SERENA®

DIMENSIONS® CM 14.2.0.2

Installation Guide for UNIX

Serena Proprietary and Confidential Information

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Welcome to Dimensions CM

Thank you for choosing Serena® Dimensions® CM, a powerful process management and change control system. Dimensions CM helps you organize, manage, and protect your software development projects on every level—from storing and tracking changes to individual files, to managing and monitoring an entire development cycle.

Before you Begin

The Dimensions CM readme contains the following information:

- What's new
- Fixed issues
- Software compatibility requirements
- Installation notes
- Known issues

The readme is available online at:

http://help.serena.com/doc_center/doc_center.html#dcmDoc

Contacting Serena Technical Support

Serena provides technical support for all registered users of this product, including limited installation support for the first 30 days. If you need support after that time, contact Serena Support at the following web site and follow the instructions:

http://www.serena.com/support

Language-specific technical support is available during local business hours. For all other hours, technical support is provided in English.

You can use the Serena Support web page to:

- Report problems and ask questions.
- Obtain up-to-date technical support information, including that shared by our customers via the web, automatic email notification, newsgroups, and regional user groups.
- Access a knowledge base, which contains how-to information and allows you to search on keywords for technical bulletins.
- Download updates and fix releases for your Serena products.

Videos

Videos of Dimensions CM features can be viewed online at:

http://help.serena.com/doc_center/doc_center.html#dcmVid

License and Copyright Information for Third-Party Software

License and copyright information for third-party software included in this release can be found as part of the software download available at:

http://www.serena.com/support

Chapter 1

Installation Overview

Dimensions CM Installation Overview

Dimensions CM UNIX Server Components

The Dimensions CM server components for each supported UNIX platform are located in platform-specific tar files that you can download from Serena Support.

For platforms that support a server, you have the option of installing a server, agent, or client; otherwise, you will only have the option of an agent or client installation.

NOTE The Red Hat or SLES zLinux software is installed using a script. See "Installing and Upgrading a zLinux and Linux Itanium Agent" on page 203 or "Installing and Upgrading a zLinux and Linux Itanium Client" on page 195.

The Dimensions CM UNIX server includes all server, client, and listener components, including:

Web components	Provides Dimensions CM functionality using a browser client. See "Dimensions CM Web Components" on page 15.
Dimensions CM ART	The Dimensions CM archive, retrieval, and transfer (ART) components.
Dimensions CM command-line client	Provides a command-line client interface (`dmcli`) to Dimensions CM. This, together with the Listener, can also be installed as part of an agent installation, see "Dimensions CM Agent Components" on page 16. **NOTE** The Developer Command Line Client (`DM CLIENT`) is not part of a server-only installation as it would normally not be used on a server. It is a client component, so a server plus clients installation is required.
Dimensions CM Listener	Provides library services for the Dimensions CM item libraries and for performing Dimensions CM builds. This, together with the Command-Line Client, can also be installed as part of an agent installation, see "Dimensions CM Agent Components" on page 16.

Dimensions CM Administration Console	Provides a web client to various administrative, networking, and Dimensions Build operations.
Serena Dimensions Replicator	Provides item, baseline, and request replication and management across remote Dimensions CM databases.
Dimensions CM schema	Installs the Dimensions CM schema into an existing RDBMS instance.
Serena License Manager	Supports both concurrent and named user licensing. See the *System Administration Guide*.
Serena Runtime	An optional Serena-supplied runtime RDBMS for Dimensions CM.

See the *System Administration Guide* concerning post-installation tasks.

Dimensions CM Web Components

The Web components enable you to access Dimensions CM features remotely. The components include:

- **Web client server:** Processes tasks you initiate from the web client.
- **Tomcat:** Web application container that enables the web client to run. You can use it standalone or in conjunction with any supported web server.
- **Web server:** Passes information between the web server and the web client via HTTP. The Web server must be running before you can access the web client.
- **Dimensions web client:** Provides access to Dimensions CM features through a browser interface.
- **Single sign-on (SSO) Components**: Security Server Identity Provider (IDP) and SSO Gatekeeper.

IMPORTANT! SSO server plus CAC authorization components are only supported on Linux and Solaris.

Dimensions CM Agent Components

The UNIX agent components comprise:

Command-line client	Provides a command-line client interface, `dmcli`, to Dimensions CM. This, together with the Dimensions CM Listener, can also be installed as part of a server installation, see "Dimensions CM UNIX Server Components" on page 14. **NOTE** The Developer Command Line Client (`DM CLIENT`) is not part of an agent-only installation. It is installed as a client components, so an agent plus clients installation is required for it to be present on an agent.
Dimensions CM Listener	Provides library services for the Dimensions CM item libraries and for performing Dimensions CM builds. This, together with the command-line client, can also be installed as part of a Dimensions CM server installation, see "Dimensions CM UNIX Server Components" on page 14.

Dimensions CM Client Components

The UNIX client components comprise:

Command-line client and process modeling command-line Client	Provides command-line client interfaces to Dimensions CM and to process configuration features. These can be installed as part of a Dimensions CM server installation. See "Dimensions CM UNIX Server Components" on page 14.
Developer Command Line Client	The Developer Command Line Client (`DM CLIENT`) is a simplified interface for developers working with streams.
Eclipse integration	An Eclipse integration that allows both issue and version control management.

System Requirements

For details of client compatibility, supported platforms and databases, and third party integrations go to the following Serena support web page and click **View** to see the complete platform matrix:

http://support.serena.com/roadmap/Product.aspx?sel=PVDIMENSIONS

For details about hardware requirements see the General Scalability and Performance Guidelines in the *Dimensions CM Scaling and Optimization Guide*.

Licensing

Evaluation License

With an evaluation license, you can use the software immediately after installation. At installation choose the **Install a 30 day evaluation license** option. You may enter a license server name or address any time during the evaluation period. For more on evaluation licenses, see the *System Administration Guide*.

NOTE The evaluation license does not support Serena Dimensions Replicator.

Full License

If you install with a full license, the installation enables the Serena License Server for you. Otherwise, you must manually enable the License Server once you install a full license. See the *System Administration Guide*.

To install with a full license:

1 Install Serena License Server. Obtain and install a license (see the System Administration Guide for details).

2 When installing Dimensions, choose the **Specify License Server** option.

3 Enter the host name or IP address of the system running the Serena License Server.

Licensing Prerequisites

To permanently install Dimensions CM, you must:

1 Install the Serena License Manager (SLM).

2 Obtain and install a license key via Serena web fulfillment (see the *System Administration Guide* for details).

To use web fulfillment to generate license keys you must:

- Determine the host ID and physical Ethernet address of the license server. This information is displayed in the Serena License Manager client, but can also be determined beforehand by running either of the following OS commands and noting the physical address of the Ethernet adapter:

AIX	`echo uname -m`
Linux	`/sbin/ifconfig eth0 | grep HWaddr | cut -d " " -f11 | tr -d [:]`
HP-UX	`lanscan`
Solaris	`/usr/bin/hostid`

- Have the product serial numbers ready or your Dimensions CM products.
- Have a Serena Support user login and password. Contact Serena Support to create an account at:

  http://www.serena.com/support/

- Determine whether you will have concurrent licenses or named user licenses.

Launching the Installer

Launching the Installer from a DVD

Mounting a Dimensions Software DVD

If you are installing from a Dimensions Software DVD or copying its contents to a local disk of your choice, you must mount the DVD.

1. Log in to the `root` account.
2. Mount the Dimensions DVD using either a DVD drive located on your system or through NFS.

NOTES

- The Dimensions Software DVDs are in ISO 9660 format (with Rock Ridge information).

IBM AIX

Mount the DVD at the mount point, for example:

```
# mount -rv cdrfs /dev/cd0 /cdrom
```

Hewlett Packard HP-UX

If your system uses the Portable File system (`pfsd(1M)` and `pfs_mountd(1M)` daemons are running), then mount the DVD, for example:

```
# pfs_mount -t iso9660 –x unix /dev/cdrom /cdrom
```

otherwise

```
# mount -r -F cdfs –o cdcase /dev/cdrom /cdrom
```

Red Hat Enterprise Linux and SuSE Linux Enterprise Server

If your system uses `autofs` and `autofs` it is configured to automatically mount your DVD drive, then the DVD will automount.

If your system uses `autofs` but it is not configured, search the `/etc/fstab` file for a line similar to

```
/dev/cdrom /media/cdrom auto ro,noauto,user,exec 0 0
```

then mount the DVD using the following command

```
$ mount /dev/cdrom
```

If your system does not use `autofs`, enter the following command

```
$ mount -t iso9660 /dev/cdrom /media/cdrom
```

Sun Sparc If your system uses Volume Management to automount DVDs (`vold(1M)` daemon are running), then the DVD will automount.

Otherwise mount the DVD at the mount point, for example:

```
# mount -r -F hsfs /dev/sr0 /cdrom
```

Launching the HTML Front End

1. Run `index.html` either on the mounted DVD or in the directory containing the copied contents of the DVD.
2. In the **If you are ready to install** section, click **Click here >>** to access the **Ready to install** page.
3. Copy the appropriate executable path name under **Dimensions for UNIX** (for example, `dimensions_cm/dimensions_AIX64/setupDimensionsAIX64.bin`). In a terminal window, paste the path name to run the executable.

Launching the Installer from a Download

To unpack a downloaded `tar` file run the following command:

```
tar xvf <filename>.tar
```

IMPORTANT! To unpack a Solaris tar file use `gtar`.

If your UNIX system has an X11 windowing environment, the installer installs the JRE and runs in a graphical user interface (GUI) mode. No pre-installed JRE is required.

However, if your UNIX system is a simple "VT100/dumb terminal" system, you can specify a `-console` flag when you initiate the installer so that the launcher runs in character user interface (CUI) mode. This CUI mode is completely analogous to the GUI mode. The standard CUI installer screen navigation key commands are:

- 1 to progress to the next screen.
- 2 to return to the previous screen.
- 3 to cancel a screen.
- 5 to re-display a screen.

NOTE You must specify `-console` in full. Abbreviations are not accepted.

To recap:

- For GUI mode, run:

  ```
  # ./setupDimensions<platform>.bin
  ```

- For CUI mode, run:

  ```
  # ./setupDimensions<platform>.bin -console
  ```

1. Log in as user `root`.
2. Navigate to and run the appropriate extracted downloaded file:

   ```
   # ./setupDimensions<PLATFORM>.bin
   ```

3. As explained earlier, in GUI mode the associated JRE are installed (this will take some time). Once the JRE are installed the installer resumes.

Chapter 2

Preparing Your Database for Dimensions CM

Pre-installation Tasks for Local Serena Runtime

If you are installing the Dimensions CM server on the same node as the Serena Runtime (a "local" installation), then you must ensure that you prepare it as described below.

Once you have completed these tasks proceed to Chapter 5, "Installing Dimensions CM" on page 63.

Pre-Installation Tasks for Serena Runtime

If you are using Dimensions CM with the 11gR2.0.3 version of the Serena runtime you must complete the following tasks before you begin installation:

1. Create a PCMS_SYS Oracle account if it does not already exist. This is the same as for users with their own Oracle Enterprise—please see "Verifying the PCMS_SYS Oracle User" on page 26.

2. Copy the Oracle network configuration files to directory `/etc`.

   If the Oracle configuration files do not already exist in `/etc`, copy the file `$ORACLE_HOME/network/admin/tnsnames.ora` to `/etc`.

   If this file already exists in `/etc`, then merge the contents of `$ORACLE_HOME/network/admin/tnsnames.ora` with `/etc/tnsnames.ora` (see, also, "Editing the tnsnames.ora File" on page 35).

Oracle Instance with Existing Dimensions Schema

If your Serena runtime database already contains an Oracle instance into which a Dimensions CM schema has been installed, then the Dimensions CM server installation will detect and automatically upgrade that schema and install the requisite Oracle tables.

Preparing a Local Oracle Enterprise

If you are installing the Dimensions CM server on the same node as a UNIX Oracle Enterprise of your own (a "local" installation) prepare the installation as described below.

Once you have completed these tasks proceed to Chapter 5, "Installing Dimensions CM" on page 63.

Installing to an Oracle Instance with an Earlier Dimensions Schema

If your Oracle Enterprise database already contains an Oracle instance with an earlier Dimensions CM schema, then the server installer detects and upgrades the schema.

Creating the Dimensions CM Oracle Instance

Before you can install Dimensions CM with your own Oracle Enterprise you must create an Oracle instance for the Dimensions CM schema.

Copying the Database Template File

Copy the database template file from:

`db_preinstall/oracle/unix`

to:

`$ORACLE_HOME/assistants/dbca/templates`

The template files are:

- 11gR2.0.3: `SerenaOracle11g.dbt`
- 12c: `SerenaOracle12c.dbt`

You will also need to create the Oracle user `pcms_sys` in the same way as the 11gR2.0.3 version of the Serena Runtime. The `pcms_sys` user requires:

- A default tablespace of PCMS_DATA.
- A temporary tablespace of PCMS_TEMP.
- connect, resource, and create view privileges.

Logging the Creation of the Oracle Instance

It is good practice to keep a log of the creation of the Oracle instance using the UNIX command `script`, if available. If keeping a log, then remember to exit from the log session after the pre-installation or installation.

Monitoring Progress During Oracle Instance Creation

During the Oracle instance creation the Oracle template file is checked for integrity. This check will take a fairly long time to complete. Fast completion of this check may indicate that instance creation has failed, regardless of any "success" messages you may receive. The checks in "Preparing the UNIX Oracle Environment" on page 27 will fail in such circumstances—you must check the logs that Oracle generates in `$ORACLE_HOME/cfgtoollogs/dbca/<ora_sid>` (especially `<ora_sid>.log`) or seek the help of your DBA.

Once instance creation is complete, stop logging the installation using `script` (if applicable), exit and proceed to the next section.

Verifying the PCMS_SYS Oracle User

For Dimensions CM to successfully install with a UNIX Oracle RDBMS, the Oracle user PCM_SYS must exist.

1 Check if PCMS_SYS exists:

```
$ sqlplus system/<system_passwd>@<dsn>
SQL> select * from all_users where
    username='PCMS_SYS';
```

If user PCMS_SYS exists, you will get output confirming that and the date upon which it was created.

2 If PCMS_SYS *does not* exist, create it as follows:

```
$ sqlplus /nolog
```

```
$ SQL> connect / as sysdba
$ SQL> create user pcms_sys identified by
    <pcms_sys_password> default tablespace PCMS_DATA
    temporary tablespace PCMS_TEMP;
$ SQL> grant connect, resource, create view to
    pcms_sys;
$ SQL> commit;
$ SQL> exit;
```

For example:

```
$ sqlplus /nolog
$ SQL> connect / as sysdba
$ SQL> create user pcms_sys identified by pcms_sys
    default tablespace PCMS_DATA temporary tablespace
    PCMS_TEMP;
$ SQL> grant connect, resource, create view to
    pcms_sys;
$ SQL> commit;
$ SQL> exit;
```

NOTE The *pcms_sys* user needs additional access rights for Oracle12c. Use the following `sqlplus` command to create the user:

```
create user pcms_sys identified by pcms_sys default tablespace PCMS_DATA
temporary tablespace PCMS_TEMP QUOTA UNLIMITED ON PCMS_DATA QUOTA UNLIMITED
ON PCMS_IDX;
```

Preparing the UNIX Oracle Environment

Once you have created an Oracle instance for the Dimensions CM schema installation, you need to ensure that your Oracle environment is ready for the Dimensions CM installation.

Checking that the Oracle Services Have Started

A number of services as well as the Oracle listener should display. The services appear as follows:

```
ora_ckpt_<orasid>
ora_dbw0_<orasid>
ora_lgwr_<orasid>
ora_pmon_<orasid>
ora_psp0_<orasid>
ora_mman_<orasid>
```

```
ora_mmnl_<orasid>
ora_mmon_<orasid>
ora_q000_<orasid>
ora_q001_<orasid>
ora_qmnc_<orasid>
ora_reco_<orasid>
ora_smon_<orasid>
```

where <orasid> is the Oracle SID (System Identifier) supplied by the installer.

The Oracle listener appears as follows:

```
tnslsnr LISTENER
```

If the services and the listener do not appear, you must manually start them.

Manually Starting Oracle Services

Once you have installed a Dimensions CM server, you can run the following to start the Oracle services for the Serena runtime:

```
dm_control rdbms_start
```

If you have rebooted your system prior to performing a Dimensions CM installation you must manually restart the Oracle services as detailed below. In this example Oracle Enterprise version 12c is installed in /opt/oracle/12.0, and the Oracle SID is dim14:

1. Log in as the Oracle owner (by default UNIX user-id oracle). *This is essential, do not try and start the Oracle services as UNIX user* root.
2. Set up the Oracle environment as follows (on AIX <libvar> is LIBPATH; on HP-UX it is SHLIB_PATH; and on Solaris and Linux it is LD_LIBRARY_PATH) .You will also need to specify the ORACLE_HOME specific to your installation:
   - Bourne Shell

     ```
     $ ORACLE_HOME=/opt/oracle/12.0
     $ export ORACLE_HOME
     $ <lib_var>=/opt/oracle/12.0/lib:/usr/lib:/lib
     $ export <lib_var>
     $ PATH=/opt/oracle/12.0/bin:$PATH
     $ export PATH
     ```

```
$ ORACLE_SID=dim14
$ export ORACLE_SID
```

- C Shell

```
$ setenv ORACLE_HOME /opt/oracle/12.0
$ setenv <lib_var> /opt/oracle/12.0/lib:/usr/lib:/lib
$ set path = (/opt/oracle/12.0/bin $path)
$ rehash
$ setenv ORACLE_SID dim14
```

3 Start the Oracle services as follows:

```
$ sqlplus /nolog
SQL> connect / as sysdba
SQL> shutdown
SQL> startup
SQL> exit
```

4 Confirm that the Oracle services have started as follows:

```
ps -eaf | grep ora
```

Starting the Oracle Listener on Your Own Oracle Enterprise

1 Log in as the Oracle owner (by default UNIX user-id `oracle`)—*this is essential, do not try and start the Oracle services as UNIX user* `root`—and set up your Oracle environment as described above.

2 Check that the file `/etc/tnsnames.ora` (or, on Solaris, `/var/opt/oracle/tnsnames.ora`) has been updated with the new Oracle service name (DIM14 by default). If not, manually edit it using the following file as a template:
`$ORACLE_HOME/network/admin/tnsnames.ora`

3 Start the Oracle listener with the following command:
`$ lsnrctl`

4 Check for the existence of any listener services with the following command:
`LSNRCTL > services`

The services summary displays information for the new instance.

5 If the listener is not running *or has not been updated with the new Oracle Service name*, then run the commands below.

NOTE If you are running multiple Oracle instances on the database server, you must manually update the file `/etc/listener.ora` or `/var/opt/oracle/listener.ora` (Solaris) with the new service name before restarting the listener.

```
LSNRCTL > stop
LSNRCTL > start
LSNRCTL > services
LSNRCTL > exit
```

6 To check that the listener has started, type:
`ps -eaf | grep tnslsnr`

7 To check that you are ready to install Dimensions CM, enter the following commands (it is assumed here that you will install Dimensions CM as Oracle user `SYSTEM`, if this is not the case you must change the command appropriately):
`$ sqlplus system/<system_password>@<dsn_name>`

for example
`$ sqlplus system/manager@dim14`

This connects you to the instance that are used by Dimensions and results in a `SQL>` prompt.

8 Exit `sqlplus` with the following command:
`SQL> exit`

Using an Existing Oracle Instance for the Schema

To use an existing instance for the Dimensions CM schema, you must manually install the following Oracle tablespaces:

```
PCMS_DATA
PCMS_IDX
PCMS_TEMP
PCMS_RBS
```

```
USERS
```

NOTE The Oracle database also requires the creation of either an UNDO tablespace or a table space dedicated to rollback segments (for example, PCMS_RBS).

1. Connect to the Oracle instance into which you are installing the Dimensions CM schema by entering the following command (it is assumed here that you will install Dimensions CM as Oracle user SYSTEM, if this is not the case you must change the command appropriately):

   ```
   $ sqlplus system/<system_password>@<dsn_name>
   ```

   This connects you to the instance that are used by Dimensions CM and results in the SQL> prompt.

2. Create the Oracle tables with the minimum sizes indicated below using the following sqlplus commands (substituting the directory pathnames appropriate to your system and sizes appropriate to PCMS_TEMP on your system):

   ```
   SQL> CREATE TABLESPACE "PCMS_DATA" DATAFILE
        '/opt/Oracle/Database/PCMS_DATA.DBF' SIZE 1000M
        REUSE;
   SQL> CREATE TABLESPACE "PCMS_IDX" DATAFILE
        '/opt/Oracle/Database/PCMS_IDX.DBF' SIZE 1000M
        REUSE;
   SQL> CREATE TABLESPACE "USERS" DATAFILE
        '/opt/Oracle/Database/USERS.DBF' SIZE 100M REUSE;

   SQL> CREATE TEMPORARY TABLESPACE "PCMS_TEMP" TEMPFILE
        '/opt/Oracle/Database/PCMS_TEMP.DBF' SIZE 200M
        AUTOEXTEND ON NEXT 160M MAXSIZE 2048M EXTENT
        MANAGEMENT LOCAL;
   ```

IMPORTANT! The command below and those in the following step are only applicable if you are using rollback segments rather than automatically managed UNDO tablespaces.

```
SQL> CREATE TABLESPACE "PCMS_RBS" DATAFILE
     '/opt/Oracle/Database/PCMS_RBS.DBF' SIZE 160M
     REUSE;
```

3 Create the following rollback segments:

```
SQL >CREATE ROLLBACK SEGMENT "R0" TABLESPACE "SYSTEM"
    STORAGE ( INITIAL 20K NEXT 20K OPTIMAL NULL
    MINEXTENTS 2 MAXEXTENTS 20);
SQL> ALTER ROLLBACK SEGMENT "R0" ONLINE;

SQL> CREATE ROLLBACK SEGMENT "R01" TABLESPACE
    "PCMS_RBS" STORAGE ( INITIAL 1024K NEXT 1024K
    OPTIMAL 2048K MINEXTENTS 2 MAXEXTENTS 121);
SQL> ALTER ROLLBACK SEGMENT "R01" ONLINE;

SQL> CREATE ROLLBACK SEGMENT "R02" TABLESPACE
    "PCMS_RBS" STORAGE ( INITIAL 1024K NEXT 1024K
    OPTIMAL 2048K MINEXTENTS 2 MAXEXTENTS 121);
SQL> ALTER ROLLBACK SEGMENT "R02" ONLINE;

SQL> CREATE ROLLBACK SEGMENT "R03" TABLESPACE
    "PCMS_RBS" STORAGE ( INITIAL 1024K NEXT 1024K
    OPTIMAL 2048K MINEXTENTS 2 MAXEXTENTS 121);
SQL> ALTER ROLLBACK SEGMENT "R03" ONLINE;

SQL> CREATE ROLLBACK SEGMENT "R04" TABLESPACE
    "PCMS_RBS" STORAGE ( INITIAL 1024K NEXT 1024K
    OPTIMAL 2048K MINEXTENTS 2 MAXEXTENTS 121);
SQL> ALTER ROLLBACK SEGMENT "R04" ONLINE;
```

4 Exit `sqlplus` with the following command:

```
SQL> exit
```

Preparing a Remote Serena Runtime

NOTES Note the following If you plan to use separate instances in the same remote Serena Runtime for Dimensions CM and Dimensions RM:

- Minimum supported versions of Oracle for Dimensions CM and RM may differ.
- Although Dimensions RM also supports the Oracle AL32UTF8 character set, all data entered in such a database must be ASCII characters for Dimensions RM to display it correctly. Therefore, if you also intend to use Dimensions RM to access data entered in a Dimensions CM AL32UTF8 database, that Dimensions CM data must also be entered as ASCII. This is particularly important for Dimensions CM project/stream and product names.

You can install the Dimensions CM server on the local node while installing the schema on a remote Serena Runtime. This allows Dimensions CM users on a local node to use a remote Serena Runtime on Windows or UNIX.

To use a remote Serena Runtime, you must set up an Oracle client on the local node that will perform database service operations. The client can be an installation of the UNIX Serena Runtime without database instance creation.

Oracle runtime instances are installed and configured differently on a Windows Serena Runtime than on a UNIX Serena Runtime. If you will install Dimensions CM on Windows with Oracle on a remote UNIX Serena Runtime, you must make sure that a `pcms_sys` Oracle user *does not* exist on the Windows client Oracle RDBMS. The client must not be an Oracle RD DBMS to which Dimensions CM has been installed in the past.

Once you have set up your client Serena Runtime installation you must set up a local Oracle Net Service Name for the remote Serena- Runtime. See "Setting Up a Local Oracle Net Service Name" on page 34.

Preparing a Remote Oracle Enterprise

NOTES Consider the following if you plan to use separate instances in the same remote Oracle Enterprise RDBMS for the Dimensions CM / Dimensions RM integration:

- Minimum supported versions of Oracle for Dimensions CM and RM may differ.
- Although Dimensions RM also supports the Oracle AL32UTF8 character set, all data entered in such a database must be ASCII characters for Dimensions RM to display it correctly. Therefore, if you also intend to use Dimensions RM to access data entered in a Dimensions CM AL32UTF8 database, that Dimensions CM data must also be entered as ASCII. This is particularly important for Dimensions CM project/stream and product names.

You can install Dimensions CM on a local node while installing the schema on a remote Oracle Enterprise. This allows Dimensions CM users on a local node to use a remote Oracle Enterprise RDBMS on Windows or UNIX. To use a remote Oracle, you must first set up an Oracle client on the local node. The Oracle client can be:

- An Oracle-supplied UNIX client installation.
- An Oracle-supplied UNIX instant client installation.
- A full Oracle-supplied UNIX installation. This is more than is required to set up this scenario.

Once you have set up your client Oracle installation you need to set up a local Oracle Net Service Name of the remote Oracle database that you want Dimensions CM to communicate with. See "Setting Up a Local Oracle Net Service Name" on page 34.

Setting Up a Local Oracle Net Service Name

In a Dimensions CM for UNIX server installation with a remote Serena Runtime or Oracle Enterprise database, you are prompted for the Oracle Net Service Name. This is the name that the local Oracle client uses to identify particular Oracle databases on the network. On your local UNIX node you must define the Net Service Name of the remote Oracle

database. To do this, edit the tnsnames.ora file or use the Oracle Net Configuration Assistant as explained below.

Editing the tnsnames.ora File

To edit the tnsnames.ora file to add a Net Service Name:

1. Log in as the owner of the Oracle installation (usually `oracle`).
2. Navigate to `$ORACLE_HOME/network/admin`
3. Open the file `tnsnames.ora` in text editor; for example, `vi`.
4. Using existing entries as a guide, add a Net Service Name like in the following example:

```
DIM14R =
 (DESCRIPTION =
  (ADDRESS_LIST =
   (ADDRESS = (PROTOCOL = TCP)(HOST=iddvm)(PORT = 1521))
  )
CONNECT_DATA = (SERVICE_NAME = DIM14)
```

   In the above example, a Net Service Name of `DIM14R` has been given to the Oracle located on the remote node `iddvm` that has an Oracle SID of `DIM14`.

X11: Running the Oracle Net Configuration Assistant Tool

To run the graphical Oracle Net Configuration Assistant Tool:

1. Log in as the owner of the Oracle installation (usually `oracle`).
2. Navigate to `$ORACLE_HOME/bin`
3. Execute the file `netca`.
4. Select **Local Net Service Name configuration** and click **Next**.
5. Select **Add** and click **Next**.
6. Each database or service has a service name. Normally this is its SID. Enter the SID of the *remote* database you want the *local* Oracle client to communicate with. Click **Next**.
7. Select **TCP** and click **Next**.

8 To communicate with the remote database, the local database must know the remote database's hostname. Enter the remote database's hostname. In most cases you can also accept the standard port number of 1521. Click **Next**.

9 Select **Yes, perform a test** to verify that the remote database can be reached. Click **Next**.

10 If the test is successful, the following message appears:

```
Connecting... Test successful.
```

If the test fails, you must click **Back** and check that the information you provided is correct it and update until this test is successful.

Click **Next**.

11 Assign an Oracle Net Service Name. This is the name that your *local* database uses to identify the *remote* database. The **Net Service Name** field is pre-populated with the service name you provided. If that name is not unique—if, for example, both the local and remote databases have an Oracle SID of `DIM14`—enter a unique net service name (for example, `DIM14R`). Click **Next**.

12 Unless you want to configure another net service name, accept the default **No** and click **Next**.

13 Click **Next**.

14 Click **Finish**.

Oracle System Global Area Memory Allocation

Allocate at least 1GB of memory as the Oracle System Global Area (SGA) target size. Oracle recommends allocating 40-50% of available memory for the SGA.

Chapter 3

New Installation Roadmap

Determining Which Components to Install

NOTE If you are upgrading see Chapter 8, "Preparing to Upgrade" on page 113.

Choosing Server, Agent, or Client Components

- Determine whether you need to install server components. Refer to"Dimensions CM UNIX Server Components" on page 68".
- Determine whether you need to install agent components. Refer to "Dimensions CM Agent Components" on page 70".
- Determine whether you need to install Windows client and agent components. Refer to the *Installation Guide for Windows.*
- Determine whether you need to install UNIX client components. Refer to "Dimensions CM Client Components" on page 70".

Choosing Server Sub-Components:

If you are installing server components, decide which of the sub-components you will install.

- A default installation, which has the following installer options pre-selected:
  - *Schema Installation Options*:
    - **Install All Dimensions Server Components**.
  - Product Setup:
    - **Dimensions CM Server core files**.
    - **Dimensions CM Schema**.
    - **Common Tools**.
- A custom setup installation with various options selected or deselected.
  - Install All Dimensions Server Components

- Install Dimensions Database Schema Only
- Install Serena SSO Server or Configure to use an Existing one Only
- Dimensions CM Server Core Files
- Dimensions CM Schema
- Dimensions Single Sign-on with or without Common Access Card (CAC)
- Common Tools

Serena Runtime Installation

For a Dimensions CM server plus schema installation, if you do not have a supported RDBMS of your own, you can install the Serena runtime.

11gR2.0.3

Record the parameters you specify during installation. Use the default values if possible. The values you specify are required during installation of the Dimensions CM server plus schema.

- Installation directory for the Oracle inventory files.
- Oracle Home destination root-directory for the Serena Runtime software and configuration files.
- **Oracle Owner**, **OSDBA Group**, and **OSOPER Group.**
- Record your entries for **Oracle Server Hostname**, **Oracle SID**, and **Database Character Set.** You are advised to use the default Unicode UTF-8 **AL32UTF8** character set. If you plan to use another character set, consult Serena Support before proceeding.
- Common password for the `SYSTEM`, `SYS`, `SYSMAN`, and `DBSNMP` Oracle accounts.
- **Listener Name** and **TCP/IP Port Number**.

RDBMS Preparation

For a Dimensions CM server plus schema installation, you must prepare your RDBMS for installing the Dimensions CM schema.

Local UNIX Serena Runtime

See "Pre-installation Tasks for Local Serena Runtime" on page 24.

- Accept the default **Create Oracle Instance** option.
- Record the Oracle SID for the new instance.

Local UNIX Oracle Enterprise

See "Preparing a Local Oracle Enterprise" on page 25. Implement one of the following:

- If you are creating a new Oracle instance for Dimensions CM, see "Creating the Dimensions CM Oracle Instance" on page 25. Record the following:
  - Global Database Name for the new instance.
  - Oracle SID for the new instance.
- If you are using an existing Oracle instance for Dimensions CM, see "Using an Existing Oracle Instance for the Schema" on page 30. Record the following:
  - Global Database Name for the new instance.
  - Oracle SID for the new instance.

Remote Serena Runtime

See "Preparing a Remote Serena Runtime" on page 33 and "Setting Up a Local Oracle Net Service Name" on page 34. Record the following:

- Oracle Net Service Name for the Remote Database

Remote UNIX Oracle Enterprise RDBMS

See "Preparing a Remote Oracle Enterprise" on page 34 and "Setting Up a Local Oracle Net Service Name" on page 34. Record the following:

- Oracle Net Service Name for the Remote Database

Verifying Server Pre-installation Information

UNIX Server Components

See Chapter 4, "Pre-installation Tasks for a New Installation" on page 45. See "Networking Considerations" on page 53 for recommendations on increasing performance with separate disks for various components.

Record the following:

- Database password that is assigned to SYSTEM (**Serena Runtime or Oracle Enterprise**):
- Database password that is assigned to PCMS_SYS (**Serena Runtime or Oracle Enterprise**):
- OS username that you will create to be used for the Dimensions System Administrator (by convention `dmsys`):
- Name of the process model that you will install (server plus schema installations only):

Single Sign-on Server with or without CAC

If you are installing the Dimensions CM for UNIX Single Sign-on (SSO) server components with or without Common Access Card (CAC), review "Prerequisites for Single Sign-On" on page 51 and "Prerequisites for SSO Authentication" on page 51.

For an existing SSO server record the following:

- Hostname
- SSO port
- Whether secure (https) connection are required

For a new SSO server record the following:

- Hostname
- SSO port
- Bind user DN
- LDAP password for the bind user DN
- LDAP parameters to be used:
  - Hostname (by default same as for CAC reader)
  - Port (by default same as for CAC reader)
  - Base DN
  - Search filter
  - Bind user DN (by default same as for CAC reader)
  - LDAP password for the bind user DN (by default same as for CAC reader)

Licensing Prerequisites

For a Dimensions CM server or server plus schema installation consider the following licensing prerequisites:

- If you are installing Dimensions CM for just the 30-day evaluation period, no licensing prerequisites must be met.
- If you are permanently installing Dimensions CM (or converting an evaluation installation), see "Licensing Prerequisites" on page 18 and proceed:
  - Install Serena License Manager (SLM).
  - Note the host-id and Ethernet address of your system.
  - Have a Serena Support account.
  - Obtain a license from Serena Support.

Installation Roadmap

Server Components Installation Roadmap

Server and schema

- Run the installer. See "Installing the Dimensions CM Server" on page 64.
- Provide the `SYSTEM` and `PCMS_SYS` schema passwords.
- Record the port number for the common Tomcat server. This is 8080 by default.
- Verify installation. See "Verifying Dimensions CM Installation" on page 77.

Server Without Schema

- See "Installing a Server without an Oracle Dimensions Schema" on page 86.
- Run the installer.
- Record the port number for the common Tomcat server. This is 8080 by default.
- Verify installation. See "Verifying Dimensions CM Installation" on page 77.

Dimensions Server with SSO

- See "Installing the Dimensions CM Server" on page 64.
- Run the installer.
- Configure SSO. See "Setting Up SSO/CAC" on page 85 and "Setting Up SSO (Server Only)" on page 99.

Installing Agent Components

If you are installing agent components, see "Installing a Dimensions CM for UNIX Agent" on page 169.

Installing Dimensions CM for Windows Agent Components

If you are remotely installing the Dimensions CM for Windows agent components, see the *Installation Guide for Windows*.

Installing Client Components

If you are installing client components, see either "Installing a Dimensions CM for UNIX Client" on page 175.

Preparing to Install Additional Components

If you are installing Dimensions CM Make for UNIX, see "Installing Dimensions Make" on page 83.

If you are installing Dimensions CM for Eclipse, see "Installing Dimensions CM for Eclipse" on page 80.

If you are installing Dimension CM for zLinux Client or Agent, see "Starting Agent Services" on page 74.

Uninstalling Dimensions CM Components

See "Uninstalling Dimensions CM UNIX Components" on page 105.

Chapter 4

Pre-installation Tasks for a New Installation

AIX Oracle admin Directory Permissions

If you use the AIX version of the Serena runtime as a local RDBMS, you must set the permissions on the Oracle admin directory to "world readable."

AIX Memory Limit

To avoid hitting a memory limit when installing on AIX, run this command to increase the limit:

```
export LDR_CNTRL=MAXDATA=0XB0000000@DSA
```

Setting Oracle Character Set

Serena recommends that you choose the AL32UTF8 multi-byte character set (MBCS) for Oracle. Dimensions CM is designed to work with this character set. Dimensions CM can also work with Oracle databases from earlier versions of Dimensions that used MBCS/ASCII character sets. Dimensions CM detects the character set upon connecting to the database and processes the data appropriately. If you plan to use a character set other than AL32UTF8, Serena strongly advises you to consult Serena Support before proceeding.

Homogeneous Server-Client Environment

Consider the following if you use an Oracle database with an US7ASCII character set:

- A homogeneous environment is required for MBCS use. This means that if the desktop client and either the web client or Administration Console are to be used, then the Web tools server (Tomcat) must run on Windows with the same locale as all of the client systems.
- All systems that access this database (using any client) must use the same locale. If not, data that is entered on one system is read from a system with a different locale, the data will appear corrupt.

Pre-installation Considerations for a Dimensions CM Server

Active Database

Before running a new installation, ensure that the database is accessible by verifying that you can connect to it using standard database utilities. Also using standard database utilities, confirm that you know the correct database passwords for `SYSTEM` or `PCMS_SYS` (Serena runtime or Oracle Enterprise). You are prompted for this during installation.

Creating OS User Accounts

Before you install Dimensions CM, you must create an OS user account and associated group for the Dimensions System Administrator (the person responsible for all Dimensions CM database and maintenance operations). Normally this is `dmsys`, however, an alternative user account can be assigned. During installation, you are prompted for this account and its password.

NOTES

- The Dimensions System Administrator is the UNIX user (`dmsys` by default) who owns the Dimensions CM files and starts the appserver and libservever processes. It can be any user without administration privileges. By default, Dimensions CM works with a `dmsys` user without administration privileges. However, `dmsys` can also be a member of the admin group. This may be necessary in certain logging scenarios—for example, to obtain command audit logging that has been set in the `dm.cfg` file.
- For the Serena runtime or Oracle Enterprise, the primary group-id for `dmsys` must be the same group-id as the Oracle instance owner's group-id (for example, `dba`). The user `dmsys` must also be a secondary group member of the group `dmtool`.
- Please see the *System Administration Guide* for a discussion of the duties and privileges of the Dimensions System Administrator.

Depending on which process model install, you may set up additional OS user account names for the process model. If the "Typical, Stream

Development" or "Typical, Non-Stream Development" process model is chosen, the full list of user account names is:

bobby	dawn
dinesh	dmsys
gill	rita
tao	ted
tim	tony
wendy	

Choosing a Process Model

During installation you must choose one of these process models:

- Typical, Stream Development

  Demonstrates stream development features. This is the default. This model follows a "copy, modify, merge" methodology for managing modern, parallel development projects.

- Typical, Non-Stream Development

  Demonstrates non-stream development features. This model follows a "lock, modify, unlock" methodology for managing more traditional development projects.

- Custom

  This process model has no pre-defined roles and no associated sample product. It is intended for use by:

  - Experienced users to facilitate definition of a new model, without having to delete definitions from a pre-loaded process models.
  - Existing users who have created a own process model export file to import when creating the base database. This model is also available by choosing the import option from the `dmdba crdb` function. See the *System Administration Guide* for details.

If you are upgrading, the upgrade installer upgrades your process model.

IMPORTANT! Serena strongly advises checking with Serena Support regarding the validity of the process model before attempting to import it.

TCP/IP Port Usage

Web Tools Port

During Dimensions CM Server installation, the installer assigns TCP/IP port 8080 to the various Dimensions CM Web Tools. Verify that this port is not already being used by other software. Some software is hard coded to port 8080 and cannot be reassigned. If port 8080 is not available, you can specify an alternative port during installation.

IMPORTANT! If a server is behind a firewall the port must allow traffic in both directions.

Dimensions CM Listener Port

By default, the Dimensions CM listener port is set to 671. This must be set up in the `/etc/services` file as described in "Security Requirements on Red Hat Enterprise Linux" on page 50.

Secure Sockets Layer Ports

The Dimensions CM Web Tools also configures two Secure Sockets Layer (SSL) ports:

- 8443: a general port for HTTPS/SSL connections and the sample Dimensions CM SSL certificate.
- 8543: a port for HTTPS/SSL connections that are used to perform Common Access Card (CAC)/"Smart Card" authentication.

Open Motif Package on Linux

On Redhat Linux, SuSE Linux, and SuSE zLinux the following functionality is dependent on the Open Motif package (for example, `openmotif-devel-XXX.rpm`) having been installed as a prerequisite:

- dmcli GUI login
- dmcli console mode
- ADP triggers

This can normally be achieved by using the `Yast2` utility or an equivalent Linux tool.

Security Requirements on Red Hat Enterprise Linux

For Dimensions CM servers, clients, and agents on Red Hat Enterprise Linux, you must disable the Firewall and SE Linux settings. To do this:

As user `root` run the Red Hat System Level Configuration Tool:

```
# system-config-securitylevel
```

and check the status of following settings:

- Disable Firewall
- SE Linux

If these settings are not currently disabled, disable them. Otherwise, the following error message appears when you try to run dmcli:

```
$ dmcli
  License Server: createJob failed: -2
  License Server: createJob failed: -2
  ACL4500017E Error: Cannot open

The licence server is running.
```

Prerequisites for Single Sign-On

IMPORTANT! SSO server and SSO server plus CAC authorization components are only supported on Linux and Solaris.

For platforms that support SSO, the installer offers you the choice of:

- Installing an SSO server along with the Dimensions CM server.
- Using an existing SSO server—for example, an SSO-enabled SBM server installation.
- Smart card reader authentication software for use with remote Windows smart card client software and hardware.

After installation, you must manually configure trusted certificate authorities. See "Configuring Trusted Certificate Authorities for SSO and CAC" on page 99.

For a discussion of the Dimensions CM SSO and SSO plus CAC architecture, see *Appendix A: Configuring Centralized Network Authentication* in the *System Administration Guide*.

Prerequisites for SSO Authentication

Remote Windows Client with CAC Reader

The following client side prerequisites are required for a remote windows client with CAC reader:

- Common Access Card (CAC) ActivClient 6.1 or later software. All configuration of the ActivClient client, if necessary, should be performed as described in the vendor documentation.
- Each has a personal CAC.
- A CAC Reader is attached to the client system.

UNIX Server Prerequisites For an Existing SSO Server

The following information is requested by the Dimensions CM installer if you choose to use an existing UNIX SSO server, with or without a CAC reader:

Existing SSO Parameter	Description
Hostname	Hostname of the existing SSO Server.
SSO Port	HTTP or HTTPS TCP port used by the existing SSO server. If the port is not HTTPS, then the **Secure (https) Connection** checkbox (see below) *must* remain in its default unchecked state.
Secure (https) Connection	Informs the installer that Secure Socket Layer (SSL) communication is required.

UNIX Server Prerequisites For a New SSO Server

The following information is requested by the Dimensions CM installer if you choose to create a new UNIX SSO server. If you are installing for use with a remote CAC reader, you are first prompted for the following:

CAC Parameter Required	Description
Hostname	Either the hostname of the Domain Controller (Active Directory) or the system that serves LDAP requests.
Port	TCP port (by default 389) for the new SSO server.
Bind User DN	The LDAP bind user DN (distinguished name) for the new SSO server. This is the user on the external LDAP server permitted to search the LDAP directory within the defined search base. Most of the time, the bind DN are permitted to search the entire directory. The role of the bind DN is to query the directory using the LDAP query filter and search base for the DN for authenticating users. When the DN is returned, the DN and password are used for authentication.
Password	The LDAP password to be used to be used in conjunction with the bind user DN by the new CAC setup software.

Whether or not you are installing SSO support with a CAC reader, you must provide the following information on the SSO server:

SSO Parameter Required	Description
Hostname	Either the hostname of the Domain Controller (Active Directory) or the system that serves LDAP requests. If you are installing SSO with CAC reader support, this defaults to the same value you provided when setting up CAC support.
Port	TCP port (by default 389) for the new SSO server. If you are installing SSO with CAC reader support, this defaults to the same value you provided when setting up CAC support.
Base DN	The LDAP base DN for the new SSO server. The base DN is the top level within the LDAP directory tree below which the search for the user should be performed—it should look like: `CN=Users,DC=your,DC=domain,DC=com`
Search Filter	The LDAP search filter for the new SSO server.
Bind User DN	The LDAP bind user DN (distinguished name) for the new SSO server. If you are installing SSO with CAC reader support, this defaults to the same value you provided when setting up CAC support.
Password	The LDAP password to be used to be used in conjunction with the bind user DN by the new SSO server. If you are installing SSO with CAC reader support, this defaults to the same value you provided when setting up CAC support.

Networking Considerations

See the *Dimensions CM Scaling and Optimization Guide* for details on network configuration.

Types of Dimensions CM Network Nodes

There are three types of Dimensions CM network node:

1 **Server node**: Hosts the Dimensions CM database, has access to all Dimensions CM functionality, and can host item libraries.

2 **Listener node**: Has access to all Dimensions CM functionality, and can host item libraries. Listener nodes also support library cache areas, which improve file *get* performance. See the *Command-Line Reference* and *System Administration Guide* for details.

3 **Client node**: Has the same functionality as listener nodes but cannot host item libraries.

Optimizing Network Performance

Database processes should run on the fastest node in the network and, if possible, the node should have no Dimensions CM logins on it. Also, the OS parameters should be optimized with as much RAM as possible for each Dimensions CM network node in the network. If a single user workstation is used on the network, appropriate resources may need to be significantly increased to reduce paging/swapping.

Network Disk Distribution

Disk access speed can significantly affect Dimensions CM performance. Serena recommends splitting Dimensions CM server configuration across multiple disks to improve performance.

Summary Recommendation for Multi-Disk Configuration

To provide the best disk performance, Serena recommends the following.

- Windows Microsoft SQL Server, four disks

Disk1	Windows System disk
Disk2	Page and swap file
Disk3	User files
Disk4	Database files only (RDBMS)

- With Serena Runtime or Oracle Enterprise on Windows or UNIX, five disks:

Disk1	UNIX or Windows System disk
Disk2	Page and swap file
Disk3	User files

Disk4	Database files only (RDBMS)
Disk5	Redo log files (RDBMS), if applicable

Detailed Recommendation for Multi-Disk Configurations

The tables below recommend disk usage in a number of configurations. The goal is to balance the load across all available disks.

- Windows Microsoft SQL Server RDBMS.

	One Disk	Two Disks	Three Disks	Four Disks
System Disk	D1	D1	D1	D1
Page and Swap files	D1	D1	D3	D3
User files	D1	D2	D2	D2
Database files	D1	D2	D3	D2
Dimensions CM Programs	D1	D1	Any	Anywhere but the System Disk
Item Libraries	D1	D2	Not D1	
Database programs	D1	D1	Any	

- UNIX or Windows Serena-Supplied Runtime RDBMS or Oracle Enterprise RDBMS

	One Disk	Two Disks	Three Disks	Four Disks	Five Disks
System Disk	D1	D1	D1	D1	D1
Page and Swap files	D1	D1	D3	D3	D3
User files	D1	D2	D2	D2	D2
Database files	D1	D2	D2	D2	D5
Redo log files	D1	D1	D3	D4	D4
Dimensions CM Programs	D1	D1	Any	Anywhere but the System Disk	
Item Libraries	D1	D2	Not D1		
Database programs	D1	D1	Any		

The database files are associated with separate tablespaces PCMS_TEMP, PCMS_RBS, PCMS_DATA, and PCMS_IDX.

Item Library Host Performance

Item libraries should be hosted on nodes that can handle the load and that are local to the users that most often require access to them.

Working With NFS Networked Disks

IMPORTANT! If the Dimensions CM installation will be on a UNIX NFS network and it is *not* intended to use a Dimensions CM network, the NFS disks must be UNIX mounted with `root setuid` access permitted.

Granting Root Access to the NFS

A UNIX NFS (Network File System) does not allow `root` access from any other system unless it is specifically enabled; however, enabling `root` access for NFS client systems may be an unacceptable security risk on some servers. If the Dimensions CM listener nodes hosting the item libraries will be granted `root` access to the NFS, this access must be enabled on the Dimensions CM server's disk as the client systems are running 'setuid to root'. The NFS server disk must be mounted with the 'suid' option set or the 'nosuid' option not set (for example, in `/etc/vfstab` for SUN or `/etc/checklist` for HP).

Assigning Socket Numbers

You must assign numbers to the Oracle `listener` (used by Oracle NET8) and various Dimensions CM network sockets on the server as well as on any clients. Add the following socket assignments to the file `/etc/services` on each Dimensions CM physical node:

```
listener              1521/tcp        (for NET8)
pcms_dfs              670/tcp
pcms_replicator       2091/tcp
pcms_sdp              671/tcp
```

Make sure of the following:

- All nodes two which the Dimensions CM network is installed have the same socket number. If you have Network Information Service (NIS) running on your system, you can make this change to the central services file and then perform a *make* instead of making this change on all nodes under NIS.
- TWO_TASK is set up for all users logged into client systems.
- Root access is established in /etc/exports on the server.

Enabling the root *user to Start / Stop the Listener*

If all client systems use a common Dimensions CM server on an NFS disk, the root user from each client accesses the server. In such an environment, always use the root user to start Dimensions CM listener node from client systems—do not use dmsys (the user that owns the Dimensions CM files).

To allow the user root to start and stop a Dimensions CM listener node, run the following commands on each client as the user dmsys:

```
chmod 755 $DM_LICENSE/license
chmod 4500 $DM_PROG/dmstartup $DM_PROG/dmshutdown
```

This sets setuid so that when the system is booting root performs the Dimensions CM listener node start up and changes uid to the dmsys user.

Pre-installation Considerations for Clients

Network Software Prerequisites

You must install TCP/IP before installing Dimensions CM clients. Without TCP/IP, Dimensions CM will not function.

Java Plug-In for Browser Client

The Dimensions CM Web tools (for example, the administration console and Web client), include a Java runtime which is silently installed as part of the Dimensions CM installation. However, you must also ensure that

the browser has a Java plug-in. You can download a Java plug-in from the Java Web site at:

http://java.com/

Please consult the Dimensions CM readme file to check which versions of Java runtime are supported before downloading and installing the software.

Dimensions CM UNIX Integrations Prerequisites

NOTE The Eclipse integration is optionally installed by downloading the appropriate zip file from the Serena Support Web site, extracting the contents, and running the installer.

Except where specifically mentioned in this guide, the perquisites required for UNIX integrations (if any) are discussed in the specific associated integration guides in the Dimensions CM documentation set.

Eclipse Integration

To install the Dimensions CM Eclipse integration, Eclipse must be installed on the target platform.

General OS Requirements

CAUTION! Certain UNIX system parameters may need to be modified and certain OS patches may need to be applied for your particular hardware platform. Failure to meet these requirements might cause the installation to fail.

The following subsections describe general OS requirements and definitions of various terms.

Additional details on the OS requirements for the UNIX and Linux platforms upon which Dimensions CM is supported are given in the readme file.

Versions of C++ Runtime Libraries

Ensure that you have the latest compatible C++ runtime libraries for the Dimensions CM executables to run correctly (see the readme file for details). Normally, with a newly installed OS, this are the case, but sometimes after an OS upgrade it may not be. Consult the OS vendor if you need to obtain correct versions.

OS Patches

On the Dimensions CM UNIX platforms, Dimensions CM has only been tested for use if the OS patches (if any) identified in the readme file have been applied. If these OSs are not at the identified patch level, the Dimensions CM installation may fail—consult your UNIX System Administrator if you need further assistance.

NOTE Platform manufacturers routinely update and renumber their patches. Your platform manufacturer's Customer Service Representative will have the latest patch information.

Increasing the Limit on the Open File Descriptors

For each client session the Dimensions CM Pool Manager typically consumes a total of 10 file descriptors. Therefore, to enable your Dimensions CM server to serve a maximum of N user sessions, your OS needs to allow for a maximum of 10*N file descriptors to be open by a single process. To set and modify the current maximum limit on the number of open file descriptors, contact your UNIX system administrator. For example, on Solaris, the command `ulimit -n` displays the current limit. To modify the limit, edit `/etc/system` and add the line:

```
set rlim_fd_max=4096
```

This sets the maximum limit to 4096 and enables Dimensions CM to serve over 400 users.

Please consult your UNIX documentation for other flavors of UNIX.

Linux-Specific General OS Requirements

SuSE Linux Enterprise Server Pre-installation Requirements

Before installing Dimensions CM, Serena recommend that you perform a software online update from the YAST2 control centre software options.

Red Hat Enterprise Linux Pre-installation Requirements

Before installing Dimensions CM, Serena recommend that you perform an online software update using the Update Agent (up2date).

System Parameter ulimit

If you have a UNIX system other than one originally based on BSD UNIX, please ensure that the UNIX system parameter `ulimit` (which defines the maximum size of any file) is set to a value that are sufficient to allow the creation of large RDBMS database files.

System Parameter *uname*

Ensure that the search path for user `root` includes the location of the program `uname`.

Memory and Swapping

Memory and swapping are key factors that Dimensions CM performance is dependent upon. Memory requirements for Dimensions CM are detailed in the *Scaling and Optimization Guide*.

Support for Large Files

Support for files up to 4GB in size is available—see the `pcms_item_data` published view in the *Reports Guide* for details.

Reinstalling Dimensions CM

If you re-install Dimensions CM on a Sun Solaris, an IBM AIX, or a Linux system you must first ensure that the files under the directory

```
/var/opt/serena/
```

have been deleted. Failure to do this may cause your installation to terminate with an error condition.

HP-UX 11 Filesystem Modification

Dimensions CM requires the file system to support filenames greater than 14 characters in length. If your file system does not already support such filename lengths, you are required to convert the file system to long file names using the utility *convertfs(1)* before installing Dimensions.

Pre-requisite Packages for Linux 64-bit

The packages required to run a Dimensions CM server and agent on Linux 64-bit include:

```
compat-libstdc++-33-3.2.3-69.el6.x86_64
compat-libstdc++-296-2.96-144.el6.i686
libstdc++-4.4.6-4.el6.i686
libstdc++-4.4.6-4.el6.x86_64
libstdc++-devel-4.4.6-4.el6.x86_64
compat-libstdc++-33-3.2.3-69.el6.i686
```

Chapter 5

Installing Dimensions CM

Installing the Dimensions CM Server

NOTE If you are upgrading see page 113.

The tasks performed by the server installer include:

1. Installing the server and associated components.
2. Installing the Dimensions CM schema into the RDBMS.
3. Validating the server installation and removing temporary backup files.
4. Configuring the Web Tools.

Installing the Server

1. As a user with local Administrative privileges run the installer executable.
2. Click **Next**, accept the license agreement, and click **Next** again.
3. From the second License Agreement screen click **New Install**.
4. Click **Server** and then **Next**.
5. Select one of the following:
   - Install All Dimensions CM Server Components
   - Install Dimensions Database Schema only
   - Install Serena SSO Server or Configure to use an existing one only

   Click **Next**.
6. Accept the default installation directory or click **Browse** to choose one. Click **Next**.
7. Select the components that you want to install (some are selected by default). Click **Next**.

8. If you are installing the Serena Deployment Automation server, on the **Configure Deployment Automation Server** screen do the following:

   - Accept the default installation directory or click **Browse** to choose one.
   - (Optional) Use existing settings.
   - (Optional) Do not create a database.
   - Specify the port number that Deployment Automation Agents will use to make KMS (Knowledge Management System) connections to the server.
   - Select **Client Mutual Authentication** if you want Deployment Automation Agents to use this authentication method when connecting to the server.

   Click **Next**.

9. Accept the default **Install a 30 day evaluation license** option or click the **Specify License Server** option if Serena License Manager is already running on your network.

   If you choose the **Specify License Server** option enter the host name or IP address of the system running the Serena License Server. See the *System Administration Guide* for more information on licensing.

   Click **Next**.

10. Enter the OS account name and password for the Dimensions CM System Administrator. By default, the user name is `dmsys`. Click **Next**.

11. To install the server with a local RDBMS, click **Local** and then **Next**.

12. Select the database version and click **Next**.

13. Enter or browse to select the location of the RDBMS. Click **Next**.

14. Enter the name of the UNIX owner of the Serena Runtime or Oracle Enterprise files. This will normally be `oracle`. Even if you are connecting to a remote Oracle database, you must enter the owner of the local Oracle client. Click **Next**.

15 Provide the following Oracle system information: **Hostname**, **System ID (SID)**, **NET8 Service Name,** and TCP /IP **Port** number. This may be a local or remote Oracle instance.

The Oracle SID and NET8 Service name are typically, but not always, the same. You must enter these correctly or the installation will not function correctly.

Click **Next**.

16 Confirm the Oracle admin user and password for your RDBMS. For a Serena Runtime, these are `SYSTEM` and `MANAGER` by default.

17 Enter the password for the `PCMS_SYS` schema that was created for the Oracle instance. For a Serena Runtime installation, this is `PCMS_SYS` by default. Note these passwords.

Click **Next**.

If you are installing Dimensions CM to *Red Hat* or *SuSE* Linux with a 32-bit RDBMS, a message may appear. These servers are native 64-bit and cannot be used as-is with a 32 bit RDBMS on Red Hat or SuSE. The installer will install a 64-bit Oracle Instant Client. Either accept the default directory specified or **Browse** to select one.

Click **Next**.

18 Select the sample process model you want to install. See "Choosing a Process Model" on page 48. Click **Next**.

19 Specify the Tool Manager for the demonstration process model. This is the Dimensions CM base database manager. By default, this is the same user, `dmsys`, as the Dimensions System Administrator. Either accept the default (recommended) or replace the entry with the actual Dimensions CM login ID of the Dimensions Tool Manager. See the *System Administration Guide* for more information.

20 Specify the following for work areas and deployment areas in the sample process model:

- **Area Owner ID**. Accept the default of `dmsys` (recommended) or enter the actual Dimensions CM login ID of the team member you want to assign. This user will be set by default as the Dimensions System Administrator Login ID.
- **Password**. Enter the password for the Area Owner ID. This will be set by default as the password for the Dimensions System Administrator Login ID.

- Accept the default directory for the demo process model areas or click **Browse** to select a different location.

After installation, you must assign OS accounts to the Dimensions CM users in the sample process model—if you have not already created the OS accounts, see "Creating OS User Accounts" on page 47. Click **Next**.

21 Enter the name of the Dimensions CM server system. Click **Next**.

22 Specify the UNIX OS user who you want to own and run the Serena common Tomcat and Java executables. This user is typically given restricted permissions and must exist prior to installation. By default, it is `dmsys`. Click **Next**.

23 Enter the port number for the common Dimensions Tomcat Server. Accept the default of 8080 or enter an alternative value. It is recommended that you accept the default unless it is already is use. Some software is hard coded to port 8080 and cannot be reassigned (see "TCP/IP Port Usage" on page 49). Click **Next**.

24 Review settings to ensure that they are as you expect. If the settings are correct, click **Install**. Otherwise, click **Back** to make corrections. The installer:

- Installs the server components.
- Creates uninstaller files in the directory `_uninst_maint` located one level up from the Dimensions CM root directory. A record of the installed products is also created in the directory `/var/opt/serena/inventory`. To uninstall Dimensions CM, you *must* use the uninstaller files in the _uninst_maint directory to ensure that the inventory is correctly updated. See Chapter 7, "Uninstalling Dimensions CM UNIX Components" for details.
- Creates the Oracle tablespaces and sample process model. This can take a long time.
- Installs the Dimensions CM web client.

25 Click **Finish**.

When performing a Dimensions CM server installation on a Red Hat or SuSE 64-bit platform, you may see the following error:

```
There were errors installing the cm_typical libraries.
```

Consult the installation log files (see "Installation Logs" on page 68)

to determine whether such errors actually occurred. If not, then you can safely disregard the messages.

Starting Server Processes

Installation Logs

Before running any of the other tests, check the installation logs for any problems. These logs are located as follows:

```
/tmp/dminet_Installxxxxx.log
/tmp/dimensons_install/*
```

Starting the RDBMS

If you start the server immediately after installing it, your Serena-Runtime or Oracle Enterprise will still be running and *will not* need starting and you can skip this section. Verify whether your Oracle processes are still running by typing the following command:

```
ps -eaf | grep ora
```

If you have logged out from or rebooted your system prior to starting the Dimensions CM server, you must manually restart the Oracle processes.

To restart the Serena Runtime:

1. Remain logged in as user `root`.
2. Navigate to `$DM_ROOT/prog`.
3. Enter:

   ```
   dm_control rdbms_start
   ```

   For a remote UNIX Serena Runtime, this script uses the local Serena Runtime client. Please see the *System Administration Guide* for details.

To restart your Oracle Enterprise services:

Consult your DBA or vendor documentation.

Starting the Server as User Root

1 Log in as user `root`.

2 To set up the Dimensions CM `pcms_sdp` network service, either locally or on a NIS server, edit the file /etc/services and add the following to the end of the file:

```
pcms_sdp<white-space>671/tcp<white-space># <comment>
```

This entry is required by the Dimensions CM app servers (`dmappsrv.x`) and listener.

3 Start Dimensions CM:

a Go to the Dimensions CM root directory. For example:

```
# cd /opt/serena/dimensions/14.2/cm
```

b Give yourself the Dimensions CM environment by running the following if C shell:

```
% source /opt/serena/dimensions/14.2/cm/dmlogin
```

or the following if Bourne shell (or a derivative):

```
$ . /opt/serena/dimensions/14.2/cm/dmprofile
```

c Go to the Dimensions CM `prog` directory. For example:

```
# cd /opt/serena/dimensions/14.2/cm/prog
```

d Run the following command:

```
# dm_control cm_start
```

4 To verify that the Dimensions CM processes have started, enter:

```
# ps -eaf | grep dm[pal]
```

You should see services such as `dmappsrv.x` and `dmpool.x`.

5 As a further check, run "getpoolstats" by typing:

```
# getpoolstats
```

You should get a message that a certain number of `dbs` processes are running.

Starting the Server as Dimensions System Administrator User

By default, the Dimensions CM server's listener service is owned by the user `root`; however, you can change the listener's owner to the Dimensions System Administrator (by default, user `dmsys`). To do this:

1. Log in as user `root`.
2. To set up the Dimensions CM `pcms_sdp` network service, either locally or on a NIS server, edit the file /etc/services and add the following to the end of the file:

   ```
   pcms_sdp<white-space>671/tcp<white-space># <comment>
   ```

   This entry is required for use by the Dimensions CM "app servers" (`dmappsrv.x`) and listener.
3. Log out as user `root` and log back in as the Dimensions System Administrator (by default user `dmsys`).
4. Go to:

   ```
   $DM_ROOT/dfs
   ```
5. Edit the file `listener.dat` and add the following:

   ```
   -user <DSA_username>
   -restricted_mode
   ```

   where `<DSA_username>` is the System Administrator non-root user that is running the listener on the server. Typically, this is `dmsys`.
6. Start Dimensions CM as follows:
   a. Go to the Dimensions CM root directory. For example:

      ```
      # cd /opt/serena/dimensions/14.2/cm
      ```
   b. Give yourself the Dimensions CM environment by running the following if C shell:

      ```
      % source /opt/serena/dimensions/14.2/cm/dmlogin
      ```

      Or if Bourne shell (or a derivative):

      ```
      $ . /opt/serena/dimensions/14.2/cm/dmprofile
      ```
   c. Go to the Dimensions CM `prog` directory; for example:

```
# cd /opt/serena/dimensions/14.2/cm/prog
```

d Run the following command:

```
# dm_control cm_start
```

7 To verify that the Dimensions CM processes have started, enter:

```
# ps -eaf | grep dm[pal]
```

You should see services such as `dmappsrv.x` and `dmpool.x`.

8 As a further check, run "getpoolstats" by typing:

```
# getpoolstats
```

You should get a message that a certain number of `dbs` processes are running.

IMPORTANT!

- When running a server in restricted mode, area/remote node authentication credentials are *not* used— files in a remote area are owned by the user running the `dmpool` process (by default `dmsys`), regardless which user-id is set for the area or userid is specified in Remote Node Authentication.
- You must ensure that the service that is specified by the listener.dat `-service` parameter (which is `pcms_sdp` by default) uses a port number of `1025` or higher rather than the default of `671`. To do this:
  - Delete the "local connect pipe" (typically `/tmp/dimensions_local_connect`). Note that it is recreated when the listener is restarted.
  - Change the ownership and/or permissions on `$DM_ROOT/prog/dmstartup` and `$DM_ROOT/prog/dmshutdown` so that they are executable by the non-root user specified by the `-user` flag in `$DM_ROOT/dfs/listener.dat`.

Starting Tomcat

1. Log in as the Dimensions CM System Administrator (DSA). By default, this is dmsys.
2. Give yourself the Dimensions CM environment variable values by running the appropriate Dimensions CM login script; for example:
   - Bourne Shell

     ```
     $ cd /opt/serena/dimensions/14.2/cm
     $ . ./dmprofile
     ```

   - C Shell

     ```
     $ cd /opt/serena/dimensions/14.2/cm
     $ source ./dmlogin
     ```

3. Start Common Tomcat by running the following commands:

   ```
   $ cd $DM_ROOT/../common/tomcat/8.0/bin
   $ ./startup.sh
   ```

4. To verify that Tomcat is running, check the process list for the `tomcat` process.

Installing a Dimensions CM Agent

To install a Dimensions CM Agent:

1. On the first installer screen click **Next**.
2. Read the license agreement and click **I accept the terms of the End User License Agreement** to accept the terms. Click **Next**.
3. Click **New Install** and then **Next**.
4. Select **Dimensions CM Agent** and click **Next**.
5. Accept the default installation directory or **Browse** to select a location. Click **Next**.
6. Optionally select to install the **Deployment Automation Agent** and click **Next**.

7 Enter the hostname and port number of the server that will provide auto update install packages. Click **Next**.

8 If you are installing Serena Deployment Automation, on the **Serena Deployment Automation Agent** screen do the following:

- Specify the name of the Agent.
- Optionally use Mutual Authentication with SSL to communicate with the Deployment Automation server.
- Optionally connect to an Agent Relay instead of directly to the Deployment Automation server. Default: no

  Specify the following parameters for the Agent Relay:

  - Host name or address
  - Communication port
  - HTTP proxy port

Click **Next**.

9 If you are installing Serena Deployment Automation, on the **Dimensions CM Server Details** screen specify:

- The host name or address of the Dimensions CM server
- The JMS communication port

Click **Next**.

10 Type the OS login name and password for the Dimensions System Administrator. By default, the login name is `dmsys`.

11 Click **Install** to start the Agent installation.

12 When the installation is complete click **Finish**.

Starting Agent Services

Starting the Listener as User Root

1. Log in as user `root`.
2. Set up the Dimensions CM `pcms_sdp` network service. Either locally or on a NIS server, edit the file /etc/services and add the following to the end of the file:

   ```
   pcms_sdp<white-space>671/tcp<white-space># <comment>
   ```

   This entry is required by the Dimensions CM listener.
3. Give all users permission to use the display by entering:
   `# xhost +`
4. Perform the following check:
   a. Go to the Dimensions CM `dfs` directory; for example:
      `# cd /opt/serena/dimensions/14.2/cm/dfs`
   b. Open the `listener.dat` file in a text editor.
   c. Check that the file contains the following entry:
      `-agent`
   d. If it does not, add that entry and save the file.
5. Start the Dimensions listener as follows:
   a. Go to the Dimensions CM `prog` directory; for example:
      `# cd /opt/serena/dimensions/14.2/cm/prog`
   b. Run the following command:
      `# ./dmstartup`

NOTE The dmstartup script will also export the Dimensions CM environment variables to the user `root`. It runs the Bourne shell login script:

```
dmprofile
```

located in the Dimensions CM root directory (`$DM_ROOT`).

6. Check that the Dimensions CM processes have started by entering:
   `# ps -eaf | grep dm`

You should see services dmlsnr and dmpool.x.

Starting the Listener as the Dimensions System Administrator User

By default, the agent's listener service is owned by the user root; however, you can change the listener's owner to the Dimensions System Administrator (by default, user dmsys). To do this:

1. Log in as user root.
2. Set up the Dimensions CM pcms_sdp network service. Either locally or on a NIS server, edit the file /etc/services and add the following to the end of the file:
   pcms_sdp<white-space>671/tcp<white-space># <comment>

   This is required by the Dimensions CM listener and dmcli.
3. Give all users permission to use the display by typing:
   # xhost +
4. Perform the following check:
   a. Go to the Dimensions CM dfs directory; for example:
      # cd /opt/serena/dimensions/14.2/cm/dfs
   b. Open the listener.dat file in a text editor.
   c. Check that the file contains the following entry:
      -agent
   d. If it does not, add that entry and save the file.
5. Log out as user root and log back in as the Dimensions System Administrator (by default user dmsys).
6. Navigate to:
   $DM_ROOT/dfs
7. Edit the file listener.dat to add the following:

   ```
   -user <DSA_username>
   -restricted_mode
   ```

   where <DSA_username> is the Dimensions System Administrator non-root user that is running the listener on the Dimensions agent. Typically, this is dmsys.

8 Start the Dimensions agent listener as follows:

   a Go to the Dimensions CM `prog` directory; for example:
   `# cd /opt/serena/dimensions/14.2/cm/prog`

   b Run the following command:
   `# ./dmstartup`

9 Check that the Dimensions CM processes have started by typing:
   `# ps -eaf | grep dm`

   You should see services `dmlsnr` and `dmpool.x`.

IMPORTANT!

- When running the agent in restricted mode, area/remote node authentication credentials are *not* used— in restricted mode files in a remote area are owned by the user running the `dmpool` process (by default `dmsys`), regardless of which user-id is set for the area or userid specified in Remote Node Authentication.
- You must additionally ensure that the service that is specified by the listener.dat `-service` parameter (which is `pcms_sdp` by default) uses a port number of `1025` or higher rather than the default of `671`. You do this as follows:
  - Delete the "local connect pipe" (typically `/tmp/dimensions_local_connect`). Note that it are recreated when the listener is restarted.
  - Change the ownership and/or permissions on `$DM_ROOT/prog/dmstartup` and `$DM_ROOT/prog/dmshutdown` so that they are executable by the non-root user specified by the `-user` flag in `$DM_ROOT/dfs/listener.dat`.
  - This new port number must also be used on the server node

Installing the Dimensions CM Client

To install the Dimensions CM client:

1 Read the license agreement and click **I accept the terms of the End User License Agreement** to accept the terms. Click **Next**.

2 Click **New Install**.

3 Click **Client** and **Next**. This installs Dimensions CM client components.

4 Accept the default installation directory or browse to choose a location.

Click **Next**.

5 Type the OS login name and password for the Dimensions System Administrator. By default, the user name is `dmsys`.

6 Click **Next**.

7 Enter the hostname of a Dimensions CM server for use by the Dimensions web client.

8 Click **Next**.

9 Click **Install** to begin the client installation. The client installation begins.

10 Click **Finish.**

11 Perform the following post-installation checks described in "Verifying Dimensions CM Installation" on page 77.

Verifying Dimensions CM Installation

Verifying Server and Agent Installation

To verify that your server or agent installation is functional:

1 If you have an X11 Window system, log in as user `root`.

2 Give all users permission to use the display by typing:
```
# xhost +
```

3 As user dmsys, set up the Dimensions CM environment as follows:

a Go to the Dimensions CM `root` directory; for example:
```
# cd /opt/serena/dimensions/14.2/cm
```

b Run the following command:
```
# . ./dmprofile
```

4 Run the following commands:
```
dmcli -user dmsys -pass <dmsys_passwd> -host
    <host_name> -dbname <db_name>@<connect_string>
```

for example
```
dmcli -user dmsys -pass <dmsys_passwd> -host sun1
    -dbname cm_typical@dim14
```

The output should be a Dimensions CM banner and copyright message followed by a `Dimensions>` prompt.

5 Type `exit`.

6 If you have an X11 system, type `dmcli`. Enter the appropriate data in fields in the Dimensions Login dialog box. The output should be a Dimensions CM banner and copyright message followed by a `Dimensions>` prompt.

7 Type `exit`.

Checking that the Command Client Executes

Complete this test to verify that the Dimensions CM client is successfully installed.

1 If you have an X11 Window system, log in as user `root`.

2 Set up the Dimensions CM `pcms_sdp` network service. Either locally or on a NIS server, edit the file /etc/services and add the following to the end of the file:
```
pcms_sdp<white-space>671/tcp<white-space># <comment>
```

This entry is required for use by the Dimensions CM `dmcli`.

3 Give all users permission to use the display by typing:

```
# xhost +
```

4 As user dmsy:

a Go to the Dimensions CM directory; for example:
```
$ cd /opt/serena/dimensions/14.2/cm
```

b Give yourself the Dimensions CM environment. For example, for Bourne shell:

```
$ . ./dmprofile
```

For C shell:

```
$ source dmlogin
```

5 Type:

```
dmcli -user dmsys -pass <dmsys_passwd> -host
    <host_name> -dbname <db_name>@<connect_string>
```

for example:

```
dmcli -user dmsys -pass <dmsys_passwd> -host sun1 -dbname cm_typical@dim14
```

The output should be a Dimensions CM banner and copyright message followed by a `Dimensions>` prompt.

6 Type `exit`.

7 If you have an X11 system, type `dmcli`. Enter the appropriate data in fields in the Dimensions Login dialog box.

NOTE If your Dimensions CM server is a Single Sign-on (SSO) enabled server configured for Common Access Card (CAC) authentication, the login dialog box will differ to that described below—please see the *User's Guide* or online help for details.

The output should be a Dimensions CM banner and copyright message followed by a `Dimensions>` prompt.

8 Type `exit`.

The Dimensions CM client installation checks are now complete. If there are any problems, refer to the more comprehensive Chapter 6, "Post-Installation Tasks".

Installing Dimensions CM for Eclipse

NOTE Dimensions CM clients are not required to install the Eclipse integration.

Installing the Eclipse Integration from a Server

You can install the Eclipse integration from an update site hosted by the Dimensions CM server. The Tomcat `eclipse.war` file is added as part of the CM server install.

You can use the same method to install *Appcelerator Titanium Studio* into Eclipse.

To install the Dimensions CM Eclipse integration from the Update site:

1. In Eclipse, from the Help menu select Install New Software. The Install wizard is displayed.
2. On the Available Software screen, in the **work with** box enter:

   `http://<HOST>:<PORT>/eclipse`

   where `<HOST>` and `<PORT>` point to the Serena Tomcat installation.
3. Select the feature Serena Dimensions Eclipse Interface and click **Next**.

   NOTE: You may need to de-select the Group by Category option to display the Dimensions Eclipse integration.
4. On the Install Details screen click **Next**.
5. On the Review Licences screen click **Accept** to accept the terms of the licence agreement and click **Finish**.
6. After the software has been installed you are prompted to restart Eclipse.

Manually Installing the Eclipse Integration

Pre-installation Tasks

If a previous version of Dimensions CM for Eclipse is installed, uninstall it:

1. As user root, navigate to:
   `$DM_ROOT/integrations/richeclipse3.x/_uninst`
2. Launch the simple Eclipse uninstaller by typing:
   `./uninstaller.jar`
3. Follow the uninstaller wizard instructions to remove the existing Eclipse integration.

CAUTION! To ensure that the existing Eclipse integration uninstalls successfully, you must ensure that the Eclipse IDE is shut down.

4. Delete the following directory:
   `$DM_ROOT/integrations/richeclipse3.x`

Installing Dimensions CM for Eclipse

1. Log in as user root.
2. Navigate to and run the appropriate extracted downloaded file:

   ```
   # ./setup<platform>.bin
   ```

   - For GUI mode, run:

   ```
   # ./setup<platform>.bin
   ```

   - For CUI mode, run:

   ```
   # ./setup<platform>.bin -console
   ```

Silently Installing Dimensions CM for Eclipse

You can also silently install the Dimensions CM for Eclipse.

1. Log in as a user `root`.
2. Navigate to the installer executable file: `setup-windows.exe`, `setup-linux.bin`, or `setup-mac.zip`.

3 Copy the executable and associated files to the directory that you are using for the silent installer files.

4 Navigate in a terminal window to this directory.

5 Run a command such as the following:

```
setup-linux.bin -i silent
```

You can optionally specify a response file from which the installer will retrieve the values for variables for the installation. To record your responses, specify `-r fileName`; to actually use the response file, specify `-f fileName`.

NOTE The uninstaller is `uninstaller.jar` in the Serena Dimensions for Eclipse installation directory.

Installing Dimensions Make

Legal Considerations

Some of the Serena® Dimensions® CM and ADG executables and associated libraries are derived from source code covered by the GNU GENERAL PUBLIC LICENSE and the GNU LIBRARY GENERAL PUBLIC LICENSE. Specifically:

File	UNIX and Windows	UNIX Only	Windows Only
adg	Y		
dm_make	Y		
dm_nmake			Y
libmcx.so		Y	
mcx.dll			Y

As a condition of the GNU GENERAL PUBLIC LICENSE and the GNU LIBRARY GENERAL PUBLIC LICENSE, source code for the above discussed executable and library files is also available, see the *Dimensions CM Make User's Guide* for details.

Obtaining the Dimensions Make Executables

These Dimensions Make executables and user guide are available to download free from the following public web site:

http://www.serena.com/products/dimensions/dimensions-make.html

Download the version of Dimensions Make appropriate to your operating system.

Pre-installation Requirements

- Dimensions CM server or client.
- UNIX "uncompress" utility.

Installing Dimensions CM Make

1. Log in as root.
2. Download and extract the contents of the UNIX tar version of the Dimensions Make files. Make sure that these files are located in a single directory with appropriate permissions and access to Dimensions CM.
3. Enter the following OS command to run the installer script:
   ```
   # sh install_make
   ```
4. When prompted to continue installation, enter **'y'** to continue, or hit RETURN to exit. The Dimensions Make installer searches the current directory for the file make_reply.txt. It uses this file to save your replies to the questions it asks during installation, so that they can be provided as default answers during subsequent re-installations.
5. After reading the license agreement, enter q to exit the UNIX more utility.
6. When prompted, enter y(es) to accept the terms of the license agreement, then enter c(confirm) to confirm.
7. If prompted, supply the name of a directory containing a make_reply.txt file generated during a previous installation. Or, If you have no make_reply.txt file enter c to create one.
8. When prompted, enter the installation medium. This is the absolute or relative pathname of the file dimensions_make.tar located in the same directory as the install_make script.
9. When prompted, enter the Dimensions CM system administrator ID. This is the person responsible for all Dimensions CM database and maintenance operations. Normally this user account is dmsys.

10 When prompted, enter absolute path to the Dimensions CM root installation directory. This corresponds to the environment variable `$DM_ROOT`.

Setting Up SSO/CAC

This section describes the scenario where you have already successfully installed a Dimensions CM server without installing or configuring an SSO server, but subsequently decide that you want to install or configure an SSO server.

1 Run the Dimensions installer and choose **Install Serena SSO Server or Configure to use an Existing one Only**.

2 Choose the **Dimensions SSO** option to install just SSO, or click **Dimensions SSO and Smart Cards** if you also want to install CAC support and click **Next**.

3 The installer displays the Dimensions CM installation directory.

4 Verify that the following Dimensions CM information is correct and update as needed:

- **Dimensions System Administrator Login ID**. By default, this is dmsys.
- **Dimensions Server** host name.
- **Server Port for HTTP Connections**. By default, this are 8080.

5 Select **Existing** to configure a connection to an existing SSO server—for example, a Serena Business Manager (SBM) SSO server. Select New if no SSO server already exists and you want to install one.

6 Enter the relevant **Hostname** and **SSO Port** details.

7 See "UNIX Server Prerequisites For a New SSO Server" on page 52 for information on the Hostname, Port, Base DN, Search Filter, Bind User DN, and Password fields. The Port and Search Filter fields are pre-populated with the default values of `389` and `(&(objectClass=user)(sAMAccountName={0}))` respectively.

8 Click **Next**.

9 From the Summary Information screen review the settings. If they are correct, click **Install**. Otherwise, click **Back** to step back through the installer and make appropriate corrections, and then return here.

Installing a Server without an Oracle Dimensions Schema

The are several scenarios in which you may want to install a Dimensions CM server without installing a Dimensions CM Oracle schema. These include:

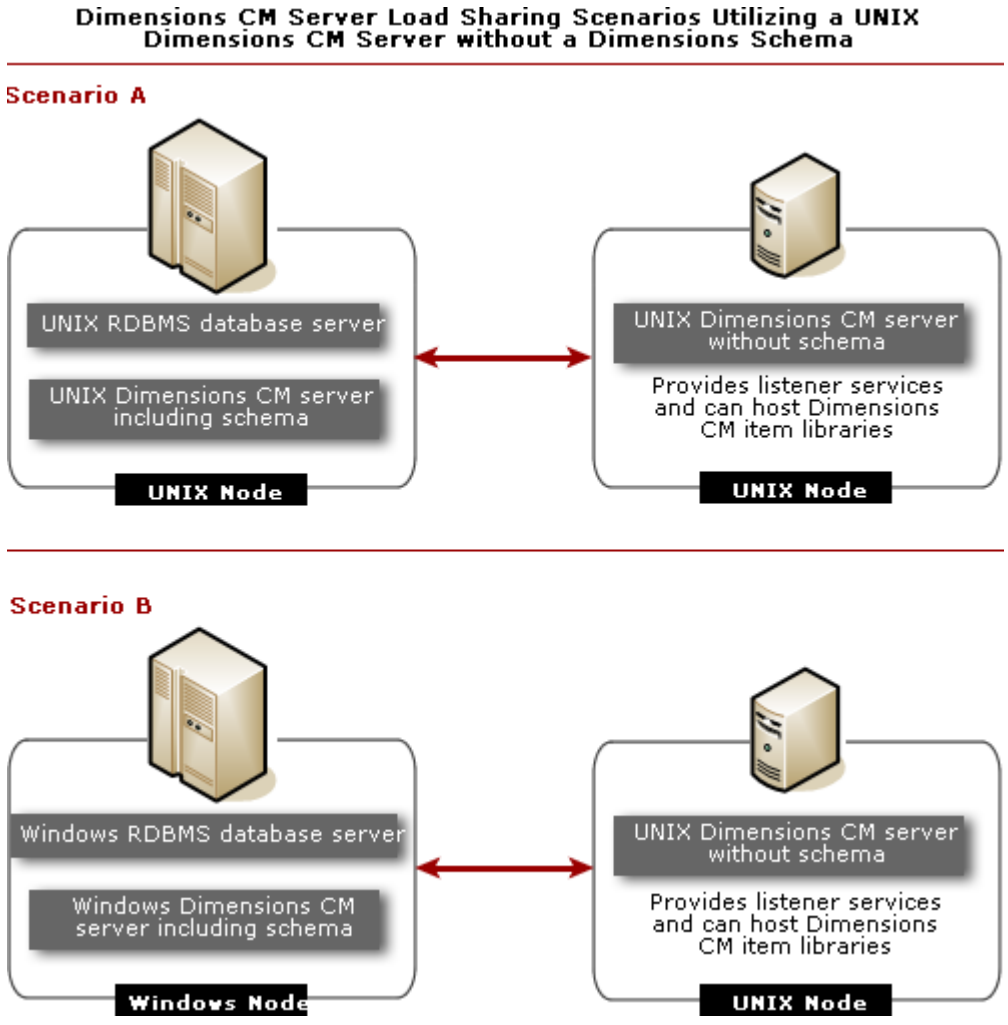
1 **Scenario 1**: There is already a local Serena-Supplied Runtime RDBMS or Oracle Enterprise with that schema installed. So all you want to install are the Dimensions CM server executables.

2 **Scenario 2**: You do not want to install a demo process model.

3 **Scenario 3**: You want to a install Dimensions CM server, with its own local client Serena Runtime or Oracle Enterprise RDBMS but without a schema, to communicates (via OCI) with a remote Windows or UNIX RDBMS database server. The locally installed Dimensions CM server provides Dimensions CM listener services and the dmcli command client, and the Common Tools are also be installed.

   Reasons why you may want to do this include:

   - The users on the local node do not have OS accounts on the remote Dimensions CM database server.
   - To balance Dimensions CM loads across both the local node and the remote Dimensions CM database server node, as illustrated below.



For this, the remote database server requires both the RDBMS and Dimensions CM binaries to be installed and for a Dimensions CM schema to have been created in that RDBMS. To enable network connections between the nodes, the remote database server must be running an additional process. For Oracle, this is the case if the TNS Listener has been started up.

For certain of these scenarios, you need to set up an Oracle Net Service Name on the local node for accessing the Oracle database server. See "Setting Up a Local Oracle Net Service Name" on page 34.

Configuring Oracle Access

After installing the Dimensions CM server without also installing the Dimensions CM schema, you must complete the following post-installation steps:

- With a remote Serena Runtime or Oracle Enterprise database containing the Dimensions CM schema, make sure that the connection details for the remote database are added to the Oracle file:

  `$ORACLE_HOME/network/admin/tnsnames.ora`

- For the local Serena Runtime or Oracle Enterprise client, you must manually edit the $DM_ROOT/dmgvar.sh $DM_ROOT/dmgvar.csh files to provide the following Oracle system information:
  - Oracle client home location (ORACLE_HOME)*****
  - Oracle instant client home location (ORACLE_HOME_IC)*****
  - Oracle client SID (enclosed within double-quotes).
  - Oracle TWO_TASK for communicating with a remote database
- Edit the `$DM_ROOT/dfs/listener.dat` file and set the `-dsn` entry to be the `<database>@<dsn>` for the database containing the Dimensions CM schema.
- If installing in Oracle Enterprise 11gR2.0.3, you must update `dm.cfg` with the correct DBIO library entry: `DBIO_LIBRARY libdbio_srv_oci8_11201.{so,sl}`.

  NOTE: On AIX you can only connect using `libdbio_srv_oci8_12101`.
- Run the Dimensions CM `dmpasswd` utility against:
  - The Dimensions CM schema you are using; for example:

    ```
    dmpasswd cm_typical@dim14 -add -pwd cm_typical
    ```

  - The Dimensions CM System Administrator; for example:

    ```
    dmpasswd dmsys -add -pwd <dmsys_password>
    ```

  For information on running `dmpasswd`, see the *System Administration Guide.*

Chapter 6

Post-Installation Tasks

Chapter Overview

This chapter discusses post-installation tasks following installation of the Serena® Dimensions® CM server, agent, or clients.

Verifying Installation

Verifying Command Files

Check that the following Dimensions CM shell scripts have been successfully installed:

- **Server, agent, client**: `$DM_ROOT / dmlogin`

  `dmlogin` is a C shell script for setting the environment variables required to run Dimensions CM. It resides in the `$DM_ROOT` directory. Invoke this script as part of the `.login` file of every Dimensions CM user using C shell; for example:
  `% source /opt/serena/dimensions/14.2/cm/dmlogin`

- **Server, agent, client**: `$DM_ROOT / dmprofile`

  `dmprofile` is the Bourne shell equivalent of `dmlogin`. Invoke this script as part of the `.profile` file of every Dimensions CM user using Bourne shell; for example:
  `$ . /opt/serena/dimensions/14.2/cm/dmprofile`

- **Server, agent**: `$DM_PROG / dmstartup`

  Run `dmstartup` as user root to start:

  a Serena License Manager.

  b The Dimensions listener. This starts a single listener process and many "apps server" processes.

  If you do not want any of these processes to be automatically invoked, edit `dmstartup` and comment out the appropriate statements. You may run this as part of your system boot procedure.

- **Server, agent**: `$DM_PROG / dmshutdown`

  Run `$DM_PROG` as user `root` to shut down:

a Serena License Manager process.

b Dimensions listener. This stops a single listener process and many "apps server" processes.

If you do not want any of these processes to be automatically shut down, edit `dmshutdown` and comment out the appropriate statements. You may run this script as part of the UNIX system shutdown procedure.

- **Server**: `$DM_PROG` / `dm_control`

  Run `dm_control` as user `root` to:

  - Start up, shut down, and restart the Serena Runtime.
  - Start up, shutdown, and restart the Dimensions CM server.

  Enter `dm_control` to display the syntax or see the *System Administration Guide*.

- **Server**: `$DM_ROOT/../common/tomcat/8.0/bin/startup.sh`

  Run startup.sh as user `dmsys` to start up the Common Tomcat server. You can run this as part of your system boot procedure.

- **Server**: `$DM_ROOT/../common/tomcat/8.0/bin/shutdown.sh`

  Run shutdown.sh as user `dmsys` to shut down the Common Tomcat server. You may run this script as part of the UNIX system shutdown procedure.

CAUTION! Do not start or stop Common Tomcat as user `root`. It must be stopped by the user who owns the Dimensions CM files. By default, this is dmsys.

Ensuring OS Access to Dimensions Files

On server, agent, and client systems, the Dimensions CM System Administrator OS account (by default `dmsys`) must belong to the group `dmtool`. OS accounts for non-administrative users should not be placed in this group. However, user accounts with Dimensions CM ADMIN privileges should be placed in the `dmtool` group. This ensures that access to the Dimensions `$DM_DBASE` utilities are restricted to administrative users.

Command-Line Acceptance Tests

Run these tests on server, client, and agent systems to verify that the command-line interface is installed correctly. These tests require you to be familiar with Dimensions CM commands.

1. Run dmcli to access the command prompt as explained in "Checking that the Command Client Executes" on page 78:
2. Run the `LWS` command and verify that a list of projects is returned.
3. Run the `SCWS` command and verify that the correct project details are displayed.
4. Run the `LWSD /RECURSIVE` command and verify that a list of project directories and items is displayed.

Testing the Web Client and Administration Console URLs

Before you can test the Dimensions web client and Administration Console URLs, the Serena Common Tomcat process must be running. see "Starting Server Processes" on page 68.

Enter the following URL into a supported browser:

```
http://<dimensions_server_host-id>:8080/dimensions/
```

To launch the Administration Console, enter the following URL:

```
http://<dimensions_server_host-id>:8080/adminconsole/
```

In both cases a login dialog box appears.

Establishing a Dimensions CM Environment

Every Dimensions user account has a `.login` (or `.profile`) file that must include the following lines. This applies to server, client, and agent systems.

- C shell:
  `% source /opt/serena/dimensions/<version>/cm/dmlogin`

- Bourne shell (or a derivative):
  ```
  $ . /opt/serena/dimensions/<version>/cm/dmprofile
  ```

  Avoid issuing the command
  ```
  set -u
  ```

  until *after* invoking `dmprofile`. Failure to do so may result in the script failing to complete, leaving the environment incorrect for Dimensions.

Database Administration (Server Only)

Working with Multiple Oracle Instances

If you are running multiple Oracle instances, review the following steps:

- If you already have Oracle instances running on the Dimensions CM server and you have created a new Oracle instance, you must merge the old Oracle configuration files with the new Oracle configuration files.
- Ensure that the Oracle service name entry (for example `dim14`) is available to each client:
  - For each UNIX or Linux client hosted on a UNIX or Linux system, copy or merge the database server's `/etc/tnsnames.ora` or `/var/opt/oracle/tnsnames.ora` file to the client's `/etc/tnsnames.ora` or `/var/opt/oracle/tnsnames.ora` files.
  - For each Windows server, enter the service-name (database alias) on the server using the server's "Net Configuration Assistant" utility.
- Enable starting the NET8 TNS listener process for client connections by adding the following line to the `dmstartup` script:
  ```
  su $ORAUSER -c 'sh -c ". $DM_ROOT/dmprofile;
      $ORACLE_HOME/bin/lsnrctl start"'
  ```

Registering Base Databases and Setting Default Passwords

Every base database must be registered with Dimensions CM using the `dmpasswd` utility. The Dimensions installer registers the base database you choose during installation and a default password is assigned. The default password for the **"Typical, Stream Development"** or **"Typical, Non-Stream Development"** process models is `cm_typical`.

Run the following command to register other base databases:

```
dmpasswd <basedb>@<connect_string> -add -pwd <password>
```

To change the default password assigned to base database, run:

```
dmpasswd <basedb>@<connect_string> -mod
```

Installing Dimensions Published Views

Published views are installed with the **"Typical, Stream Development"** or **"Typical, Non-Stream Development"** sample process models. If you need to re-install and re-grant published views to report users:

1. Log in to `dmdba` as the RDBMS Administrator (for Oracle this is `system`). See the *System Administration Guide*.

2. Enter the following commands:

   ```
   delv <basedb>
   insv <basedb>
   grtv <basedb> <basedb_report_user_name>
   ```

   For example:

   ```
   grtv intermediate intermediate_rept
   ```

   or

   ```
   grtv cm_typical_rept
   ```

   This initial invocation of `grtv` results in an error stream starting with:

   ```
   SQL-1E36-40(00B0FE60) ORA-00955: name is already used by an existing object
   ```

   You can safely ignore these errors.

3. Enter the following command:

   ```
   rekv <basedb> <basedb_report_user_name>
   ```

   After a short period, the following message appears:

   ```
   Report views have been successfully revoked.
   ```

4 Enter the following command:
```
grtv <basedb> <basedb_report_user_name>
```
The following message appears:
```
Report views have been successfully granted.
```

5 Repeat this procedure for all report users in every base database on your Dimensions CM server.

For more information, see the *System Administration Guide* and the *Reports Guide*.

Database Administration Acceptance Tests

These tests require you to use Dimensions CM DBA utilities as an authorized DBA user. For more information on these commands, see the *System Administration Guide*.

1 Run the `dmdba spac` command and verify that the output is correct.

2 Run the `dmdba lsdb` command and verify that the output is correct.

3 Run the Dimensions CM `UREG` and `XREG` commands to verify that you can create and drop users.

General Dimension CM Server Setup

Rebooting the Dimensions Network

If the node hosting the database is shut down, the Dimensions CM network will restart automatically unless the following shell script is run when the system is rebooted:
```
% sh <install_directory>/prog/dmstartup
```

Notes and Cautions

1 Ensure that no one is using Dimensions or the RDBMS before starting any installation, maintenance, or backup operation.

2 When a new Dimensions user is registered (using the Dimensions `UREG` command or the Administration Console), the main database

must *not* be accessed until that operation is complete, in order to avoid any locking problems.

3 In the event of an improper system shutdown (for example, a crash or a power failure) resulting in an abnormal termination of Dimensions CM and the RDBMS, files that should have been deleted may not be, causing the Dimensions CM restart to fail. In this case, to restart Dimensions CM:

a Restart the RDBMS.

b From the `dmsys` account, make sure the environment variables are correctly set up. If using Dimensions Network, check whether the following file is present and, if so, manually remove it using the UNIX `rm` command:

```
$DM_ROOT/dfs/<nodename>/<nodename>.dat
```

The Dimensions Network cannot be started if this file already exists.

c Force start the RDBMS and then shut it down normally using the following commands (see the *System Administration Guide* for more details):

- To start the Serena runtime:

```
$ dm_control rdbms_start
$ dm_control rdbms_stop
```

This will also start the RDBMS listener.

- To start Oracle Enterprise:

```
% $ORACLE_HOME/bin/sqlplus /nolog
SQLPLUS> connect / as sysdba
SQLPLUS> startup force
SQLPLUS> shutdown
SQLPLUS> exit
$ORACLE_HOME/bin/lsnrctl
LSNRCTL> start
```

d To start Dimensions CM:

```
$ dm_control cm_start
```

Solaris Descriptors Limit

On Solaris, the system limit on open descriptors per process must be set to at least 1024. To verify, enter this C shell command:

```
$ limit -h descriptors
```

If the limit is below 1024, the tunable kernel parameter `rlim_fd_max` must be increased.

Linux Kernel Size Warning

The following message may be written to the Serena Runtime or Oracle Enterprise alert file on startup:

```
DIM Linux Warning: EINVAL creating segment of size
    0x0000000002780000
```

To resolve this, go to `/proc/sys/kernel` and run the `more` command for the shmmax file to show its current size.

To temporarily resolve this, change this value to 536870912 bytes:

```
% echo 536870912 > /proc/sys/kernel/shmmax
```

This will return to the original value when the server is restarted.

To permanently change the `shmmax` value, edit the following file:

```
/etc/sysctl.conf
```

Insert the following and reboot the server:

```
kernel.shmmax = 536870912
```

Workaround for a Solaris License Defect

Due to a defect in the Solaris OS, when a Serena License Server is stopped on a Solaris system, between one to five minutes are required for the port to free up in order for it to restart. This can result in check out failures. The following command resets the default to 2.4 seconds:
`/usr/sbin/ndd -set /dev/tcp tcp_time_wait_interval 2400`

Area Locations for Demonstration Process Models

Check that the installer has created the following top-level deployment directories for the products associated with the **"Typical, Stream Development"** or **"Typical, Non-Stream Development"** demonstration process models. If they are not present, manually create them:

```
%DM_ROOT%/../workareas/cm_typical/DEV
%DM_ROOT%/../workareas/cm_typical/LIVE
%DM_ROOT%/../workareas/cm_typical/PREPOD
%DM_ROOT%/../workareas/cm_typical/QA
%DM_ROOT%/../workareas/cm_typical/SIT
%DM_ROOT%/../workareas/cm_typical/WORK
```

Ownership of Item Libraries

During a standard installation of Dimensions CM 14.2, all item libraries are owned by the Dimensions CM System Administrator (dmsys by default). Make sure that any additional item libraries are also owned by the Dimensions CM System Administrator and *not* the user `root`.

Integrating with Dimensions RM

If you will integrate with Dimensions RM, Edit the Dimensions RM server `rmcm.xml` file to provide the Dimensions CM server URL.

1. On the Dimensions RM web server system, navigate to:
   `<RM-Install-Directory>\conf`
2. Open the following configuration file in a text editor:
   `rmcm.xml`
3. Update the following lines with the Dimensions CM server information:

```
<project>
       <!--  CMServer url="http://localhost:8080" -->
        <CMServer url="" />
</project>
```

If Dimensions CM is installed on the same system as the Dimensions RM web server and was installed with the default port number 8080, then this URL is already correct.

Setting Up SSO (Server Only)

Configuring Trusted Certificate Authorities for SSO and CAC

For SSO and Common Access Card (CAC) installations, the certificate for user, services, and other purposes must be issued by a trusted Certificate Authority (CA). To configure CAs correctly you need a certificate of your authority (it can be CA on a Microsoft Domain Controller or externally based on OpenSSL).

Storing/Adding a Certificate (.CER, *.PEM, *CRT) into a Java Key Store (*.JKS):*

You can use the standard Java tool "keytool" to create a new keystore or add a new certificate to existing keystore. Enter the following command:

```
"%JAVA_HOME%\bin\keytool" -import -keystore
    <your_keystore_file_name> -storepass
    <your_keystore_password> -file <cert_to_import> -alias
    <your_cert_alias>
```

where:

<your_keystore_file_name>	Keystore file name to which to add the certificate.
<your_keystore_password>	Password for the keystore.
<cert_to_import>	Certificate to add to the keystore. It can be *.PEM, *.CER (Base64 or DER encoded), or *.CRT.
<your_cert_alias>	Alias of certificate in the keystore. Each certificate has an unique alias.

Configuring Truststore in the Security Server

To configure trusted CAs, specify one or more keystore and certificate aliases from the keystores in the X509-LDAP or X509-BASE authenticators of the STS. To do this, edit the STS configuration file:

<TOMCAT_HOME>\webapps\idp\WEB-INF\conf\Configuration.xml

The following sample shows how to configure trusted CAs— pay special attention to the "CertificateIssuerTrustMatcher" section:

```
<Setting Name="serena-ldap-authenticator" Type="htf:map">
  <Setting Name="Provider" Type="xsd:string">X509-LDAP</Setting>
  <Setting Name="CertificateMustExistInLDAP" Type="xsd:boolean">false
</Setting>
  <Setting Name="CertificateAttributeName" Type="xsd:string"></Setting>
  <Setting Name="SearchFilter" Type="xsd:string">(objectclass=*)</Setting>
  <Setting Name="CompatibleRequestMatchers" Type="htf:namedlist">
    <Setting Name="CredentialsTypeMatcher" Type="xsd:string">X509
</Setting>
    <Setting Name="AuthenticationTypeMatcher" Type="xsd:string">*
</Setting>
    <Setting Name="CertificateIssuerDNMatcher" Type="xsd:string">*
</Setting>
    <Setting Name="CertificateIssuerTrustMatcher" Type="htf:map">
      <!-- Sample Entry -->
      <Setting Name="serena-truststore" Type="htf:keystore">
        <Setting Name="Type" Type="xsd:string">JKS</Setting>
        <Setting Name="File" Type="htf:file">serenaca.jks</Setting>
        <Setting Name="Password" Type="xsd:string">changeit</Setting>
      </Setting>
      <Setting Name="serenaca" Type="htf:certificate">
        <Setting Name="KeyStoreName" Type="xsd:string">serena-truststore
</Setting>
        <Setting Name="Alias" Type="xsd:string">serenaca</Setting>
      </Setting>
      <!-- Template Entry -->
      <Setting Name="[your_keystore_alias]" Type="htf:keystore">
        <Setting Name="Type" Type="xsd:string">JKS</Setting>
        <Setting Name="File" Type="htf:file">[your_keystore_file_name]
    </Setting>
        <Setting Name="Password" Type="xsd:string">[your_keystore_password]</Setting>
      </Setting>
      <Setting Name="[your_certificate_alias(2)]" Type="htf:certificate">
        <Setting Name="KeyStoreName" Type="xsd:string">[your_keystore_alias]</Setting>
        <Setting Name="Alias" Type="xsd:string">[your_certificate_alias]
   </Setting>
      </Setting>
    </Setting>
  </Setting>
  <Setting Name="JNDI.Environment" Type="htf:map">
    <Setting Name="java.naming.factory.initial"
  Type="xsd:string">com.sun.jndi.ldap.LdapCtxFactory</Setting>
    <Setting Name="java.naming.provider.url" Type="xsd:string">
  ldap://serena.com:389</Setting>
    <Setting Name="java.naming.security.authentication"   Type="xsd:string">simple</Setting>
    <Setting Name="java.naming.security.principal"   Type="xsd:string">ldapuser</Setting>
    <Setting Name="java.naming.security.credentials"   Type="xsd:string">changeit</Setting>
  </Setting>
</Setting>
```

where:

`[your_keystore_alias]`	is any unique keystore alias (for example, `my_company_ca_store`).
`[your_keystore_file_name]`	is the keystore filename and full or relative path to the directory where `Configuration.xml` is located.
`[your_keystore_password]`	is the keystore password.
`[your_certificate_alias]`	is the existing certificate alias from **[your_keystore_file_name]**.
`[your_certificate_alias(2)]`	is any unique certificate name/alias (for example, `my_company_ca-01`). It can be the same as **[your_certificate_alias]**.

IMPORTANT! After upgrading, if you use custom certificates with passwords that are not the default (*changeit*) you will need to update the configuration file shown above. The pre-14.x file is saved in the Tomcat 8.0 directory as:

`backup_config.pre<current CM version number>`

Not Allowing Username/Password Authentication for CAC-Only Users

Dimensions CM supports dual username/password and CAC authentication for certain power users—for example, administrators and those who require the running of unattended batch jobs.

If other users should not have access to username/password authentication, the OS administrator should either:

- Not assign such users username/password authentication in the first place (the recommended option); or
- Remove username/password authentication from all normal CAC users who have such authentication (for example, users with usernames that existed before CAC authentication was introduced).

Establishing a Certificate Revocation List (CRL) for Invalid or Lapsed CAC Certificates

A Certificate Revocation List (CRL) is a common method for maintaining a list of subscribers paired with digital certificate status. The list enumerates revoked certificates along with the reasons for revocation. The dates of certificate issue, and the entities that issued them, are also included. Each list contains a proposed date for the next release. When a potential user attempts to access a server, the server allows or denies access based on the CRL entry for that user. You can compare user certificates against one or more CRLs. For details on configuring the Dimensions CM Security Token Service (STS) see the *System Administration Guide*.

Implementing CAC After Installing Dimensions with SSO

To implement Common Access Card (CAC) authentication support after installing Dimensions CM with SSO (Single Sign-on) support, complete the following steps:

1. Open the following file in an XML or text editor:
   `<TOMCAT_HOME>\webapps\idp\WEB-INF\conf\fedsvr-core-config.xml`

2. Locate the `AllowedPrincipalAuthenticationTypes` parameter and add `CLIENT_CERT` to it. This enables the **Smart Card Login** button. The resulting parameter looks like the following:
   ```
   <parameter name="AllowedPrincipalAuthenticationTypes"
   Type="xsd:string">CLIENT_CERT</parameter>
   ```

3. Save the `fedsvr-core-config.xml` file.

4. Open the following file in an XML or text editor:
   `<TOMCAT_HOME>\webapps\idp\WEB-INF\conf\Configuration.xml file`

5. Uncommment the X.509 authenticators by removing the `<!--X509-NAME and X509-NAME-->` markup from them. For example, remove the following markup to uncomment the `X509-BASE`, `X509-LDAP`, or `X509-CRL` authenticator, respectively.

   ```
   <!--X509-BASE ... X509-BASE-->
   ```

```
<!--X509-LDAP ... X509-LDAP-->
<!--X509-CRL ...  X509-CRL-->
```

6. Configure the Certificate Authorities (CA) in the X509-BASE and X509-LDAP authenticators as described in "Configuring Trusted Certificate Authorities for SSO and CAC" on page 99.

7. Note that for the X509-LDAP authenticator, the following parameters must be substituted:
   `$X509_LDAP_HOST`
   `$X509_LDAP_USER`
   `$X509_LDAP_PASSWORD`

   Note that by default, the installer configures the X509-LDAP authenticator when the CAC option is selected.

8. The `X509-CRL` authenticator can be used in addition to `X509-BASE` or `X509-LDAP`. In this case, the `$X509_CRL_PATH` parameter must be substituted and the specified folder must contain `*.CRL` files.

9. Save the `Configuration.xml` file.

10. Restart the Serena Common Tomcat Service.

The `Configuration.xml` file contains the following commented out example of an authenticator. To use it you must remove the comments and substitute the variables appropriate to your set-up:

```
<!-- ============================================================  -->
<!-- CRL validator against file based Certificate Revocation List    -->
<!-- ============================================================  -->
<!--X509-CRL
          <!Setting Name="serena-crl-validator" Type="htf:map">
          <!Setting Name="Provider" Type="xsd:string">X509-CRL<!/Setting>
           <!Setting Name="CompatibleRequestMatchers" Type="htf:namedlist">
              <!Setting Name="CredentialsTypeMatcher" Type="xsd:string">X509<!/Setting>
              <!Setting Name="AuthenticationTypeMatcher" Type="xsd:string">*<!/Setting>
              <!Setting Name="CertificateIssuerDNMatcher" Type="xsd:string">*<!/Setting>
            <!/Setting>
            <!Setting Name="CRLDir" Type="xsd:string">$X509_CRL_PATH
<!/Setting>
            <!Setting Name="CacheFileName" Type="xsd:string">crl_cache.xml<!/Setting>
            <!Setting Name="RefreshPeriod" Type="xsd:string">1200
        <!/Setting>
          <!/Setting>
X509-CRL-->
```

Configuring CAC for Serena Business Manager

To use Dimensions CM SSO in conjunction with SSO and CAC on a Serena Business Manager (SBM) installation:

1. Add the following SSO entries to the Dimensions CM server `dm.cfg` file.
   - SSO_SERVER_CERTIFICATE
   - SSO_SERVER_PRIVATE_KEY
   - SSO_SERVER_PRIVATE_KEY_PASSWORD
2. Restart the Dimensions CM listener.

Automatic Merge on UNIX Work Areas

If you are going to use auto-merge in a remote work area hosted on a UNIX system, check that the `diff` and `diff3` utilities are installed on the remote machine. Auto-merge with the command line on a UNIX system in a local work area also requires these utilities.

NOTE The minimum supported version of both is 2.7.

Chapter 7

Uninstalling Dimensions CM UNIX Components

Introduction

The Dimensions CM installer creates uninstaller files in the directory `_uninst_maint` located one level up from the Dimensions CM root directory. A record of the installed products is also created in the directory `/var/opt/serena/inventory`. To uninstall Dimensions CM components you *must* use these uninstaller files.l

TIP It is good administrative practice to regularly back up the files in `/var/opt/serena/inventory`.

During uninstallation, Java executable files are installed that enable you to run the uninstaller in either GUI mode or "dumb-terminal/VT100" mode. GUI mode is the default; while "dumb-terminal/VT100" mode is invoked by specifying "`uninstaller.bin -console`".

Before initiating the procedures, ensure that you are not running any Dimensions or RDBMS applications.

Stopping Tomcat

If you are uninstalling a Dimensions CM server, you must first shut down Tomcat:

1 Log in as the Dimensions System Administrator, that is, the person who owns the Dimensions CM files. By default, this is dmsys.

CAUTION! Do not stop Tomcat as user `root`. It must be stopped by the DSA to shut down correctly.

2 Give yourself the Dimensions CM environment variable values by running the appropriate Dimensions CM login script; for example:

- Bourne Shell
  ```
  $ cd /opt/serena/dimensions/14.2/cm
  $ . ./dmprofile
  ```
- C Shell
  ```
  $ cd /opt/serena/dimensions/14.2/cm
  ```

```
$ source ./dmlogin
```

3 Stop Common Tomcat by running the following commands:

```
$ cd $DM_ROOT/../common/tomcat/8.0/bin
$ ./shutdown.sh
```

4 To verify that Tomcat is no longer running, check the process list for the `tomcat` process.

Shutting Down Dimensions CM

If you are uninstalling a Dimensions CM server or agent, you will first need to shut down Dimensions CM :

1 Log in as user `root`.

2 Give yourself the Dimensions CM environment variable values by running the appropriate Dimensions CM login script; for example:

- Bourne Shell

```
$ cd /opt/serena/dimensions/14.2/cm
$ . ./dmprofile
```

- C Shell

```
$ cd /opt/serena/dimensions/14.2/cm
$ source ./dmlogin
```

3 Shutdown Dimensions CM as follows:

a Go to the Dimensions CM `prog` directory; for example:

```
# cd /opt/serena/dimensions/14.2/cm/prog
```

b Run the following command:

```
# dm_control cm_stop
```

4 Check that the Dimensions CM processes have shut down by typing:

```
# ps -eaf | grep dm[pal]
```

You should see services such as `dmappsrv.x` and `dmpool.x` are no longer present

Uninstalling the Dimensions CM Components

To uninstall Dimensions CM components:

1. Log in as user `root`.
2. Navigate to the `_uninstall` director located one level up from the Dimensions CM 14.2.0.2 root directory; for example:
   `/opt/serena/dimensions/14.2.0.2/_uninst_maint`
3. Invoke the uninstaller:
   - For GUI mode:
     `# ./uninstaller.bin`
   - For "dumb-terminal" mode:
     `# ./uninstaller.bin -console`
4. The uninstaller will typically step through:
   a A welcome screen.
   b A screen that informs you what is currently installed and that offers you the choice of nominating some of all of those components for uninstalling.
   c A "kick off" screen (click **Uninstall**).
   d A screen indicating that the uninstallation is in progress
   e An uninstallation complete screen.

Error Messages when Uninstalling UNIX Clients

If you uninstall the Dimensions UNIX client from a directory beneath the root directory of the Dimensions CM installation that you are uninstalling, you may receive some spurious messages. Uninstallation will complete successfully and you can ignore these messages. These include:

- `/opt/serena/dimensions/14.2/common/tomcat/8.0/conf/server.xml exists on this system and it has been modified since installation. Do you want to remove this file?`

- rm: cannot determine if this is an ancestor of the current working directory /tmp/istemp495138092221 bash-2.05# id uid=0(root) gid=1(other)
- cat: cannot open /tmp/istemp4482139051720/chunk2 , /tmp/istemp4482139051720/chunk1: No such file or directory , /tmp/istemp4482139051720/chunk2: No such file or directory

Uninstalling the zLinux and Linux Itanium Agents

To uninstall a default (`root`) installation of the zLinux and Linux Itanium agents:

1. Go to the Dimensions CM `prog` directory, for example:

   # cd $DM_ROOT/prog

2. Run the following command to shutdown the listener:

   # ./dmshutdown

3. Delete the existing agent file hierarchy;
   `# rm -r $DM_ROOT`

Uninstalling the Serena Runtime

To uninstall the Serena Runtime:

1. Log in as user `root`.
2. Give yourself the Dimensions CM environment variable values by running the appropriate Dimensions CM login script; for example:
   - Bourne Shell
     ```
     $ cd /opt/serena/dimensions/14.2.0.2/cm
     $ . ./dmprofile
     ```
   - C Shell
     ```
     $ cd /opt/serena/dimensions/14.2.0.2/cm
     $ source ./dmlogin
     ```

3 Shutdown the Serena Runtime as follows:

a Go to the Dimensions CM `prog` directory; for example:
`# cd /opt/serena/dimensions/14.2/cm/prog`

b Run the following command:
`# dm_control rdbms_stop`

4 Verify that there are no longer Oracle processes remaining with names similar to:

```
ora_cjq0_<orasid>
ora_ckpt_<orasid>
ora_d000_<orasid>
ora_dbw0_<orasid>
ora_lgwr_<orasid>
ora_pmon_<orasid>
ora_qmn0_<orasid>
ora_reco_<orasid>
ora_s000_<orasid>
ora_smon_<orasid>
oracle<orasid>
```

where `<orasid>` is the Oracle SID (System Identifier) supplied by the installer.

5 Proceed as follows:

For version 11gR2.0.3 of the Serena Runtime:

a Log in as user `root`.

b Navigate to the `uninstall` directory located at:
`$ORACLE_HOME/../"Uninstall_Serena Runtime 11.2"`

c Run the following program:
`"Uninstall_Serena Runtime 11.2"`

d The uninstaller will step through:

- A welcome screen.
- A screen that offers you the choice of nominating some or all of the installation components for uninstalling. Select all.

e Once the uninstaller completes, delete the directory tree containing the remainder of runtime executables; for example:
`/opt/serena/oracle`

Manually Cleaning Up

If you are not going to re-install Dimensions CM or the Serena Runtime, remove the `TSNAMES.ora`, `SQLNET.ora`, `pcms_sdp`, and `LISTENER` entries from the `/etc/services` file.

Chapter 8

Preparing to Upgrade

Upgrade Roadmap

Upgrading to Dimensions CM 14.x is a two stage process:

1. Upgrade your CM installations. For details see this chapter and chapter 9.
2. Upgrade the data in your RDBMS to use the new Versioned Repository Schema (VRS). For details see page 128.

CAUTION! Deliver all changes to your repository before starting an upgrading.

Preparing to Upgrade

Preparing for SSO Upgrade

Using an Existing SSO Server with or without CAC

Record the following before upgrading:

- Hostname:
- SSO port:
- Whether secure (https) connection are required:

Creating a new SSO server and optionally configure CAC software

Record the following before upgrading:

- Hostname
- SSO port
- Bind user DN
- LDAP password for the bind user DN
- For the new SSO server, record the LDAP parameters to be used:
  - Hostname (by default same as for CAC reader)

- Port (by default same as for CAC reader)
- Base DN
- Search filter
- Bind user DN (by default same as for CAC reader)
- LDAP password for the bind user DN (by default same as for CAC reader)

Preparing to Upgrade Server Components

Server Plus Schema Upgrades

If you are upgrading the Dimensions CM server and schema, see "Upgrading a Dimensions CM Server" on page 120.

Server Plus SSO server With our Without CAC

- If you are upgrading/installing or configuring an SSO server, see "Installing the Dimensions CM Server" on page 64.
- Run the upgrade installer.
- Perform the SSO additional post-installation checks. See "Configuring Trusted Certificate Authorities for SSO and CAC" on page 99 and "Establishing a Certificate Revocation List (CRL) for Invalid or Lapsed CAC Certificates" on page 102.

SSO Server After Dimensions CM Installation

- See "Setting Up SSO/CAC" on page 85.
- Run the installer.
- Perform the SSO additional post-installation checks. See "Configuring Trusted Certificate Authorities for SSO and CAC" on page 99 and "Establishing a Certificate Revocation List (CRL) for Invalid or Lapsed CAC Certificates" on page 102.

Upgrading Agent Components

- See "Upgrading Agents" on page 122.

- See "Dimensions CM for UNIX Agent Post-upgrade Activities" on page 152.

Upgrading Client Components

- See "Upgrading Clients" on page 123.
- See "Dimensions CM for UNIX Client Post-upgrade Activities" on page 152.

Upgrading Miscellaneous Components

- If you are upgrading Dimensions CM Make for UNIX, you should uninstall the previous version and then install the current version—see "Installing Dimensions Make" on page 83.
- If you are upgrading Dimensions CM for Eclipse, you should uninstall the previous version and then install the current version—see "Installing Dimensions CM for Eclipse" on page 80.
- If you are upgrading the Dimensions CM for zLinux client or agent, you should uninstall the previous version and then install the current version—see "Starting Agent Services" on page 74.

Backing Up Database and Program Files

- Back up your existing RDBMS database before you upgrade the Dimensions CM schema.
- Back up all Dimensions CM program files before upgrading:
  - Shut down Dimensions CM. See "Shutting Down Dimensions CM" on page 117.
  - Back up the Dimensions CM software.

- Back up configuration files such as `dm.cfg`, `email_config.dat`, `listener.dat`, and `registry.dat`. These configuration files are located in `$DM_ROOT%` (`dm.cfg`) and `$DM_ROOT/dfs` (all others).

NOTE After a server upgrade, Tomcat webapps files for previous installations will be located in one of the following directories:

- Tomcat 6.0: `%DM_ROOT%/../Common Tools/tomcat/6.0`
- Tomcat 7.0: `%DM_ROOT%/../Common Tools/tomcat/7.0`

You can copy them to the Tomcat 8.0 directory:

`%DM_ROOT%/../Common Tools/tomcat/8.0`

Shutting Down Dimensions CM

Shut down Dimensions CM before upgrading:

1. Exit all Dimensions CM tools and applications.
2. Log in as `root` and run the Dimensions CM setup script for Dimensions CM version.
3. Run the following to check that no users are using Dimensions CM:
   `$ ps -eaf | grep dm*`
4. Shut down Dimensions CM by running the `dmshutdown` script in the `$DM_ROOT/prog` directory. When you stop the Dimensions Service, the `dmschedule` and `dmemail` processes may continue to run for a period after the other processes have exited. You should ensure that these processes have actually terminated before performing an upgrade installation.
5. Log out in as the Dimensions System Administrator (`dmsys` by default). You must be logged in as `dmsys`, *not* `root`.
6. Run the following script to shut down the Common Tomcat:
   `$DM_ROOT/../common/tomcat/8.0/bin/shutdown.sh`

Confirming the Database is Running

Before running an upgrade installation, ensure that the Dimensions CM database is active by connecting to it with standard database utilities. Also confirm that you know the correct database passwords for SYSTEM and PCMS_SYS, as you are prompted for this during a Dimensions CM server upgrade installation for that RDBMS.

Resetting the Oracle PCMS_SYS Schema User Password

During an upgrade installation, the installer expects the password for the existing Oracle PCMS_SYS schema user to be the default value of pcms_sys. If another value was set at installation or afterwards, the upgrade will fail. To check whether the PCMS_SYS schema user password is still set to pcms_sys, enter the following commands:

```
sqlpus system/<system_password>@<ORCLE_SID>
SQL> connect pcms_sys/pcms_sys
```

If this returns the following, then the default is still set:

```
SQL> Connected
```

To change the password back to its default value (at least for the duration of the upgrade), do one of the following:

- For the Serena-Supplied Runtime RDBMS, run the dmdba cpas command. See the *System Administration Guide* for details.
- For Oracle Enterprise enter the following command:
  ```
  SQL> alter user pcms_sys identified by pcms_sys;
  ```

Chapter 9

Upgrading Dimensions CM

Upgrading a Dimensions CM Server

CAUTION! Deliver all changes to your repository before upgrading.

The server upgrade installer performs the following processes:

1. Copies server the files.
2. Installs the server files.
3. Upgrades the database schema.
4. Creates the uninstaller files.
5. Configures the web tools.
6. Completes the upgrade installation and calculates database statistics.

IMPORTANT! After completing the upgrade you must upgrade your projects, streams, and baselines to use the new VRS schema, for details see page 128.

You can optionally install the Single Sign-On server with or without Common Access Card support as part of the upgrade.

Running the Server Upgrade Installer

For details on launching the Dimensions CM installer refer to "Launching the Installer" on page 19.

1. From the initial InstallShield Wizard screen click **Next**.
2. Read the license agreement and click **I accept the terms of the End User License Agreement** to accept the terms. Click **Next**.
3. Click **Upgrade** to select Dimensions CM components for an upgrade of a previous release of Dimensions.
4. Click **Server** and **Next** to upgrade server components.
5. The installer displays the server location. If you have a single server installation on your system, accept this location and click **Next**. If you have more than one server installation, accept this location or click **Browse** to select the correct one. Click **Next**.
6. On Linux and Solaris, choose which server components to upgrade:

- **Upgrade all Dimensions Server Components** to upgrade all server components.
- **Setup Dimensions SSO** to add an SSO server or configure CAC. See "Setting Up SSO/CAC" on page 85.

7 On Linux and Solaris, choose SSO options:

- **Dimensions SSO** to upgrade an existing SSO server.
- **Dimensions SSO and Smart Cards** to upgrade an existing SSO server and smart card setup configuration.
- **Do not setup Dimensions SSO or Smart Cards** if you do not have these components in your existing installation.

8 Enter the OS login account name and password for the Dimensions CM System Administrator. By default, the user name is dmsys.

9 Select the version of the database platform (Serena runtime or Oracle Enterprise) that you are upgrading. This applies to a remote node. Click **Next**.

10 Enter the name of the UNIX owner of the Serena-Supplied Runtime RDBMS or Oracle Enterprise files. This will normally be `oracle`. This applies to a local Oracle client. Click **Next**.

11 Browse to specify the directory in which the Serena Runtime or Oracle Enterprise is located. This applies to a local client. Click **Next**.

12 Provide the **Hostname**, **System ID (SID)**, **NET8 Service Name,** and TCP /IP **Port** number for a remote Serena Runtime or Oracle Enterprise. Click **Next**.

13 Confirm the Oracle Administrator username and password. By default for a Serena Runtime these are `SYSTEM` and `MANAGER`.

Confirm the password for the `PCMS_SYS` schema. By default for the Serena Runtime, this is `PCMS_SYS`. These apply to a remote node.

Click **Next**.

14 If you are using a 32-bit Oracle client, you may be prompted to install a 64-bit Oracle client. Accept the default or click **Browse** to navigate to an appropriate directory. Click **Next**.

15 Enter the name of the base database that the Listener should connect to once upgrade is complete (such as cm_typical). Click **Next**.

16 Specify the OS user who owns the Serena common Tomcat and Java executable. This user is typically given restricted permissions and must exist prior to installation. By default, it is `dmsys`. Click **Next**.

17 For the Dimensions Tomcat Server port number, accept the default value of 8080 unless it is already in use by another application. In this case, enter a new port number. Some software is hard coded to port 8080 and cannot be reassigned (see "TCP/IP Port Usage" on page 49). Click **Next**.

18 Review settings to ensure that they are as you expect.

19 If the settings are correct, click **Install**.

NOTE During the schema upgrade all the Dimensions CM base database passwords are reset to be the same as the associated base database names—for example, password `cm_typical` for the `cm_typical` base database. Upon completion of the rest of the installation and the post installation checks, you will need run the Dimensions CM `dmdba cpas` command to change these default passwords to more secure values, see the *System Administration Guide* for details.

20 Click **Finish**.

IMPORTANT! After completing the upgrade you must update the data in your RDBMS, for details see page 128.

Upgrading Agents

For details on launching the Dimensions CM installer refer to "Launching the Installer" on page 19.

1 Read the license agreement and click **I accept the terms of the End User License Agreement** to accept the terms. Click **Next**.

2 Click **Upgrade**.

3 Select **Agent**. Click **Next**.

4 Accept the location of the existing Dimensions CM installation and click **Next**.

5 Enter the OS login account name and password for the Dimensions System Administrator. By default, the user name is dmsys. Click **Next**.

6 Enter the login account name for the Common Tools owner. By default, this is dmsys. Click **Next**.

7 Specify the Tomcat port. By default, this is `8080`. Click **Next**.

8 Click **Install** to begin the agent upgrade.

9 After upgrade completes, click **Finish**.

IMPORTANT! After completing the upgrade you must update the data in your RDBMS, for details see page 128.

Upgrading Clients

For details on launching the Dimensions CM installer refer to "Launching the Installer" on page 19.

10 Read the license agreement and click **I accept the terms of the End User License Agreement** to accept the terms. Click **Next**.

11 Click **Upgrade** to select Dimensions CM components for an upgrade of a previous release of Dimensions.

12 Select **Client**. Click **Next**.

13 Accept the location of the existing Dimensions CM installation and click **Next**.

14 Enter the OS login account name and password for the Dimensions System Administrator. By default, this is dmsys. Click **Next**.

15 Enter the login account name for the Common Tools owner. By default, this is dmsys.

Click **Next**.

16 Specify the Tomcat port. By default, this are `8080`. Click **Next**.

17 Click **Install** to begin the client upgrade.

IMPORTANT! After upgrade completes, click **Finish**.After completing the upgrade you must update the data in your RDBMS, for details see page 128.

Upgrading Your RDBMS

Review this content if you want to migrate to the latest version of the Serena Runtime or Oracle Enterprise.

NOTE Some migration scenarios might require additional steps not mentioned here (for example, the `pcms-sys.pcms_db_details` table might become out of sync in some cases). If so, knowledge base articles or Support personnel might be of assistance.

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Upgrade Scenario

The following is a typical scenario:

- You have an existing Serena® Dimensions® CM production server running against either a local Serena Runtime based on Oracle 10g or a local Oracle Enterprise instance.
- As the latest version of the Serena Runtime or Oracle Enterprise demands more system resources, you have decided that you cannot upgrade to the Oracle 11gR2.0.3 version on the existing server.
- You install the Serena Runtime or Oracle Enterprise on a more powerful system.

- You want to migrate your existing Dimensions CM production server and Oracle production databases to the new system and upgrade Dimensions CM.

Upgrade Path

1. On the new system, create an Oracle instance. See "Creating the Dimensions CM Oracle Instance" on page 25.
2. On this system, install the Dimensions CM server with a local Serena Runtime or Oracle Enterprise. See "Installing Dimensions CM" on page 63.
3. On this system, drop the pcms_sys database and the demonstration database.
4. On the original Dimensions CM server, export your existing Oracle pcms_sys and demonstration databases.
5. On the new system, import the database export file.
6. Manually upgrade the imported databases to use the new Dimensions CM schema:
   a. Log in to the Dimensions CM dmdba utility as the Oracle Administration user (this is typically `system`):
      ```
      dmdba system/<system_password>@<connect_string>
      ```
      For example:
      ```
      dmdba system/manager@dim14
      ```
   b. At the `SYSTEM>` prompt, enter the following `dmdba` command
      ```
      upgrade all /force
      ```
   c. At the `SYSTEM>` prompt, enter the following `dmdba` command:
      ```
      exit
      ```

Chapter 10

Post-upgrade Activities for Dimensions CM

Chapter Overview

This chapter describes the post-upgrade activities that you need to run once your Serena® Dimensions® CM for UNIX server, agent, or client upgrade has completed successfully. These are in addition to the normal post-installation activities described in Chapter 6, "Post-Installation Tasks" on page 89.

IMPORTANT! If you are using the deployment capabilities you must enable deployment logging and configure the deployment server after upgrading. For details, see the *Deployment Guide*.

Upgrading the Data in your RDBMS

After completing an upgrade you must then upgrade the data in your RDBMS to use the new Versioned Repository Schema (VRS). The upgrade is required populate the VRS schema for the existing streams, projects, and baselines.

Serena recommends that you first upgrade recently used projects, streams, and baselines so that your users can start work immediately. Then upgrade the rest of the data. Dimensions CM operates normally while the upgrade utility runs in the background.

You can use the following methods to perform the VRS upgrade:

- The Versioned Repository Schema Upgrade GUI utility
- The `dmdba` command line

IMPORTANT! During the VRS upgrade the index tablespace(s) may increase by 50 percent. You may need to make the tablespace bigger before you start the upgrade.

Using the VRS Upgrade Utility

1 To launch the Versioned Repository Schema Upgrade GUI utility

a Change directory to the Dimensions CM root directory.

b Run the `dmprofile` environment script.

a Call the `vrsupgradeui` script.

2 In the log in dialog box specify a schema name, schema password, and DB connection for the database you want to upgrade.

3 Click **OK**.

The Versioned Repository Schema Upgrade utility opens. It may take some time for the data to be loaded from the database. Navigate between the tabs to display the projects, streams, and baselines that can be upgraded.

4 By default all objects are selected initially. To modify the list of objects to be upgraded you can apply filters:

- In the **Filter** box enter a value and from the list select one or more of these filters:
  - ID
  - Last Updated Date
  - Items
- Select the **From and/or To** options and specify a date range.

TIP: Use the right-click menu to expand, collapse, check, and uncheck objects and trees.

CAUTION: By default all objects are selected. When you apply filters all selected objects will be upgraded, not just those displayed in the filter list. Deselect objects that you do not want to upgrade.

5 To upgrade all the selected objects click **Upgrade**.

6 Click the **Logging** tab to display details of the upgrade progress.

7 When the upgrade is completed click **Finish**.

Using dmdba to Upgrade to VRS

Connect to the base database using the dmdba utility:

```
dmdba DB_name/db_password@db_connection
```

To upgrade projects and streams:

Run the `upgradevrs` command. You must use a pattern or list to specify the projects and streams to be upgraded:

- Project name or pattern: `PRODUCT:PROJECT,PRODUCT:%, %`
- List: specify a file containing a list projects and streams in `/B[ULK_FILE]=filename`

  The file should have one stream or project per line followed by '/'.

To upgrade baselines:

Run the `upgradebln141` command. You can use a pattern or list to specify the baselines to be upgraded:

- Baseline name or pattern: `PRODUCT:BASELINE1, %`
- List: specify a file containing a list of baselines in `/B[ULK_FILE]=filename`

  The file should have one baseline per line followed by '/'.

To prepare streams for use in CM Bridge:

If you are using CM Bridge run the `upgradecmbr` command to prepare your streams. This command has no parameters and upgrades all streams.

Computing Oracle Statistics

If you are using an Oracle RDBMS, after completing the VRS upgrade Serena recommends that you compute statistics. To compute statistics connect to dmdba as the system user:

```
dmdba system/sys_password@db_connection
connect base_db
statistics compute
```

Depending on the size of your RDBMS this operation may take a few hours. When successfully completed it will speed up queries and increase system performance.

Dimensions CM for UNIX Server Post-upgrade Activities

Updating Database Views

IMPORTANT! The following steps are *only* required if the Dimensions CM you upgraded to had base databases in *addition* to that specified according to your choice of process model during the initial fresh installation. The fresh installation-specified base databases (for example, `qlarius_cm` or `cm_typical`) are automatically updated by the upgrade installer.

Before Dimensions CM can be used against a Dimensions base database other than that specified according to your choice of process model during the initial fresh installation, the following steps must be performed on each of the additional base databases:

1. Log in to `dmdba` as the Dimensions CM RDBMS Administrator (for the Serena-Supplied Runtime RDBMS or Oracle Enterprise this will normally be `system`). Do this by typing the following in a terminal window (where `<connect_string>` is the appropriate RDBMS Database Source Name for the connection):

   ```
   $ dmdba system/<system_password>@<connect_string>
   ```

   For example:

   ```
   $ dmdba system/manager@dim14
   ```

2. At the `SYSTEM>` prompt (Serena-Supplied Runtime RDBMS or Oracle Enterprise), type the following Dimensions `dmdba` command-pairs for each base database:

```
drop_base_views <BaseDatabase1> /Force
create_base_views <BaseDatabase1> /Force
drop_base_views <BaseDatabase2> /Force
create_base_views <BaseDatabase2> /Force
...
...
drop_base_views <BaseDatabaseN> /Force
create_base_views <BaseDatabaseN> /Force
exit
```

For example, for a Dimensions CM server that uses Oracle and has additional base databases `test1` and `test2` with the default `<connect_string>` of `dim14`, you would type.

```
$ dmdba system/<system_password>@dim14
SYSTEM> drop_base_views test1 /Force
SYSTEM> create_base_views test1 /Force
SYSTEM> drop_base_views test2 /Force
SYSTEM> create_base_views test2 /Force
SYSTEM> exit
```

Reinstalling Dimensions Published Views

Following an upgrade you must reinstall all Published Views—refer to "Installing Dimensions Published Views" on page 94 and the related document *Reports Guide* for the necessary instructions.

Rebuilding Developer's Toolkit Applications

Following an upgrade installation you must ensure that any DTK (API) applications and events that you previously had are rebuilt—refer to the related document *Developer's Toolkit Reference Guide* for the necessary instructions.

Migrating pre-12.x Deployment Data

NOTE The processes described in this section are only required for upgrades from Dimensions CM installations earlier than 12.x.

You can migrate your existing deployment data from your existing *pre-*Dimensions CM *12.x* to 14.2.0.2 and use it with the new deployment model. There are two separate processes that enable you to use your existing deployment areas:

- The database upgrade that is performed automatically during installation.
- A manual standalone upgrade/migration process (documented here) that migrates your existing deployment information into the new Dimensions CM format first introduced at Dimensions CM 12.1. You can run this migration process when you are ready to bring a deployment area online for use in Dimensions CM 14.2.0.2.

IMPORTANT!

- You cannot deploy to an area that has not been upgraded.
- You must upgrade the metadata in an area before upgrading it. For details about the *dmmeta* Metadata Utility see the *Command-Line Reference*.

You can migrate existing deployment data from pre-Dimensions CM version 12.x to 14.2.0.2 for one or all of your registered deployment areas. The areas being migrated must be online, accessible, and have valid login credentials specified against them for the migration process to work. For each area being migrated the process performs the following operations:

- Checks that the remote area is online and available.
- Scans the contents of the remote area for files that were placed there by Dimensions CM.
- Creates an initial area version that represents the current contents of that area based on the scan.
- Creates an area audit trail that reflects the area version that was just created.
- Validates that the area version just created is correct.

Preparing for Migration

To successfully run the migration process you must first decide which areas need to be migrated and have those areas online and available. By default, the migration process attempts to migrate all active deployment

areas currently registered in your database. If you are only using some of your deployment areas you should only migrate these and leave the others until needed.

Run the following checks against each area to make the migration process run smoothly (you should have previously run an `AUDIT` operation against each area prior to upgrading to Dimensions CM 14.2.0.2, see "Upgrading Pre-Dimensions CM 14.2.0.2 Deployment Areas" on page 246, but that step is optional):

- Check the area is online and the accessible to Dimensions CM. If it is running on a Dimensions CM agent, verify that the agent has been started and is running.
- Check the area definition has an area user and password associated with it. Failure to do so means that the migration of this area are skipped.

NOTE *This note only applies to areas hosted on z/OS mainframes on the MVS file system (not the z/OS UNIX file system)*.

The migration process described below explores all MVS data sets inside the area root. Some of the data sets may have been migrated to tape using the HSM product and the upgrade automatically recalls the data sets from tape. However, if this must done for hundreds of data sets it can be a long process as they are recalled one at a time. Serena recommends that you perform the upgrade one area at a time (using the -area switch on the command) and make sure that all the relevant data sets are recalled prior to issuing the command. This is a more efficient than a bulk recall of all the data sets. You can also skip old areas that are no longer needed (these areas are likely to be on tape).

Running the Migration Process

You must run the migration process on a Dimensions CM 14.2.0.2 server installation using `dmdba`—see the *System Administration Guide* for details about invoking dmdba. For each Dimensions CM base database that you want to migrate, perform the following steps:

1. Login as a valid Dimensions CM administrator and setup the Dimensions CM environment.
2. Invoke `dmdba` against either the `SYSTEM` (on Oracle) or `PCMS_SYS` (MSSQL) databases; for example:

```
dmdba system/manager@dim14 (Oracle)

dmdba pcms_sys@dim14 (MSSQL)
```

3 Run the following `dmdba` command:

```
UPGRADEDEPLOY <baseDb>@<dsn>
```

where:

`<baseDb>@<dsn>` refers to the name of the Dimensions CM base database that you want to upgrade.

The `UPGRADEDEPLOY` command can also accept a number of optional qualifiers:

`–area <areaId>`

Forces the migration process to only process the specified area identifier. If this qualifier is not specified all registered deployment areas are migrated.

`–hidden`

Automatically registers any migrated files that are not displayed in the deployment views. Please see the *Deployment Guide* for details on hidden objects.

`-force`

Forces the migration process to attempt to re-migrate the area even if it has already been migrated.

Example commands:

- To upgrade all the deployment areas in CM_TYPICAL:

  ```
  SYSTEM> UPGRADEDEPLOY cm_typical@dim14
  ```

- To upgrade only the deployment area LIVE in CM_TYPICAL:

  ```
  SYSTEM> UPGRADEDEPLOY cm_typical@dim14 –area live
  ```

- To upgrade only the deployment area LIVE in CM_TYPICAL and hide the migrated files:

  ```
  SYSTEM> UPGRADEDEPLOY cm_typical@dim14 –area live -
      hidden
  ```

Restrictions with the Migration Process

- After you upgrade the history for deployment areas only displays the new 'Deployment' event type and does not display pre-Dimensions CM 12.x history. However, all of the pre-Dimensions CM 12.x data can be queried from the PCMS_PROMOTE_HISTORY published view.
- The audit trail created by the migration process only consists of an initial area version and a list of all the items that are currently deployed to that area. Details of requests or baselines that might have also been deployed to that area are not created.
- When running the migration, any z/OS systems that are hosting deployment areas must have already been upgraded to Dimensions CM 14.2.0.2. Failure to do so causes the migration process to fail.
- Items that have been upgraded as a result of this migration process cannot be rolled back unless they are specifically redeployed.

Upgrading and Maintaining the MO_LIST Table

The `build_upgrade_molist` utility program is used to:

- Convert Dimensions MO_LIST rows so that the data items in this table reflect the latest definitions of the data items used in the product.
- Prune unnecessary records from the MO_LIST structure.

You can run the utility repeatedly to perform pruning operations. However, it is most useful when converting to a 14.2.0.2 database. Failure to run this conversion utility will result in incorrect target determination during build processing and incorrect soft record processing.

Serena Support can provide a process to help you check if the upgrade is required. Due to the existence of several paths to 14.2.0.2, some from earlier conversion processes, it is recommended to run this process.

TIP The utility has a backup facility therefore you can use it with relatively low risk.

NOTE If you are not running Serena Build on MVS you do not need to run this utility.

IMPORTANT!

- You must run this utility before you perform any builds in Dimensions CM 14.2.0.2.
- The upgrade utility may delete rows from the `MO_LIST` table. It is recommended that you back up this table or the whole database before running the utility. As an added safeguard, the utility automatically makes a backup of the data.
- The utility can also be used, including after an upgrade, to reduce the size of the MO_LIST table.

Overview

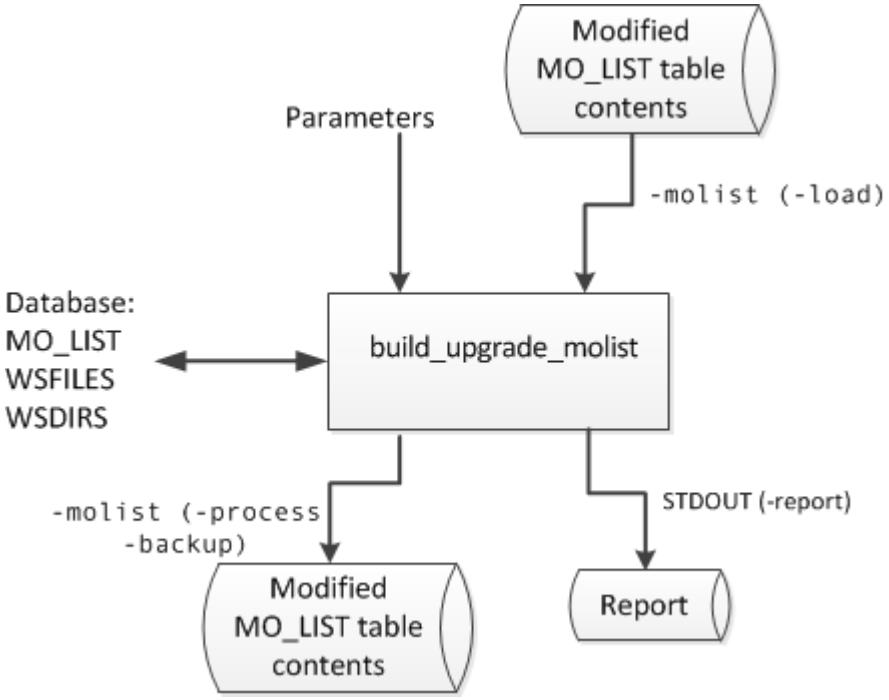
The primary purpose of the utility is to manipulate the contents of the MO_LIST table, which contains build relationships. While the utility is executing the database is not altered and is available. The utility outputs a text file containing the proposed rows. You can then inspect the file and load it into the target system using the -load command or an Oracle utility. There are multiple qualifiers to control the behavior of the commands.

The MO_LIST table holds made-of relationships between items and items. It is used extensively in builds to determine what makes up an artifact. There are several sorts of records on this table. The records used by build have the flags 'O' and 'S':

- O: Hard or ordinary relationship records that record actual dependencies observed by the build system.
- S: Soft records that record putative relationships derived from hard relationships on an earlier version of a source item.

NOTE There are also M flag records placed on this table by `dm_make/mcxslave` processing, but these are outside the scope of build.

The following diagram illustrates the data input and output flow:



Unique Records

After the utility has completed an upgrade, each pair (`from_uid`, `to_uid`) is unique. This behavior optionally allows a new index to be created against the MO_LIST table, which may be useful in very large installations (see a page 146).

Soft Relationships

A new set of soft records can be created by inspecting the existing relationships. The following should work as expected:

- Impacted target functionality.
- Build wizards.
- Newly edited versions of source files that have never been built.
- Older revisions which will never be built.

You can use this feature to create initial soft records when upgrading from an earlier version, or to replace the current set of records if they need to be reorganized.

Pruning Redundant Relationships

If you have a very large number of rows on MO_LIST the utility purges the redundant rows. This only has a small impact on functionality. The build wizards should work as expected on all source items revisions, even after a rollback, or when using an old baseline.

The following are retained:

- All item revisions of both sources and targets.
- Relationships from all source revisions, with a minimum of one revision of each target present at every stage of each lifecycle.

The only relationships that are removed are duplicate links, from a given source to multiple versions of the same target. However, older versions of targets (not sources) may not have made-of relationships recorded. If this is a problem then a purge can be optional. Purge can be mitigated by using the footprinting feature of Serena Build to record the makeup of each target. A source based impacted targets search works from any version of that source.

Syntax

```
build_upgrade_molist
   [-f <parameter filename>]
   -direct dbname/dbpassword@conn | <server connection
       parameters>
   -process | -backup | -load | -report | -all
   <qualifiers>
```

where `qualifiers` can be:

Qualifier	-process	-backup	-load	-report	-all	Description
`-trace`	y	y	y	y	y	Turns on command tracing. ■ Options: `0, 1, 2` ■ Default: `0` Option 2 is only available in conjunction with the -spec qualifier to limit the scope of the operation.
`-schema`	y	y	y	y	y	Overrides a schema, for example: `\"ndp.\"` Applies to the MO_LIST table, WSFILES and WSDIRS.
`-molist`	y	y	y		y	Specifies a text file containing MO_LIST records.
`-del`			y			Deletes or replaces table rows. ■ Options: `0, 1, 2, 3, 9` ■ Default: 2
`-overwrite`		y				Permits the overwrite of a backup file.
`-product`				y		Specifies a product.
`-project`				y		Specifies a project.
`-filename`				y		Specifies a mask to limit reporting.
`-spec`	y					Limits processing to specific item spec uids.
`-drop`	y					Drops relationships to target objects that match the specified mask.
`-s`	y					Creates soft records. ■ Options: `0, 1, 2` ■ Default: 1
`-o`	y					Controls hard record pruning. ■ Options: `0, 1, 2, 9, 99` ■ Default: 9

For full details of all the qualifier options see page 143.

Using a Parameter File

Use the optional command `-f <parameter filename>` to read a file for additional parameters. This is particularly useful for options that are verbose such as `-drop` that can appear many times. It is easier to specify this list in a file, and refer to it with -f, than generate long commands. Do not use parameters containing spaces inside the parameter file. Example:

```
-f parm.txt
```

Logging into Dimensions CM

- `-direct`

  Use this option if you are local to the Dimensions Oracle instance to log in directly to the database without using Dimensions. Dimensions does not have to be running and users can use the tables when the utility is executing:

  ```
  -direct \"dbname/dbpassword@conn\"
  ```

  Example:

  ```
  -direct intermediate/intermediate@dim14
  ```

- `<server connection parameters>`

  Use this option to log in via a Dimensions server, which must be running.

  ```
  -server          localhost:671
  -user            dmsys
  -password        dmsys
  -database        intermediate
  -conn            dim14
  ```

  Example:

  ```
  -server localhost:671 -user dmsys -password dmsys
      -database intermediate -conn dim14
  ```

-process Command

This command performs an upgrade of the build relationship data without altering the tables. It is a read only process that creates a file containing the changed data. You can then load the file into the database using the `-load` command or use Oracle techniques.

-backup Command

This command creates a text file of every row in the MO_LIST table.

TIP You could instead use Oracle's native backup features.

-load Command

This command loads a text file of build relationships into the MO_LIST table. This is the only command that writes to a table. This file can be a backup taken earlier with the `-backup` command or an upgraded table produced by the `-process` command.

TIP sqlldr in Oracle may be quicker for very large tables. For more information see page 146.

-report Command

This command lists the relationships that are found against a set of source revisions. The filename does not include the path and is in Dimensions format. It is used in `LIKE "..."` expressions in SQL therefore is case sensitive and can use `%` and `_ wildcards`. For mainframe files, use FOO.COBOL rather than COBOL(FOO).

Qualifiers:

- `-product` (case sensitive)
- `-project` (case sensitive)
- `-filename` (filename not the path)

Example:

```
-product PAYROLL
-project TEST1
-filename test.c
```

-all Command

This command executes a sequence of commands with pre-defined filenames. You can use it to execute an upgrade with a single command. It is equivalent to the following sequence of commands:

```
-backup molist_backup.txt
-process molist_process.txt
-load molist_process.txt
```

Qualifier Options

Qualifier	Options
`-trace`	`0`: No tracing `1`: Normal tracing `2`: Use with the -report qualifier for more detail.

`-schema`	The `-process` command requires these Oracle tables:
	■ item_catalogue
	■ ws_files
	■ mo_list
	Usually the tables all come from the schema you connected to with the `-direct` or `-database` options. However, you can get MO_LIST from a different schema if required, using the `-schema` qualifier. For this to work you will need to grant access to MO_LIST to the user which you logged in with. This is useful if you have restored a backup into BACKUP.MO_LIST and need a matching `ws_files` and `item_catalog` in another database. You then run the following commands:
	`sqlplus backup/backup@dim14`
	For example:
	`Grant select, insert, delete on table backup.mo_list to intermediate;`
	You can load data into a foreign schema with the `-schema` qualifier. For example, this allows you to load the data into a test system. The table is called XXX.MO_LIST and the active user requires the GRANT INSERT permission.

Qualifier	Options
-del	-del <sql delete option> where option can be: ■ 0: No records deleted. ■ 1: Soft records deleted. ■ 2: Soft and hard records deleted. ■ 3: Hard records deleted. ■ 99: All records deleted. The rows read from the file can either replace the rows already on the table or be merged with them. This depends on the -del qualifier that controls which rows on the current table will be deleted. If you are merging records, the index constraints need to be obeyed. Typically, if you are creating a set of soft records you would delete all existing soft records with -del 1. If you are pruning redundant records, delete all records with -del 99.
-spec	-spec <obj_spec_uid> For testing and investigation it is useful to limit the utility to process only certain items. You can do this by listing the OBJ_SPEC_UID values, for example: -spec 8943226 -spec 9070313 -spec 9101070 List the source spec_uid and the target spec_uids if you want all the functionality to work as expected.
-drop	-drop <sql like-clause> Use this qualifier to drop relationships to certain types of target objects. Use it multiple times to get a list. The strings are used in LIKE ".." SQL statements against WS_FILES.filename. For example: -drop %.DBRM -drop foo.obj

Qualifier	Options
-s	-s option Creates soft records where option can be: ■ 0: Do not create any soft records. ■ (Default) 1: Create normal soft records. ■ 2: Create fewer soft records than option 1 by un-duplicating records based on the textual filename. This is useful if you have many Dimensions objects with the same name.
-o	-o option Prunes hard records where option can be: ■ 0: Do not create normal hard records. ■ 1: Leave one relationship for each source/target/stage combination. ■ 2: Leave two relationships for each source/target/stage combination. ■ (Default) 9: Leave relationships that match the ws_files table criteria, for example, honor -drop. ■ 99: Leave all relationships (-drop will not work in this case). Note: Even if you specify -o 99, records are still un-duplicated to create a unique (from_uid, to_uid) pair.

Reloading the MO_LIST Table

You can use the -load command to reload the table. However, for very large tables that exceed one million rows this might take a long time and put a strain on the Oracle re-do logs. It may be quicker to do the following:

1 Drop the MO_LIST table and all its indexes.

2 Recreate the empty MO_LIST table without indexes.

3 Use the sqlldr process from Oracle to reload data from the text file.

4 Recreate the indexes.

5 Grant again any accesses that are required.

6 Redo Oracle statistics.

You can perform step 2 by itself but it will probably be as fast as using the -load command.

An Oracle DBA can perform these steps by making note of how the table is currently set up so that it can be re-created in the same way (grants, indexes, and views). This process is quicker because the drop table is much faster than deleting all the rows (due to the re-do logs).

Using sqlldr

Create a text file called `molist-sqlldr.txt` similar to this:

```
load data
infile 'd:\molist_process.txt'
into table mo_list
fields terminated by "," optionally enclosed by '"'
( from_uid
, to_uid
, flag
, rule_uid
, build_uid
, from_fv
, to_fv
, from_workset_uid
, to_workset_uid
, from_virtual
, to_virtual
)
```

Note the `infile` syntax that names what the input file is. This is the file named by -molist in the upgrade command. For example:

```
sqlldr intermediate/intermediate@dim14 control=molist-
    sqlldr.txt
```

Creating New Indexes for the MO_LIST Table

This is an optional step and is only useful if you have a very large MO_LIST table with millions of rows. You can combine it with the sqlldr process or execute it after the table is up and running after using the `-load` command. After running the -process command with -o 1,2 or 9, the data will be unique with respect to (`from_uid,to_uid`). Certain operation in the server may be faster if unique indexes are created.

The following two indexes can be created:

```
CREATE unique INDEX nbp.mo_listu1 ON nbp.mo_list
(
                to_uid
                , from_uid
);

CREATE unique INDEX nbp.mo_listu2 ON nbp.mo_list
(
                from_uid
                , to_uid
)
```

Example of a full command:

```
CREATE unique INDEX nbp.mo_listu1 ON nbp.mo_list
(
                to_uid
                , from_uid
)
PARALLEL
(
                DEGREE 1
                INSTANCES 1
)
PCTFREE            10
INITRANS           2
MAXTRANS           255
STORAGE
(
                INITIAL           65536
                NEXT              1048576
                MINEXTENTS        1
                MAXEXTENTS        unlimited
                FREELISTS         1
                FREELIST GROUPS   1
                BUFFER_POOL       DEFAULT
)
LOGGING
TABLESPACE         pcms_data
;

CREATE unique INDEX nbp.mo_list2 ON nbp.mo_list
(
                from_uid
```

```
                  , to_uid
)
PARALLEL
(
                  DEGREE            1
                  INSTANCES         1
)
PCTFREE             10
INITRANS            2
MAXTRANS            255
STORAGE
(
                  INITIAL           65536
                  NEXT              1048576
                  MINEXTENTS        1
                  MAXEXTENTS        unlimited
                  FREELISTS         1
                  FREELIST GROUPS   1
                  BUFFER_POOL       DEFAULT
)
LOGGING
TABLESPACE          pcms_data
;
```

Upgrade Example

This example shows how to upgrade MO_LIST using the `build_MO_LIST_upgrade` utility.

1 Back up the MO_LIST table:

```
build_upgrade_molist \
         -direct intermediate/intermediate@d1222t0 \
         -backup \
         -molist ./backup-molist.out
```

This command:

- Copies all the data from the MO_LIST table to a backup file.
- Does not make changes to the MO_LIST table.
- Fails if `backup-molist.out` already exists. Use the qualifier `-overwrite` to overwrite it.

2 Reads the MO_LIST structure and obtains a report:

```
build_upgrade_molist \
         -direct  intermediate/intermediate@d1222t0 \
         -report \
         -product ACCTS \
         -workset ACCTS \
         -filename %
```

This command:

- Reports on the MO_LIST table contents.
- Does not change the MO_LIST table.
- Sends the output file to stdout.

NOTE: `-filename` selects everything.

3 Read and process the MO_LIST structure:

```
build_upgrade_molist \
         -direct  intermediate/intermediate@d1222t0 \
         -process \
         -molist ./trimmed-molist.out \
         -drop %.DBRM \
         -drop %.LNKLIB \
         -s 2 \
         -o 2
```

This command:

- Drops all relationships from source to DBRMs.
- Drops all relationships from LNKLIB outputs.
- Uses file names to reduce the number of soft records.
- Keeps two generations of source and target pairs.
- Writes the changed MO_LIST data to `trimmed-molist.out`.
- Always overwrites `trimmed-molist.out`.
- Does not make changes to the database.

Copying UNIX Oracle Configuration Files

To enable UNIX Dimensions CM clients to access the upgraded installation, you have to copy or merge Oracle configuration files for each client hosted on a UNIX system.

To do this, copy the contents of the database server files located (UNIX flavor depending) in:

`/etc/tnsnames.ora` or `/var/opt/oracle/tnsnames.ora`

to the clients (UNIX flavor depending)

`/etc/tnsnames.ora` or `/var/opt/oracle/tnsnames.ora`.

Configuring UNIX Dimensions CM Command Files

The upgrade to Dimensions CM 14.2.0.2 creates the `startup` and `shutdown` scripts in the `$DM_ROOT/prog` directory. You may need to merge any customized changes that you performed on your previous scripts with these new versions.

Once you have made these changes, ensure that Dimensions CM will shutdown and startup successfully through these scripts.

Duplicate Entries in dm.cfg after an Upgrade

The upgrade installation of Dimensions CM 14.2.0.2 may possibly generate multiple rows of the same entry in the `$DM_ROOT/dm.cfg` file.

It is advisable to check this file and remove any such duplicate entries; otherwise, future changes made to particular rows will fail to become effective if subsequent unchanged formerly duplicate rows exist in the file.

SSO and CAC Post-installation Activities

NOTE The SSO server and SSO plus CAC configuration set up are only supported on Linux and Solaris Dimensions CM for UNIX platforms.

If, as part of the upgrade installation, you chose to install a Single Sign-on (SSO) server or to install an SSO server plus configure a remote Windows client Common Access Card (CAC) smart card, see the following additional post-installation activities:

- "Configuring Trusted Certificate Authorities for SSO and CAC" on page 99.
- "Not Allowing Username/Password Authentication for CAC-Only Users" on page 101.
- "Establishing a Certificate Revocation List (CRL) for Invalid or Lapsed CAC Certificates" on page 102.

NOTE There is no upgrade installer support for configuring CAC subsequent to the installation of an SSO server (support is only provided for SSO plus CAC). To implement CAC authentication after upgrading Dimensions CM with an SSO server, please see the manual steps detailed in "Implementing CAC After Installing Dimensions with SSO" on page 102.

Demo Certificates Mismatch

NOTE Only applicable if you are using demo certificates.

Upgrading an 12.x server (without SSO) to 14.2.0.2 and then enabling SSO with the demo certificates causes a mismatch of the `jks` and `pem` files. You will need to manually restore the 14.2.0.2 certificates and restart Tomcat:

1. Before running the installer make a copy of the 14.2.0.2 backup file:

```
../common/tomcat/8.0/alfssogatekeeper/conf/
    truststore.jks.14.2.0.2
```

2. Stop the Tomcat service.
3. Run run the installer to install SSO.

4 Rename this file:

`../common/tomcat/8.0/alfssogatekeeper/conf/truststore.jks`

Replace it with your backup of `truststore.jks.14.2.0.2`.

5 Rename this file:

`/opt/serena/dimensions/12.1/cm/dfs/sts.pem`

Replace it with a file called `sts.pem.14.2.0.2` in the same folder.

6 Restart the Tomcat service.

Dimensions CM for UNIX Agent Post-upgrade Activities

See "Configuring UNIX Dimensions CM Command Files" on page 150.

Apart from the above, there no agent post-upgrade activities additional to the normal post-installation activities described in Chapter 6, "Post-Installation Tasks".

Dimensions CM for UNIX Client Post-upgrade Activities

See "Copying UNIX Oracle Configuration Files" on page 150.

Apart from the above, there no client post-upgrade activities additional to the normal post-installation activities described in Chapter 6, "Post-Installation Tasks".

Appendix A

Troubleshooting a Dimensions CM Installation

Listener Does Not Start or Immediately Exits

If users are unable to connect to Dimensions CM after an installation, this may be caused by the listener not starting successfully. To validate listener configuration:

Validate Listener and Pool Management Executables

Log in as the owner of the Dimensions CM installation (`dmsys` by default), set up the Dimensions CM environment, and try to run the following executables from the command prompt:

```
dmlsnr
dmpool
dmappsrv
```

If any of these executables fail to run cleanly due to library or DLL loading errors, you must determine the cause of these errors before you can successfully run Dimensions CM. Common causes include running on a non-supported OS, or failing to set up Dimensions CM correctly. If re-installing Dimensions CM does not solve the issue, contact Serena Support for assistance.

Validate Log-In Details

If log-in information you supplied during installation are incorrect, the Listener may fail to start. You can verify the login details with a set of initialization parameters that trace the Listener and provide information on what the cause of failure might be. For instructions on how to activate this listener tracing, see Enabling Dimensions Listener Tracing on "Enabling Serena Dimensions Listener Tracing" on page 158.

If the logs generated as a result of enabling the listener trace contain errors such as the following, it is possible that either the user name or associated password that you specified during the installation are wrong.

```
dmpool 2004/01/23 12:25:55 E P3036 T1204 password not set for user xxx\dmsys
dmpool 2004/01/23 12:25:55 E P3036 T1204 StartUserProcess failed with 1326,
Logon failure: unknown user name or bad password.
dmpool 2004/01/23 12:25:55 E P3036 T1204 xxx\xxx/
*****, invalid user or password
dmpool 2004/01/23 12:25:55 E P3036 T1204 Cannot initialize pool
```

```
dmpool 2004/01/23 12:25:55 L P3036 T1204 Exiting

dmpool 2004/01/23 12:33:26 L P2208 T3648 DBS process created, id 928
dmpool 2004/01/23 12:33:26 L P2208 T3648 write message to process 928
dmpool 2004/01/23 12:33:26 L P2208 T3648 read message from process 928
dmpool 2004/01/23 12:33:26 E P2208 T3648 dmappsrv initialization failed,
process 928
dmpool 2004/01/23 12:33:26 E P2208 T3648 Cannot initialize pool
dmpool 2004/01/23 12:33:26 L P2208 T3648 Exiting
```

You can correct these details as follows:

- The username is specified by the `-user` parameter in the `$DM_ROOT/dfs/listener.dat` file (UNIX server or agent) or `%DM_ROOT%\dfs\listener.dat` file (Windows agent). If this value is incorrect, edit this file to change the specified user.
- To reset the associated user password used by Dimensions CM, run the following commands as the administrator of the Dimensions CM installation:

  ```
  dmpasswd <username> -del
  dmpasswd <username> -add -pwd <newPasswd>
  ```

  where `<username>` is the OS user and `<newPasswd>` is the current password for this user.

Validate Environment Variables

Verify that your `DM_ROOT` variable is pointing to the correct installation and that the executables in the path are the correct ones. You might have earlier versions of executables from previous installations that are being picked up first. Also, ensure that your path is only picking up one installation of Dimensions CM.

Validate Listener Socket is Available

1. Check that the `-service` parameter in the `$DM_ROOT/dfs/listener.dat` file (UNIX server or agent) or `%DM_ROOT%\dfs\listener.dat` file (Windows agent) refers to a valid TCP/IP service name.
2. *Windows only:* Check that the socket service number has been specified in the %DM_ROOT%/`dm.cfg` file. The format for this specification is:

   ```
   DM_SERVICE_<SERVICE_NAME>_TCP   <serviceNo>
   ```

3 Run the command `netstat -a` and check the output to determine if the socket is already in use. If it is, reset the TCP/IP service number and try again.

4 If you are using firewalls or other network software/hardware, check that these have been correctly configured to allow communication on your chosen socket/service.

Validate the Serena License Server is running

Validate that Serena License Manager is running, and that the Dimensions CM server is configured to point to a valid license server. In the Serena License Server installation directory, check for any log files that may have been generated in the appropriate sub-directories, and examine these files for any obvious errors.

Check the User's Password

For the user name that is specified by the `-user` parameter in the `$DM_ROOT/dfs/listener.dat` file (UNIX server or agent) or `%DM_ROOT%\dfs\listener.dat` file (Windows agent), check that the OS password for that user contains no underscore ("_") characters. If it does, reset the password using the appropriate OS commands and through the `dmpasswd` utility.

Validate the ODBC DSN for Connections

If you are using ODBC as the Dimensions CM database connection layer, validate that the name of the user specified by the `-user` parameter in the `$DM_ROOT/dfs/listener.dat` file (UNIX server or agent) or `%DM_ROOT%\dfs\listener.dat` file (Windows agent) is not the same as your DSN name. Failure to do so may cause ODBC connection errors to occur.

Check SQL Net Authentication Errors

Under certain circumstances, Oracle fails to authenticate with your pool user. This occurs on various platforms when using Active Directory for user authentication. You can identify this issue by enabling listener

tracing, as documented on "Enabling Serena Dimensions Listener Tracing" on page 158. Check the resulting trace logs in the dmappsrv<processId>.log files to see if you have Oracle connection errors. If you have errors, try changing the SQL Net authentication service as follows:

1. Edit the contents of the file sqlnet.ora in your %ORACLE_HOME%\NETWORK\ADMIN directory.
2. If the file contains the line:
   SQLNET.AUTHENTICATION_SERVICES= (NTS)

   Change the line to read
   SQLNET.AUTHENTICATION_SERVICES= (none)

   and restart the listener.

Remove OPS$ Accounts With Oracle and ODBC

If the user managing the pool, as defined by the -user parameter in the $DM_ROOT/dfs/listener.dat file (UNIX server or agent) or %DM_ROOT%\dfs\listener.dat file (Windows agent), has an OPS$ account defined for them in Oracle, this can cause problems with ODBC connectivity. To determine if this user has OPS$ privilege, log in as that user and try the following command:

```
sqlplus /
```

If a connection to the database is established, run the following SQL commands to drop that OPS$ account.

```
SQL> connect system/<system_passwd>
SQL> drop user OPS$<userId> cascade;
```

Database Connection Errors

Verify the connection to the database by enabling listener tracing, as documented in "Enabling Serena Dimensions Listener Tracing" on page 158. After attempting to start the listener, look at the output from the log files that are generated. If these log files contain errors similar to the ones shown below, the database details specified by the -dsn parameter in the $DM_ROOT/dfs/listener.dat file (UNIX server or agent) or %DM_ROOT%\dfs\listener.dat file (Windows agent) may be incorrect.

In the case of the Oracle below, the password details for the database have not been correctly registered:

```
dmappsrv 2004/01/23 12:33:26 E P928 T2516 Pcms error: 1, Error: Unable to
connect to database "intermediate"
dmappsrv 2004/01/23 12:36:30 E P3864 T3572 Pcms error: 1, Error: Schema
version check failed for Dimensions database "intermediate"
```

To verify that the database connection details are correct, use RDBMS utilities such as `TNSPING` to validate that the DSN you specified exists, and that you can connect to it. Also, test the connection to the database specified through the `-dsn` parameter in the `$DM_ROOT/dfs/listener.dat` file (UNIX server or agent) `%DM_ROOT%\dfs\listener.dat` file (Windows agent) file, and validate that the connection works.

Use the Dimensions CM `dmdba cpas` utility to ensure that the database password for the database you are connecting to has been registered with Dimensions CM. Use `help cpas` within `dmdba` for options.

If none of the above help, contact Serena Support.

Enabling Serena Dimensions Listener Tracing

To help diagnose issues with the Listener. Dimensions CM provides initialization parameters to start the listener in a mode that traces status information to a log file. To enable tracing, add the following lines to the `listener.dat` file in the `$DM_ROOT/dfs` directory (UNIX server or agent) or `%DM_ROOT%\dfs` directory (Windows agent):

```
-tracedir <directory_name>
-trace
```

where `<directory_name>` is the name of a directory where the trace files are created. Restart Dimensions CM to start tracing. To disable the tracing, remove the two variables and restart Dimensions CM.

Extracting Windows Directory Items on Solaris

To store a Dimensions CM directory item on a Windows platform and then attempt to extract it onto a Solaris platform with a directory pathname

greater than 100 characters, you must install the publicly available GNU tar utility on both the Windows platform and the Solaris platform—in the directories `%DM_ROOT%\prog` and `$DM_ROOT/prog` respectively.

If you do not do the above, the following error are reported:

```
Error: unable to extract from archive file
```

This is a result of this 100-character limitation being handled incompatibly by the GNU `tar` utility and the native version of `tar` shipped with Solaris.

Appendix B

Installing a UNIX Server: Other Scenarios

Chapter Overview

NOTE See "Dimensions CM UNIX Server Components" on page 68 for details of the server components.

Chapter 6, "Installing a Dimensions CM for UNIX Server" discussed the Serena® Dimensions® CM for UNIX server installation quick start scenarios, namely:

- A fresh installation of a Dimensions CM 14.2.0.2 for UNIX server.
- The **Install All Dimensions Server Components** option being selected (that is, both the server plus database schema components).
- The installation of a pre-existing Serena-Supplied Runtime RDBMS or your own Oracle Enterprise RDBMS on the same node. Further, the RDBMS does not already have an Dimensions CM 14.2.0.2 schema installed but does have a database instance (default `Dim14`) ready for the Dimensions CM 14.2.0.2 server installation.

This present chapter covers other common fresh Dimensions CM 14.2.0.2 for UNIX server installation scenarios; for example:

- A Dimensions CM server installation with a local client-only version of either the Serena-Supplied Runtime or your own Oracle *without installing a Dimensions CM schema*.
- A Dimensions CM server installation with a remote Serena Runtime or Oracle RDBMS.
- At the same time as installing a Dimensions CM server, the installation of a Single Sign On (SSO) server or the configuring of a connection to an existing SSO server (*Linux and Solaris only*). This is only required when using other Serena products in collaboration with Dimensions CM or requiring Smart Card authentication support.
- At the same time as installing a Dimensions CM server plus installing or configuring an SSO server, the configuring of smart card authentication details for SSO (*Linux and Solaris only*). Currently, the only smart card supported is the DoD Common Access Card (CAC) installed on a a remote Windows node.
- Subsequent to installing a Dimensions CM server, installing or configuring an SSO server (*Linux and Solaris only*).

- Subsequent to installing a Dimensions CM server, installing or configuring an SSO server plus configuring a CAC authentication details for SSO (*Linux and Solaris only*).

NOTE There is no installer support for simply configuring a CAC authentication details for SSO subsequent to a Dimensions CM server and SSO server having been installed and configured. If you want to add CAC support at a later date, this has to be done manually as a post-installation activity. Please see "Implementing CAC After Installing Dimensions with SSO" on page 102.

With so many options available for a Dimensions CM for UNIX server installation—for example, RDBMS type and node location—it is not possible to document every single scenario. However, the installation scenario discussed in Chapter 6, "Installing a Dimensions CM for UNIX Server" and those discussed here in this chapter should cover the majority of the common installation scenarios.

Upgrading to Dimensions CM 14.2.0.2 for UNIX server installations is discussed in Chapter 9, "Upgrading Dimensions CM".

Choosing a UNIX Server Installation

For details on launching a Dimensions CM installer refer to "Launching the Installer" on page 18.

1. From the initial InstallShield Wizard screen click **Next**.
2. Read the license agreement and click **I accept the terms of the End User License Agreement** to accept the terms.

   Click **Next**.
3. Click **New Install** to select Dimensions CM components for a fresh installation.

   Upgrade selects Dimensions CM components for an upgrade of a previous release of Dimensions. Refer to "Upgrading Dimensions CM" on page 119, "Upgrading a Dimensions CM for UNIX Agent" on page 161, or "Installing a Dimensions CM for UNIX Client" on page 175 for details of these types of installation.
4. Click **Server** and **Next** to install Dimensions CM server components.
5. If you want to install particular Dimensions CM server components click **Install All Dimensions Server Components** and **Next**. Proceed to "Selecting Dimensions Server Components" on page 165. (This includes options for *Linux and Solaris only*, i*n the same installation run*, of installing or configuring a connection to a Dimensions CM Single Sign on (SSO) server and additionally configuring smart card Common Access Card (CAC) authentication details with that SSO server.)

   If you want to install the Dimensions CM database schema only, then click **Install Dimensions Database Schema Only** and **Next**. Proceed to "Installing a Dimensions Schema Only" on page 165.

   If you want *in a later installation run* to install or configure a connection to a Dimensions CM SSO server and optionally, additionally, configure CAC authentication details with that SSO server, then click **Install Serena SSO Server or Configure to use an Existing one Only** and **Next**. Proceed to "Subsequently Installing or Configuring an SSO Server" on page 179 or "Subsequently Installing or Configuring an SSO Server and Configuring CAC" on page 181.

The above installer selection only supports with respect to an existing Dimensions CM server the installing of either an SSO server only or an SSO server plus CAC set up support; it does *not* support the installing of CAC set up support with respect to an existing Dimensions CM server plus SSO server.

Installing a Dimensions Schema Only

The are several scenarios in which you may want to install only a Dimensions CM schema without installing a Dimensions CM server. These are essentially scenarios in which you want to divorce the Dimensions CM database upgrade or migration operations from the Dimensions CM server installations (for example, your company may have a dedicated DBA who has responsibilities and exclusive privileges for such operations). Please contact Serena Support if you think one of these scenarios may be appropriate to your installation set up.

Selecting Dimensions Server Components

1. From the Click next to install Dimensions CM screen that gets displayed after you select **Install All Dimensions Server Components** in Step 5 on page 164, either accept the default installation directory of or click **Browse** to specify an alternative directory.

2. Either accept the default components or make your own selections.

   Dimensions CM Schema enables you to chose whether or not to install a Dimensions CM schema together with the Dimensions CM server. If you deselect this option you can perform a server-only installation.

   Dimensions Single Sign On (Required for Smart Cards) is used to install or configure connection to a Dimensions CM Single Sign on (SSO) server (*Linux and Solaris only*). This is only required when using other Serena products in collaboration with Dimensions CM or requiring Smart Card authentication support.

Smart Card Setup enables you to configure remote Windows smart card client software and hardware authentication details with SSO (*Linux and Solaris only*). Currently, the only smart card supported is the DoD Common Access Card (CAC).

After making your component selection, click **Next**.

You will *not* be able to deselect **Common Tools** if one of your other selections requires them to be installed. In such circumstances, **Common Tools** are grayed out.

3 Either accept the default **Install a 30 day evaluation license** option or click the **Specify License Server** option, and click **Next**.

If you choose the **Specify License Server** option, the **Host Name** field are enabled and you must specify the host name or IP address of the machine running the Serena License Server. See the *System Administration Guide* for further details on the Serena License Server and Serena License Manager.

If you choose the **Install a 30 day evaluation license** option, you may enter a license server name or address any time during the evaluation period. Evaluation licenses are described in the *System Administration Guide*.

4 Type the operating system login account name for the Dimensions CM System Administrator. By default, this are `dmsys`.

Type the UNIX password for the Dimensions CM System Administrator.

Click **Next**.

If, in Step 2 on page 165, you chose the default selections, you will proceed to Step 5 on page 167.

If, in Step 2 on page 165, you chose:

- *not* to install a Dimensions CM schema (by deselecting the **Dimensions CM Schema** component), plus
- not to install SSO (by leaving **Dimensions Single Sign On (Required for Smart Cards)** unselected, *Linux and Solaris only*)

you will now proceed to "Installing a Server without an Oracle Dimensions Schema" on page 183.

If, in Step 2 on page 165, you chose:

- *not* to install a Dimensions CM schema (by deselecting the **Dimensions CM Schema** component), plus
- to install SSO (by selecting **Dimensions Single Sign On (Required for Smart Cards)** *Linux and Solaris only*)

you will now proceed to "Subsequently Installing or Configuring an SSO Server" on page 179.

5 If you want to install Dimensions CM server with a local Serena-Supplied Runtime RDBMS or your own local Oracle Enterprise RDBMS (installed on the same UNIX node where you are going to install Dimensions CM), click **Local** and **Next** and the then proceed to "Installing a Server with a Local Serena- Supplied Runtime or Oracle" on page 168.

If you want to install Dimensions CM server with a remote Serena-Supplied Runtime RDBMS or your own remote Oracle Enterprise RDBMS (that is, one installed on a computer different/remote from that upon which you are about to install Dimensions CM), click **Remote** and **Next** and the then proceed to "Installing a Server with a Remote Serena- Supplied Runtime or Oracle" on page 172.

Installing a Server with a Local Serena-Supplied Runtime or Oracle

If, in Step 2 on page 165, you chose to install the following Dimensions CM components	.. then
■ Dimensions CM Server Core Files ■ Dimensions CM Schema	The installation steps you have taken so far correspond to the scenario described in Chapter 6, "Installing a Dimensions CM for UNIX Server". Please click **Next**.
■ Dimensions CM Server Core Files ■ Dimensions CM Schema ■ Dimensions Single Sign On (Required for Smart Cards) *(Linux and Solaris only)*	Continue as follows.
■ Dimensions CM Server Core Files ■ Dimensions CM Schema ■ Dimensions Single Sign On (Required for Smart Cards) *(Linux and Solaris only)* ■ Smart Card Set Up *(Linux and Solaris only)*	Continue as follows.

1. Select the Oracle version that is appropriate for your system. Click **Next**.
2. Enter the directory in which the Serena-Supplied Runtime RDBMS or your Oracle Enterprise RDBMS is located, or click **Browse** to navigate to the appropriate directory. Click **Next**.
3. Enter the name of the UNIX owner of the Serena-Supplied Runtime RDBMS or Oracle Enterprise files. This will normally be `oracle`. Click **Next**.
4. Provide the following Oracle system information: **Hostname**, **System ID (SID)**, **NET8 Service Name,** and TCP /IP **Port** number.

   The Oracle SID and NET8 Service name are normally the same. However, if they *are* different (for example, to cater for situations where you have two Oracle systems with the same SID on the same network), *then it is vitally important that you enter the correct NET8*

Service name. If an incorrect entry is made, the installation will not function correctly.

Click **Next**.

5 Confirm the existing Oracle Administrator user and password for your Serena-Supplied Runtime RDBMS or your Oracle Enterprise RDBMS installation. For a Serena-Supplied Runtime RDBMS these are by default `SYSTEM` and `MANAGER` respectively.

Enter the password for the `PCMS_SYS` schema that was created for the Oracle instance either transparently as part of the Serena-Supplied Runtime RDBMS installation or, if using your own Oracle, as described in "Verifying the PCMS_SYS Oracle User" on page 26. For a default Serena-Supplied Runtime RDBMS installation, this is normally set to `PCMS_SYS`.

Be sure to make a note of these passwords. You will need them for some of the Oracle commands discussed in this manual (where they are assumed to be `MANAGER` and `PCMS_SYS` respectively).

Click **Next**.

6 From the *Select a demo process model* screen select the type of process model you want to use, see "Choosing a Process Model" on page 48 for details.

Click **Next**.

7 The process model creates a demonstration product `QLARIUS` that registers a suite of Dimensions CM users corresponding to various use cases.

You cannot change the identity of any of these users apart from the "Dimensions Tool Manager".

The Dimensions Tool Manager is the person who is the Dimensions CM base database manager. By default, this are the same user, `dmsys`, as the Dimensions System Administrator. From the Please enter the operating system id screen, either accept the default (recommended) or replace the entry with the actual Dimensions CM login ID of the Dimensions Tool Manager. See the *System Administration Guide* for a discussion of the duties of these two users.

Provide the following entries for Dimensions CM work and deployment areas:

- The **Area Owner ID**. Either accept the default of `dmsys` (recommended) or replace the entry with the actual Dimensions CM login ID of the team member you want to assign. *Note that this entry will assigned by default to* the Dimension System Administrator in the **Dimensions System Administrator Login ID** installer screen that comes next.
- The **Password** for the Area Owner ID. *Note that this entry will assigned by default to the Dimension System Administrator in the **Dimensions System Administrator Login ID** installer screen that comes next*.
- Either accept the default directory of `/opt/serena/dimensions/14.2.0.2/workareas` for the demo process model areas or click **Browse** to browse to an alternative directory.

To be able to use the demonstration product fully, after installation, you must assign operating system accounts to the Qlarius Dimensions CM users—if you have not already done this as part of the pre-installation process, see "Creating OS User Accounts" on page 47.

Click **Next**.

8 Enter the name of the Dimensions CM server machine.

If in Step 2 on page 165 you chose (*for Linux and Solaris only*) neither **Dimensions Single Sign On (Required for Smart Cards)** nor **Dimensions Single Sign On (Required for Smart Cards)** plus **Smart Card Setup**, click **Next** and proceed to the Step 9 on page 170.

If (*for Linux and Solaris only*) you chose **Dimensions Single Sign On (Required for Smart Cards)**, click **Next**, proceed to "Installing or Configuring an SSO Server" on page 176, and then return to Step 9 on page 170 below.

If (*for Linux and Solaris only*) you chose **Dimensions Single Sign On (Required for Smart Cards) plus Smart Card Access,** click **Next**, proceed to "Installing or Configuring an SSO Server and Configuring CAC" on page 177, and then return to Step 9 on page 170 below.

9 Specify the UNIX operating system user who you want to own and run the Serena common Tomcat and Java executables. This user is typically given restricted permissions and must exist prior to installation. By default, it is `dmsys`.

Click **Next**.

10 From the Tomcat Port screen enter the port number to be used by the common Dimensions Tomcat Server. This is used for the Dimensions web tools.

Either accept the default value of 8080 or enter an alternative value. It is recommended that you accept the default value unless it (8080) is already being used by some other third-party software or that you plan to install such software in the future. Some software—for example, the TestDirector and Quality Center integration products—is hard coded to port 8080 and cannot be reassigned (see "TCP/IP Port Usage" on page 49 for a discussion on this topic).

Click **Next**.

11 Review settings to ensure that they are as you expect.

12 If the settings are correct, click **Install**. Otherwise, click **Back** to step back through the installer and make appropriate corrections, and then return here.

13 The installation begins.

The installer:

- Performs an installation of the Dimensions CM server components you selected earlier. The following screen is displayed to indicate progress of the installation:
- Creates uninstaller files in the directory `_uninst_maint` located one level up from the Dimensions CM root directory (for example, `/opt/serena/dimensions/14.2.0.2/_uninst_maint`). A record of the installed products is also created in the directory `/var/opt/serena/inventory`—this can be thought of as being analogous to a Windows registry. If you ever plan to uninstall Dimensions CM, you *must* use the uninstaller files in the _uninst_maint directory to ensure that the inventory gets correctly updated. See Chapter 7, "Uninstalling Dimensions CM UNIX Components" for details.
- Creates the Oracle tablespaces, process model demonstration products, and various other RDBMS tasks. This can take a long time—please be patient.
- Installs the Dimensions CM web client.

14 Click **Finish**.

When performing a Dimensions CM server installation on a Red Hat or SuSE 64-bit platform, you may intermittently receive the following error message:

```
There were errors installing the cm_typical libraries.
```

However, if after consulting the installation log files (see "Installation Logs" on page 94) it is evident that no such errors have occurred, then you can safely disregard such error messages.

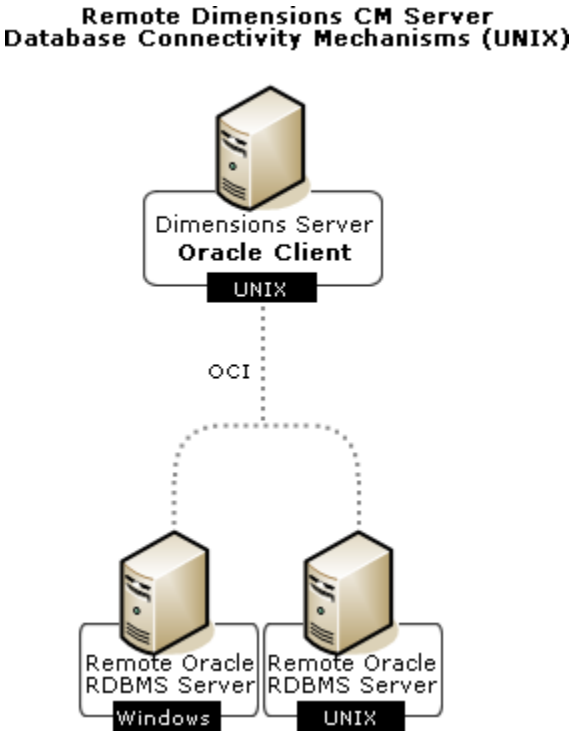
Installing a Server with a Remote Serena-Supplied Runtime or Oracle

There are scenarios in which you may want to install a Dimensions CM server that installs a Dimensions CM schema on a remote Serena-Supplied Runtime RDBMS or Oracle Enterprise RDBMS (rather than the local node) and subsequently performs all Dimensions CM RDBMS operations with that remote Dimensions CM schema. One such scenario is that in which Dimensions CM users on a local node want to use a remotely administered RDBMS. This remote RDBMS can, in certain circumstances as explained in "Performing Remote Database Installations Between Windows and UNIX" on page 173, be a Windows RDBMS.

To be able to use a remote RDBMS, a RDBMS "client" must be set up on the local node to perform database service operations between the local Dimensions CM server and the remote RDBMS.

For the Serena-Supplied Runtime RDBMS or Oracle Enterprise RDBMS, the UNIX "client" RDBMS can be:

- An installation of the Serena-Supplied Runtime RDBMS, without database instance creation.
- Your own Oracle client installation.
- Your own Oracle instant client installation.
- An installation of the Serena-Supplied Runtime RDBMS, with database instance creation. This is more than is required to set up this scenario.
- A full Oracle Enterprise installation. This is more than is required to set up this scenario.



There are various database connectivity mechanism that are supported as standard by Dimensions CM. The diagram above shows the connectivity mechanisms supported by a UNIX Oracle (and Serena-Supplied Runtime). As can be seen, An Oracle client can connect to either a Windows or UNIX remote RDBMS server.

Performing Remote Database Installations Between Windows and UNIX

Oracle runtime instances are installed and configured differently on a Windows Serena-Supplied Runtime RDBMS compared to a UNIX Serena-Supplied Runtime RDBMS. If you plan to install Dimensions CM on a UNIX system and create an Oracle instance on a remote Windows Serena-Supplied Runtime RDBMS, then you must perform the following manual check—and take appropriate action if necessary—before beginning the installation:

Make sure that a `pcms_sys` Oracle user *does* exist on the UNIX "client" Oracle RDBMS. You can check and/or create it as described in "Verifying the PCMS_SYS Oracle User" on page 26.

Performing a Remote Installation

The installer steps for installing a Dimensions CM server that creates a Dimensions CM schema into a remote Serena-Supplied Runtime RDBMS or Oracle Enterprise RDBMS are the same—except where detailed below—as that for a local Dimensions CM server that installs a Dimensions CM schema into a local Oracle RDBMS. Refer to Chapter 6, "Installing a Dimensions CM for UNIX Server" or "Installing a Server with a Local Serena- Supplied Runtime or Oracle" on page 168 with the differences detailed below—these differences also include common screens where you need to be careful about the data you enter, is it for a local or remote node?

1. Select the appropriate Oracle version.

2. Enter the UNIX owner of the Serena-Supplied Runtime RDBMS or Oracle Enterprise files for the *local* node.

3. The *Please provide the following information for your Oracle system* screen is for the *remote* node. Enter the Oracle Net Service Name that has been defined on the *local* node for connecting to the *remote* Oracle database server, see "Setting Up a Local Oracle Net Service Name" on page 43.

   The Oracle SID and NET8 Service name of the remote node are normally the same on most networks. However, if they *are* different (for example, in situations where you have two Oracle systems with the same SID on the same network), *then it is vitally important that you enter the correct NET8 Service name*. If an incorrect entry is made, the installation will not function correctly.

4. The *Please enter the Oracle Administrator user and password* screen requests information for the *remote* node.

   Confirm the existing Oracle Administrator user and password for the Oracle instance. For a Serena-Supplied Runtime RDBMS these are by default `SYSTEM` and `MANAGER` respectively.

   Enter the password for the `PCMS_SYS` schema that was created for the Oracle instance either transparently as part of the Serena-Supplied Runtime RDBMS installation or, if using your own Oracle, as described in "Verifying the PCMS_SYS Oracle User" on page 26. For a

default Serena-Supplied Runtime RDBMS installation, this is normally set to `PCMS_SYS`.

Be sure to make a note of these passwords. You will need them for some of the Oracle commands discussed in this manual (where they are assumed to be `MANAGER` and `PCMS_SYS` respectively).

Click **Next**.

5 The Installation Summary screen is specific to a remote database installation.

6 Review settings to ensure that they are as you expect.

7 If the settings are correct, click **Install**. Otherwise, click **Back** to step back through the launcher and make appropriate corrections, and then return here.

8 The installation begins.

The launcher:

- Installs the Dimensions CM java Common Tools. These provide the Common Tomcat server and the Dimensions web client and the Administration Console.
- Installs the Dimensions CM server. The following screen is displayed to indicate progress of the installation:
- Creates uninstaller files in the directory `_uninst_maint` located one level up from the Dimensions CM root directory (for example, `/opt/serena/dimensions/14.2.0.2/_uninst_maint`). A record of the installed products is also created in the directory `/var/opt/serena/inventory`—this can be thought of as being analogous to a Windows registry. If you ever plan to uninstall Dimensions CM, you *must* use the uninstaller files in the _uninst_maint directory to ensure that the inventory gets correctly updated. See Chapter 7, "Uninstalling Dimensions CM UNIX Components" for details.

When performing a Dimensions CM server installation on a Red Hat or SuSE 64-bit platform, you may intermittently receive the following error message:

```
There were errors installing the cm_typical libraries.
```

However, if after consulting the installation log files (see "Installation Logs" on page 94) it is evident that no such errors have occurred, then you can safely disregard such error messages.

Installing or Configuring an SSO Server

IMPORTANT!

- Single Sign On (SSO) is only supported on Linux and Solaris flavors of Dimensions CM for UNIX.
- Installing or configuring a SSO server requires several Light Directory Access Protocol (LDAP) parameters to be entered at particular installer wizard screens. You should not attempt to install or configure the SSO server unless you are conversant with these parameters—please see "Prerequisites for SSO Authentication" on page 51 for a detailed description of the appropriate parameters

1 The Install a new Serena SSO server or use an existing one screen gets displayed after Step 8 on page 170 (or it equivalent for installing a server for a remote Serena-supplied Runtime or Oracle) if you selected **Dimensions Single Sign On (Required for Smart Cards)** at Step 2 on page 165 earlier in the installation process.

Select **Existing** if you want to configure a connection to an existing SSO server—for example, a Serena Business Manager (SBM) SSO server.

Click **Next** and proceed to Step 2 on page 176.

Select **New** if no SSO server already exists and you want to install one. Click **Next** and proceed to Step 3 on page 177.

2 Enter the relevant **Hostname** and **SSO Port** details as explained in "UNIX Server Prerequisites For an Existing SSO Server" on page 52, paying particular attention to the setting of the **Secure (https) Connection** checkbox as explained there.

Click **Next** and proceed back to Step 9 on page 170 (or its equivalent for installing a server with a remote Serena-Supplied Runtime or Oracle Enterprise).

3 At the Configure LDAP details user credentials screen please see "UNIX Server Prerequisites For a New SSO Server" on page 52 for information on how to populate the **Hostname**, **Port**, **Base DN**, **Search Filter**, **Bind User DN**, and **Password** fields. The **Port** and **Search Filter** fields are prepopulated with the default values of `389` and `(&(objectClass=user)(sAMAccountName={0}))` respectively.

Click **Next** and proceed back to Step 9 on page 170 (or its equivalent for installing a server with a remote Serena-supplied Runtime or Oracle).

Installing or Configuring an SSO Server and Configuring CAC

IMPORTANT!

- Single Sign On (SSO) and Common Access Card (CAC) smart card authentication configuration are only supported on Linux and Solaris flavors of Dimensions CM for UNIX.
- Installing or configuring a SSO server plus configuring a smart card reader requires several Light Directory Access Protocol (LDAP) parameters to be entered at particular installer wizard screens. You should not attempt to install or configure the SSO server with additional configuring of a smart card reader unless you are conversant with these parameters—please see "Prerequisites for Single Sign-On" on page 51 for a detailed description of the appropriate parameters.

1 The Install a new Serena SSO Server or use an existing one screen gets displayed after Step 8 on page 170 (or its equivalent for installing a server with a remote Serena-supplied Runtime or Oracle) if you selected **Dimensions Single Sign On (Required for Smart Cards)** and **Smart Card Setup** at Step 2 on page 165 earlier in the installation process.

Select **Existing** if you want to configure a connection to an existing SSO server plus Smart Card (CAC) reader—for example, a Serena Business Mashups SSO server plus CAC reader. Click **Next** and proceed to Step 2 on page 178.

Select **New** if no SSO server installation or CAC configuration set up already exists and you want to install the server and configure the reader setup. Click **Next** and proceed to Step 3 on page 178.

2 Enter the relevant **Hostname** and **SSO Port** details as explained in "Prerequisites for Single Sign-On" on page 51, paying particular attention to the setting of the **Secure (https) Connection** checkbox as explained there.

Click **Next** and proceed back to Step 9 on page 170 (or it equivalent for installing a server with a remote Serena-supplied Runtime or Oracle).

3 From the Configure LDAP details for authenticating Smart Cards screen please see "Prerequisites for Single Sign-On" on page 51 for information on how to populate the **Hostname**, **Port**, **Bind User DN**, and **Password** fields for CAC reader LDAP connection authentication. These entries will get inherited as default values for the new SSO server.

Click **Next** and proceed to Step 4 on page 178.

4 From the Configure LDAP for user details screen please see "Prerequisites for Single Sign-On" on page 51 for information on how to populate the **Hostname**, **Port**, **Base DN**, **Search Filter**, **Bind User DN**, and **Password** fields.

The **Hostname**, **Port**, **Bind Use DN**, and **Password** fields are prepopulated with the default values inherited from the CAC reader LDAP set up installer screen at Step 3 on page 178.

The **Search Filter** field are prepopulated with the default value of `(&(objectClass=user)(sAMAccountName={0}))`.

Click **Next** and proceed back to Step 9 on page 170 (or its equivalent for installing a server with a remote Serena-supplied Runtime or Oracle).

As an additional post-installation activity, you must manually configure the CAC trusted certificate authorities. Please see "Configuring Trusted Certificate Authorities for SSO and CAC" on page 99.

Subsequently Installing or Configuring an SSO Server

IMPORTANT! Single Sign On (SSO) is only supported on Linux and Solaris flavors of Dimensions CM for UNIX.

This section describes the scenario where you have already successfully installed a Dimensions CM server without installing or configuring an SSO server, but subsequently decide that you want to install or configure an SSO server.

IMPORTANT! Installing or configuring an SSO server requires several Light Directory Access Protocol (LDAP) parameters to be entered at particular installer wizard screens. You should not attempt to install or configure the SSO server unless you are conversant with these parameters—please see "Prerequisites for SSO Authentication" on page 51 for a detailed description of the appropriate parameters.

1. The Setup Dimensions Single Sign On (SSO) Components screen gets displayed if you selected **Install Serena SSO Server or Configure to use an Existing one Only** at Step 5 on page 164 earlier in the installation process.

   This section is describes the subsequent installation of a new SSO server or the configuring of an existing one, so you should select the **Dimensions SSO** option and click **Next**.

   If you want to subsequently install a new SSO server or configure an existing one together with configuring the set up of a CAC smart card, you should select **Dimensions SSO and Smart Cards**. This is described in "Subsequently Installing or Configuring an SSO Server and Configuring CAC" on page 181.

   The **Do not setup Dimensions SSO or Smart Cards** option is not relevant in the currently described scenarios and should be ignored.

2. The installer will detect that a Dimensions CM 14.2.0.2 server is already installed and display its installation directory. By default, this are:

   ```
   /opt/serena/dimensions/14.2.0.2
   ```

Either accept the displayed directory as the location to be used for either the installation files for a new SSO server or the configuration files for an existing SSO server, or click **Browse** to specify an alternative directory.

Click **Next**.

3 Check that the following displayed details about the Dimensions CM server are correct:

- **Dimensions System Administrator Login ID**. By default, this are `dmsys`.
- **Dimensions Server** host name.
- **Server Port for HTTP Connections**. By default, this are 8080.

If any of the entries are incorrect, overtype them with the correct details and then click **Next**.

4 Select **Existing** if you want to configure a connection to an existing SSO server—for example, a Serena Business Manager (SBM) SSO server. Click **Next** and proceed to Step 5 on page 180.

Select **New** if no SSO server already exists and you want to install one. Click **Next** and proceed to Step 6 on page 180.

5 Enter the relevant **Hostname** and **SSO Port** details as explained in "UNIX Server Prerequisites For an Existing SSO Server" on page 52, paying particular attention to the setting of the **Secure (https) Connection** checkbox as explained there.

Click **Next** and proceed to Step 7 on page 180 to initiate the installation.

6 From the Configure LDAP details for user credentials screen please see "UNIX Server Prerequisites For a New SSO Server" on page 52 for information on how to populate the **Hostname**, **Port**, **Base DN**, **Search Filter**, **Bind User DN**, and **Password** fields. The **Port** and **Search Filter** fields are prepopulated with the default values of `389` and `(&(objectClass=user)(sAMAccountName={0}))` respectively.

Click **Next** and proceed to Step 7 on page 180 to initiate the installation.

7 From the Summary Information screen review the settings to ensure that they are as you expect.

If the settings are correct, click **Install**. Otherwise, click **Back** to step back through the installer and make appropriate corrections, and then return here.

Subsequently Installing or Configuring an SSO Server and Configuring CAC

IMPORTANT! Single Sign On (SSO) and Common Access Card (CAC) smart card authentication configuration are only supported on Linux and Solaris flavors of Dimensions CM for UNIX.

This section describes the scenario where you have already successfully installed or configured a Dimensions CM server without an SSO server or a configured smart card (CAC), but subsequently decide that you want to install or configure an SSO server plus configure a CAC.

IMPORTANT! Installing or configuring an SSO server plus configuring a smart card reader requires several Light Directory Access Protocol (LDAP) parameters to be entered at particular installer wizard screens. You should not attempt to install or configure the SSO server with additional configuring of a smart card reader unless you are conversant with these parameters.

1 The Setup Dimensions Single Sign On Components screen gets displayed if you selected **Install Serena SSO Server or Configure to use an Existing one Only** at Step 5 on page 164 earlier in the installation process.

This section describes the subsequent installation of a new SSO server or the configuring of an existing one together with the configuring of the set up of a CAC smart card, so you should select the **Dimensions SSO and Smart Cards** option and click **Next**.

If you only want to subsequently install a new SSO server or configure an existing one, you should select **Dimensions SSO**. This is described in "Subsequently Installing or Configuring an SSO Server" on page 179.

The **Do not setup Dimensions SSO or Smart Cards** option is not relevant in the currently described scenarios and should be ignored.

2 The installer will detect that a Dimensions CM server is already installed and display its installation directory. By default, this are:

```
/opt/serena/dimensions/14.2.0.2
```

Either accept the displayed directory as the location to be used for either the installation files for a new SSO server or the configuration files for an existing SSO server together in both cases with the configuration setup files for the CAC smart card, or click **Browse** to specify an alternative directory.

Click **Next**.

3 Check that the following displayed details about the Dimensions CM server are correct:

- **Dimensions System Administrator Login ID**. By default, this are `dmsys`.
- **Dimensions Server** host name.
- **Server Port for HTTP Connections**. By default, this are 8080.

If any of the entries are incorrect, overtype them with the correct details and then click **Next**.

4 From the Install Serena SSO server or use an Existing one screen select **Existing** if you want to configure a connection to an existing SSO server plus Smart Card (CAC) reader—for example, a Serena Business Manager (SBM) SSO server plus CAC reader. Click **Next** and proceed to Step 5 on page 182.

Select **New** if no SSO server installation or CAC configuration set up already exists and you want to install the server and configure the reader setup. Click **Next** and proceed to Step 6 on page 182.

5 Enter the relevant **Hostname** and **SSO Port** details paying particular attention to the setting of the **Secure (https) Connection** checkbox as explained there.

Click **Next** and proceed to Step 8 on page 183 to initiate the installation.

6 From the Configure LDAP details for authenticating Smart Cards screen please see "Prerequisites for SSO Authentication" on page 51 for information on how to populate the **Hostname**, **Port**, **Bind User DN**, and **Password** fields for CAC reader LDAP connection authentication. These entries will get inherited as default values if

you subsequently choose LDAP authentication for the new SSO server (see Step 7 on page 183). Click **Next**.

7 From the Configure LDAP details for user credentials screen please see "Prerequisites for SSO Authentication" on page 51 for information on how to populate the **Hostname**, **Port**, **Base DN**, **Search Filter**, **Bind User DN**, and **Password** fields.

The **Hostname**, **Port**, **Bind Use DN**, and **Password** fields are prepopulated with the default values inherited from the CAC reader LDAP set up installer screen at Step 6 on page 182.

The **Search Filter** field are prepopulated with the default value of `(&(objectClass=user)(sAMAccountName={0}))`.

Click **Next**.

8 Review the settings to ensure that they are as you expect.

If the settings are correct, click **Install**. Otherwise, click **Back** to step back through the installer and make appropriate corrections, and then return here.

As an additional post-installation activity, you must manually configure the CAC trusted certificate authorities. Please see "Configuring Trusted Certificate Authorities for SSO and CAC" on page 99.

Installing a Server without an Oracle Dimensions Schema

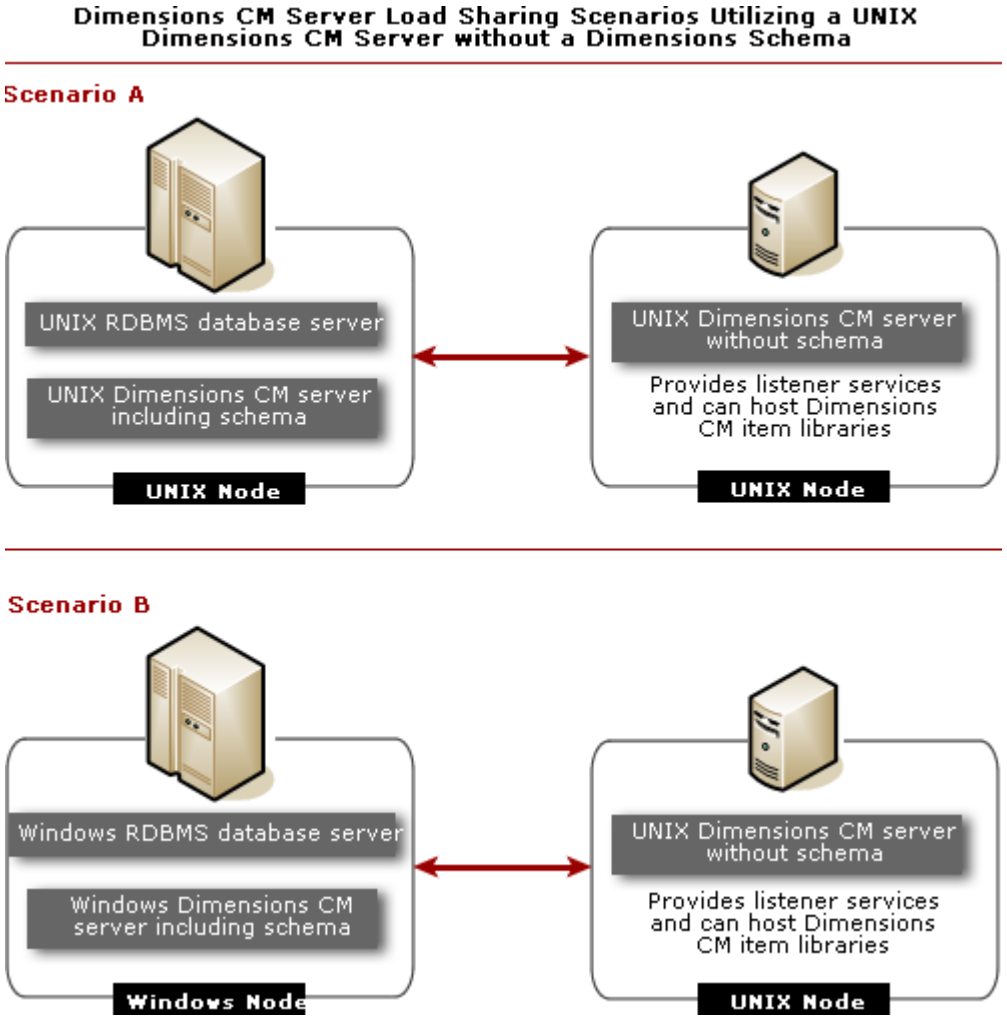
Installation Scenarios

The are several scenarios in which you may want to install a Dimensions CM server without installing a Dimensions CM Oracle schema. These include:

1 **Scenario 1**: There is already a local Serena-Supplied Runtime RDBMS or Oracle Enterprise with that schema installed. So all you want to install are the Dimensions CM server executables.

2 **Scenario 2**: You do not want to install *any* of the process-model-associated demonstration products that get offered to you if you chose to install the Dimensions CM schema (from which you *have* to choose one). This would be a scenario in which an existing user of Dimensions CM created their own process model export file and they want to import that export file during Dimensions CM schema creation. Such an exported process model is importing using the import option of the Dimensions CM `dmdba crdb` function, please refer to the *System Administration Guide* for details.

3 **Scenario 3**: You want to a install Dimensions CM server, with its own local client Serena-Supplied Runtime RDBMS or Oracle Enterprise RDBMS but without a schema, to communicates (via OCI) with a remote Windows or UNIX RDBMS database server.



The locally installed Dimensions CM server is like an Agent installation (see "Dimensions CM Agent Components" on page 70) in that it will provide Dimensions CM listener services and the dmcli command client, but the Common Tools (Dimensions web client, Administration Console, and Common Tomcat server) will also be installed.

Reasons why you may want to do this include:

- The users on the local node do not have operating-system accounts on the remote Dimensions CM database server.
- To balance Dimensions CM loads across both the local node and the remote Dimensions CM database server node.

For such a scenario, the remote database server will require both the RDBMS and Dimensions CM binaries to be installed and for a Dimensions CM schema to have been created in that RDBMS.

To enable network connections between the nodes, the remote database server must be running an additional process. For Oracle, this are the case if the TNS Listener has been started up.

For certain of these scenarios, you need to set up on the *local* node an Oracle Net Service Name for accessing the Oracle database server. As this is also required for other installation scenarios discussed in this chapter, the instructions for doing that have been centralized, see "Setting Up a Local Oracle Net Service Name" on page 43.

Installer Screens

The installer screens for all the above options are the same and are also the same as those described from Step 27 on page 92 onwards in Chapter 6, "Installing a Dimensions CM for UNIX Server". However, as you are not prompted in the steps for the Oracle location, Oracle SID, or Oracle NET 8 Service Name of the local client Serena-Supplied Runtime RDBMS or Oracle, you must manually edit certain files before you are able to start the Dimensions CM listener on the local UNIX node—these post-installation steps are described in "Starting and Checking a Server" on page 187.

For simplicity, it are assumed, here, that only the Dimensions CM server component are installed.

1. From the Summary Information screen review settings to ensure that they are as you expect.
2. If the settings are correct, click **Install**. Otherwise, click **Back** to step back through the launcher and make appropriate corrections, and then return here.
3. The installation begins.

   The launcher:

- Performs an installation of the Dimensions CM java Common Tools. These provide the Common Tomcat server and the Dimensions web client and the Administration Console.
- Performs an installation of the Dimensions CM server. The following screen is displayed to indicate progress of the installation:
- Creates uninstaller files in the directory `_uninst_maint` located one level up from the Dimensions CM root directory (for example, `/opt/serena/dimensions/14.2.0.2/_uninst_maint`). A record of the installed products is also created in the directory `/var/opt/serena/inventory`—this can be thought of as being analogous to a Windows registry. If you ever plan to uninstall Dimensions CM, you *must* use the uninstaller files in the _uninst_maint directory to ensure that the inventory gets correctly updated. See Chapter 7, "Uninstalling Dimensions CM UNIX Components" for details
- Installs the Dimensions CM web client.

4 Click **Finish**.

5 Perform the following post-installation checks described in "Starting and Checking a Server" on page 187 and then download the PDFs and readme.

Starting and Checking a Server

The following post-installation configuration activities or considerations are either needed or need to be taken into account:

- If utilizing a remote Serena-Supplied Runtime RDBMS or Oracle Enterprise database containing the Dimensions CM schema, make sure that the connection details for the remote database are added to the Oracle file:

  ```
  $ORACLE_HOME/network/admin/tnsnames.ora
  ```

- For the local Serena-Supplied Runtime RDBMS or Oracle Enterprise client that is needed to communicate with a local or remote database as identified in Scenarios 1,2, or 3 in Step 1 on page 183, Step 2 on page 184, or Step 3 on page 184 you need to manually edit the file

  ```
  $DM_ROOT/dmgvar.sh
  ```

and

```
$DM_ROOT/dmgvar.csh
```

to provide the following Oracle system information:

- Oracle client home location (ORACLE_HOME)*****
- Oracle instant client home location (ORACLE_HOME_IC)*****
- Oracle client SID (enclosed within double-quotes).
- Oracle TWO_TASK for communicating with a remote database

***** Both ORACLE_HOME and ORACLE_HOME_IC must point to a valid Oracle location.

- Upon conclusion of the Dimensions CM server installation, the `$DM_ROOT/dfs/listener.dat` file contains default values.

  Edit the `-dsn` entry to be the `<database>@<dsn>` for the database containing the Dimensions CM schema.

- If installing against Oracle Enterprise, update `dm.cfg` with the correct DBIO library entry:

  - Oracle 11gR2.0.3:
    `DBIO_LIBRARY libdbio_srv_oci8_11201.{so,sl}`
  - Oracle 12c:
    `DBIO_LIBRARY libdbio_srv_oci8_12201.{so,sl}`

  NOTE: On AIX you can only connect using `libdbio_srv_oci8_12101`.

- Run the Dimensions CM `dmpasswd` utility against:

  - The Dimensions CM schema you are using; for example:

    ```
    dmpasswd cm_typical@dim14 -add -pwd cm_typical
    ```

  - The Dimensions CM System Administrator; for example:

    ```
    dmpasswd dmsys -add -pwd <dmsys_password>
    ```

  For information on running `dmpasswd`, see the *System Administration Guide.*

NOTE For a Dimensions CM plus schema installation, this step is automatically performed by the installer, it only being required normally for additional base databases for such an installation.

Appendix C

Migrating to the Serena-Supplied Runtime RDBMS

Overview

This appendix documents a roadmap of the operations required to migrate to the latest version of the Serena-Supplied Runtime RDBMS.

NOTE Some migration scenarios might require additional steps not mentioned here (for example, the `pcms-sys.pcms_db_details` table might become out of sync in some cases). If so, knowledge base articles or Support personnel might be of assistance.

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Migration Scenario Overview

Typical migration scenario:

- On *Node A* you have an existing version of a Dimensions CM production server running against a local Serena-Supplied Runtime RDBMS based on Oracle 10g.
- The latest version of the Serena-Supplied Runtime RDBMS based on Oracle 11gR2.0.3 demands more system resources than the earlier version based on Oracle 10g. You have decided that you cannot upgrade to the Oracle 11gR2.0.3 version on Node A.
- You install the Serena-Supplied Runtime RDBMS based on Oracle 11gR2.0.3 on a more powerful machine, *Node B*.
- You want to migrate your existing Dimensions CM production server and Oracle 10g Dimensions CM production databases to Node B and

upgrade to Dimensions CM 14.2.0.2 running against the Serena-Supplied Runtime RDBMS.

Migration Scenario Roadmap

To run this scenario:

1. On Node B create an Oracle instance as explained in the companion guide *Installing the Serena Runtime*.
2. On Node B perform a fresh installation of a Dimensions CM 14.2.0.2 for UNIX server with the local Serena Runtime based on Oracle 11gR2.0.3. See "Installing a Dimensions CM for UNIX Server" on page 89.
3. On Node B drop the pcms_sys database and the demonstration database that get installed in Step 2. The particular demonstration database that was installed depends on which choice of process model was made during installation, namely:
   - For the **"Typical, Stream Development"** and **"Typical, Non-Stream Development"** process models it is `cm_typical`.
   - For the **"Custom"** process model it will have been specified by the export file used during its creation.

   Consult your DBA or Oracle documentation for the Oracle-specific steps required to drop databases.
4. On Node A export your existing Oracle 10g pcms_sys and demonstration databases from the Serena Runtime based on Oracle 10g.

   Consult your DBA or Serena Support for the Oracle-specific steps required to export databases.
5. On Node B import into your Serena Runtime based on Oracle 11gR2.0.3 the database export file created in Step 4.

   Consult your DBA or Serena Support for the Oracle-specific steps required to import an export file.

6 On Node B manually upgrade the imported Oracle databases to use the Dimensions CM 14.2.0.2 schema, as explained below:

a Log in to the Dimensions CM 14.2.0.2 dmdba utility as the Oracle Administration user (this will usually be `system`, but might be different for your Oracle installation—it will, however, here be assumed to be `system`). Do this by typing the following in a terminal window:

NOTE If you need additional information concerning the launching and usage of the `dmdba` utility, consult the Dimensions CM *System Administration Guide*.

```
dmdba system/<system_password>@<connect_string>
```

For example:

```
dmdba system/manager@dim14
```

b At the `SYSTEM>` prompt, type the following `dmdba` command

```
upgrade all /force
```

c At the `SYSTEM>` prompt, type the following `dmdba` command

```
exit
```

7 Update the data in your RDBMS, for details see page 128.

Appendix D

Installing and Upgrading a zLinux and Linux Itanium Client

Acquiring the Client Installer Executables

The installation software for the Dimensions CM for zLinux and Linux Itanium clients is available:

- Directly from the Serena-supplied Dimensions software DVD.
- By copying the contents of that DVD to your disk of choice, being careful to maintain the directory layout structure.
- As a downloadable UNIX tar file (`dimensions_14.2.0.2_zLinux.tar` or `dimensions_14.2.0.2_linux-ia64.tar`) from the Serena Support Website. The extracted installer offers you the option of an agent or client installation. Select the client at the appropriate installer prompt.

Launching the Client Installer

IMPORTANT!

- Before launching a Dimensions CM fresh client installation you should ensure that you have met the prerequisites detailed in "Pre-installation Tasks for a New Installation" on page 45.
- In addition to the above, on the zLinux and Linux Itanium platforms:
  - dmcli GUI login functionality is dependent on the Open Motif package (`openmotif-devel-XXX.rpm`) having been installed as a prerequisite: This can be achieved by using the zLinux `Yast2` utility.
  - Dimensions CM Auto Merge functionality in the client is dependent on the following UNIX utility having been installed as a prerequisite:

    ```
    diff3
    ```

Depending on how you obtained the Dimensions CM installer software, you either launch the installer:

- From the HTML front end that comes with the Dimensions Software DVD. Proceed to "Installing from the Dimensions HTML Front End" on page 197.
- From the installer software extracted from the tar file that you downloaded from the Serena Support Web site. Proceed to "Installing from the tar File" on page 198.

Installing from the Dimensions HTML Front End

Mounting a Dimensions Software DVD

If you are directly using a Dimensions Software DVD or copying its contents to a local disk of your choice, rather than accessing the equivalent downloadable tar file, you will first need to mount the DVD. Consult your system administrator or vendor documentation.

Launching the HTML Front End

1. Navigate to and run the HTML installation front end `index.html` file either on the mounted DVD or in the directory containing the copied contents of the DVD.
2. In the **If you are ready to install** region, click **Click here >>** to access the **Ready to install** page.

   Alternatively, if you would like a high level review of the pre-installation requirements and a high level links to Serena e-Learning, Training, and Support, in the **If you require pre-installation information** region click **Click here >>**. From these pages, you can access the **Ready to install** page by clicking **Start installation >** at the top right of the information pages.
3. Copy the appropriate link from the Agents and Clients section:
   - Red Hat zSeries & SuSE Linux ES zSeries: `dimensions_cm/dimensions_zlinux/install.sh`
   - SuSE Linux ES 64-bit, Itanium: `dimensions_cm/dimensions_linux-ia64_client_agent/install.sh`

In a terminal window, paste the link to manually run the executable in a similar manner to that described in "Installing from the tar File" on page 198.

4 Proceed to "Running the Client Installer" on page 199.

NOTE It will take some time for the installer to process various files before the **Welcome** screen appears, please be patient.

Installing from the tar File

1 Log in as a user root.

2 Extract the contents of the zLinux or Linux Itanium tar file.

3 It is advisable to capture the installer output into a "script" logfile; for example:

```
# script install_zliunx.log
# umask 022
```

Remember to exit script logging after completion of the zLinux installation by typing `exit`.

4 Initiate the client installer by typing:

```
# ./install.sh
```

5 Proceed to "Running the Client Installer" on page 199.

NOTE It will take some time for the installer to process various files before the **Welcome** screen appears, please be patient.

Running the Client Installer

Screen Output

```
Dimensions 14.2.0.2 - Installation Requirements

Please ensure the following:
  1. You are currently running from the root account
  2. An OS login id already exists for the Dimensions
     System Administrator
  3. The OS group 'dmtool' already exists for owning the
     Dimensions files
```

Prompt **Do you want to continue? (Yes,No) [Yes]**

1 Type **Yes** to continue.

The license agreement are displayed in a UNIX "more" window:

2 Once you have read the license, quit the UNIX "more" window, by typing:

q

Prompt **Do you accept the terms of the license agreement (Yes,No) ? [No]**

3 Type **Yes** to continue.

Screen Output

```
Dimensions 14.2.0.2 - Installation Type

Choose the installation type that best suits your needs.

1 - Client
    Installs only the Dimensions CM Client files.

2 - Agent
    Installs only the Dimensions CM Agent files.
```

Prompt **Select the number corresponding to the type of install you would like: [0]**

4 Type **1** to install the client.

NOTE The Dimensions CM and Dimensions CM client files are identical.

Prompt **Enter the OS login id for the Dimensions System Administrator [dmsys]**

5 Either hit RETURN to accept the default login id or type the appropriate login id.

Prompt **Please specify a directory or press Enter to accept the default directory [/opt/serena/dimensions/14.2.0.2]**

6 Either hit RETURN to accept the default directory or type an alternative directory name. Here we will assume that **/opt/serena/dimensions/14.2.0.2** is typed.

Prompt **Enter the Dimensions Web Client hostname**

Hostname:

7 Enter the hostname of the system that are hosting the client.

Screen Output

```
Dimensions 14.2.0.2 are installed in the following
    location:
/opt/serena/dimensions/14.2.0.2

With the following features:
Dimensions CM Client
Common Tools

For a total size:
170 MB

With the following Dimensions Web Client hostname:
<host_name>

Using the following login id for the Dimensions System
    Administrator:
dmsys
```

Prompt **Please confirm you want to proceed with these parameters (Yes,No) ? [No]**

8 Type **Yes** to continue.

When the installation completes the installer displays a confirmation message:

Screen Output
```
Dimensions 14.2.0.2 has been successfully installed
```

9 If logging to a "script" logfile, type:

```
# exit
```

Checking the Client Installation

IMPORTANT! To be able to perform these tests you need to have either chosen an evaluation license during installation or have fully licensed Dimensions CM as explained in "Installing the UNIX Serena License Manager" on page 437 or the *System Administration Guide*.

This section describes some quick checks that you can perform to establish that your client installation is functioning. Full post-installation activities are described in "Post-Installation Tasks" on page 89.

Checking that the Command Client Executes

1 If you have an X11 Window system, log in as user `root`.

NOTE Certain UNIX systems do not allow you to directly output X11 programs to your local display. In such circumstances you can either export the X11 display to another X11 system or run the command.

```
$ ssh -X root@localhost
```

2 Set up the Dimensions CM `pcms_sdp` network service as follows:

Either locally, or on a NIS server, edit the file /etc/services and add the following entry at the end of the file:

```
pcms_sdp<white-space>671/tcp<white-space># <comment>
```

This entry is required for use by the Dimensions CM `dmcli`.

3 Give all users permission to use the display by typing:

```
# xhost +
```

4 As user dmsys, type:

```
dmcli -user dmsys -pass <dmsys_passwd> -host
    <host_name> -dbname <db_name>@<connect_string>
```

for example:

```
dmcli -user dmsys -pass <dmsys_passwd> -host sun1
    -dbname cm_typical@dim14
```

The output, on "dumb terminal" or X11 systems, should be a Dimensions CM banner and copyright message followed by a `Dimensions>` prompt.

5 Type `exit`.

6 If you have an X11 system, type `dmcli`. Enter the appropriate data in fields in the Dimensions login dialog box.

NOTE If you installed or configured an SSO server or additionally configured a Common Access Card (CAC), the login dialog box will differ to that described below—please see the *User's Guide* or online help for details.

The output, again, should be a Dimensions CM banner and copyright message followed by a `Dimensions>` prompt.

7 Type `exit`.

The Dimensions CM client installation checks are now complete. If there are any problems, refer to the more comprehensive "Post-Installation Tasks" on page 89.

Uninstalling a Client

To uninstall an existing earlier installation of the agent:

- Delete the existing client file hierarchy;

  # rm -r $DM_ROOT

Appendix E

Installing and Upgrading a zLinux and Linux Itanium Agent

Running the Agent Installer

1. Extract the contents of the `dimensions_14.2.0.2_zLinux.tar` or `dimensions_14.2.0.2_linux-ia64.tar`file.
2. It is advisable to capture the installer output into a "script" logfile; for example:

   ```
   # script install_zliunx.log
   # umask 022
   ```

   Remember to exit script logging after completion of the zLinux installation by typing `exit`.
3. Initiate the agent installer by typing:

```
# ./install.sh
```

Screen Output

```
Dimensions 14.2.0.2 - Installation Requirements

Please ensure the following:
  1. You are currently running from the root account
  2. An OS login id already exists for the Dimensions
     System Administrator
  3. The OS group 'dmtool' already exists for owning the
     Dimensions files
```

Prompt **Do you want to continue? (Yes,No) [Yes]**

1. Type **Yes** to continue.

   The license agreement are displayed in a UNIX "more" window.
2. Once you have read the license, quit the UNIX "more" window, by typing:

   q

Prompt **Do you accept the terms of the license agreement (Yes,No) ? [No]**

3. Type **Yes** to continue.

Screen Output

```
Dimensions 14.2.0.2 - Installation Type

Choose the installation type that best suits your needs.

1 - Client
    Installs only the Dimensions CM Client files.

2 - Agent
    Installs only the Dimensions CM Agent files.
```

Prompt **Select the number corresponding to the type of install you would like: [0]**

4 Type **2** to install the agent.

NOTE The Dimensions CM and Dimensions CM agent files are identical.

Prompt **Enter the OS login id for the Dimensions System Administrator [dmsys]**

5 Either hit RETURN to accept the default login id or type the appropriate login id.

Prompt **Please specify a directory or press Enter to accept the default directory [/opt/serena/dimensions/14.2.0.2]**

6 Either hit RETURN to accept the default directory or type an alternative directory name. Here we will assume that **/opt/serena/dimensions/14.2.0.2** is typed.

Screen Output

```
Dimensions 14.2.0.2 are installed in the following
    location:
/opt/serena/dimensions/14.2.0.2

With the following features:
Dimensions CM Agent

For a total size:
100 MB

Using the following login id for the Dimensions System
    Administrator:
dmsys
```

Prompt **Please confirm you want to proceed with these parameters (Yes,No) ? [No]**

7 Type **Yes** to continue.

The installation aregin

Upon completion of the installation, the installer will output a confirmation message.

8 If logging to a "script" logfile, type:

```
# exit
```

Checking the Agent Installation

IMPORTANT! To be able to perform these tests you need to have either chosen an evaluation license during installation or have fully licensed Dimensions CM as explained in "Installing the UNIX Serena License Manager" on page 437 or the *System Administration Guide*.

This section describes some quick checks that you can perform to establish that your agent installation is functioning. Full post-installation activities are described in "Post-Installation Tasks" on page 89.

Starting the Listener as User Root

1. Log in as user `root`.
2. Set up the Dimensions CM `pcms_sdp` network service as follows:

   Either locally, or on a NIS server, edit the file /etc/services and add the following entry at the end of the file:

   ```
   pcms_sdp<white-space>671/tcp<white-space># <comment>
   ```

   This entry is required for use by the Dimensions CM listener.
3. Give all users permission to use the display by typing:

   ```
   # xhost +
   ```
4. Start the Dimensions listener as follows:
   a. Go to the Dimensions CM `prog` directory; for example:

   ```
   # cd /opt/serena/dimensions/2009R1/cm/prog
   ```

   b. Run the following command:

   ```
   # ./dmstartup
   ```

NOTE The dmstartup script will also export the Dimensions CM environment variables to the user `root`. It runs the Bourne shell login script:

```
dmprofile
```

located in the Dimensions CM root directory (`$DM_ROOT`).

5. Check that the Dimensions CM processes have started by typing:

   ```
   # ps -eaf | grep dm
   ```

   You should see services `dmlsnr` and `dmpool.x`.

Starting the Listener as System Administrator

1 Log in as user `root`.

NOTE Certain UNIX systems do not allow you to directly output X11 programs to your local display. In such circumstances you can either export the X11 display to another X11 system or run the command.

```
$ ssh -X root@localhost
```

2 Set up the Dimensions CM `pcms_sdp` network service as follows:

Either locally, or on a NIS server, edit the file /etc/services and add the following entry at the end of the file:

```
pcms_sdp<white-space>671/tcp<white-space># <comment>
```

This entry is required for use by the Dimensions CM listener.

3 Give all users permission to use the display by typing:

```
# xhost +
```

4 Log out as user `root` and log back in as the Dimensions System Administrator (by default user `dmsys`).

5 Navigate to:

```
$DM_ROOT/dfs
```

6 Edit the file `listener.dat` to add the following two entries:

```
-user <DSA_username>
-restricted_mode
```

where `<DSA_username>` is the Dimensions System Administrator non-root user that are running the Dimensions listener on the Dimensions agent. Typically, this user would be `dmsys`.

7 Start the Dimensions agent listener as follows:

a Go to the Dimensions CM `prog` directory; for example:

```
# cd /opt/serena/dimensions/14.2.0.2/cm/prog
```

b Run the following command:

```
# ./dmstartup
```

8 Check that the Dimensions CM processes have started by typing:

```
# ps -eaf | grep dm
```

You should see services `dmlsnr` and `dmpool.x`.

Stopping the Listener as System Administrator

Once a Dimensions CM agent's listener service is owned by the Dimensions System Administrator (by default user dmsys), you need to modify the way you shut it down as follows:

1 Navigate to:

$DM_ROOT/prog

2 Edit the file dm`shutdown` to modify the entry:

./stop_dimensions

to

./stop_dimensions -host <host_name>:<port_number>

for example:

./stop_dimensions -host DMSERVER:1025

Checking the Agent Installation

This section describes some quick checks that you can perform to establish that your agent installation is functioning.

1 If you have an X11 Window system, log in as user `root`.

NOTE Certain UNIX systems do not allow you to directly output X11 programs to your local display. In such circumstances you can either export the X11 display to another X11 system or run the command.

```
$ ssh -X root@localhost
```

2 Give all users permission to use the display by typing:

```
# xhost +
```

3 As user dmsys, type:

```
dmcli -user dmsys -pass <dmsys_passwd> -host
    <host_name> -dbname <db_name>@<connect_string>
```

for example

```
dmcli -user dmsys -pass <dmsys_passwd> -host sun1
    -dbname cm_typical@dim14
```

The output, on "dumb terminal" or X11 systems, should be a Dimensions CM 2009 R1 banner and copyright message followed by a `Dimensions>` prompt.

4 Type `exit`.

5 If you have an X11 system, type `dmcli`. Enter the appropriate data in fields in the Dimensions Login dialog box.

NOTE If you installed or configured an SSO server or additionally configured a Common Access Card (CAC), the login dialog box will differ to that described below—please see the *User's Guide* or online help for details.

The output, again, should be a Dimensions CM banner and copyright message followed by a `Dimensions>` prompt.

6 Type `exit`.

The Dimensions CM agent installation checks are now complete. If there are any problems, refer to the more comprehensive "Post-Installation Tasks" on page 89.

Uninstalling an Agent

Uninstalling a Default Installation

To uninstall an existing earlier default (`root`) installation of the agent:

1 Go to the Dimensions CM `prog` directory, for example:

```
# cd $DM_ROOT/prog
```

2 **2** Run the following command to shutdown the listener:

```
# ./dmshutdown
```

3 **3** Delete the existing agent file hierarchy;

```
# rm -r $DM_ROOT
```

Uninstalling a Restricted Mode

To uninstall an existing earlier restricted mode (dmsys) installation of the agent:

1 Shutdown the listener as detailed in "Stopping the Listener as System Administrator " on page 209.

2 **2** Delete the agent file hierarchy;

```
# rm -r $DM_ROOT
```

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