Oracle® Unified Messaging

Installation Guide

Release 2.1.2 for Sun SPARC Solaris 2.6

January, 2001

Part No. A86091-02

ORACLE®

Unified Messaging Installation Guide, Release 2.1.2 for Sun SPARC Solaris 2.6

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

- Electronic mail: infodev@us.oracle.com
- FAX: (650) 506-7228   Attn: Unified Messaging Documentation Manager
- Postal service:
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  Unified Messaging Documentation Manager
  500 Oracle Parkway, Mailstop 4OP12
  Redwood Shores, CA 94065
  USA

If you would like a reply, please give your name, address, and telephone number below.

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

Preface

The topics covered in this preface include:

- Intended Audience
- Oracle Unified Messaging Documentation
- Related Documents
- Notation Conventions

Intended Audience

The configuration and installation instructions in this document are intended for anyone who is responsible for installing Oracle products on Sun SPARC Solaris. While some command examples are provided, this document does not attempt to teach Oracle or UNIX administration.

Oracle Unified Messaging Documentation

Oracle Unified Messaging documentation is available in HTML and PDF format on the CD-ROM and installs automatically during product installation. Use your Web browser to access **$ORACLE_HOME/um/doc/index.html** on your server. The following documents are available:

Oracle Unified Messaging Installation Guide

Oracle Unified Messaging Client Developer's Guide

Oracle Unified Messaging Release Notes

Related Documents

This guide provides operating system-specific information for Oracle Unified Messaging for Sun SPARC Solaris 2.6. This document refers to the following user guides and reference manuals:

- *Oracle eMail Server 5.1 Installation Guide*

- *Oracle eMail Server 5.1 Administration Guide*

- *Oracle eMail Server 5.1 Release Notes*

- *Oracle Internet Application Server 8i Installation Guide Release 1.0 for Sun SPARC Solaris*

Ordering Related Documentation

To order documentation, call the appropriate number listed below.

- In the United States, call Documentation Sales at: 1-800-252-0303.

- In the United Kingdom, call Oracle Direct Response at: +44-990-332200.

- In other European countries, contact your local Oracle Support office.

- In the Asia-Pacific region, contact your Oracle sales representative.

Notation Conventions

The following notational conventions appear in this manual:

Convention	Description
italic	Italicized type identifies document titles.
Monospace	Monospace type indicates commands.
bold	Boldface type indicates script names, directory names, path names, and file names (for example, the **root.sh** script).
UPPERCASE	Uppercase letters indicate parameters or environment variables (for example, ORACLE_HOME).
. . .	In code examples, vertical ellipsis points indicate that information not directly related to the example has been omitted.
...	In command syntax, horizontal ellipsis points indicate repetition of the preceding parameters. The following command example indicates that more than one input_file may be specified on the command line. `command [input_file ...]`
< >	In command syntax, angle brackets identify variables that the user must supply. You do not type the angle brackets. The following command example indicates that the user must enter a value for the variable input_file: `command <input_file>`
[ ]	In command syntax, brackets enclose optional clauses from which you can choose one or none. You do not type the brackets. The following command example indicates that the variable output_file is optional: `command <input_file> [output_file]`
{ }	In command syntax, curly brackets indicate that a choice of two or more items separated by a vertical bar or pipe (|). You do not type the curly brackets. The following command example indicates a choice of either a or b: `command {a | b}`
$	The dollar sign represents the shell prompt in UNIX.

1

Preinstallation

This chapter describes the preinstallation procedures for Oracle Unified Messaging. Topics covered include:

- Installation Overview
- Installation Requirements
- Preinstallation Tasks

Installation Overview

Oracle Unified Messaging is a highly scalable, messaging framework which integrates messages from multiple sources into a single inbox. Prior to installation, you should plan your implementation strategy and be familiar with Unified Messaging system components, concepts, and terminology described in the *Unified Messaging Client Developer's Guide*.

The installation process is composed of the following steps:

1. Complete the necessary pre-installation tasks including backing up your existing system, configuring the UNIX environment, and preparing related processes and products for the installation.

2. Use the Installer on the Oracle software CD to install or upgrade Oracle Unified Messaging and related software products.

3. Perform the post installation steps.

4. Verify the configuration by starting processes and checking process logs.

Installation Requirements

You must meet the following system and software requirements to install Oracle Unified Messaging.

System Requirements

- 50 MB of disk space
- 128 MB of memory

Software Requirements

Oracle Unified Messaging requires the following software components and associated versions:

Software Components	Version	Comments	State During Unified Messaging Installation
Oracle eMail Server	5.2		Installed and running
Oracle8i Data Server	8.1.7		Installed and running

Software Components	Version	Comments	State During Unified Messaging Installation
Oracle Internet Directory	2.1.1		Installed and running
Oracle Internet Application Server (Oracle HTTP Server)	1.0.2.1	Required for Web node only. Oracle Internet Application Server cannot share the same ORACLE_HOME with other Oracle products. If you have installed other Oracle products, then Oracle Internet Application Server must be installed in a different ORACLE_HOME.	Installed and running
Netscape Communicator Or: Microsoft Internet Explorer JavaScript-enabled browser	4.6 or 4.7 5.0.x		Either one installed
Real Audio Server (optional)	5.0	Required for real audio streaming.	Installed and running
Tiff to Gif Conversion Tool (optional)		Required if your fax server captures images in .tiff format.	Installed and running

Preinstallation Tasks

The following tasks must be performed prior to installing Oracle Unified Messaging:

Task 1: Back Up and Shut down Existing Database and Log Files

Perform a full backup of your existing Oracle8 Universal Data Server before you perform any new installation or upgrade. A full backup ensures that you can recover from errors encountered during new installation or upgrade processes.

This backup should be taken with the database shut down cleanly. If you use SHUT DOWN IMMEDIATE or SHUT DOWN ABORT to force users off the system, be sure to restart the database in restricted mode, and then shut it down with normal priority. See the *Oracle8i Administrator's Guide* or *Oracle8i Backup and Recovery* for more information.

Task 2: Install and Configure the Oracle8 Universal Data Server

Oracle Unified Messaging requires reconfiguration of specific database parameters. Before starting this configuration, shut down the network listener and the database where Oracle Unified Messaging will be installed.

To shut down the network listener:

```
$ lsnrctl stop
```

To shut down the database:

```
$ svrmgrl
SVRMGR> connect internal
Connected.
SVRMGR> shutdown
SVRMGR> exit
```

Edit the `init<sid>.ora` file located in the `$ORACLE_HOME/dbs` directory to reflect the following minimum values for the listed parameters:

Parameter	Minimum Settings
job_queue_processes	10
job_queue_interval	60

Task 3: Start the Processes Necessary for Installation

1. Start the database:

```
$ svrmgrl
SVRMGR> connect internal
Connected to an idle instance.
SVRMGR> startup
SVRMGR> exit
```

2. Start the network listener:

```
$ lsnrctl start
```

Task 4: Configure Net8 (Database Node Installation) TNSLISTENER80

To install an Unified Messaging database node, a connect string must exist that provides a connection to the Unified Messaging database using the sid.

1. Verify that the entry exists in the TNSNAMES.ORA file for the Unified Messaging sid. If it does not exist, add the following:

```
<connect string> =
    (DESCRIPTION=
        (ADDRESS_LIST =
            (ADDRESS = (PROTOCOL = tcp)
                (HOST = <um host name>)
                (PORT = <listener port>)
              )
         )
        )
        Example:
ORCL.world =
    (DESCRIPTION=
        (ADDRESS_LIST =
            (ADDRESS = (community = tcp.world) (PROTOCOL =tcp)
                (HOST = um.acme.com)
                (PORT = 1521)
              )
         )
        (CONNECT_DATA = (SERVICE_NAME = ORCL)
        )
    )
```

Task 5: Configure Net8 (Multiple Instance Installations Only)

If you are installing a separate Oracle Unified Messaging system from your Oracle eMail Server database instance, then you must configure Net8 to enable the Oracle Unified Messaging system to contact the Oracle eMail Server database.

1. Add the following entry for the Oracle eMail Server database system to which you want to connect:

```
<connect string> =
    (DESCRIPTION=
        (ADDRESS=( PROTOCOL= TCP)(HOST= <ES host server name>)(PORT= 1521))
        (CONNECT_DATA= (SERVICE_NAME= <ES sid>)))
```

Example

```
esnode1=
    (DESCRIPTION =
        (ADDRESS = (PROTOCOL= TCP) (HOST= eshardware.acme.com)(PORT=1521))
        (CONNECT_DATA = (SERVICE_NAME= orcl)))
```

2. Verify the modified **tnsnames.ora** file:

```
$ tnsping host
```

3. Verify that the Oracle eMail Server database `tnsnames.ora` file has an Oracle Unified Messaging entry name that connects to the Oracle eMail Server database instance.

2

Installing and Configuring Unified Messaging

This chapter describes Unified Messaging installation and configuration procedures for both new installations and upgrades. Topics covered include:

■ Installing Unified Messaging

Installing Unified Messaging

Mounting the Product CD-ROM Manually

The Oracle Product Installation CD-ROM is in RockRidge format. If you are using the Solaris Volume Management software (installed by default on Sun SPARC Solaris 2.x), the CD-ROM is mounted automatically when you put it into the disk drive. If you are not using the Solaris Volume Management software, use the following procedure to mount the CD-ROM manually. You must have root privileges to mount or unmount the CD-ROM manually. Be sure to unmount the CD-ROM before removing it from the drive.

1. Place the Product Installation CD-ROM in the CD-ROM drive.

2. Log in as the root user:

    ```
    $ su root
    ```

3. Create a CD-ROM mount point directory:

    ```
    # mkdir mount_point_directory
    ```

4. Mount the CD-ROM drive on the mount point directory and exit the root account:

    ```
    # mount options device_name mount_point_directory
    # exit
    ```

Running the Oracle Universal Installer

1. Log in as the user who installed oracle products on this machine and change to the installation directory on the CD-ROM:

    ```
    $ cd /cdrom/cdrom0
    ```

2. Make sure the DISPLAY environment variable is set to your display address.

    C Shell:

    ```
    % setenv DISPLAY <hostname>:0.0
    ```

    Bourne or Korn Shell:

    ```
    $ DISPLAY=<hostname>:0.0;export DISPLAY
    ```

3. Make sure xhost, while physically located on the host machine, is set to enable access to the X server on your machine. Use the following command:

```
% /usr/openwin/bin/xhost +
```

See the UNIX man pages for more information on xhost.

4. From the install directory on the CD-ROM, type the following command:

```
$ ./runInstaller
```

The `./runInstaller` command launches the Oracle Universal Installer and the Welcome dialog box displays.
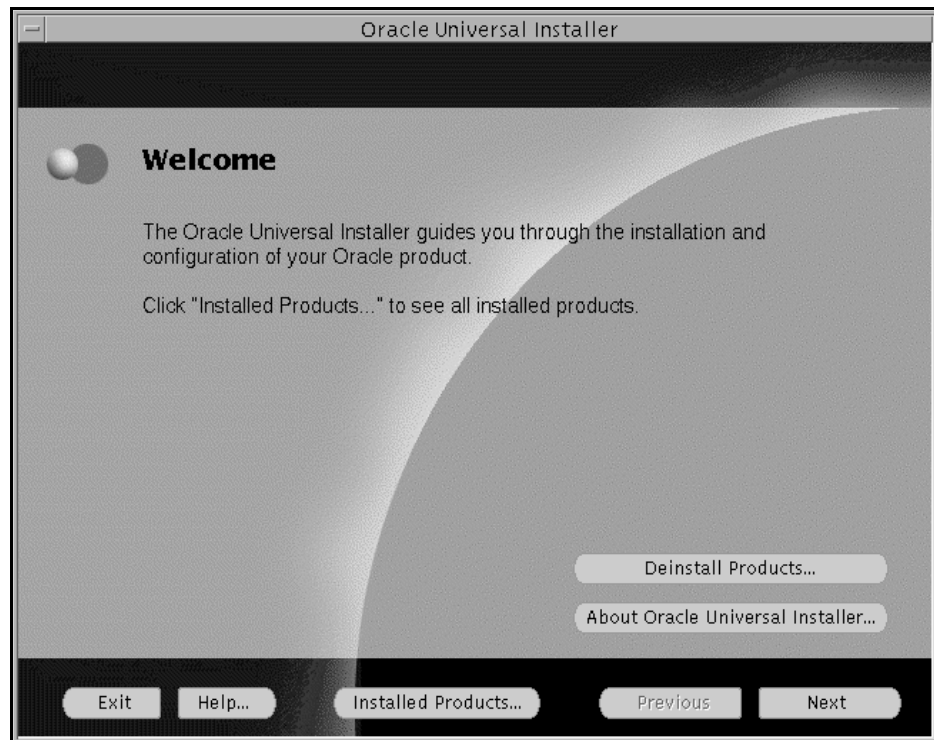
Oracle Universal Installer Screen Buttons

This table gives you information about the Oracle Universal Installer screen buttons.

Screen Button	What it Does
Deinstall Products	Takes you to the Deinstall screen.
About Oracle Universal Installer	Gives you the version number.
Exit	Exits you out of the install session.
Installed Products	Shows you what Oracle products you have installed.
Previous	Takes you back to the previous screen.
Next	Takes you to the next screen.
Cancel	Enables you to cancel the installation process.

Entering File Locations

1. At the Welcome screen, click Next. The File Locations screen displays.
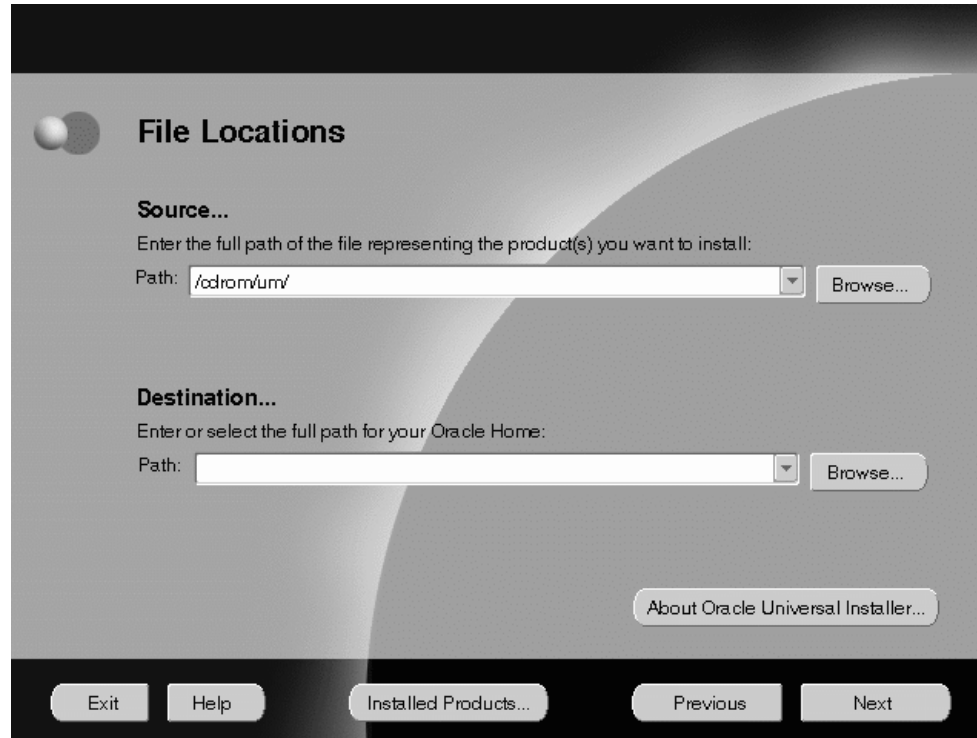
Enter the location of the source and destination. The Source is where the Unified Messaging stage is located. The Destination is where the ORACLE_HOME is located and where Unified Messaging will be installed.

2. Type in or use the Browse button to select the Source and Destination directories for your installation.

3. Click Next. The Installation Types screen displays.

Select your installation type.

Installation Type	What it Does
Database Node	Installs the database components and creates UM database objects.
Web Node	Installs the web components only.

Click Next. The Summary screen appears.

Verifying Your Installation Settings
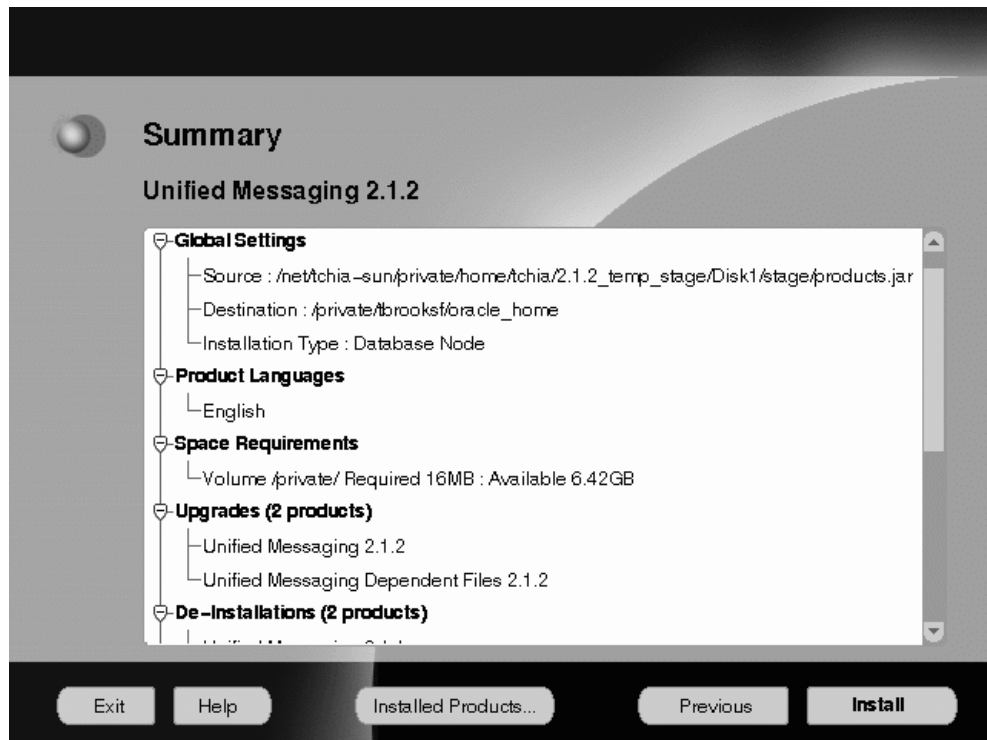
The Summary screen enables you to verify your installation settings. These settings include the source and destinations locations you specified; the installation type you selected; the product language; the space requirement for installation and the space currently available; and the Unified Messaging products that will be installed.

To change your source or destination location, or installation type, click Previous to return to the appropriate screen. Otherwise, click Install to begin installation. The progress screen displays.

This screen shows the progress of your installation. To stop installation, click Cancel.

The products are installed in the specified location. When installation is complete, the Configuration Tools screen appears.
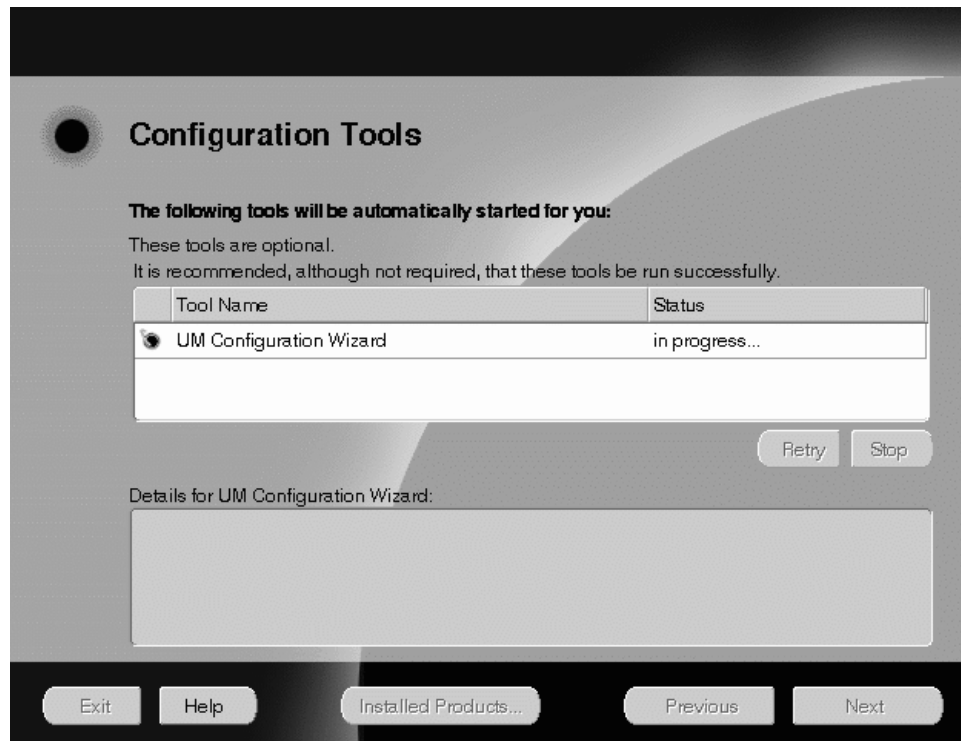
If installation was successful, the UM 2.1.2 Configuration Assistant launches.

Starting the Configuration Assistant Manually

1. Define the ORACLE _HOME environment variable in the `.login` file (for the C shell) or the `.profile` file (for the Bourne or Korn Shell):

| login (C shell) | `setenv ORACLE_HOME <directoryName>` |
| profile (Bourne or Korn shells) | `ORACLE_HOME=<directoryName>`
`export ORACLE_HOME` |

2. Run the `.profile` or `.login` file.

3. Set your JAVA_HOME directory as shown:

```
ksh/bsh -- export JAVA_HOME=<jre install directory>
csh -- setenv JAVA_HOME <jre install directory>
```

4. At the Solaris prompt, enter the command:

```
$ORACLE_HOME/um/bin/um_install.sh
```
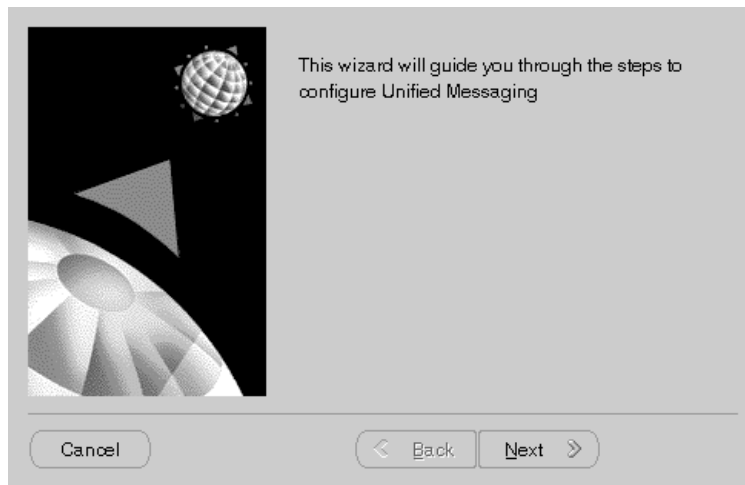

Configuration Assistant Screen Buttons

This table gives you information about the Configuration Assistant screen buttons. Click Next to proceed through the steps to configure Oracle Unified Messaging 2.1.2.

Screen Button	What it Does
Cancel	Exits you out of the Configuration Assistant.
Next	Takes you to the next screen.
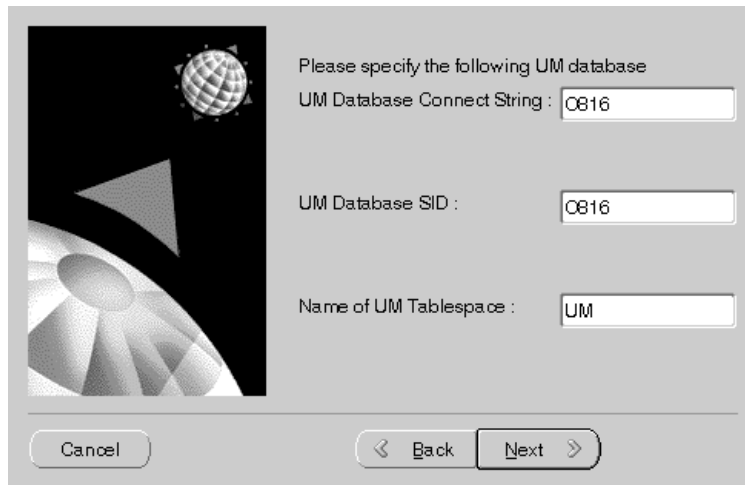
The ORACLE_HOME for Oracle UM 2.1.2 screen appears.
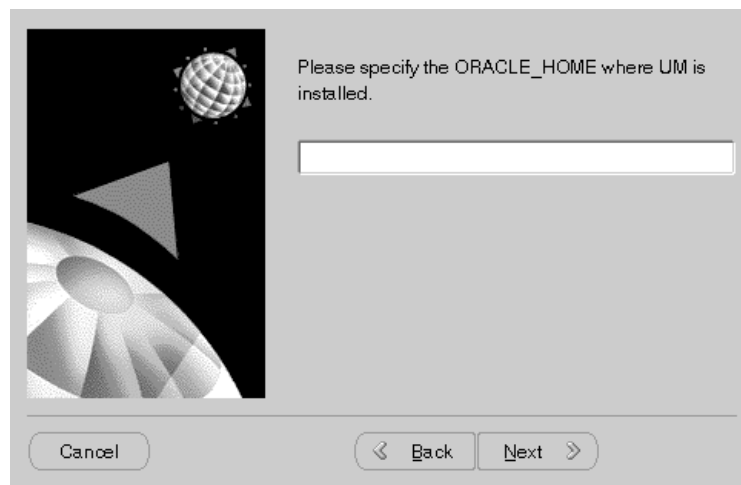
Specifying File Locations

On this screen you must specify the location of your Oracle Home, where Unified Messaging is to be installed.

Enter the directory path of the ORACLE_HOME where Unified Messaging is installed and click Next. The ORACLE_SIDs for UM 2.1.2 screen displays.
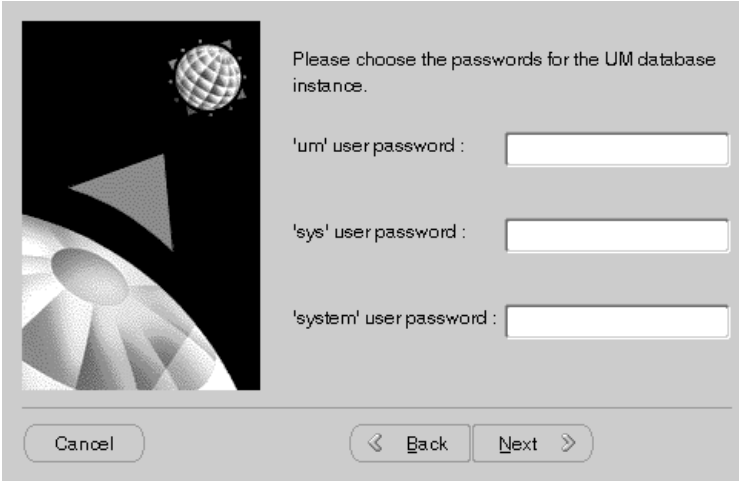
On this screen you must enter the Oracle SID and connect string for Unified Messaging, as well as the Unified Messaging tablespace name.

    *   Enter the UM connect string, UM ORACLE_SID, and the Name of UM Tablespace in the corresponding fields. See the table below for more information.

ORACLE_SID	What it Is
UM Connect String	Connect string for the database that holds the Oracle Unified Messaging objects.
UM ORACLE_SID	SID for the database that holds the Oracle Unified Messaging objects.
Name of UM Tablespace	The name of the Unified Messaging tablespace on the database.
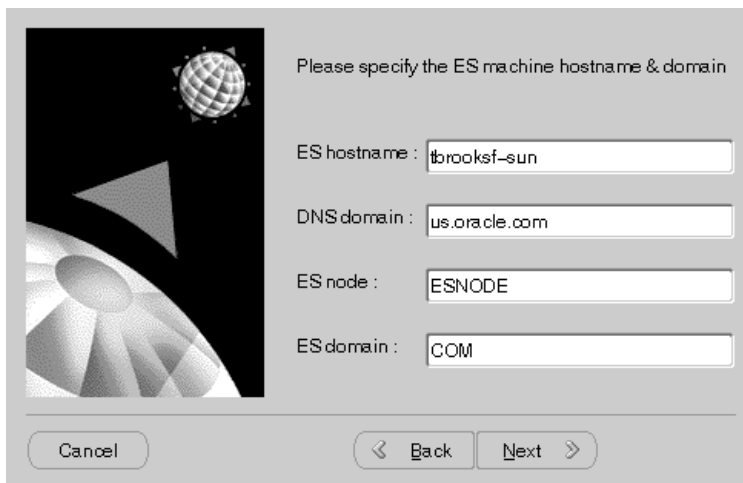
Entering Passwords

In this screen, you must enter three Unified Messaging database passwords.

Database Passwords	What it Is
UM User Password	UM database password for the UM user. All Unified Messaging objects are owned by the UM user.
	This user is created in the installation process, and the password you enter here is the user's new password.

Database Passwords	What it Is
Sys User Password	UM database password specified for the sys user. The password already exists from the database installation. It should be entered here.
System User Password	UM database password specified for the system user. The password already exists from the database installation. It should be entered here.

Enter the passwords in the corresponding fields and click Next. The ES Parameters screen displays.

Specifying Oracle eMail Server Parameters

In this screen, you must specify Oracle eMail Server parameters.

IM Parameters	What it Is
ES Hostname	Hostname and machine where ES is installed.
DNS Domain	DNS domain where ES is installed.
ES Node Name	Node name of the ES node.
ES Domain Name	Fully qualified domain name for Unified Messaging installation.

Specifying Oracle eMail Server Passwords

In this screen, you must specify passwords for your Oracle eMail Server installation.

ES User Passwords	What it Is
oo pwd for ES instance	oo user password for the ES database instance. All Oracle eMail Server objects are owned by the database user oo .

ES User Passwords	What it Is
admin pwd for oomgr	Admin user password for oomgr.
	When you installed Unified Messaging, you were prompted to enter a password for the ADMIN account. The ADMIN account is the system administrator's account (or superuser account) from which you manage objects on a given node. In addition, the ADMIN user can grant administrative privileges to other users, so that they can administer the Unified Messaging system. The ADMIN account cannot be deleted and always retains superuser privileges.

Enter the passwords and click Next. The LDAP Servers screen displays.
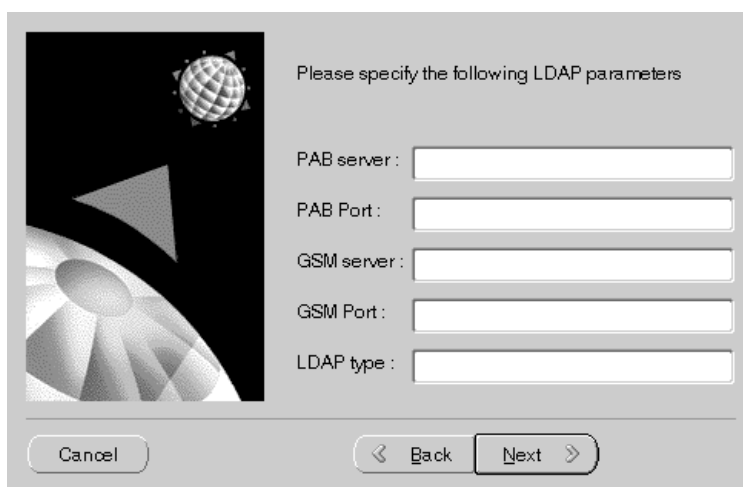
Entering LDAP Information

In this screen you must specify your LDAP Servers Parameters.

PAB - Private Address Book

GSM - Global System for Mobile

LDAP Parameters	What it Is
PAB Server	Name of the LDAP server that will be used with UM. All UM's directory information will be stored within this server.

LDAP Parameters	What it Is
PAB Port	Port number of the LDAP server specified in PAB server. Defaults to 389.
GSM Server	Name of the LDAP server to use for General Directory searching capability in UM.
GSM Server	Port number of the LDAP server specified in GSM Server. Defaults to 389.
LDAP Type	The type of LDAP server being used. Must be "oracle" for an Oracle Internet Directory.

Enter the parameters and click Next. The LDAP Domains screen displays.
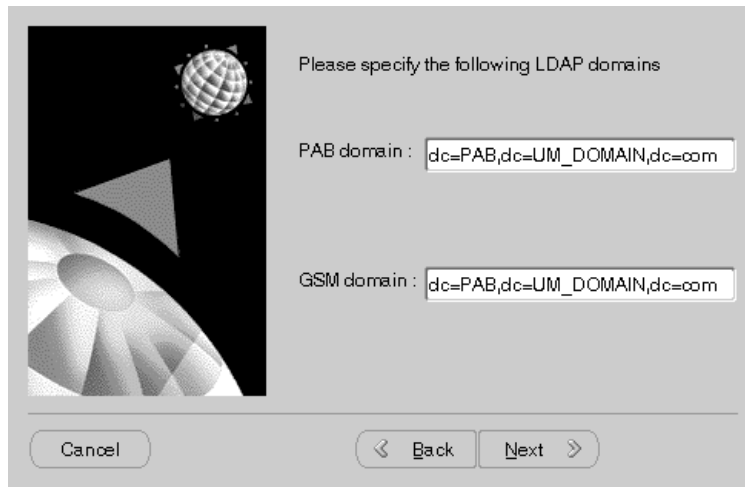
In this screen you must specify your LDAP domains.

LDAP Domains	What it Is
PAB Domain	Name of the `root` of the LDAP domain where UM will store it's information.
GSM Domain	Name of the `root` of the GSM LDAP server from where all the search functions will start.

Enter the LDAP domains and click Next. The last screen displays.
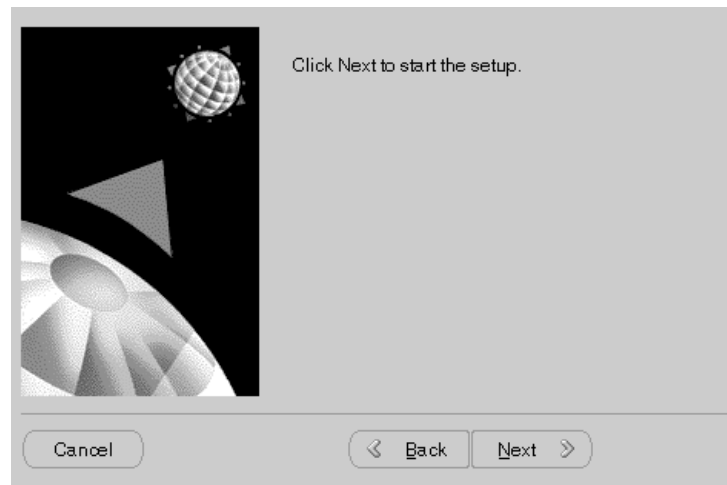
Exiting the Configuration Assistant

Click Finish to exit the Configuration Assistant.

Once you have completed installation, you must now complete the post-installation tasks. See "Post Installation Tasks" on page 3-2 to begin post-installation tasks.

3

Post Installation

This chapter describes post installation procedures for Unified Messaging. Topics include:

■ Post Installation Tasks

Post Installation Tasks

Perform the tasks described in this section after a Unified Messaging installation or upgrade.

> **Note:** You must run the following tasks in a Korn shell environment.

> **Note:** Configure Oracle eMail Server to include two rewrite rules. Please refer to chapter 10 of the *Oracle eMail Server 5.1 Administration Guide*.

Task 1: Create the Oracle Unified Messaging LDAP Schema

Use this procedure to create the schema the helpdesk will use in the LDAP server. This procedure must be performed after completing the postinstallation chapter of the *Oracle eMail Server 5.1 Installation Guide*.

> **Note:** The following tasks should be completed on the machine where Oracle Internet Directory is installed.

.ldif files are located in the following directory where Oracle Unified Messaging is installed:

```
$ORACLE_HOME/um/admin/ldap
```

All **.ldif** files must be copied from the machine where Unified Messaging is installed to the machine where Oracle Internet Directory is installed.

1. Edit the following files to specify the LDAP domains:

   ```
   oid_setup.ldif
   oid_acl.ldif
   oid_domain.ldif
   ```

2. Create the domains in the directory tree, using **oid_domain.ldif**:

   ```
   ldapmodify -D <user dn for directory admin> -w
   <password> -a -f oid_domain.ldif
   ```

3. Create search catalogs:

```
$cd  $ORACLE_HOME/ldap/bin
```

4. Execute the following:

```
catalog.sh -connect <connectString> -add -attr aliasedobjectname
catalog.sh -connect <connectString> -add -attr associateddomain
catalog.sh -connect <connectString> -add -attr dnqualifier
catalog.sh -connect <connectString> -add -attr homephone
catalog.sh -connect <connectString> -add -attr mobile
catalog.sh -connect <connectString> -add -attr pager
catalog.sh -connect <connectString> -add -attr owner
```

5. Setup the Helpdesk Administrators using **oid_setup.ldif** after changing the domains in this file. Currently, it creates HelpDesk administrators for the domain dc=PAB,dc=UM_DOMAIN,dc=com.

```
ldapmodify -D <user dn for directory admin> -w
<password> -a -f oid_setup.ldif
```

6. Setup the ACLs using **oid_acl.ldif** after changing the domains in this file. Currently, it sets up ACLs for the domain dc=PAB,dc=UM_DOMAIN,dc=com

```
ldapmodify -D <user dn for directory admin> -w
<password> -f oid_acl.ldif
```

7. Restart Oracle Internet Directory database and the Oracle Internet Directory processes.

8. Stop Oracle Internet Directory:

```
oidctl connect=<connect string> server=oidldapd instance=1 stop
```

9. Start Oracle Internet Directory:

```
oidctl connect=<connect string> server=oidldapd instance=1
configset=0 flags='-p 389' start
```

Task 2: Encoding the Helpdesk Password

> **Note:** The following tasks should be performed on the machine where the Unified Messaging server is installed.

1. Source the UM environment:

```
$ . $ORACLE_HOME/um/admin/.umenv
```

2. Encode the password:

```
$ $ORACLE_HOME/JRE/bin/jre -cp $UM_CLASSPATH $UM_PROPERTIES
oracle.um.util.EncPwd HELPDESK
```

Task 3: Configuring the `oomgr` RMI Process

The oomgr RMI process allows for Unified Messaging sessions to remotely share an `oomgr` process to do administration on Oracle eMail Server accounts. The oomgr RMI process can be run on either the Unified Messaging or the Oracle eMail Server machine.

- To run it on the Unified Messaging machine, `oomgr` executable and its message files need to be installed on the Unified Messaging machine.

- To run it on the Oracle eMail Server machine, Unified Messaging classes need to be installed and configured with the wizard in the ORACLE_HOME where Oracle eMail Server is installed.

- On machines with Unified Messaging middle-tier installation, verify that the oomgr.servername property in the properties file points to where oomgr RMI process is running. The properties file is located in the following directory:

```
$ORACLE_HOME/um/config/<hostname>.properties
```

Task 4: Starting the Unified Messaging Processes

1. Start the Unified Messaging processes.

```
$ $ORACLE_HOME/um/bin/start_mls.sh
$ $ORACLE_HOME/um/bin/start_IOoomgrRMI.sh
```

Task 5: Configuring Apache Listener Port

The default listener port without SSL is 7777 and with SSL is 80.

To configure the Apache port:

```
$vi $ORACLE_HOME/Apache/Apache/conf/httpds.conf
```

and edit the parameter called Port.

Task 6: Configuring JServ

To configure JServ for Oracle Unified Messaging, you must edit `$ORACLE_HOME/Apache/JServ/etc/jserv.properties` to add JVM properties and CLASSPATHS.

To add Oracle Unified Messaging properties, Oracle recommends adding the following lines in the same location where other properties are defined.

```
wrapper.bin.parameters=-DUM_HOME=<ORACLE_HOME>/um
wrapper.bin.parameters=-DPROPERTIES=<ORACLE_
HOME>/um/config/<MACHINE_HOST_NAME>.properties
```

To add Oracle Unified Messaging CLASSPATHs, Oracle recommends adding the following lines in the same location where other CLASSPATHs are defined.

```
wrapper.classpath=<ORACLE_HOME>/jdbc/lib/classes111.zip
wrapper.classpath=<ORACLE_HOME>/um/lib/um.jar
wrapper.classpath=<ORACLE_HOME>/um/lib/jgl.zip
wrapper.classpath=<ORACLE_HOME>/um/lib/j2ee.jar
wrapper.classpath=<ORACLE_HOME>/um/lib/ldap.jar
```

Task 7: Starting Apache JServ

Go to `$ORACLE_HOME/Apache/Apache/bin`

To start: '

```
apachectl start
```

To stop:

```
apachectl stop
```

> **Note:**   if the port is < 1024, you need to be root to start Apache.

Task 8: Configuring HelpDesk

1. Change directory to:

   ```
   $ cd $ORACLE_HOME/um/admin
   ```
2. Run oomgr:

   ```
   $ oomgr admin/<password>
   ```

3. Execute helpdesk.oom

```
iofcmgr> execute helpdesk.oom
```

4. Bring up your browser.

5. Enter the following:

```
http://<hostname>:<port>/um/activatehelpdesk.jsp
```

6. Enter the helpdesk user account password. The default password is helpdesk.

Task 9: Updating Real Audio (only if Real Audio is installed)

If Real Audio is installed, you must update the following to enable Real Audio streaming.

Update rma.home (home of RealAudio) and rma.server (server name and port number of RealAudio) in <site name>.properties.

Task 10: Updating the Tiff to Gif Executable (only if a Tiff to Gif executable is installed)

You must update your tiff to gif executable to enable your fax server to convert tiff image files to gif image files.

Edit convert.tiff.gif.sh to call the tiff to gif converter executable.

Note: The convert.tiff.gif.sh takes two arguments:

- 1st = name of the tiff file
- 2nd = destination of the gif file

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Troubleshooting

This chapter discusses troubleshooting information. Topics include:

- Log Files and Trace Files
- Troubleshooting Hints

Log Files and Trace Files

- For installation troubleshooting, refer to the `log` file in:

  `$ORACLE_HOME/um/log/install.log`

- For background Oracle Unified Messaging processes troubleshooting, refer to trace files in:

  `$ORACLE_HOME/um/trace`

- For Oracle Unified Messaging classes troubleshooting, refer to log file in:

  `$ORACLE_HOME/um/log/<date>.txt`

Troubleshooting Hints

- Make sure Oracle eMail Server is installed and working correctly,

  1. Connect directly to the IMAP ports of Oracle eMail Server:

     `$ telnet <es machine name> 143`

  2. If Oracle eMail Server is running imap4 correctly, login using:

     `a1 login helpdesk helpdesk`

  3. Response from the server should be:

     `a1 OK LOGIN completed`

  4. Log out of Oracle eMail Server:

     `a2 LOGOUT`

- Make sure that listeners on Oracle eMail Server and Oracle Unified Messaging are working correctly (using tnsping from the machines).

- Make sure that LDAP server is up and running correctly. You can issue the following command using a browser:

  `ldap://<ldap machine name>/uid=1,<PAB_DOMAIN>,`

> **Note:**   ■<PAB_DOMAIN> selected during installation.

If the data for the helpdesk is returned, then LDAP is working fine. If the data for the helpdesk is not returned, then resolve LDAP server issue using the documentation provided by the LDAP server.