. Make sure the Oracle server has sufficient space to accommodate the new tablespaces. The Oracle Central Designer software uses the following tablespaces by default.

Tablespace	Description	Minimum size
DESIGNER	Main data tablespace	100 MB. A 16k (16384 bytes) block size is required. <b>Note:</b> Depending on usage, you might need to increase the MB size.
SYSTEM	Main data tablespace	500 MB.
SYSAUX	Main data tablespace	250 MB.
TEMP	Temporary tablespace	Always present in the Oracle database.
UNDOTBS1	Main data tablespace	200 MB.

 **Note:**

The tablespace names provided are the default names. Any names can be used for the tablespaces.

 **Note:**

If you use non-default names, you must specify them during the installation of the application server (by clicking Advanced on the Database Parameters page), so be sure you take note of them.

## Configuring the listener to accept connections for the new database

After installing the Oracle database software, you must configure the listener to accept connections for the new database. For more information, see the Oracle database software documentation.

## Configuring the Open Cursors setting for a database instance

When you create a database instance, you must set Open Cursors to 500 by running the following SQL command:

```
ALTER SYSTEM SET open_cursors=500 SCOPE=BOTH;
```

Before you upgrade, ensure that the `Open Cursors` parameter is correctly set.

## Configuring the Cursor Sharing setting for a database instance

When you create a database instance, you must set the Cursor Sharing setting properly to `FORCE` by running the following SQL command:

```
ALTER SYSTEM SET cursor_sharing=FORCE SCOPE=BOTH;
```

Before you upgrade, ensure that the `Cursor Sharing` parameter is correctly set.

## Use the performance tuning capabilities that are available with the Oracle database software

Open the Automatic Database Diagnostic Monitor (ADDM) from the Database Control home page or from Advisor Central.

This tool helps you diagnose problems, identify their causes, and make recommendations.

About acting on ADDM recommendations:

- Make configuration changes to the database or operating system as necessary.
- The SQL Tuning Advisor might recommend rewriting some SQL statements. However, the SQL statements cannot be rewritten.
- Add database indexes as needed.

 **Caution:**

Take note of all new indexes. Before upgrading, you must drop them to ensure that they do not cause conflicts with new indexes that have been added to the product. After the upgrade is finished, you can add the indexes back.

 **Note:**

Contact Oracle Global Support to forward SQL statement recommendations or request index changes in the product.

The most common configuration recommendations from ADDM are:

- SGA\_TARGET
- PGA\_AGGREGATE\_TARGET
- DB\_FILE\_MULTIBLOCK\_READ\_COUNT
  - Reset to zero instead of using an explicit value.
  - Oracle automatically manages this parameter value if it is set to zero.

For more information, see the Oracle database software documentation.

## Required rights for database administrators

The database administrator must create the Oracle Central Designer database user before you install the Oracle Central Designer application. During the Oracle Central Designer installation, you are prompted to enter the user name and password for the Oracle Central Designer database user. For more information, see [Creating the Central Designer database user](#).

The database administrator can be any user that has the rights to perform the following tasks:

Task	SQL	Automatically executed for
Create the Database User.	<pre>CREATE USER &amp;1 IDENTIFIED BY &amp;2 DEFAULT TABLESPACE &amp;3; GRANT CONNECT TO &amp;1; GRANT RESOURCE TO &amp;1; GRANT CREATE VIEW TO &amp;1;</pre>	All supported Oracle database software versions.
Allow the Database User to create function indexes.	<pre>GRANT QUERY REWRITE TO &amp;1; GRANT CREATE SYNONYM TO &amp;1;</pre>	All supported Oracle database software versions.

 **Note:**

The database administrator user does not have the rights to grant the database user execute privileges on required packages. For information on how to assign the database administrator the necessary rights, see [Granting the database administrator the EXECUTE privilege on required packages](#).

For more information, see:

- [Granting the database administrator the EXECUTE privilege on required packages](#)
- [Sample SQL](#)

## Granting the database administrator the EXECUTE privilege on required packages

The database administrator user does not have rights to grant the database user execute privileges on certain required packages. To grant the database administrator the necessary rights, run the following SQL commands as a database superuser:

```
GRANT EXECUTE on SYS.DBMS_JOB to <Database Administrator user name>
WITH GRANT OPTION;
GRANT EXECUTE on SYS.DBMS_LOB to <Database Administrator user name>
WITH GRANT OPTION;
GRANT EXECUTE on SYS.DBMS_SQL to <Database Administrator user name>
WITH GRANT OPTION;
GRANT EXECUTE on SYS.UTL_FILE to <Database Administrator user name>
WITH GRANT OPTION;
```

## Sample SQL

The following SQL commands are not run by the installation but show an example of what a database administrator needs to do to create the tablespaces. Database administrators must set up the tablespaces before installing the Oracle Central Designer software.

```
CREATE TABLESPACE designer
LOGGING
DATAFILE 'D:\Oracle\oradata\dev1\DESIGNER.ora' SIZE 400M
AUTOEXTEND ON NEXT 1M;
ALTER SYSTEM SET db_16k_cache_size = 80M;
EXTENT MANAGEMENT LOCAL SEGMENT SPACE MANAGEMENT AUTO;
```

## Creating the Oracle Central Designer database user

1. On the database server computer, extract the `CreateCentralDesignerSchema` folder from the product ZIP file.

 **Note:**

You must use the ZIP file for the product version being installed, or the Oracle Central Designer database user will not be given the appropriate grants.

2. From the `CreateCentralDesignerSchema` folder, run the following command:

```
sqlplus <Database Administrator user name>/<Database Administrator  
password>@<Database> @_task.sql <Central Designer database user name>  
<Central Designer database user password> <Central Designer tablespace>
```

In the previous command:

- Database Administrator user name / password—Credentials of the database administrator used to create the Oracle Central Designer database user.
- Database—Alias from the `TNSnames.ora` file.
- Central Designer database user name / password—Credentials of the Oracle Central Designer database user account you are creating.
- Central Designer tablespace—Default value: `DESIGNER`.

When you run the Oracle Central Designer installation, you must enter the database parameters set up during this procedure.

# 5

## Installing and uninstalling the software

In this chapter:

- [Before you begin](#)
- [Overview of installation and configuration](#)
- [Installing the Oracle Central Designer application server](#)
- [Uninstalling the application server](#)
- [Configuring SMTP settings for automated deployment email notifications](#)
- [Starting the Central Designer client application](#)
- [Starting the Oracle Central Designer Administrator client application](#)

### Before you begin

The latest information about the Oracle Central Designer application is on the Oracle Support self-service website, My Oracle Support. Before you install and use the Oracle Central Designer application, check My Oracle Support for the latest information, including Release Notes and Known Issues, alerts, white papers, bulletins, and patches.

For the latest Oracle Central Designer software, check the Oracle Software Delivery Cloud (<https://edelivery.oracle.com>).

### Overview of installation and configuration

Before you start your installation, plan your work:

- Checklist—Planning the server installation.
- Checklist—Planning the client installations.

For more information, see:

- [Overview of installing the application and database servers](#)
- [Overview of uninstalling](#)

### Overview of installing the application and database servers

1. Install the Central Designer application server.  
For more information, see [Preparing the database server and Installing the Central Designer application server](#).
2. Verify the installations.  
For more information, see [Verifying the installation of the application server](#).



## Overview of uninstalling

1. Uninstall the application server.  
For more information, see Uninstalling the application server.

### Note:

The client applications are ClickOnce applications and are therefore not installed on users' computers. Therefore, you cannot uninstall the client applications.

## Installing the Oracle Central Designer application server

1. Locate the **setup.exe** program.  
The setup.exe program is available the Oracle Software Delivery Cloud (<https://edelivery.oracle.com>).
2. Double-click **setup.exe**.  
The InstallShield Wizard prepares to install the application server. A welcome page appears.
3. Click **Next**.  
The Customer Information page appears.
4. Provide the following information:
  - **User Name**—Your name.
  - **Company Name**—The name of your company.
  - **Company URL**—A unique identifier for your company data, typically your company URL (for example, <http://www.mycompany.com>).
  - Select whether to install the application for anyone who uses the computer, or only for your user.
5. Click **Next**.  
The Setup Type page appears.
6. Select **New Database**.

### Note:

If you are installing the second or higher server in a web farm, select **Update**.

7. In the **Destination Folder** area, specify the destination location for the installation. By default, the installation wizard installs the software in the `<PROGRAMFILES_DIR>\Oracle Health Sciences\Central Designer\` folder. PROGRAMFILES\_DIR is a system setting that is usually `C:\Program Files (x86)`. If you want to install to another location, click **Browse**, and select the location.

 **Note:**

The instructions, paths, and Start Menu navigation in this guide assume you are installing to the default location. Oracle strongly recommends that you install the software to the default location.

8. Click **Next**.

The Database Parameters page appears.

9. Enter the database connection information. The database user must be created before you run the installer. For more information, see [Creating the Central Designer database user](#).

Field	Description
Database User Name	The user name for the Oracle database user.
Database Password	The password for the database user.

 **Note:**

The password must not contain any of the following characters: @ & ( ) [ or ].

Oracle TNS Name	Alias from the TNSnames.ora file. This TNS name is used to connect to the database instance.
Create New Database	Select this option if you want to create a new database.

 **Caution:**

If you have an existing database schema and you select **Create New Database**, all existing information in your current database schema will be deleted.

 **Note:**

Do not use Oracle reserved words for user names or passwords.

10. If a new database was created and tablespaces were created with non-default names, you must specify the names of the tablespaces. The tablespaces that you specify must already exist. The installation does not create tablespaces.

- a. Click **Advanced**.

The Advanced Database Settings page appears.

- b. Fill in the fields with the correct information, according to the following table.
- c. Click **OK** to return to the Database Parameters page.

Field	Description
Default Tablespace for new user	The first tablespace for the tables of the schema owner. This tablespace must have a block size of 16k.
Large (16k) Tablespace for new user	Not used. Enter the same value as for the default tablespace.
Temp Tablespace for new user	The temporary tablespace for the tables of the schema owner.

11. Click **Next**.

The Job Service page appears.

12. Enter the TCP/IP port number that the job service will use. The port must be unused. In most cases, you can use the default value.

 **Note:**

If you are installing the server as part of a web farm, all of the servers can use the same port number, as long as the port is unused.

13. Optionally, to configure the Oracle Central Designer software to support a web farm, select **Make this server part of a web farm**. A web farm setup allows you to install the Oracle Central Designer server software on multiple application server computers. The installation is the same for all of the servers, and you must select this option for all servers in the web farm. For more information, see Web farm capabilities.

After you select the check box, the installation checks the database to see if a primary Job Scheduler has been specified. Additional options appear, depending on whether you are installing the first or second (or higher) server.

- If this installation is the first server in the web farm, the primary Job Scheduler has not been set yet. The installation automatically sets the Job Scheduler service on the server computer as the primary Job Scheduler. If you install additional application servers, you can change the primary Job Scheduler during the installations.
- If this installation is the second or higher server in the web farm, the primary Job Scheduler service has already been set, and the name of the computer that runs the primary Job Scheduler appears. To change the primary Job Scheduler, select **Make this server's Job Scheduler the primary**.

14. Specify a password for the Job Service user.

 **Note:**

Make sure that the user password meets the requirements listed on the page.

15. Click **Next**.  
The System User Password page appears.
16. Specify a password for the system user.

 **Note:**

Make sure that the user password meets the requirements listed on the page.

The Oracle Central Designer application installs the system user by default. You can configure the lockout time for the system user separately from all other users. By default, this user is assigned the superuser and DesignerAdministrator roles.

 **Note:**

The password that you specify for the system user is also used for the archiveimporter user. For more information about this user, see the *Oracle Central Designer Administrator Guide*.

17. Click **Next**.  
The Network Parameters page appears.
18. In the **Web server URL root** field, enter the server address to which requests will come (for example, `http://ABCServer` or `https://ABCServer`). If you enabled Transport Layer Security (TLS), use `https`.

 **Note:**

When the application server is installed in an environment that includes a hardware networking switch, the URL that you enter for the **Web server URL root** field must match the URL that the networking switch uses to address the application server. For more information, see *Hardware networking switches*.

As you enter a value in the Web server URL root field, the Public server URL root field is automatically updated with the same value. If you edit the value in the Public server URL root field, the field is no longer updated automatically when the Web server URL root field is updated.

19. Optionally, you can secure (encrypt and prevent tampering of) communications by using Transport Layer Security (TLS). For more information, see *Securing communication with Transport Layer Security (TLS)*.
20. Optionally, if the application server computer is behind a proxy that rewrites the request URLs, in the **Public server URL root** field, enter the address that the client computer uses to access the application server (the public address of the server computer as seen by the client computer). This address will be added as the address of the server computer during installation of the client applications.  
  
If the value for the **Public server URL root** field does not need to be different from the **Web server URL root** field, make sure that the values in both fields match.
21. Specify the certificate to use to sign web service authorizations:

- a. Click **Choose Certificate**.

The Choose Certificate dialog box appears.

- b. Select a certificate.

- c. Click **OK**.

The Issued to, Issuer, Expiration, and Friendly name fields are populated.

 **Note:**

On each Oracle Central Designer application server, an administrator must install the certificate that is used for signing web service authorizations to the LOCAL\_MACHINE\MY store. The Oracle Central Designer installation process grants Full Control to access the certificate private keys to the IIS AppPool\DefaultAppPool user and the NETWORK SERVICE user.

 **Note:**

If a user other than the IIS AppPool\DefaultAppPool user is running the DefaultAppPool application pool, you must grant the user Full Control to access the private keys, or the user is unable to sign using the certificates. For more information, see *Installing certificates for signing web service authorizations and deployment packages*.

22. If the Oracle Central Designer application server is outside the network of the Oracle InForm application server. Specify the proxy URL or script used by the Oracle Central Designer application server to communicate with the Oracle InForm server during automated deployment:

- In the **Proxy URL** field, enter the web address for the proxy server.
- In the **Proxy Script** field, enter the web address for the proxy configuration script.

23. Click **Next**.

The Client Installation Configuration page appears.

24. In the **Environment Name** field, enter the name for your Oracle Central Designer instance.

The environment name appears on the web page to which you navigate to start the Oracle Central Designer application.

25. Click **Next**.

The InForm Deployment page appears.

26. Specify the certificate to use to sign deployment packages and Oracle InForm web service authorizations:

- a. Click **Choose Certificate**.

The Choose Certificate dialog box appears.

- b. Select a certificate.

- c. Click **OK**.

The Issued to, Issuer, Expiration, and Friendly name fields are populated.

 **Note:**

For studies hosted by Oracle, the certificate must be issued by a trusted commercial Certificate Authority.

27. Click **Next**.

The Start Copying Files page appears.

28. Review the installation settings. To change any settings, click **Back**. If you are satisfied with the settings, click **Next**.

The installation begins. The Setup Status page appears, showing the status of the installation. When the installation is complete, the InstallShield Wizard Complete page appears.

29. Click **Finish**.

 **Note:**

If the IIS worker process is running under any user other than NETWORK SERVICE or IIS AppPool\DefaultAppPool, you must grant the user read permission to the HKEY\_LOCAL\_MACHINE\SOFTWARE\OracleHS\CentralDesigner registry key after the installation.

For more information, see:

- [Performing a silent installation](#)
- [Verifying the installation of the application server](#)

## Performing a silent installation

To create a setup.iss response file that contains all the installation parameters:

1. In a command prompt window, enter the path of the Oracle Central Designer setup.exe program followed by /r to run the installation in record mode.  
The InstallShield Wizard appears.
2. Follow the wizard steps.
3. When you reach the Start Copying Files page, the setup.iss file is created in the Windows directory (by default C:\Windows).

To perform a silent installation:

1. Copy the setup.iss file to the same directory as the Oracle Central Designer setup.exe program.
2. In a command prompt window, enter the path of the setup.exe program followed by /s. The silent installation is performed.

## Verifying the installation of the application server

1. Verify that the job service is installed and running:
  - a. Open the **Control Panel**.
  - b. Open **Administrative Tools > Services**.
  - c. Verify that the **Oracle Central Designer Job Scheduler** service exists and is running.
2. Verify that the Web site has been added to the Internet Information Services (IIS) Manager directory:
  - a. Open the **Control Panel**.
  - b. Open **Administrative Tools > Computer Management**.
  - c. Open **Services and Applications > Internet Information Services (IIS) Manager > Web Sites > Default Web Site**. Verify that **CentralDesigner** is listed in the virtual directories.
3. Review the **installer.log file**. This log contains messages that were generated during installation. It is available in the following location: `\Program Files (x86)\Oracle Health Sciences\Central Designer`.

## Uninstalling the application server

1. Select **Start > Services**.
2. Stop the job scheduler and IIS services.
3. Select **Start > Control Panel > Programs and Features**.
4. Select **Central Designer Server**, and click **Change/Remove**.  
A confirmation dialog box appears.
5. Click **Yes**.  
The Setup Status page appears, informing you of the status of the uninstall.  
The Uninstall Complete page appears.
6. Click **Finish**.
7. Delete the Oracle Central Designer directory.

## Configuring SMTP settings for automated deployment email notifications

The Oracle Central Designer application can send email notifications for the following automated deployment events:

- Deployment request is created, approved, or rejected.
- Deployment is started.
- Deployment is completed successfully or with failures.
- Deployment request is cancelled.

- Deployment is cancelled.

To set up Oracle Central Designer to send email notifications:

1. Install the SMTP server feature in Microsoft Windows. For more information, see the Microsoft documentation for your operating system.
2. Verify that you can send email from the SMTP server.
3. After you install the Oracle Central Designer application server, configure the Oracle Central Designer web site to send email.
  - a. Select **Start > Administrative Tools > Internet Information Services (IIS) Manager**.
  - b. Expand `<machine_name>` > **Sites > Default Web Site**.
  - c. Select CentralDesigner.
  - d. In the Features View, double-click **SMTP E-mail**.  
The SMTP E-mail page appears.
  - e. Enter a dummy address as the email address from which messages are sent (for example, `designer@mycompany.com`).
  - f. Select **Deliver e-mail to SMTP server**.
  - g. Select **Use localhost**.
  - h. Select the same authentication settings that are configured for the SMTP server.
  - i. Click **Apply**.



**Note:**

Every time you install the Oracle Central Designer application, you must reconfigure the SMTP email settings for the Oracle Central Designer web site.

## Starting the Central Designer client application

The client applications are ClickOnce applications, and you do not need to install them to start them, as you would for applications using a traditional Windows installer.

1. Using Microsoft Edge, navigate to the following address:  
`http://<server name>/CentralDesignerInstall`, where `<server name>` is the name of the application server computer.

2. Click the **Start Central Designer Client** link.

The application files are downloaded to a cache and the application is installed. The installation might take some time.

After the installation is complete, the application opens, and you can log on.

## Starting the Oracle Central Designer Administrator client application

The client applications are ClickOnce applications, and you do not need to install them to start them, as you would for applications using a traditional Windows installer.



1. Using Microsoft Edge, navigate to the following address:  
http://<server name>/CentralDesignerInstall, where <server name> is the name of the application server computer.
2. Click the **Start Central Designer Administrator** link.  
The application files are downloaded to a cache and the application is installed.  
The installation might take some time.  
After the installation is complete, the application opens, and you can log on.

# 6

## Migrating the software to this release

In this chapter:

- [About migrating the application server](#)
- [Checklist—Planning a migration](#)
- [Upgrading custom reports definitions](#)
- [Installing the application server](#)
- [Upgrading the client applications](#)
- [Updating certificates without reinstalling the Oracle Central Designer software](#)

### About migrating the application server

You can migrate to this release from Oracle Central Designer 2.1.2.x, 6.2.x, or 6.3.x.

 **Note:**

If you are using Oracle Central Designer 2.0.5.1 or 2.1.1.x, you must first upgrade to Oracle Central Designer 2.1.2 before migrating to Oracle Central Designer 7.0.

When you migrate, you must:

- Create a new Oracle 19c database and migrate to it. For more information, see your Oracle database software documentation.

 **Note:**

If you are migrating from Oracle Central Designer 6.3.2 you can use your existing Oracle 19c database. For more information on required patches, see the *Oracle Central Designer System Requirements* guide.

- Provide the database and user parameters that you entered when you created the new database and database user.

#### Time considerations

Because the migration updates every study in the database, migrating from an earlier release could take some time, so plan the upgrade carefully. For example, Oracle expects that migrating a database with 150 studies could take 10 - 15 hours or longer.

### Checklist—Planning a migration

1. Export the Oracle Central Designer database user.

 **Caution:**

You must perform this step. If the upgrade is not successful, you might need to restore the database to attempt to install again.

Depending on the size of the database, this process could take several hours.

 **Note:**

Use the following command to export a user:  
`expdp designer/designer@db1_dev1 directory=data_pump_dir  
schemas=DESIGNER dumpfile=file_to_export.dmp`

In this example, the user has the following information:

- **User name**—designer
- **Database**—db1\_dev1:

 **Note:**

When you execute this command, you are prompted for the user password.

2. If you are upgrading to an Oracle 19c database, create a new database instance with a 16k block size for the DESIGNER tablespace.

For more information, see [Create the database and tablespaces](#).

3. If you are migrating to a new database, import the database user into the destination database server.

Use the following command to import a database user into the destination database server:

```
impdp designer/designer@db1_dev1 DIRECTORY=data_pump_dir  
DUMPFILE=file_to_export.dmp SCHEMAS=DESIGNER
```

In this example, the user has the following information:

- **User name**—designer
- **Database**—db1\_dev1

 **Note:**

When you execute this command, you are prompted for the user password.

4. Import the Oracle Central Designer database. If you are migrating to the Oracle 19c database from 11g, re-map the tablespaces.

Use the following command to import a database user into the destination database server:

```
impdp designer/designer@db1_dev1 DIRECTORY=data_pump_dir
DUMPFILE=file_to_export.dmp SCHEMAS=DESIGNER
REMAP_TABLESPACE=DESIGNER_BIGINDEX:DESIGNER
```

In this example, the user has the following information:

- **User name**—designer
- **Database**—db1\_dev1

 **Note:**

When you execute this command, you are prompted for the user password.

5. Make sure that the Cursor Sharing setting for the database instance is set properly.  
For more information, see *Configuring the Cursor Sharing setting for a database instance*.
6. Unlock statistics for specific tables.  
Unlock statistics for the following tables:
  - IC\_OBJECT
  - IC\_OBJECT\_REVISIONS
  - IC\_OBJECT\_BACK\_REFERENCES
  - IC\_OBJECT\_FORWARD\_REFERENCES
  - IC\_BLUEPRINT\_OBJECT\_MAPThe upgrade process drops non-primary key indexes on the tables affected by the upgrade and recreates the indexes at the end of the process. If the index was originally defined with the COMPUTE STATISTICS clause, the recreation also attempts to COMPUTE STATISTICS. If statistics are locked, this process fails.
7. Make sure that the database UNDO\_MANAGEMENT initialization parameter is set to AUTO and the UNDO and TEMP tablespaces are set to autoextend.  
These settings are necessary for a successful upgrade.
8. If you added any new indexes to the database, you must drop them before upgrading the application server to ensure that they do not cause conflicts with new indexes that have been added to the product.  
After the upgrade is finished, you can add the indexes back.
9. Export custom reports definitions from the Oracle Central Designer Administrator application.  
For more information, see *Upgrading custom reports definitions*.
10. Update data mappings with the PhysicalMappingType property set to All.  
For more information, see *Updating data mappings with PhysicalMappingType set to All*.
11. (Recommended) Run the `DetectStudiesWithUnitsWithSpaces.sql` script to determine if any studies contain unit names with spaces.  
A validation check produces an error if a unit name contains a space. For more information, see *Running the DetectStudiesWithUnitsWithSpaces.sql script*.
12. Run the application server installation to install the application server.

For more information, see [Installing the application server](#).

13. If you dropped indexes from your database before upgrading, add them back in after you finish upgrading.
14. Recompile user-defined functions and sign and secure user-defined function assemblies as needed.

For more information, see [Upgrading user-defined functions](#).

15. Re-import custom reports definitions.

For more information, see [Upgrading custom reports definitions](#).

16. If the web service authorization and deployment authorization certificates have expired, upgrade them.

 **Note:**

If the certificates are current, you can skip this step.

For more information, see [Updating certificates without reinstalling the Oracle Central Designer software](#).

17. Inform users that they can resume using the client applications.

For more information, see [Starting the Oracle Central Designer client application](#) and [Starting the Oracle Central Designer Administrator client application](#).

For more information, see:

- [Running the DetectStudiesWithUnitsWithSpaces.sql script](#)
- [Updating data mappings with PhysicalMappingType set to All](#)
- [Upgrading user-defined functions](#)

## Running the DetectStudiesWithUnitsWithSpaces.sql script

A SQL script called `DetectStudiesWithUnitsWithSpaces.sql` generates a report that identifies the unit names with spaces and the study projects that contain unit names with spaces. Oracle recommends that you run this script because a validation check produces an error if a unit name contains a space.

Run the script before upgrading the application server. If the script finds units with spaces and study projects that use the units, perform the following steps:

1. In any affected study, run validation to determine the items that refer to the units with spaces in their names.
2. Modify the units file to remove the spaces from the unit names that appear in the output file.
3. Using **Control Panel > Administrative Tools > Services**, restart the Job Scheduler service (Oracle Central Designer Job Scheduler).
4. Restart the client applications.
5. In any affected study, modify the items to use the unit names that do not contain spaces.

The script and a readme file (DetectStudiesWithUnitsWithSpaces.Readme) are available on the product ZIP file in the InstallSupport directory.

## Updating data mappings with PhysicalMappingType set to All

If a study contains a data mapping for which PhysicalMappingType is set to All and you use the data mapping for both CDD and CIS, you must use the existing data mapping for one purpose only and create a new data mapping for the other purpose. Because creating a new database for CDD is simpler, Oracle recommends using the existing data mapping for CIS and creating a new CDD data mapping and, if necessary, a new CDD database.

To modify the existing data mapping and create a new data mapping:

1. To determine whether your database contains any data mappings for which PhysicalMappingType is set to All, before you upgrade, run the DetectStudiesWithPhysicalMappingAll.sql script, which is available in the InstallSupport directory on the product ZIP file.
2. For each data mapping for which PhysicalMappingType is set to All, change the PhysicalMappingType property of the data mapping from All to CIS.  
  
The CIS data mapping continues to work as expected, and you are able to perform resynchronizations with the CIS database.
3. Create a new CDD data mapping.
4. Copy the data sets in the CIS data mapping and paste them into the CDD data mapping.  
  
The RefNames of the data sets and their data series are appended with \_1.
5. If you deployed the study to the Oracle InForm application in an earlier release, remove the \_1 appended text from the aliases of the data sets and data series in the CDD data mapping.

### Caution:

Do not update the RefNames, or you will not be able to perform a CIS resynch after you deploy again to the Oracle InForm application.

6. Deploy the study to the Oracle InForm application.
7. Set up the new CDD database.

### Note:

After you create a new data mapping for either CDD or CIS, you cannot perform a resynchronization with either the CDD or CIS database. You must create a new database for the new data mapping type.

## Upgrading user-defined functions

If a study contains a user-defined function that performs a task such as reading from or writing to a file, accessing the database or the registry, making web service calls, running an external application, sending an email, or using the event log directly, the assembly for the

user-defined function must be signed with a strong named signature that is valid and trusted in order for the function to work in the Oracle InForm application.

To ensure that the user-defined functions and assemblies in your study projects and library projects are secure, Oracle recommends that you sign user-defined function assemblies using a strong named, valid and trusted signature.

 **Note:**

For Oracle InForm studies hosted by Oracle, all user-defined function assemblies that require signing must be signed by Oracle Services prior to deployment.

In addition, user-defined functions that use the Log4Net application must use the Oracle Central Designer Log4Net wrapper or must be recompiled to use Log4Net version 2.0.8. For more information about the Log4Net wrapper, see the *Rules Reference Guide*.

For more information, see:

- [Identifying user-defined functions and assemblies to update](#)
- [Securing and signing user-defined function assemblies](#)

## Identifying user-defined functions and assemblies to update

To identify study and library projects that contain user-defined functions that need to be recompiled or assemblies that need to be secured and signed, run the `ValidateCustomFunctionAssemblies.exe` file after you upgrade the application server.

 **Note:**

User-defined functions that refer to an unsupported Log4Net version must be recompiled or reconfigured to use the Oracle Central Designer Log4Net wrapper. For more information about the Log4Net wrapper, see the *Rules Reference Guide*.

1. Locate the `ValidateCustomFunctionAssemblies.exe` file in the product ZIP file, in the `InstallSupport` directory.
2. Copy the file and paste it to the `bin` folder in the directory in which you installed the Oracle Central Designer application.
3. In a command prompt window, enter one of the following:
  - To view assemblies that reference the wrong Log4Net version, enter `ValidateCustomFunctionAssemblies L`.
  - To view assemblies with missing, invalid or untrusted signatures, enter `ValidateCustomFunctionAssemblies S`.
  - To view assemblies with invalid references to `ExternalFunctions.dll`, enter `ValidateCustomFunctionAssemblies I`.
  - To view all of the above, enter `ValidateCustomFunctionAssemblies`.

4. When prompted, specify the following:
  - **System username**—system.
  - **System password**—Password that you specified on the Designer System User Password page during the Oracle Central Designer application installation.
  - **Path for the output file, including file name**—Location in which to save the output file that lists the study and library projects with user-defined functions that must be updated. For example, `C:\Output\ValidateAssemblies.txt`.

A list of user-defined functions is generated.

## Securing and signing user-defined function assemblies

To secure and sign assemblies for user-defined functions, create a key pair, extract the public key, and place the key file on the following servers:

- Oracle Central Designer application server. If you are using the Oracle Central Designer application in a web farm environment, place the key on all the application servers in the web farm.
- All Oracle InForm application servers where studies using the assembly will be deployed.

### Note:

For Oracle InForm studies hosted by Oracle, all user-defined function assemblies that require signing must be signed by Oracle Services prior to deployment.

For specific instructions and information about creating and signing an assembly with a strong named signature, see the *Rules Reference Guide* and the documentation for the tool that you use to create the strong name.

## Upgrading custom reports definitions

If you have defined custom reports, you must export the XML report definition file before migrating an upgrade. After the migration, you must re-import the report definitions.

1. In the Oracle Central Designer Administrator application, export the XML report definition file. For more information, see the *Oracle Central Designer Administrator Guide*.
2. Migrate the Oracle Central Designer software.
3. Modify the XML file exported in the first step, replacing any instances of `assembly="PhaseForward.Designer.ServerCore"` with `assembly="Oracle.Designer.ServerCore"`.
4. Re-import the report definitions on each Oracle Central Designer application server:
  - a. Copy the updated custom reports definition file to the following location, overwriting the existing file:

```
<designer_root>\DBSchema\_Last\Datainstaller\DesignerReportsDefinitions.xml
```

In the previous location, `<designer_root>` is the root directory of the Oracle Central Designer installation.

- b. From the `<designer_root>\bin` directory, run the `UpdateReports.bat` file.



The UpdateReports.bat file updates the definitions of the custom reports in the database.

## Installing the application server

1. Export the Oracle Central Designer database user.

### **Caution:**

You must perform this step. If the upgrade is not successful, you might need to restore the database to attempt to install again.

To export a user with the following information:

- **User name**—designer
- **Database**—db1\_dev1

Use the following command:

```
expdp designer/designer@db1_dev1 directory=data_pump_dir  
schemas=DESIGNER dumpfile=file_to_export.dmp
```

### **Note:**

When you execute this command, you are prompted for the user password.

2. Locate the setup.exe program.

The setup.exe program is available the Oracle Software Delivery Cloud (<https://edelivery.oracle.com>).

3. Double-click setup.exe.

The InstallShield Wizard prepares to install the application server.

4. Click **Yes**.

A welcome page appears.

5. Click **Next**.

The Customer Information page appears.

6. Fill in the fields. You should provide the same values that were entered during the initial installation of the application server.

- **User Name**—Your name.
- **Company Name**—The name of your company.
- **Company URL**—A unique identifier for your company data, typically your company URL (for example, <http://www.mycompany.com>).

 **Note:**

You must enter the company URL that you specified during the original Oracle Central Designer installation.

7. Click **Next**.

The Setup Type page appears.

8. Select **Update**.

9. In the **Destination Folder** area, specify the destination location for the installation. By default, the installation wizard installs the software in the `<PROGRAMFILES_DIR>\Oracle\Central Designer\` folder. `<PROGRAMFILES_DIR>` is a system setting that is usually `C:\Program Files (x86)`. If you want to install to another location, click **Browse**, and select the location. You **must** choose the location to which the application server was initially installed.

 **Note:**

The instructions, paths, and Start Menu navigation in this guide assume you are installing to the default location. Oracle strongly recommends that you install the software to the default location.

10. Click **Next**.

The Database Parameters page appears. Because you are upgrading, the Create New Database checkbox is grayed out.

11. Fill in the following fields. You **must** provide the values that you created when you set the Oracle TNS name (typically set when you create the database) and the database user name and password (set when you created the Oracle Central Designer user in the new database).

Field	Database
Database User Name	The user name for the Oracle database user.
Database Password	The password for the Central Designer database user.
Oracle TNS Name	Alias from TNSnames.ora file. This TNS name is used to connect to the Oracle Central Designer database instance.

 **Note:**

The password must not contain any of the following characters: @ & ( ) [ or ].

 **Note:**

Do not use Oracle reserved words for user names or passwords.

**12. Click Next.**

The Oracle Central Designer Job Service page appears.

**13. Enter the TCP/IP port number that the job service will use. The port must be unused. In most cases, you can use the default value.**

 **Note:**

If you are installing the server as part of a web farm, all of the servers can use the same port number, as long as the port is unused.

**14. Optionally, to configure the Oracle Central Designer software to support a web farm, select Make this server part of a web farm. A web farm setup allows you to install the Oracle Central Designer server software on multiple application server computers. The installation is the same for all of the servers, and you must select this option for all servers in the web farm. For more information, see Web farm capabilities.**

After you select the checkbox, the installation checks the database to see if a primary Job Scheduler has been specified. Additional options appear, depending on whether you are installing the first or second (or higher) server.

- If this installation is the first server in the web farm, the primary Job Scheduler has not been set yet. The installation automatically sets the Job Scheduler service on the server computer as the primary Job Scheduler. If you install additional application servers, you can change the primary Job Scheduler during the installations.
- If this installation is the second or higher server in the web farm, the primary Job Scheduler service has already been set, and the name of the computer that runs the primary Job Scheduler appears. To change the primary Job Scheduler, select **Make this server's Job Scheduler the primary**.

**15. Specify a password for the Job Service user.**

 **Note:**

Make sure that the user password meets the requirements listed on the page.

**16. Click Next.**

The Network Parameters page appears.

**17. In the **Web server URL root** field, enter the address of the server on its local network (the server address to which requests will come, for example, *http://ABCServer* or *https://ABCServer*). If you enabled Transport Layer Security (TLS), use *https*. Unless you made changes that would cause the server address to have changed, use the address that you entered for the last installation.**

 **Note:**

When the application server is installed in an environment that includes a hardware networking switch, the URL that you enter for the **Web server URL root** field must match the URL that the networking switch uses to address the application server.

As you enter a value in the Web server URL root field, the Public server URL root field is automatically updated with the same value. If you edit the value in the Public server URL root field, the field is no longer updated automatically when the Web server URL root field is updated.

18. Optionally, you can secure (encrypt and prevent tampering of) communications by using Transport Layer Security (TLS). For more information, see *Securing communication with Transport Layer Security (TLS)*.
19. Optionally, if the application server computer is behind a proxy that rewrites the request URLs, in the **Public server URL root** field, enter the address that the client computer uses to access the application server (the public address of the server computer as seen by the client computer). This address will be added as the address of the server computer during installation of the client applications.

If the value for the **Public server URL root** field does not need to be different from the **Web server URL root** field, make sure that the values in both fields match.

20. Specify the certificate to use to sign web service authorizations:
  - a. Click **Choose Certificate**.  
The Choose Certificate dialog box appears.
  - b. Select a certificate.
  - c. Click **OK**.  
The Issued to, Issuer, Expiration, and Friendly name fields are populated.

 **Note:**

On each Oracle Central Designer application server, an administrator must install the certificate that is used for signing web service authorizations to the LOCAL\_MACHINE\MY store. The Oracle Central Designer installation process grants Full Control to access the certificate private keys to the IIS AppPool\DefaultAppPool user and the NETWORK SERVICE user.

 **Note:**

If a user other than the IIS AppPool\DefaultAppPool user is running the DefaultAppPool application pool, you must grant the user Full Control to access the private keys, or the user is unable to sign using the certificates. For more information, see *Installing certificates for signing web service authorizations and deployment packages*.

21. If the Oracle Central Designer application server is outside the network of the Oracle InForm application server, specify the proxy URL or script used by the Oracle Central

Designer application server to communicate with the Oracle InForm server during automated deployment:

- In the **Proxy URL** field, enter the web address for the proxy server.
- In the **Proxy Script** field, enter the web address for the proxy configuration script.

22. Click **Next**.

The Client Installation Configuration page appears.

23. In the **Environment Name** field, enter the name for your Oracle Central Designer instance.

The environment name appears on the web page to which you navigate to start the Oracle Central Designer application.

24. Click **Next**.

The InForm Deployment page appears.

25. Specify the certificate to use to sign deployment packages and Oracle InForm web service authorizations:

a. Click **Choose Certificate**.

The Choose Certificate dialog box appears.

b. Select a certificate.

c. Click **OK**.

The Issued to, Issuer, Expiration, and Friendly name fields are populated.

 **Note:**

For studies hosted by Oracle, the certificate must be issued by a trusted commercial Certificate Authority.

26. Click **Next**.

The Start Copying Files page appears.

27. Review the installation settings. To change any settings, click **Back**. If you are satisfied with the settings, click **Next**.

The installation begins. The Setup Status page appears, showing the status of the installation. When the installation is complete, the InstallShield Wizard Complete page appears.

28. Click **Finish**.

## Upgrading the client applications

Because the client applications are ClickOnce applications, you do not need to upgrade them. Simply start the applications as you always do. For more information, see:

- Starting the Central Designer client application.
- Starting the Central Designer Administrator client application.

## Updating certificates without reinstalling the Oracle Central Designer software

When the web service authorization and deployment authorization certificates expire, you can install renewed certificates without reinstalling the Oracle Central Designer software. The procedure updates the configuration files of both the web server and the job scheduler with the certificates you select and adds access to the private keys for the certificates to NETWORK SERVICE and DefaultAppPool users.

1. Open a command window.
2. Navigate to the `<Designer Install Dir>\bin` directory.
3. Enter `Oracle.Designer.CertificateManager.exe` and press **Enter**.  
A prompt to select the web services authorization certificate appears.
4. Click **OK**.  
The Certificate Browser appears.
5. Select the web services certificate, and click **OK**.  
A prompt to select the for deployment authorization certificate appears.
6. Click **OK**.  
The Certificate Browser appears.
7. Select the deployment authorization certificate, and click **OK**.  
Messages appear that indicate the progress of the tool.
8. Copy the public key of the deployment authorization certificate to a location from where it can be installed on the Oracle InForm server. For more information, see the *Oracle InForm Installation Guide*.

 **Note:**

If after the new certificate is installed you want to deploy packages that were already deployed using the expired certificate, make sure the public key of the expired certificate is not removed from the Oracle InForm server.

# 7

## Securing communication with Transport Layer Security (TLS)

In this chapter:

- [About communication security](#)

### About communication security

You can secure (encrypt and prevent tampering of) communications by using Transport Layer Security (TLS) and, optionally, by signing authorization information issued by the application server.

With Transport Layer Security, all web traffic between the client applications and the web server is encrypted and tamper resistant. You configure TLS through IIS with an X.509 certificate obtained using your company certificate store or a third party application.

Oracle recommends that you enable TLS. For more information about enabling TLS, refer to the Microsoft documentation about configuring TLS for your operating system.



#### Note:

When you start the client applications, enter the address of the application server, including the correct protocol (either HTTP or HTTPS). If you enable TLS, the address of the application server must begin with HTTPS

# 8

## Getting started

In this chapter:

- [Logging on to the Oracle Central Designer Administrator application](#)
- [Changing your password in the Oracle Central Designer Administrator application](#)
- [Logging on to the Oracle Central Designer application](#)
- [Changing your password in the Oracle Central Designer application](#)
- [Logging off](#)
- [Overview of configuring the Oracle Central Designer software](#)
- [Creating a sample deployment package using the sample study](#)

### Logging on to the Oracle Central Designer Administrator application

An administrator must log on to the Oracle Central Designer Administrator application and create user accounts before other users can log on and use the Oracle Central Designer application.

1. Using Microsoft Edge, navigate to the following address:

`http://<server name>/CentralDesignerInstall`

In the previous address, `<server name>` is the name of the application server computer.

2. Click the **Start Central Designer Administrator** link.

A dialog box appears, indicating that the application is starting. The logon window appears.

3. Enter the following information:

- **User name**—system.
- **Password**—Password you set during the server installation.

4. If the web browser connects to the network through a proxy server that requires authentication, click **Proxy Settings** to enter the user name, the password, and the domain used to authenticate the connection to the proxy server.

5. Click **Log On**.

The application opens.

Oracle recommends:

- Changing the password of the system account after you log on to the Oracle Central Designer Administrator application.  
For more information, see [Changing your password in the Oracle Central Designer Administrator application](#).
- Deactivating or terminating the system user after you create and activate users.



For more information, see the *Oracle Central Designer Administrator Guide*.

## Changing your password in the Oracle Central Designer Administrator application

1. In the Users view, right-click a user name, and do one of the following:
  - Select **Change Password**.
  - Press **Ctrl+P**.A dialog box appears.
2. Enter the new password twice for confirmation, and click **OK**.

## Logging on to the Oracle Central Designer application

You can log on after an administrator creates a user account for you.

1. Using Microsoft Edge, navigate to the following address:  
http://<server name>/CentralDesignerInstall  
In the previous address, <server name> is the name of the application server computer.
2. Click the **Start Central Designer Client** link.  
A dialog box appears, indicating that the application is starting. The logon window appears.
3. Enter your user name and password.
4. If the web browser connects to the network through a proxy server that requires authentication, click **Proxy Settings** to enter the user name, the password, and the domain used to authenticate the connection to the proxy server.
5. Click **Log On**.

### Note:

When a user account is created in the Oracle Central Designer Administrator application, the administrator can require the user to change the password after logging on the first time. You might be prompted to change your password.

## Changing your password in the Oracle Central Designer application

If the administrator who created your user account requires that you change your password, you are prompted when you start the application to change your password. To change your password because it is required:

1. Log on to the Oracle Central Designer application.  
The Change Password dialog box appears.

2. Enter your old and new passwords. You must enter your new password twice.
3. Click **OK**.

To change your password at any time after logging on:

1. Select **File > Change Password**.  
The Change Password dialog box appears.
2. Enter your old and new passwords. You must enter your new password twice for confirmation.
3. Click **OK**.

## Logging off

- Select **File > Exit**

If you have unsaved changes, you are prompted to save them.

## Overview of configuring the Oracle Central Designer software

In the Oracle Central Designer Administrator application, you create and manage administrative components such as users, roles, locales, and security settings.

Some tasks in the Oracle Central Designer application cannot be performed until the administration information is set up correctly in the Oracle Central Designer Administrator application.

Other types of administration, including administering studies and libraries, are performed in the Oracle Central Designer application.

## Creating a sample deployment package using the sample study

The Oracle Central Designer installation package contains a sample study and units file. You can import the files into the Oracle Central Designer application and then deploy the sample study to the Oracle InForm application using a manual deployment. Perform the following steps to create a sample deployment package.

1. Import the DesignerUnit.xml file into the Oracle Central Designer Administrator application. This file updates custom units of measurement.

For more information on exporting and importing a units file, see the *Oracle Central Designer Administrator Guide*.

The DesignerUnit.xml file is located in the Oracle Central Designer installation package in the InstallSupport\Sample Trial folder.

2. Set up locales in the Oracle Central Designer Administrator application, and include the following locales for the sample study.
  - English (United States)
  - Japanese (Japan)
  - Czech (Czech Republic)
  - Spanish (Mexico)

For more information on adding and removing a locale, see the *Oracle Central Designer Administrator Guide*.

3. Import the CSML for the sample study into a new study project.  
For more information, see the *Oracle Central Designer User Guide*.  
The CSML for the sample study is located in the Oracle Central Designer installation package in the `InstallSupport\Sample Trial` folder.
4. Add the locales from step 2 to the study.  
For more information on selecting the supported locales for a study, see the *Oracle Central Designer User Guide*.
5. Select all the dictionary types and all their verbatim types on the Coding tab.  
For more information, see the *Oracle Central Designer User Guide*.
6. Validate the study to create a baseline, and choose to ignore the warnings.  
For more information, see the *Oracle Central Designer User Guide*.
7. Create a deployment package.  
For more information, see the *Oracle Central Designer User Guide*.
8. Save the deployment package to the local computer.  
For more information, see the *Oracle Central Designer User Guide*.
9. Copy the deployment package and the public key to a location that is accessible to the Oracle InForm server.
10. Perform additional steps in the Oracle InForm application to finish setting up the study.  
For more information, see the *Oracle InForm Installation Guide*.

# 9

## Troubleshooting

### **What should I do if an error occurs during the server installation?**

Errors during server installation can be caused by several issues, including issues with the database user name and with the installation of the Oracledatabase software.

To troubleshoot:

- Read the installer.log file. The installer.log file contains information about the installation, including any errors that occurred. The default location of the file on the application server computer is `C:\Program Files (x86)\Oracle Health Sciences\Central Designer`.
- If the application server and database server are on the same computer, you must install the Oracle Server software and Oracle Client software in the same home, or the Oracle Central Designer server installation will not work.