Oracle® Application Server TopLink

Getting Started Guide

10*g* (9.0.4.5) for Microsoft Windows (64-Bit) on Intel Itanium

Part No. B15848-01

January 2005

ORACLE®

Oracle Application Server TopLink Getting Started Guide, 10*g* (9.0.4.5) for Microsoft Windows (64-Bit) on Intel Itanium

Part No. B15848-01

Primary Author: Jacques-Antoine Dube

Contributing Authors: Arun Kuzhimattathil, Janelle Simmons, Madhubala Mahabaleshwar, Preeti Shukla

Contents

Send Us Your Comments

Oracle Application Server TopLink Getting Started Guide, 10*g* (9.0.4.5) for Microsoft Windows (64-Bit) on Intel Itanium

Part No. B15848-01

Oracle welcomes your comments and suggestions on the quality and usefulness of this publication. Your input is an important part of the information used for revision.

- Did you find any errors?
- Is the information clearly presented?
- Do you need more information? If so, where?
- Are the examples correct? Do you need more examples?
- What features did you like most about this manual?

If you find any errors or have any other suggestions for improvement, please indicate the title and part number of the documentation and the chapter, section, and page number (if available). You can send comments to us in the following ways:

- Electronic mail: appserverdocs_us@oracle.com
- FAX: (650) 506-7225 Attn: Java Platform Group, Information Development Manager
- Postal service:

  Oracle Corporation
  Java Platform Group, Information Development Manager
  500 Oracle Parkway, Mailstop 4op9
  Redwood Shores, CA 94065
  USA

If you would like a reply, please give your name, address, telephone number, and electronic mail address (optional).

If you have problems with the software, please contact your local Oracle Support Services.

Preface

This document provides installation procedures to install and configure Oracle Application Server TopLink (OracleAS TopLink). It also introduces the concepts of OracleAS TopLink.

This preface contains the following topics:

Intended Audience

Oracle Application Server TopLink Getting Started Guide is intended for new users who need to install and configure OracleAS TopLink.

This document assumes that you are familiar with the concepts of object-oriented programming, the Enterprise JavaBeans (EJB) specification, and with your own particular Java development environment.

The document also assumes that you are familiar with Microsoft Windows . The general operation of any operating system is described in the user documentation for that system, and is not repeated in this manual.

Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. 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. 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 additional information, visit the Oracle Accessibility Program Web site at

`http://www.oracle.com/accessibility/`

Accessibility of Code Examples in Documentation

JAWS, a Windows screen reader, may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, JAWS may not always read a line of text that consists solely of a bracket or brace.

Accessibility of Links to External Web Sites in Documentation

This documentation may contain links to Web sites of other companies or organizations that Oracle does not own or control. Oracle neither evaluates nor makes any representations regarding the accessibility of these Web sites.

Structure

This document includes the following chapters:

Chapter 1, "Prerequisites for Installing OracleAS TopLink"

This chapter contains information that you should review before you install OracleAS TopLink.

Chapter 2, "Installing and Configuring OracleAS TopLink"

This chapter contains instructions for installing and configuring OracleAS TopLink.

Glossary

This glossary provides definitions for words and phrases commonly used in OracleAS TopLink.

Related Documentation

For more information, refer to these Oracle resources:

- *Oracle Application Server TopLink Release Notes*
- *Oracle Application Server Release Notes*
- *Oracle Application Server TopLink API Reference*
- *Oracle Application Server TopLink Application Developer's Guide*
- *Oracle Application Server TopLink Mapping Workbench User's Guide*

Printed documentation is available for sale in the Oracle Store at

`http://oraclestore.oracle.com`

To download free release notes, installation documentation, white papers, or other collateral, please visit the Oracle Technology Network (OTN). You must register online before using OTN; registration is free and can be done at

`http://www.oracle.com/technology/membership/`

If you already have a user name and password for OTN, then you can go directly to the documentation section of the OTN Web site at

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

Conventions

This section describes the conventions used in the text and code examples of this documentation set. It describes:

- Conventions in Text
- Conventions in Code Examples

Conventions in Text

We use various conventions in text to help you more quickly identify special terms. The following table describes those conventions and provides examples of their use.

Convention	Meaning	Example
Italics	Italic typeface indicates book titles or emphasis.	*Oracle9i Database Concepts* Ensure that the recovery catalog and target database do *not* reside on the same disk.
UPPERCASE monospace (fixed-width) font	Uppercase monospace typeface indicates elements supplied by the system. Such elements include parameters, privileges, datatypes, Release Manager (RMAN) keywords, SQL keywords, SQL*Plus or utility commands, packages and methods, as well as system-supplied column names, database objects and structures, user names, and roles.	You can specify this clause only for a `NUMBER` column. You can back up the database by using the `BACKUP` command. Query the `TABLE_NAME` column in the `USER_TABLES` data dictionary view. Use the `DBMS_STATS.GENERATE_STATS` procedure.
lowercase monospace (fixed-width) font	Lowercase monospace typeface indicates executables, filenames, directory names, and sample user-supplied elements. Such elements include computer and database names, net service names, and connect identifiers, as well as user-supplied database objects and structures, column names, packages and classes, user names and roles, program units, and parameter values. **Note:** Some programmatic elements use a mixture of UPPERCASE and lowercase. Enter these elements as shown.	Enter `sqlplus` to open SQL*Plus. The password is specified in the `orapwd` file. Back up the datafiles and control files in the `/disk1/oracle/dbs` directory. The `department_id`, `department_name`, and `location_id` columns are in the `hr.departments` table. Set the `QUERY_REWRITE_ENABLED` initialization parameter to `true`. Connect as `oe` user. The `JRepUtil` class implements these methods.
lowercase italic monospace (fixed-width) font	Lowercase italic monospace font represents placeholders or variables.	You can specify the *`parallel_clause`*. Run `U`*`old_release`*`.SQL` where *`old_release`* refers to the release you installed prior to upgrading.

Conventions in Code Examples

Code examples illustrate SQL, PL/SQL, SQL*Plus, or other command-line statements. They are displayed in a monospace (fixed-width) font and separated from normal text as shown in this example:

```
SELECT username FROM dba_users WHERE username = 'MIGRATE';
```

The following table describes typographic conventions used in code examples and provides examples of their use.

Convention	Meaning	Example
[ ]	Brackets enclose one or more optional items. Do not enter the brackets.	`DECIMAL (digits [ , precision ])`
{ }	Braces enclose two or more items, one of which is required. Do not enter the braces.	`{ENABLE | DISABLE}`
|	A vertical bar represents a choice of two or more options within brackets or braces. Enter one of the options. Do not enter the vertical bar.	`{ENABLE | DISABLE}` `[COMPRESS | NOCOMPRESS]`
. . .	Horizontal ellipsis points indicate either: ■ That we have omitted parts of the code that are not directly related to the example ■ That you can repeat a portion of the code	`CREATE TABLE ... AS subquery;` `SELECT col1, col2, ... , coln FROM employees;`
. . .	Vertical ellipsis points indicate that we have omitted several lines of code not directly related to the example.	
Other notation	You must enter symbols other than brackets, braces, vertical bars, and ellipsis points as shown.	`acctbal NUMBER(11,2);` `acct CONSTANT NUMBER(4) := 3;`
Italics	Italicized text indicates placeholders or variables for which you must supply particular values.	`CONNECT SYSTEM/system_password` `DB_NAME = database_name`

UPPERCASE	Uppercase typeface indicates elements supplied by the system. We show these terms in uppercase in order to distinguish them from terms you define. Unless terms appear in brackets, enter them in the order and with the spelling shown. However, because these terms are not case sensitive, you can enter them in lowercase.	`SELECT last_name, employee_id FROM employees;`
		`SELECT * FROM USER_TABLES;`
		`DROP TABLE hr.employees;`

lowercase	Lowercase typeface indicates programmatic elements that you supply. For example, lowercase indicates names of tables, columns, or files.
	Note: Some programmatic elements use a mixture of UPPERCASE and lowercase. Enter these elements as shown.
		`SELECT last_name, employee_id FROM employees;`
		`sqlplus hr/hr`
		`CREATE USER mjones IDENTIFIED BY ty3MU9;`

1

Prerequisites for Installing OracleAS TopLink

This chapter provides information that you should review before installing Oracle Application Server TopLink (OracleAS TopLink). It contains the following topics:

1.1 System and Product Requirements

Your computer must meet the following minimum system requirements:

Operating System

OracleAS TopLink will run on any of the following operating systems:

- Microsoft Windows Server 2003 Datacenter Edition for 64-bit Itanium 2 Systems
- Microsoft Windows Server 2003 Enterprise Edition for 64-bit Itanium 2 Systems

Hardware Requirements

Although OracleAS TopLink hardware requirements are generally less than the requirements for Java or common database applications, your computer should meet the following minimum guidelines:

- Itanium 2 or higher for each installation type
- Pentium class processor running at a minimum of 300 MHz
- 192 MB of Random Access Memory (RAM)
- 128 MB free on the hard drive

Product Requirements

OracleAS TopLink requires a Java Virtual Machine (JVM) compatible with Java Development Kit (JDK) 1.4.2 or later versions. It is certified with Sun JDK 1.4.2_05 version on Intel Itanium 2 computers.

OracleAS TopLink Examples

The complete installation of OracleAS TopLink includes examples that require a Java 2 SDK to compile and run.

1.2 Supported Databases

OracleAS TopLink is an infrastructure-based solution that simplifies the integration of Java objects to any Java Database Connectivity (JDBC) compliant database. OracleAS TopLink supports JDBC 2.0 drivers that comply with JDBC 2.0 object-relational extensions. Contact your database and JDBC vendor to determine which object-relational extensions they support.

To enable Oracle Application Server TopLink Mapping Workbench to retrieve table information from the database, the database driver must support the following JDBC methods:

- `getTables()`
- `getTablesTypes()`
- `getImportedKeys()`
- `getCatalogs()`
- `getPrimaryKeys()`

1.3 License Information

OracleAS TopLink does not require a license file for the OracleAS TopLink Foundation Library or the OracleAS TopLink Mapping Workbench. However, you are not allowed to ship the OracleAS TopLink Mapping Workbench or expose any of the OracleAS TopLink Application Programming Interface (API) as part of an end-user application. Refer to the software license agreement for information about the limitations on including the OracleAS TopLink Foundation Library JAR files, as a part of a packaged end-user application.

Licensing information is available at the following link:

`http://oraclestore.oracle.com`

1.3.1 Third-Party License Information

OracleAS TopLink uses the following software:

- Apache Ant version 1.5.1
- Antlr version 2.7.1
- DOM
- JRE version 1.4.2

1.3.1.1 Apache Ant version 1.5.1

Apache Ant contains third-party code from the Apache Software Foundation (Apache). Under the terms of the Apache license, Oracle is required to provide the following license notice:

Note: The Oracle program license that accompanies this product determines your right to use the Oracle program, including the Apache software, and the terms contained in the notices do not change those rights.

The license information about Apache Ant is available at

http://jakarta.apache.org/ant/index.html

The Apache Software License

```
/* ====================================================================
 * The Apache Software License, Version 1.1
 *
 * Copyright (c) 2000-2003 The Apache Software Foundation.  All rights
 * reserved.
 *
 * Redistribution and use in source and binary forms, with or without
 * modification, are permitted provided that the following conditions
 * are met:
 *
 * 1. Redistributions of source code must retain the preceding copyright
 *    notice, this list of conditions and the following disclaimer.
 *
 * 2. Redistributions in binary form must reproduce the preceding copyright
 *    notice, this list of conditions and the following disclaimer in
 *    the documentation and/or other materials provided with the
 *    distribution.
 *
 * 3. The end-user documentation included with the redistribution,
 *    if any, must include the following acknowledgment:
 *       "This product includes software developed by the
 *        Apache Software Foundation (http://www.apache.org/)."
 *    Alternately, this acknowledgment may appear in the software itself,
 *    if and wherever such third-party acknowledgments normally appear.
 *
 * 4. The names "Apache" and "Apache Software Foundation" must
 *    not be used to endorse or promote products derived from this
 *    software without prior written permission. For written
 *    permission, please contact apache@apache.org.
 *
 * 5. Products derived from this software may not be called "Apache",
 *    nor may "Apache" appear in their name, without prior written
 *    permission of the Apache Software Foundation.
 *
 * THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESSED OR IMPLIED
 * WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
 * OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
 * DISCLAIMED.  IN NO EVENT SHALL THE APACHE SOFTWARE FOUNDATION OR
 * ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
 * SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
 * LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF
 * USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
 * ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
 * OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT
 * OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
 * SUCH DAMAGE.
 * ====================================================================
 *
 * This software consists of voluntary contributions made by many
 * individuals on behalf of the Apache Software Foundation.  For more
 * information on the Apache Software Foundation, please see
 * <http://www.apache.org/>.
 *
 * Portions of this software are based upon public domain software
 * originally written at the National Center for Supercomputing
Applications,
 * University of Illinois, Urbana-Champaign.
```

```
*/
```

1.3.1.2 Antlr version 2.7.1

OracleAS TopLink uses Another Tool for Language Recognition (Antlr) version 2.7.1 for EJB QL parsing. Antlr is a language tool that provides a framework for constructing recognizers, compilers, and translators from grammatical descriptions containing C++ or Java actions. The Antlr parser and translator generator are fully in the public domain.

The license information about Antlr version 2.7.1 is available at

http://www.antlr.org/rights.html

1.3.1.3 DOM

Document Object Model (DOM) is a specification that defines some programming language-neutral interfaces that can be used to manipulate XML and HTML documents. World Wide Web Consortium (W3C) maintains this specification. It also provides a Java binding for these interfaces. OracleAS TopLink uses this binding to parse and manipulate XML documents.

This program contains third-party code from the W3C. Under the terms of the W3C license, Oracle is required to provide the following notices.

> **Note:** The Oracle program license that accompanies this product determines your right to use the Oracle program, including the W3C software, and the terms contained in the following notices do not change those rights.

The license information about DOM is available at

http://www.w3.org/Consortium/Legal/copyright-software.html

```
This work (and included software, documentation such as readme files, or other
related items) is being provided by the copyright holders under the following
license. By obtaining, using, and/or copying this work, you (the licensee) agree
that you have read, understood, and will comply with the terms and conditions.
Permission to copy, modify, and distribute this software and its documentation,
with or without modification, for any purpose and without fee or royalty is hereby
granted, provided that you include the following on all copies of the software and
documentation or portions thereof, including modifications:
The full text of this NOTICE in a location viewable to users of the redistributed
or derivative work.
Any pre-existing intellectual property disclaimers, notices, or terms and
conditions. If none exist, the W3C Software Short Notice
(http://www.w3.org/Consortium/Legal/2002/copyright-software-short-notice-20021231.
html) should be included (hypertext is preferred and text is permitted) within the
body of any redistributed or derivative code.
Notice of any changes or modifications to the files, including the date changes
were made. (We recommend you provide URLs to the location from which the code is
derived.)
THIS SOFTWARE AND DOCUMENTATION IS PROVIDED "AS IS," AND COPYRIGHT HOLDERS MAKE NO
REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO,
WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE
USE OF THE SOFTWARE OR DOCUMENTATION WILL NOT INFRINGE ANY THIRD PARTY PATENTS,
COPYRIGHTS, TRADEMARKS OR OTHER RIGHTS.
COPYRIGHT HOLDERS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR
CONSEQUENTIAL DAMAGES ARISING OUT OF ANY USE OF THE SOFTWARE OR DOCUMENTATION.
The name and trademarks of copyright holders may not be used in advertising or
```

```
publicity pertaining to the software without specific, written prior permission.
Title to copyright in this software and any associated documentation will remain
with copyright holders all the time.
```

1.3.1.4 JRE version 1.4.2

The Java Runtime Environment (JRE) is maintained by Sun Microsystems, Inc. The OracleAS TopLink needs to be certified with Sun JDK 1.4.2_05 version on Itanium 2 machines. The OracleAS TopLink Mapping Workbench runs in Microsoft Windows JDK 1.4.2 Virtual Machine (VM) by default, and may also be configured to run using other compliant Java 2 VMs. Java and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc., in the U.S. and other countries.

The license information about JRE 1.4.2 is available at

http://java.sun.com/j2se/1.4.2/j2se-1_4_2-thirdpartylicensereadme.txt

```
A) The following software may be included in this product:
CS CodeViewer v1.0; Use of any of this software is governed
by the terms of the license below:

Copyright 1999 by CoolServlets.com.

Any errors or suggested improvements to this class can be
reported as instructed on CoolServlets.com. We hope you
enjoy this program... your comments will encourage further
development!  This software is distributed under the terms
of the BSD License.  Redistribution and use in source and
binary forms, with or without modification, are permitted
provided that the following conditions are met:

1. Redistributions of source code must retain the above
copyright notice, this list of conditions and the following
disclaimer.

2. Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials
provided with the distribution.

Neither name of CoolServlets.com nor the names of its
contributors may be used to endorse or promote products
derived from this software without specific prior written
permission.

THIS SOFTWARE IS PROVIDED BY COOLSERVLETS.COM AND
CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE
GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT
OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE."
```

```
B) The following software may be included in this product:
DES and 3xDES ; Use of any of this software is governed by
the terms of the license below:

"Copyright  2000 by Jef Poskanzer <jef@acme.com>. All
rights reserved.

Redistribution and use in source and binary forms, with or
without modification, are permitted provided that the
following conditions are met:

1. Redistributions of source code must retain the above
copyright notice, this list of conditions and the following
disclaimer.

2. Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials
provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS
``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING,
BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED.  IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS
BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE
OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
DAMAGE."
```

1.4 Certification Information

The latest certification information for 10*g* (9.0.4.5) is available at

http://metalink.oracle.com

2

Installing and Configuring OracleAS TopLink

This chapter contains information about installing OracleAS TopLink. It contains the following topics:

2.1 OracleAS TopLink Installation Types

The Oracle Universal Installer (OUI) for OracleAS TopLink provides four different installation types. Each installation type is a predefined component set within the OUI that automatically selects the components to install. The installation types that appear on the OUI screen depend on the list that the installation developer specifies for the product.

The four installation types are as follows:

- Complete: This option installs the entire product, including OracleAS TopLink Foundation Library, OracleAS TopLink Mapping Workbench, OracleAS TopLink Sessions Editor, and OracleAS TopLink Examples.
- Mapping and Code Development: This option installs the OracleAS TopLink Foundation Library, OracleAS TopLink Mapping Workbench, and OracleAS TopLink Sessions Editor.
- Code Development: This option installs the OracleAS TopLink Foundation Library for development without the OracleAS TopLink Mapping Workbench and OracleAS TopLink Sessions Editor.
- Runtime: This option installs only the packaged run-time classes.

2.2 Installing OracleAS TopLink

This section describes the procedures to install OracleAS TopLink including the OracleAS TopLink Foundation Library and OracleAS TopLink Mapping Workbench.

This section contains the following topics:

Note: Before installing OracleAS TopLink, back up the existing project data.

2.2.1 Installing OracleAS TopLink on Microsoft Windows Operating System

To start the OUI and install OracleAS TopLink:

1. Ensure that you are logged in to the computer as a member of the Microsoft Windows Administrators group.

   Note: When you configure OracleAS TopLink for use with (Java 2 Platform, Enterprise Edition) J2EE containers, you need to modify the system variables, not the User Variables.

   Java package names are case-sensitive. When you install them on Microsoft Windows, ensure that case sensitivity is turned on.

   For more information, refer to the Microsoft Windows documentation.

2. Insert the OracleAS TopLink installation disk into the CD-ROM drive to launch OUI.

   - If your computer supports the auto-run feature, then the installer will automatically launch on your computer.
   - If your computer does not support the auto-run feature, then perform the following steps to launch the installer:

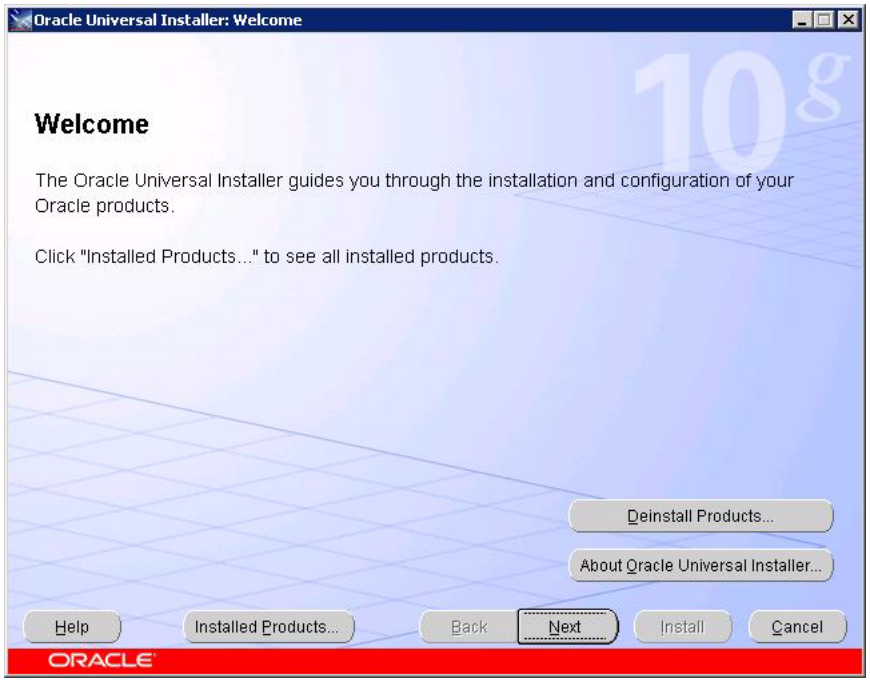
   a. Locate the following file:

      `G:\setup.exe`, where `G` is the letter for your CD-ROM drive

   b. Launch the `setup.exe` program to start the installer.

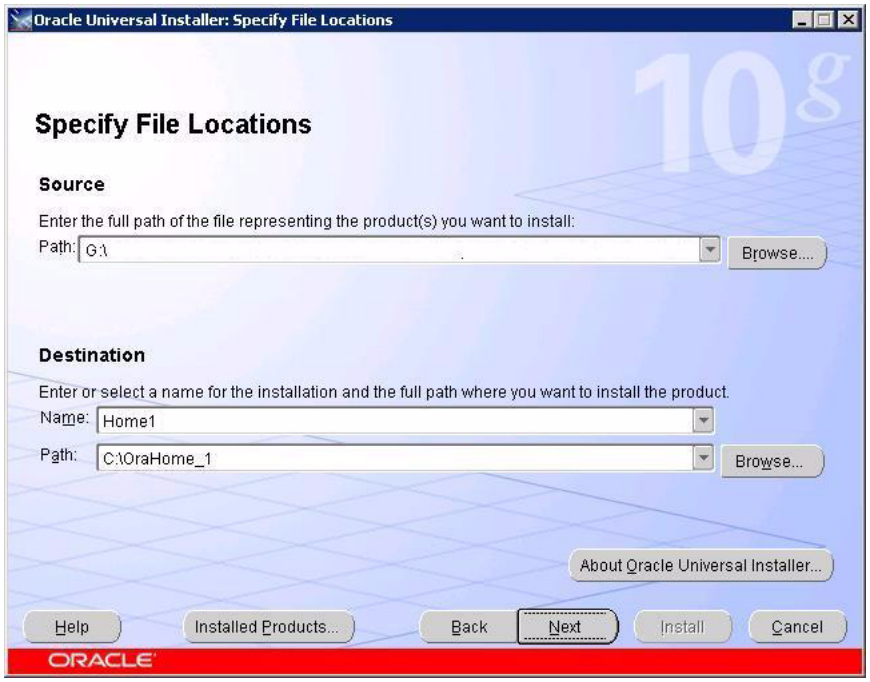
      The Oracle Universal Installer Welcome screen is displayed as shown in Figure 2–1. It provides information about the OUI.

Figure 2–1 Oracle Universal Installer Welcome Screen



3. Click **Next**. The Specify File Locations screen is displayed as shown in Figure 2–2.

Figure 2–2 Specify File Locations Screen

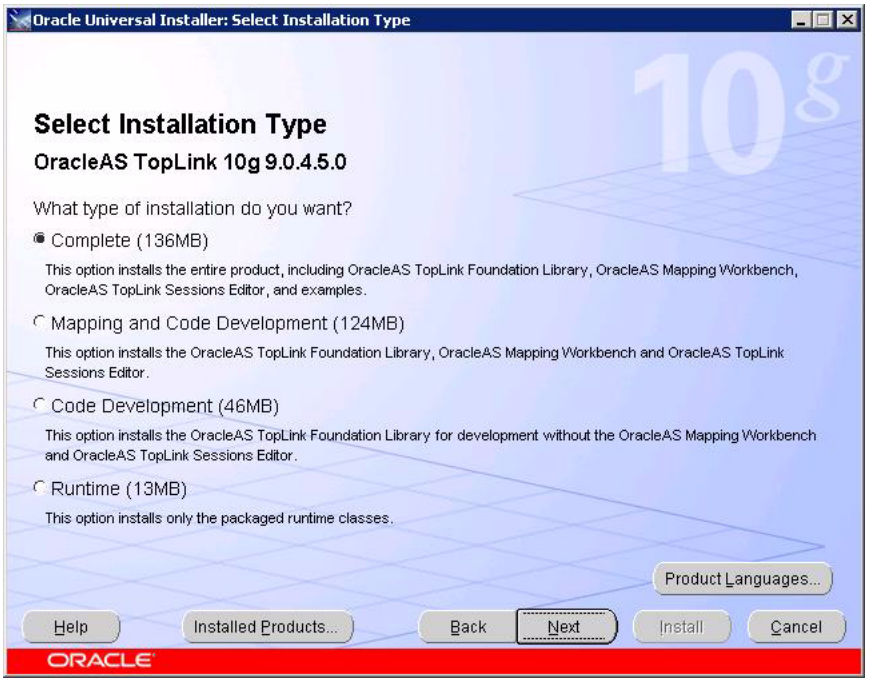


4. Enter the following information in the fields provided:
   a. Source Path: The default value is displayed. Do not change this value.
   b. Destination Name: Enter the required Oracle home name.

c. Destination Path: Browse or enter the path to the directory where you want to install the Oracle Application Server Middle Tier.

5. Click **Next**. The Select Installation Type screen is displayed as shown in Figure 2–3.

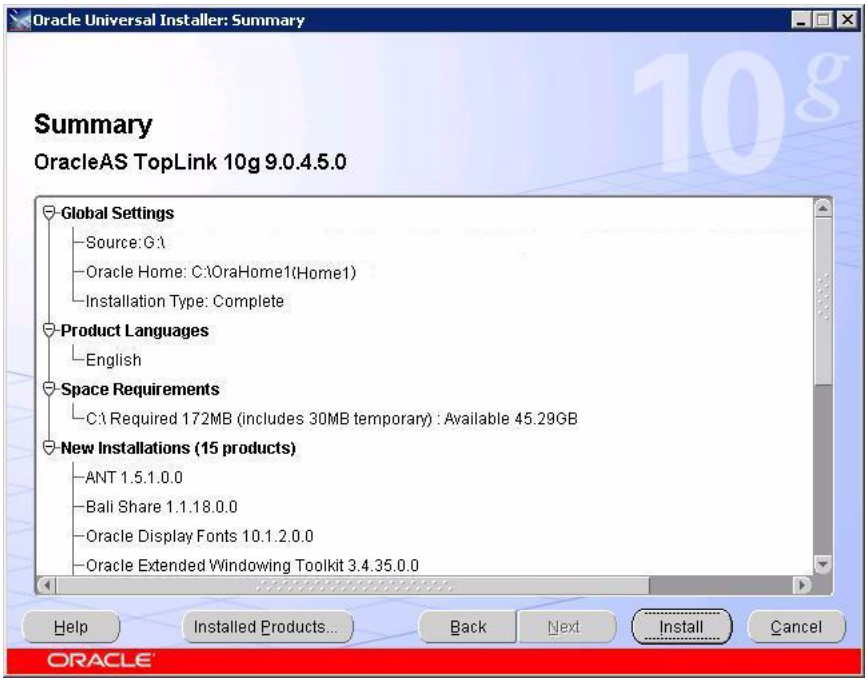
Figure 2–3 Select Installation Type Screen



6. Select **Complete** to install the entire package. The other options available on the screen allow you to perform a partial install. The products that can be installed are mentioned with the options.

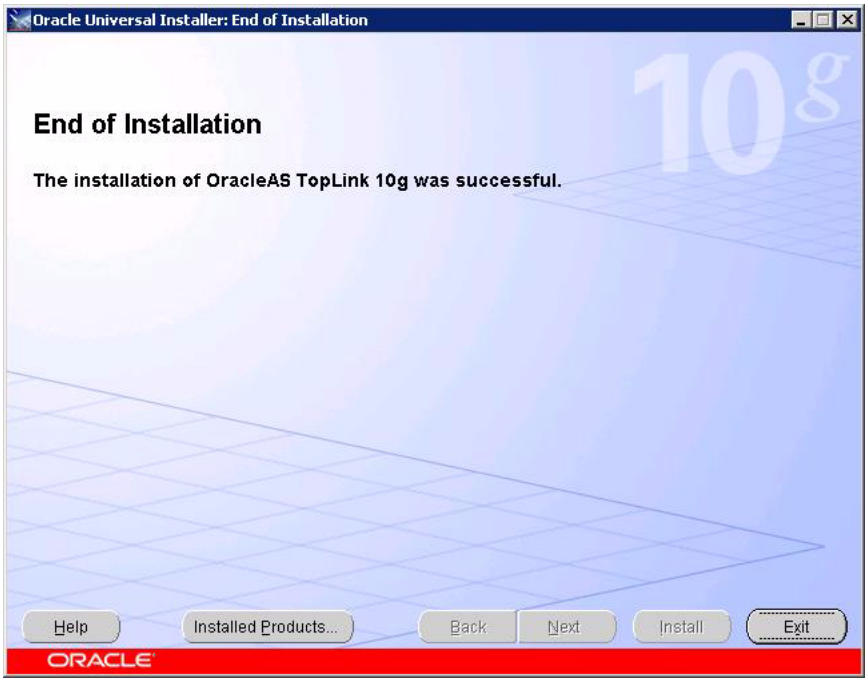
7. Click **Next**. The Summary screen is displayed as shown in Figure 2–4.

Figure 2–4 Summary Screen



8. After reviewing the Summary screen, click **Install**. This completes the installation and displaying the End of Installation screen as shown in Figure 2–5.

Figure 2–5 End of Installation Screen



9. Click **Exit** and then click **Yes**. This completes the installation.

10. When the installation is complete, verify and if necessary, edit the `JDBC_CLASSPATH` variable in the *`ORACLE_HOME`*`\toplink\bin\setenv.cmd` file. The `JDBC_CLASSPATH` variable must specify the path to the preferred JDBC drivers.

    Note: The `JDBC_CLASSPATH` variable must not include any Java classes for your persistent business objects that are specified in an OracleAS TopLink Mapping Workbench project. Paths for persistent business objects are set within an OracleAS TopLink Mapping Workbench project.

    For more information on how to set up a path for a project, refer to *Oracle Application Server TopLink Mapping Workbench User's Guide*.

    See Also: Refer to *`ORACLE_HOME`*`\toplink\doc\index.htm` for the latest *OracleAS TopLink Release Notes*

2.2.2 Performing Silent Installation on Microsoft Windows Operating System

The silent installation mode is available for all installation types. You can make use of the silent installation when you wish to make multiple installations simultaneously or when you perform installations from a remote location. Silent installation eliminates the need to monitor the installation because there is no graphical output and no input by the user.

To perform a silent installation:

1. Insert the OracleAS TopLink installation disc into the CD-ROM drive.
2. Open the `\Stage\Response` directory and select the `oracle.toplink.`*`Installation_Type`*`.rsp` response file. For example, if you select the Complete installation type, then the response file would be `complete.rsp`.
3. Copy the `oracle.toplink.`*`Installation_Type`*`.rsp` file to a `temp` folder.
4. Edit the following parameters in the `oracle.toplink.`*`Installation_Type`*`.rsp` file:
   - `ORACLE_HOME`
   - `ORACLE_HOME_NAME`
5. Open a command prompt window and run the following commands:

   `setup.exe -responseFile C:\temp\oracle.toplink.`*`complete`*`.rsp -silent` and press **Enter**.
6. If your installation is successful, then the log file for the silent installation will contain the following line:

   The installation of OracleAS TopLink was successful.

2.3 Configuring the OracleAS TopLink Examples

The complete OracleAS TopLink installation includes the OracleAS TopLink examples. These examples help you explore and learn how to use the OracleAS TopLink features with different architectures and different technologies. They are designed to be as simple as possible while still effectively demonstrating the target architecture, technology, or feature.

There are two types of examples, Oracle Application Server and OracleAS TopLink Foundation Library (non-server) examples.

- Oracle Application Server examples vary from server to server, depending on the server-specific features. Although OracleAS TopLink provides instructions for certain servers, you can run many of the examples (for example, the Session Bean and Servlet JSP examples) on other application servers with some configuration changes.
- OracleAS TopLink Foundation Library (non-server) examples are configured to run in a simple Java Virtual Machine (JVM), but the features and technologies they demonstrate can also be used in an application server environment.

When you run the examples, useful information is written to standard output, including details about what the example is doing and what SQL is generated. You may find it useful to redirect standard output to a file when you run an example.

Although the OracleAS TopLink examples require little configuration, ensure that you read and verify the configuration details included in the *Configuring the Examples* document before you run the examples.

> **See Also:** *Configuring the Examples* document, which can be accessed at *ORACLE_HOME*`\toplink\doc\examples\config\config.htm`

When the configuration is complete, each of the OracleAS TopLink examples has a readme file with specific information on how to build and run the example.

2.4 Sun JDK and JRE

On a Microsoft Windows-based platform, OracleAS TopLink includes the Java Runtime Environment (JRE) 1.4.2. OracleAS TopLink is certified with Sun JDK 1.4.2_05 version on Itanium 2 computers from Sun Microsystems for use by the OracleAS TopLink Mapping Workbench.

To configure OracleAS TopLink for a different version of the JRE, change the `setenv.cmd` file to point `JRE_HOME` to the alternate directory.

At run time, the OracleAS TopLink Foundation Library requires a JVM compatible with JDK 1.4.2 or later.

To compile and run the OracleAS TopLink Examples, you must have a Java 2 SDK installed.

> **See Also:** Section 2.3, "Configuring the OracleAS TopLink Examples" for more information about how to configure and run the OracleAS TopLink Examples

JCE

The OracleAS TopLink Mapping Workbench and OracleAS TopLink Sessions Editor use Java Cryptography Extension (JCE) to encrypt database login information. JCE is included with JDK 1.4.2. If you use JDK 1.4.2 or higher, then select one of the following options:

- Download and install the Sun JCE plug-in from `http://java.sun.com/products/jce/`
- Do not store password information in OracleAS TopLink Mapping Workbench or OracleAS TopLink Sessions Editor. Instead, manually add the password in the code or edit the generated project file.

2.5 General Troubleshooting

After you install OracleAS TopLink, if you encounter problems either starting the application or connecting to a database, then try the following solutions:

- Ensure that the driver class name is correct. Many vendors have several driver classes to choose from.
- Check your login information.
- Ensure that your path includes all the `.dll` files that your driver requires.
- Check with your database administrator that:
  - drivers that require special setup in the database server have been set correctly.
  - drivers that require special permissions in the database server have been set up correctly.
  - You are not exceeding the number of available concurrent connections to your database. This may occur during development time, when many people are testing connections.
- If you use database servers that require an extra Microsoft Windows 2003 service to be running for JDBC connections, then ensure that the service is running.
- Check with your vendor to ensure that you are using the latest version of both your JDBC driver and the database to which it is connecting.

Glossary

This glossary contains terms and abbreviations that you should be familiar with when using OracleAS TopLink.

attribute

A variable of a class or object. In OracleAS TopLink, *attribute* describes all instance variables of a class. Every attribute contains a single mapping.

bean class

The implementation of the bean. The bean is accessed from the client using the home and remote interfaces.

branch class

A class that consists of a persistent superclass and also has subclasses. By default, queries performed on the branch class return instances of the branch class and any of its subclasses. However, the branch class can be configured so that queries on it return only instances of itself without instances of its subclasses.

Compare to leaf class.

class

A category of objects. Classes allow data and methods to be grouped together.

class indicator field

A field in the table of the root class that indicates which subclass should be instantiated.

custom SQL

Any non-OracleAS TopLink-generated SQL used through OracleAS TopLink. This includes hard-coded SQL and stored procedure calls.

Data Definition Language (DDL)

A language that is a part of the SQL. OracleAS TopLink Mapping Workbench can generate DDL scripts that can be used to create tables on the desired database.

dependent class path

A location where non-bean classes are specified. OracleAS TopLink requires that the bean classes be included here as they are referenced by the project.

descriptor

An OracleAS TopLink object that describes how the attributes and relationships of an object are to be represented in relational database tables. An OracleAS TopLink descriptor is not the same as a deployment descriptor, although it plays a similar role.

direct access

By default, OracleAS TopLink accesses public attributes directly when writing the attributes of the object to the database or reading the attributes of the object from the database.

Compare to method access.

direct mapping

There are two basic ways of storing object attributes directly in a table:

- The information can be stored directly if the attribute type is comparable to a database type.
- If there is no database primitive type that is logically comparable to the attributes type, then it must be transformed on its way to and from the database

OracleAS TopLink provides five classes of direct mappings.

Compare to relationship mapping.

expressions

The OracleAS TopLink equivalent of an SQL conditional clause

OracleAS TopLink expressions are specified using the `Expression` and `ExpressionBuilder` classes.

identity map

A map used to cache objects for performance and to maintain object identity.

Compare to object identity.

independent relationship

A relationship in which the source and target are public objects that exist independently. The destruction of one object does not necessarily imply the destruction of the other.

Compare to private relationship.

indirection

An indirection object is one that acts as a stand-in for another object. In OracleAS TopLink, indirection is implemented through Value Holders, which delay database access by acting as stand-ins for any object relationships.

inheritance

Describes how a child class inherits the characteristics of its parent class. OracleAS TopLink supports multiple approaches to database implementations that preserve the inheritance relationship.

J2SE

The Java 2 Platform, Standard Edition (J2SE) is the core Java technology platform. It provides software compilers, tools, runtimes, and APIs for writing, deploying, and running applets and applications in Java.

J2EE

The Java 2 Platform, Enterprise Edition (J2EE) is an environment for developing and deploying enterprise applications. J2EE includes a set of services, APIs, and protocols for developing multitier Web-based applications.

J2EE containers

A J2EE container is a run-time environment for Enterprise JavaBeans (EJBs) that includes such basic functions as security, life cycle management, transaction management, and deployment services. J2EE containers are usually provided by a J2EE server, such as Oracle Application Server Containers for J2EE.

Java Data Objects

Java Data Objects (JDO) represent a standard Java model for persistence that enables programmers to create code in Java that transparently accesses the underlying data store without using database-specific code. OracleAS TopLink provides support for most of the JDO specification, however, because OracleAS TopLink is a persistence framework, you may find it easier and more effective to build your applications using OracleAS TopLink functionality rather than JDO.

Java Transaction API Support

The Java Transaction API (JTA) specifies the interfaces between a transaction manager, a resource manager, an application server, and transactional applications involved in a distributed transaction system.

leaf class

A leaf class has a persistent superclass in the hierarchy but does not have subclasses. Queries performed on the leaf class can return only instances of the leaf class.

Compare to branch class.

method access

The application registers accessor methods for the attribute.

Compare to direct access.

object identity

Ensures that each object is represented by one and only one instance in the application. Multiple retrievals of the same object return references to the same object instance and not multiple copies of the same object. Violating object identity can corrupt the object model.

Compare to identity map.

optimistic locking

Also known as write locking. It allows unlimited read access to objects. A client can write an object to the database only if the object has not changed while it was last read.

Compare to pessimistic locking.

pessimistic locking

Objects are locked before they are edited, which ensures that only one client is editing the object at any given time.

Compare to optimistic locking.

private relationship

A relationship in which the target object is considered to be a private component of the source object. The target object cannot exist without the source and is accessible only through the source object. In addition, if the source object is destroyed, then the target object is destroyed as well.

Compare to independent relationship.

Project Tree

The main interface of OracleAS TopLink Mapping Workbench. The Project Tree shows the high-level information stored in a project.

query manager

An object that controls the way the descriptor accesses the database. It is owned by a descriptor. The query manager generates its own default SQL to access the database in a transparent manner.

query optimization

OracleAS TopLink supports two forms of query optimization, joining and batch reading. Their purpose is to optimize database access by reducing the number of database calls required to read a group of objects.

relationship

In OracleAS TopLink, a reference between two OracleAS TopLink-enabled objects.

relationship mapping

Persistent objects use relationship mappings to store references to instances of other persistent classes. The appropriate mapping class is chosen primarily by the cardinality of the relationship. OracleAS TopLink provides five classes of relationship mappings.

Compare to direct mapping.

unit of work

A transactional OracleAS TopLink session that allows for a transaction to occur at the database level and the object level. Changes to objects are not visible globally until the unit of work is committed.

value holder

A wrapping object used by OracleAS TopLink to delay database access.

Index