

Oracle® Warehouse Builder
Installation and Administration Guide,
10g Release 2 (10.2.0.2) for Windows and UNIX
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Oracle Warehouse Builder Installation and Administration Guide, 10g Release 2 (10.2.0.2) for Windows and UNIX

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Contents

Preface	vii
Audience	vii
Documentation Accessibility	vii
Related Publications	viii
Conventions	viii
1 Installation Overview and Requirements	
Warehouse Builder Architecture and Components	1-1
Design Center	1-2
Target Schema	1-2
Warehouse Builder Repository	1-2
Repository Browser	1-3
Control Center Service	1-3
Implementation Strategies	1-3
General Steps for Installing Warehouse Builder	1-4
Understanding the Installation Requirements	1-6
Preparing the Server	1-7
Preparing UNIX Servers	1-8
Preparing Microsoft Windows Servers	1-8
Preparing the Oracle Database	1-9
Configuration Settings for the Warehouse Builder Repository	1-10
Hosting the Repository on Oracle Database Standard Edition	1-14
Preparing Client Machines	1-15
About the Oracle Universal Installer	1-15
Installing the Warehouse Builder Software	1-15
Launching Warehouse Builder Components	1-17
Steps for Installing Warehouse Builder in RAC Environments	1-18
Installing Warehouse Builder on Each Node of a Cluster	1-19
Ensuring the Availability of Service Names for RAC Nodes	1-21
2 Installing an Oracle Warehouse Builder Repository	
Using the Repository Assistant	2-1
Options for Installing a Warehouse Builder Repository	2-1
Basic Installation	2-2
Advanced Setup	2-2

Connecting to the Oracle Database	2-3
Defining a User and an Owner in the Basic Installation	2-3
Installing a Repository using the Advanced Setup Options	2-4
Managing the Warehouse Builder Repository Owner	2-4
Managing Warehouse Builder Repository Users	2-7
Implementing a Remote Runtime (Optional)	2-8
Remote Runtime Scenarios	2-8
Steps for Installing and Testing Remote Runtime.....	2-10
Setting the Security Policy for the Repository (Optional)	2-11

3 Upgrading to Oracle Warehouse Builder 10g Release 2 (10.2)

General Steps for Upgrading to Warehouse Builder 10g Release 2 (10.2)	3-1
Migrating An Oracle Database Environment	3-3
Migrating a Complete Database	3-3
Selectively Migrating a Warehouse Builder Environment to a New Database	3-4
Upgrading a Design Repository	3-8
Upgrading Design Metadata to Warehouse Builder 10g Release 2 (10.2)	3-8
Upgrading a Runtime Repository to a Control Center	3-10
Using the Control Center Upgrade Assistant	3-10
Connecting to a New Control Center.....	3-11
Connecting to an Existing Runtime Repository	3-11
Choosing An Upgrade Operation.....	3-12
Reviewing Selections in the Upgrade Assistant	3-14
Upgrading Locations in the Design Repository	3-14
Reusing and Redeploying Specific Objects	3-14
Redeploying Dimensions and Cubes	3-15
Reusing Advanced Queues	3-15
Redeploying Process Flows	3-15
Updating Mapping Configuration to Benefit from New Features	3-15
Reusing Flat Files and External Directories from a Different Database Instance	3-17

4 Deinstalling Oracle Warehouse Builder

General Steps for Deinstalling Warehouse Builder	4-1
Deleting the Repository Users	4-2
Deleting the Repository Owner	4-2
Deinstalling the Oracle Warehouse Builder Software	4-3
Deleting the Schema Objects	4-3

5 Installing Optional Components

Enabling Integration with Oracle E-Business Suite	5-1
Configuring Repository Browser Environments	5-2
Installing Third-Party Name and Address Data	5-2
Configuring Oracle Enterprise Manager	5-3
Creating the Enterprise Manager Repository	5-3
Creating a Windows User	5-5
Configuring Preferred Credentials.....	5-6

Configuring Enterprise Manager for the Oracle Developer Suite	5-6
Installing Oracle Workflow	5-7
Installing the Oracle Workflow Server	5-7
Installing the Workflow Client (Optional)	5-8

6 Diagnosing and Debugging an Installation

Debugging	6-1
Log File Locations	6-1
Not Able to Launch any of the Warehouse Builder clients or other Oracle products	6-1
Warehouse Builder Freezes or Hangs	6-2
Additional Error Logging for Errors and Other Unexpected Behavior	6-2
Checking Java Virtual Machine (JVM)	6-2
Detecting Database Server Issues When Installing on HP-UX	6-2
Diagnostics	6-3

7 Implementing Security in Warehouse Builder

About Metadata Security in Warehouse Builder	7-1
About the Security Interface	7-2
Metadata Security Strategies	7-2
Minimal Metadata Security Strategy (Default)	7-3
Multi-user Security Strategy	7-3
Full Metadata Security Strategy	7-3
Registering Database Users as Warehouse Builder Users	7-4
Selecting Existing or Creating New Database Users	7-4
User Schema as Target Option	7-6
Editing User Profiles	7-6
Roles	7-6
Default Object Privilege	7-7
System Privileges	7-8
Defining Security Roles	7-9
Everyone Role	7-9
Administrator Role	7-9
Editing Role Profiles	7-10
Users	7-10
Applying Security Properties on Specific Metadata Objects	7-10
Security Tab	7-11
Security Enforcement	7-11
Managing Passwords in Warehouse Builder	7-12
Changing Passwords	7-13
Encrypting Passwords to Warehouse Builder Locations	7-13
Support for a Multiple-user Environment	7-14
Read/Write Mode	7-14
Read-Only Mode	7-14

Index

Preface

This preface includes the following topics:

- [Audience](#) on page vii
- [Documentation Accessibility](#) on page vii
- [Related Publications](#) on page viii
- [Conventions](#) on page viii

Audience

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

- Business Intelligence application developers
- 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.

Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible to all users, including users that are disabled. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at <http://www.oracle.com/accessibility/>.

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<http://www.fcc.gov/cgb/consumerfacts/trs.html>, and a list of phone numbers is available at <http://www.fcc.gov/cgb/dro/trsphonebk.html>.

Related Publications

The Warehouse Builder documentation set includes these manuals:

- *Oracle Warehouse Builder User's Guide*
- *Oracle Warehouse Builder Scripting Reference*
- *Oracle Warehouse Builder Transformation Guide*
- *Oracle Business Intelligence Concepts Guide*

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*.

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.
<i>italic</i>	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.

Installation Overview and Requirements

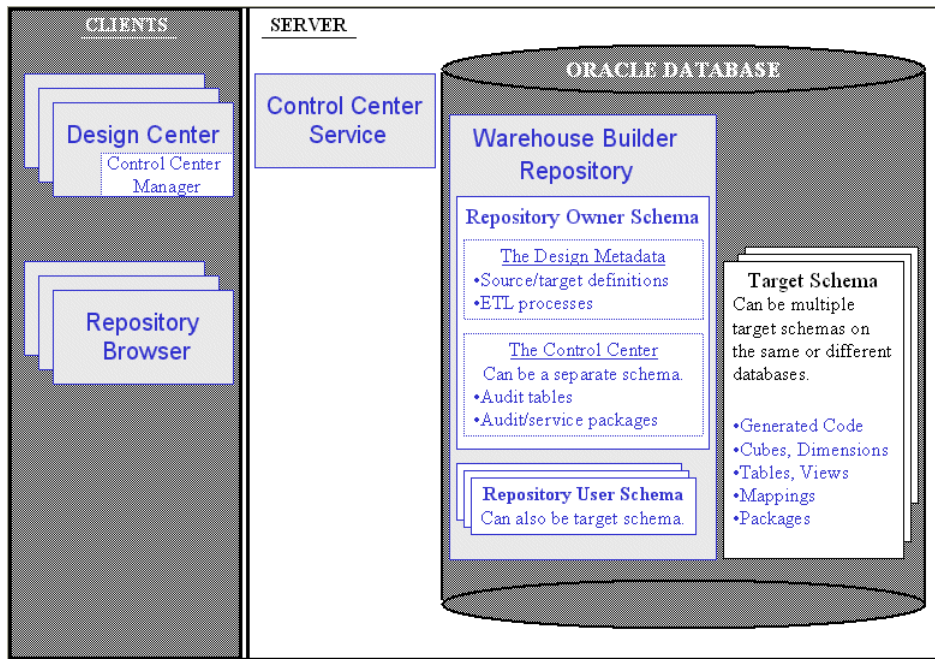
This chapter outlines the installation process, discusses the hardware and software requirements, and introduces the Oracle Warehouse Builder architecture and its components. This chapter includes the following topics:

- [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 1-6
- [Preparing the Server](#) on page 1-8
- [Preparing the Oracle Database](#) on page 1-10
- [Preparing Client Machines](#) on page 1-15
- [About the Oracle Universal Installer](#) on page 1-16
- [Steps for Installing Warehouse Builder in RAC Environments](#) on page 1-18

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. As shown in [Figure 1-1](#), the Oracle Database is a prominent component in the Warehouse Builder architecture as the database hosts the Warehouse Builder repository, the code generated by Warehouse Builder, and also hosts the target schema.

[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 you execute through the [Control Center Service](#).

Figure 1–1 Warehouse Builder with Traditional Client/Server Implementation

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 execute 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 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 in [Figure 1–1](#) 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. For example, [Figure 1–2](#) depicts two target schema hosted on the same database as the repository. One target schema associated with multiple repositories, however, is not permitted.

Warehouse Builder Repository

A Warehouse Builder repository is comprised of a repository owner, one or more repository users, and a schema. 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 optionally contain the

runtime data generated by the Control Center Manager and Control Center Service. Or you can create two repositories, one for design metadata and another for runtime metadata.

As part of the initial installation of Warehouse Builder, you use the Repository Assistant to define one or more repositories. Later in the implementation cycle, you also use the Repository Assistant to manage existing repositories or create new ones.

For examples on 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 repository specific and control center specific information.

Control Center Service

The Control Center Service is the component that enables you to register locations and deploy from the Control Center Manager, and the ability to execute ETL mappings and process flows.

Implementation Strategies

This section provides an overview of the various options for implementing Warehouse Builder. Detailed instructions on how to implement each option are provided in subsequent sections in [Chapter 2, "Installing an Oracle Warehouse Builder Repository"](#).

Basic Implementation

The simplest option is to install all 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.

Traditional Client/ Server Implementation

As depicted in [Figure 1-1](#), client components reside on multiple client machines and server components reside on a single server.

Separate Design and Runtime Environments Implementation

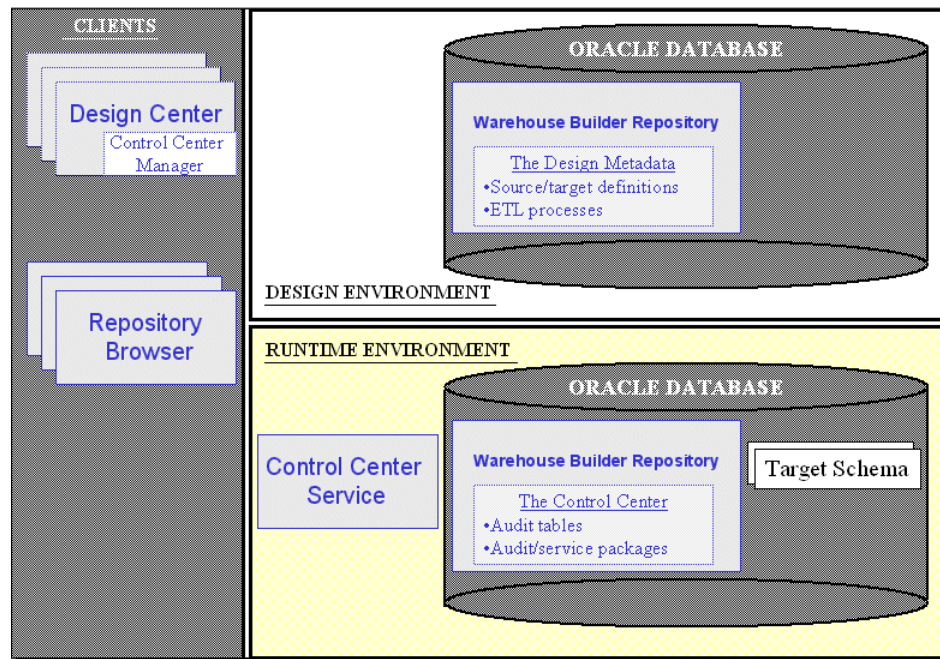
In an implementation such as shown in [Figure 1-2](#), one repository stores metadata definitions for objects such as sources, targets, and ETL processes that users access through the Design Center.

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, as shown in [Figure 1–2](#), the Control Center Service can be installed on the machines hosting the target schemas.

For those exceptions in which the Control Center Service cannot be installed on the same computer as the target schema, the alternative is to implement a *remote runtime* environment.

Implement a remote runtime environment if the Warehouse Builder software is not supported for the operating system hosting the target schema. Also consider remote runtime if your company security policies restrict you from installing additional software on the computer hosting the target schema.

For additional information, see [Implementing a Remote Runtime \(Optional\)](#) on page 2-8.

General Steps for Installing Warehouse Builder

The steps you take to install Warehouse Builder depend on if you are installing the software on to a new server or if you are upgrading an existing installation. If you want to upgrade an existing installation, refer to [Chapter 3, "Upgrading to Oracle Warehouse Builder 10g Release 2 \(10.2\)"](#).

If you want to begin a new installation, use the following instructions to determine which chapters and sections in this book 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 1-6 to develop an implementation strategy.

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

The release notes may contain installation notes or known issues that affect your installation strategy. Access the 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>.

3. [Preparing the Server](#) on page 1-8
4. For RAC environments only, proceed to [Steps for Installing Warehouse Builder in RAC Environments](#) on page 1-18. Otherwise, continue with the next step in these instructions.
5. [Preparing the Oracle Database](#) on page 1-10
6. [Installing the Warehouse Builder Software](#) on the server on page 1-16

Review the [Checklist: Before You Launch the Universal Installer](#) on page 1-16 and then launch the Oracle Universal Installer and follow the prompts to install the Warehouse Builder software onto the computer you designated as the server. In the case of a split implementation, install Warehouse Builder software on each of the two machines hosting repositories.

7. [Installing an Oracle Warehouse Builder Repository](#) on page 2-1

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

To launch 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 launch the Repository Assistant on UNIX, locate `OWB_ORACLE_HOME/owb/bin/unix` and execute `reposinst.sh`.

8. [Setting the Security Policy for the Repository \(Optional\)](#) on page 2-12

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.

9. [Installing 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.

10. Install the Warehouse Builder software on the client machines.

Repeat [Installing the Warehouse Builder Software](#) on page 1-16 for each computer to be used as a client.

11. When you complete the installation process, you can launch all the Warehouse Builder components as described in [Launching Warehouse Builder Components](#) on page 1-17.

Understanding the Installation Requirements

Refer to this section as you develop your implementation strategy.

[Table 1–1](#) lists the components required and [Table 1–2](#) lists some of the optional components in 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
<p>Server computer</p> <p>The operating system can be any Windows or UNIX platform supported by Oracle 10g database.</p> <p>For the most up-to-date list of certified hardware platforms and operating system versions, review the certification matrix on the Oracle <i>MetaLink</i> Web site at http://metalink.oracle.com/</p>	<p>For Windows, both 32-bit and 64-bit architectures are supported. Ensure that the computer has a minimum of 850 MB disk space, 768 MB available memory, and 768 MB of page file size, TMP, or swap space.</p> <p>For UNIX, ensure that the computer has a minimum of 1100 MB disk space, 768 MB available memory, and 1100 MB of page file size, TMP, or swap space.</p> <p>See Preparing the Server on page 1-8.</p>
<p>Oracle Database</p> <p>The database can be any of the following versions:</p> <ul style="list-style-type: none"> ▪ Oracle9i Release 2 (9.2.x) Enterprise Edition ▪ Oracle Database 10g Enterprise Edition R1 (10.1.x) ▪ Oracle Database 10g Standard Edition R2 (10.2.x) ▪ Oracle Database 10g Enterprise Edition R2 (10.2.x) <p>If you intend to deploy dimensional structures to an Analytic Workspace, you must use either:</p> <ul style="list-style-type: none"> ▪ Oracle10g R1 (10.1.0.2) together with the Oracle 10.1.0.4 patch set or higher ▪ Oracle10g R2 (10.2.0.1) or higher 	<p>You must have SYSDBA privileges to install the Warehouse Builder repository on the database.</p> <p>Ensure that DB_BLOCK_SIZE is set to the most optimal value of 16384 or the largest block size the server allows.</p> <p>See Preparing the Oracle Database on page 1-10.</p> <p>Review the following topics as necessary:</p> <ul style="list-style-type: none"> ▪ Hosting the Repository on Oracle Database Standard Edition ▪ Setting the Security Policy for the Repository (Optional) on page 2-12 ▪ Steps for Installing Warehouse Builder in RAC Environments on page 1-18 ▪ Configuring the Target Data File Path for Flat File Targets on page 1-14
<p>Client computer</p> <p>Client machines must have either a Windows or a Linux operating system.</p>	<p>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.</p> <p>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.</p> <p>See Preparing Client Machines on page 1-15.</p>
<p>Oracle Universal Installer</p> <p>Review the "Checklist: Before You Launch the Universal Installer" on page 1-16 and launch the Oracle Universal Installer in install Warehouse Builder components to servers or clients.</p>	<p>Be sure to specify a separate Oracle home for Warehouse Builder. For example, specify OWB_ORACLE_HOME.</p> <p>See Installing the Warehouse Builder Software on page 1-16.</p>

Table 1–1 (Cont.) Required Components

Components	Requirements
Oracle Warehouse Builder Components <ul style="list-style-type: none"> ■ 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. 	<p>You can have a single, unified repository. Or you can define separate repositories with one to contain design metadata and another to contain runtime metadata generated by the Control Center Service.</p> <p>Install a repository on every server that hosts a target schema. If necessary, you can have a target schema without installing additional Warehouse Builder components on its server.</p> <p>For an overview, see Warehouse Builder Architecture and Components on page 1-1. For examples, see Installing a Repository using the Advanced Setup Options on page 2-4.</p>

Optional 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 Components

Components	Requirements
Oracle E-Business Suite (Optional) 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 (Optional) This is an option for you to use Oracle Workflow to manage job dependencies. If you plan to use Warehouse Builder process flows, you need to install Oracle Workflow to enable deployment.	Warehouse Builder is compatible with the following versions: <ul style="list-style-type: none"> ■ Oracle Workflow 2.6.2 (for Oracle 9.2) ■ Oracle Workflow 2.6.3 (for Oracle 10gR1) ■ Oracle Workflow 2.6.4 (for Oracle 10gR2) See Installing Oracle Workflow on page 5-7
Oracle Enterprise Manager (Optional) This is an option for you to use Oracle Enterprise Manager to schedule jobs.	Warehouse Builder is compatible with Oracle9i Enterprise Manager Release 2. See Configuring Oracle Enterprise Manager on page 5-3.
Third Party Name and Address Data (Optional) This is an option if you plan to use the Name and Address operator to cleanse name and address data.	You will need the following from one of the certified vendors listed on Oracle Technology Network: <ul style="list-style-type: none"> ■ 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.

Warehouse Builder 10g Release 2 (10.2.0.2) is available on the same platforms supported by Oracle Database 10g.

Review the certification matrix on the [OracleMetaLink](#) 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/>

Preparing UNIX Servers

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, 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, see the additional hardware requirements listed in [Preparing Client Machines](#) on page 1-15.

Table 1-3 UNIX Operating Environment Software Requirements

Requirement	Value
Disk Space	1100 MB
Available Memory	768 MB. Memory requirements increase depending on the functions performed and the number of users connected.
Page File Size, TMP, or Swap Space	1 GB

Setting Environmental Variables in UNIX

When installing UNIX, you must specify the environmental variable for the Oracle home.

Use the UNIX commands listed in [Table 1-4](#) where *full_path* is the path into which you will install Warehouse Builder 10g Release 2 (10.2.0.2).

Table 1-4 Setting Oracle home on the server

Environmental Variable	C Shell Command	Korn Shell Command	Bourne Shell Command
ORACLE_HOME	setenv ORACLE_HOME <i>full_path</i>	export ORACLE_HOME= <i>full_path</i>	ORACLE_HOME= <i>full_path</i> ; export ORACLE_HOME

Preparing Microsoft Windows Servers

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

Table 1–5 (Cont.) Windows Operating Environment Software Requirements

Requirement	Value
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 that while the OWB Design Center client is installed with the DB, only the 32-bit Windows and 32-bit Linux Design Center clients are certified and supported by Oracle. For Windows, Design Center is only supported on 32-bit client operating systems, not on Windows Server 2003. Note also that Oracle provides both 32-bit and 64-bit versions of Warehouse Builder server components. 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 server components are supported on the following operating systems: <ul style="list-style-type: none"> ■ Windows XP Professional ■ Windows 2000 with Service Pack 1 or higher. All editions, including Terminal Services and Windows 2000 MultiLanguage Edition (MLE), are supported. ■ Windows Server 2003. Note that the Design Center client is not supported in Windows Server 2003. Warehouse Builder Design Center client is only supported on Linux x86 32-bit and the following Windows 32-bit platforms: <ul style="list-style-type: none"> ■ Windows XP Professional ■ Windows 2000 with Service Pack 1 or higher. All editions, including Terminal Services and Windows 2000 MultiLanguage Edition (MLE), are supported.

Preparing the Oracle Database

Warehouse Builder 10g Release 2 (10.2.0.2) is supported and certified for use with the following releases of the Oracle Database:

- Oracle9i Release 2 (9.2.x) Enterprise Edition
- Oracle Database 10g Enterprise Edition R1 (10.1.x)
- Oracle Database 10g Standard Edition R2 (10.2.x)
- Oracle Database 10g Enterprise Edition R2 (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. Also, if you intend to utilize an Oracle Database Standard Edition, see the limitations described in [Hosting the Repository on Oracle Database Standard Edition](#) on page 1-15.

For each database you intend to install the Warehouse Builder repository, you need a user with SYSDBA privileges.

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 multi-byte character sets, you should extrapolate a larger tablespace requirement.

If you intend to implement one of the metadata security options available in Warehouse Builder, enable the Oracle Advanced Security option in the database. See [Setting the Security Policy for the Repository \(Optional\)](#) on page 2-12 for an overview of the metadata security options.

Configuration Settings for the Warehouse Builder Repository

Before installing Warehouse Builder, prepare the Oracle Database by setting the necessary configuration parameters. If the database will host both the design and runtime components, the Oracle 10g database self tunes its configuration settings to optimize server resources. The only additional parameters you may need to set are for [Configuring the Target Data File Path for Flat File Targets](#) on page 1-14.

If the design and runtime components are to be in separate design repositories, refer to [Parameters for the Design Repository Database Instance](#) on page 1-11 and [Parameters for the Runtime Repository Database Instance](#) on page 1-11.

Parameters for the Design Repository Database Instance

The Oracle 10g 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 configuration parameters to use as an initial guide for ensuring performance.

Table 1-6 Initialization Parameters for the Design Repository Instance

Initialization Parameter	Set to Value	Comments
COMPATIBLE	10.2.0.1	If this parameter is not in the initialization file, add it to the end of the file.
DB_BLOCK_SIZE	8192	This parameter is set when the database is created and 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.

Table 1–6 (Cont.) Initialization Parameters for the Design Repository Instance

Initialization Parameter	Set to Value	Comments
O7_DICTIONARY_ACCESSIBILITY	TRUE	Set this to TRUE as an alternative to setting REMOTE_LOGIN_PASSWORDFILE parameter to EXCLUSIVE. It enables the following statement to work when connecting to a SYS user: <code>connect sys/⟨⟨sys_password⟩⟩@TNS_NAME_OF_DB</code>
OPEN_CURSORS	300	You may specify a higher value.
REMOTE_LOGIN_PASSWORDFILE	EXCLUSIVE	This setting is required for the following connect statement to work: <code>connect sys/⟨⟨sys_password⟩⟩@TNS_NAME_OF_DB as sysdba;</code> If, however, this parameter is set to NONE instead of EXCLUSIVE, set the O7_DICTIONARY_ACCESSIBILITY parameter as described.

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	10.2.0.1	If this parameter is not in the initialization file, 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, use the largest size available. If your computer has less than 512 MB of RAM, a value of 9600 is recommended.
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, set DB_WRITER_PROCESSES to 1. Increase this parameter value by 2 for every additional 8 CPUs.

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

Initialization Parameter	Set to Value	Comments
DBWR_IO_SLAVES	<i>n</i>	<i>n</i> is the number of CPUs. Disable this parameter by setting it to 0 if: <ul style="list-style-type: none"> ■ 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_ASYNC_IO	TRUE	If the platform does not support asynchronous I/O, 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, 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 RAC systems. If it is not set to 0, then data propagation delays may cause NO_DATA_FOUND errors in the Control Center Service.
OPEN_CURSORS	500	You may specify a higher value if you launch multiple sessions or if you run multiple or complicated mappings in one session.
OPTIMIZER_MODE	all_rows	For other possible optimizer modes, see <i>Oracle Designing and Tuning for Performance</i> , <i>Oracle Database Performance Tuning Guide and Reference</i> , and <i>Oracle Data Warehousing Guide</i> .
PARALLEL_ADAPTIVE_MULTI_USER	TRUE	Set PARALLEL_AUTOMATIC_TUNING to TRUE as a prerequisite for this parameter.

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

Initialization Parameter	Set to Value	Comments
PARALLEL_AUTOMATIC_TUNING	TRUE	This setting delegates the task of tuning parallel processing to the server. Set this parameter for Oracle9i or Oracle8i databases only. For Oracle 10g 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, 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 10g Release 2 (10.2.0.2) 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 repository user requires access to certain v_\$ tables. These grants are made by the SYSDBA account when you create the repository. This setting ensures that the SYSDBA privilege is granted to SYS.
RESOURCE_MANAGER_PLAN	<i>plan_name</i>	Oracle strongly recommends creating a resource plan for managing resource usages for Warehouse Builder runtime. Refer to the <i>Oracle Database Administration Guide</i> for information on resource plans.
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, because they will be automatically adjusted by the server: <ul style="list-style-type: none"> ■ 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.

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

Initialization Parameter	Set to Value	Comments
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, repeat this parameter on contiguous lines for each directory. If you use flat file targets in Warehouse Builder, 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	.

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 = *
```

Hosting the Repository on Oracle Database Standard Edition

Certain functionalities in Oracle Warehouse Builder require the Enterprise Edition of the Oracle Database. Therefore, if you host the a Warehouse Builder repository on a Standard Edition of the database, some functionalities are not supported.

These limitations include, but are not limited to, the following:

- [Limited Password Security in Oracle Database Standard Edition](#) on page 7-14
- Table compression is not supported.
- Partitioning of tables is not supported.
- You cannot use partition exchange loading in mappings.
- Bitmap indexes are not supported.
- You cannot set the value of the configuration parameter Data Segment Compression to COMPRESS.
- You cannot import dimensions and cubes using the Import Metadata Wizard.

- Dimensional objects that use a ROLAP or MOLAP implementation cannot be deployed successfully.

Preparing Client Machines

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.

If you previously deinstalled Warehouse Builder and the path `<OWB_ORACLE_HOME>\owb\j2ee\owbb` remains, delete the `owbb` directory before installing Warehouse Builder again.

About ORACLE_HOME and Warehouse Builder

Oracle home is the top-level directory in 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.

Although you can install some Oracle products to share the same Oracle home, Warehouse Builder cannot share its home directory. Install Warehouse Builder into a separate Oracle home directory from the Oracle Database or any other Oracle product.

Setting Environmental Variables in UNIX

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 will install Warehouse Builder 10g Release 2 (10.2.0.2).

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

Environmental Variable	C Shell Command	Korn Shell Command	Bourne Shell Command
ORACLE_HOME	<code>setenv ORACLE_HOME full_path</code>	<code>export ORACLE_HOME=full_path</code>	<code>ORACLE_HOME=full_path; export ORACLE_HOME</code>

About the Oracle Universal Installer

Oracle Warehouse Builder uses Oracle Universal Installer to install components and to configure environment variables. The installer guides you through each step of the installation process.

Installing the Warehouse Builder Software

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. Before launching the Universal Installer, review and complete the [Checklist: Before You Launch the Universal Installer](#).

Checklist: Before You Launch 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>.
- For Windows NT/2000/XP Professional, ensure that you are logged on to your system as a member of the Administrators group.
- For UNIX, 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 the permissions required to manage Oracle Warehouse Builder.
- For both server and client installation, you must specify an Oracle home directory such as *OWB_ORACLE_HOME* to be used only for the Warehouse Builder installation. For UNIX, you must set the *ORACLE_HOME* environmental variable.
- Close all other open applications.

For Windows Users

To run the Oracle Universal Installer:

1. Insert the Oracle Warehouse Builder CD-ROM.
2. If your computer supports the autorun feature, the autorun window will automatically launch 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.
3. When prompted, specify a home directory such as *OWB_ORACLE_HOME* to be used only for the Warehouse Builder installation.
4. 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.

For UNIX Users

To run the Oracle Universal Installer:

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. Log in as the `oracle` user.

Note: 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.

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

```
cd mount_point
./runInstaller
```

3. Install the *OWB_ORACLE_HOME* into the same operating system user as Oracle Database *ORACLE_HOME*.

Note: As the installation proceeds, the Oracle Universal Installer prompts you to run several scripts. You need to switch user 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.

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 launch the Warehouse Builder components listed in [Table 1–9](#).

The components in [Table 1–9](#) 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, OWB_ORACLE_HOME, and then ...	Linux: Locate OWB_ORACLE_HOME/owb/bin/unix and then...
Repository Assistant Enables you to manage repositories and their schemas and users.	Select Administration, and then Repository Assistant.	Execute reposinst.sh
Design Center Is the primary design interface.	Select Design Center.	Execute 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.	Execute local_service_login.sh If the service fails to start, you can run OWB_ORACLE_HOME/owb/rtp/sql/service_doctor.sql.
Control Center Manager Is the command to deploy and execute to a remote runtime environment.	Launch the Design Center. From the Tools menu, select Control Center Manager.	Execute local_service_login.sh as follows: local_service_login.sh -startup <OWB-Home>
Stop Control Center Service This command is only necessary when working in a remote runtime environment.	Select Administration then Stop Control Center Service.	Execute local_service_login.sh as follows: local_service_login.sh -closedown <OWB-Home>
Start OWB Browser Listener	Select Administration, and then Start OWB Browser Listener.	Execute startOwbbInst.sh
Repository Browser	Select Repository Browser.	Start the OWB Browser Listener and then execute openRAB.sh.
Stop OWB Browser Listener	Select Administration then Stop OWB Browser Listener.	Execute stopOWBInst.sh
OMB Plus Is the scripting utility that enables to perform all operations available in the graphical user interfaces.	Select OMB Plus.	Execute OMBPlus.sh.

Steps for Installing Warehouse Builder in RAC Environments

The overall process for installing on a 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 a RAC environment:

1. Create the 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 Machines
For each computer to host Warehouse Builder components, configure the *tnsnames.ora* file located in the `OWB_ORACLE_HOME\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 such as *"The connection to the repository was lost, because of the following database error: ORA-12154:TNS:could not resolve the connect identifier specified"*.
5. [Installing the Warehouse Builder Software](#) on page 1-16
Review the [Checklist: Before You Launch the Universal Installer](#) on page 1-16 and then launch the Oracle Universal Installer.
6. [Installing an Oracle Warehouse Builder Repository](#) on page 2-1
The Repository Assistant prompts you to define users and an owner for the repository.
To launch 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 launch the Repository Assistant on UNIX, locate `OWB_ORACLE_HOME/owb/bin/unix` and execute `reposinst.sh`.
7. Register each RAC node.
For each node, launch 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 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_ORACLE_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 2-12.
10. [Installing Optional Components \(Optional\)](#).

Consider performing the optional step [Configuring Repository Browser Environments](#) on page 5-2. The Repository Browser lets you nominate a RAC node and register other nodes.

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

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 launch all the Warehouse Builder components.

When [Launching Warehouse Builder Components](#) on page 1-17 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.

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

13. [Ensuring the Availability of Service Names for RAC Nodes](#) on page 1-21

The Control Center Service requires that service names for the individual nodes in the cluster be available. If these are not present after the 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 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 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 Launch the Universal Installer](#).

Checklist: Before Using the Universal Installer in a 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>.
- 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.
- For Windows NT/2000/XP Professional, ensure that you are logged on to your system as a member of the Administrators group.
- For UNIX, 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 the permissions required to manage Oracle Warehouse Builder.
- Specify an Oracle home directory such as `OWB_ORACLE_HOME` to be used only for the Warehouse Builder installation. For UNIX, you must set the `ORACLE_HOME` environmental variable.

- The installed location must be the same directory path if using separate OWB_ORACLE_HOME installed disks, that is, local physical disks on each server.
- Close all other open applications.

For Windows Users

To run the Oracle Universal Installer:

1. Insert the Oracle Warehouse Builder CD-ROM.
2. If your computer supports the autorun feature, the autorun window will automatically launch 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.
3. 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.
4. When prompted, specify a home directory such as `OWB_ORACLE_HOME` to be used only for the Warehouse Builder installation.
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.

For UNIX Users

To run the Oracle Universal Installer:

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. Log in as the `oracle` user.

Note: 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.

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

```
cd mount_point
./runInstaller
```
3. 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.
4. Install the `OWB_ORACLE_HOME` into the same operating system user as Oracle Database `ORACLE_HOME`.

Note: As the installation proceeds, the Oracle Universal Installer prompts you to run several scripts. You need to switch user 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 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 `owbracl`, then the service name could be `owbracl.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 RAC node.

Installing an Oracle Warehouse Builder Repository

This chapter includes the following topics:

- [Using the Repository Assistant](#) on page 2-1
- [Options for Installing a Warehouse Builder Repository](#) on page 2-1
- [Connecting to the Oracle Database](#) on page 2-3
- [Installing a Repository using the Advanced Setup Options](#) on page 2-4
- [Implementing a Remote Runtime \(Optional\)](#) on page 2-8
- [Setting the Security Policy for the Repository \(Optional\)](#) on page 2-12

Using the Repository Assistant

Use the Repository Assistant to define an Oracle Database as a Warehouse Builder repository. The assistant guides you through the most common installation scenarios and options.

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, in both methods, Warehouse Builder assigns USERS as the default tablespace for indexes. For more information installing through the scripting language, read about the OMBINSTALL command in the Oracle Warehouse Builder Scripting Reference.

Options for Installing a Warehouse Builder Repository

The first step in installing a Warehouse Builder repository is to determine the type of repository implementation you want to perform.

The [Basic Installation](#) is designed for installing a unified repository onto a local computer and is suitable for performing a proof of concept or launching a pilot program. When you select a basic installation, the Repository Assistant guides you through [Connecting to the Oracle Database](#) on page 2-3 and [Defining a User and an Owner in the Basic Installation](#) on page 2-3.

Use the [Advanced Setup](#) to create multiple users at one time, to install a repository on a remote computer, or for any implementation strategy other than the basic installation. Also select the advanced option when you want to add or drop repositories or repository users, change the repository language settings, or register a Real Application Cluster (RAC) instance.

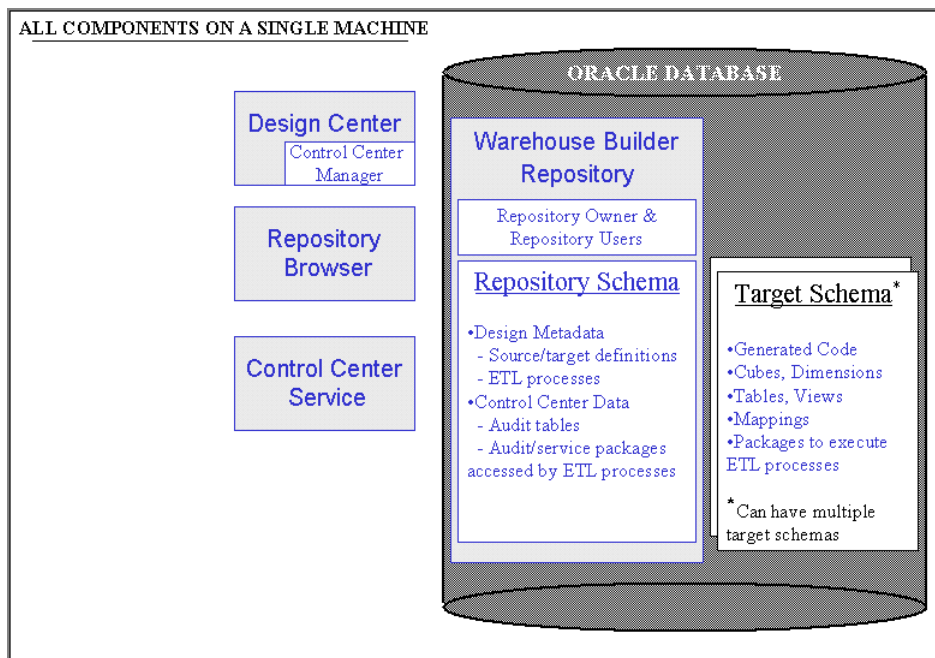
When you select an advanced setup, the Repository Assistant guides you through [Connecting to the Oracle Database](#) on page 2-3 and all the options available in [Installing a Repository using the Advanced Setup Options](#) on page 2-4.

Basic Installation

The simplest installation you can perform is a basic installation on a local computer. With a basic, local installation, the Repository Assistant guides you through defining a unified repository with one repository owner and a separate repository user enabled as a deployment target. In other words, the repository user can access both the Design Center for designing ETL processes and the Control Center Manager for deploying and auditing.

[Figure 2-1](#) depicts a basic installation on a single laptop computer, a common scenario for consultants who use Warehouse Builder at client sites and travel with minimal hardware.

Figure 2-1 Consultant Profile: Basic Installation on a Single Computer



Advanced Setup

Use the advanced set up to accomplish any of the following:

- **Traditional Client/ Server Implementation:** With multiple clients accessing the same repository on a server, you can define a repository user for each client.
- **Separate Design and Runtime Environments Implementation:** Define separate repositories for design metadata and runtime data.

- **Implementing a Remote Runtime (Optional):** Implement a remote target in which no Warehouse Builder components are installed on the computer hosting target schema.

Connecting to the Oracle Database

After you specify the type of installation to perform, the assistant prompts you for connection information to the existing Oracle Database you want to define as a Warehouse Builder repository. The connection information you specify depends on type of installation you are performing.

In a RAC environment, do not type the host name, port number, and Oracle service name. Choose the SQL*NET Connection option. Type the net service name, defined in <OWB_ORACLE_HOME>\network\admin\tnsnames.ora.

For a basic installation, define a single repository user as described in [Defining a User and an Owner in the Basic Installation](#).

For an advanced installation, you define the repository owner and multiple repository users on subsequent pages in the wizard.

To proceed with either the advanced or basic installation, note that the database must be running and you must enter a database user with SYSDBA privileges.

Defining a User and an Owner in the Basic Installation

The basic installation is designed to enable you to quickly create a unified repository with a single repository owner and a single user. The wizard defines a default owner and prompts you to create a user.

Specify a repository 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.

For simplicity, the wizard assigns a default repository owner, OWBRT_SYS. If no password is set for OWBRT_SYS, the assistant prompts you to either define a new repository owner or set a password for OWBRT_SYS.

Notice that the basic installation lets you define only one user at a time. After you complete the basic installation, you can launch the assistant again and select Advanced Set up to define multiple users at one time. Or, after you complete the basic installation, launch the Design Center and create users in the security interface as described in the Oracle Warehouse Builder User's Guide.

The basic installation is designed for local installations only. If you select Basic Installation and enter connection information for a remote computer, the Repository Assistant instructs you to return to the Install Type and select Advanced Setup.

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 the Oracle® Database Security Guide.

Installing a Repository using the Advanced Setup Options

Choose one of the following options:

- **Managing the Warehouse Builder Repository Owner:** Select this option if you want to create, delete, or alter a repository owner.
- **Managing Warehouse Builder Repository Users:** Select this option to create or remove the registration for one or more repository 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 RAC Environments"](#) on page 1-18.

Managing the Warehouse Builder Repository Owner

Each repository must be associated with at least one repository owner. The repository owner has all the administrative privileges for administering the repository, its display languages, and its users.

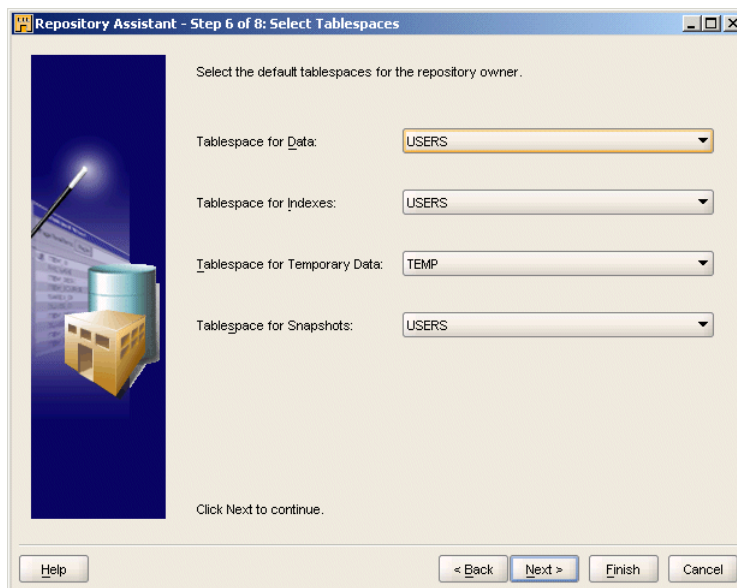
Managing the repository owner includes:

- **Creating new repository owners:** This entails [Selecting the Default Tablespaces](#) and [Selecting the Base Language](#).
- [Dropping Repository Owners](#)
- [Adding Display Languages](#)

Selecting the Default Tablespaces

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

Figure 2–2 *Dialog: Selecting Default Tablespaces*



Selecting the Base Language

The base language is the language of the repository. 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 users create new repository objects, the physical names should always be written in the base language.

However, to enable users to use different languages to name 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

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

ISOID	Language
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
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

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

ISOID	Language
vi_VN	Vietnamese

Dropping Repository Owners

When you drop a repository owner, be aware that each repository owner can be associated with multiple repository users. After you drop a repository 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 repository owner. Alternatively, you can delete orphan users through the SQL Plus.

Managing Warehouse Builder Repository Users

All Warehouse Builder users and the repository owner must first be defined as Oracle Database users.

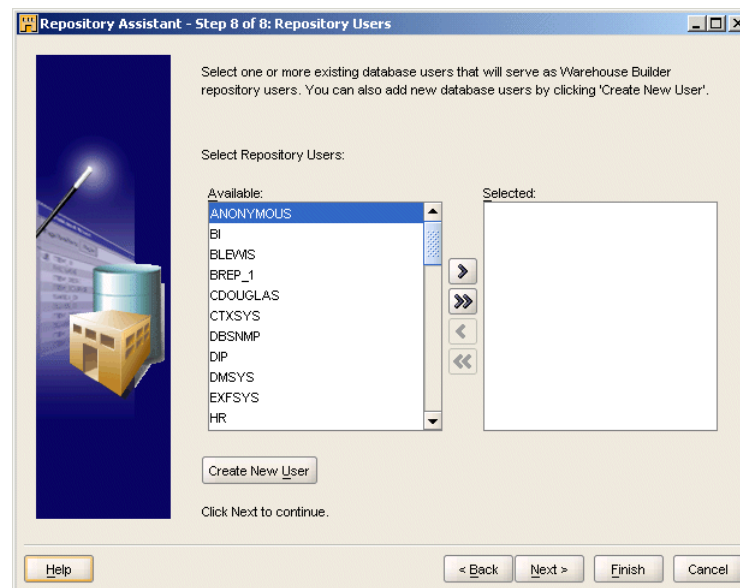
As a repository owner, the actions you can take to manage users are adding repository users or [Deleting Repository Users](#). You cannot change user passwords from within Warehouse Builder. Change passwords directly in the Oracle Database as described in the *Oracle® Database Security Guide*.

Selecting Repository Users

The left panel in [Figure 2–3](#) 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, Warehouse Builder prompts you 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 2–3 Adding Repository Users

Deleting Repository Users

When you delete a repository 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 on the Oracle Database.

Implementing a Remote Runtime (Optional)

In a remote runtime environment, target schemas are remote with respect to the Control Center Service running on another server. Therefore, to deploy and execute ETL processes in such an environment, the Control Center Service on the other server must be running.

Since no Warehouse Builder specific software is installed on the target database, the target database can reside on a platform not directly supported Warehouse Builder release. For example, since Warehouse Builder 10g Release 2 (10.2.0.2) does not support the Control Center running on HP OpenVMS Alpha, the alternative is to implement remote runtime.

When considering a remote runtime environment, be aware of an additional requirement. If the database that hosts the remote target schema also hosts its repository, then you can deploy all types of mappings to the remote target without restriction. However, if the remote target schema and the repository are in two different databases, then you cannot deploy PL/SQL mappings to the standalone target schema.

Remote Runtime Scenarios

There are several scenarios for implementing remote runtime including the following:

- **Control Center Service Installed on the Client:** 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 without restriction.
- **A Standalone Target Schema:** You can deploy all types of mappings except PL/SQL mappings to a standalone target schema.

Figure 2-4 Control Center Service Installed on the Client

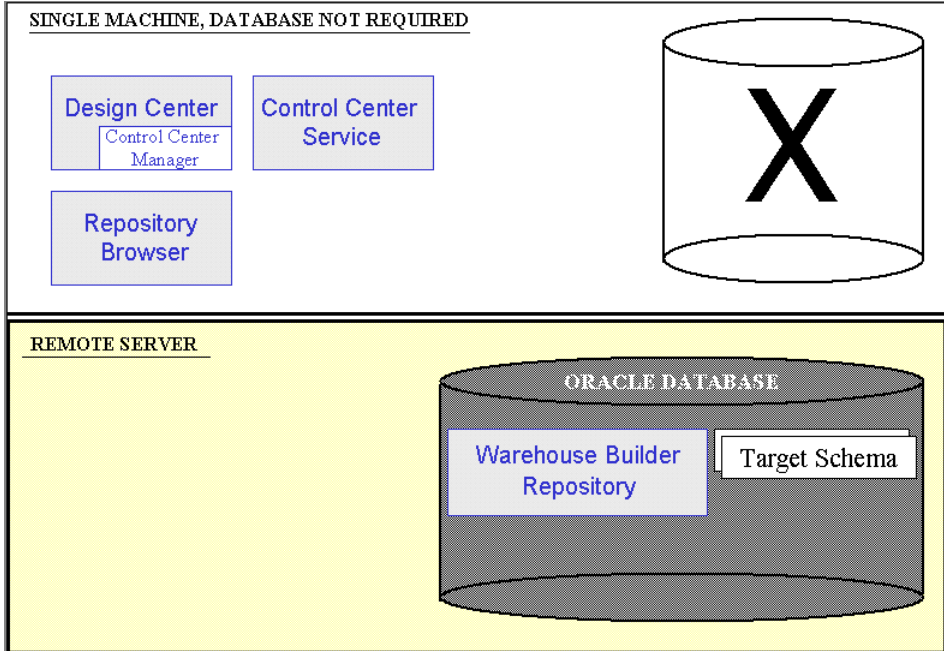


Figure 2-5 Control Center Service Installed on a Local Server

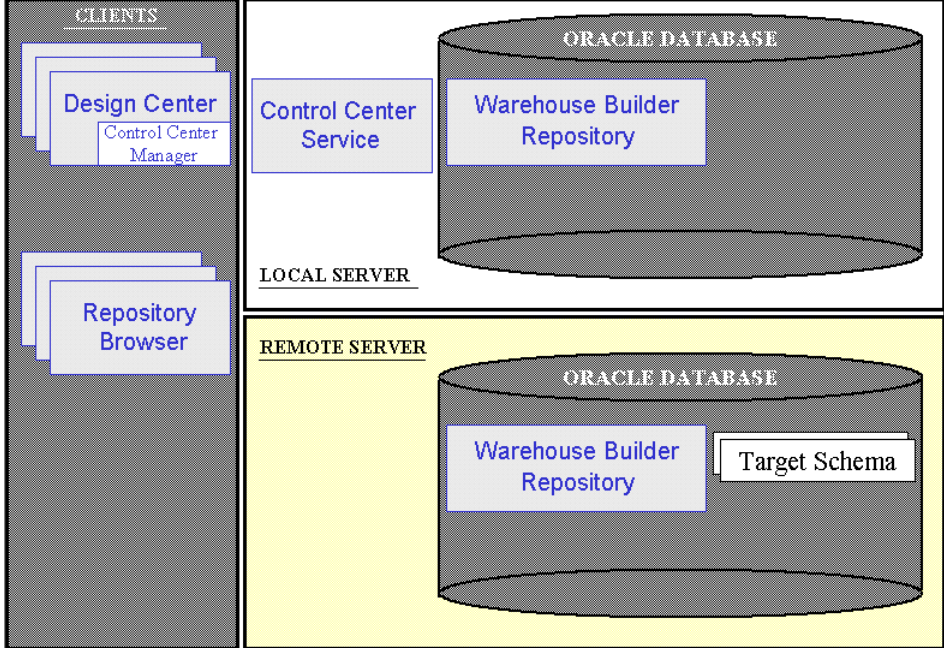
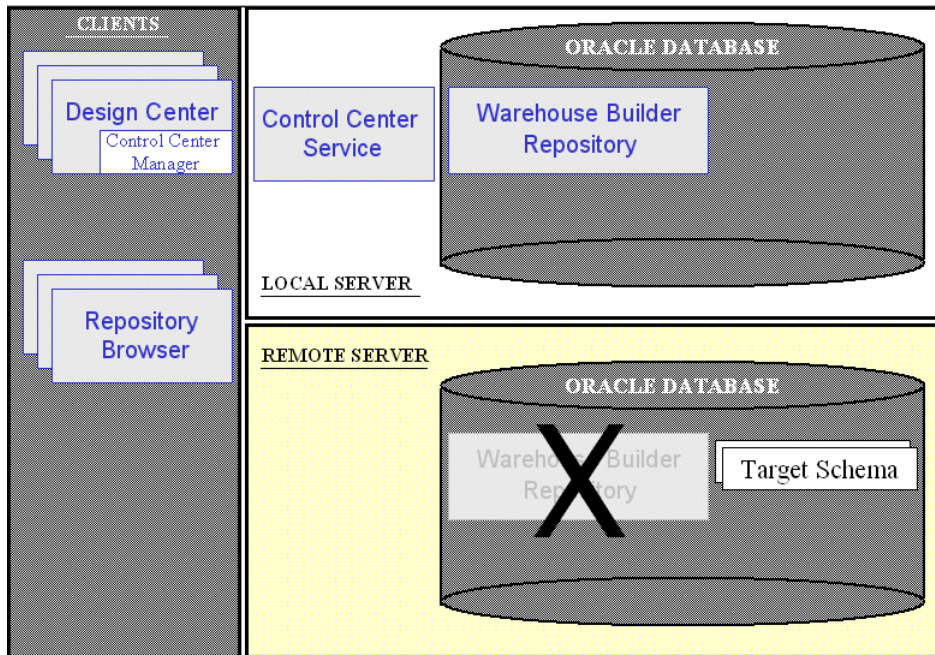


Figure 2–6 A Standalone Target Schema

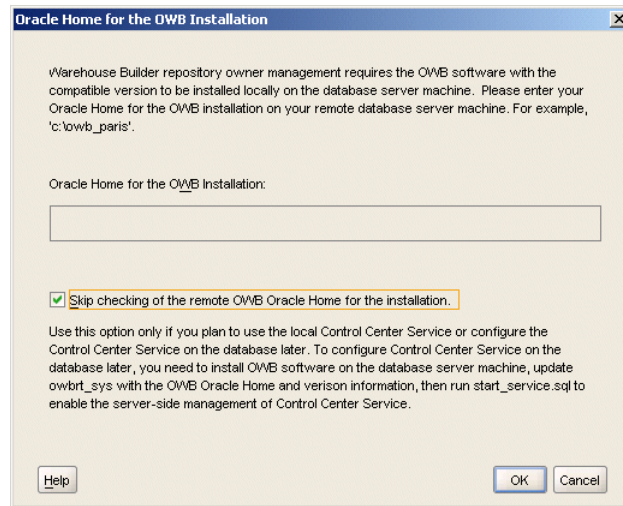


Steps for Installing and Testing Remote Runtime

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

1. Install the client components including the Design Center and Control Center Service as depicted in [Remote Runtime Scenarios](#) on page 2-9.
2. From the client computer, launch the Repository Assistant.
Select **Start, Programs, OWB_ORACLE_HOME, Warehouse Builder, Administration, then Repository Assistant.**
3. Select the Advanced Setup option.
4. Connect to the server to host the standalone target schema.

The Repository Assistant displays a dialog as shown in [Figure 2–7](#). Enable **Skip Checking of the Remote OWB Oracle home Installation** and select **OK**.

Figure 2–7 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_ORACLE_HOME, Warehouse Builder, Administration** then **Start Control Center Service**. When prompted, connect to the repository you previously created. Use the repository owner user name and password.
7. Launch the Control Center Manager to deploy and then execute ETL processes on the target schema.
 To launch the Control Center Manager, navigate to the **Tools** menu in the Design Center and select **Control Center Manager**.
8. Launch the Repository Assistant again to create additional target users. (Optional)

Note: Only the Repository Assistant can create users for the target users. The security interface in the Design Center only creates users local to the repository 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 design repository 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 [Implementing Security in Warehouse Builder](#) on page 7-1. In either of these two cases, you should ensure that repository database has the Advanced Security Option enabled.

Note: If you host the Warehouse Builder repository on a Standard Edition of the Oracle Database, the Advanced Security Option is not available. For ramifications, see [Limited Password Security in Oracle Database Standard Edition](#) on page 7-14.

To change the default metadata security policy:

1. Launch 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 repository 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 register user creates. Maximum security, however, restricts access to the registered user that created the object and Warehouse Builder administrators.

Upgrading to Oracle Warehouse Builder 10g Release 2 (10.2)

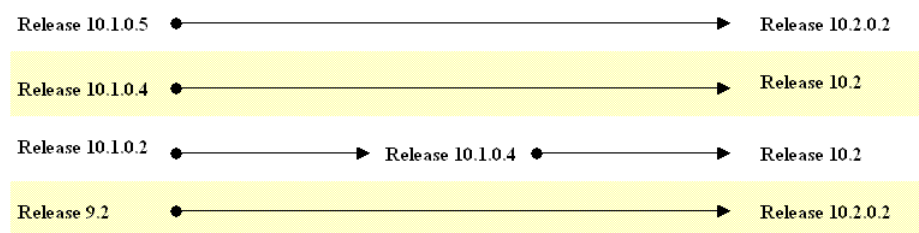
Refer to the following topics to upgrade to Warehouse Builder 10g Release 2 (10.2):

- [General Steps for Upgrading to Warehouse Builder 10g Release 2 \(10.2\)](#) on page 3-1
- [Migrating An Oracle Database Environment](#) on page 3-3
- [Upgrading a Design Repository](#) on page 3-8
- [Upgrading a Runtime Repository to a Control Center](#) on page 3-10
- [Reusing and Redeploying Specific Objects](#) on page 3-15

General Steps for Upgrading to Warehouse Builder 10g Release 2 (10.2)

[Figure 3–2](#) depicts the valid paths for upgrading to Warehouse Builder 10g Release 2 (10.2).

Figure 3–1 Valid Upgrade Paths to Warehouse Builder 10g Release 2 (10.2)



Notice that you can upgrade directly from Warehouse Builder 10.1.0.4 but from release 10.1.0.2 you must first upgrade to 10.1.0.4.

To upgrade from Warehouse Builder 9.2 or 10.1.0.5, first install Warehouse Builder 10.2, apply the patch for Warehouse Builder 10.2.0.2, and then proceed to upgrade from Warehouse Builder 9.2 or 10.1.0.5.

To upgrade to Warehouse Builder 10g Release 2 (10.2), refer to the following sections:

1. [Understanding the Installation Requirements](#) on page 1-6

Verify that your environment meets the new minimum requirements for machines 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.
Important: If you make changes to the database environment, maintain the same topology if possible. That is, maintain the same schema names to avoid impairing existing Warehouse Builder processes such as mappings which depend on database connection information. If you must change schema names, after you upgrade Warehouse Builder, take corrective actions to update the affected locations.

If you determine that you must upgrade to a new Oracle Database version, complete the steps in [Migrating An Oracle Database Environment](#) on page 3-3.

If you determine that the new control center is to be hosted on a database or server that is different from the existing runtime repository, 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. [Installing the Warehouse Builder Software](#) on the Server on page 1-16
Review the "[Checklist: Before You Launch the Universal Installer](#)" on page 1-16. Launch the Oracle Universal Installer and follow the prompts to install the Warehouse Builder client software onto the computer you designated as the server.
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_ORACLE_HOME/owb/bin/unix and execute reposinst.sh.
Follow the instructions [Installing a Repository using the Advanced Setup Options](#) on page 2-4.
Select the advanced set up option. If in the pre-existing repository you created multiple users through the optional PL/SQL package, take note of the instructions for [Selecting Repository Users](#) on page 2-7.
7. Install an additional repository for the runtime environment. (Optional)
In the previous release of Warehouse Builder, a separate runtime repository was required. You have the option to maintain that architecture in this release. Launch the Repository Assistant again to define a separate repository.
8. [Upgrading a Design Repository](#) on page 3-8
9. [Upgrading a Runtime Repository to a Control Center](#) on page 3-10
10. [Reusing and Redeploying Specific Objects](#) on page 3-15
You may need to take additional steps if you want to reuse certain objects such as Advanced Queues that you designed in a previous release.
11. [Installing Optional Components](#) (Optional) on page 5-1
See [Chapter 5](#) for instructions on installing and configuring optional components.
12. [Installing the Warehouse Builder Software](#) on the Client Machines 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.

13. When complete the installation process, you can launch all the Warehouse Builder components as described in [Launching Warehouse Builder Components](#) on page 1-17.
14. [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, 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 Warehouse Builder Runtime Platform Service if it is running.

Log on to the Runtime Platform as the runtime repository owner. Run the `ORACLE_HOME\owb\rtp\sql\stop_service.sql` script.

Upgrading to Oracle Database 10g (10.x)

To upgrade to Oracle Database 10g (10.x), refer to the *Oracle Database 10g Upgrade Guide* for instructions.

If you intend to upgrade to Oracle Database 10g while maintaining the same database instance, all relevant instructions are detailed in the Oracle Database 10g Upgrade Guide. Continue with step 4 in [General Steps for Upgrading to Warehouse Builder 10g Release 2 \(10.2\)](#) on page 3-1.

If you intend to create a new database instance, you must take the additional steps of either [Migrating a Complete Database](#) or [Selectively Migrating a Warehouse Builder Environment to a New Database](#).

Upgrading to Oracle9i Database Release 2 (9.2)

To upgrade to Oracle9i Release 2 (9.2), refer to the *Oracle9i Database Migration* guide (Part Number A96530-02).

In this case you must create a new database instance and therefore you take the additional steps of either [Migrating a Complete Database](#) or [Selectively Migrating a Warehouse Builder Environment to a New Database](#).

Migrating a Complete Database

Follow the instructions in the upgrade documentation for Oracle Database 10g.

If Oracle Workflow is installed on the pre-existing Oracle Database instance, you must take additional steps for [Upgrading Oracle Workflow on a New Oracle Database Instance](#).

Upgrading Oracle Workflow on a New Oracle Database Instance

After you move the Oracle Database instance, Warehouse Builder process flows remain registered to the Oracle Workflow installed on the pre-existing Oracle Database

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

To upgrade Oracle Workflow on a new Oracle Database instance:

1. Run the Oracle Workflow assistant in **Upgrade** mode on the new database instance to upgrade the workflow schema.

Your workflow locations are now upgraded. However, they remain registered to the pre-existing instance of Oracle Workflow.

2. Continue with step 4 in [General Steps for Upgrading to Warehouse Builder 10g Release 2 \(10.2\)](#) on page 3-1.

Following the general steps, you install the Warehouse Builder software and then install a repository.

3. Register the Workflow user in the new repository.

Launch 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.

4. Continue with [Upgrading a Design Repository](#) on page 3-8 followed by [Upgrading a Runtime Repository to a Control Center](#) on page 3-10.

5. To ensure that the pre-existing Workflow instance is still running, from the new Design Center, execute one of the process flows.

6. The final step is [Redeploying Process Flows](#) on page 3-16.

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.

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 a New Database

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

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

2. [Installing the Warehouse Builder Software](#) on the Server on page 1-16

Review the [Checklist: Before You Launch the Universal Installer](#) on page 1-16.

Launch the Oracle Universal Installer and follow the prompts to install the Warehouse Builder client software onto the computer you designated as the server.

3. 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_ORACLE_HOME/owb/bin/unix` and execute `reposinst.sh`.

Select the advanced set up option and follow the instructions [Installing a Repository using the Advanced Setup Options](#) on page 2-4.

When creating a new database user, create the user with the identical schema name, default tablespace, and temporary tablespace as its previous counterpart in Warehouse Builder 9.2.x, or 10.1.x.

4. [Upgrading a Design Repository](#) on page 3-8
5. [Exporting Target Schemas from the Existing Runtime Environment](#)
6. [Creating the Target Schemas in the New Database](#)
7. [Copying External Directory References to the New Database Instance](#) (Optional)
8. [Importing Target Schemas to the New Database](#)
9. [Upgrading a Runtime Repository to a Control Center](#) on page 3-10
10. [Registering the Users from the Previous Warehouse Builder Environment](#)
11. Take manual steps to reuse specific types of objects.

If the existing Warehouse Builder environment included flat files and external tables, complete [Reusing Flat Files and External Directories from a Different Database Instance](#) on page 3-17.

See [Reusing and Redeploying Specific Objects](#) on page 3-15 for additional steps to reuse certain objects such as Advanced Queues that you designed in a previous release.

12. [Installing Optional Components](#) (Optional) on page 5-1

See [Chapter 5](#) for instructions on installing and configuring optional components.

13. [Installing the Warehouse Builder Software](#) on the Client Machines 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.

14. When complete the installation process, you can launch all the Warehouse Builder components as described in [Launching Warehouse Builder Components](#) on page 1-17.

15. [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 Oracle Database 10g environment to exactly match the tablespaces in the existing version of Oracle Database.

1. Use Oracle Export in 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 in the New Database

1. In the Oracle Database 10g instance, create the tablespaces you listed from the existing instance in [Exporting Target Schemas from the Existing Runtime Environment](#).
2. In the Oracle Database 10g, 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 command 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_ORACLE_HOME>\owb\rtasst\upgrade\preowb10_
2\warehouse_system_rights.sql

@<new OWB_ORACLE_HOME>\owb\rtasst\upgrade\preowb10_2\xmltk_
grant.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_ORACLE_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 `ORACLE_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 10g Release 2 (10.2) target schema user and execute `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 states: *"Import terminated successfully without warnings."*

If the last line of the log file states: *"Import terminated unsuccessfully,"* you must fix all import errors before proceeding.

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

Registering the Users from the Previous Warehouse Builder Environment

1. Log on to the Design Center as the repository owner that you defined when creating the new repository.
2. Add and register a user for each target schema you migrated into the new database.

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 the target schema in the pre-existing database from which migrated.

3. Repeat the previous step for each user from the previous Warehouse Builder environment that you want to access the new repository. Be sure to consider any Oracle Workflow users from the previous environment.

If you have numerous users to register, consider using the OMB Plus scripting language as an alternative to the security interface. For example, to register a user OWF_MGR, connect to OMB Plus and type commands such as the following:

```
OMBREGISTER USER 'OWF_MGR' SET PROPERTIES (DESCRIPTION,  
ISTARGETSCHEMA) VALUES ('remote workflow user', 'false')  
  
OMBLIST SYS_PRIVS OF USER 'OWF_MGR'
```

Note: This concludes the steps to register users from a previous Warehouse Builder environment into a new database. Continue with the next step in [Selectively Migrating a Warehouse Builder Environment to a New Database](#) on page 3-4.

Upgrading a Design Repository

Follow these instructions if you want to upgrade 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.

Upgrading Design Metadata to Warehouse Builder 10g Release 2 (10.2)

Follow these instructions if you are upgrading to Warehouse Builder 10g Release 2 (10.2), regardless of 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, you will need to export these objects too. For more information on exporting metadata, see the *Oracle Warehouse Builder User's Guide*.

Note: To upgrade, 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 the *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 the *Oracle Warehouse Builder User's Guide*.

Importing Design Metadata to Warehouse Builder 10g Release 2

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 the *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.

Since 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, the Import Advanced Options dialog is displayed. 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**.

Since 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, 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. In Oracle Warehouse Builder 10g Release 2 (10.2), locations and runtime repository 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, 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 a Runtime Repository to a Control Center

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

To upgrade from a runtime repository to a control center, use the Control Center Upgrade Assistant.

For Windows, launch `<oracle_home>\owb\bin\win32\cc_migrate.bat`.

For UNIX, launch `<oracle_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 that you created in a previous release. After you use the Control Center Upgrade Assistant, use the Control Center to manage runtime repositories, now referred to as control centers.

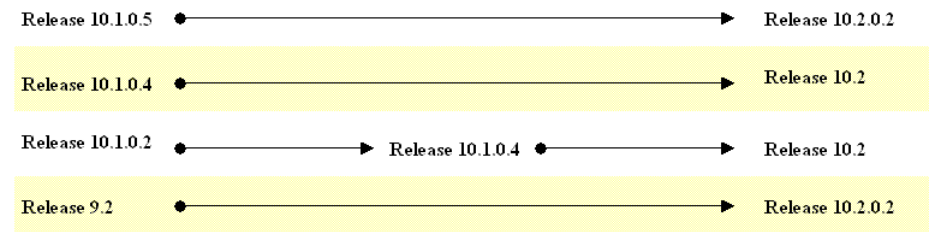
Before you Begin

If you recently migrated to an Oracle 10g database using the full migration option, ensure that you completed the steps for [Upgrading Oracle Workflow on a New Oracle Database Instance](#) on page 3-4.

Supported Upgrade Scenarios

Use this assistant to complete any of the scenarios illustrated in [Figure 3-2](#).

Figure 3-2 Valid Upgrade Paths to Oracle Warehouse Builder 10g Release 2 (10.2)



Notice that you can upgrade directly from Warehouse Builder 10.1.0.4 but from release 10.1.0.2 you must first upgrade to 10.1.0.4.

To upgrade from Warehouse Builder 9.2, first install Warehouse Builder 10.2, apply the patch for Warehouse Builder 10.2.02, and then proceed to upgrade from Warehouse Builder 9.2.

Connecting to a New Control Center

Connect to the Warehouse Builder 10gR2 repository you newly defined for the runtime environment. This can be the same repository or a separate repository from the design environment, as described in step 6 and 7 of [General Steps for Upgrading to Warehouse Builder 10g Release 2 \(10.2\)](#) on page 3-1.

Connect to the repository as the repository owner.

Connecting to an Existing Runtime Repository

As you use the Control Center Upgrade Assistant, the assistant prompts you to connect to a runtime repository. This repository refers to the pre-existing runtime repository created in a previous release of Warehouse Builder.

By default, the assistant assumes that the new control center and existing runtime repository 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, 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 than the existing runtime repository, then you should first complete the steps in [Selectively Migrating a Warehouse Builder Environment to a New Database](#) on page 3-4, launch the Control Center Upgrade Assistant again, and then enter the correct connection information for the runtime repository.

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 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 3-14.

Move

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

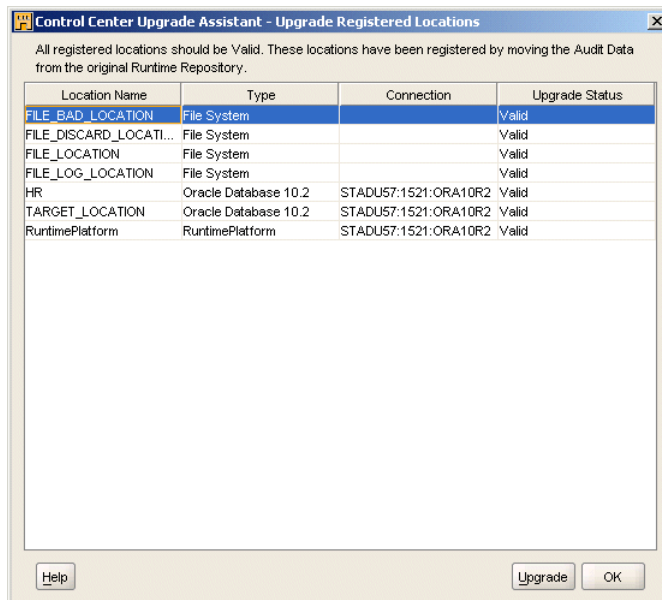
In this step, you upgrade runtime audit data so that the new control center displays the correct status, history, location details, and version numbers for objects you deployed and executed objects in the pre-existing runtime repository from the previous release.

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 3-3** displays the Upgrade Registered Locations dialog.

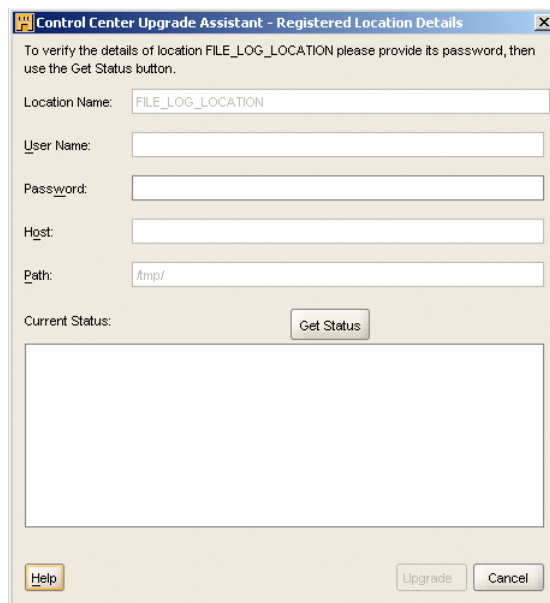
Figure 3-3 Upgrade Registered Locations Dialog



Upgrade Operation: Location Details

Use this button to check and fix locations for possible errors. Ensure that all locations are valid before proceeding. [Figure 3-4](#) displays the Registered Locations Details dialog.

Figure 3-4 Registered Locations Details Dialog



Generate

Use this operation to generate a Tcl script that you then must alter to update location information in the design repository.

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 10g Release 2 (10.2) 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 3-14.

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 3-14, 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 since, beginning in Warehouse Builder 10g Release 2 (10.2), 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, launch 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

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

- [Redeploying Dimensions and Cubes](#)
- [Reusing Advanced Queues](#)
- [Redeploying Process Flows](#)
- [Updating Mapping Configuration to Benefit from New Features](#)
- [Reusing Flat Files and External Directories from a Different Database Instance](#)

Redeploying Dimensions and Cubes

Warehouse Builder 10g Release 2 (10.2) introduces significant changes to the logical model for dimensions and cubes. After migration, 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 Warehouse Builder installation. This is expected and does not indicate problems with your 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
```

Redeploying Process Flows

If you upgraded the Oracle Database for Oracle 10g and created a new database instance, you should have followed the instructions for [Upgrading Oracle Workflow on a New Oracle Database Instance](#) on page 3-4.

Now that you have upgraded runtime metadata through the Control Center Upgrade Assistant, you can re-register the Workflow locations and redeploy the process flow modules and packages.

Updating Mapping Configuration to Benefit from New Features

After redeploying mappings, update the configuration of each mapping to benefit from the new features available in the upgraded version of Warehouse Builder.

Use the following criteria to determine whether you can skip this section:

- If you are upgrading from release 9.2.x, you only need to follow these instructions if you migrated from an earlier release to release 9.2.x without updating the mapping configuration at that time.

- You can skip this section if release 9.0.4.x or 9.2.x was your first installation of Warehouse Builder, or if you already performed these steps when you migrated to either of those two releases.

You can update the mapping configuration either by using the Warehouse Builder interface, or by running a script to update all the mappings in the Oracle Metabase (OMB) Plus scripting utility.

To update the configuration of each mapping using the Warehouse Builder interface:

1. In the upgraded Warehouse Builder client, right-click each mapping and select **Configure**.
2. In the Configuration Properties box, expand the **Sources and Targets** node.
3. In the Sources and Targets node:
 - Delete the contents of the **Schema** configuration parameters field.
 - Delete the contents of the **DB Links** configuration parameters field.
4. Redeploy each mapping for which you changed the configuration properties in order to generate new code. For instructions on deploying mappings, refer to the *Oracle Warehouse Builder User's Guide*.

Alternatively, you can update all mappings by running the script provided for this purpose on the Oracle Technology Network. The update script is called `UpdMapConfig.tcl`.

To update the configuration of each mapping using a script:

1. Download the `UpdMapConfig.tcl` file from http://otn.oracle.com/sample_code/products/warehouse/content.html.
2. Start Oracle Metabase (OMB) Plus.
3. Connect to the new design repository.
4. Change the context in OMB Plus to the correct project and module. You must run this script module by module.
5. Run the script in OMB Plus.

At the OMB Plus prompt, type `source`, and then the location of the script surrounded by quotation marks.

For every backward slash, enter a second backward slash to escape the first.

For example, if your script is located in `c:\temp`, type:

```
source "c:\\temp\\UpdMapConfig.tcl"
```

6. Run the following commands in OMB Plus to update the mappings and commit the changes to the design repository:

```
owb_reset_mapping_conns
```

```
OMBCOMMIT
```

Repeat this step by navigating to other target modules using the `OWBCC` command and running the `owb_reset_mapping_conns` command again.

7. Redeploy each mapping for which you changed the configuration properties in order to generate new code. For instructions on deploying mappings, refer to the *Oracle Warehouse Builder User's Guide*.

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 Oracle Database 10g resides. Make sure to re-create identical file system directories.

Deinstalling Oracle Warehouse Builder

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

- [General Steps for Deinstalling Warehouse Builder](#) on page 4-1
- [Deleting the Repository Users](#) on page 4-2
- [Deleting the Repository Owner](#) on page 4-2
- [Deinstalling the Oracle Warehouse Builder Software](#) on page 4-3
- [Deleting the Schema Objects](#) on page 4-3

General Steps for Deinstalling 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, you must have `SYSDBA` privileges to the repository database. Follow the order of steps presented in this chapter to avoid deleting components manually through a utility such as SQL Plus.

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

To deinstall all components, complete the following steps:

1. [Deleting the Repository Users](#) on page 4-2
Use the Advanced Setup option in the Repository Assistant to delete one or more users.
2. [Deleting the Repository Owner](#) on page 4-2
Use the Advanced Setup option in the Repository Assistant to delete the repository owner.
3. [Deinstalling the Oracle Warehouse Builder Software](#) on page 4-3
Launch the Oracle Universal Installer to deinstall the software components.
4. [Deleting the Schema Objects](#) (optional step) on page 4-3

Deleting the Repository Users

Before you can deinstall a repository owner, you must first delete the associated repository users. When you delete a repository 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 repository users:

1. Launch the Oracle Warehouse Builder Repository Assistant.
For Windows, select **Start, Programs, OWB_ORACLE_HOME, Warehouse Builder, Administration**, and then click **Repository Assistant**.
For UNIX, locate `OWB_ORACLE_HOME/owb/bin/unix` and execute `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 repository users** option and click **Next**.
5. In the **Manage Repository Users** page, select the option **Delete the registration of one or more Warehouse Builder repository users**.
6. In the **Repository Owner Information** page, select the repository owner from which you want to delete the associated user. Then type the password for that repository owner and click **Next**. The **Select Repository Users** page is displayed.
7. Select the repository 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 repository user is deleted.

Deleting the Repository Owner

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

To delete the repository owner:

1. Launch the Repository Assistant and navigate to the **Choose Operation** page.
Repeat steps 1 through 3 in "[Deleting the Repository Users](#)" on page 4-2.
2. In the **Choose Operation** page, select **Manage a Warehouse Builder repository owner** option.
3. Click **Next**.

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

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

Deinstalling the Oracle Warehouse Builder Software

To deinstall the Oracle Warehouse Builder:

1. Launch the Oracle Universal Installer.
For Windows, select **Start, Programs, OWB_ORACLE_HOME, Oracle Installation Products**, and then click **Universal Installer**.
For UNIX, locate `OWB_ORACLE_HOME/oui/bin` and execute `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 repository user or the repository 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 repository users, repository owners, and the Warehouse Builder related roles and synonyms permanently from the Oracle Database.

Installing 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
- [Configuring Oracle Enterprise Manager](#) on page 5-3
- [Installing Oracle Workflow](#) on page 5-7

Enabling Integration with Oracle E-Business Suite

Warehouse Builder employs a design-deploy-execute 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.

Since direct access to the APPS production schema is most likely limited and restricted, you should 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 `<oracle 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 the 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, launch the Repository Browser listener and then the Repository Browser. For information on how to use the Repository Browser, refer to the *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, you can 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_ORACLE_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_ORACLE_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.

If you are a Warehouse Builder customer upgrading to Warehouse Builder 10g Release 2 (10.2.0.2), please refer to the *Oracle Warehouse Builder Release Notes* for information on the packaging changes for data cleansing components.

To take advantage of name and address cleansing:

1. Purchase data libraries from one of the certified vendors listed on *Oracle MetaLink* at <http://metalink.oracle.com>.
2. Install Warehouse Builder as instructed in this guide.
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, 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, 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 the *Oracle Warehouse Builder User's Guide* for information on designing mappings using the Name and Address operator.

Configuring Oracle Enterprise Manager

Oracle Enterprise Manager is a scheduling tool included in the Oracle Database CD pack. You can configure Enterprise Manager with Warehouse Builder to manually schedule jobs that load or refresh data in your data warehouse. You can manage dependencies for jobs that reside in the Enterprise Manager Job Library using Oracle Workflow.

Note: This chapter outlines only the important installation steps. For detailed installation instructions, see the *Oracle Enterprise Grid Control Installation and Basic Configuration* and the *Oracle Workflow Administration Guide*

To ensure the integration of Oracle Enterprise Manager with Warehouse Builder, follow these configuration steps:

- [Creating the Enterprise Manager Repository](#)
- [Creating a Windows User](#)
- [Configuring Preferred Credentials](#)

Creating the Enterprise Manager Repository

To create the Enterprise Manager Repository:

1. From your Enterprise Manager Console host system, start the Enterprise Manager Configuration Assistant. This wizard helps you create the Enterprise Manager repository in the Warehouse Builder repository instance.

2. From the Configuration Operation page, select **Create a New Repository**.
3. On the Select Database for Repository page, provide the following information:
 - **User Name:** `system`
 - **Password:** `manager` <or appropriate system password>
 - **Service:** `oemrepos`
4. On the Repository Login Information page, provide the following information:
 - **User Name:** Schema where the Enterprise Manager Repository will be installed.
 - **Password:** Password of the schema where the Enterprise Manager Repository will be installed.
5. From the Select Repository User Tablespace page, you can choose to create a new tablespace or accept the default. Click **Next**.
6. Click **Finish** to complete this process.
7. After the installation is complete, start the OMS:
 - **For Windows:** Click **Start**, then **Control Panel**, and then **Services**.
 - **For UNIX:** Access the `$ORACLE_HOME/bin` directory and type the command:
`oemctl start oms.`
8. On the database where you installed the Warehouse Builder runtime, start the Oracle Agent service.
9. On the computer where you installed the Warehouse Builder Client, start the Enterprise Manager Console.

To store generated scripts in the Job Library, Warehouse Builder must log on to the Oracle Management Server (OMS). This server manages the job library.
10. After configuring Enterprise Manager, you must establish a new Enterprise Management Server by clicking **Add Management Server**.
11. If you are newly configuring the service, the Add Management Server dialog box appears. Type the host name of the Warehouse Builder repository server.

On the Management Servers page, click **OK**.
12. On the Oracle Enterprise Manager Login page, provide the following information:
 - **Administrator:** `sysman` (initial Enterprise Manager Console login user name)
 - **Password:** `oem_temp` (initial Enterprise Manager Console password)
13. On the Security Warning screen, provide the following information:
 - **Password:** `sysman`
 - **Confirm Password:** `sysman`
14. Select **Nodes** from the navigation tree. Right-click and select **Discover Nodes** from the pop-up menu.
15. In the Discover Wizard Specify Nodes page, type the name of the computer on which the Warehouse Builder target warehouse resides and click **Next** to view the results.

Creating a Windows User

To create a Windows NT user with the permissions Enterprise Manager requires, run the NT User Manager on the Warehouse Builder runtime database instance host.

Note: Skip this step if the node that hosts the Warehouse Builder runtime schema is a UNIX system. The UNIX ORACLE user should have enough permissions to perform any job requested through the job system

If the Windows user is accessed through Oracle Enterprise Manager Agent 9.2, then the user must be added to the local **Administrators** group.

To create a Windows user:

1. From the **Start** menu, select **Administrative Tools**, and then **User Manager**.
2. In the User Manager window, from the **User** menu, select **New User**.
3. In the New User window, provide the following information:
 - **User Name:** OEM
 - **Full Name:** OEM Administrator
 - **Description:** Run as batch job...
 - **Password:** Enter a password.
 - **Confirm Password:** Enter the password again.
 - **Select:** Password never expires.

Click **OK**. Windows inserts the new user name into the list of user names.
4. Configure the user rights.
 - **For Windows NT:**

From the User Manager Console, select the new user name, then **Policies**, and then **User Rights**. The User Rights panel displays.

In the User Rights Policy panel, check the **Show Advanced User Rights** box.

Select the **Logon as a Batch Job** option from the drop-down list in the Right field.

Click **Add**. Windows NT displays the Add Users and Groups panel.
 - **For Windows 2000 and XP:**

From the **Administrative Tools** folder, launch the **Local Security Settings** applet.

Navigate to **Local Policies**, then **User Rights Assignment**.

Add the user to the **Logon as a batch job** right.
5. Select the domain for the user from the List Names From drop-down list.
6. Click **Show Users** and select the name of the new Enterprise Manager user you just created.
7. Click **Add** and select **OK** to add rights.

Configuring Preferred Credentials

Enterprise Manager schedules jobs on the system that hosts the Warehouse Builder runtime schema. For Enterprise Manager to schedule jobs, you must configure two sets of user names and passwords:

- A set for the host: *OEM/Password*
- A set for the corresponding database: *system/manager*

To initialize these credentials:

1. Start the Enterprise Manager Console.
2. From the **System** menu, select **Preferences**.
Enterprise Manager displays the Edit Administrator Preferences window.
3. Select the **Preferred Credentials** tab.
Enterprise Manager displays a panel that lists Service Names and Types. Each resource node has three service types: Node, Database, and Listener.
4. Select the Service Name that hosts the runtime schema (Service Type is Node).
Enterprise Manager displays a User Name and Password panel.
5. Provide a user name and password that provides access to the Enterprise Manager host.

If you are running a Windows NT host system, then this is the user name you created for the Windows NT host in the previous section.

If you are running a UNIX host system, then this is the UNIX ORACLE user you identified in Step 2.
6. Select the Service Name of the runtime schema (Service Type is Database). This is the service name Enterprise Manager assigned to the database.
7. Provide a user name and password that provides access to that database.
8. Click **OK** to commit the information.

Enterprise Manager is now configured to run Warehouse Builder. Before you register the load jobs (Tcl scripts) or schedule jobs with Enterprise Manager, you must start all necessary services on the computer that hosts Enterprise Manager and the system that hosts the target warehouse.

On the host for Enterprise Manager, you must start:

- Enterprise Manager Server
- Oracle Agent

On the host for your target warehouse, you must start:

- Oracle Agent

Continue the installation with the next section, [Installing Oracle Workflow](#).

Configuring Enterprise Manager for the Oracle Developer Suite

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

- You plan to run PL/SQL processes using Enterprise Manager.
Using Enterprise Manager for PL/SQL processes is optional.
- AND

- You are using Oracle9i Enterprise Manager Release 1 (9.1).

If you are not using Enterprise Manager, or you are using a later release of Enterprise Manager, you can skip this step.

Warehouse Builder provides the `set_oem_home` SQL script for Oracle Developer Suite. This script enables you to set configuration parameters for using Enterprise Manager jobs. You only need to run this script once, as a configuration task. You may need to run it again to reconfigure if required; for example, if you install a new Enterprise Manager repository.

To configure Enterprise Manager for the Oracle Developer Suite:

1. Connected to SQL*Plus as the Warehouse Builder Runtime Repository user.
2. Execute `OWB_ORACLE_HOME/owb/rtp/sql/set_oem_home.sql`.

The script requires the following parameters:

- **P1:** The Enterprise Manager version you are configuring (9.1 or 9.2).
- **P2:** The operating system that contains the Warehouse Builder runtime installation (NT for any supported Windows system; UNIX for any supported UNIX system).
- **P3:** The Warehouse Builder runtime home directory.
- **P4:** The Oracle Database Home directory containing the Enterprise Manager JAR files. This directory must be on the same computer as the Warehouse Builder runtime home directory in order to be valid as an Oracle directory. You cannot use a mapped drive to refer to the directory.

For example, if you are working on a Microsoft Windows system and your Warehouse Builder runtime environment is located at `D:\MyRuntimeHomeDir`, and you are configuring it to use the Enterprise Manager 9.2 JAR files located at `D:\MyOracleDatabase92Home`, call the script with the following parameters:

```
@set_oem_home.sql 9.2 NT D:\MyRuntimeHome D:\My92DBHome
```

For any Warehouse Builder Runtime Repository, you can run this script once to configure Enterprise Manager 9.1, and again to configure Enterprise Manager 9.2.

Installing Oracle Workflow

If you plan to use Warehouse Builder process flows, install Oracle Workflow to enable deployment.

If your Oracle Database is version 10g or higher, you can also deploy Warehouse Builder schedules to Oracle Workflow. For more information, read about the schedules in the Oracle Warehouse Builder User's Guide.

To ensure the integration of Oracle Workflow with Warehouse Builder, follow these installation steps:

- [Installing the Oracle Workflow Server](#)
- [Installing the Workflow Client \(Optional\)](#)

Installing the Oracle Workflow Server

Carefully follow the *Oracle Workflow Option Server Installation Notes* for your operating system. These notes include the manual steps you need to follow to set up the

Workflow Monitor. Ensure that the Workflow Monitor is operational before proceeding to the next steps.

To enable the Oracle Workflow server to invoke activities through the Warehouse Builder Runtime service, you must grant the EXECUTE ANY PROCEDURE system privilege to the Oracle Workflow repository user.

Use Oracle Workflow 2.6.2 in conjunction with Oracle Database 9.2.

Use Oracle Workflow 2.6.3 in conjunction with Oracle Database 10gR1 or Oracle Workflow 2.6.4 in conjunction with Oracle Database versions starting with 10g Release 2 (10.2.0.2).

Installing the Workflow Client (Optional)

The installation of Oracle Workflow client is optional in Oracle Warehouse Builder because the functionality has been replaced by the Warehouse Builder Process Flow Editor. However, you can 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.

Follow the installation steps in the *Oracle Workflow Client Installation Guide*.

Diagnosing and Debugging an Installation

This chapter contains reference information to use in the event that you encounter errors or problems with your installation. This appendix includes the following topics:

- [Debugging](#) on page 6-1
- [Diagnostics](#) on page 6-3

Debugging

This section includes the following topics:

- [Log File Locations](#) on page 6-1
- [Not Able to Launch any of the Warehouse Builder clients or other Oracle products](#)
- [Warehouse Builder Freezes or Hangs](#) on page 6-2
- [Additional Error Logging for Errors and Other Unexpected Behavior](#) on page 6-2
- [Checking Java Virtual Machine \(JVM\)](#) on page 6-2
- [Detecting Database Server Issues When Installing on HP-UX](#) on page 6-2

Log File Locations

- **Warehouse Builder Repository Assistant:**
OWB_ORACLE_HOME\owb\UnifiedRepos\log_<timestamp>.log
- **Warehouse Builder Control Center Service:**
OWB_ORACLE_HOME\owb\log\Repository_Name\log.xx on the Oracle Database server
- **Warehouse Builder Design Center:** Specify the location on the Preferences tab.

Not Able to Launch any of the Warehouse Builder clients or other Oracle products

If you attempt to launch a Warehouse Builder client such as the Design Center and the splash screen displays momentarily but the client fails to launch, you may have overwritten required java objects during the subsequent 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. Manually launch the client by typing at the DOS prompt `run <OWB_ORACLE_HOME>\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 6-3.

Warehouse Builder Freezes or Hangs

If Warehouse Builder appears to be frozen or hanging, perform a stack trace as follows:

1. At the DOS command prompt, enter:
`cd OWB_ORACLE_HOME\owb\bin\win32\`
2. Run `owbclient.bat`.
3. When the program hangs, press **Ctrl+Break**.

This produces the thread-dump. This information helpS Oracle Support to identify the problem.

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 or Oracle Support identify the cause.

For additional error logging:

1. At the command prompt, navigate to:
For Windows: `OWB_ORACLE_HOME\owb\bin\win32`
For UNIX: `OWB_ORACLE_HOME/owb/bin/unix`
2. Run one of the execution files as listed in [Table 1-9](#) on page 1-17 and pipe the output to a log file (for example, `owbclient.bat > owbclient.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 *OracleMetaLink*:

1. In your Web browser, go to: <http://metalink.oracle.com>.
2. Log in to *OracleMetaLink*, or register as a new user.
3. Type the following terms into the Search field (note that they are separated 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 will return the most current and pertinent documents.

Detecting Database Server Issues When Installing on HP-UX

It is possible that when you install Warehouse Builder Runtime components on an HP-UX operating system, the following error occurs: **INS0022: A spawned program error**. This may be a database server issue.

To identify the database server issue:

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 `ORACLE_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 `ORACLE_HOME/owb/bin/unix/`.

4. Run `test.sh`.

Diagnostics

This section includes the following topics:

- No fonts were found in '<drive>:\Program Files\ Qarbon\viewlet Builder3jre\lib\fonts'
- SYS user does not have SYSDBA privileges.
- Error! Cannot find and load the jar file '../..../jdk/jre/lib/jce.jar'. OWB application may not be launched due to this error. Warning: Missing charsets in String to FontSet conversion
- 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.
- 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 10g
- ORA-04020 deadlock detected while trying to lock object or ORA-04021 timeout occurred while waiting to lock object

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.

SYS user does not have SYSDBA privileges.

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.

Action: If your database is configured with REMOTE_LOGIN_PASSWORDFILE=NONE, then the statement `connect sys/ <<sys_password>>@TNS_NAME_OF_DB as sysdba;` will fail. In this case, 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. With this setting, `connect sys/ <<sys_password>>@TNS_NAME_OF_DB` will work, which enables Warehouse Builder Assistants to connect to SYS user.

Error! Cannot find and load the jar file './././jdk/jre/lib/jce.jar'. OWB application may not be launched due to this error. Warning: Missing charsets in String to FontSet conversion

Cause: You may encounter these error and warning messages when you launch the Repository Assistant, `reposinst.sh`, or an OMB Plus session, `OMBPlus.sh`, on an AIX computer. This occurs due to the JDK folders having a unique structure on AIX machines.

Action: Please ignore these error and warning messages as they are benign and the Warehouse Builder application launches successfully.

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 synch with the client.

Action: Reset the repository and restart the control center service. To reset the repository, execute `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:

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 statement `connect sys/sys_password@TNS_NAME_OF_DB as sysdba;` will fail. 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, reconfigure your database with `07_DICTIONARY_ACCESSIBILITY=TRUE`. With this setting, the statement `connect sys/sys_password@TNS_NAME_OF_DB` will work, which 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_ORACLE_HOME`, start the Name and Address Server:

For Windows: Run `owb\bin\win32\NASstart.bat`.

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

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

The log should contain 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\NASstart.bat`. Stop the server by running `owb\bin\win32\NASstop.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 Runtime Repository.

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

Action: If the Warehouse Builder Runtime 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 of 384MB, 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 OWB 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](#).

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

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](#).

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 Database8i (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 will 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 `DB_NAME`.

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

This error occurs when you have upgraded to Oracle Database 10g and are trying to re-deploy mappings without first re-deploying connectors.

Cause: While upgrading to Oracle Database 10g, 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 re-deploy your connectors. Refer to the *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 Oracle Database 10g.

Unable to connect to SQL*Plus in Oracle Database 10g

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 Oracle Database 10g.

- Ensure that ORACLE_HOME and PATH are set correctly in Oracle Database 10g. Your Oracle home directory must point to the `OWB_ORACLE_HOME`. Set your PATH variable to include the `OWB_ORACLE_HOME\bin` directory before any other Oracle products.

- Ensure that the `TNSNames.ora` file is configured correctly:

For Windows: From the Oracle Database 10g 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_ORACLE_HOME` for Warehouse Builder 10g Release 2 (10.2.0.2), then execute `OWB_ORACLE_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.kglname 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';
```

Implementing Security in Warehouse Builder

This chapter includes:

- [About Metadata Security in Warehouse Builder](#) on page 7-1
- [Metadata Security Strategies](#) on page 7-3
- [Registering Database Users as Warehouse Builder Users](#) on page 7-4
- [Editing User Profiles](#) on page 7-6
- [Defining Security Roles](#) on page 7-9
- [Editing Role Profiles](#) on page 7-10
- [Applying Security Properties on Specific Metadata Objects](#) on page 7-11
- [Security Enforcement](#) on page 7-11
- [Managing Passwords in Warehouse Builder](#) on page 7-13
- [Support for a Multiple-user Environment](#) on page 7-14

About Metadata Security in Warehouse Builder

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 Warehouse Builder repository, all Warehouse Builder users must also be database users on the design repository database. Database users have access to the data in the database through SQL Plus but do not have access to Warehouse Builder and its metadata unless also registered in Warehouse Builder.

Metadata security is optional and flexible. Beginning with Oracle Warehouse Builder 10g, you can continue to 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 Warehouse Builder 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 Warehouse Builder Design Center. You can also implement security through OMB Plus. For more information, refer to the *Oracle Warehouse Builder Scripting Reference*.

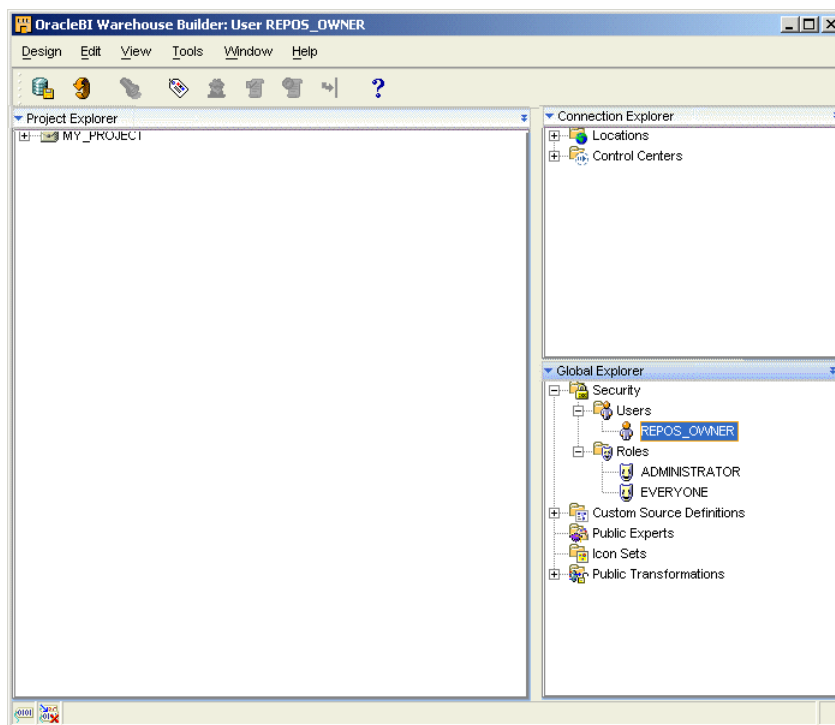
About the Security Interface

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 launch 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 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 7-9.

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 on one of the following security strategies:

- [Minimal Metadata Security Strategy \(Default\)](#)
- [Multi-user 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.

Multi-user 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 as Warehouse Builder Users](#) on page 7-4
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 as Warehouse Builder Users](#) on page 7-4
3. [Editing User Profiles](#) on page 7-6

Important: 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 7-9
5. [Editing User Profiles](#) on page 7-6

6. [Applying Security Properties on Specific Metadata Objects](#) on page 7-11

Important: 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 as Warehouse Builder Users

You can use a wizard to register users in Warehouse Builder. All Warehouse Builder users must also be Oracle Database users. You can use the wizard to either register existing database users or create new database users and then register them in Warehouse Builder.

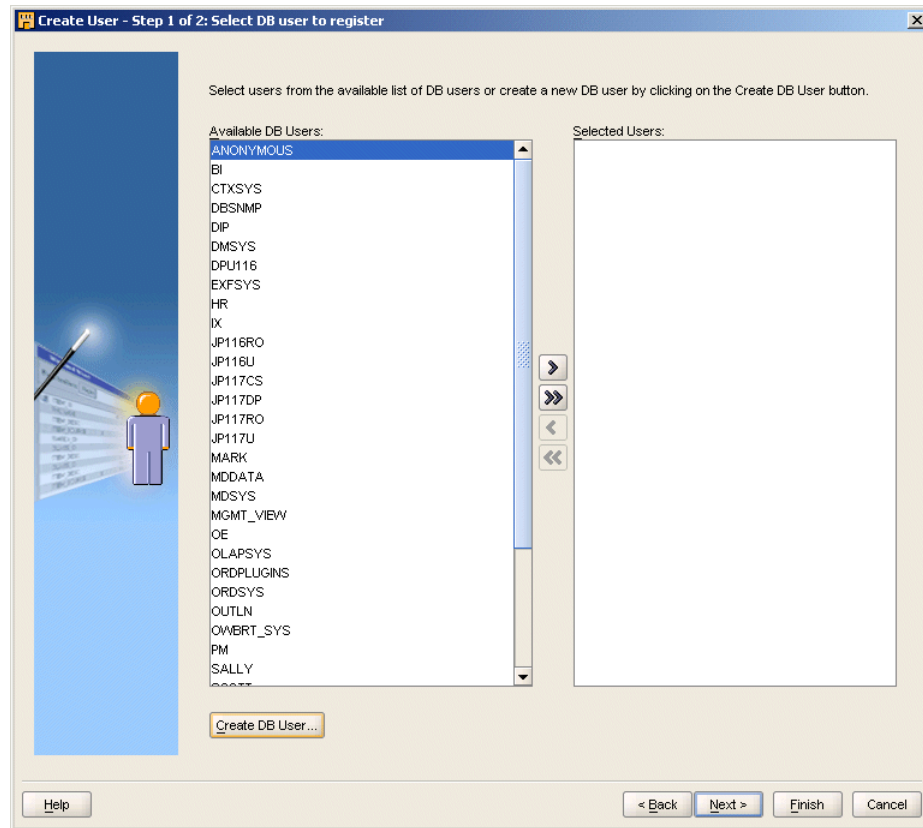
To launch the registration wizard, go to the Security node in the Global Explorer, right-click **Users** and select **New**. Follow the prompts in the wizard to complete the following steps:

1. [Selecting Existing or Creating New Database Users](#) on page 7-4
2. [User Schema as Target Option](#) on page 7-6

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, database administrator users such as SYS are not available for registering as Warehouse Builder users. The database default role settings must not be set to ALL. You can change the database default role settings from within Warehouse Builder as described in [Changing Database Default Roles](#).

Figure 7-2 Creating and Registering Users

Creating an Oracle Database User in Warehouse Builder

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 the *Oracle® Database Security Guide*.

Changing Database Default Roles

For security reasons, Warehouse Builder does not allow you to register database users with default roles in the database set to `ALL`. If you attempt to do so, Warehouse Builder gives you options for changing the default setting. You can instruct Warehouse Builder to 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. Warehouse Builder registers the user and issues the necessary commands to the database. For example, when you register new users, Warehouse Builder assigns a

database role `OWB_<repository name>` to each user. For security reasons, this role must not be default role of any registered user. If you attempt to register a user `U1` under these conditions and then select **Fix Now**, Warehouse Builder registers the new user and issues a command such as `alter user U1 default role all except OWB_<repository name>`.

Fix Later

If you select **Fix Later**, Warehouse Builder does not register the user. You must manually change the default role setting in the database and then return to Warehouse Builder 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, Warehouse Builder provides you with 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>
```

User Schema as Target Option

You can designate a user schema as a target to enable deployment to that schema. When you check mark **User a Target Schema?** and select **Next**, Warehouse Builder prompts you to enter the password for the user.

Warehouse Builder saves to the schema certain required synonyms. To enable deployment, Warehouse Builder also defines an Oracle location for the user schema, `<USER_SCHEMA_NAME>_LOCATION` in the Connection Explorer.

Editing User Profiles

For each Warehouse Builder user, you can enter an optional description, assign the user to existing [Roles](#), specify the [Default Object Privilege](#) and the [System Privileges](#), and set the [User Schema as Target Option](#).

Since Warehouse Builder users are also defined as Oracle Database users, you cannot rename a user from within Warehouse Builder. Rename Warehouse Builder users through the Oracle Database.

Roles

You can assign a user to one or more roles. If you assign multiple roles with conflicting privileges, Warehouse Builder grants the user 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, Warehouse Builder allows the user 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 7-9 and [Editing Role Profiles](#) on page 7-10.

Default Object Privilege

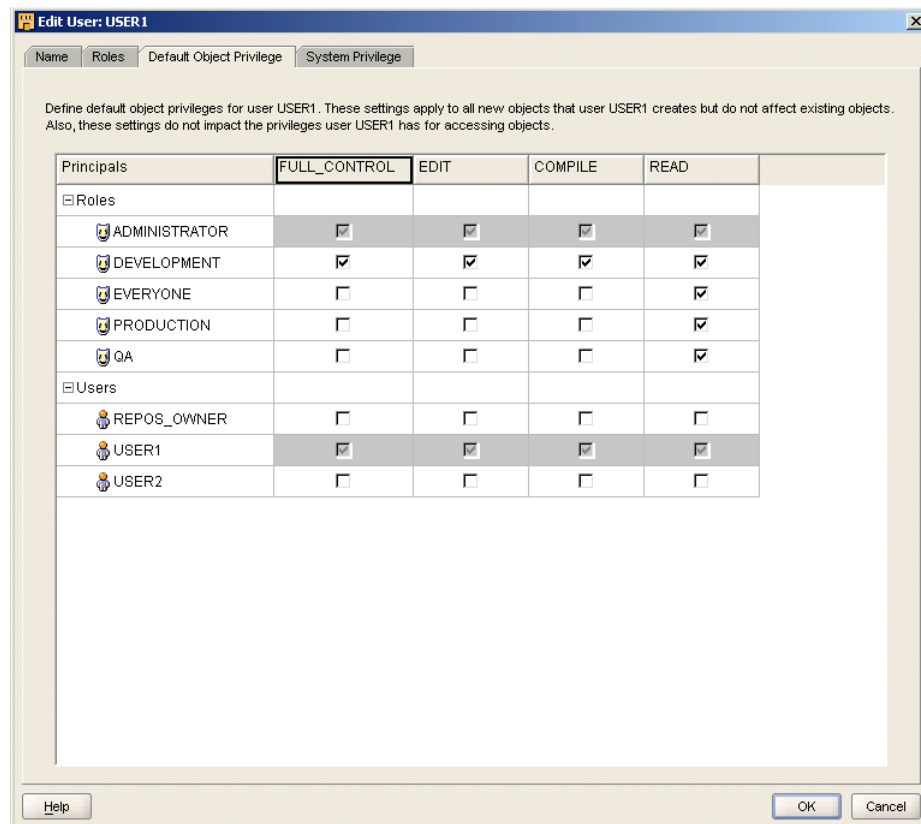
Default object privileges define the access other users and roles have to objects the selected user creates. These privileges do not impact the privileges the user has for accessing objects that others create.

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, note that the default object privilege behaves similarly to the UNMASK 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 of your Warehouse Builder implementation, 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, 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 validation and generation of an object.

READ

The read privilege enables viewing of an object.

System Privileges

System privileges define user access to repository-wide services. Use the System Privilege tab to allow or restrict users and roles from performing administrative tasks in Warehouse Builder. You can control access to the following operations:

- **CREATE_SNAPSHOT:** Allows users to create snapshots which administrators use when backing up Warehouse Builder repositories.

- **CREATE_EXTENSIONMODEL:** Allows users to create new object types in the repository.
- **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_ADMIN:** Allows users to perform administrative functions in the Control Center and also deploy to and execute 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_DEPLOY:** Allows users to deploy to the Control Center and then execute 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_EXECUTE:** Allows users to execute 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.

Defining Security Roles

You can use roles to represent groups of users with similar responsibilities and privileges. Unlike Warehouse Builder users which are also database users, Warehouse Builder roles are not database roles. These are purely Warehouse Builder design security constructs.

Roles enable you to more efficiently manage privileges since it is more efficient to grant or restrict privileges to a single role rather than multiple users.

Warehouse Builder provides the [Everyone Role](#) and the [Administrator Role](#) as 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 as Warehouse Builder 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 the Oracle® Database Security Guide.

Table 7-1 (Cont.) Administrator Security Tasks

Task	Instructions
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 except 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 except 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.
Renaming Roles	From the Global Explorer, right-click a role and select Rename . You can rename all roles except 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 Warehouse Builder 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, 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 as Warehouse Builder Users](#) on page 7-4 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 7-11.

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, use the [Default Object Privilege](#). However, if you want to make only a few objects created by USER1 available to the QA group, 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 Warehouse Builder 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 execute operations in Warehouse Builder.

Table 7-2 Privileges Required to Execute 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.

Table 7–2 (Cont.) Privileges Required to Execute Operations

Warehouse Builder Operation	Security Check
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.
Generate	User must have COMPILE privilege on object to be generated.
Import	User must have EDIT privilege on objects to be imported. 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

Password security in Warehouse Builder relies on the Oracle Advanced Security Option (ASO) available in the Oracle Database Enterprise Edition only. With ASO enabled, you can manage passwords within Warehouse Builder in the following ways:

- [Changing Passwords that Access Control Centers](#)
- [Encrypting Passwords to Warehouse Builder Locations](#)

If the Warehouse Builder repository resides on an Oracle 10g Standard Edition Database, be aware of differences regarding password encryption as described in [Limited Password Security in Oracle Database Standard Edition](#) on page 7-14.

Changing Passwords

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 Service 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. Assuming that Oracle Advanced Security is enabled on the repository database, Warehouse Builder stores 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, you can set the encryption algorithm to 3DES168 or any other more powerful encryption by changing `<OWB_ORACLE_HOME>/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 )
```

The server should at least be set to "ACCEPTED" (which is default) mode for the protocol to work. For more information, see the Oracle® Database JDBC Developer's Guide and Reference.

Limited Password Security in Oracle Database Standard Edition

The Oracle Advanced Security Option (ASO) provides maximum security of passwords by encrypting passwords when they are sent over the network. However, the ASO option is only available with the Enterprise Edition. As a result, when using an Oracle Database Standard Edition to host the Warehouse Builder repository, the following circumstances apply:

In the Design Center, passwords are not persisted across sessions. Passwords are not persisted regardless of the setting of the *Persist Password Location in Metadata* user preference to True .

When registering locations in the Control Center, the password is sent over the network unencrypted, but stored securely and encrypted. When you execute a job such as a mapping, the Control Center typically reads a password from the runtime repository to connect to the target system. This password is also sent over the network unencrypted.

For secure password transmission, you should upgrade to Oracle Database Enterprise Edition.

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, the lock is released as soon as the object editor is closed. If changes were made, 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, 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, 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.

Index

A

- access
 - multiple-user access, about, 7-14
 - read-only mode, 7-14
 - read/write mode, 7-14
- Administrator role, 7-9
- architecture of Warehouse Builder, 1-1
- assigning
 - roles, 7-6
 - roles to users, 7-10
 - security roles, 7-9
 - system privileges, 7-8
- assistants
 - log file locations, 6-1

B

- Browser Assistant
 - log file location, 6-1

C

- changing
 - passwords, 7-13
- client machines, preparation of, 1-15
- client-server implementation of Warehouse Builder, 1-3
- components
 - required for Warehouse Builder, 1-6
 - Warehouse Builder, 1-1
- configuring
 - Oracle Enterprise Manager, 5-3
 - owbclient.bat file for memory, 6-7
 - preferred credentials, 5-6
 - updating mapping configuration for new features, 3-15
- connecting
 - database, errors connecting to, 6-7
 - Design Repository, error, 6-5
- Control Center Manager, 1-2
- Control Center Service, 1-3
- creating
 - database users, 7-5

D

- data libraries
 - Name and Address, unavailable for, 6-6
- database configuration parameters
 - Design Repository database, 1-10
 - runtime Repository database, 1-11
- database roles, changing, 7-5
- database users
 - creating in Warehouse Builder, 7-5
 - registering as Warehouse Builder users, 7-4
- databases
 - preparing before installing Warehouse Builder, 1-9
- debugging
 - Warehouse Builder Installations, 6-1
- default object privileges, 7-7
- defining
 - security roles, 7-8
- deinstalling Warehouse Builder, 4-1
- deleting
 - Repository owner, 4-2
 - Repository users, 4-2
 - schema objects, 4-3
- Design Center, 1-2
- Design Repository
 - connecting error, 6-5
 - enabled roles, 6-7
 - upgrading, 3-8
- Design Repository database configuration
 - parameters, 1-10
- Dlimit parameter
 - owbclient.bat file, memory threshold, 6-7

E

- editing user profiles, 7-6
- encrypting passwords, 7-13
- enforcing security, 7-11
- Enterprise Manager Repository, creating, 5-3
- Everyone role, 7-9
- exporting
 - design metadata, 3-8
- external directories
 - copying to your new database instance, 3-6
- external tables

what to do when migrating, 3-6

F

files

log file locations, 6-1

flat files

copying to your new database instance, 3-17

Full Database Export/Import

upgrading Oracle Database, 3-3

G

gen_ext_dirs.sql script, 3-6

GLOBAL_DBNAME parameter

Net Service Name, 6-7

I

impact analysis reports

materialized views, errors for, 6-6

implementation strategies, 1-3

implementing

Warehouse Builder, 1-3

importing

design metadata, 3-9

log file, Target Schema, 3-7

Target Schema when migrating, 3-7

init.ora file

MAX_ENABLED_ROLES parameter, 6-7

installing Warehouse Builder

on RAC environment, 1-18

installing

JServer option, Oracle Database, 6-5

optional Warehouse Builder components, 5-1

Oracle Workflow, 5-7

Repository Browser, 5-2

third-party name and address data, 5-2

Warehouse Builder, 1-4, 1-15, 1-19

installing Warehouse Builder

on Linux operating systems, 1-8

on RAC environment, 1-18

on Windows platforms, 1-8

preparing the Oracle database, 1-9

integrating

Oracle E-Business Suite and Warehouse
Builder, 5-1

J

Java Virtual Machine (JVM)

verifying and reinstalling JVM, 6-2

JServer option

Runtime Assistant, for the, 6-5

L

launching Warehouse Builder components, 1-17

lineage reports

materialized views, errors for, 6-6

Linux, installing Warehouse Builder on, 1-8

listener.ora file

GLOBAL_DBNAME parameter, 6-7

LoadJava error

Runtime Assistant, 6-5

log files

locations of log files, 6-1

Target Schema import log, 3-7

M

mappings

updating configuration for new features, 3-15

materialized views

lineage and impact analysis reports, errors, 6-6

MAX_ENABLED_ROLES parameter, 6-7

MDL

exporting design metadata, 3-8

importing design metadata, 3-9

memory

errors during batch operation, 6-7

metadata

full security strategy, 7-3

minimal security strategy, 7-3

multiuser security strategy, 7-3

security, 7-1 to 7-14

upgrading, 3-8

Metadata Export

design metadata, 3-8

Metadata Import

design metadata, 3-9

metadata objects

applying security properties, 7-10

migrating

external directories, 3-6

flat files, copying to your new database
instance, 3-17

Partial Database Export/Import, 3-4

Target Schema, importing, 3-7

modes

read-only mode, 7-14

read/write mode, 7-14

multiple user security strategy, 7-3

multiple-user access

about, 7-14

read-only mode, 7-14

read/write mode, 7-14

-mx parameter

owbclient.bat file, virtual memory, 6-7

N

Name and Address

regional libraries unavailable, 6-6

names and addresses

installing third-party data, 5-2

Net Service Name

SERVICE_NAME parameter, 6-7

O

object privileges, default, 7-7

- Oracle Database
 - Full Database Export/Import, 3-3
 - JServer option, 6-5
 - migrating, 3-3
 - moving to a new database instance, 3-3
 - Partial Database Export/Import, 3-4
 - selective migration, 3-4
 - server issues on HP-UX, 6-2
 - upgrading, 3-3
 - versions compatible with Warehouse Builder, 3-3
- Oracle Developer Suite, configuring Enterprise Manager for, 5-6
- Oracle E-Business Suite
 - integrating with Warehouse Builder, 5-1
- Oracle Enterprise Manager
 - configuring for Oracle Developer Suite, 5-6
 - configuring using Warehouse Builder, 5-3
 - tablespace setting for Runtime Repository, 6-6
- Oracle home and Warehouse Builder, 1-15
- Oracle Import
 - Target Schema, migrating, 3-7
- Oracle Workflow
 - installing, 5-7
- owbclient.bat file
 - Dlimit memory threshold parameter, 6-7
 - mx virtual memory parameter, 6-7

P

- Partial Database Export/Import
 - upgrading Oracle Database, 3-4
- passwords
 - changing, 7-13
 - encrypting, 7-13
 - in Warehouse Builder, 7-12
- performance
 - Dlimit parameter, 6-7
- performing a stack trace, 6-2
- preferred credentials
 - configuring, 5-6
- pre-installation checklist, 1-15, 1-19
- privileges
 - default, 7-7
 - object, 7-7
 - SYS user, checking privileges, 6-4
 - system, 7-8
- profiles, role, 7-10
- properties
 - security, 7-10

R

- RAC environments, installing Warehouse Builder
 - on, 1-18
- read-only mode, 7-14
- read/write mode, 7-14
- remote runtime environment implementation of Warehouse Builder, 1-4
- repositories
 - about, 1-2

- split, 1-3
- Repository Assistant
 - log file location, 6-1
- Repository Browser
 - defined, 1-3
 - installing, 5-2
- Repository owner
 - deleting, 4-2
- Repository users, deleting, 4-2
- requirements
 - JServer option, Oracle Database, 6-5
- reusing
 - advanced queues, 3-15
- roles
 - Administrator, 7-9
 - assigning, 7-6
 - assigning to users, 7-10
 - changing default, 7-5
 - Everyone, 7-9
 - profiles, 7-10
 - security, 7-8, 7-9
- Runtime Assistant
 - LoadJava error, 6-5
 - log file location, 6-1
- Runtime Platform Service
 - log file location, 6-1
- Runtime Repository
 - enabled roles, 6-7
 - materialized views, insufficient space, 6-6
- runtime repository
 - upgrading, 3-10
- runtime Repository database configuration
 - parameters, 1-11

S

- schema objects, deleting, 4-3
- scripts
 - gen_ext_dirs.sql, 3-6
- security
 - enforcement, 7-11
 - metadata, 7-1 to 7-14
 - multiple-user access, 7-14
 - read-only mode, 7-14
 - read/write mode, 7-14
 - roles, 7-8
- security properties, 7-10
- security roles, 7-9
- security strategy
 - full, 7-3
 - minimal, 7-3
 - multiuser, 7-3
- service names
 - errors resolving service name, 6-7
- split repositories, 1-3
- SYS user
 - verifying privileges, 6-4
- SYSDBA privileges
 - checking for SYS user, 6-4
- system privileges, 7-8

T

- tablespaces
 - materialized views, allocation for, 6-6
- Target Schema
 - enabled roles, 6-7
 - importing when migrating, 3-7
- target schema
 - about, 1-2
- targets
 - user schema, 7-6
- tnsnames.ora file
 - SERVICE_NAME parameter, 6-7

U

- UNIX
 - HP-UX, database server issues, 6-2
- updating
 - See also* upgrading
- upgrading
 - design metadata, 3-8
 - Design Repository, 3-8
 - runtime repository, 3-10
 - updating mapping configuration for new features, 3-15
- upgrading Warehouse Builder, 3-1
- user profiles, editing, 7-6
- user schemas as target, 7-6
- users
 - assigning roles to, 7-10
 - creating in Warehouse Builder, 7-5
 - registering as Warehouse Builder users, 7-4
- users, multiple
 - security strategy, 7-3

V

- virtual memory
 - errors, 6-7

W

- Warehouse Builder
 - architecture, 1-1
 - client, log file location, 6-1
 - components, 1-1
 - deinstalling, 4-1
 - frozen, 6-2
 - hanging, 6-2
 - implementation strategies, 1-3
 - installing, 1-4, 1-15, 1-19
 - integrating with Oracle E-Business Suite, 5-1
 - passwords, 7-12
 - required components, 1-6
 - upgrading, 3-1
- Warehouse Builder components, launching, 1-17
- Warehouse Builder installations
 - debugging, 6-1
- Warehouse Builder repository, 1-2
- Windows NT users, creating, 5-5