Oracle® Warehouse Builder

Installation and Administration Guide

11*g* Release 1 (11.1) for Windows and UNIX

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Oracle Warehouse Builder Installation and Administration Guide 11*g* Release 1 (11.1) for Windows and UNIX

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Preface

This preface includes the following topics:

- Audience on page vii
- Documentation Accessibility on page vii
- Conventions on page viii
- Related Publications on page viii

Audience

This manual is written for those responsible for installing Oracle Warehouse Builder, including:

- Data warehouse administrators
- System administrators
- Data warehouse and ETL developers
- Other MIS professionals

To install Oracle Warehouse Builder, you must be familiar with installing Oracle Database.

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Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Related Publications

The Warehouse Builder documentation set includes these manuals:

- *Oracle Warehouse Builder User's Guide*
- *Oracle Warehouse Builder API and Scripting Reference*

To access to documentation set, including the latest version of the release notes, refer to the following Web site:

`http://www.oracle.com/technology/documentation/warehouse.html`

In addition to the Warehouse Builder documentation, you can reference *Oracle Database Data Warehousing Guide*.

1

Installation Overview and Requirements

This chapter outlines the installation process, discusses the hardware and software requirements, and introduces the Oracle Warehouse Builder architecture and its components. This chapter includes the following topics:

- Warehouse Builder Architecture and Components on page 1-1
- General Steps for Installing Warehouse Builder on page 1-5
- Understanding the Installation Requirements on page 1-7
- Preparing the Server on page 1-9
- Preparing the Oracle Database on page 1-10
- Preparing Client Computers on page 1-15
- Downloading and Installing the Standalone Warehouse Builder Software on page 1-16
- Hosting the Repository on Oracle Database 10g Release 2 on page 1-19
- Steps for Installing Warehouse Builder in Oracle RAC Environments on page 1-21

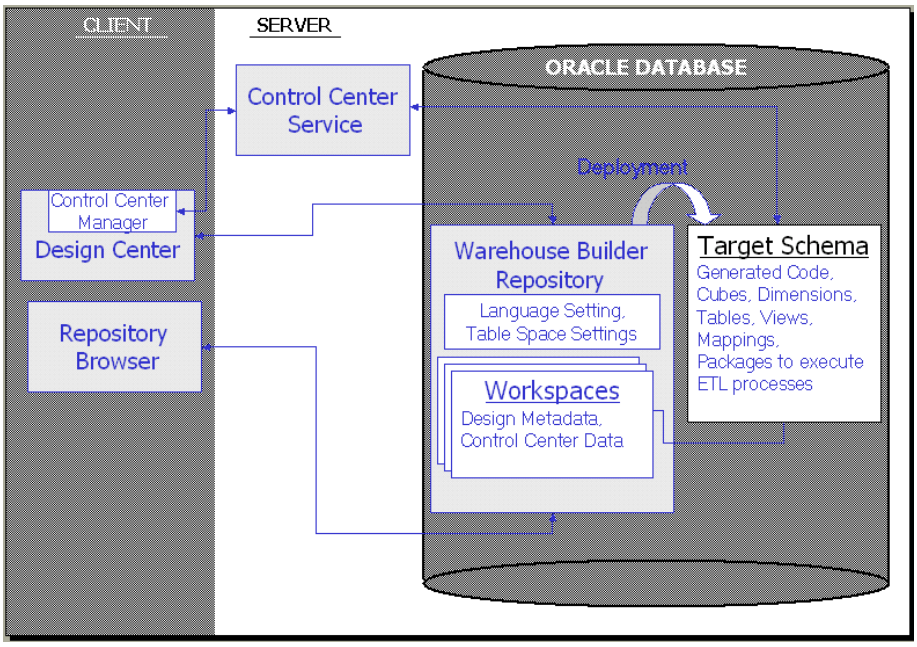
Warehouse Builder Architecture and Components

Oracle Warehouse Builder is an information integration tool that leverages the Oracle Database to transform data into high-quality information. The Oracle Database is a central component in the Warehouse Builder architecture because the Database hosts the Warehouse Builder repository and the code generated by Warehouse Builder.

Figure 1–1 illustrates the interaction of the major components of the Warehouse Builder software.

The Design Center is the user interface for designing, managing, scheduling, and deploying ETL processes for moving and transforming data. All metadata associated with the work done in the Design Center is stored in the Oracle Warehouse Builder Repository. The repository is hosted on an Oracle Database and you can use the Repository Browser to report on the metadata in the repository. Also hosted on an Oracle Database is the Target Schema to which Warehouse Builder loads data resulting from the ETL processes that you run through the Control Center Service.

Figure 1–1 Warehouse Builder Components



Design Center

The Design Center provides the graphical interface for defining sources and designing targets and ETL processes.

Control Center Manager

Also in the Design Center client is the Control Center Manager from which you can deploy and run ETL processes. The Control Center Manager is a comprehensive deployment console that enables you to view and manage all aspects of deployment.

Target Schema

The target schema is the target to which you load your data and the data objects that you designed in the Design Center such as cubes, dimensions, views, and mappings. The target schema contains Warehouse Builder components such as synonyms that enable the ETL mappings to access the audit/service packages in the repository. The repository stores all information pertaining to the target schema such as execution and deployment information.

Notice that the target schema is not a Warehouse Builder software component but rather an existing component of the Oracle Database. As such, you can associate multiple target schemas with a single Warehouse Builder repository. You can have a 1 to 1 relationship or many target schemas to a single repository.

Warehouse Builder Repository

The repository schema stores metadata definitions for all the sources, targets, and ETL processes that constitute your design metadata. In addition to containing design metadata, a repository can also contains the runtime data generated by the Control Center Manager and Control Center Service.

As part of the initial installation of Warehouse Builder, you use the Repository Assistant to define the repository in an Oracle Database. You can host a Warehouse Builder 11*g* repository either on Oracle Database 10*g* Release 2 (10.2) or 11*g*.

About Workspaces

In defining the repository, you create one or more workspaces with each workspace corresponding to a set of users working on related projects. A common practice is to create separate workspaces for development, testing, and production. Using this practice, you can allow users such as your developers access to the development and testing workspaces but restrict them from the production workspace.

Later in the implementation cycle, you also use the Repository Assistant to manage existing workspaces or create new ones.

For examples of the options for implementing repositories, see "Implementation Strategies" on page 1-3.

Repository Browser

The Repository Browser is a web browser interface for reporting on the repository. You can view the metadata, create reports, audit runtime operations and perform lineage and impact analysis. The Repository Browser is organized such that you can browse design-specific and control center-specific information.

Control Center Service

The Control Center Service is the component that enables you to register locations. It also enables deployment and execution of the ETL logic you design in the Design Center such as mappings and process flows.

Implementation Strategies

This section provides an overview of the various choices and considerations for implementing Warehouse Builder. Detailed instructions on how to implement each option are provided in subsequent sections.

The choices for implementing Warehouse Builder include the following:

- Basic Implementation
- Traditional Client/ Server Implementation
- Repository on Oracle Database 10g Release 2
- Separate Design and Runtime Environments Implementation
- Remote Runtime Environment Implementation

Basic Implementation

The simplest option is to host the client and server components on a single local computer, which is suitable if you are performing a proof of concept or launching a pilot program.

If you install Oracle Database 11*g*, the most commonly used Warehouse Builder components are also installed for you. The next step is to start the Warehouse Builder Repository Assistant to define a workspace and workspace user.

Two Warehouse Builder components not included in the Oracle Database 11*g* installation are deployment to Discoverer and execution of runtime scripting

commands. To access these components, see "Downloading and Installing the Standalone Warehouse Builder Software" on page 1-16.

To implement a basic implementation with a pre-existing Oracle Database 10*g* Release 2 installation, see "Downloading and Installing the Standalone Warehouse Builder Software" on page 1-16.

Traditional Client/ Server Implementation

This is the most commonly implemented strategy with client components residing on multiple client computers and server components residing on a single server.

When you install the Oracle Database 11*g*, the Database installation includes all the Warehouse Builder components necessary for the server. You need only start the Warehouse Builder Repository Assistant to define workspaces and workspace users. Subsequently, you download and install the Warehouse Builder software on the client machines.

Repository on Oracle Database 10g Release 2

When you install Oracle Database 11*g*, the Warehouse Builder server components are also installed.

However, you may choose to host the repository on Oracle Database 10*g* Release 2. There are no known limitations or restrictions for hosting a Warehouse Builder 11*g* repository on Oracle Database 10*g* Release 2, other than the fact that you will not have access to functionality new in Oracle Database 11*g*.

For instructions, see "Hosting the Repository on Oracle Database 10g Release 2" on page 1-19.

Separate Design and Runtime Environments Implementation

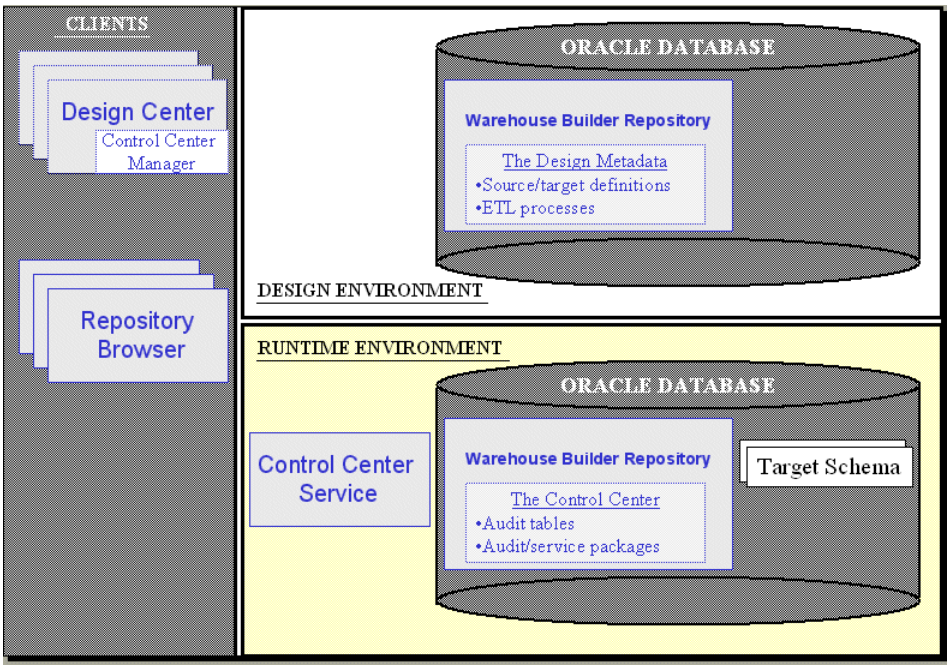
In an implementation such as shown in Figure 1–2, one repository stores metadata definitions for objects such as sources, targets, and ETL processes that users access through the Design Center.

A separate repository stores runtime data. Notice that a single Control Center Service manages the control center and its deployment and execution activities.

The runtime data is stored in audit tables that users access through the control center specific reports in the Repository Browser.

The only communication between the design repository and the control center repository occurs when you deploy objects to the target schema.

Figure 1–2 Split Repositories Implementation



Remote Runtime Environment Implementation

The Control Center Service is the Warehouse Builder server component that governs the deployment of objects to target schemas. Most commonly, the Control Center Service is installed on the computers hosting the target schemas.

In some cases, though, it may be desirable to run the Control Center on a computer that does not host an Oracle Database. You may wish to implement a remote runtime for purposes of load balancing. Also consider remote runtime if your company security policies restrict you from installing additional software on the computer hosting the target schema.

To implement any of these scenarios, refer to "Implementing a Remote Runtime (Optional)" on page 2-6.

General Steps for Installing Warehouse Builder

If you want to upgrade an existing installation, then refer to Chapter 3, "Upgrading to Oracle Warehouse Builder 11g Release 1 (11.1)".

If you want to begin a new installation, then use the following instructions to determine which topics to reference.

To begin a new installation:

1. Determine your implementation strategy.

   To accommodate a variety of environments and customer needs, Warehouse Builder offers you flexibility in where you install server and client components.

   Review "Warehouse Builder Architecture and Components" on page 1-1 and "Understanding the Installation Requirements" on page 1-7 to develop an implementation strategy.

2. Review the Oracle Warehouse Builder Release Notes, part number B40098, available at `http://otn.oracle.com`.

3. Preparing the Server on page 1-9
4. For Oracle RAC environments only, proceed to "Steps for Installing Warehouse Builder in Oracle RAC Environments" on page 1-21. Otherwise, continue with the next step in these instructions.
5. Preparing the Oracle Database on page 1-10
6. If necessary, install the Warehouse Builder standalone software.

   Skip this step if the Warehouse Builder repository is hosted on Oracle Database 11*g* and you do not intend to integrate with Oracle Discoverer or utilize runtime scripting commands.

   Otherwise, refer to the instructions in "Downloading and Installing the Standalone Warehouse Builder Software" on page 1-16.
7. To utilize the default Warehouse Builder schema installed in Oracle Database 11g, first unlock the schema.

   Connect to SQL*Plus as the SYS or SYSDBA user. Run the following commands:

   ```
   SQL> ALTER USER OWBSYS ACCOUNT UNLOCK;
   ```

   ```
   SQL> ALTER USER OWBSYS IDENTIFIED BY owbsyspasswd;
   ```
8. Define Warehouse Builder workspaces and workspace users on the Oracle Database.

   Start the Warehouse Builder Repository Assistant on the computer hosting the Oracle Database.

   To start the Repository Assistant on Windows, from the Windows **Start** menu, select **Programs** and navigate to the Oracle product group you installed in the previous step. Select **Warehouse Builder, Administration,** and then **Repository Assistant.**

   To start the Repository Assistant on UNIX, run

   ```
   owb home/owb/bin/unix/reposinst.sh
   ```

   Follow the prompts in the Repository Assistant. Or, for detailed instructions, see Chapter 2, "Managing Workspaces and Workspace Users".
9. Setting the Security Policy for the Repository (Optional) on page 2-10

   When you install a repository, Warehouse Builder enforces a default metadata security policy. The default policy is a minimal security policy appropriate for proof-of-concept or pilot projects.

   You can override the default by selecting a maximum security policy. Alternatively, you can use the security interface in Warehouse Builder to design your own security policy. In either of these two cases, ensure that repository database has the Advanced Security Option (ASO) enabled.
10. Installing and Enabling Optional Components (Optional) on page 5-1

    See Chapter 5 for instructions on enabling optional components such as browsers, third party tools, and related Oracle products.
11. Install the Warehouse Builder software on the client computers.

    Repeat the steps in "Installing the Warehouse Builder Software" on page 1-16 on each computer to be used as a client.

12. When you complete the installation process, verify that the Warehouse Builder components can be successfully launched as described in "Launching Warehouse Builder Components" on page 1-18.

Understanding the Installation Requirements

Refer to this section as you develop your implementation strategy.

Table 1–1 lists the components required in an Oracle Warehouse Builder environment. Table 1–2 lists some of the optional components that are compatible with an Oracle Warehouse Builder environment.

Required Components

Table 1–1 lists the components required in an Oracle Warehouse Builder environment. The table summarizes important considerations for installing each component and identifies where to look for further details.

Table 1–1 Required Components

Components	Requirements
Server The operating system can be any Windows or UNIX platform supported by Oracle 10g database. For the most up-to-date list of certified hardware platforms and operating system versions, review the certification matrix on the Oracle *MetaLink* Web site at `http://metalink.oracle.com/`	For Windows, both 32-bit and 64-bit architectures are supported. Ensure a minimum of 850 MB disk space, 768 MB available memory, and 768 MB of page file size, TMP, or swap space. For Linux, ensure a minimum of 1100 MB disk space. More disk space is required for all other UNIX platforms. All UNIX platforms require 768 MB available memory and 1100 MB of page file size, TMP, or swap space. See "Preparing the Server" on page 1-9.
Oracle Database The database can be any of the following versions: ▪ Oracle Database 11g Standard Edition R1 ▪ Oracle Database 11g Enterprise Edition R1 ▪ Oracle Database 10g Standard Edition R2 ▪ Oracle Database 10g Enterprise Edition R2	Ensure that DB_BLOCK_SIZE is set to the most optimal value of 16384 or the largest block size the server allows. Optionally, you may need to change additional configuration settings as described in: ▪ Setting the Security Policy for the Repository (Optional) on page 2-10 ▪ Steps for Installing Warehouse Builder in Oracle RAC Environments on page 1-21 ▪ Configuring the Target Data File Path for Flat File Targets on page 1-11 See "Preparing the Oracle Database" on page 1-10.
Client computer Client computers must have either a Windows or a Linux operating system.	For Windows, ensure that the computer has a minimum of 850 MB disk space, 768 MB available memory, and 1GB of page file size, TMP, or swap space. For Linux 32-bit, ensure that the computer has a minimum of 1100 MB disk space, 768 MB available memory, and 1GB of page file size, TMP, or swap space. See "Preparing Client Computers" on page 1-15.
Oracle Universal Installer	Start the Universal Installer as described in "Installing the Warehouse Builder Software" on page 1-16. Be sure to specify a separate home directory for Warehouse Builder.

Table 1–1 (Cont.) Required Components

Components	Requirements
Oracle Warehouse Builder Components ■ Warehouse Builder Design Center for designing ETL processes ■ OMB Plus, the scripting language and interface ■ Warehouse Builder repository ■ Repository Assistant, for defining repositories ■ Control Center Service ■ Repository Browser for viewing and reporting on metadata and audit data in the repository.	For an overview, see "Warehouse Builder Architecture and Components" on page 1-1.

Optional and Compatible Components

Table 1–2 lists some of the optional components that are compatible with an Oracle Warehouse Builder environment. The table summarizes important considerations for each optional component and identifies where to look for further details.

Table 1–2 Optional and Compatible Components

Components	Requirements
Oracle Discoverer	See "Downloading and Installing the Standalone Warehouse Builder Software" on page 1-16.
Oracle E-Business Suite You have the option of making data and metadata from E-Business Suite available to Warehouse Builder users.	See "Enabling Integration with Oracle E-Business Suite" on page 5-1.
Oracle Workflow You can use Oracle Workflow to manage job dependencies. If you plan to use Warehouse Builder process flows, then enable Oracle Workflow to facilitate deployment.	Beginning with Oracle 11g Release 1, Oracle Workflow is shipped with the Warehouse Builder software and licensed for using Warehouse Builder with the Oracle 11g Database. If the Warehouse Builder repository is hosted on Oracle 10g Release 2, you need to install an appropriate version of Oracle Workflow 2.6.4 and follow "Enabling Integration with Oracle Workflow" on page 5-3
Third Party Name and Address Data You can cleanse name and address data based on third party name and address data.	Requires the following from one of the certified vendors listed on Oracle Technology Network: ■ Regional data libraries ■ Name and Address adapter software See "Installing Third-Party Name and Address Data" on page 5-2.

Preparing the Server

If you have yet to install an Oracle Database on the server, then consult the Oracle Database *Installation Guide* for your operating system. Be sure to install the required operating system patches before installing the Oracle Database.

Review the certification matrix on the Oracle *Metalink* Web site for the most up-to-date list of certified hardware platforms and operating system versions. This Web site also provides compatible client and database versions, patches, and workaround information for bugs. The Oracle *Metalink* Web site is available at the following URL:

`http://metalink.oracle.com/`

If you intend to host the Warehouse Builder repository on Oracle Database 11*g*, no additional steps are required. Proceed with the next topic, "Preparing the Oracle Database" on page 1-10.

If you intend to host the Warehouse Builder repository on Oracle Database 10*g* Release 2, proceed with either "UNIX Servers Hosting a Warehouse Builder Repository on Oracle 10g Release 2" or "Windows Servers Hosting a Warehouse Builder Repository on Oracle 10g Release 2".

UNIX Servers Hosting a Warehouse Builder Repository on Oracle 10g Release 2

On all UNIX platforms other than Linux, only the Warehouse Builder server components are supported. For Linux 32-bit platforms, however, you can install both server and client components. That is, you can install the Repository and Control Center Service on a UNIX server but the Design Center and Repository Browser require either a Windows or Linux 32-bit platform.

If you are installing only the server components, then ensure that the UNIX operating system meets the requirements listed in Table 1–3. If you are also installing the client components to be accessed by Linux, then see the additional hardware requirements listed in "Preparing Client Computers" on page 1-15.

Table 1–3 UNIX Operating Environment Software Requirements

Requirement	Value
Disk Space	1100 MB for Linux. All other UNIX platforms require more disk space.
Available Memory	768 MB for Linux. Memory requirements increase depending on the functions being performed and the number of users connected.
Page File Size, TMP, or Swap Space	1 GB for Linux.

Setting Environmental Variables on a UNIX Server

When installing on UNIX, you must specify the environmental variable for the Oracle home, that is, the directory in which Warehouse Builder is to be installed.

Use the UNIX commands listed in Table 1–4 where *full_path* is the path into which you install Warehouse Builder.

Table 1–4 Setting Oracle home on a UNIX server

Variable	C Shell Command	Korn Shell Command	Bourne Shell Command
ORACLE_HOME	`setenv ORACLE_HOME full_path`	`export ORACLE_HOME=full_path`	`ORACLE_HOME=full_path; export ORACLE_HOME`

Windows Servers Hosting a Warehouse Builder Repository on Oracle 10g Release 2

On Windows platforms, you can install either the Warehouse Builder server or client components or both components on the same computer. Table 1–5 contains the Windows operating system requirements. These requirements are in addition to the requirements of any other Oracle products you are installing on the same computer. Refer to the documentation for each Oracle product you are installing to determine complete system requirements.

Table 1–5 Windows Operating Environment Software Requirements

Requirement	Value
Disk Space	850 MB
Available Memory	768 MB Memory requirements increase depending on the functions being performed and the number of users connected.
Page File Size, TMP, or Swap Space	1 GB
System Architecture	32-bit and 64-bit **Note:** Oracle provides both 32-bit and 64-bit versions of Warehouse Builder. The 32-bit version of Warehouse Builder must run on the 32-bit version of the operating system. The 64-bit version of Warehouse Builder must run on the 64-bit version of the operating system.
Operating System	Warehouse Builder is supported on the following operating systems: ■ Windows 2000 with service pack 1 or higher. All editions, including Terminal Services and Windows 2000 MultiLanguage Edition (MLE), are supported. ■ Windows Server 2003 ■ Windows NT Server 4.0, Windows NT Server Enterprise Edition 4.0, and Terminal Server Edition with service pack 6a or higher are supported. Windows NT Workstation is no longer supported. ■ Windows XP Professional

Preparing the Oracle Database

Warehouse Builder 11*g* Release 1 (11.1) is supported and certified for use with the following releases of the Oracle Database:

- Oracle Database 11*g* Standard Edition Release 1 (11.1.x)
- Oracle Database 11*g* Enterprise Edition Release 1 (11.1.x)
- Oracle Database 10g Standard Edition Release 2 (10.2.x)
- Oracle Database 10g Enterprise Edition Release 2 (10.2.x)

Note: Warehouse Builder has not been tested or certified and therefore is not supported for use with the Personal or Express Editions of the Oracle Database.

When you install Enterprise or Standard Editions of Oracle Database 11*g*, the installation provides you with an unpopulated schema, `OWB_SYS`, for use in Oracle Warehouse Builder 11*g*.

You must install the Oracle Database on any computer that you intend to create a Warehouse Builder design repository or a target schema as described in subsequent chapters.

The size requirements for the repository varies according to the character set. The tablespace usage of an empty repository with an AL32UTF8 character set, for example, is approximately 90 MB. To accommodate an average usage of the Warehouse Builder repository with a single-byte character set, Oracle recommends an additional 1330 MB for a total of 1420 MB recommended. For multibyte character sets, extrapolate a larger tablespace requirement.

To successfully create a Warehouse Builder repository, the following Oracle Database components are required:

- JServer JAVA Virtual Machine 10.2.0.1
- Oracle XDK 10.2.0.1
- Oracle Database Java Packages 10.2.0.1

If you intend to implement one of the metadata security options available in Warehouse Builder, then enable the Oracle Advanced Security option in the database. See "Setting the Security Policy for the Repository (Optional)" on page 2-10 for an overview of the metadata security options.

Database Configuration Settings for the Warehouse Builder Repository

Oracle 11*g* Database Configuration Settings

The Oracle 11*g* Database self tunes its configuration settings to optimize server resources for hosting both the design and runtime components. The only additional step you may need is "Configuring the Target Data File Path for Flat File Targets" on page 1-11.

Oracle 10*g* Database Configuration Settings

As with Oracle 11*g* Database, the Oracle 10*g* Database also self tunes with the possible exception of "Configuring the Target Data File Path for Flat File Targets" on page 1-11.

Additionally, you have the option of maintaining the Warehouse Builder design and runtime components in separate repositories. If so, then refer to "Configuring Oracle 10g Databases for Design and Runtime Repositories (Optional)" on page 1-12.

Configuring the Target Data File Path for Flat File Targets

To configure the Target Data File Path for Flat file Targets, you set this path in the `init.ora` file of the warehouse instance. Set the `UTL_FILE_DIR` parameter to the directory for the flat file targets so that the database has access to it.

For example, for the output file location `D:\Data\FlatFiles\File1.dat`, set the `UTL_FILE_DIR` parameter in your `init.ora` file to:

```
UTL_FILE_DIR = D:\Data\FlatFiles
```

For multiple valid file locations, such as both `D:\Data\FlatFiles` and `E:\OtherData`, set the parameter in `init.ora` to:

```
UTL_FILE_DIR = D:\Data\FlatFiles
UTL_FILE_DIR = E:\OtherData
```

These lines must be consecutive in the `init.ora` file.

You can bypass this checking of directories by using the following command:

```
UTL_FILE_DIR = *
```

Configuring Oracle 10*g* Databases for Design and Runtime Repositories (Optional)

This section lists the configuration parameters that ensure performance when using Oracle 10*g* databases to separately host a design repository and a runtime repository for Warehouse Builder.

Parameters for the Design Repository Database Instance

The Oracle Database self tunes its configuration settings to optimize server resources. To ensure that Warehouse Builder performs effectively, verify that DB_BLOCK_SIZE is set to its optimal value.

Table 1–6 lists the initialization parameters for a Warehouse Builder design repository.

Table 1–6 Initialization Parameters for the Design Repository Instance

Initialization Parameter	Set to Value	Comments
COMPATIBLE	*db value*	Set this to value to equal the release number of the Oracle Database. For example, specify 10 for 10g. If this parameter is not in the initialization file, then add it to the end of the file.
DB_BLOCK_SIZE	8192	This parameter is set when the database is created. It cannot be changed. Warehouse Builder does not recommend a value higher than 8192 for a design repository.
DB_CACHE_SIZE	104877600	This is 100 MB.
LOCK_SGA	TRUE	Oracle recommends locking the design SGA in physical memory.
O7_DICTIONARY_ ACCESSIBILITY	TRUE	Set this to TRUE as an alternative to setting REMOTE_LOGIN_PASSWORDFILE parameter to EXCLUSIVE.
OPEN_CURSORS	300	You may specify a higher value.
REMOTE_LOGIN_ PASSWORDFILE	EXCLUSIVE	To enable the user sys to connect as sysdba, set this parameter to EXCLUSIVE. If, however, this parameter must be set to NONE, then set O7_DICTIONARY_ACCESSIBILITY to TRUE.

Parameters for the Runtime Repository Database Instance

To support the Warehouse Builder runtime component, you may need to modify the Oracle Database instance. Table 1–7 lists the database configuration parameters.

Table 1–7 Initialization Parameters for the Runtime Instance

Initialization Parameter	Set to Value	Comments
AQ_TM_PROCESSES	1	This parameter is required for the Warehouse Builder and Oracle Workflow advanced queuing system.
COMPATIBLE	*db value*	Set this to value to equal the release number of the Oracle Database. If this parameter is not in the initialization file, then add it to the end of the file.
DB_BLOCK_SIZE	16384	This parameter is set when the database is created. Do not change it. The recommended value is 16384. If your server does not allow a block size this large, then use the largest size available. If your computer has less than 512 MB of RAM, then a value of 9600 is recommended.

Table 1–7 (Cont.) Initialization Parameters for the Runtime Instance

Initialization Parameter	Set to Value	Comments
DB_CACHE_SIZE	314632800	Set this value to 300 MB or as high as the system permits. You may need to adjust operating system parameters to allow larger shared memory segments. Do not set any value for the DB_CACHE_SIZE parameter if you set a value for the SGA_TARGET parameter.
DB_FILE_MULTIPLE_ BLOCK_READ_COUNT	16	A value of 16 is recommended, but 32 is preferred.
DB_WRITER_PROCESSES	see comments	If you have fewer than 8 CPUs, then set DB_ WRITER_PROCESSES to 1. Increase this parameter value by 2 for every additional 8 CPUs.
DBWR_IO_SLAVES	*n*	*n* is the number of CPUs. Disable this parameter by setting it to 0 if: ■ DB_WRITER_PROCESSES has a value greater than 1. In this case, tuning the DBWR_IO_ SLAVES parameter has no effect. ■ there is only 1 CPU, and the platform does not support asynchronous I/O.
DISK_ASYNCH_IO	TRUE	If the platform does not support asynchronous I/O, then set DBWR_IO_SLAVES to a positive number, such as 4, to simulate asynchronous I/O.
ENQUEUE_RESOURCES	3000 or higher if you are importing large MDL files.	A minimum setting of '1' is required for the install to complete without error.
JAVA_POOL_SIZE	20 MB	The minimum recommended value is 20 MB. Do not set any value for the JAVA_POOL_SIZE parameter if you set a value other than 0 for the SGA_TARGET parameter.
JOB_QUEUE_PROCESSES	greater than 10	Optimal setting is 10. If JOB_QUEUE_PROCESSES is set to 0, then the Control Center Service does not run and produces error messages.
LARGE_POOL_SIZE	0	Do not set any value for this parameter if you set a value for the SGA_TARGET parameter. This parameter enables the server to set the LARGE_ POOL_SIZE automatically. Prerequisite: PARALLEL_AUTOMATIC_TUNING must be set to TRUE.
LOG_BUFFER	*See comments*	Set the value to larger than 512K and must be 128K times the number of CPUs.
LOG_CHECKPOINT_ TIMEOUT	3000	This setting increases the timeout for performing checkpoints from the default 3 minutes to 5 minutes.
MAX_COMMIT_ PROPAGATION_DELAY	0	This is only required when installing on Oracle RAC systems. If it is not set to 0, then data propagation delays may cause NO_DATA_FOUND errors in the Control Center Service.

Table 1–7 (Cont.) Initialization Parameters for the Runtime Instance

Initialization Parameter	Set to Value	Comments
OPEN_CURSORS	500	You may specify a higher value if you start multiple sessions or if you run multiple or complicated mappings in one session.
OPTIMIZER_MODE	all_rows	For other possible optimizer modes, see *Oracle Designing and Tuning for Performance, Oracle Database Performance Tuning Guide and Reference,* and *Oracle Data Warehousing Guide*.
PARALLEL_ADAPTIVE_ MULTI_USER	TRUE	Set PARALLEL_AUTOMATIC_TUNING to TRUE as a prerequisite for this parameter.
PARALLEL_AUTOMATIC_ TUNING	TRUE	This setting delegates the task of tuning parallel processing to the server. Set this parameter for Oracle9*i* or Oracle8*i* databases only. For Oracle 10*g* and later, this parameter is not available and setting SGA_ TARGET to a nonzero value is recommended.
PGA_AGGREGATE_ TARGET	314572800	This is 300 MB. If you perform frequent sorting and aggregation, then you can increase this value. However, PGA_AGGREGATE_TARGET must be smaller than the available physical memory size.
PLSQL_OPTIMIZE_ LEVEL	2	The PL/SQL compiler in Oracle Database can perform more elaborate optimization on PL/SQL code.
QUERY_REWRITE_ ENABLED	TRUE	Set this parameter to TRUE if you plan to generate materialized views with the QUERY REWRITE option.
REMOTE_LOGIN_ PASSWORDFILE	EXCLUSIVE	You must use the SYS account with SYSDBA privileges to access or create a runtime schema. The workspace user requires access to certain v_$ tables. These grants are made by the SYSDBA account when you create the workspace. This setting ensures that the SYSDBA privilege is granted to SYS.
RESOURCE_MANAGER_ PLAN	*plan_name*	Oracle strongly recommends creating a resource plan for managing resource usages for Warehouse Builder runtime. Refer to the *Oracle Database Administration Guide* for information on resource plans.

Table 1–7 (Cont.) Initialization Parameters for the Runtime Instance

Initialization Parameter	Set to Value	Comments
SGA_TARGET	500 MB to 1 GB	The larger value, or as close to it as possible, is recommended if computer memory allows it. If you set the SGA_TARGET parameter, do not set these following parameters which the server automatically adjusts: ■ JAVA_POOL_SIZE ■ DB_CACHE_SIZE ■ LARGE_POOL_SIZE ■ SHARED_POOL_SIZE Alternatively, you can set the SGA_TARGET parameter to 0, which turns off the automatic sizing feature. In that case, follow the recommendations on sizing the preceding four parameters. **Note:** For Oracle 10g and later, setting SGA_TARGET is recommended.
SHARED_POOL_SIZE	419430400	The recommended minimum value is 400 MB. Do not set any value for the SHARED_POOL_SIZE parameter if you set a value for the SGA_TARGET parameter.
STATISTICS_LEVEL	TYPICAL	
UNDO_MANAGEMENT	AUTO	With this setting, you do not have to create rollback segments.
UTL_FILE_DIR	*	Specifies the directories that PL/SQL can use for file input and output. UTL_FILE_DIR = * specifies that all directories can be used for file input and output. If you want to specify individual directories, then repeat this parameter on contiguous lines for each directory. If you use flat file targets in Warehouse Builder, then set this parameter to the directory where you want to create the flat file target so that your database engine has access to it. Refer to "Configuring the Target Data File Path for Flat File Targets".
WORKAREA_SIZE_POLICY	AUTO	.

Preparing Client Computers

For Windows, ensure that the computer has a minimum of 850 MB disk space, 768 MB available memory, and 1GB of page file size, TMP, or swap space.

For Linux, ensure that the computer has a minimum of 1100 MB disk space, 768 MB available memory, and 1GB of page file size, TMP, or swap space. Ensure that you set the ORACLE_HOME variable.

If you previously deinstalled Warehouse Builder and the path *owb home*\owb\j2ee\owbb remains, then delete the owbb directory before installing Warehouse Builder again.

Setting Environmental Variables on the Linux Client

When installing client components on Linux, you must specify the environmental variable for the Oracle home.

Use the UNIX commands listed in Table 1–8 where *full_path* is the path into which you install Warehouse Builder.

Table 1–8 Setting Oracle home path on the Linux client

Environmental Variable	C Shell Command	Korn Shell Command	Bourne Shell Command
ORACLE_HOME	`setenv ORACLE_HOME full_path`	`export ORACLE_HOME=full_path`	`ORACLE_HOME=full_path; export ORACLE_HOME`

Downloading and Installing the Standalone Warehouse Builder Software

Download the Warehouse Builder standalone software to complete any of the following tasks:

- Installing the software on a client computer
- "Hosting the Repository on Oracle Database 10g Release 2" on page 1-19
- Enabling integration with Oracle Discoverer
- Enabling the use of runtime scripting commands

To download the standalone software, locate the software from the following link:

`http://www.oracle.com/products/index.html`

About the Oracle Universal Installer

When installing the standalone software, Oracle Warehouse Builder utilizes the Oracle Universal Installer to install components and to configure environment variables. The installer guides you through each step of the installation process.

About Oracle Home and Warehouse Builder

Oracle home is the top-level directory into which you install Oracle software. Some Oracle products enable you to share the same Oracle home. Or you can create separate homes and assign names to each home as you install each product.

Warehouse Builder, however, cannot share its home directory with any other Oracle product. When the Oracle Universal Installer prompts you to specify a home directory for Oracle Warehouse Builder, specify a directory different from the Oracle Database or any other Oracle product.

This separate directory is designated by the term *owb home* in the Warehouse Builder documentation.

For Linux, in addition to specifying the *owb home*, you also need to set the ORACLE_HOME variable.

Installing the Warehouse Builder Software

Use the Oracle Universal Installer to install Warehouse Builder components.

To install the software, complete the following:

1. Review and complete the Checklist: Before You Start the Universal Installer.

2. Run the installer following either the instructions Running the Oracle Universal Installer for Warehouse Builder on Windows or Running the Oracle Universal Installer for Warehouse Builder on UNIX.
3. If the Warehouse Builder repository is hosted on an Oracle 10*g* Database, complete the instructions "Hosting the Repository on Oracle Database 10g Release 2" on page 1-19.

Next

When the software installation completes successfully, you can continue with the next step in General Steps for Installing Warehouse Builder on page 1-5.

Checklist: Before You Start the Universal Installer

This section contains additional points to address before launching the Universal Installer:

- If you have not already done so, review the Oracle Warehouse Builder Release Notes either on the Oracle Warehouse Builder CD-ROM or, for the latest version, go to the Oracle Technology Network at `http://otn.oracle.com`.
- Close all other open applications.

Running the Oracle Universal Installer for Warehouse Builder on Windows

To run the Oracle Universal Installer on Windows:

1. Ensure that you are logged on to your system as a member of the Administrators group.
2. Insert the Oracle Warehouse Builder CD-ROM.
3. If your computer supports the autorun feature, then the autorun window launches the Oracle Warehouse Builder installation.

   If your computer does not support the autorun feature, then locate the executable `setup.exe` in the root directory of the CD-ROM or downloaded software. Start the installer by launching the `setup.exe` program.
4. When prompted, specify a home directory to be used only for the Warehouse Builder installation.

   For example, you could specify a directory such as `C:\oracle\owb11_1`.

   For the sake of brevity, the directory you specify in this step is referred to as the *`owb home`* throughout this guide.
5. Follow the on screen instructions.

When the software installation completes successfully, you can continue with the next step in General Steps for Installing Warehouse Builder on page 1-5.

Running the Oracle Universal Installer for Warehouse Builder on UNIX

To run the Oracle Universal Installer on UNIX:

You can run Oracle Universal Installer from the CD-ROM. Do not run the Installer while the CD-ROM directory is the current directory or you will be unable to unmount the next CD-ROM when prompted to do so.

1. If you have not already done so, you must set the ORACLE_HOME environmental variable as described in "Setting Environmental Variables on a UNIX Server" on page 1-9 and "Setting Environmental Variables on the Linux Client" on page 1-16.

2. Log in as the operating system user of the Oracle Database.

   For example, log in as the `oracle` user. If you choose to log in as the `oracle` user, you must configure the user environment by setting the default file mode creation mask (umask) to 022 in the shell startup file.

   Be sure you are not logged in as the root user when you start the Oracle Universal Installer. If you are, then only the root user would have permissions to manage Oracle Warehouse Builder.

3. Start the installer by entering the following at the prompt:

   ```
   cd mount_point
   ./runInstaller
   ```

4. As the installation proceeds, the Oracle Universal Installer prompts you to run several scripts. You need to switch users and run the script as root.

Launching Warehouse Builder Components

The Oracle Warehouse Builder CD installs the client and server-side software at the same time. After you complete the installation, you can start the Warehouse Builder components listed in Table 1–8.

The components in Table 1–8 are listed in the order that you are likely to use the components directly after installation:

Table 1–9 Launching Warehouse Builder Components from Windows or Linux Clients

Warehouse Builder Component	Windows: Select Start, Programs, Oracle, Warehouse Builder and then...	Linux: Locate *owb home*/owb/bin/unix and then...
Repository Assistant Enables you to manage the repository and its workspaces and workspace users.	Select Administration, and then Repository Assistant.	Run reposinst.sh
Design Center Is the primary design interface.	Select Design Center.	Run owbclient.sh
Start Control Center Service This command is only necessary when working in a remote runtime environment.	Select Administration then Start Control Center Service.	Run local_service_login.sh as follows: `local_service_login.sh -startup owb home` If the service fails to start, you can run *owb home*/owb/rtp/sql/service_doctor.sql.
Control Center Manager Use this command to deploy and run in a remote runtime environment.	Start the Design Center. From the Tools menu, select Control Center Manager.	Run local_service_login.sh as follows: `local_service_login.sh -startup owb home`

Table 1–9 (Cont.) Launching Warehouse Builder Components from Windows or Linux

Warehouse Builder Component	Windows: Select Start, Programs, Oracle, Warehouse Builder and then...	Linux: Locate *owb home*/owb/bin/unix and then...
Stop Control Center Service This command is only necessary when working in a remote runtime environment.	Select Administration then Stop Control Center Service.	Run local_service_login.sh as follows: `local_service_login.sh -closedown` *`owb home`*
Start OWB Browser Listener	Run startOwbbInst.bat The first time you invoke this listener, select and re-confirm a password for an oc4jadmin account.	Run startOwbbInst.sh The first time you invoke this listener, select and re-confirm a password for an oc4jadmin account.
Repository Browser	Select Repository Browser.	Start the OWB Browser Listener and then run openRAB.sh.
Stop OWB Browser Listener	Type the command: `stopOwbbInst.bat` *`oc4jadmin pwd`*	Type the command: `stopOwbbInst.bat` *`oc4jadmin pwd`*
OMB Plus Is the scripting utility that enables to perform all operations available in the graphical user interfaces.	Select OMB Plus.	Run OMBPlus.sh.

Hosting the Repository on Oracle Database 10g Release 2

To host a Warehouse Builder 11*g* repository on Oracle Database 10*g* Release 2, complete the following steps:

1. Install Warehouse Builder 11g on to the computer hosting Oracle Database 10*g* Release 2 as described in "Installing the Warehouse Builder Software" on page 1-16.

   You can locate the software from the following link:

   `http://www.oracle.com/products/index.html`

2. For additional considerations for hosting the repository on Oracle 10*g* Database, refer to "Preparing the Oracle Database" on page 1-10.

3. Complete the steps in "Running Scripts to Create a Warehouse Builder Repository Schema" on page 1-20.

4. Start and complete the Repository Assistant.

   Use the Repository Assistant to create a Warehouse Builder 11g repository and workspace in the Oracle Database 10g.

5. Complete the steps in "Enabling Access to Workspaces Hosted on Oracle 10g Databases" on page 1-20.

Running Scripts to Create a Warehouse Builder Repository Schema

To create a Warehouse Builder repository on an Oracle 10*g* Release 2 Database, complete the following steps:

1. Change the current directory to the *owb home*\owb\UnifiedRepos directory. For example:

   ```
   C:\> cd owb home\owb\UnifiedRepos\
   ```

2. Run the version of SQL*Plus provided with Warehouse Builder, with SYSDBA privilege. This executable is located in the *owb home*/bin directory. For example, type the following:

   ```
   C:\owb home\owb\UnifiedRepos> owb home\bin\sqlplus sys/sys_
   password as sysdba;
   ```

3. Run the cat_owb.sql script stored in the *owb home*/owb/UnifiedRepos directory.

   The script creates the repository and sets up the required roles and privileges on the 10*g* Release 2 Database.

   The script prompts you for the name of the default tablespace in which to create OWBSYS schema. For example, to install the OWBSYS schema into the USERS tablespace in a 10*g* Release 2 Database hosted on Windows, type the following:

   ```
   SQL> @cat_owb.sql

   Enter Tablespace Name for OWBSYS user:

   USERS
   ```

4. Unlock the OWBSYS user and assign it a password. For example:

   ```
   SQL> alter user OWBSYS account unlock identified by owbsys_
   password;
   ```

5. Run the script *owb home*/owb/UnifiedRepos/reset_owbcc_home.sql

   Use this script to ensure that the Control Center runs correctly from the Warehouse Builder 11.1 home. When prompted for the *owb home*, type the directory carefully. The entry is case-sensitive, does not accept a trailing slash, and requires forwards slashes only, regardless of the operating system. For example, for Windows, if the *owb home* is

   ```
   C:\Oracle\My_OWB_Home\>
   ```

   then type the following:

   ```
   C:/Oracle/My_OWB_Home
   ```

Enabling Access to Workspaces Hosted on Oracle 10g Databases

Warehouse Builder 11g clients connect to workspaces on an Oracle 11*g* Database by default. To access workspaces on an Oracle 10*g*Release 2 Database, you must take additional steps.

To enable access to workspaces on a 10*g* Release 2 Database:

1. On each client computer, locate the file *owb home*/owb/bin/admin/Preference.properties.

   If the file does not exist, you can create it based on the example file Preference.properties.tmp in the same directory.

2. Edit `Preference.properties`, add a property REPOS_DB_VERSION_ALLOWED and set its value to one of the following:

   - Oracle 10g
   - Oracle 10g, Oracle 11g

   For example:

   ```
   REPOS_DB_VERSION_ALLOWED=Oracle 10g,Oracle 11g
   ```

   After you save the file, the client can access repositories stored in Oracle Database 10*g*Release 2.

Steps for Installing Warehouse Builder in Oracle RAC Environments

The overall process for installing on an Oracle RAC environment is similar to the "General Steps for Installing Warehouse Builder". However, there are a few specific details to observe as noted in the following instructions:

To install in an Oracle RAC environment:

1. Create the Oracle RAC environment as described in the Oracle Clusterware and Oracle Real Application Clusters Installation Guide specific to your platform.
2. If you have not already done so, review the most recent Oracle Warehouse Builder Release Notes available at `http://otn.oracle.com`.
3. Preparing host computers

   For each computer to host Warehouse Builder components, configure the *tnsnames.ora* file located in the *owb home*`\owb\network\admin` directory.
4. Preparing the Oracle Database on page 1-10

   Be sure to set the initialization parameter `MAX_COMMIT_PROPAGATION_DELAY` to a value of zero.

   Also configure tnsnames.ora for each Oracle Database server that will be a Warehouse Builder data source or target. If you fail to configure tnsnames.ora for any host or database server, you may encounter a repository connection error.
5. If necessary, install the Warehouse Builder standalone software.

   If the Warehouse Builder repository is hosted on Oracle Database 11*g* and you do not intend to integrate with Oracle Discoverer, skip to the next step.

   Otherwise, complete the steps in "Downloading and Installing the Standalone Warehouse Builder Software" on page 1-16.
6. Managing Workspaces and Workspace Users on page 2-1

   The Repository Assistant prompts you to define users and an owner for the repository.

   To start the Repository Assistant on Windows, from the Windows **Start** menu, select **Programs** and navigate to the Oracle product group you installed in the previous step. Select **Warehouse Builder, Administration,** and then **Repository Assistant.**

   To start the Repository Assistant on UNIX, locate *owb home*/owb/bin/unix and run reposinst.sh.
7. Register each Oracle RAC node.

For each node, start the Repository Assistant and select the Advanced Set up option. Connect to the node using the net service name. Select the option for registering the Oracle RAC instance.

8. If the software is installed on separate disks, copy `rtrepos.properties` to each node in the cluster.

   If you did not install to a shared disk, then you must manually copy the file *owb home*`/owb/bin/admin/rtrepos.properties` from the primary node to each node in the cluster.

9. Setting the Security Policy for the Repository (Optional) on page 2-10.

10. Installing and Enabling Optional Components (Optional).

    Consider performing the optional step "Configuring Repository Browser Environments" on page 5-2. The Repository Browser lets you nominate a node and register other nodes.

11. Install the Warehouse Builder software on the client computers.

    Repeat "Installing the Warehouse Builder Software" on page 1-16 for each computer to be used as a client.

12. When complete the installation process, you can start all the Warehouse Builder components.

    When "Launching Warehouse Builder Components" on page 1-18 such as the Design Center, Control Center Manager, and Repository Assistant, select the log on option SQL*Net connection and specify the net service name you assigned in the *tnsnames.ora* file.

    Because you can connect to Warehouse Builder repositories using a net service name, you can embed Oracle RAC properties into the connect string to utilize Oracle RAC capabilities such as connect time failover, load balancing on server and load balancing of connections.

13. "Ensuring the Availability of Service Names for Oracle RAC Nodes" on page 1-24

    The Control Center Service requires that service names for the individual nodes in the cluster be available. If these are not present after the Oracle RAC installation, you must manually ensure the availability.

Installing Warehouse Builder on Each Node of a Cluster

Whether you are installing Warehouse Builder components onto a server or a client computer, you use the Oracle Universal Installer to install Warehouse Builder components.

For Oracle RAC, it is recommended that you install the Warehouse Builder components on each node of the cluster. The Control Center Service is required on to each node of the Oracle RAC cluster.You can achieve this in a single installation of the Warehouse Builder software if you install on a shared disk such as an OCFS or NTS shared disk.

Before launching the Universal Installer, review and complete the Checklist: Before You Start the Universal Installer.

Checklist: Before Using the Universal Installer in an Oracle RAC Environment

This section contains additional points to address before launching the Universal Installer:

- If you have not already done so, review the latest version Oracle Warehouse Builder Release Notes at `http://otn.oracle.com`.
- The installed location must be the same directory path if using separate *`owb home`* installed disks, that is, local physical disks on each server.
- Close all other open applications.

For Windows Users Installing in an Oracle RAC Environment

To run the Oracle Universal Installer in an Oracle RAC environment:

1. Ensure that you are logged on to your system as a member of the Administrators group.
2. Insert the Oracle Warehouse Builder CD-ROM.
3. If your computer supports the autorun feature, the autorun window will automatically start the Oracle Warehouse Builder installation.

   If your computer does not support the autorun feature, locate the executable `setup.exe` in the root directory of the CD-ROM or downloaded software. Start the installer by launching the `setup.exe` program.
4. When prompted to specify the cluster node, you can select all hosts or the local node.

   If you select local node, then you must install Warehouse Builder separately for each system unless installing to a shared disk.
5. When prompted, specify a home directory to be used only for the Warehouse Builder installation.

   For example, specify a path such as `C:\oracle\owb11_1`.

   For the sake of brevity, the path you specify in this step is referred to as *`owb home`* throughout this guide.
6. Follow the on screen instructions.

When the software installation completes successfully, you can continue with the next step in "Steps for Installing Warehouse Builder in Oracle RAC Environments" on page 1-21.

For UNIX Users Installing in an Oracle RAC Environment

To run the Oracle Universal Installer in an Oracle RAC environment:

You can run Oracle Universal Installer from the CD-ROM. Do not run the Installer while the CD-ROM directory is the current directory or you will be unable to unmount the next CD-ROM when prompted to do so.

1. If you have not already done so, you must set the ORACLE_HOME environmental variable as described in "Setting Environmental Variables on a UNIX Server" on page 1-9 and "Setting Environmental Variables on the Linux Client" on page 1-16.
2. To enable clusterware installation, ensure that you are running an interactive secure shell such as `/bin/ssh` and have host user equivalency to all nodes.
3. Log in as the operating system user of the Oracle Database.

   For example, log in as the `oracle` user.

   Be sure you are not logged in as the root user when you start the Oracle Universal Installer. If you are, then only the root user will have permissions to manage Oracle Warehouse Builder.

4. Start the installer by entering the following at the prompt:

   ```
   cd mount_point
   ./runInstaller
   ```

5. When prompted to specify the cluster node, you can select all hosts or the local node.

   If you select local node, then you must install Warehouse Builder separately for each system unless installing to a shared disk.

6. As the installation proceeds, the Oracle Universal Installer prompts you to run several scripts. You need to switch users and run the script as root.

When the software installation completes successfully, you can continue with the next step in General Steps for Installing Warehouse Builder on page 1-5.

Ensuring the Availability of Service Names for Oracle RAC Nodes

1. List all of the instance or node names in the cluster. Issue the following command:

   ```
   srvctl config database -d dbname
   ```

   where dbname is the unique database name as specified by the init parameter db_name.

2. For a given instance, `instn`, add a service with the following command:

   ```
   srvctl add service -d dbname -s instn -r instn
   ```

   The resulting service name is `instn.clusterdomainname`. For example, if the instance name is owbrac1,then the service name could be `owbrac1.us.oracle.com`.

3. For a given instance, `instn`, start the service with the following command:

   ```
   srvctl start service -d dbname -s instn
   ```

4. For a given instance, `instn`, verify the service is running with the following command:

   ```
   srvctl status service -d dbname -s instn
   ```

5. Complete steps 2 through 4 for each node.

2

Managing Workspaces and Workspace Users

This chapter includes the following topics:

- Using the Repository Assistant on page 2-1
- Connecting to the Oracle Database on page 2-1
- Choosing Workspace Operations on page 2-2
- Implementing a Remote Runtime (Optional) on page 2-6
- Setting the Security Policy for the Repository (Optional) on page 2-10

Using the Repository Assistant

Use the Repository Assistant to define the repository on an Oracle Database.

Note: Before proceeding with this wizard, first complete steps 1 through 6 in General Steps for Installing Warehouse Builder on page 1-5.

As an alternative to using the wizard, you can install a repository using the OMB Plus scripting language. The default settings for creating a repository are the same whether you use the OMB Plus or the Repository Assistant. For example both methods assign USERS as the default tablespace for indexes.

For more information installing through the scripting language, read about the OMBINSTALL command in Oracle Warehouse Builder Scripting Reference.

Connecting to the Oracle Database

The assistant prompts you for connection information to the Oracle Database.

In a RAC environment, in addition to typing the host name, port number, and Oracle service name, also select the SQL*NET Connection option. Type the net service name, defined in *owb home*\network\admin\tnsnames.ora.

To proceed with the next step, Defining Workspace Users, note that the Database must be running and you must enter a database user with SYSDBA privileges.

Defining Workspace Users

Specify a workspace user name and password based on the "Guidelines for User Names and Passwords". The Repository Assistant assigns the user as a deployment target. In other words, that user can access both the Design Center for designing ETL processes and the Control Center Manager for deploying and auditing.

Guidelines for User Names and Passwords

The Repository Assistant prompts you to create user names and confirm any new or reset passwords.

To specify a valid user name and password, adhere to the security standard implemented on the Oracle Database. The default minimum requirement is that both the user name and password be a VARCHAR(30). Also, do not include any special characters. Your database may have more requirements if a password complexity verification routine was applied. For more information about user names, passwords, and password complexity verification routines, refer to *Oracle® Database Security Guide*.

Choosing Workspace Operations

Choose one of the following options:

- **Managing Workspaces:** Select this option if you want to create, delete, or alter a workspace owner.
- **Managing Workspace Users**: Select this option to create or remove the registration for one or more workspace users.
- **Registering a Real Application Cluster (RAC) instance:** This option is only available for local installations. To register a RAC instance, select this option, click **Next** and then **Finish** on the Summary page.

  For additional information, see "Steps for Installing Warehouse Builder in Oracle RAC Environments" on page 1-21.

Managing Workspaces

Managing a workspace includes:

- **Creating a new workspace**
- Dropping Workspaces

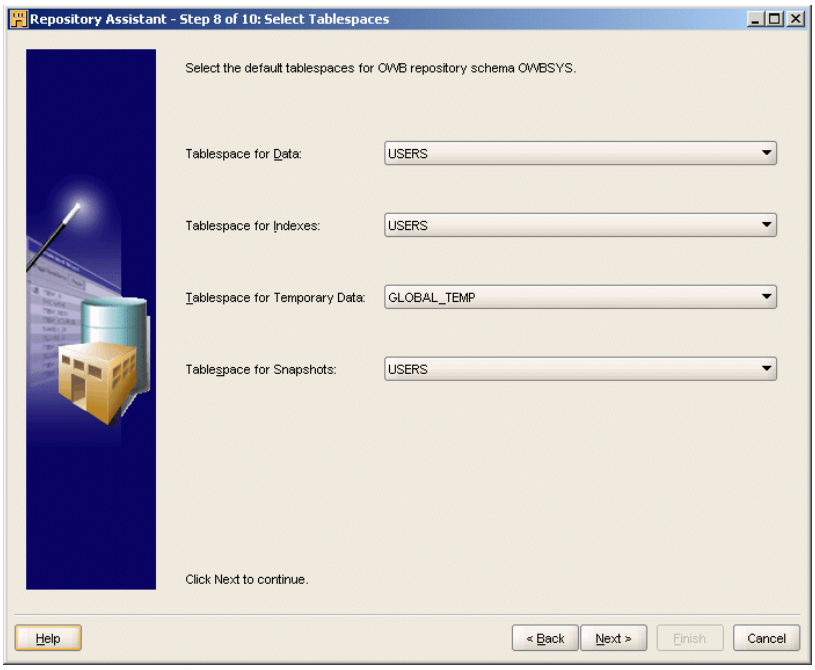
Dropping Workspaces

When you drop a workspace owner, be aware that each workspace owner can be associated with multiple workspace users. After you drop a workspace owner, any remaining users become orphans and you cannot use the Repository Assistant to delete them. Therefore, use the Repository Assistant to delete associated users prior to dropping a workspace owner. Alternatively, you can delete orphan users through the SQL Plus.

Selecting the Default Tablespaces

The assistant recommends a set of default tablespaces. You can accept the recommendations or specify new tablespaces.

Figure 2–1 Dialog: Selecting Default Tablespaces



Selecting the Base Language for the Repository

The repository has a single base language. That is, the physical name for each repository object is assumed to be written in the base language.

The Repository Assistant assumes a default base language contingent upon the locale of the computer from which you launched the Repository Assistant. For example, when you run the assistant from a computer with its locale set to British English, the default base language for the repository is *en_GB* for British English.

You can accept the default or select from a list of base languages. Note, however, that you can define the base language only once. That is, after you create the repository, you cannot change the base language and you cannot add another base language. This means that when creating a new repository object, the business name can be in any language, but the physical name should always be written in the base language.

However, to enable users to use different languages for the physical names of objects, you have the option to support multiple display languages .

Adding Display Languages

Unlike the base language, you can have multiple display languages and you can add display languages after initially defining the repository.

Display languages are associated with business names only. For a given object, its physical name corresponds to the base language. However, for each display language you enable, users can create a corresponding business name.

Table 2–1 lists the International Organization for Standardization (ISO) IDs for each display language supported in Warehouse Builder.

Table 2–1 ISO IDs for Supported Languages

ISOID	Language
sq_AL	Albanian
en_US	American English
ar_AE	Arabic
ar_EG	Arabic Egypt
as_IN	Assamese
bn_IN	Bangla
pt_BR	Brazilian Portuguese
bg_BG	Bulgarian
fr_CA	Canadian French
ca_ES	Catalan
hr_HR	Croatian
cs_CZ	Czech
da_DK	Danish
nl_NL	Dutch
en_GB	English
et_EE	Estonian
fi_FI	Finnish
fr_FR	French
de_DE	German
el_GR	Greek
gu_IN	Gujarati
he_IL	Hebrew
hi_IN	Hindi
hu_HU	Hungarian
is_IS	Icelandic
in_ID	Indonesian
it_IT	Italian
ja_JP	Japanese
kn_IN	Kannada
ko_KR	Korean
es_US	Latin American Spanish
lv_LV	Latvian
lt_LT	Lithuanian
ms_MY	Malay
ml_IN	Malayalam
mr_IN	Marathi

Table 2–1 (Cont.) ISO IDs for Supported Languages

ISOID	Language
es_MX	Mexican Spanish
no_NO	Norwegian
or_IN	Oriya
pl_PL	Polish
pt_PT	Portuguese
pa_IN	Punjabi
ro_RO	Romanian
ru_RU	Russian
zh_CN	Simplified Chinese
sk_SK	Slovak
sl_SI	Slovenian
es_ES	Spanish
sv_SE	Swedish
ta_IN	Tamil
te_IN	Telugu
th_TH	Thai
zh_TW	Traditional Chinese
tr_TR	Turkish
uk_UA	Ukrainian
vi_VN	Vietnamese

Managing Workspace Users

All users and the workspace owner must first be defined as Oracle Database users.

As a workspace owner, the actions you can take include adding workspace users or "Deleting Workspace Users" on page 2-6.

You cannot change user passwords from within the product. Change passwords directly in the Oracle Database as described in *Oracle® Database Security Guide.*

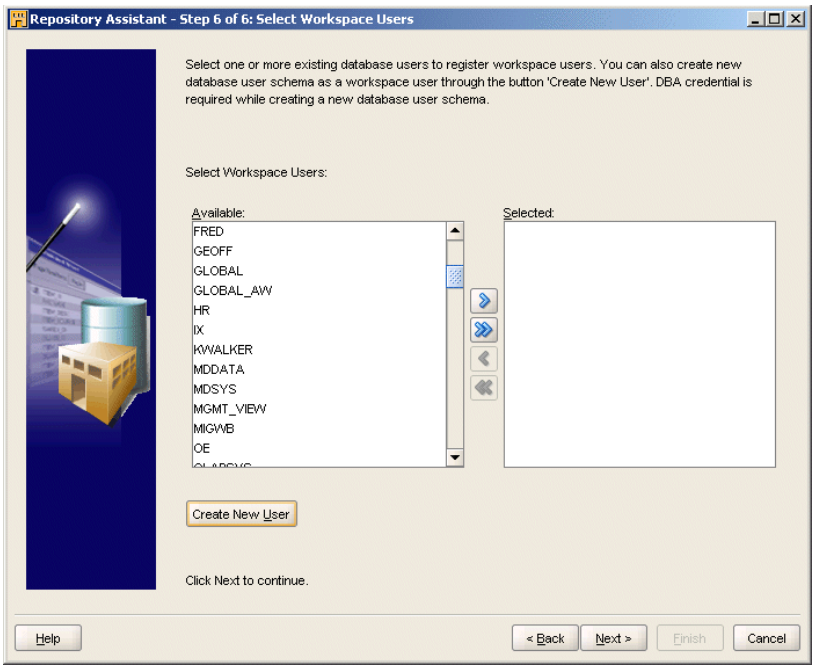
Selecting Workspace Users

The left panel in Figure 2–2 lists the existing Oracle Database users and schemas. Select existing database users from the list. Or, if adding new users, you can define and register a new user by clicking on **Create New User** located in the lower left corner.

If you select an existing user, you are prompted for the password before allowing you to proceed.

When selecting from the list, you can select one or more database users. Notice that, for security reasons, database administrator users such as SYSDBA are not available for registering as Warehouse Builder users.

Figure 2–2 Adding Workspace Users



Deleting Workspace Users

When you delete a workspace user, you unregister and remove the user from the workspace. Deleting the user from the workspace does not delete or alter the user account on the Oracle Database.

Implementing a Remote Runtime (Optional)

Recall that the Control Center Service is the Warehouse Builder server component that governs the deployment of objects to target schemas. Most commonly, the Control Center Service is installed on the computers hosting the target schemas. In limited cases, though, it may be necessary to run the Control Center on a computer that does not host an Oracle Database.

To achieve this, implement a remote runtime environment. That is, the target schemas are remote with respect to the Control Center Service running on another server.

Remote Runtime Scenarios

There are several scenarios for implementing a remote runtime. To deploy and run ETL processes in any of the scenarios, however, keep in mind that Control Center Service must be running. The scenarios for a remote runtime environment include the following:

- Control Center Service Installed on a Dedicated Computer: Notice that an Oracle Database is not required on the computer hosting the Control Center Service. You can deploy all types of mappings to the remote target without restriction.
- Control Center Service Installed on a Local Server: You can deploy all types of mappings to the remote target. However, if the mapping calls any external programs such as SQL Loader, these programs run on the local server and local server accounts.

- A Standalone Target Schema: Although it is not a preferred scenario, it is possible to implement a remote target without any Warehouse Builder components installed on the target computer. This scenario has a significant restriction. Because the remote target schema and the repository are in two different databases, you cannot deploy PL/SQL mappings to the standalone target schema.

Figure 2–3 Control Center Service Installed on a Dedicated Computer

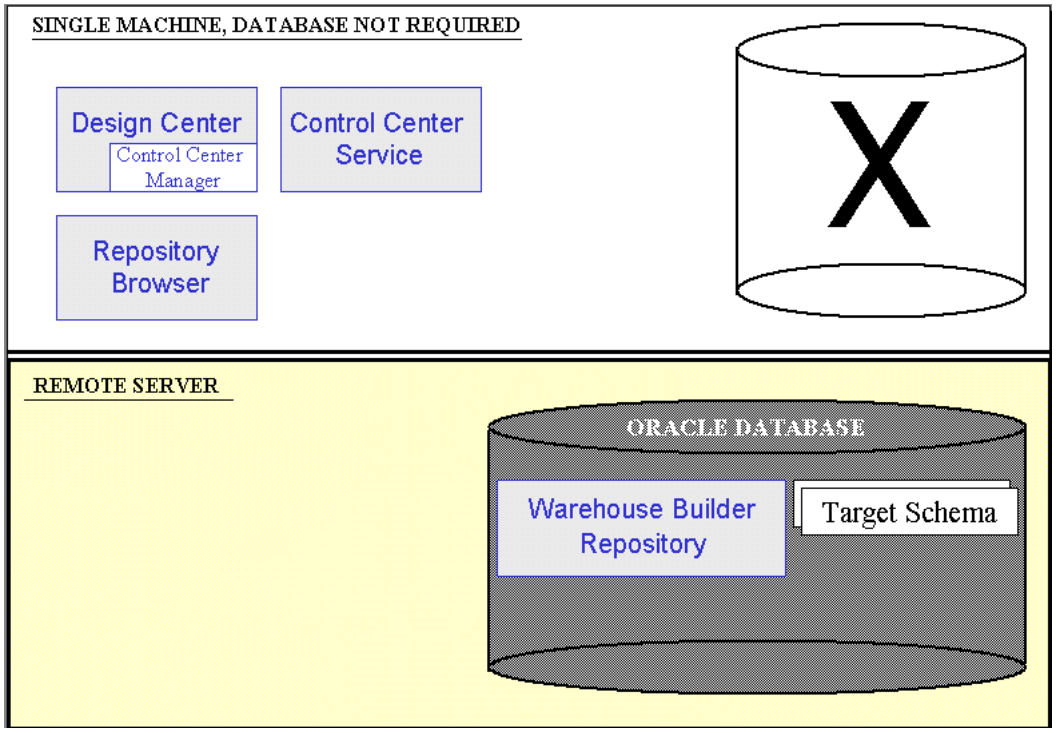


Figure 2–4 Control Center Service Installed on a Local Server

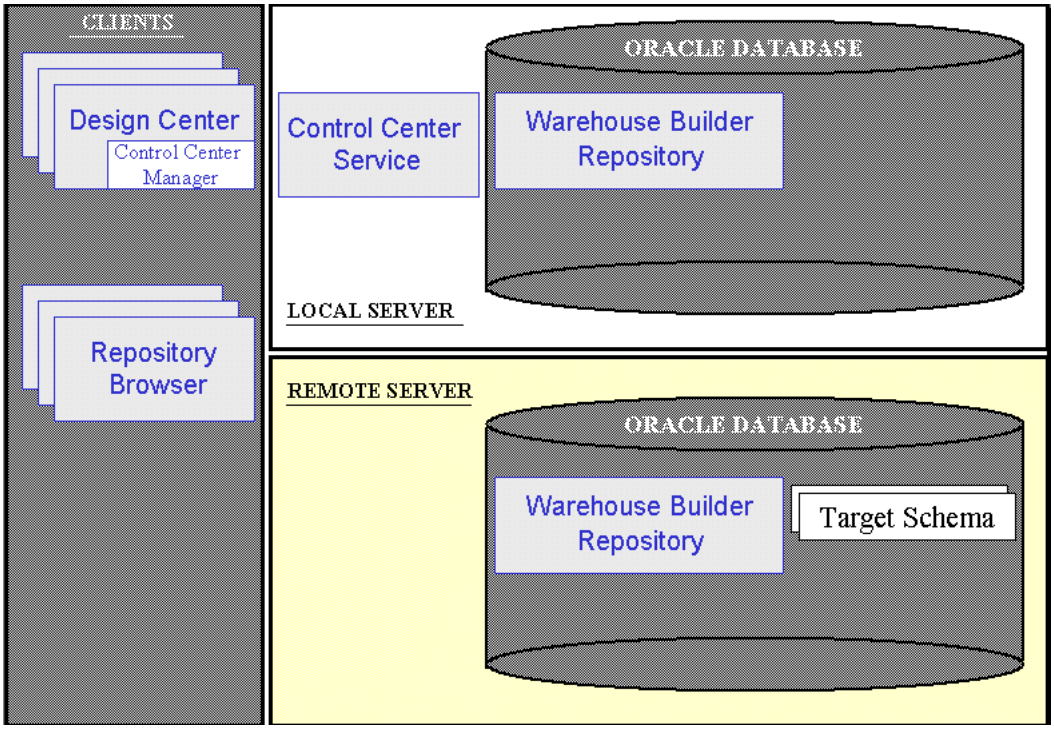
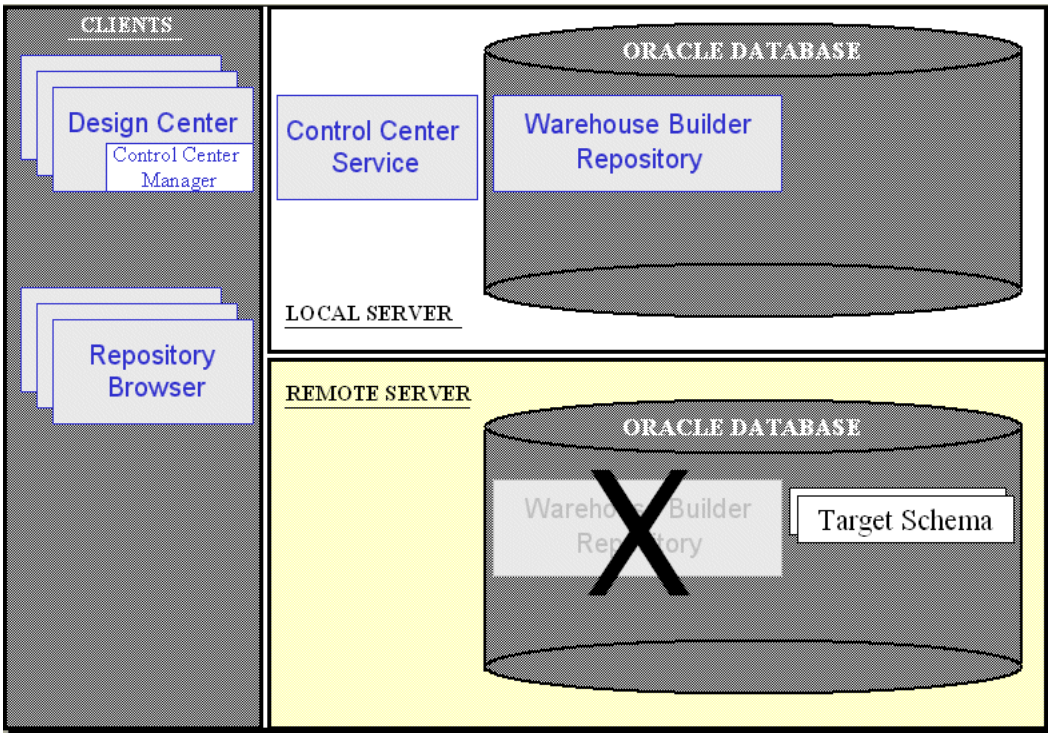


Figure 2–5 A Standalone Target Schema



Steps for Installing and Testing Remote Runtime

To implement a remote runtime environment, complete the following steps:

1. If necessary, install the client components including the Design Center and Control Center Service as depicted in "Remote Runtime Scenarios" on page 2-6.

   For Oracle Database 11*g* Release 1, the necessary components are already installed. Skip to the next step.

   For Oracle Database 10*g* Release 2, see "Downloading and Installing the Standalone Warehouse Builder Software" on page 1-16.

2. From the client computer, start the Repository Assistant.

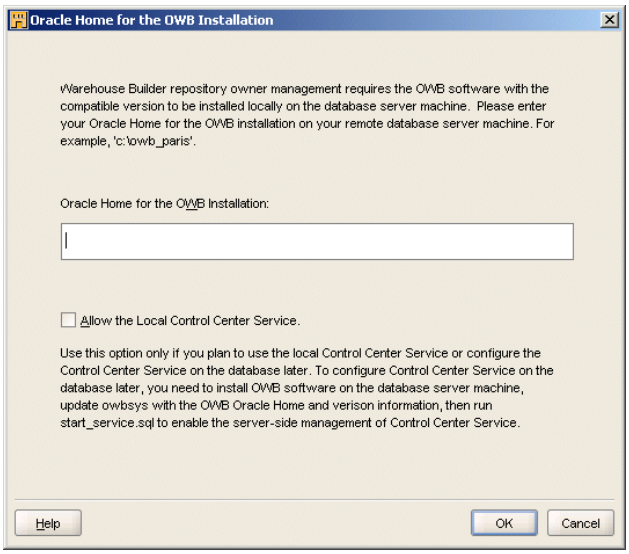
   Select **Start, Programs, *owb home*, Warehouse Builder, Administration**, then **Repository Assistant.**

3. Select the Advanced Setup option.

4. Connect to the server that will host the standalone target schema.

   The Repository Assistant displays a dialog as shown in Figure 2–6. Enable **Allow the Local Control Center Service** and select **OK**.

Figure 2–6 Dialog: Oracle Home for the OWB Installation



5. Follow the prompts in the Repository Assistant.

6. From the client computer, start the Control Center Service.

   Select **Start, Programs, *owb home*, Warehouse Builder, Administration** then **Start Control Center Service.** When prompted, connect to the workspace you previously created. Use the workspace owner user name and password.

7. Start the Control Center Manager to deploy and then run ETL processes on the target schema.

   To start the Control Center Manager, navigate to the **Tools** menu in the Design Center and select **Control Center Manager.**

8. Start the Repository Assistant again to create additional target users. (Optional)

   Note that only the Repository Assistant can create users for the target schemas. The security interface in the Design Center only creates users local to the workspace and therefore cannot be used for this purpose.

Setting the Security Policy for the Repository (Optional)

When you install a repository, Warehouse Builder enforces a default metadata security policy. The default policy is a minimal security policy appropriate for proof-of-concept or pilot projects. With minimal security, Oracle Database security policies keep data in the design repository secure and metadata is available to anyone who knows the workspace owner log on information.

You can change the default by selecting a maximum security policy. Alternatively, you can use the security interface in Warehouse Builder to design your own security policy as described in Oracle Warehouse Builder User's Guide. In either of these two cases, ensure that repository database has the Oracle Advanced Security option enabled.

To change the default metadata security policy:

1. Start the Warehouse Builder Design Center.

   In Windows, from the **Start** button select **Programs** and navigate to the Oracle product group you installed in the previous step. Select **Warehouse Builder** and then **Design Center.**

2. Log in as the workspace owner.

3. From the main menu, select **Tools** and then **Preferences.**

4. Select **Security Parameters.**

5. For the parameter **Default Metadata Security Policy,** specify the security policy to be applied.

   Minimum security allows all users full control over objects any newly registered user creates. Maximum security, however, restricts access such that only the registered user that created an object and the Warehouse Builder repository administrators have access to an object.

3

Upgrading to Oracle Warehouse Builder 11*g* Release 1 (11.1)

Refer to the following topics to upgrade to Warehouse Builder11*g* Release 1 (11.1):

- General Steps for Upgrading to Warehouse Builder 11g Release 1 (11.1) on page 3-1
- Migrating An Oracle Database Environment on page 3-2
- Upgrading a Design Repository on page 3-8
- Upgrading Existing Control Centers or Runtime Repositories on page 3-12
- Reusing and Redeploying Specific Objects on page 3-17

General Steps for Upgrading to Warehouse Builder 11*g* Release 1 (11.1)

As a general rule, you can upgrade directly to the current release of Warehouse Builder from subsequent releases, beginning with Warehouse Builder 9.2.0.4 and onwards. You may encounter exceptions to this rule if you decide to migrate runtime audit data from early releases, as described in "Using the Control Center Upgrade Assistant" on page 3-12.

To upgrade to Warehouse Builder 11*g* Release 1 (11.1), refer to the following sections:

1. Understanding the Installation Requirements on page 1-7

   Verify that your environment meets the new minimum requirements for computers hosting client and server components.

2. Understand changes to the product architecture described in "Warehouse Builder Architecture and Components" on page 1-1.

3. Identify and complete any changes necessary to the database environment.

   If you determine that you must upgrade to a new Oracle Database version, then complete the steps in "Migrating An Oracle Database Environment" on page 3-2.

   If you determine that the new control center is to be hosted on a database or server that is different from the existing one, then do not continue with these instructions. Instead, refer to "Selectively Migrating a Warehouse Builder Environment to a New Database" on page 3-4.

4. Review the *Oracle Warehouse Builder Release Notes*.

   Any instructions in the Release Notes supersede the instructions in this guide.

5. If you want to continue to host the repository on Oracle Database 10g, see "Repository on Oracle Database 10g Release 2" on page 1-4.

Otherwise, proceed to the next step.

6. Install a new repository.

   From the Windows **Start** menu, select **Programs** and navigate to the Oracle product group. Select **Warehouse Builder, Administration,** and then **Repository Assistant.**

   On UNIX, locate *owb home*/owb/bin/unix and run reposinst.sh.

   Follow the instructions Chapter 2, "Managing Workspaces and Workspace Users".

   If in the pre-existing repository you created multiple users through the optional PL/SQL package, then take note of the instructions for "Selecting Workspace Users" on page 2-5.

7. Upgrading a Design Repository on page 3-8
8. Upgrading Existing Control Centers or Runtime Repositories on page 3-12
9. Reusing and Redeploying Specific Objects on page 3-17

   To reuse most objects designed in a previous release, you need to take additional steps.

10. Installing and Enabling Optional Components (Optional) on page 5-1
11. Installing the Warehouse Builder Software on the Client computers on page 1-16

    Repeat the instructions Installing the Warehouse Builder Software on page 1-16 for each computer to be used as a client.

12. When complete the installation process, you can start all the components as described in "Launching Warehouse Builder Components" on page 1-18.
13. Deinstalling Oracle Warehouse Builder (Optional) on page 4-1

    You have the option of deinstalling the existing components from the previous release. Or, you can deinstall pre-existing components at a later date.

Migrating An Oracle Database Environment

If your current version of Oracle Database is compatible with Warehouse Builder, then you can keep the current version or optionally choose to upgrade to a higher compatible version of the database. You can migrate your Oracle environment to a different instance of Oracle Database, or you can continue on the same instance.

Before You Begin

Before you upgrade the Oracle Database, stop the Control Center Service if it is running.

Log on to the host as the repository owner. Run the *owb home*`\rtp\sql\stop_service.sql` script.

Note: In Warehouse Builder 10.1 and earlier versions, the Control Center Service was known as the Runtime Platform Service. The stop_service.sql is located in the same directory.

Upgrading to Oracle Database 11*g* (11.x)

If you intend to upgrade to Oracle Database 11*g* while maintaining the same database instance, then all relevant instructions are detailed in the Oracle Database 11*g* Upgrade Guide. Continue with step 4 in "General Steps for Upgrading to Warehouse Builder 11g Release 1 (11.1)" on page 3-1.

If you intend to create a new database instance, then you must take the additional steps of either

"Migrating a Complete Database" (Recommended)

or

"Selectively Migrating a Warehouse Builder Environment to a New Database" on page 3-4

Migrating a Complete Database

If you are upgrading from Warehouse Builder 10*g* Release 2 (10.2), you can migrate a complete Oracle Database as described in the upgrade documentation for Oracle Database 11*g*.

If you want to migrate an Oracle Workflow Schema, then see "Migrating an Oracle Workflow Schema" on page 3-3.

Migrating an Oracle Workflow Schema

Oracle Workflow Schemas Used in Warehouse Builder 10g Release 2

Take the following precautions now, that is, prior to upgrading runtime metadata.

To upgrade Oracle Workflow on a new Oracle Database instance:

1. In the new Database instance, locate and run the Oracle Workflow installation software.

   For Oracle Database 11g, the installation software is located at *owb home*`/wf/install`. Use `wfinstall.csh` for UNIX or `wfinstall.bat` for Windows platforms.

2. Use Oracle Database export and import utilities to move an Oracle Workflow schema from one database to another.

   This may result in invalid PL/SQL packages due to missing privileges. To resolve this, use the scripts owf_grants.sql and tsupgrade_compile_pkg.sql. Both scripts are at available at *owb home*`/owb/rtasst/upgrade`.

   Logon as `SYS` and use `owf_grants.sql` to grant the privileges.

3. Continue with steps 4 through 6 in "General Steps for Upgrading to Warehouse Builder 11g Release 1 (11.1)" on page 3-1.

   Following the general steps, you install the Warehouse Builder software, install a repository, and register users for Warehouse Builder. When prompted to register user, ensure that the OWF_MGR user is registered as a user of your workspace.

4. Continue with "Upgrading a Design Repository" on page 3-8 followed by "Upgrading Existing Control Centers or Runtime Repositories" on page 3-12.

5. The final step is "Reusing Process Flows and Schedules" on page 3-18.

   Manually re-register the workflow locations and redeploy the process flow packages from within the new version of Warehouse Builder.

Oracle Workflow Schemas Used in Warehouse Builder 10*g* Release 1 and Prior

After you move an Oracle Database instance, Warehouse Builder process flows remain registered to the Oracle Workflow installed on the pre-existing Oracle Database instance. This condition occurs only when the Warehouse Builder

installation from which you are upgrading is Warehouse Builder 10*g* Release 1 (10.1) or prior.

Take the following precautions now, that is, prior to upgrading runtime metadata.

To upgrade Oracle Workflow on a new Oracle Database instance:

1. In the new Database instance, locate the Oracle Workflow installation software.

   For Oracle Database 11*g*, the installation software is located at *owb home*`/wf/install`. Use `wfinstall.csh` for UNIX and `wfinstall.bat` for Windows platforms.

2. Run the Oracle Workflow assistant in **Upgrade** mode on the new database instance.

   The Oracle Workflow schema is now upgraded. However, in Warehouse Builder, the associated locations remain registered to the pre-existing instance of Oracle Workflow.

3. Continue with steps 4 through 6 in "General Steps for Upgrading to Warehouse Builder 11g Release 1 (11.1)" on page 3-1.

   Following the general steps, you install the Warehouse Builder software, install a repository, and register users for Warehouse Builder.

4. Register the Workflow user in the new repository.

   Start the new Design Client and navigate to the security interface. In the **Global Explorer** on the lower right window, expand the **Security** node and right-click the **Users** node to create a new user. Add a new user with the same name as your workflow user in the pre-existing database from which you are migrating. Deselect the user as target.

5. Continue with "Upgrading a Design Repository" on page 3-8 followed by "Upgrading Existing Control Centers or Runtime Repositories" on page 3-12.

6. The final step is "Reusing Process Flows and Schedules" on page 3-18.

   Manually re-register the workflow locations and redeploy the process flow packages from within the new version of Warehouse Builder.

Selectively Migrating a Warehouse Builder Environment to a New Database

Use this option to selectively move a Warehouse Builder environment from one Oracle Database to another. You must use this option if the new control center is to be hosted on a database or server different from the existing runtime repository or control center.

As this is the most challenging migration and upgrade scenario, avoid this scenario if possible. Do not use this option if you intend to either keep the same database instance or migrate the full database.

Steps for Migrating Warehouse Builder to an Oracle Database 11*g*

1. Review the *Oracle Warehouse Builder Release Notes*.

   Any instructions in the Release Notes supersede the instructions in this guide.

2. Install a new repository on Oracle Database 11*g*.

   From the Windows **Start** menu, select **Programs** and navigate to the Oracle product group. Select **Warehouse Builder, Administration,** and then **Repository Assistant.**

   On UNIX, locate *owb home*/owb/bin/unix and run reposinst.sh.

3. Upgrading a Design Repository on page 3-8
4. Exporting Target Schemas from the Existing Runtime Environment
5. Creating the Target Schemas and Users in the New Database
6. Copying External Directory References to the New Database Instance (Optional)
7. Importing Target Schemas to the New Database
8. Upgrading Existing Control Centers or Runtime Repositories on page 3-12
9. Take manual steps to reuse specific types of objects.

   If the existing Warehouse Builder environment included flat files and external tables, then "Reusing Flat Files and External Directories from a Different Database Instance" on page 3-18.

   See Reusing and Redeploying Specific Objects on page 3-17 for additional steps to reuse certain objects such as Advanced Queues that you designed in a previous release.
10. Installing and Enabling Optional Components (Optional) on page 5-1

    See Chapter 5 for instructions on installing and configuring optional components.
11. Installing the Warehouse Builder Software on the Client computers on page 1-16

    Repeat the instructions Installing the Warehouse Builder Software on page 1-16 for each computer to be used as a client.
12. When complete the installation process, you can start all the Warehouse Builder components as described in "Launching Warehouse Builder Components" on page 1-18.
13. Deinstalling Oracle Warehouse Builder (Optional) on page 4-1

    You have the option of deinstalling the existing components from the previous release. Or, you can deinstall pre-existing components at a later date.

Exporting Target Schemas from the Existing Runtime Environment

Pre-create the tablespaces in the new Database environment to exactly match the tablespaces in the existing version of Oracle Database.

1. Use Oracle Export in the existing version of the Oracle Database to export the existing target schemas into a `DMP` file with the following command for each schema:

   ```
   exp OldOWBTargetUserName/OldOWBTargetUserPassword@
   Old_DBTNSConnection Owner=OldOWBTargetUserName
   FILE=OldOWBTarget.dmp LOG=OldOWBTarget.log
   ```

   `OldOWBTargetUser` stands for the Warehouse Builder target schema user from the existing version of Warehouse Builder.

   For example, type:

   ```
   exp owb_target/owb_target owner=owb_target FILE=owb_
   target.dmp LOG=owb_target.log
   ```
2. Identify all the tablespaces for each of the existing Warehouse Builder target schema users.

   Connect to SQL*Plus in the existing version of the Oracle Database as the Warehouse Builder target schema user, and then enter the following command:

```
select distinct TABLESPACE_NAME from user_segments;
```

Enter the following to check the default and temporary tablespaces for existing Warehouse Builder target schema users:

```
select DEFAULT_TABLESPACE, TEMPORARY_TABLESPACE from
user_users;
```

Creating the Target Schemas and Users in the New Database

The steps you take here depend on the version from which you are upgrading.

When migrating from Warehouse Builder 9.2 or 10.1, complete the following instructions:

1. In the new Database instance, create the tablespaces you listed from the existing instance in "Exporting Target Schemas from the Existing Runtime Environment".
2. In the new Database, connect as a `SYS` user to SQL*Plus to create each target schema and grant privileges to it.

   For each target schema you create, enter the following commands in SQL*PLus:

   ```
   connect SYS/SYS as sysdba;
   ```

   ```
   create user OldOWBTargetSchemaUser identified by
   OldOWBTargetSchemaPassword default tablespace users temporary
   tablespace temp;
   ```

   ```
   SET DEFINE %
   ```

   ```
   define user=OldOWBTargetSchemaUser
   ```

   ```
   @new owb home\owb\rtasst\upgrade\preowb10_2\warehouse_system_
   rights.sql
   ```

   @new owb home\owb\rtasst\upgrade\preowb10_2\xmltk_grant.sql

When migrating from Warehouse Builder 10.2, complete the following instructions:

1. In the new Database instance, create the tablespaces you listed from the existing instance in "Exporting Target Schemas from the Existing Runtime Environment".
2. In the new Database, connect as a `SYS` user to SQL*Plus to create each target schema and grant privileges to it.

   For each target schema you create, enter the following commands in SQL*PLus:

   ```
   connect SYS/SYS as sysdba;
   ```

   ```
   create user OldOWBTargetSchemaUser identified by
   OldOWBTargetSchemaPassword default tablespace users temporary
   tablespace temp;
   ```

   ```
   SET DEFINE %
   ```

   ```
   define user=OldOWBTargetSchemaUser
   ```

   ```
   @new owb home\owb\rtasst\upgrade\owb10_2\warehouse_system_
   rights.sql
   ```

Copying External Directory References to the New Database Instance

Complete this section if in the pre-existing Warehouse Builder environment includes external directories which are used by external tables and flat files.

External directories have two elements: the logical and the physical. The logical element is the reference residing in the database to a directory located outside the database. These instructions migrate the logical elements. You migrate the physical elements in a later step subsequent to upgrading the runtime environment.

To migrate the external directories for each target schema users:

1. Create a copy of the script gen_ext_dirs.sql.

   Locate *owb home*\owb\mig\gen_ext_dirs.sql on the *new host*, that is, the computer hosting the new Warehouse Builder installation.

   Copy the file to a temporary directory on the *original host*, that is, the computer hosting the pre-existing version of Warehouse Builder from which you are migrating.

2. In SQL*Plus, connect as a Warehouse Builder target schema user and run TEMP\gen_ext_dirs.sql on the original host computer.

3. Locate the ext_dirs.sql file generated in the SQL*Plus default directory.

   Typically, this default directory is *owb home*\bin.

4. Rename the generated script.

   As you complete these instructions, you generate a separate script for each Warehouse Builder target schema use. Consider renaming the file to indicate the target schema.

5. Transfer the generated and renamed ext_dirs_TargetUserName.sql file to a temporary location on the new host.

6. On the new host, use SQL*Plus to connect as the Warehouse Builder 11*g* Release 1 (11.1) target schema user and run ext_dirs.sql.

7. Repeat steps 2 through 6 for each target schema user you intend to migrate.

Importing Target Schemas to the New Database

Use Oracle Import to import the target schema files into the new user you created.

To import a target schema:

1. To import the target schema DMP file you created in "Exporting Target Schemas from the Existing Runtime Environment" on page 3-5, enter the following command:

   imp *OldOWBTargetUserName*/*OldOWBTargetUserPassword*@*New_DBTNSConnection* FILE=*OldOWBTarget*.dmp LOG=*NewOWBTarget*.log

   OldOWBTargetUser stands for the Warehouse Builder target schema user from the existing version of Warehouse Builder.

   For example, enter:

   ```
   imp owb_target/owb_target@New10gConnection FILE=owb_
   target.dmp LOG=c:\temp\owb_target_import.log
   ```

2. Examine the import log file, whose name and location you specified in the import command.

   Proceed to the next step only if the last line of the log file indicates a successful completion.

   If the last line of the log file indicates an unsuccessful completion, you must fix all import errors before proceeding.

3. Repeat these instructions for each target schema you want to migrate.

Upgrading a Design Repository

You have the following options when upgrading the design metadata in a repository:

- Migrating All Design Metadata from Warehouse Builder 10g Release 2 (10.2)
- Selectively Migrating Design Metadata

Migrating All Design Metadata from Warehouse Builder 10*g* Release 2 (10.2)

Follow these instructions if you want to export the entire design metadata from repository in Warehouse Builder 10g Release 2 and import the entire design metadata into the current release.

Exporting All Design Metadata from Warehouse Builder 10g Release 2 (10.2)

In these instructions, you modify and run a tcl script using Warehouse Builder 10g Release 2 (10.2). The script exports the entire design metadata from a Warehouse Builder 10.2 repository.

All the design metadata is exported as a single unit.

To export all design metadata:

1. Copy the tcl script from the home directory of the current release into a temporary directory.

   Locate `ExportEntireRepos.tcl` in *`owb 11.1 home`*`/owb/bin/upgrade/.`

2. Use a text editor to update the copy of `ExportEntireRepos.tcl` that you saved in a temporary directory.

   Specify the Warehouse Builder 10*g* Release 2 repository owner for the connection information. This includes the repository owner user name, password, host, port and service.

   Specify the export and import directory. These directories must specify the same directory location. The export and import directory will contain the MDL data files, log files and generated scripts.

3. Make sure no one is logged into the Warehouse Builder 10*g* Release 2 repository. The export script requires exclusive access to the repository for the upgrade process.

4. Run OMB Plus using the tcl script.

   For Unix, type the following command on the same line:

   ```
   owb 10.2 home/owb/bin/unix/OMBPlus.sh
   temp directory/ExportEntireRepos.tcl
   ```

   For Windows, type the following command on the same line:

   ```
   owb 10.2 home\owb\bin\win32\OMBPlus.bat
   temp directory\ExportEntireRepos.tcl
   ```

5. Verify that the export completed successfully by reviewing `ExportEntireRepos.log` located in the export directory.

Importing All Design Metadata into the Current Release

In these instructions, you modify and run a tcl script. The script imports the entire design metadata as a single unit from Warehouse Builder 10.2 into a Warehouse Builder 11.1 repository.

To import all design metadata:

1. If you have not already done so, create a workspace and a workspace owner in the new release.

   Refer to Chapter 2, "Managing Workspaces and Workspace Users" for additional information.

2. If the new repository resides on the same Database as the previous repository, skip to the next step.

   If the new repository resides on a different Database from the previous repository, then create the same Warehouse Builder users from the previous repository in the new database, e.g., use SQL*Plus.

   ```
   SQL> CREATE USER owb User Name IDENTIFIED BY password DEFAULT
   TABLESPACE debasing...
   ```

   Refer to Oracle SQL Language Reference documentation for details for CREATE USER command.

   Note: This step is important if you want to migrate security information into Warehouse Builder 11g Release 1. The upgrade process creates the Warehouse Builder users if the database users exist. So there is no need to create the Warehouse Builder users explicitly.

3. Use a text editor to update the script in *owb 11.1 home*/owb/bin/upgrade/ImportEntireRepos.tcl.

   Specify the Warehouse Builder 11g Release 1 workspace owner and workspace. For the connection information, include the workspace owner user name, password, host, port and service.

   Specify the export and import directory. The export and import directory must be the same directory specified in ExportEntireRepos.tcl. The import directory will contain the log files of the import.

4. Run OMB Plus using the tcl script. Enter the commands on the same line.

   For UNIX, type the following command on the same line:

   ```
   owb 11.1 home/owb/bin/unix/OMBPlus.sh
   owb 11.1 home/owb/bin/upgrade/ImportEntireRepos.tcl
   ```

   For Windows, type the following command on the same line:

   ```
   owb 11.1 home\owb\bin\win32\OMBPlus.bat
   owb 11.1 home\owb\bin\upgrade\ImportEntireRepos.tcl
   ```

5. Verify that the Import completed successfully by reviewing `ImportEntireRepos.log` located in the import directory.

Selectively Migrating Design Metadata

Follow these instructions if you want to migrate only a portion of an existing repository. For example, use these instructions to export and import selected projects or collections.

Create a full database backup before you begin. Additionally, create metadata export (MDL) files for all Warehouse Builder projects. Keep these backups until you have completed and tested the entire upgrade process.

These instructions apply whether or not you upgraded your Oracle Database.

1. Export design metadata from the existing version of Warehouse Builder into an MDL file using the Metadata Loader.
2. Use the new version of Warehouse Builder to create a new repository.
3. Import design metadata into the new repository.

Exporting Design Metadata from a Prior Release of Warehouse Builder

Export each project, collection, or public transformation you want to migrate to Metadata Loader (MDL) files using the Metadata Loader. If you have created any user-defined definitions, then export these objects too. For more information on exporting metadata, see *Oracle Warehouse Builder User's Guide*.

Note: You must export and import metadata using the Metadata Loader. Warehouse Builder upgrade does not support files that were exported or imported using back end database commands.

To export existing metadata into an MDL file:

1. Use the prior version of the Warehouse Builder client to select the project, collection, or public transformation you want to export.

   For information about exporting user-defined definitions, refer to *Oracle Warehouse Builder User's Guide*.

2. From the **Project** menu, choose **Export Metadata**, then **File**.

   The Metadata Loader assigns a path and file name to the exported MDL file. Make a note of the path and filename for all data you export. For more information on exporting metadata, refer to *Oracle Warehouse Builder User's Guide*.

Importing Design Metadata to Warehouse Builder

After having installed the new software, you must import and upgrade design metadata into the new version of Warehouse Builder. Ensure that you first import custom public transformations, if any. Use the Metadata Import utility to import design metadata. For more information on importing metadata, see *Oracle Warehouse Builder User's Guide*.

Note: Warehouse Builder upgrade does not support files that were exported or imported using back end database commands.

To import and upgrade metadata into the new Warehouse Builder repository:

1. From the new Warehouse Builder Design Center, select the **Design** menu, **Import,** and **Warehouse Builder Metadata**.

   The Metadata Import dialog is displayed.

2. In the **File Name** field, specify the path and file name of the exported data from the former repository.
3. In the **Log File** field, specify the path and file name of the log file or click **Browse** to locate a directory and file name. Warehouse Builder records information about the import in this log file.
4. In the Import Option section, select the import option used while importing metadata. The options available are:

- **Create new metadata only:** Adds new metadata to a repository.
- **Update metadata (replace existing objects and create new metadata):** Adds new objects and replaces existing objects with those in the MDL file.
- **Merge metadata (merge existing objects and create new metadata):** Adds new objects and overwrites existing objects only if they are different from those in the MDL file. Existing objects are not deleted.
- **Replace existing objects only:** Replaces existing objects in the repository.

5. In the Match By section, select **Universal Identifier**.
6. (Optional) If the MDL file contains additional languages or user-defined definitions, click the **Advanced** button to select the options that include them in the import.

   Because the MDL file being imported was created using an earlier version of Warehouse Builder, the Metadata Upgrade dialog is displayed. Click **Upgrade** to upgrade the MDL file to the current version. Click **Cancel** if you do not want to upgrade the MDL file.

   If the MDL file is upgraded, then the Import Advanced Options dialog displays. Use this dialog to import the following:

   - Additional language metadata
   - User-defined definitions

   Click **OK** to save your selections and close the Import Advanced dialog. For more information about the advanced import options, refer Oracle Warehouse Builder User's Guide.
7. (Optional) To view a detailed summary of the contents of the export MDL file, click **Show Summary**.

   Because the MDL file being imported was created using an earlier version of Warehouse Builder, the Metadata Upgrade dialog is displayed. Click **Upgrade** to upgrade the export MDL file to the current version. Click **Cancel** if you do not want to upgrade the MDL file.

   If the MDL file is upgraded, the Show Summary dialog is displayed. This dialog provides a brief summary of the contents of the export MDL file.
8. Click **Import** to import the MDL file.

   If the MDL file was not previously upgraded in step 6 or step 7, the Metadata Upgrade dialog is displayed. Click **Upgrade** to upgrade the export MDL file to the current version. Click **Cancel** if you do not want to upgrade the MDL file.

   If you click Upgrade, then the Metadata Progress dialog displays the progress of the upgrade and import operation. After the upgrade completes, click **Close** to return to the Design Center.

In prior versions of Warehouse Builder, locations and runtime repository connections were owned by individual projects. Beginning in Oracle Warehouse Builder 10g Release 2, locations and connections are owned by a project called PUBLIC_PROJECT. If locations or runtime repository connections with the same names as the ones being upgraded exist in the repository, then Warehouse Builder generates unique names when they are imported for the upgrade. You may need to manually clean up location associations after the upgrade is complete.

For more information about the changes made to repository objects after an upgrade and import operation, see Oracle Warehouse Builder User's Guide.

Upgrading Existing Control Centers or Runtime Repositories

In previous releases, runtime repositories were managed by the interface known as the Deployment Manager. Beginning in Warehouse Builder 10.2 release, the Control Center Manager replaced the Deployment Manager. The term *runtime repository* from previous releases is replaced by the term *control center.*

In previous releases, you could have multiple runtime repositories or control centers associated with a single Warehouse Builder installation. Beginning with Warehouse Builder 11g Release 1 (11.1), a repository is owned by a database user called OWBSYS. This repository can contain one or more workspaces. Each Workspace is equivalent to a repository from any previous release. That is, it can contain design metadata, runtime audit data or both. Therefore, when upgrading to this release, the upgrade assistant re-creates each runtime repository or control center as a workspace within the new, unified repository.

To upgrade existing control centers or runtime repositories, start the Control Center Upgrade Assistant.

For Windows, start *owb home*`\owb\bin\win32\cc_migrate.bat`.

For UNIX, start *owb home*`\owb\bin\UNIX\cc_migrate.sh`.

Using the Control Center Upgrade Assistant

Use the Control Center Upgrade Assistant to move audit data from a runtime repository or control center that you created in a previous release. After you use the Control Center Upgrade Assistant, use the Control Center Manager to manage runtime repositories, now referred to as control centers.

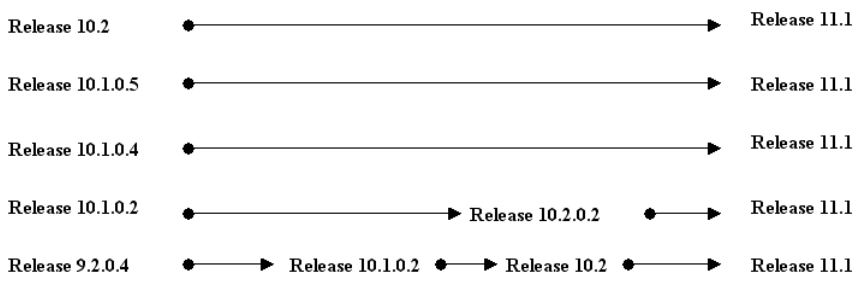
The Control Center Upgrade Assistant directs you through the steps needed to migrate an existing Warehouse Builder environment into one that can be further designed and managed from the current release of Warehouse Builder. These steps involve migrating audit-data into a workspace and upgrading target schemas to fulfill requirements in the current release.

If you want upgrade your Oracle Database, do so before running this assistant. Also, ensure that target schemas that contain PL/SQL mappings are in the same database instance as their owning Control Center.

Supported Upgrade Scenarios

Use this assistant to complete any of the scenarios illustrated in Figure 3–1. You can migrate audit data directly to Warehouse Builder release 11.1 from Warehouse Builder releases 10.2, 10.1.0.5, and 10.1.0.4.

Figure 3–1 Valid Paths for Migrating and Upgrading Runtime Audit Data



Connecting to a New Control Center

Connect to the repository created in the Oracle Database when you recently installed the latest version of this product.

Connect to the repository as the repository owner.

Choose a Workspace

From the newly created repository, select the workspace you created during the installation process.

Connecting to an Existing Runtime Repository Or Control Center

As you use the Control Center Upgrade Assistant, the assistant prompts you for the connection details to the previous runtime repository or control center.

By default, the assistant assumes that the new control center and existing one share the same host name, port number, and Oracle service name. This is the case for the most common upgrade scenarios including the following scenarios:

- Since the time you created the runtime repository or control center, you did not upgrade the Oracle Database to a new version.
- You did upgrade the Oracle Database but performed a full database migration such as described in "Migrating a Complete Database" on page 3-3.

If you want to upgrade to a control center on a different host or database other than the existing one, then complete the steps in "Selectively Migrating a Warehouse Builder Environment to a New Database" on page 3-4, start the Control Center Upgrade Assistant again, and then enter the correct connection information.

Choosing An Upgrade Operation

Use the upgrade operations in the following order:

1. Select Move to transfer location registration information and audit data from the pre-existing runtime repository or control center to the new control center.

   After you successfully move location registration information, you access the other options for Upgrade and Generate.

2. Select Upgrade to upgrade the locations details that you previously moved for use in the new control center.

3. Select Generate to create a Tcl script that you can later apply to update a design repository.

4. Proceed with Upgrading Locations in the Design Repository on page 3-16.

Move

When you select the Move operation, the assistant prompts you to connect to the original runtime repository or control center as a repository owner.

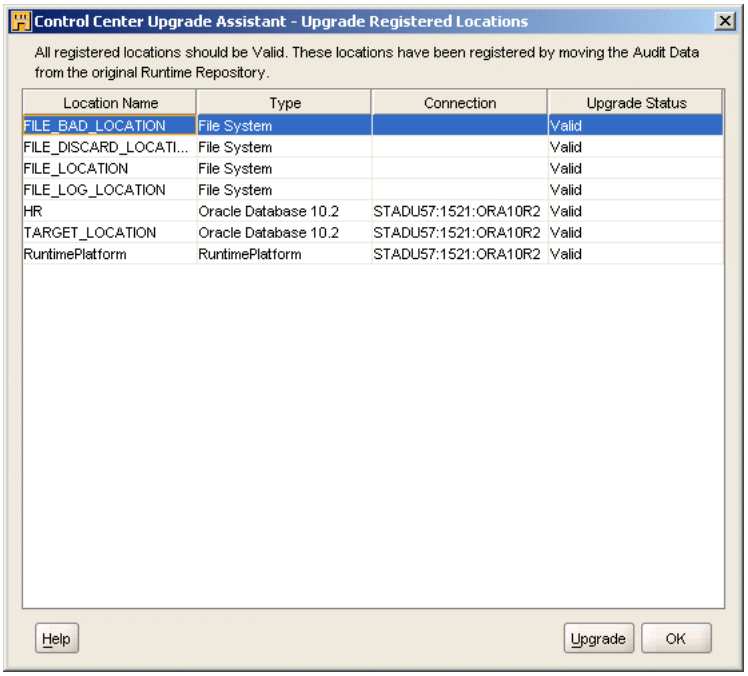
In this step, you upgrade runtime audit data so that the new control center displays the correct status, history, location details, and version numbers for objects you deployed and ran in the runtime repository or control center from the previous release.

This option is only available if the new control center does not contain any registered locations or audit data.

Upgrade

The assistant lists the locations registered in the new control center and displays whether they are valid or not. Figure 3–2 displays the Upgrade Registered Locations dialog.

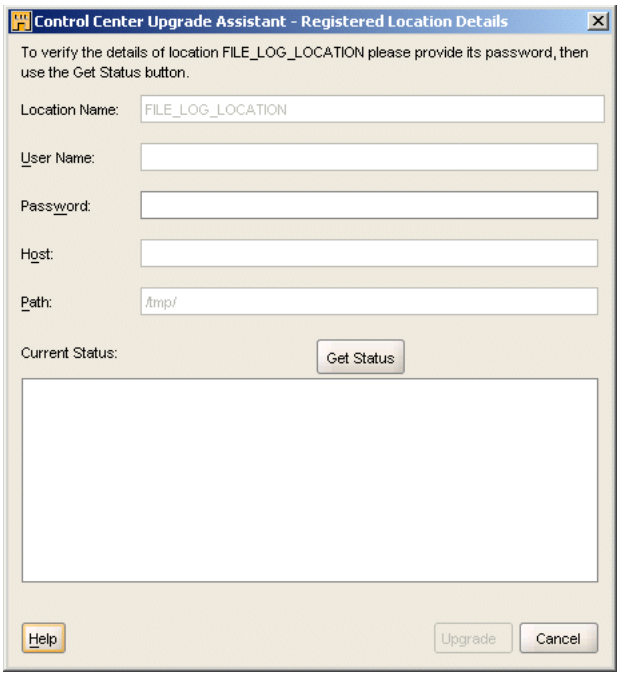
Figure 3–2 Upgrade Registered Locations Dialog



Upgrade Operation: Location Details

Use this button to check and fix locations for possible errors. Ensure that all locations are valid before proceeding. Figure 3–3 displays the Registered Locations Details dialog.

Figure 3–3 Registered Locations Details Dialog



This dialog box displays the registration details of the currently selected location. Select **Get Status** to evaluate its status and view the results of various tests.

For each location, the assistant checks that the password is valid and that it is the same as the registered password. The assistant verifies that the version registered for the location is the same as the actual version. If the assistant detects any errors, then you can select **Upgrade** to correct the errors.

Generate

Use this operation to generate a TCL script of OMB Plus commands that you can use to alter the location information stored against locations in the design repository. Such information was not stored against locations in Warehouse Builder 10.1.x. Also, depending on your migration path, it may have been altered as part of migration.

To generate a Tcl script that updates location information:

1. Ensure that you previously imported MDL from the previous design repository to the new Warehouse Builder 11.1 repository as described in "Upgrading a Design Repository" on page 3-8.
2. Click **Generate.**
3. Edit the script to change the value of the variable `CC_NAME`.

   Either edit the script in the user interface and select save again. Or edit the script in Notepad.

   Set `CC_NAME` to the name of the control center object in the new design repository. For example, assume that you migrated a runtime repository called `MY_DEV_RUNTIME` from a previous of Warehouse Builder. Therefore, in the Tcl script, change the line

   ```
   CC_NAME cc_name
   ```

   to

```
CC_NAME MY_DEV_RUNTIME
```

4. Save the edited script in a temporary directory.
5. Click OK in the Generate dialog and complete the Control Center Upgrade Assistant.
6. Proceed with "Upgrading Locations in the Design Repository" on page 3-16.

Reviewing Selections in the Upgrade Assistant

Verify your selections in the assistant before clicking **Finish.**

On the summary page, control center refers to the new control center to which you are upgrading. Runtime repository refers to the repository from which you are upgrading.

Upgrading Locations in the Design Repository

1. After you generate a Tcl script using the "Generate" on page 3-15, use an OMB Plus session to connect to the new design repository using the OMBCONNECT command.

   For example, enter:

   ```
   OMBCONNECT new_repo_name/pwd@newhost:port:servicename>
   ```

   For more information on OMB Plus commands, see the Oracle Warehouse Builder Scripting Reference.

2. Run the Tcl script against the new design repository.

   For example, enter at the OMB Plus prompt:

   ```
   source/temp_path/my_generated_script.tcl
   ```

   When you run the script, the details for the control center and the location address are seeded into the design repository. Each location is associated with the control center. The registration details are also added to the logical location because, beginning in Warehouse Builder 11.1, these details can be stored in the Design Center.

3. For each project that you migrated, ensure that a configuration object uses the control center object you specified for the `CC_NAME` variable previously in these instructions.

   In the Design Center, expand the project node, and expand the **Configurations** node. Right-click DEFAULT_CONFIGURATIONS and select **Open Editor.**

   On the Name page, enable the Set and Save option.

   On the Details tab, select the incoming control center which is the same control center you set for `CC_NAME`.

4. Save the changes you made in the Design Center by selecting **Save All** from the Design menu.
5. To view and re-deploy the migrated objects, start the Control Center Manager from the Tools menu.
6. Register all of the locations and provide any passwords.

   For security purposes, the location passwords are not saved. In the Control Center Manager, right click each location and select **Register**. Enter the password and optionally test the connection.

Reusing and Redeploying Specific Objects

As a general rule, when migrating from the previous release to Warehouse Builder 11*g*, you can run migrated mappings immediately without redeploying them in the new environment. For all other jobs, however, you must take further action before running jobs for the first time. The objects that require further action include, but are not limited to the following: dimensions and cubes, Discoverer integration, process flows, schedules, and data profiles.

This section includes the following additional instructions for reusing objects you created in a previous release:

- Redeploying Dimensions and Cubes
- Reusing Advanced Queues
- Reusing Oracle Workflow Locations
- Reusing Process Flows and Schedules
- Reusing Flat Files and External Directories from a Different Database Instance
- Reusing Data Profiles

Redeploying Dimensions and Cubes

Migrating Type 2 Slowly Changing Dimensions

Beginning in Warehouse Builder 11g, hierarchy versioning is available and enabled as a default for type 2 slowly changing dimensions. If you migrate a type 2 slowly changing dimension, verify that the settings are set correctly after migration. For these dimensions to behave in the same way as originally designed in a previous release, you must first deselect hierarchy versioning and then deploy the dimension.

To disable hierarchy versioning, go to the Type 2 Slowly Changing Dimension Settings tab. Each level is listed together with its level attributes. With this new version of Warehouse Builder, each level except the highest has an attribute representing the parent ID. The name of this attribute is similar to the parent level name and has the suffix "_ID".

If **Record History** for this ID is set to `Trigger History`, then hierarchy versioning is turned on for this level. To turn off hierarchy versioning, remove the entry from **Record History** and leave it blank.

Migrating Dimensions from Warehouse Builder 10g Release 2

When you migrate a target schema from Warehouse Builder 10g Release 2 (10.2), you must redeploy any dimensions that used a ROLAP implementation to the OLAP catalog. To do this, you set the configuration property called **Deployment Options** to **Deploy to Catalog Only** and deploy the dimensions.

Migrating Dimensions and Cubes from Warehouse Builder 10g Release 1

Warehouse Builder 10g Release 2 (10.2) introduced significant changes to the logical model for dimensions and cubes. After upgrading from Warehouse Builder 10g Release 1 or prior, dimensions and cubes appear as new objects in the Control Center Manager.

New validation rules may cause errors or warnings that did not exist in your previous installation. This is expected and does not indicate problems with the migrated data. Validate the cubes and dimensions and fix errors that may prevent you from redeploying the objects.

Redeploy the objects as this is necessary for updating the audit history.

Reusing Advanced Queues

In a previous release you may have created a mapping with Advanced Queues. Only if you intend to redeploy such a mapping in this release, you must first create a separate table for each AQ with the following structure:

```
PAYLOAD SRC_TYPE107,

MSG_ID RAW(16),

CONSUMER_NAME VARCHAR2(30),

MSG_ORDER NUMBER,

CORR_ID VARCHAR2(128),

MSG_PRIORITY NUMBER
```

Reusing Oracle Workflow Locations

Re-register any Oracle Workflow locations created in a previous release.

Reusing Process Flows and Schedules

Process Flows and Schedules from Warehouse Builder 10*g* Release 2

Re-register the workflow locations and then select one process flow package to redeploy in the new environment. Preferably, redeploy a small process flow package with a single, simple process flow. Subsequently, other process flows created in this release can run without redeployment.

For schedules, redeploy all schedules from previous releases.

Process Flows and Schedules from Warehouse Builder 10*g* Release 1 and Prior

For process flows and schedules from release Warehouse Builder 10g Release 1 and earlier, you need redeploy each object separately in the new environment.

Reusing Flat Files and External Directories from a Different Database Instance

Complete the instructions in this section *only if both of the following are true*:

- If you migrated the Oracle Database by "Selectively Migrating a Warehouse Builder Environment to a New Database" on page 3-4.

  AND

- If you had flat files or external tables in the existing Warehouse Builder environment

If both of these points are true, you must copy the following objects from the computer hosting the existing instance of Oracle Database to the computer hosting the new instance:

- **Flat Files:** Copy any flat files used by SQL*Loader from the computer hosting the existing instance of Oracle Database to the computer hosting the new instance.
- **External Directories:** You must also copy all external directories from the computer hosting the existing instance of Oracle Database to the computer on which the new Database resides. Make sure to re-create identical file system directories.

Reusing Data Profiles

Migrating data profiles that you created in a previous release is not supported in Warehouse Builder 11*g* Release 1. You must manually recreate any data profile metadata you created in a previous release.

4

Deinstalling Oracle Warehouse Builder

This chapter contains the following topics for deinstalling Oracle Warehouse Builder components:

- General Steps for Deinstalling Oracle Warehouse Builder on page 4-1
- Deleting the Workspace Users on page 4-2
- Deleting the Workspace Owner on page 4-2
- Deinstalling the Oracle Warehouse Builder Software on page 4-3
- Deleting the Schema Objects on page 4-3
- Deleting a Repository from an Oracle 10g Database on page 4-3

General Steps for Deinstalling Oracle Warehouse Builder

The steps you take to deinstall Warehouse Builder depends on if you want to remove only the client components from a computer or remove all server and client components from your environment.

To remove a client installation, follow the instructions in "Deinstalling the Oracle Warehouse Builder Software" on page 4-3. If you want to deinstall all Warehouse Builder components including the repository, then you must have `SYSDBA` privileges to the repository database. Follow the order of steps presented in this chapter to avoid the necessity of deleting components manually through a utility such as SQL Plus.

If you are deinstalling multiple or all components, then follow the order presented in this chapter.

To deinstall all components, complete the following steps:

1. Deleting the Workspace Users on page 4-2

   Use the Advanced Setup option in the Repository Assistant to delete one or more users.

2. Deleting the Workspace Owner on page 4-2

   Use the Advanced Setup option in the Repository Assistant to delete the workspace owner.

3. Deinstalling the Oracle Warehouse Builder Software on page 4-3

   Start the Oracle Universal Installer to deinstall the software components.

4. Deleting the Schema Objects (optional step) on page 4-3

5. Deleting a Repository from an Oracle 10g Database

Deleting the Workspace Users

Before you can deinstall a workspace owner, you must first delete the associated workspace users. When you delete a workspace user, you unregister and remove the user from the repository. Deleting the user from the Warehouse Builder repository does not delete or alter the user account in the Oracle Database.

To delete workspace users:

1. Start the Oracle Warehouse Builder Repository Assistant.

   For Windows, select **Start**, **Programs**, ***owb home***, **Warehouse Builder**, **Administration**, and then click **Repository Assistant**.

   For UNIX, locate *owb home*`/owb/bin/unix` and run `reposinst.sh`.

2. On the **Install Type** page, select **Advanced Setup**, and click **Next.**
3. In the **Connection Information** page, provide the following information to connect to the repository:
   - SYSDBA User Name
   - SYSDBA Password
   - Host Name
   - Port Number (The default Port Number is 1521)
   - Oracle Service Name
4. On the **Choose Operation** page, select **Manage Warehouse Builder workspace users** option and click **Next.**
5. In the **Manage Workspace Users** page, select the option **Delete the registration of one or more Warehouse Builder workspace users**.
6. In the **Workspace Owner Information** page, select the workspace owner from which you want to delete the associated user. Then type the password for that workspace owner and click **Next.** The **Select Workspace Users** page is displayed.
7. Select the workspace users to be deleted, then click the left to right shuttle button to move the user to the **Selected:** box.
8. On the **Summary** page, review your selections and click **Finish**.

The **Deinstallation Successful** page appears after the workspace user is deleted.

Deleting the Workspace Owner

After deleting the workspace users, you can delete the workspace owner. When you delete a workspace owner, you unregister and remove the owner from the repository. Deleting the owner from the repository does not delete or alter the owner account in the Oracle Database.

To delete the workspace owner:

1. Start the Repository Assistant and navigate to the **Choose Operation** page.

   Repeat steps 1 through 3 in "Deleting the Workspace Users" on page 4-2.

2. In the **Choose Operation** page, select **Manage a Warehouse Builder workspace owner** option.
3. Click **Next**.

4. In the **Manage Workspace Owner** page, select **Delete an existing Warehouse Builder Workspace owner** option.
5. Click **Next**. The **Workspace Owner Information** page is displayed.
6. Enter the Workspace Owner Password.
7. On the Summary page, review your selections and click **Finish**.

The **Deinstallation Successful** page appears once the workspace owner is deleted.

Deinstalling the Oracle Warehouse Builder Software

To deinstall the Oracle Warehouse Builder:

1. Start the Oracle Universal Installer.

   For Windows, select **Start**, **Programs**, ***owb home***, **Oracle Installation Products**, and then click **Universal Installer**.

   For UNIX, locate *owb home*/oui/bin and run runInstaller.sh.
2. In the **Oracle Universal Installer: Welcome** page, click **Deinstall Products**.
3. In the **Inventory** page, on the **Contents** tab, in the **You have the following Oracle products installed** box, select the Oracle Warehouse Builder home.
4. Click **Remove**.
5. In the **Confirmation** page, click **Yes** to deinstall the Oracle Warehouse Builder. The deinstallation process begins.
6. After the deinstallation completes, click **Close** in the **Inventory** page.
7. In the **Oracle Universal Installer: Welcome** page, click **Cancel** to close the **Oracle Universal Installer** page.

Deleting the Schema Objects

When you delete a workspace user or the workspace owner, you unregister and remove the owner from the repository. Deleting the user or owner from the Warehouse Builder repository does not delete or alter the owner account in the Oracle Database.

Use the Oracle Enterprise Manager to drop the workspace users, workspace owners, and the Warehouse Builder related roles and synonyms permanently from the Oracle Database.

Deleting a Repository from an Oracle 10g Database

You can delete a Oracle Warehouse Builder 11*g* repository and associated objects from a 10*g*Release 2 Database using a SQL script called clean_owbsys.sql. The script is stored in the *owb home*/owb/UnifiedRepos directory.

To delete an 11g Warehouse Builder **repository from a 10g Release 2 Database:**

1. Change your working directory to *owb home*/owb/UnifiedRepos. For example:

   ```
   C:> cd owb home
   ```
2. Start SQL*Plus with SYSDBA privileges.

   Use the version of the SQL*Plus executable provided with Warehouse Builder 11*g* Release 1 (11.1). This executable is located in the *owb home*/bin directory.

For example, type the following:

```
C:>owb home\bin\sqlplus sys/sys_password as sysdba;
```

3. Run the `clean_owbsys.sql` script. For example:

```
SQL> @clean_owbsys.sql
```

The `OWBSYS` user and Warehouse Builder-related roles are dropped from the 10*g*Release 2 Database.

If you used Repository Assistant to create a workspace, a workspace owner DB user, and workspace user DB users, these objects will still exist in the database after you run `clean_owbsys.sql`.

5

Installing and Enabling Optional Components

This chapter includes the following topics:

- Enabling Integration with Oracle E-Business Suite on page 5-1
- Configuring Repository Browser Environments on page 5-2
- Installing Third-Party Name and Address Data on page 5-2
- Enabling Integration with Oracle Workflow on page 5-3

Enabling Integration with Oracle E-Business Suite

Warehouse Builder employs a design-deploy-run model as an ETL solution. To integrate with Oracle E-Business Suite (EBS), Warehouse Builder users must import metadata from EBS before designing mappings to move and transform data. Specifically, during the design phase, Warehouse Builder users require access to metadata in the APPS schema. Later, in the execution phase, Warehouse Builder users must access the data in that schema.

Because direct access to the APPS production schema is most likely limited and restricted, you may define a user on the EBS database through which Warehouse Builder users can access only the relevant metadata and data.

To enable access to EBS data and metadata:

1. Create a user on the database hosting EBS. This user needs at least CONNECT and RESOURCE roles.
2. Grant access to the relevant metadata by running the script *owb home*\owb\cmi\ebs\owbebs.sql.

   This script grants access to the following tables in the APPS schema that contain metadata for EBS tables, views, sequences, and keys: FND_APPLICATION, FND_APPLICATION_VL, FND_TABLES,FND_VIEWS, FND_SEQUENCES, FND_COLUMNS, FND_PRIMARY_KEYS, FND_FOREIGN_KEYS,FND_PRIMARY_KEY_COLUMNS, FND_FOREIGN_KEY_COLUMNS.

   The script also creates a synonym in the user schema for each of the preceding objects.
3. Enable a user to extract data from the EBS database.

   You can create a new user or enable the same user you created in the previous steps. For each object that you want to enable data extraction, grant this user at least SELECT access to each object.

Warehouse Builder users can now import the E-Business Suite metadata as described in the importing section of Oracle Warehouse Builder User's Guide.

Configuring Repository Browser Environments

The Repository Browser connects to Warehouse Builder repositories and enables you to view metadata, run Web reports, perform lineage and impact analysis on your metadata, and audit runtime executions.

When you install Warehouse Builder from the Oracle Universal Installer, the Repository Browser is also installed and available in the languages you selected in the for Product Languages in the Oracle Universal Installer.

To verify the installation, start the Repository Browser listener and then the Repository Browser. For information on how to use the Repository Browser, refer to Oracle Warehouse Builder User's Guide.

Making Additional Language Fonts Available

If end users need to view the Repository Browser in a language that you did not select when initially installing Warehouse Builder, then copy the additional language fonts from the Warehouse Builder CD. From the fonts directory, copy the following fonts to the JDK directory under the *owb home*:

- ALBANWTJ.TTF
- ALBANWTK.TTF
- ALBANWTS.TTF
- ALBANWTT.TTF
- ALBANYWT.TTF

Changing the Session Timeout

By default, Repository Browser sessions time out after 180 minutes, that is, 3 hours of inactivity.

To change this setting, update the session-config tag in `web.xml` located at *owb home*`\owb\j2ee\owbb\WEB-INF\.`

By default, the tag displays as follows:

```
<session-config>
<session-timeout>180</session-timeout>
</session-config>
```

Installing Third-Party Name and Address Data

Warehouse Builder gives you the option to perform name and address cleansing on your data with the Name and Address operator. The Name and Address operator identifies and corrects errors and inconsistencies in name and address source data. The operator identifies inconsistencies by comparing input data to data libraries supplied by the third-party name and address cleansing software vendors. Purchase the data libraries directly from these vendors.

To install data libraries, refer to the installation instructions of the name and address cleansing software vendor of your choice. For the list of certified name and address cleansing software providers, refer to Oracle Technology Network at

http://otn.oracle.com/products/warehouse/htdocs/OTN_Partners.html.

To take advantage of name and address cleansing:

1. Install Warehouse Builder as instructed in this guide.
2. Purchase data libraries from one of the certified vendors listed on Oracle*MetaLink* at http://metalink.oracle.com.
3. Install and access a certified vendor's data libraries and Name and Address adapter following the vendor's instructions.

   If you are installing in a Real Application Cluster environment, then you may be able to install the name and address adapter on many nodes to benefit from the parallelism and failover enabled by the RAC architecture. Check with your vendor to see if your purchase license allows a multiple-node installation.

   You do not need to install the data libraries on multiple nodes. However, if you install all data libraries on one node, then performance may suffer due to file access time latency. Follow the recommendations of your name and address cleansing software vendor.
4. Design a mapping using the Name and Address operator to cleanse name or address data. Refer to *Oracle Warehouse Builder User's Guide* for information on designing mappings using the Name and Address operator.

Enabling Integration with Oracle Workflow

If you plan to use Warehouse Builder process flows, then use Oracle Workflow to enable deployment. You can also deploy Warehouse Builder schedules to Oracle Workflow. For more information, read about schedules in Oracle Warehouse Builder User's Guide.

To enable integration with Oracle Workflow:

1. Locate the Oracle Workflow installation program.

   For a Warehouse Builder 11*g* repository on an Oracle 11*g* Database, the installation script is provided with the Warehouse Builder 11*g* software at *owb home*/owb/wf/install.

   For a Warehouse Builder 11*g* repository on an Oracle 10*g* Release 2 Database, you must download the Oracle Workflow 2.6.4 software.
2. Start the Oracle Workflow installation program.

   For Windows, type the following at the command prompt:

   C:\> cd *owb_home*\owb\wf\install

   C:*owb_home*\owb\wf\install> wfinstall.bat

   For UNIX, type the following in a UNIX shell:

   ```
   $ cd owb_home/owb/wf/install
   $ wfinstall.csh
   ```
3. Complete the Workflow Configuration Assistant as follows:

Oracle Workflow Setting	Value
Install Option	Server Only

Oracle Workflow Setting	Value
Workflow Account	`owf_mgr`
Workflow Password	Specify a password for the account.
SYS Password	Type the SYS password for the database where you are installing Oracle Workflow.
TNS Connect Descriptor	Type *`hostname:port:service_name`*, where the values of hostname, port and service_name correspond to your database. **Note:** Do not use a net service name as the assistant does not reference the tnsnames.ora file.
LDAP Parameters	Depending upon your situation, you may need to specify LDAP parameters. See the Oracle Workflow documentation for details.
Mailer Parameters	Depending upon your situation, you may need to specify mailer parameters. See the Oracle Workflow documentation for details.
Tablespace	You can optionally change the tablespace.

4. Click **Submit** to start the Workflow configuration process.

   The configuration process can take several minutes. Check *`owb_home`*`/owb/wf/install/wf.log` for messages to follow the progress of the configuration process.

   When the process is complete, the Workflow Configuration Assistant displays a message of completion.

5. Install the Workflow Client. (Optional)

   The installation of Oracle Workflow client is optional because the Process Flow Editor in Warehouse Builder replaces its functionality. However, install Oracle Workflow client if you want to view the deployed Warehouse Builder processes in Oracle Workflow.

   On the computer where you installed Warehouse Builder client, install the Oracle Workflow client from the CD for Oracle Workflow client.

6. Create a Workflow Proxy User.

   When the Workflow instance is remote from the database hosting the Warehouse Builder repository, you need to create a proxy-user.

   Within the database hosting the repository, use SQL Plus to create a user and grant it the OWB_USER role as a default. This enables the remote OWF instance to connect to the services provided by the Control Center.

6

Troubleshooting a Warehouse Builder Installation

Refer to this chapter in the event that you encounter errors or problems with an installation. This chapter includes the following topics:

- General Steps for Troubleshooting Warehouse Builder on page 6-1
- Error Messages Related to Installation on page 6-1
- Troubleshooting Installation Problems That Do Not Display Error Messages on page 6-10
- Reviewing Log Files on page 6-11
- Checking Java Virtual Machine (JVM) on page 6-11

General Steps for Troubleshooting Warehouse Builder

This section includes the following topics:

1. Review this chapter for a solution to the problem.

   If Warehouse Builder displays an error message, refer to "Error Messages Related to Installation" on page 6-1.

   In the absence of an error message, refer to "Troubleshooting Installation Problems That Do Not Display Error Messages" on page 6-10.

2. Check for additional information about the problem by "Reviewing Log Files" on page 6-11.
3. If the problem remains unresolved, search for a solution at `https://metalink.oracle.com/`
4. Review the Oracle Warehouse Builder Release Notes, part number B40098 for installation notes or known issues.
5. If you are unable to resolve the problem in the previous steps, contact Oracle Support.

Error Messages Related to Installation

This section includes the following topics:

- No fonts were found in '<drive>:\Program Files\ Qarbon\viewlet Builder3jre\lib\fonts'

- OWBSYS is not granted access to `owb home`/owb/bin/admin/rtrepos.properties: Please run UnifiedRepos/reset_owbcc_home.sql specifiying the path of the Oracle Home from which the Control Center Service is being run.
- SYS user does not have SYSDBA privileges.
- RTC-5301: The Control Center Service is not currently available.
- API5022: Cannot Connect to the Specified Repository
- Runtime Assistant fails with LoadJava Error.
- Error when specifying a SYSDBA user.
- Regional Name and Address Data Libraries Are Not Available.
- Lineage and impact analysis reports: Extensive tablespace requirements for materialized views.
- Java out of memory error occurs during a batch operation.
- ORA-01925: Maximum of 30 enabled roles exceeded
- INS0009: Unable to connect to the database. Verify the connect information.
- INS0022: A spawned program error.
- ORA-12154: TNS: Could not resolve service name.
- ORA-12514: TNS: listener could not resolve SERVICE_NAME given in connect descriptor.
- PL/SQL: ORA-04052: Error occurred when looking up remote object
- IMP-00003: ORACLE error 30371 encountered
- Unable to connect to SQL*Plus in <Oracle Database version>
- ORA-04020 deadlock detected while trying to lock object or ORA-04021 timeout occurred while waiting to lock object
- ORA-04088: error during execution of trigger 'DVSYS.DV_BEFORE_DDL_TRG'

Causes and Actions

No fonts were found in '<drive>:\Program Files\ Qarbon\viewlet Builder3jre\lib\fonts'

Cause: After installing Warehouse Builder client components, you installed another software program that relies on Jinitiator and overwrote Java objects necessary of Oracle products. This may prevent you from launching Warehouse Builder or any other Oracle product that depends on Java objects.

Action: Re-install Jinitiator.

OWBSYS is not granted access to *owb home*/owb/bin/admin/rtrepos.properties: Please run UnifiedRepos/reset_owbcc_home.sql specifiying the path of the Oracle Home from which the Control Center Service is being run.

Cause: When running the script reset_owbcc_home.sql and prompted for the *owb home*, you typed an invalid path for *owb home*.

Action: Run the script again and type the correct path.

On all platforms, including both Windows and Unix, the path you enter must use forward slashes, and is case-sensitive. The case of the path entered here must match exactly the case of the path for the Warehouse Builder home as known by the operating system.

On Unix, the correct path to enter is the path for the *owb home* directory. On Windows, to determine the correct path for the *owb home* directory, examine the path displayed as part of the default Windows command prompt, and replace the backslashes with Unix-style forward-slashes. Do not supply a trailing slash. For example, if the Windows command prompt is:

```
C:\Oracle\My_OWB_Home\>
```

then the text you type is:

```
C:/Oracle/My_OWB_Home
```

SYS user does not have SYSDBA privileges.

Cause: In a standard database installation, the `SYS` user has `SYSDBA` credentials and `REMOTE_LOGIN_PASSWORDFILE=EXCLUSIVE`. You can verify the credentials by issuing the following connect statement:

SQL> `CONNECT sys@tns_name_of_db AS SYSDBA;`

Enter password: *sys_password*

If your database is configured with `REMOTE_LOGIN_PASSWORDFILE=NONE`, then the statement fails.

Action: If the statement fails, then you have the following options:

- Reconfigure your database with

  `REMOTE_LOGIN_PASSWORDFILE=EXCLUSIVE` and create a password file if none exists.

- If the preceding is not an option, reconfigure your database with

  `O7_DICTIONARY_ACCESSIBILITY=TRUE`.

RTC-5301: The Control Center Service is not currently available.

Cause: A Control Center Service must be running to enable the Control Center to manage deployments and executions. The service connects to the Control Center using JDBC and can be run from any Warehouse Builder home. Normally the service is runs on the server host.

Action: You can start a service on the server host by using the script `start_service.sql`.

If it is not possible to run the service on the server host, then start the Control Center Service on the local computer using the script `local_service_login.sh` or `local_service_login.bat` as appropriate. Use this script as follows:

```
local_service_login.sh [-startup | -closedown] owb home
```

In this mode, the Control Center Service runs on the local computer and is available only when that computer is available and can connect to the Control Center.

Use the script `show_service.sql` to determine the status of the service.

Control center service log file reports "DBMS_OBFUSCATION" or "No key is found."

Cause: The encryption of the passwords is out of sync with the client.

Action: Reset the repository and restart the control center service. To reset the repository, run *owb/rtp/sql/reset_repository.sql*.

API5022: Cannot Connect to the Specified Repository

This error occurs when you try to connect to the a repository after having performed a database export or import from the Warehouse Builder repository schema.

Cause: The package NAMESPACESERVICEIMPL may be invalid. This occurs after a database export or import from the Warehouse Builder repository schema if the repository owner has no SELECT privilege on SYS.V_$SESSION. You can diagnose the cause as follows:

1. In SQL*Plus, connect to the Warehouse Builder repository schema.
2. Enter the following command at the SQL prompt:

```
ALTER PACKAGE NAMESPACESERVICEIMPL compile body;
```

3. If **Warning: Package body altered with compilation errors** appears, enter the following command at the SQL prompt:

```
show errors;
```

4. The following errors mean that the Warehouse Builder repository owner has no SELECT privilege on SYS.V_$SESSION.

```
PL/SQL: SQL statement ignored
PLS-00201: Identifier 'SYS.V_$SESSION' must be declared
```

Action: Complete the following steps:

1. In SQL*Plus, connect as the SYS user.
2. At the SQL prompt, enter the following command:

```
grant SELECT on V_$SESSION to Warehouse Builder_Repository_Owner;
```

3. Connect to the *Repository_Owner*.
4. Enter the following command at the SQL prompt:

```
alter package NAMESPACESERVICEIMPL compile;
```

Runtime Assistant fails with LoadJava Error.

Cause: This can occur if the Oracle Database does not have the JServer option installed.

Action: Make sure that the Oracle Database has JServer option installed.

Error when specifying a SYSDBA user.

Oracle Warehouse Builder Assistants require you to provide SYSDBA credentials when installing the Oracle Warehouse Builder Design Repository or Runtime components.

Cause: In a standard database installation, the SYS user has SYSDBA credentials. You can verify this from SQL*Plus by issuing the following connect statement:

```
connect sys/sys_password@TNS_NAME_OF_DB as sysdba;
```

In a standard database installation, the preceding connect statement works because REMOTE_LOGIN_PASSWORDFILE=EXCLUSIVE and the default password file is created by the installation process.

If your database is configured with

REMOTE_LOGIN_PASSWORDFILE=NONE, then the following statement fails:

```
connect sys/sys_password@TNS_NAME_OF_DB as sysdba;
```

In this case, you have two options.

Action: Reconfigure your database with

REMOTE_LOGIN_PASSWORDFILE=EXCLUSIVE and create a password file if none exists.

Action: If the preceding is not an option, then reconfigure your database with

O7_DICTIONARY_ACCESSIBILITY=TRUE. With this setting, the statement

connect sys/*sys_password*@*TNS_NAME_OF_DB* enables the Warehouse Builder Assistants to connect to SYS user.

Regional Name and Address Data Libraries Are Not Available.

Cause: The Name and Address regional data libraries may not have been installed in the correct location.

Action: Ensure that you have successfully extracted regional data to the NAS_DATA directory.

1. From your *owb home*, start the Name and Address Server:

   For Windows: Run owb\bin\win32\NAStart.bat.

   For UNIX: Run owb/bin/unix/NASTART.sh.

2. Open the log file: owb\bin\admin\NASvr.log.

   The log contains a list of installed countries.

   If there is no such list, verify that you have extracted the regional library data to the correct location. If you have extracted the data to the wrong location, you can either reinstall the data, or modify the owb\bin\admin\NameAddr.properties file to indicate the correct file path. If you modify the NameAddr.properties file, stop and restart the Name and Address Server as follows:

   For Windows: Start the server by running owb\bin\win32\NAStart.bat. Stop the server by running owb\bin\win32\NAStop.bat.

   For UNIX: Start the server by running owb/bin/unix/NAStart.sh. Stop the server by running owb/bin/unix/NAStop.sh.

3. Once you have verified the installation, you can stop the Name and Address Server if you wish, because it is automatically started at the execution of any mapping that employs the Name and Address operator.

Lineage and impact analysis reports: Extensive tablespace requirements for materialized views.

The first time you refresh a materialized view, it is populated from the Oracle Warehouse Builder repository. The materialized view can occupy up to twice the amount of space allocated to the entire Warehouse Builder repository.

Cause: Insufficient space has been allocated to the Warehouse Builder repository schema.

Action: If the Warehouse Builder repository schema is created in a tablespace that is dedicated to its use, these issues are easier to monitor. Ensure that sufficient free space exists on the physical drive for tablespace expansion. Within Oracle Enterprise Manager, ensure that the tablespace is set to Autoextend On.

Java out of memory error occurs during a batch operation.

Operations requiring large amounts of memory can result in a Java out of memory error, if the system resources (such as virtual memory) are constrained.

Cause: There is not enough virtual memory. The Warehouse Builder client runs with a maximum heap size, as defined by the -mx parameter in the

owbclient.bat file. The -Dlimit parameter in the owbclient.bat file specifies the memory threshold (80% of Dlimit) at which the Warehouse Builder memory manager begins to assist Java garbage collection. If you change the -mx parameter value, set the -Dlimit parameter to the same value, or at least to 90% of the value. Note that setting the -Dlimit to a low value can have a negative impact on the performance of Warehouse Builder.

Action: Increase the -Dlimit parameter in Warehouse Builder as follows:

1. Exit Warehouse Builder.
2. Open this file in a text editor:

   For Windows: Open the $OWBHOME\bin\win32\ombplus.bat.

   For UNIX: Open the $OWBHOME\bin\win32\owbclient.sh.
3. Change the -Dlimit parameter to 334.
4. Save and close the file.
5. Restart Warehouse Builder.

ORA-01925: Maximum of 30 enabled roles exceeded

This error occurs when installing a repository or a target schema.

Cause: The maximum number of enabled roles in the database has been exceeded. When you create a repository or a target schema, new roles are created in the database assigned to the schema in question. When the number of roles exceeds the value of the MAX_ENABLED_ROLES parameter, this error occurs.

Action: Increase the value of the MAX_ENABLED_ROLES parameter in the init.ora file. When you deinstall a repository or a target schema, delete the associated roles as well.

INS0009: Unable to connect to the database. Verify the connect information.

This error occurs when you try to connect to a database.

Cause: See the cause for ORA-12514: TNS: listener could not resolve SERVICE_NAME given in connect descriptor.

Action: Follow the instructions for ORA-12514: TNS: listener could not resolve SERVICE_NAME given in connect descriptor.

INS0022: A spawned program error.

Cause: This error message can result from a server issue when installing Warehouse Builder runtime components on an HP-UX operating system.

Action: To identify the server issue, complete the following steps:

1. From SQL*Plus, connect to a SYS user.

   ```
   Create user test_lj identified by test_lj;
   Grant connect, resource to test_lj;
   ```
2. Create *owb home*/owb/bin/unix/test.sh with the following contents:

   ```
   ../unix/loadjava -thin -verbose -order -resolve -user
   'test_lj/test_
   lj@(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=hpdgpa3)(PORT=1522))(CONNECT_
   DATA=(SERVICE_NAME=dgpadw)))'
   ../../lib/int/rtpserver.jar
   ```
3. Change directory to *owb home*/owb/bin/unix/.

4. Run `test.sh`.

ORA-12154: TNS: Could not resolve service name.

This error occurs when you try to connect to a database.

Cause: You defined a Warehouse Builder location and specified connection information using SQL*Net. However, the required TNS name is not accessible.

Action: To set up a TNS name for use during deployment in general and for execution of mappings and process flows, the TNS name needs to be accessible from the *owb home* being used to run the control center service. To ensure access, run the Net Configuration Assistant from the *owb home* and then restart the control center service.

To set up a TNS name for use by database links, the TNS name needs to be accessible from the database server home. To ensure access, run the Net Configuration Assistant from the database server home.

Cause: See the cause for ORA-12514: TNS: listener could not resolve SERVICE_NAME given in connect descriptor.

Action: Follow the instructions for ORA-12514: TNS: listener could not resolve SERVICE_NAME given in connect descriptor.

ORA-12514: TNS: listener could not resolve SERVICE_NAME given in connect descriptor.

This error occurs when you try to connect to a database.

Cause: If you used the Oracle Net Easy Configuration or Oracle Net Assistant tools to create the Net Service Name entry, and you used the default option (Service Name) on the newly created Net Service Name, the parameter `SERVICE_NAME` is added to the `TNSNAMES.ORA` as a subclause to the `CONNECT_DATA` section in the Net Service Name entry. This replaces the `(SID=SIDname)` subclause in the previous versions of Oracle Database8*i* (8.1.x).

Action: Implement the `TNSNAMES.ORA` file as follows:

1. Use the `GLOBAL_DBNAME` parameter in the `LISTENER.ORA` for each SID that you want to identify as a separate service. Use the value of this parameter as the value of the `SERVICE_NAME` parameter. You need to activate any changes you make to `LISTENER.ORA` for this purpose by stopping and restarting the listener process.
2. Use the values of the parameters existing in the `INIT.ORA`, namely `SERVICE_NAMES` and `DB_DOMAIN`, to determine the value of the `SERVICE_NAME` that you must use in `TNSNAMES.ORA`. The valid construction of this value is `SERVICE_NAMES.DB_DOMAIN` with the period separating the two `INIT.ORA` values. If your `SERVICE_NAMES` is `BIKES` and your `DB_DOMAIN` is `COM`, then your `SERVICE_NAME` is `BIKES.COM`.
3. If there is no `DB_DOMAIN` parameter set in your `INIT.ORA`, or if there is no `GLOBAL_DBNAME` in the `LISTENER.ORA`, then you can use the `SERVICE_NAMES` from the `INIT.ORA` in your `TNSNAMES.ORA` for the `SERVICE_NAME` parameter.

   For example, if `INIT.ORA` contains `SERVICE_NAMES = "TEST817"` and `db_domain` is not set, then the `TNSNAMES.ORA` entry is: `CONNECT_DATA =(SERVICE_NAME = "TEST817")).`
4. If you have multiple values specified in the `SERVICE_NAMES` parameter in the `init.ora`, you can use one of them. If `SERVICE_NAMES` is not set, then you can use `DB_NAME.DB_DOMAIN` parameters from the `INIT.ORA` file.

5. If SERVICE_NAMES and DB_DOMAIN is not set in the INIT.ORA and there is no GLOBAL_DBNAME in the LISTENER.ORA,then your SERVICE_NAME in TNSNAMES.ORA file is be DB_NAME.

PL/SQL: ORA-04052: Error occurred when looking up remote object

This error occurs when you have upgraded to <Oracle Database version> and are trying to redeploy mappings without first redeploying connectors.

Cause: While upgrading the Oracle Database, you moved your database to a new computer. Your old and new database instances do not have the same domain name. You can verify the cause by logging into SQL*Plus as a SYS user and entering the following command: SELECT * FROM GLOBAL_NAME; If the Global Name of the old database does not match that of the new database, then a domain mismatch is causing this error.

Action: Either add the domain name to the Global Name in your new database by issuing a command similar to the following statement: ALTER DATABASE RENAME GLOBAL_NAME TO *xxx10G.US.ORACLE.COM*; or redeploy your connectors. Refer to *Oracle Warehouse Builder User's Guide* for information on deploying connectors.

IMP-00003: ORACLE error 30371 encountered

ORA-30371: column cannot define a level in more than one dimension

This error occurred when you were importing your target schema during migration.

Cause: The Warehouse Builder target schema is created with the select_ catalog_role privilege. If you have the same dimension object defined in multiple Warehouse Builder target schemas, then Oracle Export creates duplicates in the export file, and this error occurs when you import.

Action: Connect as a SYS user to the existing version of the Oracle Database from which you exported the target schemas. Enter the following statement in

SQL*Plus: revoke select_catalog_role from *OLD_Target_Schema*;

Export the target schema into an Oracle .DMP file again, and then import the file into the Oracle Database.

Unable to connect to SQL*Plus in <Oracle Database version>

Cause: Your Oracle home or Path is not set correctly, or your Net Service Names are not configured.

Action: Ensure your Oracle home and Path are set correctly, and your Net Service Names are configured in the Oracle Database.

- Ensure that ORACLE_HOME and PATH are set correctly. Your Oracle home directory must to point to the *owb home*. Set your PATH variable to include the *owb home*\bin directory before any other Oracle products.
- Ensure that the TNSNames.ora file is configured correctly:

  For Windows: From the Oracle Database program group, start **Net Configuration Assistant** and select **Local Net Service Name Configuration** to configure TNSNames.ora.

  For UNIX: Set ORACLE_HOME and PATH to the *owb home* for Warehouse Builder 11*g* Release 1 (11.1), then run *owb home*/bin/netca to start **Net Configuration Assistant**. Select **Local Net Service Name Configuration** to configure TNSNames.ora.

ORA-04020 deadlock detected while trying to lock object or ORA-04021 timeout occurred while waiting to lock object

When creating runtime objects, the Runtime Assistant halts and produces these errors in the error log when trying to lock `sys.dbms_aq`.

Cause: User sessions may be pinning Advanced Queue objects.

Action: First, log in to SQL*Plus as a `SYS` user and run a query to identify which user sessions are pinning the Advanced Queue packages, using the following query as an example:

```
column s.sid format a5;
column s.serial# format a8;
column s.username format a10;
column objectname format a10;
select distinct
 s.sid,
 s.serial#,
  s.username,
  x.kglnaobj as objectname
from
  dba_kgllock l,
  v$session s,
  x$kgllk x
where
  l.kgllktype = 'Pin' and
  s.saddr = l.kgllkuse and
  s.saddr = x.kgllkuse and
x.kglnaobj in ('DBMS_AQ', 'DBMS_AQADM');
```

The following is an example of the output you receive:

```
SID    SERIAL# USERNAME  OBJECTNAME
---    ------- --------  ----------
9      29623   RTU_4942  DBMS_AQ
```

Noting the SID and Serial Number, issue the following command to kill the user sessions:

```
ALTER SYSTEM KILL SESSION 'SIDNoted, SerialNumberNoted';
```

For example, type the following to kill the session listed in the sample output for this error:

```
ALTER SYSTEM KILL SESSION '9,29623';
```

ORA-04088: error during execution of trigger 'DVSYS.DV_BEFORE_DDL_TRG'

Cause: When you attempt to create a Warehouse Builder repository on an Oracle Database that includes the Oracle Data Vault option, you may encounter and error such as ORA-04088.

Action: Disable the triggers DV_BEFORE_DDL_TRG and DV_AFTER_DDL_TRG.

Import wirzard throws error ORA-00997 when importing a table.

Cause: When you import table definitions from an Oracle Database, you may encounter an error such as *"Repository Error Message: ORA-00997: illegal use of LONG datatype..."*. This occurs when the `CURSOR_SHARING` parameter is set to `FORCE` or `SIMILAR`.

Action: Set the database parameter `CURSOR_SHARING` to `EXACT`.

Troubleshooting Installation Problems That Do Not Display Error Messages

This section includes causes and actions for the following installation problems:

- Warehouse Builder Clients that Previously Launched Now Momentarily Display the Splash Screen and Fail to Start
- Newly Installed Warehouse Builder Clients Fail to Start and Previously Launched Oracle Products Fail to Start
- A Warehouse Builder Client Freezes or Hangs

Causes and Actions

Warehouse Builder Clients that Previously Launched Now Momentarily Display the Splash Screen and Fail to Start

Cause: If you attempt to start a Warehouse Builder client such as the Design Center and the splash screen displays momentarily but the client fails to start, you may have overwritten required java objects during the subsequent installation of another software product.

If the client is installed on Windows and you launched the client from the Start menu, you may not see any error messages.

Action: Manually start the client by typing at the DOS prompt `run` *`owb home`*`\owb\owbclient.bat`. You are likely to encounter an error message such as No fonts were found in '<drive>:\Program Files\ Qarbon\viewlet Builder3jre\lib\fonts' on page 6-2.

Newly Installed Warehouse Builder Clients Fail to Start and Previously Launched Oracle Products Fail to Start

Cause: After installing Warehouse Builder software, an error in the path variable can prevent you from launching Warehouse Builder clients and other Oracle products that previously launched without problems.

Action: Verify the that the path for *`owb home`*`\bin` is listed correctly in the Environmental Variables.

A Warehouse Builder Client Freezes or Hangs

Cause: Client software may freeze or hang due to various causes.

Action: If a Warehouse Builder client appears to freeze or hang, perform a stack trace as follows:

1. At the DOS command prompt, enter:

   `cd` *`owb home`*`\owb\bin\win32\`

2. Run `owbclient.bat`.

3. When the program hangs, press **Ctrl**+**Break**.

   This produces the thread-dump. Contact Oracle Support and provide them with this information to help identify the problem.

Reviewing Log Files

This section contains information on inspecting log files for Warehouse Builder.

Log File Locations

- **Warehouse Builder Repository Assistant:**

  owb home\UnifiedRepos\log_timestamp.log

- **Warehouse Builder Control Center Service:**

  owb home\log*Repository_Name*\log.xx on the Oracle Database server

- **Warehouse Builder Design Center:** Specify the location on the Preferences tab.

Additional Error Logging for Errors and Other Unexpected Behavior

If Warehouse Builder is producing errors or exhibiting other unexpected results, additional error logging can help you and Oracle Support identify the cause.

For additional error logging:

1. At the command prompt, navigate to:

   For Windows: *owb home*\owb\bin\win32

   For UNIX: *owb home*/owb/bin/unix

2. Run one of the execution files as listed in Table 1–9 on page 1-18 and pipe the output to a log file.

   For example, type: `owbclient.bat 1>out.log 2>error.log`

3. Examine the resulting log file.

   Use this log when contacting Oracle Support.

Checking Java Virtual Machine (JVM)

To check, verify, or reinstall the Java Virtual Machine (JVM) server in the database, refer to Oracle *MetaLink*:

1. In your Web browser, go to: http://metalink.oracle.com.
2. Log in to Oracle*MetaLink*, or register as a new user.
3. Type the following terms into the Search field, separating each term by semicolons):

   INITJVM.SQL; INSTALL; JAVAVM; JVM; VERIFY; SERVER; INSTALL; CLEANUP

4. Press **Enter**.

This search returns the cleanup notes for the JVM. The number of available documents frequently changes because Oracle Support creates, merges, and deletes various cleanup notes. This string of search words returns the most current and pertinent documents.

7

Implementing Security in Warehouse Builder

This chapter includes:

- About Metadata Security on page 7-1
- Metadata Security Strategies on page 7-3
- Registering Database Users on page 7-5
- Editing User Profiles on page 7-6
- Defining Security Roles on page 7-10
- Editing Role Profiles on page 7-11
- Applying Security Properties on Specific Metadata Objects on page 7-11
- Security Enforcement on page 7-12
- Managing Passwords in Warehouse Builder on page 7-13
- Support for a Multiple-user Environment on page 7-15

About Metadata Security

Warehouse Builder enables you to define security on the metadata you store in the design repository. The design repository is an Oracle Database with users, roles, and access privileges already defined. Warehouse Builder metadata security operates in addition to the Oracle Database security. The Oracle Database provides security for data while Warehouse Builder provides security for the metadata.

In addition to being registered in the repository, all users must also be database users in the design repository database. Database users have access to the data in the database by using SQL Plus. However, they do not have access to Warehouse Builder and its metadata unless the users are also registered in Warehouse Builder.

Metadata security is optional and flexible. You can apply no metadata security controls or define a metadata security policy. You can define multiple users and apply full security. Or implement your own security strategy based on the security interface. Also, after you define a security strategy, you can later adapt the strategy to be more or less restrictive.

The following sections describe how to implement metadata security using the Design Center.

You can also implement security through OMB Plus. For more information, refer to the Oracle Warehouse Builder Scripting Reference.

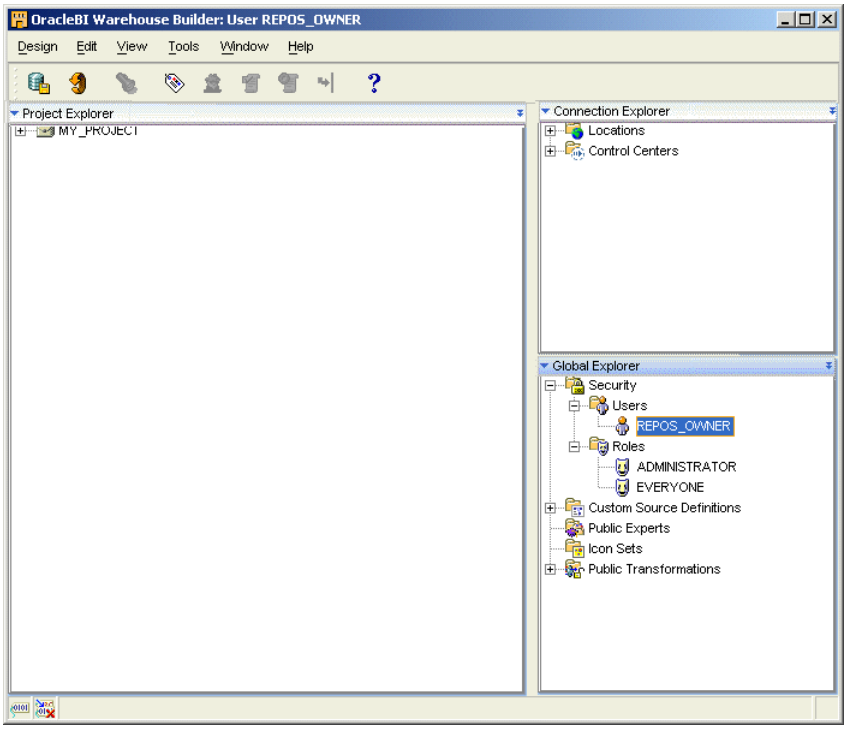
About the Security Interface

Only users with administrative privileges can access the security interface and change security policy in Warehouse Builder.

When you install Warehouse Builder and then use the Repository Assistant to create a design repository, Warehouse Builder assigns the design repository owner you define to be the default administrator. The first time you start the Design Center after installation, you must log in as the design repository owner. You can then define additional administrators or other users as necessary.

Log in to the Warehouse Builder Design Center as the design repository owner and Warehouse Builder displays the Global Explorer as shown in Figure 7–1, "Global Explorer" in the lower right corner of the Design Center.

Figure 7–1 Global Explorer



Under the security node, notice there are two predefined roles, ADMINISTRATOR and EVERYONE. The one predefined user is the design repository owner, *REPOS_OWNER* in this example, which is assigned the ADMINISTRATOR role by default.

To perform actions under the Security node, select an object and right-click to view all of the possible operations. Or select an object and select **Edit** from the menu bar. For a complete list of all the tasks administrators can perform, see "Administrator Role" on page 7-10.

Metadata Security Strategies

Warehouse Builder enables you to design a metadata security strategy that fits your implementation requirements. As you define your metadata security strategy, recognize that more restrictive policies are more time consuming to implement and maintain.

Consider modeling your strategy based on one of the following security strategies:

- Minimal Metadata Security Strategy (Default)
- Multiuser Security Strategy
- Full Metadata Security Strategy

Minimal Metadata Security Strategy (Default)

Minimal metadata security is the default security policy when you create a new design repository. As your project requirements change, you can apply other metadata security strategies at any time.

You may not want or need to apply extra metadata security if, for instance, you are implementing a pilot project or anticipate only one or a few users accessing Warehouse Builder.

All users log in to Warehouse Builder with the same user name and password— that of the design repository owner. In this case, Oracle Database security policies keep the data in the design repository secure and the metadata is available to anyone who knows the design repository owner logon information. All users can create, edit, and delete all objects and you cannot discern which user performed which operation.

Multiuser Security Strategy

Use this strategy if your implementation has multiple users and you want to track who performs which operations. Also, use this strategy to restrict to a single user the rights and access granted to the design repository owner. Although this strategy does not restrict user access to metadata objects, you can apply restrictions at a later date.

To implement security for multiple users, log on to Warehouse Builder as an administrator and complete the instructions in the following sections:

1. Registering Database Users on page 7-5
2. Editing User Profiles on page 7-6

Full Metadata Security Strategy

This section describes a process for applying all the metadata security options available in Warehouse Builder. You can enable all or some of these options. For instance, you could take steps one through three but ignore the remaining steps.

To implement full metadata security for multiple users, log on to Warehouse Builder as an administrator and complete the instructions in the following sections:

1. Set the parameter **Default Metadata Security Policy** to maximum.

   In the Design Center select **Tools, Preferences,** and then **Security Parameters.**
2. Registering Database Users on page 7-5
3. Editing User Profiles on page 7-6

   The **Default Metadata Security Policy** you set in step one of these instructions is not retroactive. It applies only to users you register after changing the setting. You must manually edit the profiles of preexisting users.
4. Defining Security Roles on page 7-10
5. Editing User Profiles on page 7-6
6. Applying Security Properties on Specific Metadata Objects on page 7-11

Important Note: Be sure to edit the security properties for all projects in the Project Explorer. By default, the EVERYONE role has its object privileges set to full control. Select each project, press `F2`, select the Security tab, and edit the privileges to the EVERYONE role to be more restrictive.

Registering Database Users

All Warehouse Builder users must also be Oracle Database users.

Use a wizard within Warehouse Builder to either register existing database users or create new database users and then register them in Warehouse Builder.

Note: Although, you are able to create users in SQL Plus, it is not advisable. Creating users through the Warehouse Builder interface ensures that users are assigned the necessary roles and privileges.

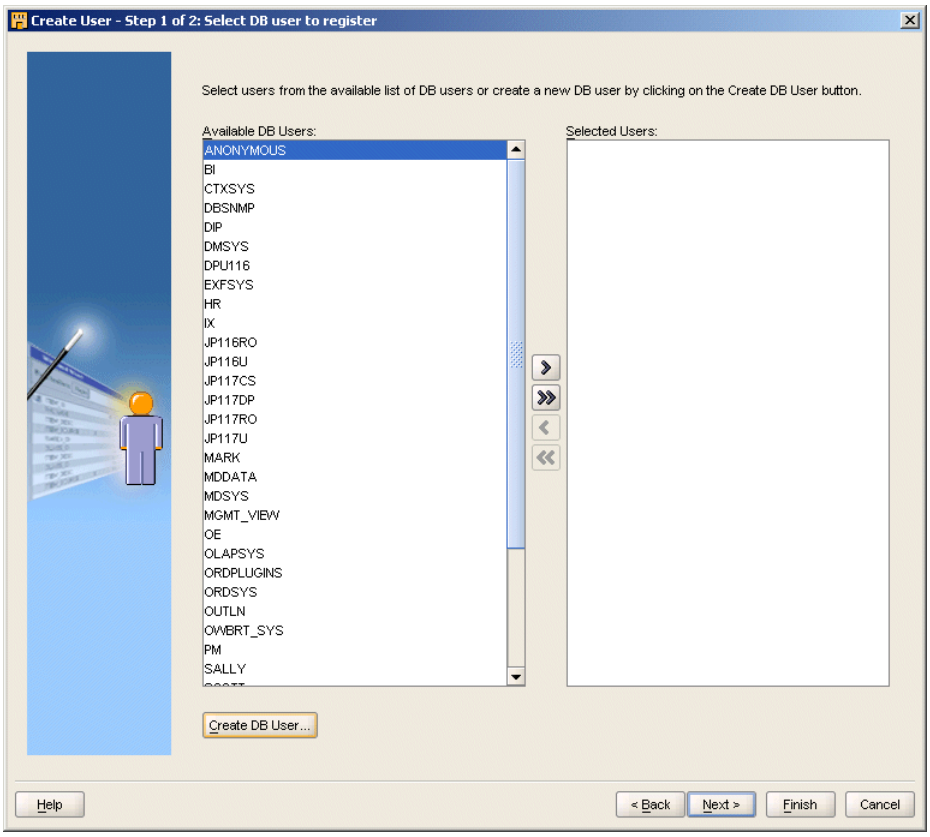
To start the registration wizard, go to the Security node in the Global Explorer, right-click **Users** and select **New.** Follow the prompts in the wizard as described in "Selecting Existing or Creating New Database Users" on page 7-5.

Selecting Existing or Creating New Database Users

The left panel in Figure 7–2 lists the Oracle Database users defined for the design repository. Either select existing database users from the list or define and register a new user by clicking on **Create DB User...** located in the lower left corner.

When selecting from the list, you can select one or more database users. Notice that, for security reasons, you cannot register database administrator users such as SYS. The database default role settings must not be set to ALL. You can change the database default role settings from within the wizard as described in "Changing Database Default Roles" on page 7-6.

Figure 7–2 Creating and Registering Users



Creating an Oracle Database User

If you have database system privilege CREATE USER, then you can create new database users. The **Create Database User** dialog prompts you to type a user name and password for the new user and assign the default table space and temporary table space.

To specify a valid user name and password, adhere to the security standard implemented on the Oracle Database. The default minimum requirement is that both the user name and password be a VARCHAR(30). Also, do not include any special characters. Your database may have more requirements if a password complexity verification routine was applied.

For more information about user names, passwords, and password complexity verification routines, refer to *Oracle Database Security Guide*.

Changing Database Default Roles

For security reasons, you cannot register database users that have default roles in the database set to ALL. You can, however, change the default setting. Correct the role assignment by selecting Fix Now. Or you can correct the role assignment yourself by selecting Fix Later.

Fix Now

If you select **Fix Now,** type the user name and password with SYSDBA privileges. The product registers the user and issues the necessary commands to the database. For example, when you register new users, the database role `OWB_repository name` is assigned to each user. For security reasons, this role must not be the default role of any

registered user. If you attempt to register a user U1 under these conditions and then select **Fix Now,** then the product registers the new user and issues a command such as the following:

```
alter user U1 default role all except OWB_repository_name
```

Fix Later

If you select **Fix Later,** then the product does not register the user. You must manually change the default role setting in the database and then return to the product to register the user. To manually change the setting, connect to the database as a user with the ALTER USER system privilege and issue the required commands.

Under the Fix Later option, notice a recommended SQL script for changing the default roles for the selected users. The script also changes the default role setting such that any role subsequently granted to the user cannot be the default role of the user. To change this, you can register the user and then issue a command such as the following:

```
alter user U1 default role all except OWB_repository_name
```

Editing User Profiles

For each user, you can enter an optional description, assign the user to existing Roles, specify the Default Object Privilege and the System Privileges.

Because these users are also defined as Oracle Database users, you cannot rename a user from within this product. Rename users through the Oracle Database.

Roles

You can assign a user to one or more roles. If you assign multiple roles with conflicting privileges, then the user is granted the more permissive privilege, which is the union of all the privileges granted to the multiple roles. For example, if you assign to the same user a role that allows creating a snapshot and a role that restricts it, then the user is allowed to create snapshots.

If you want to assign a user to a role that does not display on the Available Roles List, close the editor, create the new role, and then edit the user account. To create a new role, right-click Roles under the Security node in the Global Explorer and select **New.** For information on creating and editing roles, see Defining Security Roles on page 7-10 and Editing Role Profiles on page 7-11.

Default Object Privilege

Default object privileges define the access other users and roles have to objects the selected user creates. These privileges do not impact the privileges the user has for accessing objects that others create.

For example, Figure 7–3, "Default Object Privilege Settings for USER1" shows that for all objects that USER1 creates, USER1 and the ADMINISTRATOR and DEVELOPMENT roles have full access while the EVERYONE, PRODUCTION, and QA roles are restricted to read only.

If you are familiar with UNIX operating system security, then note that the default object privilege behaves similarly to the UMASK command. When you edit the default object privilege, the change only affects objects the user subsequently creates. There is no affect on previously created objects. Therefore, if you set default object privileges at the onset, then little or no additional object-level security setup is necessary.

To define the privileges other users have to objects the selected user creates, check the appropriate box for each role or user. You can grant the following privileges: FULL CONTROL, EDIT, COMPILE, and READ. All the privileges are additive. If you select COMPILE, then you apply both the compile and read privileges.

Figure 7–3 Default Object Privilege Settings for USER1

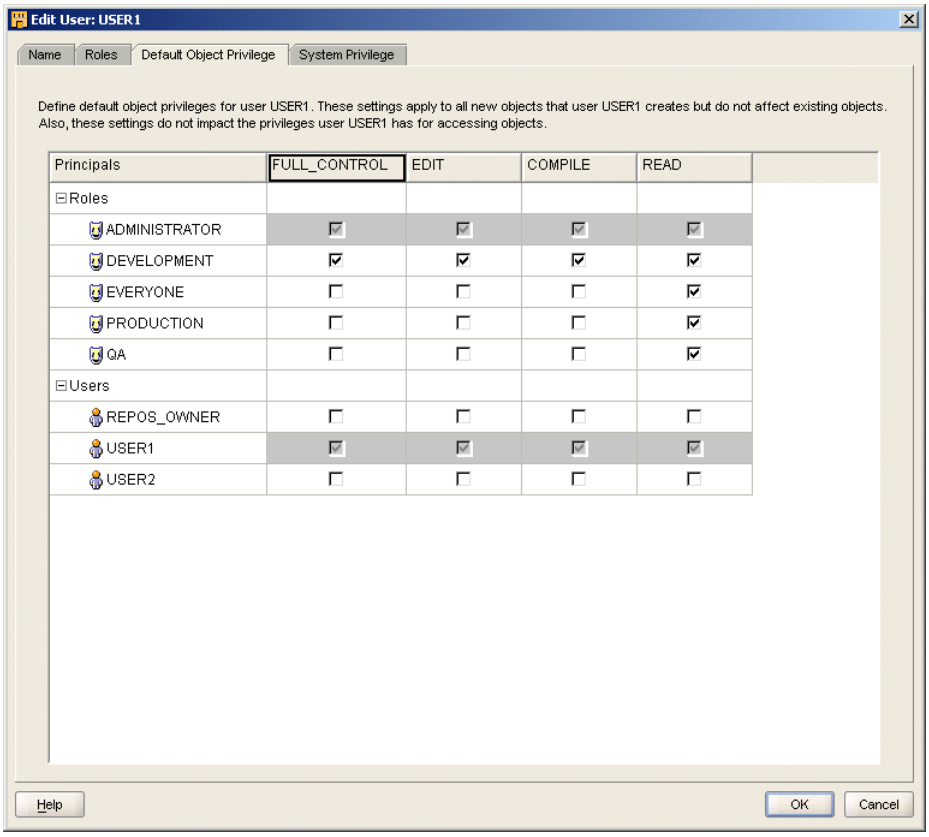


Figure 7–3, "Default Object Privilege Settings for USER1" shows access granted to roles. You can also grant access to individual users. However, when you grant access to a role, the privilege is also extended to all users in that role. Therefore, in Figure 7–3, even though USER2 is not specifically granted access, USER2 has read access through the EVERYONE role. Furthermore, if USER2 is a member of the DEVELOPMENT role, then that user has full control and access.

Important: By default, when you create a new user, the EVERYONE role has full control on all objects. To enable metadata security, be sure to edit all user profiles and restrict the access the EVERYONE role has to objects each user creates.

Securing a Metadata Object Throughout its Lifecycle

Default object privileges work in conjunction with object security properties to provide security options throughout the lifecycle of a given metadata object. Settings you specify on the Default Object Privilege tab persist until a qualified user overrides the restrictions on an object by object basis.

Assume that USER1 creates several mappings. When USER1 designs and develops those objects, the security policy shown in Figure 7–3 may be desirable. However,

assume that USER1 completes the work on mappings and wants to release the objects to the quality assurance team for testing. The default object privilege therefore becomes too restrictive. To extend access to the QA role, USER1 can navigate to the mapping, right click, select Properties, and select the Security tab. For more details on overriding the default security on an object by object basis, see "Applying Security Properties on Specific Metadata Objects" on page 7-11.

Object Privileges

Object privileges apply to all metadata objects in the repository including projects, modules, and collections.

FULL CONTROL

Full control includes all the other privileges plus the ability to grant and revoke privileges on an object. Only users with full control over an object can override default security on an object-by-object basis as described in "Applying Security Properties on Specific Metadata Objects" on page 7-11.

EDIT

The edit privilege includes the compile, and read privileges. Additionally, edit allows users to delete, rename, and modify an object.

COMPILE

The compile privilege includes the read privilege and enables you to validate and generate an object.

READ

The read privilege enables you to view an object.

System Privileges

System privileges define user access to workspace-wide services. Use the System Privilege tab to allow or restrict users and roles from performing administrative tasks. You can control access to the following operations:

- **CREATE_SNAPSHOT:** Allows users to create snapshots which administrators use when backing up workspaces.
- **CREATE_EXTENSIONMODEL:** Allows users to create new object types in the the workspace.
- **CREATE_MIVDEFINITION:** MIV Definitions are metadata objects that enable access to data stored in third party applications.
- **CREATE_PROJECT:** Allows users to create projects, which administrators create projects as a means of organizing metadata objects.
- **CONTROL_CENTER_DEPLOYMENT:** Allows users to deploy to the Control Center and then run those procedures. For security reasons, you can enable this privilege only on a user by user basis; that is, you cannot extend this privilege to roles.
- **CONTROL_CENTER_EXECUTION:** Allows users to run procedures from the Control Center. For security reasons, you can enable this privilege only on a user by user basis; that is, you cannot extend this privilege to roles.

- **CONTROL_CENTER_VIEW:** Allows users to view procedures from the Control Center. For security reasons, you can enable this privilege only on a user by user basis; that is, you cannot extend this privilege to roles.
- **ACCESS_PUBLICVIEW_BROWSER:** Allows users to access the Repository Browser.

Defining Security Roles

You can use roles to represent groups of users with similar responsibilities and privileges. Unlike users which are also database users, these roles are not database roles. These roles are purely design constructs for implementing security within the product.

Roles enable you to more efficiently manage privileges because it is more efficient to grant or restrict privileges to a single role rather than multiple users.

The Everyone Role and the Administrator Role are predefined roles. You edit the privileges but cannot delete or rename the predefined roles.

Everyone Role

Use this role to easily manage privileges for all users. When you register new users, Warehouse Builder assigns those users to the Everyone role.

Administrator Role

Administrators in Warehouse Builder can perform the security tasks described in Table 7–1.

Table 7–1 Administrator Security Tasks

Task	Instructions
Registering Database Users	From the Global Explorer, right-click **Users** and select **New.**
Editing User Profiles	When you register a user, Warehouse Builder assigns the user to the everyone role and grants access to metadata objects based on that role. To change a user profile, right-click the user and select **Open Editor.**
Changing User Passwords	You cannot change user passwords from within Warehouse Builder. Change passwords directly in the Oracle Database as described in Oracle® Database Security Guide.
Defining Security Roles	Warehouse Builder provides two roles, the administrator role and the everyone role. Define additional roles by right-clicking on **Roles** in the Global Explorer and selecting **New.**
Editing Role Profiles	Right-click a role and select **Open Editor.** You can add and remove users and change the system privileges for the role.
Deleting Users and Roles	From the Global Explorer, right-click a user or a role and select **Delete.** You can delete all Warehouse Builder users expect for the design repository owner. Deleting the user from Warehouse Builder does not delete or alter the user account on the Oracle Database. You can delete all roles expect the predefined ADMINISTRATOR and EVERYONE roles. Warehouse Builder roles and database roles are separate constructs. Therefore deleting a Warehouse Builder has no effect on the database.

Table 7–1 (Cont.) Administrator Security Tasks

Task	Instructions
Renaming Roles	From the Global Explorer, right-click a role and select **Rename.** You can rename all roles expect the predefined administrator and everyone roles.
Applying Security Properties on Specific Metadata Objects	Right-click any metadata object in any of the three explorers on the Design Center, select **Properties,** and select the Security Tab. Or select any metadata object, press `F2`, and then select the Security tab.

Editing Role Profiles

For each role that you create, you can edit the name, enter an optional description, assign the role to existing Users, and specify the system privilege. System privileges for roles behave the same as they do for users. For more information on system privilege, see System Privileges on page 7-9.

You cannot rename or edit the descriptions for the predefined roles Everyone and Administrator.

Users

You can assign multiple users to a role. If you want to assign a user that does not display on the Available Users list, then close the editor, create the user from the Security node in the Global Explorer, and then edit the role. To create a new user, right-click **Users** from the Security node and select **New.** For information on creating and editing users, see Registering Database Users on page 7-5 and Editing User Profiles on page 7-6.

Applying Security Properties on Specific Metadata Objects

You can grant or restrict access to metadata objects on an object-by-object basis.

View the Security Tab by right-clicking on any metadata object and selecting Properties.

Security Tab

Use the Security tab to define metadata security on an object-by-object basis. Only users that have full control privileges on an object can change the metadata access controls on the Security tab. Security properties are important in managing the lifecycle of your projects, as described in "Example: Using Security Properties to Freeze a Project Design" on page 7-12.

While the Default Object Privilege defines metadata security for objects a specific user creates, the Security tab overrides that metadata security policy on an object-by-object basis. Assume that USER1 is a developer that creates mappings and process flows. If you want all objects created by USER1 available to another developer, then use the Default Object Privilege. However, if you want to make only a few objects created by USER1 available to the QA group, then locate each object in the Design Center and use the Security tab.

Important: To enforce a full metadata strategy, edit the security properties for all projects in the Project Explorer. By default, the EVERYONE role has its object privileges set to full control. Change the EVERYONE role privilege to be more restrictive and select **Propagate** to apply the changes to all children.

Propagating Security Properties to Dependent Objects

You can apply security properties to an object and all its children by selecting Propagate on the Security tab. This option is disabled when you select an object that cannot have dependent objects.

Example: Using Security Properties to Freeze a Project Design

When users complete the design of a project, you may want to freeze the contents of the project. Once you complete the following steps, only administrators can change the objects in the project.

To freeze a project design:

1. Log on as an administrator.
2. In the Project Explorer, right-click the project node and select **Properties.**
3. On the Security tab, restrict the privileges for all user and roles other than the administrators as appropriate.
4. Click the **Propagate** button.

Security Enforcement

When any user attempts to perform an operation in Warehouse Builder, Warehouse Builder first verifies that the user has the required privileges to perform the operation. Table 7–2 lists the privileges required to run operations in Warehouse Builder.

Table 7–2 Privileges Required for the Execution of Operations

Warehouse Builder Operation	Security Check
Configure	User must have EDIT privilege on objects to be configured.
Copy	User must have READ privilege on the object to be copied.
Create object	User must have EDIT privilege on parent. For example, to create a mapping you must have Edit privilege on the module.
Cut	User must have EDIT privilege on the object to be cut.
Delete	User must have EDIT privilege on the object to be deleted.
Deploy	No security check is necessary on the Deploy operation because Warehouse Builder checks the previous Generate operation.
Edit	User must have EDIT privilege on the object to be edited.
Export	User must have READ privilege on objects to be exported. Administrative users can export security information such as roles, users, and privileges when Export security information is enabled.

Table 7–2 (Cont.) Privileges Required for the Execution of Operations

Warehouse Builder Operation	Security Check
Generate	User must have COMPILE privilege on object to be generated.
Import	User must have EDIT privilege on objects to be exported. Administrative users can import security information such as roles, users, and privileges when Import security information is enabled.
Move	User must have privileges listed for the Cut and Paste operations.
Paste	User must have EDIT privilege on the parent to receive the copied object.
Rename	User must have EDIT privilege on the object to be renamed.
Snapshot: compare snapshots	To compare with another snapshot or other repository object, user must have READ privilege on that snapshot and the snapshot or other repository object.
Snapshot: restore snapshot	To restore an object based on a snapshot, a user must have READ privilege on that object. To restore a folder, a user must have EDIT privilege on the folder and all of its children.
Snapshot: take snapshot	User must have the CREATE_SNAPSHOT system privilege to create snapshots.
Source import	User must have EDIT privilege on objects to be replaced by imported objects.
Synchronize inbound	User must have READ privilege on the object in the repository and EDIT privilege on the object in the editor.
Synchronize outbound	User must have EDIT privilege on the object in the repository.
Validate	User must have COMPILE privilege on object to be validated.

Managing Passwords in Warehouse Builder

You can manage passwords within Warehouse Builder in the following ways:

- Changing Passwords that Access Control Centers
- Encrypting Passwords to Warehouse Builder Locations

Changing Passwords that Access Warehouse Builder

In keeping with standard security practices, you may want to periodically change the passwords used to access Warehouse Builder repositories.

Changing Passwords that Access Design Repositories

Manage the password to design repositories as you would any other Oracle Database.

Changing Passwords that Access Control Centers

To change the password for a repository that hosts a Control Center and is therefore a deployment environment, you must first stop the Control Center service, run a script to change the password, and restart the Control Center service.

To change the password for a repository that hosts a Control Center:

1. Log on to the Control Center as the repository owner.

2. Stop the Control Center by running the script

   owb home/owb/rtp/sql/stop_service.sql

   The script returns values of Unavailable or Available to indicate the status of Control Center.

3. Change the password by running the script

   owb home/owb/rtp/sql/set_repository_password.sql

   When prompted, specify the new password.

4. Restart the Control Center by running the script

   owb home/owb/rtp/sql/start_service.sql.

Encrypting Passwords to Warehouse Builder Locations

Warehouse Builder users create a location for each database, file server, or application that want to extract or load metadata and data. Locations include the user name and password used to access these various sources and targets. Warehouse Builder can store these passwords in the repository in an encrypted manner. The switch that turns on and off the password storage is Persist Location Password in Metadata, which is located in the Design Center under **Tools, Preferences, Security Parameters.**

The default encryption algorithm utilized is DES56C that is valid for Oracle Database 9i and subsequent versions. If the repository Database is version 10g or later, then you can set the encryption algorithm to 3DES168 or any other more powerful encryption by changing *owb home*/owb/bin/admin/jdbcdriver.properties file and specifying the following encryption parameters:

encryption_client; default = REQUIRED

encryption_types_client; default = (DES56C)

crypto_checksum_client; default = REQUESTED

crypto_checksum_types_client; default = (MD5)

For the protocol to work, set the server to the default ACCEPTED mode. For more information, see the Oracle® Database JDBC Developer's Guide and Reference.

Support for a Multiple-user Environment

Warehouse Builder enables multiple users to access the same Warehouse Builder repository at the same time by managing read/write privileges. Only one user is given write privileges to an object at any given time. All other users can have read-only access. If a user has write access to an object, Warehouse Builder maintains a lock on the object while the object editor is open. If no changes were made to the object, then the lock is released as soon as the object editor is closed. If changes were made, then the lock is maintained until the user closes all editors associated with the object and either saves the changes or reverts to the last saved version. Other users cannot delete an object while it is in use.

Read/Write Mode

Whenever you open an editor, property sheet, or dialog box, you access objects in read/write mode by default. Your changes are available to other users only after you save them to the repository.

Read-Only Mode

If you attempt to open an object locked by another user, then Warehouse Builder displays a message that prompts you either to cancel the request or access the object in read-only mode. If you choose to continue in read-only mode, then the editor displays `Read only` in the title bar.

The user who is editing an object in read/write mode may save his or her changes while you have the object open in read-only mode. To update your view with the repository, click the Refresh button on the toolbar.

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