# Oracle® Collaboration Suite

Preinstallation Requirements

Release 2 (9.0.4)

**Part No. B15607-01**

November 2004

ORACLE®

Oracle Collaboration Suite Preinstallation Requirements, Release 2 (9.0.4)

Part No. B15607-01



Primary Authors: Janelle Simmons, Richard Strohm

Contributors: Rajesh Bansal, Atilla Bodis, Steve Carbone, Will Chin, Jeremy Chone, Tanya Correia, Edsel delos Reyes, Saheli Dey, Vikas Dhamija, Craig Foch, Barbara Heninger, Eunhei Jang, Neal Kaplan, Mark Kennedy, George Kotsovolos, Ken Kwok, Charles Liuson, Stephanie MacLean, Matthew McKerley, Stefano Montero, Bhupen Patel, Nagarajan Ragunathan, Shubha Rangarajan, Daniel Shih, Helen Slattery, Robb Surridge, Kenneth Tang, Jennifer Waywell, David Wood

# Contents

## 2 Preinstallation Requirements for hp Tru64 UNIX

## 3 Preinstallation Requirements for Windows



## 4 Preinstallation Requirements for AIX

## 6 Patch Set Preinstallation Requirements for Windows

# Send Us Your Comments

**Oracle Collaboration Suite Preinstallation Requirements, Release 2 (9.0.4)**

**Part No. B15607-01**

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: ocsdocs_us@oracle.com
- FAX: (650) 506-7410. Attn: Oracle Collaboration Suite Documentation Manager
- Postal service:

  Oracle Corporation
  Server Technologies Documentation Manager
  500 Oracle Parkway, Mailstop 2op5
  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 Oracle Collaboration Suite Release 2 (9.0.4) preinstallation information consolidated from the following documents:

- *Oracle Collaboration Suite Installation and Configuration Guide Release 2 (9.0.4.1)*
- *Oracle Collaboration Suite Readme Release 2 Patch Set 1 (9.0.4.2)*

This preface contains these topics:



## Audience

*Oracle Collaboration Suite Preinstallation Requirements* is intended for anyone installing or configuring Oracle Collaboration Suite

To use this document, you must be familiar with one of the following platforms:

- Solaris Operating Environment (SPARC 32-bit)
- Windows
- hp Tru64 UNIX
- hp-ux PA-RISC (64-bit)
- Linux Intel
- AIX

## 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 contains:

### Part I, "Oracle Collaboration Suite Preinstallation Requirements"

Part I contains pre-installation requirements that you should read before installing Oracle Collaboration Suite Release 2 (9.0.4).

### Chapter 1, "Preinstallation Requirements for Solaris, hp-ux PA-RISC (64-bit), and Linux x86"

This chapter discusses Oracle Collaboration Suite Release 2, (9.0.4.1) preinstallation requirements for Solaris, hp-ux PA-RISC (64-bit), and Linux x86.

### Chapter 3, "Preinstallation Requirements for Windows"

This chapter discusses Oracle Collaboration Suite Release 2 (9.0.4.1) preinstallation requirements for Windows.

### Chapter 2, "Preinstallation Requirements for hp Tru64 UNIX"

This chapter discusses Oracle Collaboration Suite Release 2 (9.0.4.1) preinstallation requirements for hp Tru64 UNIX.

### Chapter 4, "Preinstallation Requirements for AIX"

This chapter discusses Oracle Collaboration Suite Release 2 (9.0.4.1) preinstallation requirements for AIX.

### Part II, "Oracle Collaboration Suite Patch Set Preinstallation Requirements"

Part II contains pre-installation requirements that you should read before installing Oracle Collaboration Suite Release 2 Patch Set 1 (9.0.4.2)

### Chapter 5, "Patch Set Preinstallation Requirements for Solaris, hp-ux PA-RISC (64-bit), and Linux x86"

This chapter discusses Oracle Collaboration Suite Release 2, Patch Set 1 (9.0.4.2) preinstallation requirements for Solaris.

### Chapter 6, "Patch Set Preinstallation Requirements for Windows"

This chapter discusses Oracle Collaboration Suite Release 2, Patch Set 1 (9.0.4.2) preinstallation requirements for Windows.

## Related Documents

For more information, see these Oracle resources:

- Oracle Collaboration Suite Documentation Library, Release 2 (9.0.4)
- Oracle9*i* Application Server Documentation Library, Release 2
- Oracle9*i* Database Documentation Library, Release 2
- Oracle9*i*AS Portal Documentation Library, Release 2

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://otn.oracle.com/membership/`

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

`http://otn.oracle.com/documentation/`

For additional information, see:

Third-Party Book by (insert first and last names of authors). (insert name of publisher), (insert publication date).

## 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 for Windows Operating Systems

### 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 |
|---|---|---|
| **Bold** | Bold typeface indicates terms that are defined in the text or terms that appear in a glossary, or both. | When you specify this clause, you create an **index-organized table**. |
| *Italics* | Italic typeface indicates book titles or emphasis. | *Oracle Database Concepts*<br>Ensure that the recovery catalog and target database do *not* reside on the same disk. |

| Convention | Meaning | Example |
|---|---|---|
| UPPERCASE monospace (fixed-width) font | Uppercase monospace typeface indicates elements supplied by the system. Such elements include parameters, privileges, datatypes, RMAN keywords, SQL keywords, SQL*Plus or utility commands, packages and methods, as well as system-supplied column names, database objects and structures, usernames, and roles. | You can specify this clause only for a NUMBER column.<br>You can back up the database by using the BACKUP command.<br>Query the TABLE_NAME column in the USER_TABLES data dictionary view.<br>Use the DBMS_STATS.GENERATE_STATS procedure. |
| lowercase monospace (fixed-width) font | Lowercase monospace typeface indicates executable programs, filenames, directory names, and sample user-supplied elements. Such elements include computer and database names, net service names and connect identifiers, user-supplied database objects and structures, column names, packages and classes, usernames and roles, program units, and parameter values.<br>*Note:* Some programmatic elements use a mixture of UPPERCASE and lowercase. Enter these elements as shown. | Enter sqlplus to start SQL*Plus.<br>The password is specified in the orapwd file.<br>Back up the datafiles and control files in the /disk1/oracle/dbs directory.<br>The department_id, department_name, and location_id columns are in the hr.departments table.<br>Set the QUERY_REWRITE_ENABLED initialization parameter to true.<br>Connect as oe user.<br>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*.<br>Run *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 |
|---|---|---|
| [ ] | Anything enclosed in brackets is optional. | DECIMAL (*digits* [ , *precision* ]) |
| { } | Braces are used for grouping items. | {ENABLE \| DISABLE} |
| \| | A vertical bar represents a choice of two options. | {ENABLE \| DISABLE}<br>[COMPRESS \| NOCOMPRESS] |
| ... | Ellipsis points mean repetition in syntax descriptions.<br>In addition, ellipsis points can mean an omission in code examples or text. | CREATE TABLE ... AS *subquery*;<br>SELECT *col1*, *col2*, ... , *coln* FROM employees; |
| Other symbols | You must use symbols other than brackets ([ ]), braces ({ }), vertical bars (\|), and ellipsis points (...) exactly as shown. | acctbal NUMBER(11,2);<br>acct CONSTANT NUMBER(4) := 3; |
| *Italics* | Italicized text indicates placeholders or variables for which you must supply particular values. | CONNECT SYSTEM/*system_password*<br>DB_NAME = *database_name* |

| Convention | Meaning | Example |
|---|---|---|
| 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. Because these terms are not case sensitive, you can use them in either UPPERCASE or lowercase. | `SELECT last_name, employee_id FROM employees;`<br>`SELECT * FROM USER_TABLES;`<br>`DROP TABLE hr.employees;` |
| lowercase | Lowercase typeface indicates user-defined programmatic elements, such as names of tables, columns, or files.<br>**Note:** Some programmatic elements use a mixture of UPPERCASE and lowercase. Enter these elements as shown. | `SELECT last_name, employee_id FROM employees;`<br>`sqlplus hr/hr`<br>`CREATE USER mjones IDENTIFIED BY ty3MU9;` |

## Conventions for Windows Operating Systems

The following table describes conventions for Windows operating systems and provides examples of their use.

| Convention | Meaning | Example |
|---|---|---|
| Choose **Start** > *menu item* | How to start a program. | To start the Database Configuration Assistant, choose **Start** > **Programs** > **Oracle** - *HOME_NAME* > **Configuration and Migration Tools** > **Database Configuration Assistant**. |
| File and directory names | File and directory names are not case sensitive. The following special characters are not allowed: left angle bracket (<), right angle bracket (>), colon (:), double quotation marks ("), slash (/), pipe (\|), and dash (-). The special character backslash (\) is treated as an element separator, even when it appears in quotes. If the filename begins with \\, then Windows assumes it uses the Universal Naming Convention. | c:\winnt"\"system32 is the same as C:\WINNT\SYSTEM32 |
| C:\> | Represents the Windows command prompt of the current hard disk drive. The escape character in a command prompt is the caret (^). Your prompt reflects the subdirectory in which you are working. Referred to as the *command prompt* in this manual. | `C:\oracle\oradata>` |
| Special characters | The backslash (\) special character is sometimes required as an escape character for the double quotation mark (") special character at the Windows command prompt. Parentheses and the single quotation mark (') do not require an escape character. Refer to your Windows operating system documentation for more information on escape and special characters. | `C:\>exp HR/HR TABLES=employees QUERY=\"WHERE job_id='SA_REP' and salary<8000\"` |
| *HOME_NAME* | Represents the Oracle home name. The home name can be up to 16 alphanumeric characters. The only special character allowed in the home name is the underscore. | `C:\> net start Oracle`*HOME_NAME*`TNSListener` |

| Convention | Meaning | Example |
|---|---|---|
| *ORACLE_HOME* and *ORACLE_BASE* | In releases prior to Oracle8*i* release 8.1.3, when you installed Oracle components, all subdirectories were located under a top level *ORACLE_HOME* directory. The default for Windows NT was `C:\orant`.<br><br>This release complies with Optimal Flexible Architecture (OFA) guidelines. All subdirectories are not under a top level *ORACLE_HOME* directory. There is a top level directory called *ORACLE_BASE* that by default is `C:\oracle\product\10.1.0`. If you install the latest Oracle release on a computer with no other Oracle software installed, then the default setting for the first Oracle home directory is `C:\oracle\product\10.1.0\db_`*n*, where *n* is the latest Oracle home number. The Oracle home directory is located directly under *ORACLE_BASE*.<br><br>All directory path examples in this guide follow OFA conventions.<br><br>Refer to *Oracle Database Installation Guide for Windows* for additional information about OFA compliances and for information about installing Oracle products in non-OFA compliant directories. | Go to the *ORACLE_BASE*`\`*ORACLE_HOME*`\rdbms\admin` directory. |

# Part I

# Oracle Collaboration Suite Preinstallation Requirements

Part I contains pre-installation requirements that you should read before installing Oracle Collaboration Suite Release 2 (9.0.4).

Part 1 contains the following chapters:

# 1

# Preinstallation Requirements for Solaris, hp-ux PA-RISC (64-bit), and Linux x86

This chapter discusses Oracle Collaboration Suite Release 2, (9.0.4.1) preinstallation requirements for Solaris, hp-ux PA-RISC (64-bit), and Linux x86.

This chapter contains these topics:



## Hardware Requirements

Table 1–1 describes the minimum hardware requirements for each installation of Oracle Collaboration Suite.

***Table 1–1 Oracle Collaboration Suite Hardware Requirements*** [1]

| Requirement | Value |
|---|---|
| Solaris Operating Environment (SPARC 32-bit) CPU[2] | SPARC Processor |
| hp-ux PA-RISC (64-bit) CPU[2] | HP 9000 Series hp-ux processor for hp-ux 11.0 (64-bit)<br>HP 9000 Series hp-ux processor for hp-ux 11.11 (64-bit) |
| Linux x86 CPU[2] | Pentium II 233 MHz or better (32-bit) |
| Monitor | 256 color viewing capability |

***Table 1–1 (Cont.) Oracle Collaboration Suite Hardware Requirements [1]***

| Requirement | Value |
|---|---|
| `/var/tmp` Directory Space | Oracle Collaboration Suite: 33 MB<br>Oracle9*i*AS Infrastructure: 7 MB<br>Oracle Collaboration Suite Information Storage: 34 MB |
| Swap Space | 2 GB |
| Memory<br>(minimum requirement) | Oracle Collaboration Suite: 512 MB<br>Oracle9*i*AS Infrastructure: 512 MB<br>Oracle Collaboration Suite information storage: 512 MB<br>**Note:** Allocate additional memory depending on the applications and the number of users on the systems.<br>Additional memory for Oracle Collaboration Suite information storage installations on hp-ux PA-RISC (64-bit) is required. If you are installing Oracle Real Application Clusters on a cluster with Hyper Messaging Protocol (HMP), each Oracle shadow process using HMP requires an additional 0.3 MB of memory. |
| Disk Space for Solaris Operating Environment (SPARC 32-bit) | Oracle Collaboration Suite: 1.84 GB<br>Oracle9*i*AS Infrastructure: 3.96 GB<br>Oracle Collaboration Suite Information Storage: 4.25 GB<br>**Note**: While the Install Actions log file lists required disk space for the information storage database at 2.38 GB, the file does not consider the space necessary to create the database, nor does it consider the space necessary for middle tier applications deployed against the database. |
| Disk Space for hp-ux PA-RISC (64-bit) | Oracle Collaboration Suite: 4.8 GB<br>Oracle9*i*AS Infrastructure: 5.9 GB<br>Oracle Collaboration Suite Information Storage: 4.3 GB |
| Disk Space for Linux x86 | Oracle Collaboration Suite: 2.5 GB<br>Oracle9*i*AS Infrastructure: 4.2 GB<br>Oracle Collaboration Suite Information Storage: 3.8 GB |

[1] For detailed information regarding Oracle Files hardware and sizing requirements, see the *Oracle Files Planning Guide*.

[2] An additional CPU is recommended on the computer where the Oracle Collaboration Suite information store is running if you want Oracle Text indexing of documents in Oracle Files or e-mail messages in Oracle Email.

**Note:** Regardless of the operating system, disk space must be available on a single disk. Oracle Collaboration Suite does not support spanning the installation over multiple disks.

**Note:** To use Hewlett Packard's Hyper Messaging Protocol (HMP) for cluster interconnection in an Oracle Real Application Clusters environment on hp-ux PA-RISC (64-bit), you must have Hewlett Packard proprietary HyperFabric Switches (product A6384a, the fiber-based HyperFabric2 switch), as well as the adapter cards A6386a and A7525a fiber cable.

**Note:** If you are performing an upgrade, the Oracle Collaboration Suite upgrade assistant creates four new tablespaces for Oracle Email. See Chapter 3 of the *Oracle Collaboration Suite Installation and Configuration Guide for Solaris* for information about space requirements for these additional tablespaces.

### Determining Random Access Memory

Use the following command to determine the amount of random access memory installed on Solaris Operating Environment (SPARC 32-bit):

```
prompt> /usr/sbin/prtconf | grep "Memory size"
```

Use the following command to determine the amount of random access memory installed on hp-ux PA-RISC (64-bit):

```
prompt> grep MemTotal /proc/meminfo
```

Use the following command to determine the amount of random access memory installed on Linux x86:

```
prompt> /usr/sbin/dmesg | grep "Physical"
```

### Determining Swap Space

Table 1–2 lists the commands to determine the amount of swap space currently configured in your system. Enter one of the commands listed in Table 1–2, according to your platform.

***Table 1–2 Determining Swap Space***

| Platform | Command |
|---|---|
| Solaris Operating Environment (SPARC 32-bit) | `prompt> /usr/sbin/swap -1` |
| hp-ux PA-RISC (64-bit) | `prompt> /usr/sbin/swapinfo -a` |
| Linux x86 | `prompt> /sbin/swapon -s` |

From the output of the command that you enter, divide the value shown in the BLOCKS column by 2.

## Additional Hardware Requirements for Oracle Web Conferencing

There are several hardware sizing considerations for Oracle Web Conferencing. The *Oracle Web Conferencing Sizing Guide* has complete information about these considerations. This section provides information about required hardware for the Voice Conversion Server used by Oracle Web Conferencing to support streaming voice data during conferences or playback of recorded conferences with voice data.

The Voice Conversion server must be installed on a computer with Microsoft Windows 2000 Server SP4 or above, with the following basic configuration:

- 2.4 GHz Intel Processor
- 512 MB SDRAM
- 20 GB disk

In addition, you need specialized telephony hardware. You need a T1 or E1 trunk, and a media processing board from Intel / Dialogic to support the trunk. The T1/E1 protocol supported by Oracle Web Conferencing is robbed-bit /CAS (Channel Associated Signaling). The following tables list hardware and sizing recommendations depending on the number of concurrent voice conferences, the type of and number of trunk lines, and the number of Voice Conversion Servers.

***Table 1–3 Sizing Recommendations for Voice Conversion Using T1***

| Concurrent Voice Conferences | T1 Lines | Voice Servers | Dialogic Hardware Needed per Voice Server |
|---|---|---|---|
| 12 | 1 | 1 | D/240JCT-T1 |
| 24 | 1 | 1 | D/480JCT-T1 |
| 48 | 2 | 1 | 2 x D/480JCT-T1 |
| 96 | 4 | 2 | 2 x D/480JCT-T1 |
| 192 | 8 | 4 | 2 x D/480JCT-T1 |

***Table 1–4 Sizing Recommendations for Voice Conversion Using E1***

| Concurrent Voice Conferences | T1 Lines | Voice Servers | Dialogic Hardware Needed per Voice Server |
|---|---|---|---|
| 15 | 1 | 1 | D/300JCT-E1 |
| 30 | 1 | 1 | D/300JCT-E1 |
| 60 | 2 | 1 | 2 x D/600JCT-E1 |
| 120 | 4 | 2 | 2 x D/600JCT-E1 |
| 240 | 8 | 4 | 2 x D/600JCT-E1 |

**See Also:** *Oracle Web Conferencing Sizing Guide* for specific information on sizing requirements for your system

# Operating System Versions

Table 1–5 lists the operating system version required by each platform, and the command to determine the current operating system version.

*Table 1–5 Operating System Versions and Requirements*

| Platform | Operating System Requirements | Command |
|---|---|---|
| Solaris Operating Environment (SPARC 32-bit) | ■ Solaris 8 | `prompt> uname -a` |
| hp-ux PA-RISC (64-bit) | ■ hp-ux 11.0 PA-RISC (64-bit)<br>■ hp-ux 11.11 PA-RISC (64-bit)<br>■ JDK 1.3.1[1]<br>■ The following executables must be present in the `/usr/ccs/bin` directory: `make`, `ar`, `ld`, `nm`, and `cc`. | `prompt> uname -a` |
| Linux x86 | ■ Red Hat Advanced Server 2.1. Requires kernel 2.4.9-e.12<br>■ glibc 2.2.4-26<br>■ binutils-2.11.90.0.8-13<br>■ XFree86 Development 3.3.3.1 or later<br>■ Open Motif 2.1.30<br>■ JDK 1.3.1 (Supplied with this release) | `prompt> uname -a`<br>`prompt> rpm -q glibc`<br>`prompt> rpm -q binutils` |

[1] You must also install any prerequisite patches for JDK. These patches are available from the Hewlett Packard Web site.

# Operating System Patches and Packages

Your operating system can require the installation of patches and packages. Several of the patches listed in the following tables have dependency patches that must also be installed. See the `readme` files included with the patches and packages for additional information. When downloading a specific patch or package, verify dependencies and download the dependency patches or packages, if required.

> **Note:** Your operating system must include the `sendmail` program.

This section contains these topics:

- Additional Operating System Requirements

## Operating System Patch and Package Download Locations

Table 1–6 lists the locations from which to download the operating system patches for each platform.

***Table 1–6 Operating System Patch Download Locations***

| Platform | Download Location |
|---|---|
| Solaris Operating Environment (SPARC 32-bit) | Download the patches at<br>`http://sunsolve.sun.com/` |
| hp-ux PA-RISC (64-bit) | Download patch bundles at<br>`http://www.software.hp.com/SUPPORT_PLUS`<br>Download individual patches at<br>`http://itresourcecenter.hp.com` |
| Linux x86 | Contact Linux vendor for downloading patches |

## Determining Installed Patches

Table 1–7 lists the commands to determine if a specific patch is installed for each platform.

***Table 1–7 Commands to Determine Installed Patches***

| Platform | Command |
|---|---|
| Solaris Operating Environment (SPARC 32-bit) | `prompt> showrev -p \| grep` *`six_digit_patch_number`* |
| hp-ux PA-RISC (64-bit) | `prompt> /usr/sbin/swlist -l patch` |
| Linux x86 | `prompt> rpm -qa` |

## Required Solaris Operating Environment (SPARC 32-bit) Patches for Oracle9*i*AS Infrastructure and Oracle Collaboration Suite

Table 1–8 lists the operating system patches you must install for Oracle9*i*AS Infrastructure installation and Oracle Collaboration Suite installation on Solaris Operating Environment (SPARC 32-bit).

***Table 1–8 Oracle9iAS Infrastructure and Oracle Collaboration Suite***

| Operating System | Patch |
|---|---|
| Solaris 8 | ■ Latest recommended patch cluster<br>■ Xsun patch: 108652-37 or later<br>■ CDE `dtwm` patch: 108921-13 or later<br>■ Motif 2.1 patch: 108940-37 or later<br>■ Portal and Wireless patch: 112138-01 or later |

## Required Solaris Operating Environment (SPARC 32-bit) Patches for Oracle Collaboration Suite Information Storage

There are no required operating system patches you must install for Oracle Collaboration Suite information storage installation on Solaris Operating Environment (SPARC 32-bit).

## Required hp-ux PA-RISC (64-bit) Patches for Oracle9*i*AS Infrastructure and Oracle Collaboration Suite

Install the following operating system patches for Oracle9*i*AS Infrastructure and Oracle Collaboration Suite installations on hp-ux PA-RISC (64-bit).

***Table 1–9 Patches and Packages for Oracle9iAS Infrastructure and Oracle Collaboration Suite***

| Operating System | Packages and Patches |
|---|---|
| hp-ux 11.0 PA-RISC (64-bit) | ▪ Sept 2002 QPK1100<br>▪ PHKL_27813 |
| hp-ux 11.11 PA-RISC (64-bit) | ▪ GOLDQPK11i<br>▪ PHCO_24402<br>▪ PHCO_24777<br>▪ PHCO_25452<br>▪ PHKL_23006<br>▪ PHKL_23154<br>▪ PHKL_23176<br>▪ PHKL_24255<br>▪ PHKL_24569<br>▪ PHKL_24751<br>▪ PHKL_25389<br>▪ PHKL_25729<br>▪ PHKL_25840<br>▪ PHKL_25842<br>▪ PHNE_22727<br>▪ PHNE_24910<br>▪ PHNE_25485<br>▪ PHSS_23441<br>▪ PHSS_24045 |

## Required hp-ux PA-RISC (64-bit) Patches for Oracle Collaboration Suite Information Storage

Install the operating system patches listed in Table 1–9 for Oracle Collaboration Suite information storage installation on hp-ux PA-RISC (64-bit).

## Operating System Requirements to Support Real Application Clusters

Table 1–10 lists the operating system packages and patches required to support Real Application Clusters.

*Table 1–10 Patches and Packages for Real Application Clusters*

| Platform | Packages and Patches |
|---|---|
| Solaris Operating Environment (SPARC 32-bit) | `racpatch` |
| hp-ux PA-RISC for 11.0 (64-bit) | ▪ MC/ServiceGuard A.11.13 OPS Edition<br>▪ PHNE_26177 is required if the lowfat protocol is used for interinstance communications across Oracle instances in Real Application Clusters environments. Lowfat protocol is a low-latency/high bandwidth protocol implemented over special hardware called hyperfabric interconnects. See the documentation included with PHNE_26177 for more information.<br>▪ PHSS_25915 |
| hp-ux PA-RISC for 11.11 (64-bit) | ▪ MC/ServiceGuard A.11.09 OPS Edition<br>▪ PHSS_26338 |
| Linux x86 | Not Applicable |

**Note:** For Sun Clusters, install `racpatch` as described in "Additional root User Information for Solaris Operating Environment (SPARC 32-bit)" on page 1-17.

## JRE Patches

Table 1–11 lists required or recommended JRE patches.

*Table 1–11 JRE Patches*

| Platform | Patch | Required or Recommended |
|---|---|---|
| Solaris 8 | Not Applicable | Not Applicable |
| hp-ux PA-RISC (64-bit) | PHCO_23792 | Recommended |
| | PHCO_24148 | Recommended |
| | PHKL_25475 | Recommended |
| | PHNE_23456 | Recommended |
| | PHNE_24034 | Recommended |
| | PHSS_24303 | Recommended |
| Linux x86 | Not Applicable | Not Applicable |

## Operating System and Fonts Packages (Solaris Only)

Table 1–12 lists the required operating system and font packages for Solaris Operating Environment (SPARC 32-bit).

*Table 1–12 Required Operating System and Font Packages for Solaris Operating Environment (SPARC 32-bit)*

| Package Type | Required Packages |
|---|---|
| Operating system | `SUNWarc`, `SUNWbtool`, `SUNWhea`, `SUNWlibm`, `SUNWlibms`, `SUNWsprot`, and `SUNWtoo` |

***Table 1–12 (Cont.) Required Operating System and Font Packages for Solaris Operating Environment (SPARC 32-bit)***

| Package Type | Required Packages |
|---|---|
| Font packages for Java | SUNWi1of and SUNWxwfnt are required for all locations. You may need to obtain additional font packages to support font styles used at your location. A list of Solaris Operating Environment (SPARC 32-bit) font packages is available at: http://java.sun.com/j2se/1.3/font-requirements.html. |

To check whether an operating systems package is installed, enter:

```
prompt> pkginfo -p package_name
```

where *package_name* is the name of the package that you want to check.

## Additional Operating System Requirements

Table 1–13 lists additional software required for all platforms:

***Table 1–13 Additional Required Operating System Requirements***

| Software | Requirement |
|---|---|
| X Server and Window Manager | Use any X Server and window manager supported by your UNIX operating system.<br>For Hummingbird Exceed, use a native window manager.<br>For WRQ Reflections, allow a remote window manager.<br>To determine if your X Window System is working properly on your local system, enter the following command:<br>`prompt> xclock`<br>The X clock should appear on your monitor. |
| Required executables | The following executables must be present: make, ar, ld, and nm. |

# Additional Software Requirements for Oracle Web Conferencing

Oracle Web Conferencing uses a Document Conversion Server to convert Microsoft Office documents into HTML or other compatible formats for sharing during conferences. The server must reside on a separate computer from the middle tier, and it must have Microsoft Windows NT and Microsoft Office 2000 or Microsoft Office XP.

Oracle Web Conferencing also uses a Voice Conversion Server to support streaming voice data during conferences or playback of recorded conferences with voice data. The server requires Microsoft Windows 2000 Server SP4 or above, and Intel Dialogic System Software 5.1.1 SP1 or above.

**See Also:** *Oracle Web Conferencing Sizing Guide* for more details about required hardware and software

**See Also:** "Additional Hardware Requirements for Oracle Web Conferencing" on page 1-3 for voice conversion server hardware requirements

# Multilingual Support

The Oracle Collaboration Suite user interface is available in the following languages: Arabic, Brazilian Portuguese, Danish, Dutch, English, Finnish, French, German, Greek, Italian, Japanese, Korean, Norwegian, Portuguese, Simplified Chinese, Spanish, Swedish, Traditional Chinese, and Turkish.

## Oracle Calendar Multilingual Support Limitations

Oracle Calendar server administration tools have an English interface but support entering data in all Oracle Collaboration Suite supported languages.

The Oracle Calendar clients are available only in English with the following exceptions:

- **Oracle Connector for Outlook**: All Oracle Collaboration Suite supported languages, except Arabic
- **Oracle Calendar Web client**: All Oracle Collaboration Suite supported languages, except Arabic
- **Oracle Calendar desktop client for Windows**: English, French, German, and Japanese
- **Oracle Calendar Sync for Palm for Windows**: English, French, German, and Japanese
- **Oracle Calendar Sync for Pocket PC for Windows**: English, French, German, and Japanese

# Online Documentation Requirements

You can view Oracle Collaboration Suite documentation online using a Web browser or Portable Document Format (PDF) Viewer.

Table 1–14 lists the requirements for viewing Oracle Collaboration Suite online documentation.

***Table 1–14 Online Documentation Requirements***

| Requirement | Items |
|---|---|
| Online Readers | Any one of the following:<br>HTML<br>■ Netscape Navigator 4.7 or later<br>■ Microsoft Internet Explorer 5.0 or later<br>PDF<br>■ Acrobat Reader 4.0 or later<br>■ Acrobat Reader+Search 4.0 or later<br>■ Acrobat Exchange 4.0 or later<br>■ PDFViewer Web browser plug-in 1.0 or later |
| Library-wide HTML search and navigation | Active Internet connection |
| Disk Space | 37.5 MB |

**See Also:** *Oracle Collaboration Suite Documentation Roadmap*

## Port Allocations

Following installation, Oracle Universal Installer creates a file named `portlist.ini` showing the ports assigned during the installation of Oracle Collaboration Suite components. The installation process automatically detects any port conflicts and selects an alternate port in the range allocated for that component. The file is located at:

```
$ORACLE_HOME/install/portlist.ini
```

## Certified Software

Many Oracle Collaboration Suite components require a Web browser. All Oracle Collaboration Suite installations require an Oracle9*i*AS Infrastructure and Oracle9*i* database. A complete list of certified software, including certified Oracle9*i*AS Infrastructure releases, database releases, and Web browsers for Oracle Collaboration Suite is located at Oracle*MetaLink*:

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

## Release Notes

Before installing Oracle Collaboration Suite, Oracle Corporation recommends that you read *Oracle Collaboration Suite Release Notes*, available in the `doc` directory of each Oracle Collaboration Suite installation CD-ROM and on Oracle Technology Network. See *Oracle Collaboration Suite Documentation Roadmap* for more information about Oracle Collaboration Suite documentation. Although this document is accurate at the time of publication, you can access the latest information and documentation on Oracle Technology Network:

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

## Environment Preinstallation Tasks

This section contains these topics:



### Setting Environment Variables

Table 1–15 explains how to set and unset environment variables.

*Table 1–15 Setting and Unsetting Environment Variables*

| To... | C shell | Bourne/Korn shell |
|---|---|---|
| Set an environment variable | `prompt> setenv VARIABLE value` | `prompt> VARIABLE=value;export VARIABLE` |
| Unset an environment variable | `prompt> unsetenv VARIABLE` | `prompt> unset VARIABLE` |

**Note:** You do not need to set the environment variables `LD_LIBRARY_PATH`, `ORACLE_HOME`, `SHLIB_PATH`, `TMP`, `TMPDIR`, and `TNS_ADMIN`.

### DISPLAY

Before starting Oracle Universal Installer, set the `DISPLAY` environment variable to refer to the X Server that displays Oracle Universal Installer. The format of the `DISPLAY` environment variable is:

*hostname:display_number.screen_number*

Oracle Collaboration Suite requires a running X Server to properly create graphics for Oracle Universal Installer, Web applications, and management tools. The frame buffer X Server installed with your operating system requires that you remain logged in and have the frame buffer running at all times. If you do not want to do this, then you must use a virtual frame buffer, such as X Virtual Frame Buffer (XVFB) or Virtual Network Computing (VNC).

Oracle Universal Installer configures this instance to use the same X Server from the installation process for applications and management tools. This X Server must either always be running or you must reconfigure Oracle Collaboration Suite to use another X Server that is always running after the installation completes.

**See Also:**

- Your operating system documentation for more information about the `DISPLAY` environment variable
- Oracle Technology Network (`http://otn.oracle.com/`) for information about obtaining and installing XVFB or other virtual frame buffer solutions. Search Oracle Technology Network for "frame buffer".

### Installing From a Remote Computer

Setting the `DISPLAY` environment variable enables you to run Oracle Universal Installer remotely from another workstation. On the system where you launch Oracle Universal Installer, set `DISPLAY` to the system name or IP address of your local workstation.

**Note:** You can use a PC X emulator to run the install if it supports a PseudoColor color model or PseudoColor visual. Set the PC X emulator to use a PseudoColor visual, and then start Oracle Universal Installer. See the X emulator documentation for instructions on how to change the color model or visual settings.

If you get an Xlib error similar to "Failed to connect to server", "Connection refused by server," or "Can't open display" when starting Oracle Universal Installer, then run the commands on your local workstations as listed in Table 1–16.

***Table 1–16 DISPLAY Environment Variable Commands***

| Shell Types | On Server Where Oracle Universal Installer Is Running | In Session on Your Workstation |
|---|---|---|
| C shell | `prompt> setenv DISPLAY hostname:0.0` | `prompt> xhost + server_name` |
| Bourne/Korn shell | `prompt> DISPLAY=hostname:0.0;export DISPLAY` | `prompt> xhost + server_name` |

## Creating Required Symbolic Links on hp-ux Systems

If you are installing on hp-ux, you must manually create symbolic links before performing the installation.

To create the required links:

1. Log into the system as the root user.
2. Change directory to /usr/lib.
3. Enter the following commands to create the symbolic links:

```
# ln -s /usr/lib/libX11.3 libX11.sl
# ln -s /usr/lib/libXIE.2 libXIE.sl
# ln -s /usr/lib/libXext.3 libXext.sl
# ln -s /usr/lib/libXhp11.3 libXhp11.sl
# ln -s /usr/lib/libXi.3 libXi.sl
# ln -s /usr/lib/libXm.4 libXm.sl
# ln -s /usr/lib/libXp.2 libXp.sl
# ln -s /usr/lib/libXt.3 libXt.sl
# ln -s /usr/lib/libXtst.2 libXtst.sl
```

## Hostnames File Configuration

Oracle Universal Installer requires that the fully-qualified hostname information appear in the configuration files for your computer. A fully-qualified hostname includes both the name of the system and its domain.

Failure to properly configure the hostname information in the listed files may result in runtime errors during Oracle Collaboration Suite installation.

Verify that `/etc/hosts` has the following format:

```
ip_address fully_qualified_hostname short_hostname aliases
```

The following example shows a properly configured `/etc/hosts` file:

```
148.87.9.44 oasdocs.us.oracle.com oasdocs oracleinstall
```

Verify that the `hostname` command returns this fully-qualified hostname before starting the install.

### Additional Hostnames Files Configuration for Solaris Operating Environment (SPARC 32-bit)

Solaris Operating Environment (SPARC 32-bit) installations require that the following additional files be configured with the fully-qualified hostname:

- `/etc/nodename`

- /etc/inet/hosts
- /etc/hostname*
- /etc/net/ticlts/hosts
- /etc/net/ticots/hosts
- /etc/net/ticotsord/hosts
- /etc/inet/ipnodes

> **Note:** The hostname can appear in each of these files more than once. You must add the domain information to every occurrence of the hostname. The only exceptions are /etc/hosts and /etc/inet/hosts files, where the domain information only needs to be added once, immediately after the Internet Protocol (IP) address.

## Creating UNIX Accounts and Groups

The installation process requires a special UNIX account and several special groups. See the following subsections for more information:

- UNIX Group Name for the Oracle Universal Installer Inventory
- UNIX Account to Own Oracle Software
- UNIX Group Names for Privileged Groups

> **Note:** You must use the same operating system user account when adding additional Oracle Collaboration Suite installations on the same host.

### UNIX Group Name for the Oracle Universal Installer Inventory

Use the admintool or groupadd utility to create a group name such as oinstall. The oinstall group owns the Oracle Universal Installer oraInventory directory. The oracle user account that runs the installation must have the oinstall group as its primary group.

> **Note:** The UNIX group name must not exceed 8 characters, otherwise the Oracle Calendar configuration assistant will fail.

For more information about these utilities, see your operating system documentation.

### UNIX Account to Own Oracle Software

The oracle account is the UNIX account that owns Oracle software for your system. You must run Oracle Universal Installer from this account.

Create an oracle account with the properties listed in Table 1–17.

***Table 1–17 Oracle Account Properties***

| Variable | Property |
|---|---|
| Login Name | Select any name to access the account. This document refers to the name as the oracle account. |

*Table 1–17 (Cont.) Oracle Account Properties*

| Variable | Property |
|---|---|
| Group Identifier | The `oinstall` group is used in this document. |
| Home Directory | Select a home directory consistent with other user home directories. |
| Login Shell | The default shell can be either the C, Bourne, or Korn shell. |

**Note:** Use the `oracle` account only for installing and maintaining Oracle software. Never use it for purposes unrelated to Oracle Universal Installer. Do not use `root` as the `oracle` account.

### UNIX Group Names for Privileged Groups

Two privileged groups are required for Oracle9*i*AS Infrastructure installation and Oracle Collaboration Suite information storage installation:

- Database operator group
- Database administrator group

These privileged groups are not required for Oracle Collaboration Suite installation.

Oracle documentation refers to these groups as `OSOPER` and `OSDBA`, respectively. Databases use these groups for operating system authentication. This is necessary in situations where the database is shut down and database authentication is unavailable.

The privileges of these groups are given to either a single UNIX group or two corresponding UNIX groups. There are two ways to choose which groups get the privileges:

- If the `oracle` account is a member of the `dba` group before starting Oracle Universal Installer, then `dba` is given the privileges of both `OSOPER` and `OSDBA`.
- If the `oracle` account is not a member of the `dba` group, then Oracle Universal Installer prompts you for the group names that get these privileges.

Table 1–18 lists the privileges for the `OSOPER` and `OSDBA` groups.

*Table 1–18 Privileges for the OSOPER and OSDBA Groups*

| Group | Privileges |
|---|---|
| `OSOPER` | Permits the user to perform `STARTUP`, `SHUTDOWN`, `ALTER DATABASE OPEN/MOUNT`, `ALTER DATABASE BACKUP`, `ARCHIVE LOG`, and `RECOVER`, and includes the `RESTRICTED SESSION` privilege. |
| `OSDBA` | Contains all system privileges with `ADMIN OPTION`, and the `OSOPER` role; permits `CREATE DATABASE` and time-based recover. |

## Real Application Clusters for Oracle Collaboration Suite Information Storage Installation

Perform the following preinstallation steps to install Real Application Clusters.

**See Also:** *Oracle9i Real Application Clusters Setup and Configuration* for more information about preinstallation steps for Real Application Clusters. This manual is available on Oracle Technology Network at

`http://otn.oracle.com/`

### Steps to Perform as the root User for Real Application Clusters Installation

1. Log in as the `root` user.
2. Ensure that you have the `OSDBA` group defined in the `/etc/group` file on all nodes in the cluster. The `OSDBA` group name and number, and `OSOPER` group if you plan to designate one, must be identical for all nodes of a UNIX cluster accessing a single database. The default UNIX group name for the `OSDBA` group is `dba`.
3. Create the `oracle` account on each node of the cluster so that the account:
   - Has the `ORAINVENTORY` group as the primary group
   - Has the `dba` group as the secondary group
   - Is used only to install and update Oracle software
   - Has write permissions on remote directories
4. Create a mount point directory on each node to serve as the top of the Oracle software directory structure so that:
   - The name of the mount point on each node is identical to that on the initial node
   - The `oracle` account has read, write, and execute privileges
5. Set up user equivalence by adding entries for all nodes in the cluster on the node from which to run Oracle Universal Installer, including the local node, to either the `.rhosts` file of the `oracle` account or the `/etc/hosts.equiv` file.
6. Check user equivalence by executing a remote command on every node as the `oracle` user. For example, enter:
   - Solaris Operating Environment (SPARC 32-bit) and Linux x86:

     ```
     prompt> rsh another_host pwd
     ```

   - hp-ux PA-RISC (64-bit):

     ```
     prompt> remsh another_host pwd
     ```

7. Check RCP equivalence by copying a small file from every node to every node. For example, enter:

   ```
   prompt> rcp /tmp/dummy_file another_host:/tmp/dummy_file
   ```

8. This is required for Oracle Universal Installer to install Oracle software on all selected nodes of the cluster.

### Additional Steps to Perform as the root User for Installing Real Application Clusters on Solaris Operating Environment (SPARC 32-bit), hp-ux PA-RISC (64-bit), or Linux x86

If you are installing Oracle Real Application Clusters on Solaris Operating Environment (SPARC 32-bit), hp-ux PA-RISC (64-bit), or Linux x86 then you must

complete additional steps as the `root` user. See the appropriate sections for your platform:

### Additional root User Information for Solaris Operating Environment (SPARC 32-bit)

1. Apply the Oracle patch for Sun Cluster software that is provided on Disk 1 of the Oracle Collaboration Suite Information Storage CD-ROM set. To install the patch, follow the instructions provided in the `README.udlm` file in the `racpatch` directory on the CD-ROM. This patch provides the Cluster Membership Monitor (CMM) that is required before you install Oracle Real Application Clusters.
2. Start CMM by restarting the Cluster Management Software.
   a. For the first node, enter the following commands:

      ```
      prompt> cd /opt/SUNWcluster/bin
      prompt> scadmin startcluster cluster_name
      ```

   b. Run the following commands on each of the other nodes in the cluster:

      ```
      prompt> cd /opt/SUNWcluster/bin
      prompt> scadmin startnode cluster_name
      ```

      **See Also:** *Sun Cluster 3.0 documentation* for more information about the `scadmin` command

### Additional root User Information for hp-ux PA-RISC (64-bit)

Start MC/ServiceGuard by entering the following command:

```
prompt> /usr/sbin/cmruncl
```

**See Also:**

- *Hewlett Packard's Configuring OPS Clusters with MC/ServiceGuard OPS Edition* for more information about configuring Oracle Real Application Clusters
- A97350_01, *Oracle9i Release Notes Release 2 (9.2.0.1.0) for HP 9000 Series HP-UX*, available on Oracle Technology Network for more information about memory requirements, installation, and some postinstallation issues on Oracle Real Application Clusters using Hyper Messaging Protocol (HMP)

### Additional root User Information for Linux x86

1. Set the `CONFIG_WATCHDOG_NOWAYOUT` parameter to `Y`. In most kernels, `Y` is a default value. For more information, see the generic Linux x86 documentation.
2. Load the `watchdog` module with an appropriate margin.

   ```
   insmod softdog soft_margin=10
   ```

   **See Also:** A97297-01, *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP 9000 Series HP-UX, Linux Intel, and Sun Solaris*, available on Oracle Technology Network on how to calculate the `soft_margin` value

3. Add the necessary information to the `/etc/hosts` file on each node. The following information should be presented (entry for public IP address of the local node and entry for private IP address for each node, including local):

```
public_IP_address local_hotname_with_domain local_hostname_alias
private_IP_address cluster_node_private_hostname
private_IP_address cluster_node1_private_hostname
private_IP_address cluster_node2_private_hostname
......
```

4. Create the raw partition with 4 MB on the shared storage. This partition is to be used by the Oracle Cluster Manager as a quorum partition. Bind this partition on each server on the cluster to the same device, for example, to `/dev/raw1`.

### Steps to Perform as the oracle User for Real Application Clusters

1. Log in as the `oracle` account.

   If you are performing the preinstallation steps on hp-ux PA-RISC (64-bit), then verify that MC/ServiceGuard is running by entering the following command:

```
prompt> /usr/sbin/cmviewcl
```

2. Verify that the Cluster Membership Monitor is running. Table 1–19 lists the appropriate command for each platform.

***Table 1–19 Command to Verify Cluster Membership Monitor is Running***

| Platform | Command |
|---|---|
| Solaris Operating Environment (SPARC 32-bit) | `prompt> ps -ef \| grep clustd`<br>▪ If the `clustd` program appears in the process list, `clustd` is running.<br>▪ If the `clustd` program does not appear in the process list, restart the Cluster Membership Monitor. |
| hp-ux PA-RISC (64-bit) | `prompt> /usr/sbin/cmviewcl` |
| Linux x86 | `prompt> ps -efl \| egrep 'watchdogd \| oracm'`<br>▪ If all `watchdogd` and `oracm` programs appear in the process list, Oracle Cluster Management Software is running.<br>▪ If all `watchdogd` and `oracm` programs does not appear in the process list, restart the Oracle Cluster Management Software. |

3. Check for user equivalence of the `oracle` account by performing a remote login (`rlogin`) to each node in the cluster.

   If you are prompted for a password, the `oracle` account does not have user equivalence. Ensure that you gave the same attributes to the `oracle` user on all the nodes in the cluster. Oracle Universal Installer cannot use the `rcp` command to copy Oracle products to the remote directories without user equivalence.

   If you have not set up user equivalence, you must perform Step 6 in "Steps to Perform as the root User for Real Application Clusters Installation" on page 1-16.

4. Create at least one shared configuration file as an information repository for the database server configuration. If your platform supports the Cluster File System, skip this step.

Create a shared raw device of at least 100 MB for the Server Management (SRVM) configuration. Oracle Universal Installer prompts you for the name of this shared file on the Shared Configuration File Name Page. Alternatively, set the environment variable `SRVM_SHARED_CONFIG` to the absolute path name of the shared raw device from which Oracle Universal Installer can retrieve the configuration file.

> **See Also:** *Oracle9i Real Application Clusters Setup and Configuration* for more information about setting up a shared configuration file

## Real Application Clusters Installation on Linux x86

Before you install Real Application Clusters, you must install Oracle Cluster Manager. Install Real Application Clusters in the same `$ORACLE_HOME` where Oracle Cluster Manager is installed.

> **See Also:** *Oracle9i Release 2 Database Server Patch Set 2 with Cluster Manager Patch for Linux-32 Patch Set Notes Patch Set version 9.2.0.3.0* for detailed installation and configuration steps for Oracle Cluster Manager on Linux x86

Perform the following steps to install Oracle Cluster Manager:

1. Navigate to the `cluster_manager` subdirectory in Disk1 of the Oracle Collaboration Suite Information Storage CD.
2. Start the Oracle Universal Installer.
3. Enter the Oracle home directory in the destination where you want to install the Oracle Real Application Clusters option.
4. Select the product **Oracle Cluster Manager** from the Available Products screen.
5. Enter the list of Private node names in the Private Node Names Information screen.
6. Enter the list of Public node names in the Public Node Names Information screen.

Oracle Cluster Manager is now installed on the nodes. At the end of installation, a screen appears asking whether to run the `cmstart.sh` script as the `root` user on all the nodes of the cluster selected in the installation. After this script is run, the Oracle Cluster Manager is started on all the nodes.

After the installation of Oracle Cluster Manager, restart Oracle Universal Installer and proceed to install other Oracle components as required.

> **See Also:** *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0)* for more information about how to start and configure Oracle Cluster Manager

## Configuring Kernel Parameters for Oracle9*i*AS Infrastructure

The Oracle9*i*AS Metadata Repository installation requires you to configure your system kernel parameters. Compliance with this requirement is especially important for production environments. Review your kernel parameter settings to ensure that they meet Oracle9*i*AS Metadata Repository and Oracle Internet Directory requirements. You may experience errors during installation or operational errors after installation if this is not completed.

If you change the kernel settings, you must restart your system in order for kernel changes to take effect.

See appropriate tables for the kernel parameters for your platform:

- Kernel Parameter Settings for Solaris Operating Environment (SPARC 32-bit)
- Kernel Parameter Settings for hp-ux PA-RISC (64-bit)
- Kernel Parameter Settings for Linux x86

### Kernel Parameter Settings for Solaris Operating Environment (SPARC 32-bit)

For Solaris Operating Environment (SPARC 32-bit), use the `ipcs` command to obtain a list of the system's current shared memory and semaphore segments, and their identification number and owner.

Use a text editor such as `vi` to change the kernel parameter settings in the `/etc/system` file after making a backup copy. If you have previously changed your kernel for another program to levels equal to or higher than the levels Oracle9*i* requires, then do not change the settings. If the levels are too low, change them to levels at least as high as those in the table. If you change the settings, save the `/etc/system` file and restart the system.

***Example 1–1 Example Settings in /etc/system for Solaris Operating Environment (SPARC 32-bit)***

```
set shmsys:shminfo_shmmax=4294967295
set shmsys:shminfo_shmmin=1
set shmsys:shminfo_shmmni=100
set shmsys:shminfo_shmseg=10

set semsys:seminfo_semmni=100
set semsys:seminfo_semmns=256
set semsys:seminfo_semmsl=256
set semsys:seminfo_semmnu=4096

set rlim_fd_max=1024
set rlim_fd_cur=1024
```

Table 1–20 shows the kernel parameters and their required minimum settings.

***Table 1–20 Kernel Parameter Settings for Solaris Operating Environment (SPARC 32-bit)***

| Kernel | Setting | Definition |
|---|---|---|
| `rlim_fd_cur` | `1024` | Number of open files for each process |
| `rlim_fd_max` | `4117` | Maximum number of open files for each process |
| `semmni` | `554` | Maximum number of semaphore sets in the entire system |
| `semmns` | `1024` | Maximum semaphores on the system. This setting is a minimum recommended value for an initial installation only.<br>The `semmns` parameter should be set to the sum of the `init`*`sid`*`.ora` `PROCESSES` parameter for each Oracle database, adding the largest one twice, and then adding an additional 10 for each database. |

*Table 1–20 (Cont.) Kernel Parameter Settings for Solaris Operating Environment*

| Kernel | Setting | Definition |
|---|---|---|
| semmsl | 256 | Minimum recommended value for an initial installation only. The semmsl parameter should be set to 10 plus the largest initsid.ora PROCESSES parameter of any Oracle database on the system. |
| semopm | 12 | Maximum number of System V semaphore operations per semop call. This parameter refers to the number of sembufs in the sops array that is provided to the semop system call. |
| semume | 42 | Maximum number of System V semaphore undo structures that can be used by any one process. |
| semvmx | 32767 | Maximum value of a semaphore. |
| semaem | 16384 | Maximum value to which a semaphore's value in an undo structure can be set. |
| shmmax | 4294967295 | Maximum allowable size of one shared memory segment. (4294967295 is equal to 4 GB.) |
| shmmin | 1 | Minimum allowable size of a single shared memory segment |
| shmmni | 117 | Maximum number of shared memory segments in the entire system |
| shmseg | 17 | Maximum number of shared memory segments one process can attach |
| msgmni | 3774 | Maximum number of message queue identifiers |
| msgmax | 4096 | Maximum message size |
| msgmnb | 360000 | Maximum number of bytes in a message queue |
| msgtql | 2500 | Maximum number of message headers |

## Kernel Parameter Settings for hp-ux PA-RISC (64-bit)

For hp-ux PA-RISC (64-bit), you can use the System Administrator's Menu (SAM) to configure the hp-ux PA-RISC (64-bit) kernel as required by your application. The parameters in Table 1–21 are those recommended for a general user running a typical Oracle Collaboration Suite instance on hp-ux PA-RISC (64-bit). You might need to change the values depending on your application needs and the type of system on which you are working. See Table 1–21 to determine if your system's shared memory and semaphore kernel parameters are set correctly for Oracle Collaboration Suite. Use the ipcs command to obtain a list of the system's current shared memory and semaphore segments, and their identification numbers and owner.

The parameters in Table 1–21 are the recommended values for running Oracle Collaboration Suite on hp-ux PA-RISC (64-bit):

Table 1–21 shows the kernel parameters and their required minimum settings.

*Table 1–21 Kernel Parameter Settings for hp-ux PA-RISC (64-bit)*

| Kernel | Parameter Setting | Definition |
|---|---|---|
| ksi_alloc_max | (nproc * 8) | The system wide limit of a queued signal that can be allocated. |

*Table 1–21 (Cont.) Kernel Parameter Settings for hp-ux PA-RISC (64-bit)*

| Kernel | Parameter Setting | Definition |
|---|---|---|
| max_thread_proc | 256 | The maximum number of kernel threads allowed for each process. You may need to increase the value if required by your application. Setting it to a default or low value may lead to an out-of-memory error for certain applications. |
| maxdsiz | 1073741824 bytes | Refers to the maximum data segment size in bytes for 32-bit systems. Setting this value too low may cause the processes to run out of memory. |
| maxdsiz_64 | 2147483648 bytes | Refers to the maximum data segment size in bytes for 64-bit systems. Setting this value too low may cause the processes to run out of memory. |
| maxssiz | 134217728 bytes | The maximum stack segment size in bytes for 32-bit systems. |
| maxssiz_64BIT | 1073741824 | The maximum stack segment size in bytes for 64-bit systems. |
| maxswapchunks | 16384 | The maximum number of swap chunks where swchunk is the swap chunk size (1 KB blocks). swchunk is 2048 by default. It specifies the maximum amount of configurable swap space on the system. |
| maxuprc | 3686 | The maximum number of user processes. |
| msgmap | 6598 | The maximum number of message map entries. |
| msgmni | 6846 | The number of message queue identifiers. |
| msgseg | 32767 | The number of segments available for messages. |
| msgtql | 6596 | The number of message headers. |
| ncallout | (nproc + 16) | The maximum number of pending timeouts. |
| ncsize | ((8 * nproc + 2048) + vx_ncsize) | The Directory Name Lookup Cache (DNLC) space needed for inodes. vx_ncsize is 1024 by default. |
| nfile | 1634888 | The maximum number of open files. |
| nflocks | 4096 | The maximum number of file locks available on the system. |
| ninode | (8 * nproc + 2048) | The maximum number of open inodes. |
| nkthread | 10034 | The maximum number of kernel threads supported by the system. |
| nproc | 4195 | The maximum number of processes. |
| semmap | 4098 | The maximum number of semaphore map entries. |
| semmni | 4138 | The maximum number of semaphore sets in the entire system. |

*Table 1–21 (Cont.) Kernel Parameter Settings for hp-ux PA-RISC (64-bit)*

| Kernel | Parameter Setting | Definition |
|---|---|---|
| semmns | 8360 | The maximum number of semaphores in the system. The default value of semmns is 128, which is, in most cases, too low for Oracle Collaboration Suite software. |
| semmnu | 4092 | The number of semaphore undo structures. |
| semvmx | 32768 | The maximum value of a semaphore. |
| shmmax | 4294967295 | The maximum allowable size of one shared memory segment. The shmmax setting should be large enough to hold the entire SGA in one shared memory segment. A low setting can cause creation of multiple shared memory segments, which may lead to performance degradation. |
| shmmni | 530 | The maximum number of shared memory segments in the entire system. |
| shmseg | 32 | The maximum number of shared memory segments one process can attach. |
| vps_ceiling | 64 | The maximum system-selected page size in kilobytes. |
| maxfiles | 2048 | Soft file limit per process |
| maxfiles_lim | 3861 | Hard file limit per process |
| msgmax | 32767 | Maximum message size |
| msgmnb | 65535 | Maximum number of bytes on the message queue |
| msgssz | 159 | Message segment size |
| semume | 42 | Semaphore undo entries per process |

## Kernel Parameter Settings for Linux x86

For Linux x86, use the ipcs command to obtain a list of the system's current shared memory and semaphore segments, and their identification numbers and owner. You can modify the kernel parameters by using the /proc file system. Perform the following steps to modify the kernel parameters by using the /proc file system.

1. Log in as the root user.
2. Change to the /proc/sys/kernel directory.
3. Review the current semaphore parameter values in the sem file by using the cat or more utility. For example, using the cat utility, enter the following command:

   ```
   prompt> cat sem
   ```

   The output lists the values for the semmsl, semmns, semopm, and semmni parameters, respectively as shown in the following example:

   ```
   250 32000 32 128
   ```

4. Modify the parameter values by using the following command syntax:

   ```
   prompt> echo semmsl_value semmns_value semopm_value semmni_value > sem
   ```

Replace the parameter variables with the values for your system in the order that they are entered in the preceding example, as follows:

```
prompt> echo 250 32000 100 142 > sem
```

5. Review the current shared memory parameters by using the `cat` or `more` utility. For example, using the `cat` utility, enter the following command:

   ```
   prompt> cat shared_memory_parameter
   ```

   In the preceding example, the variable `shared_memory_parameter` is either the `shmmax` or `shmmni` parameter. The parameter name must be entered in lowercase letters.

6. Modify the shared memory parameter by using the `echo` utility, as in the following examples:

   To modify the `shmmax` parameter:

   ```
   prompt> echo 4294967295 > shmmax
   ```

   To modify the `shmmni` parameter:

   ```
   prompt> echo 4096 > shmmni
   ```

   To modify the `shmall` parameter:

   ```
   prompt> echo 3279547 > shmall
   ```

7. Write a script to initialize these values during system startup, and include the script in your system initialization files.

   **See Also:** Your system vendor's documentation for more information about script files and initialization files

8. Set the File Handles by using the following command:

   ```
   prompt> echo 65536 > /proc/sys/fs/file-max
   prompt> ulimit -n 65536
   ```

9. Set the Sockets to `/proc/sys/net/ipv4/ip_local_port_range`:

   ```
   prompt> echo 10000 65000 > /proc/sys/net/ipv4/ip_local_port_range
   ```

10. Set the Process by using `ulimit -u`. This gives you the number of processes for each user. For example:

    ```
    ulimit -u 16384
    ```

Table 1–22 lists the minimum values required to run Oracle Collaboration Suite on Linux x86.

***Table 1–22 Kernel Parameter Settings for Linux x86***

| Kernel | Parameter Setting | Definition |
|---|---|---|
| `semmni` | `142` | The maximum number of semaphore sets in the entire system. |

*Table 1–22 (Cont.) Kernel Parameter Settings for Linux x86*

| Kernel | Parameter Setting | Definition |
|---|---|---|
| semmns | 32000 | The maximum number of semaphores on the system. This setting is a minimum recommended value for an initial installation only. The semmns parameter should be set to the sum of the initsid.ora PROCESSES parameter for each Oracle database, adding the largest one twice, and then adding an additional 10 for each database. |
| semopm | 100 | The maximum number of operations for each semop call. |
| semmsl | 250 | The minimum recommended number of semaphores for each id for an initial installation only. The semmsl parameter should be set to 10 plus the largest initsid.ora PROCESSES parameter of any Oracle database on the system. |
| shmmax | 4294967295 | The maximum allowable size of one shared memory segment. It is 2 GB for SMP kernel. The recommended size is half the RAM size. |
| shmmni | 4096 | The maximum number of shared memory segments in the entire system. |
| shmall | 3279547 | Total amount of shared memory available |
| msgmni | 2878 | Number of message queue identifiers |
| msgmax | 8192 | Maximum message size |
| msgmnb‘ | 65535 | Maximum number of bytes on the message queue |
| file-max | 327679 | Maximum number of files |

## Configuring Kernel Parameters for Oracle Collaboration Suite

The Oracle Collaboration Suite installation requires you to configure your system kernel parameters. Compliance with this requirement is especially important for production environments. Review your kernel parameter settings to ensure that they meet Oracle Collaboration Suite requirements. You may experience errors during installation or operational errors after installation if this is not completed.

If you change the kernel parameter settings, you must restart your system in order for kernel changes to take effect.

See appropriate tables for the kernel parameters for your platform:

- Kernel Parameter Settings for Solaris Operating Environment (SPARC 32-bit)
- Kernel Parameter Settings for hp-ux PA-RISC (64-bit)
- Kernel Parameter Settings for Linux x86

### Kernel Parameter Settings for Solaris Operating Environment (SPARC 32-bit)

For Solaris Operating Environment (SPARC 32-bit), use the ipcs command to obtain a list of the system's current shared memory and semaphore segments, and their identification number and owner.

Use a text editor such as vi to change the kernel parameter settings in the /etc/system file after making a backup copy. If you have previously changed your

kernel for another program to levels equal to or higher than the levels Oracle9*i* requires, then do not change the settings. If the levels are too low, change them to levels at least as high as those in the table. If you change the settings, save the `/etc/system` file and restart the system.

***Example 1–2 Example Settings in /etc/system for Solaris Operating Environment (SPARC 32-bit)***

```
set shmsys:shminfo_shmmax=4294967295
set shmsys:shminfo_shmmin=1
set shmsys:shminfo_shmmni=100
set shmsys:shminfo_shmseg=10

set semsys:seminfo_semmni=100
set semsys:seminfo_semmns=256
set semsys:seminfo_semmsl=256
set semsys:seminfo_semmnu=4096

set rlim_fd_max=1024
set rlim_fd_cur=1024
```

Table 1–23 shows the kernel parameters and their minimum recommended settings.

***Table 1–23 Kernel Parameter Settings for Solaris Operating Environment (SPARC 32-bit)***

| Kernel | Setting | Definition |
|---|---|---|
| `rlim_fd_cur` | `1024` | The number of open files for each process. |
| `rlim_fd_max` | `4117` | The maximum number of open files for each process. |
| `semmni` | `554` | The maximum number of semaphore sets in the entire system. |
| `semmns` | `1024` | The maximum semaphores on the system. This setting is a minimum recommended value for an initial installation only.<br>The `semmns` parameter should be set to the sum of the `init`*`sid`*`.ora` `PROCESSES` parameter for each Oracle database, adding the largest one twice, and then adding an additional 10 for each database. |
| `semmsl` | `256` | The minimum recommended value for an initial installation only. The `semmsl` parameter should be set to 10 plus the largest `init`*`sid`*`.ora` `PROCESSES` parameter of any Oracle database on the system. |
| `shmmax` | `4294967295` | The maximum allowable size of one shared memory segment. 4 GB = 4294967295. |
| `shmmin` | `1` | The minimum allowable size of a single shared memory segment. |
| `shmmni` | `117` | The maximum number of shared memory segments in the entire system. |
| `shmseg` | `17` | The maximum number of shared memory segments one process can attach. |
| `msgmni` | `3774` | The maximum number of message queue identifiers. |
| `msgmax` | `4096` | The maximum message size. |
| `msgmnb` | `360000` | The maximum number of bytes in a message queue. |
| `msgtql` | `2500` | The maximum number of message headers. |

### Kernel Parameter Settings for hp-ux PA-RISC (64-bit)

For hp-ux PA-RISC (64-bit), you can use the System Administrator's Menu (SAM) to configure the hp-ux PA-RISC (64-bit) kernel as required by your application. The parameters in Table 1–24 are those recommended for a general user running a typical Oracle Collaboration Suite instance on hp-ux PA-RISC (64-bit). You might need to change the values depending on your application needs and the type of system on which you are working. See Table 1–24 to determine if your system's shared memory and semaphore kernel parameters are set correctly for Oracle Collaboration Suite. Use the `ipcs` command to obtain a list of the system's current shared memory and semaphore segments, and their identification numbers and owner.

The parameters in Table 1–24 are the recommended minimum values for running Oracle Collaboration Suite on hp-ux PA-RISC (64-bit):

***Table 1–24 Kernel Parameter Settings for hp-ux PA-RISC (64-bit)***

| Kernel | Parameter Setting | Definition |
|---|---|---|
| ksi_alloc_max | (nproc * 8) | The system wide limit of a queued signal that can be allocated. |
| max_thread_proc | 256 | The maximum number of kernel threads allowed for each process. You may need to increase the value if required by your application. Setting it to a default or low value may lead to an out-of-memory error for certain applications. |
| maxdsiz | 1073741824 bytes | Refers to the maximum data segment size in bytes for 32-bit systems. Setting this value too low may cause the processes to run out of memory. |
| maxdsiz_64 | 2147483648 bytes | Refers to the maximum data segment size in bytes for 64-bit systems. Setting this value too low may cause the processes to run out of memory. |
| maxssiz | 134217728 bytes | The maximum stack segment size in bytes for 32-bit systems. |
| maxssiz_64BIT | 1073741824 | The maximum stack segment size in bytes for 64-bit systems. |
| maxswapchunks | 16384 | The maximum number of swap chunks where `swchunk` is the swap chunk size (1 KB blocks). `swchunk` is `2048` by default. It specifies the maximum amount of configurable swap space on the system. |
| maxuprc | 3686 | The maximum number of user processes. |
| msgmap | 6598 | The maximum number of message map entries. |
| msgmni | 6846 | The number of message queue identifiers. |
| msgseg | 32767 | The number of segments available for messages. |
| msgtql | 6596 | The number of message headers. |
| ncallout | (nproc + 16) | The maximum number of pending timeouts. |
| ncsize | ((8 * nproc + 2048) + vx_ncsize) | The Directory Name Lookup Cache (DNLC) space needed for inodes. `vx_ncsize` is `1024` by default. |

*Table 1–24 (Cont.) Kernel Parameter Settings for hp-ux PA-RISC (64-bit)*

| Kernel | Parameter Setting | Definition |
|---|---|---|
| nfile | 1634888 | The maximum number of open files. |
| nflocks | 4096 | The maximum number of file locks available on the system. |
| ninode | (8 * nproc + 2048) | The maximum number of open inodes. |
| nkthread | 10034 | The maximum number of kernel threads supported by the system. |
| nproc | 4195 | The maximum number of processes. |
| semmap | 4098 | The maximum number of semaphore map entries. |
| semmni | 4138 | The maximum number of semaphore sets in the entire system. |
| semmns | 8360 | The maximum number of semaphores in the system. The default value of semmns is 128, which is, in most cases, too low for Oracle Collaboration Suite software. |
| semmnu | 4092 | The number of semaphore undo structures. |
| semvmx | 32768 | The maximum value of a semaphore. |
| shmmax | 4294967295 | The maximum allowable size of one shared memory segment. The shmmax setting should be large enough to hold the entire SGA in one shared memory segment. A low setting can cause creation of multiple shared memory segments, which may lead to performance degradation. |
| shmmni | 530 | The maximum number of shared memory segments in the entire system. |
| shmseg | 32 | The maximum number of shared memory segments one process can attach. |
| vps_ceiling | 64 | The maximum system-selected page size in kilobytes. |
| maxfiles | 2048 | Soft file limit per process |
| maxfiles_lim | 3861 | Hard file limit per process |
| msgmax | 32767 | Maximum message size |
| msgmnb | 65535 | Maximum number of bytes on the message queue |
| msgssz | 159 | Message segment size |
| semume | 42 | Semaphore undo entries per process |

### Kernel Parameter Settings for Linux x86

For Linux x86, use the ipcs command to obtain a list of the system's current shared memory and semaphore segments, and their identification numbers and owner. You can modify the kernel parameters by using the /proc file system. Perform the following steps to modify the kernel parameters by using the /proc file system.

1. Log in as the root user.

2. Change to the `/proc/sys/kernel` directory.
3. Review the current semaphore parameter values in the `sem` file by using the `cat` or `more` utility. For example, using the `cat` utility, enter the following command:

   ```
   prompt> cat sem
   ```

   The output lists the values for the `semmsl`, `semmns`, `semopm`, and `semmni` parameters, respectively as shown in the following example:

   ```
   250 32000 32 128
   ```

4. Modify the parameter values by using the following command syntax:

   ```
   prompt> echo semmsl_value semmns_value semopm_value semmni_value > sem
   ```

   Replace the parameter variables with the values for your system in the order that they are entered in the preceding example, as follows:

   ```
   prompt> echo 250 32000 100 142 > sem
   ```

5. Review the current shared memory parameters by using the `cat` or `more` utility. For example, using the `cat` utility, enter the following command:

   ```
   prompt> cat shared_memory_parameter
   ```

   In the preceding example, the variable `shared_memory_parameter` is either the `shmmax` or `shmmni` parameter. The parameter name must be entered in lowercase letters.

6. Modify the shared memory parameter by using the `echo` utility, as in the following examples:

   To modify the `shmmax` parameter:

   ```
   prompt> echo 4294967295 > shmmax
   ```

   To modify the `shmmni` parameter:

   ```
   prompt> echo 4096 > shmmni
   ```

   To modify the `shmall` parameter:

   ```
   prompt> echo 3279547 > shmall
   ```

7. Write a script to initialize these values during system startup, and include the script in your system initialization files.

   > **See Also:** Your system vendor's documentation for more information about script files and initialization files

8. Set the File Handles by using the following command:

   ```
   prompt> echo 65536 > /proc/sys/fs/file-max
   prompt> ulimit -n 65536
   ```

9. Set the Sockets to `/proc/sys/net/ipv4/ip_local_port_range`:

   ```
   prompt> echo 10000 65000 > /proc/sys/net/ipv4/ip_local_port_range
   ```

10. Set the Process by using `ulimit -u`. This gives you the number of processes for each user. For example:

    ```
    ulimit -u 16384
    ```

Table 1–25 lists the minimum values required to run Oracle Collaboration Suite on Linux x86.

***Table 1–25 Kernel Parameter Settings for Linux x86***

| Kernel | Parameter Setting | Definition |
|---|---|---|
| semmni | 142 | The maximum number of semaphore sets in the entire system. |
| semmns | 32000 | The maximum number of semaphores on the system. This setting is a minimum recommended value for an initial installation only. The semmns parameter should be set to the sum of the initsid.ora PROCESSES parameter for each Oracle database, adding the largest one twice, and then adding an additional 10 for each database. |
| semopm | 100 | The maximum number of operations for each semop call. |
| semmsl | 250 | The minimum recommended number of semaphores for each id for an initial installation only. The semmsl parameter should be set to 10 plus the largest initsid.ora PROCESSES parameter of any Oracle database on the system. |
| shmmax | 4294967295 | The maximum allowable size of one shared memory segment. It is 2 GB for SMP kernel. The recommended size is half the RAM size. |
| shmmni | 4096 | The maximum number of shared memory segments in the entire system. |
| shmall | 3279547 | Total amount of shared memory available |
| msgmni | 2878 | Number of message queue identifiers |
| msgmax | 8192 | Maximum message size |
| msgmnb | 65535 | Maximum number of bytes on the message queue |
| file-max | 327679 | Maximum number of files |

## Configuring Kernel Parameters for Oracle Collaboration Suite Information Storage

Oracle Collaboration Suite information storage uses UNIX resources such as shared memory, swap memory, and semaphore extensively for interprocess communication. If your parameter settings are insufficient for Oracle Collaboration Suite information storage, then you experience problems during installation and instance startup.

The greater the amount of data you can store in memory, the faster your database operates. In addition, by maintaining data in memory, the UNIX kernel reduces disk I/O activity.

Review your kernel parameter settings to ensure that they meet Oracle Collaboration Suite information storage requirements. If you do not do this, you may experience errors during installation, or operational errors after installation. These are the recommended kernel parameter requirements for a typical Oracle Collaboration Suite information storage environment.

If you have previously tuned your kernel parameters to levels that meet your application needs, then continue to use these values. A system restart is necessary if you change the kernel settings for the kernel changes to take effect.

Refer to the appropriate tables for the kernel parameters for your platform:

- Kernel Parameter Settings for Solaris Operating Environment (SPARC 32-bit)
- Kernel Parameter Settings for hp-ux PA-RISC (64-bit)
- Kernel Parameter Settings for Linux x86

### Kernel Parameter Settings for Solaris Operating Environment (SPARC 32-bit)

For Solaris Operating Environment (SPARC 32-bit), use the `ipcs` command to obtain a list of the system's current shared memory and semaphore segments, and their identification number and owner.

Use a text editor such as `vi` to change the kernel parameter settings in the `/etc/system` file after making a backup copy. If you have previously changed your kernel for another program to levels equal to or higher than the levels Oracle Collaboration Suite information storage requires, then do not change the settings. If the levels are too low, change them to levels at least as high as those in the table. If you change the settings, save the `/etc/system` file and restart the system.

***Example 1–3 Example Settings in /etc/system for Solaris Operating Environment (SPARC 32-bit)***

```
set shmsys:shminfo_shmmax=4294967295
set shmsys:shminfo_shmmin=1
set shmsys:shminfo_shmmni=100
set shmsys:shminfo_shmseg=10

set semsys:seminfo_semmni=100
set semsys:seminfo_semmns=256
set semsys:seminfo_semmsl=256
set semsys:seminfo_semmnu=4096

set rlim_fd_max=1024
set rlim_fd_cur=1024
```

Table 1–26 lists the minimum values required to run Oracle Collaboration Suite information storage on Solaris Operating Environment (SPARC 32-bit).

***Table 1–26 Kernel Parameter Settings for Solaris Operating Environment (SPARC 32-bit)***

| Kernel | Parameter Setting | Definition |
|---|---|---|
| `rlim_fd_cur` | `1024` | The number of open files for each process. |
| `rlim_fd_max` | `1024` | The maximum number of open files for each process. |
| `semmni` | `100` | Defines the maximum number of semaphore sets in the entire system. |
| `semmns` | `1024` | Defines the maximum semaphores on the system. This setting is a minimum recommended value, for initial installation only.<br><br>The `semmns` parameter should be set to the sum of the `initsid.ora PROCESSES` parameter for each Oracle database, adding the largest one twice, and then adding an additional 10 for each database. |

*Table 1–26 (Cont.) Kernel Parameter Settings for Solaris Operating Environment*

| Kernel | Parameter Setting | Definition |
|---|---|---|
| semmsl | 256 | Defines the minimum recommended value, for initial installation only. The semmsl parameter should be set to 10 plus the largest initsid.ora PROCESSES parameter of any Oracle database on the system. |
| shmmax | 4294967295 | Defines the maximum allowable size of one shared memory segment.<br>4 GB = 4294967295 |
| shmmin | 1 | Defines the minimum allowable size of a single shared memory segment. |
| shmmni | 100 | Defines the maximum number of shared memory segments in the entire system. |
| shmseg | 10 | Defines the maximum number of shared memory segments one process can attach. |

## Kernel Parameter Settings for hp-ux PA-RISC (64-bit)

For hp-ux PA-RISC (64-bit), you can use the System Administrator's Menu (SAM) to configure the hp-ux PA-RISC (64-bit) kernel as required by your application. The parameters in Table 1–27 are those recommended for a general user running a typical Oracle Collaboration Suite information storage single database instance on hp-ux PA-RISC (64-bit). You may need to change the values based on your application needs and the type of system on which you are working. Refer to the following table to determine if your system shared memory and semaphore kernel parameters are set correctly for Oracle Collaboration Suite information storage. Use the ipcs command to obtain a list of the system's current shared memory and semaphore segments, and their identification numbers and owner.

The parameter settings in Table 1–27 show the recommended values to run Oracle Collaboration Suite information storage on hp-ux PA-RISC (64-bit).

*Table 1–27 Kernel Parameter Settings for hp-ux PA-RISC (64-bit)*

| Kernel | Parameter Setting | Definition |
|---|---|---|
| ksi_alloc_max | (nproc * 8) | Defines the system wide limit of queued signals that can be allocated. |
| max_thread_proc | 256 | Defines the maximum number of kernel threads allowed for each process. You may need to increase the value if required by your application. Setting it to a default or low value may lead to an out of memory error for certain applications. |
| maxdsiz | 1073741824 bytes | Refers to the maximum data segment size in bytes for 32-bit systems. Setting this value too low may cause the processes to run out of memory. |
| maxdsiz_64 | 2147483648 bytes | Refers to the maximum data segment size in bytes for 64-bit systems. Setting this value too low may cause the processes to run out of memory. |
| maxssiz | 134217728 bytes | Defines the maximum stack segment size in bytes for 32-bit systems. |

*Table 1–27 (Cont.) Kernel Parameter Settings for hp-ux PA-RISC (64-bit)*

| Kernel | Parameter Setting | Definition |
|---|---|---|
| maxssiz_64bit | 1073741824 bytes | Defines the maximum stack segment size in bytes for 64-bit systems. |
| maxswapchunk | 16384 | Defines the maximum number of swap chunks where swchunk is the swap chunk size (1 KB blocks). swchunk is 2048 by default. It specifies the maximum amount of configurable swap space on the system. |
| maxuprc | ((nproc * 9)/10) | Defines the maximum number of user processes. |
| msgmap | (msgtql + 2) | Defines the maximum number of message map entries. |
| msgmni | nproc | Defines the number of message queue identifiers. |
| msgseg | 32767 | Defines the number of segments available for messages. |
| msgtql | nproc | Defines the number of message headers. |
| ncallout | (nproc + 16) | Defines the maximum number of pending timeouts. |
| ncsize | ((8 * nproc +2048) + vx_ncsize) | Defines the Directory Name Lookup Cache (DNLC) space needed for inodes.<br>vx_ncsize is 1024 by default. |
| nfile | (15 * nproc + 2048) | Defines the maximum number of open files. |
| nflock | 4096 | Defines the maximum number of file locks available on the system. |
| ninode | (8 * nproc + 2048) | Defines the maximum number of open inodes. |
| nkthread | (((nproc * 7) / 4) + 16) | Defines the maximum number of kernel threads supported by the system. |
| nproc | 4096 | Defines the maximum number of processes. |
| semmap | (semmni + 2) | Defines the maximum number of semaphore map entries. |
| semmni | 4138 | Defines the maximum number of semaphore sets in the entire system. |
| semmns | 8360 | Defines the maximum number of semaphores in the system. The default value of semmns is 128, which is, in most cases, too low for Oracle Collaboration Suite information storage. |
| semmnu | (nproc - 4) | Defines the number of semaphore undo structures. |
| semvmx | 32768 | Defines the maximum value of a semaphore. |

*Table 1–27 (Cont.) Kernel Parameter Settings for hp-ux PA-RISC (64-bit)*

| Kernel | Parameter Setting | Definition |
|---|---|---|
| shmmax | 4294967295 | Defines the maximum allowable size of one shared memory segment.<br>The shmmax setting should be large enough to hold the entire SGA in one shared memory segment. A low setting can cause creation of multiple shared memory segments which may lead to performance degradation. |
| shmmni | 530 | Defines the maximum number of shared memory segments in the entire system. |
| shmseg | 32 | Defines the maximum number of shared memory segments one process can attach. |
| vps_ceiling | 64 | Defines the maximum System-Selected Page Size in kilobytes. |

### Kernel Parameter Settings for Linux x86

For Linux x86, use the `ipcs` command to obtain a list of the system's current shared memory segments and semaphore sets, and their identification numbers and owner.

Perform the following steps to modify the kernel parameters by using the `/proc` file system.

1. Log in as the root user.
2. Change to the `/proc/sys/kernel` directory.
3. Review the current semaphore parameter values in the `sem` file by using the `cat` or `more` utility. For example, using the `cat` utility, enter the following command:

   ```
   prompt> cat sem
   ```

   The output lists the values for the `semmsl`, `semmns`, `semopm`, and `semmni` parameters, respectively, as shown in the following example:

   ```
   250 32000 32 128
   ```

4. Modify the parameter values by using the following command syntax:

   ```
   prompt> echo semmsl_value semmns_value semopm_value semmni_value > sem
   ```

   Replace the parameter variables with the values for your system in the order that they are entered in the preceding example. For example:

   ```
   prompt> echo 1000 32000 100 150 > sem
   ```

5. Review the current shared memory parameters by using the `cat` or `more` utility. For example, using the `cat` utility, enter the following command:

   ```
   prompt> cat shared_memory_parameter
   ```

   In the preceding example, the variable *`shared_memory_parameter`* is either the `shmmax` or `shmmni` parameter. The parameter name must be entered in lowercase letters.

6. Modify the shared memory parameter by using the `echo` utility. For example, to modify the `shmmax` parameter, enter the following command:

   ```
   prompt> echo 4294967295 > shmmax
   ```

7. Modify the shared memory parameter by using the `echo` utility. For example, to modify the `shmmni` parameter, enter the following command:

```
prompt> echo 4096 > shmmni
```

8. Modify the shared memory parameter by using the `echo` utility. For example, to modify the `shmall` parameter, enter the following command:

```
prompt> echo 2097152 > shmall
```

9. Write a script to initialize these values during system startup, and include the script in your system `init` files.

   **See Also:** Your system vendor's documentation for more information about script files and `init` files

10. Set File Handles by using `ulimit -n` and `/proc/sys/fs/file-max`.

```
prompt> echo 65536 > /proc/sys/fs/file-max
prompt> ulimit -n 65536
```

11. Set the Sockets to `/proc/sys/net/ipv4/ip_local_port_range`.

```
prompt> echo 1024 65000 > /proc/sys/net/ipv4/ip_local_port_range
```

12. Set the Process `limit` by using `ulimit -u`. This gives you the number of processes for each user.

```
ulimit -u 16384
```

Table 1–28 shows the minimum values required to run Oracle Collaboration Suite information storage on Linux x86.

***Table 1–28 Kernel Parameter Settings for Linux x86***

| Kernel | Parameter Setting | Definition |
|---|---|---|
| `semmni` | `142` | Defines the maximum number of semaphore sets in the entire system. |
| `semmns` | `32000` | Defines the maximum semaphores on the system. This setting is a minimum recommended value, for initial installation only.<br>The `semmns` parameter should be set to the sum of the `init`*`sid`*`.ora` `PROCESSES` parameter for each Oracle database, adding the largest one twice, and then adding an additional 10 for each database. |
| `semopm` | `100` | Defines the maximum number of operations for each `semop` call. |
| `semmsl` | `250` | Defines the minimum recommended value, for initial installation only. |
| `shmmax` | `4294967295` | Maximum allowable size of one shared memory segment. 2 GB for SMP kernel. The recommended size is half the RAM size. |
| `shmmni` | `4096` | Maximum number of shared memory segments in the entire system. |
| `shmall` | `3279547` | Total amount of shared memory available |
| `msgmni` | `2878` | Number of message queue identifiers |

*Table 1–28 (Cont.) Kernel Parameter Settings for Linux x86*

| Kernel | Parameter Setting | Definition |
|---|---|---|
| msgmax | 8192 | Maximum message size |
| msgmnb | 65535 | Maximum number of bytes on the message queue |
| file-max | 327679 | Maximum number of files |

# Installing Oracle Collaboration Suite on a Single Computer

Although Oracle Corporation recommends that you install the Oracle9*i*AS Infrastructure, Oracle Collaboration Suite information storage database, and Oracle Collaboration Suite middle tier on separate computers for better performance, you can install Oracle Collaboration Suite on one computer. A single-computer installation DVD is provided in the CD pack for Linux and Windows platforms. For other platforms, you can perform a single-computer installation using the CD-ROM sets in the CD pack.

**See Also:**

`http://otn.oracle.com/software/products/cs/files/README.html`

for information about single-computer installations on Windows and

`http://otn.oracle.com/software/products/cs/files/readme_linux.html`

for information about single-computer installations on Linux

---

**Note:** The Oracle Web Conferencing document conversion server and voice conversion server must be installed on a separate computer from the Oracle Collaboration Suite middle tier. Additionally, Oracle Corporation recommends that you install the Oracle Web Conferencing document conversion server and voice conversion server on separate computers. Both the Oracle Web Conferencing document conversion server and voice conversion server must be installed on Windows platforms.

---

**See Also:** *The Oracle Web Conferencing Administrator's Guide* for more information about the Oracle Web Conferencing document and voice conversion servers

# 2

# Preinstallation Requirements for hp Tru64 UNIX

This chapter discusses Oracle Collaboration Suite Release 2 (9.0.4.1) preinstallation requirements for hp Tru64 UNIX.

This chapter contains these topics:



## Hardware Requirements

Table 2–1 describes the minimum hardware requirements for each installation of Oracle Collaboration Suite.

***Table 2–1 Oracle Collaboration Suite Hardware Requirements*** [1]

| Requirement | Value |
|---|---|
| hp Tru64 UNIX | Alpha Processor (64-bit) |
| Monitor | 256 color viewing capability |
| `/var/tmp` Directory Space | Oracle Collaboration Suite: 200 MB<br>Oracle9*i*AS Infrastructure: 7 MB<br>Oracle Collaboration Suite Information Storage: 34 MB |
| Swap Space | 2 GB |

*Table 2–1 (Cont.) Oracle Collaboration Suite Hardware Requirements* [1]

| Requirement | Value |
|---|---|
| Memory<br>(minimum requirement) | Oracle Collaboration Suite: 512 MB<br>Oracle9*i*AS Infrastructure: 512 MB<br>Oracle Collaboration Suite information storage: 512 MB<br>**Note:** Allocate additional memory depending on the applications and the number of users on the systems. |
| Disk Space for hp Tru64 UNIX | Oracle Collaboration Suite: 4.7 GB<br>Oracle9*i*AS Infrastructure: 6.0 GB<br>Oracle Collaboration Suite Information Storage: 5.5 GB |

[1] For detailed information regarding Oracle Files hardware and sizing requirements, see the *Oracle Files Planning Guide*.

**Note:** Disk space must be available on a single disk. Oracle Collaboration Suite does not support spanning the installation over multiple disks.

**Note:** If you are performing an upgrade, the Oracle Collaboration Suite upgrade assistant creates four new tablespaces for Oracle Email. See Chapter 3 of the *Oracle Collaboration Suite Installation and Configuration Guide for Solaris* for information about space requirements for these additional tablespaces.

Use the following command to determine the amount of random access memory installed on hp Tru64 UNIX:

```
$ /bin/vmstat -P | grep " Total Physical Memory"
```

### Determining Swap Space

Use the following commands to determine the amount of swap space currently configured in your system.

```
prompt> /sbin/swapon -s
```

## Additional Hardware Requirements for Oracle Web Conferencing

There are several hardware sizing considerations for Oracle Web Conferencing. The *Oracle Web Conferencing Sizing Guide* has complete information about these considerations. This section provides information about required hardware for the Voice Conversion Server used by Oracle Web Conferencing to support streaming voice data during conferences or playback of recorded conferences with voice data.

The Voice Conversion server must be installed on a computer with Microsoft Windows 2000 Server SP4 or above, with the following basic configuration:

- 2.4 GHz Intel Processor
- 512 MB SDRAM
- 20 GB disk

In addition, you need specialized telephony hardware. You need a T1 or E1 trunk, and a media processing board from Intel / Dialogic to support the trunk. The T1/E1 protocol supported by Oracle Web Conferencing is robbed-bit /CAS (Channel Associated Signaling). The following tables list hardware and sizing recommendations depending on the number of concurrent voice conferences, the type of and number of trunk lines, and the number of Voice Conversion Servers.

***Table 2–2 Sizing Recommendations for Voice Conversion Using T1***

| Concurrent Voice Conferences | T1 Lines | Voice Servers | Dialogic Hardware Needed per Voice Server |
|---|---|---|---|
| 12 | 1 | 1 | D/240JCT-T1 |
| 24 | 1 | 1 | D/480JCT-T1 |
| 48 | 2 | 1 | 2 x D/480JCT-T1 |
| 96 | 4 | 2 | 2 x D/480JCT-T1 |
| 192 | 8 | 4 | 2 x D/480JCT-T1 |

***Table 2–3 Sizing Recommendations for Voice Conversion Using E1***

| Concurrent Voice Conferences | T1 Lines | Voice Servers | Dialogic Hardware Needed per Voice Server |
|---|---|---|---|
| 15 | 1 | 1 | D/300JCT-E1 |
| 30 | 1 | 1 | D/300JCT-E1 |
| 60 | 2 | 1 | 2 x D/600JCT-E1 |
| 120 | 4 | 2 | 2 x D/600JCT-E1 |
| 240 | 8 | 4 | 2 x D/600JCT-E1 |

**See Also:** *Oracle Web Conferencing Sizing Guide* for specific information on sizing requirements for your system

## Operating System Versions

The following are the operating system requirements for hp Tru64 UNIX:

- hp Tru64 UNIX 5.1B. Use the following command to determine the current operating system version:

  ```
  sizer -v
  ```

- JDK 1.3.1-5
- X Windows must be installed on the system from where the installer is run. Use any HP-supported X Windows server with support for Motif, such as dtwm, twm, and mwm. Character mode installations are not supported for Oracle9*i*AS.

  The X environments, Basic X-environments (OSF11), and X Servers (OSFSER) are required to run graphical products.

- The following executables must be present in the `/usr/ccs/bin` directory:
  - make
  - ar
  - ld

– nm

# Operating System Patches and Packages

Your operating system can require the installation of patches and packages. Several of the patches listed in the following tables have dependency patches that must also be installed. See the `readme` files included with the patches and packages for additional information. When downloading a specific patch or package, verify dependencies and download the dependency patches or packages, if required.

**Note:** Your operating system must include the `sendmail` program.

This section contains these topics:

- Required Patches for Oracle Collaboration Suite
- Additional Operating System Requirements

## Required Patches for Oracle Collaboration Suite

Table 2–4 lists the patches required for Oracle Collaboration Suite:

***Table 2–4 Required Patches for Oracle Collaboration Suite***

| Installation | Patch |
|---|---|
| Operating system packages<br>These subsets are part of the hp Tru64 UNIX distribution | ■ OSFLIBA subset<br>■ OSFPGMR subset<br>■ OSFCMPLRS subset |
| Operating system patches | ■ T64KIT0020002-V51BB22-20030918<br>■ T64V51BB22-C0019900-19375-20030723 |
| Oracle9*i*AS Infrastructure and Oracle Collaboration Suite | ■ 5.1B patchkit 2 |
| Information Storage | ■ 5.1B patchkit 2 for Tru64 5.1B standalone systems |
| Oracle Real Application Clusters | ■ TruCluster 5.1, T64V51B18-C0099700-13027-M20020129 (This is the Tru64 V51CSP 997.00/AdvFS Stale Data patch)<br>■ TruCluster 5.1a, TCV51AB1-C0001100-13278-M-20020220 (This is the Tru64 V5.1a CSP 11.0/Fix for RDG patch) |

Use the following command to determine if a specific patch is installed on the system:

```
$ /usr/sbin/dupatch -track -type kit
```

Use the following URL to download the operating system patches:

`http://www.compaq.com/support`

## Additional Operating System Requirements

Table 2–5 lists additional software required for all platforms:

*Table 2–5 Additional Required Operating System Requirements*

| Software | Requirement |
|---|---|
| X Server and Window Manager | Use any X Server and window manager supported by your UNIX operating system.<br>For Hummingbird Exceed, use a native window manager.<br>For WRQ Reflections, allow a remote window manager.<br>To determine if your X Window System is working properly on your local system, enter the following command:<br>`prompt> xclock`<br>The X clock should appear on your monitor. |
| Required executables | The following executables must be present: `make`, `ar`, `ld`, and `nm`. |

# Additional Software Requirements for Oracle Web Conferencing

Oracle Web Conferencing uses a Document Conversion Server to convert Microsoft Office documents into HTML or other compatible formats for sharing during conferences. The server must reside on a separate computer from the middle tier, and it must have Microsoft Windows NT and Microsoft Office 2000 or Microsoft Office XP.

Oracle Web Conferencing also uses a Voice Conversion Server to support streaming voice data during conferences or playback of recorded conferences with voice data. The server requires Microsoft Windows 2000 Server SP4 or above, and Intel Dialogic System Software 5.1.1 SP1 or above.

**See Also:** *Oracle Web Conferencing Sizing Guide* for more details about required hardware and software

**See Also:** "Additional Hardware Requirements for Oracle Web Conferencing" on page 2-2 for voice conversion server hardware requirements

# Multilingual Support

The Oracle Collaboration Suite user interface is available in the following languages: Arabic, Brazilian Portuguese, Danish, Dutch, English, Finnish, French, German, Greek, Italian, Japanese, Korean, Norwegian, Portuguese, Simplified Chinese, Spanish, Swedish, Traditional Chinese, and Turkish.

## Oracle Calendar Multilingual Support Limitations

Oracle Calendar server administration tools have an English interface but support entering data in all Oracle Collaboration Suite supported languages.

The Oracle Calendar clients are available only in English with the following exceptions:

- **Oracle Connector for Outlook**: All Oracle Collaboration Suite supported languages, except Arabic
- **Oracle Calendar Web client**: All Oracle Collaboration Suite supported languages, except Arabic
- **Oracle Calendar desktop client for Windows**: English, French, German, and Japanese

- **Oracle Calendar Sync for Palm for Windows**: English, French, German, and Japanese
- **Oracle Calendar Sync for Pocket PC for Windows**: English, French, German, and Japanese

## Online Documentation Requirements

You can view Oracle Collaboration Suite documentation online using a Web browser or Portable Document Format (PDF) Viewer.

Table 2–6 lists the requirements for viewing Oracle Collaboration Suite online documentation.

***Table 2–6 Online Documentation Requirements***

| Requirement | Items |
|---|---|
| Online Readers | Any one of the following:<br>HTML<br>■ Netscape Navigator 4.7 or later<br>■ Microsoft Internet Explorer 5.0 or later<br>PDF<br>■ Acrobat Reader 4.0 or later<br>■ Acrobat Reader+Search 4.0 or later<br>■ Acrobat Exchange 4.0 or later<br>■ PDFViewer Web browser plug-in 1.0 or later |
| Library-wide HTML search and navigation | Active Internet connection |
| Disk Space | 37.5 MB |

**See Also:** *Oracle Collaboration Suite Documentation Roadmap*

## Port Allocations

Following installation, Oracle Universal Installer creates a file named `portlist.ini` showing the ports assigned during the installation of Oracle Collaboration Suite components. The installation process automatically detects any port conflicts and selects an alternate port in the range allocated for that component. The file is located at:

```
$ORACLE_HOME/install/portlist.ini
```

## Certified Software

Many Oracle Collaboration Suite components require a Web browser. All Oracle Collaboration Suite installations require an Oracle9*i*AS Infrastructure and Oracle9*i* database. A complete list of certified software, including certified Oracle9*i*AS Infrastructure releases, database releases, and Web browsers for Oracle Collaboration Suite is located at Oracle*MetaLink*:

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

# Release Notes

Before installing Oracle Collaboration Suite, Oracle Corporation recommends that you read *Oracle Collaboration Suite Release Notes*, available in the `doc` directory of each Oracle Collaboration Suite installation CD-ROM and on Oracle Technology Network. See *Oracle Collaboration Suite Documentation Roadmap* for more information about Oracle Collaboration Suite documentation. Although this document is accurate at the time of publication, you can access the latest information and documentation on Oracle Technology Network:

`http://otn.oracle.com/`

# Environment Preinstallation Tasks

This section contains these topics:

- Setting Environment Variables
- Hostnames File Configuration
- Creating UNIX Accounts and Groups
- Real Application Clusters for Oracle Collaboration Suite Information Storage Installation
- Configuring Kernel Parameters for Oracle9iAS Infrastructure
- Configuring Kernel Parameters for Oracle Collaboration Suite

## Setting Environment Variables

Table 2–7 explains how to set and unset environment variables.

***Table 2–7 Setting and Unsetting Environment Variables***

| To... | C shell | Bourne/Korn shell |
|---|---|---|
| Set an environment variable | `prompt> setenv VARIABLE value` | `prompt> VARIABLE=value;export VARIABLE` |
| Unset an environment variable | `prompt> unsetenv VARIABLE` | `prompt> unset VARIABLE` |

**Note:** You do not need to set the environment variables `LD_LIBRARY_PATH`, `ORACLE_HOME`, `TMP`, `TMPDIR`, and `TNS_ADMIN`.

### DISPLAY

Before starting Oracle Universal Installer, set the `DISPLAY` environment variable to refer to the X Server that displays Oracle Universal Installer. The format of the `DISPLAY` environment variable is:

*`hostname:display_number.screen_number`*

Oracle Collaboration Suite requires a running X Server to properly create graphics for Oracle Universal Installer, Web applications, and management tools. The frame buffer X Server installed with your operating system requires that you remain logged in and have the frame buffer running at all times. If you do not want to do this, then you

must use a virtual frame buffer, such as X Virtual Frame Buffer (XVFB) or Virtual Network Computing (VNC).

Oracle Universal Installer configures this instance to use the same X Server from the installation process for applications and management tools. This X Server must either always be running or you must reconfigure Oracle Collaboration Suite to use another X Server that is always running after the installation completes.

**See Also:**

- Your operating system documentation for more information about the `DISPLAY` environment variable
- Oracle Technology Network (`http://otn.oracle.com/`) for information about obtaining and installing XVFB or other virtual frame buffer solutions. Search Oracle Technology Network for "frame buffer".

### Installing From a Remote Computer

Setting the `DISPLAY` environment variable enables you to run Oracle Universal Installer remotely from another workstation. On the system where you launch Oracle Universal Installer, set `DISPLAY` to the system name or IP address of your local workstation.

**Note:** You can use a PC X emulator to run the install if it supports a PseudoColor color model or PseudoColor visual. Set the PC X emulator to use a PseudoColor visual, and then start Oracle Universal Installer. See the X emulator documentation for instructions on how to change the color model or visual settings.

If you get an Xlib error similar to "Failed to connect to server", "Connection refused by server," or "Can't open display" when starting Oracle Universal Installer, then run the commands on your local workstations as listed in Table 2–8.

***Table 2–8 DISPLAY Environment Variable Commands***

| Shell Types | On Server Where Oracle Universal Installer Is Running | In Session on Your Workstation |
|---|---|---|
| C shell | `prompt> setenv DISPLAY hostname:0.0` | `prompt> xhost + server_name` |
| Bourne/Korn shell | `prompt> DISPLAY=hostname:0.0;export DISPLAY` | `prompt> xhost + server_name` |

## Hostnames File Configuration

Oracle Universal Installer requires that the fully-qualified hostname information appear in the configuration files for your computer. A fully-qualified hostname includes both the name of the system and its domain.

Failure to properly configure the hostname information in the listed files may result in runtime errors during Oracle Collaboration Suite installation.

Verify that `/etc/hosts` has the following format:

```
ip_address fully_qualified_hostname short_hostname aliases
```

The following example shows a properly configured `/etc/hosts` file:

```
148.87.9.44 oasdocs.us.oracle.com oasdocs oracleinstall
```

## Creating UNIX Accounts and Groups

The installation process requires a special UNIX account and several special groups. See the following subsections for more information:

- UNIX Group Name for the Oracle Universal Installer Inventory
- UNIX Account to Own Oracle Software
- UNIX Group Names for Privileged Groups

> **Note:** You must use the same operating system user account when adding additional Oracle Collaboration Suite installations on the same host.

### UNIX Group Name for the Oracle Universal Installer Inventory

Use the `admintool` or `groupadd` utility to create a group name such as `oinstall`. The `oinstall` group owns the Oracle Universal Installer `oraInventory` directory. The `oracle` user account that runs the installation must have the `oinstall` group as its primary group.

> **Note:** The UNIX group name must not exceed 8 characters, otherwise the Oracle Calendar configuration assistant will fail.

For more information about these utilities, see your operating system documentation.

### UNIX Account to Own Oracle Software

The `oracle` account is the UNIX account that owns Oracle software for your system. You must run Oracle Universal Installer from this account.

Create an `oracle` account with the properties listed in Table 2–9.

***Table 2–9 Oracle Account Properties***

| Variable | Property |
|---|---|
| Login Name | Select any name to access the account. This document refers to the name as the `oracle` account. |
| Group Identifier | The `oinstall` group is used in this document. |
| Home Directory | Select a home directory consistent with other user home directories. |
| Login Shell | The default shell can be either the C, Bourne, or Korn shell. |

> **Note:** Use the `oracle` account only for installing and maintaining Oracle software. Never use it for purposes unrelated to Oracle Universal Installer. Do not use `root` as the `oracle` account.

### UNIX Group Names for Privileged Groups

Two privileged groups are required for Oracle9*i*AS Infrastructure installation and Oracle Collaboration Suite information storage installation:

- Database operator group
- Database administrator group

These privileged groups are not required for Oracle Collaboration Suite installation.

Oracle documentation refers to these groups as OSOPER and OSDBA, respectively. Databases use these groups for operating system authentication. This is necessary in situations where the database is shut down and database authentication is unavailable.

The privileges of these groups are given to either a single UNIX group or two corresponding UNIX groups. There are two ways to choose which groups get the privileges:

- If the oracle account is a member of the dba group before starting Oracle Universal Installer, then dba is given the privileges of both OSOPER and OSDBA.
- If the oracle account is not a member of the dba group, then Oracle Universal Installer prompts you for the group names that get these privileges.

Table 2–10 lists the privileges for the OSOPER and OSDBA groups.

***Table 2–10 Privileges for the OSOPER and OSDBA Groups***

| Group | Privileges |
|---|---|
| OSOPER | Permits the user to perform STARTUP, SHUTDOWN, ALTER DATABASE OPEN/MOUNT, ALTER DATABASE BACKUP, ARCHIVE LOG, and RECOVER, and includes the RESTRICTED SESSION privilege. |
| OSDBA | Contains all system privileges with ADMIN OPTION, and the OSOPER role; permits CREATE DATABASE and time-based recover. |

## Real Application Clusters for Oracle Collaboration Suite Information Storage Installation

Perform the following preinstallation steps to install Real Application Clusters.

> **See Also:** *Oracle9i Real Application Clusters Setup and Configuration* for more information about preinstallation steps for Real Application Clusters. This manual is available on Oracle Technology Network at
>
> http://otn.oracle.com/

### Steps to Perform as the root User for Real Application Clusters Installation

Perform the following steps as the root user:

1. Log in as the root user.
2. Ensure that you have the OSDBA group defined in the /etc/group file on all nodes in the cluster. The OSDBA group name and number, and OSOPER group if you plan to designate one, must be identical for all nodes of a UNIX cluster accessing a single database. The default UNIX group name for the OSDBA group is dba.
3. Create the oracle account on each node of the cluster so that the account:
   - Has the ORAINVENTORY group as the primary group
   - Has the dba group as the secondary group

- Is used only to install and update Oracle software
- Has write permissions on remote directories

4. Create a mount point directory on each node to serve as the top of the Oracle software directory structure so that:
   - The name of the mount point on each node is identical to that on the initial node
   - The `oracle` account has read, write, and execute privileges
5. Set up user equivalence by adding entries for all nodes in the cluster on the node from which to run Oracle Universal Installer, including the local node, to either the `.rhosts` file of the `oracle` account or the `/etc/hosts.equiv` file.
6. Check user equivalence by executing a remote command on every node as the `oracle` user using the following command:

   ```
   prompt> rsh another_host pwd
   ```

7. Check RCP equivalence by copying a small file from every node to every node. For example, enter:

   ```
   prompt> rcp /tmp/dummy_file another_host:/tmp/dummy_file
   ```

8. This is required for Oracle Universal Installer to install Oracle software on all selected nodes of the cluster.

### Steps to Perform as the oracle User for Real Application Clusters

Perform the following steps as the `oracle` user:

1. Log in as the `oracle` account.
2. Verify that the Cluster Membership Monitor is running using the following command:

   ```
   $ /usr/sbin/clu_get_info
   ```

3. Verify that the correct number of cluster members are configured. Member state for all nodes should be "up".
4. Check for user equivalence of the `oracle` account by performing a remote login (`rlogin`) to each node in the cluster.

   If you are prompted for a password, the `oracle` account does not have user equivalence. Ensure that you gave the same attributes to the `oracle` user on all the nodes in the cluster. Oracle Universal Installer cannot use the `rcp` command to copy Oracle products to the remote directories without user equivalence.

   If you have not set up user equivalence, you must perform Step 6 in "Steps to Perform as the root User for Real Application Clusters Installation" on page 2-10.
5. Create at least one shared configuration file as an information repository for the database server configuration. If your platform supports the Cluster File System, skip this step.

   Create a shared raw device of at least 100 MB for the Server Management (SRVM) configuration. Oracle Universal Installer prompts you for the name of this shared file on the Shared Configuration File Name Page. Alternatively, set the environment variable `SRVM_SHARED_CONFIG` to the absolute path name of the shared raw device from which Oracle Universal Installer can retrieve the configuration file.

**See Also:** *Oracle9i Real Application Clusters Setup and Configuration* for more information about setting up a shared configuration file

## Configuring Kernel Parameters for Oracle9*i*AS Infrastructure

The Oracle9*i*AS Metadata Repository installation requires you to configure your system kernel parameters. Compliance with this requirement is especially important for production environments. Review your kernel parameter settings to ensure that they meet Oracle9*i*AS Metadata Repository and Oracle Internet Directory requirements. You may experience errors during installation or operational errors after installation if this is not completed.

If you change the kernel settings, you must restart your system in order for kernel changes to take effect.

The parameters in the Table 2–11 are the recommended values for Oracle9*i*AS Infrastructure on hp Tru64 UNIX:

***Table 2–11 Kernel Parameter Settings for hp Tru64 UNIX for Oracle9iAS Infrastructure***

| Kernel Parameter | Setting | Purpose |
|---|---|---|
| MAX_PROC_PER USER | 2566 | Defines the maximum processors per user |
| MSG_MNB | 360000 | Defines the maximum bytes in a message queue |
| MSG_MNI | 2800 | Defines the maximum message queues system-wide |
| MSG_TQL | 2540 | Defines the maximum messages system-wide |
| SEM_MNI | 52 | Defines the maximum semaphores system-wide |
| SEM_MSL | 25 | Defines the maximum semaphores system-wide |
| SEM_OPM | 12 | Defines the maximum operations per semop call |
| SEM_UME | 42 | Defines the maximum semaphore undo per semaphore |
| SHM_MAX | 4278190080 (4 GB less 16 MB) | Defines the maximum allowable size of the shared memory. The SHM_MAX parameter does not affect how much shared memory is used or needed by Oracle9i, the operating system, or the operating system kernel. |
| SHM_MNI | 274 | Defines the maximum number of shared memory segments in the entire system. |
| SHM_SEG | 128 | Defines the maximum number of shared memory segments one process can attach. |

## Configuring Kernel Parameters for Oracle Collaboration Suite

The Oracle Collaboration Suite installation requires you to configure your system kernel parameters. Compliance with this requirement is especially important for production environments. Review your kernel parameter settings to ensure that they meet Oracle Collaboration Suite requirements. You may experience errors during installation or operational errors after installation if this is not completed.

If you change the kernel parameter settings, you must restart your system in order for kernel changes to take effect.

The parameters in the Table 2–12 are the recommended values for Oracle Collaboration Suite on hp Tru64 UNIX:

***Table 2–12 Kernel Parameter Settings for hp Tru64 UNIX for Oracle Collaboration Suite***

| Kernel Parameter | Setting | Purpose |
|---|---|---|
| MAX_PROC_PER USER | 2566 | Defines the maximum processors per user |
| MSG_MNB | 360000 | Defines the maximum bytes in a message queue |
| MSG_MNI | 2800 | Defines the maximum message queues system-wide |
| MSG_TQL | 2540 | Defines the maximum messages system-wide |
| SEM_MNI | 52 | Defines the maximum semaphores system-wide |
| SEM_MSL | 25 | Defines the maximum semaphores system-wide |
| SEM_OPM | 12 | Defines the maximum operations per semop call |
| SEM_UME | 42 | Defines the maximum semaphore undo per semaphore |
| SHM_MAX | 4278190080 (4 GB less 16 MB) | Defines the maximum allowable size of the shared memory. The SHM_MAX parameter does not affect how much shared memory is used or needed by Oracle9i, the operating system, or the operating system kernel. |
| SHM_MNI | 274 | Defines the maximum number of shared memory segments in the entire system. |
| SHM_SEG | 128 | Defines the maximum number of shared memory segments one process can attach. |

## Configuring Kernel Parameters for Oracle Collaboration Suite Information Storage

Oracle Collaboration Suite information storage uses UNIX resources such as shared memory, swap memory, and semaphore extensively for interprocess communication. If your parameter settings are insufficient for Oracle Collaboration Suite information storage, then you experience problems during installation and instance startup.

The greater the amount of data you can store in memory, the faster your database operates. In addition, by maintaining data in memory, the UNIX kernel reduces disk I/O activity.

Review your kernel parameter settings to ensure that they meet Oracle Collaboration Suite information storage requirements. If you do not do this, you may experience errors during installation, or operational errors after installation. These are the recommended kernel parameter requirements for a typical Oracle Collaboration Suite information storage environment.

If you have previously tuned your kernel parameters to levels that meet your application needs, then continue to use these values. A system restart is necessary if you change the kernel settings for the kernel changes to take effect.

For hp Tru64 UNIX, use a text editor such as vi to change the kernel parameter settings in the `/etc/sysconfigtab` file after making a backup copy. If you have previously changed your kernel for another program to levels equal to or higher than the levels that Oracle9i requires, then do not touch the settings. If the levels are too

low, then change them to at least as high as those in the table. If you change the settings, then save the /etc/sysconfigtab file and restart the system. For example, if you need to change your SHM_MAX, SHM_MNI, SHM_SEG, PER_PROC_STACK_SIZE, and PER_PROC_DATA_SIZE parameter settings, then add the following lines to the /etc/sysconfigtab file:

```
ipc: shm_max = 4278190080
   shm_mni = 256
   shm_seg = 128
proc: per_proc_stack_size = 33554432
   per_proc_data_size = 201326592
```

Refer to the following table to determine if your system-shared memory and semaphore kernel parameters are set high enough for Oracle9*i*.

To determine the current kernel parameter settings, use the following command:

```
# /sbin/sysconfig -q ipc
```

The parameters in the Table 2–13 are the recommended values to run Oracle9*i* with a single database instance on hp Tru64 UNIX:

***Table 2–13 Kernel Parameter Settings for hp Tru64 UNIX for Oracle Collaboration Suite Information Storage***

| Kernel Parameter | Setting | Purpose |
|---|---|---|
| MAX_PER_PROC_STACK_SIZE | 33554432 (32 MB) | Defines the processor stack size. The default size is sufficient for Oracle9i software. If an application that shares the system with Oracle9i requires a higher per process stack size, do not set this parameter higher than 512 MB. |
| PER_PROC_STACK_SIZE | 33554432 (32 MB) | Defines the processor stack size. The default size is sufficient for Oracle9i software. If an application that shares the system with Oracle9i requires a higher per process stack size, do not set this parameter higher than 512 MB. |
| PER_PROC_DATA_SIZE | 201326592 (192 MB) | Defines the minimum per process data segment size. |
| SHM_MAX | 4278190080 (4 GB less 16 MB) | Defines the maximum allowable size of the shared memory. The SHM_MAX parameter does not affect how much shared memory is used or needed by Oracle9i, the operating system, or the operating system kernel. |
| SHM_MIN | 1 | Defines the minimum allowable size of a single shared memory segment. |
| SHM_MNI | 256 | Defines the maximum number of shared memory segments in the entire system. |
| SHMSEG | 128 | Defines the maximum number of shared memory segments one process can attach. |

# Installing Oracle Collaboration Suite on a Single Computer

Although Oracle recommends that you install the Oracle9*i*AS Infrastructure, Oracle Collaboration Suite information storage database, and Oracle Collaboration Suite middle tier on separate computers for better performance, you can install Oracle Collaboration Suite on one computer. A single-computer installation DVD is provided

in the CD pack for Linux and Windows platforms. For other platforms, you can perform a single-computer installation using the CD-ROM sets in the CD pack.

**See Also:**

`http://otn.oracle.com/software/products/cs/files/README.html`

for information about single-computer installations on Windows and

`http://otn.oracle.com/software/products/cs/files/readme_linux.html`

for information about single-computer installations on Linux

---

**Note:** The Oracle Web Conferencing document conversion server and voice conversion server must be installed on a separate computer from the Oracle Collaboration Suite middle tier. Additionally, Oracle recommends that you install the Oracle Web Conferencing document conversion server and voice conversion server on separate computers. Both the Oracle Web Conferencing document conversion server and voice conversion server must be installed on Windows platforms.

---

**See Also:** *The Oracle Web Conferencing Administrator's Guide* for more information about the Oracle Web Conferencing document and voice conversion servers

# 3

# Preinstallation Requirements for Windows

This chapter discusses Oracle Collaboration Suite Release 2 (9.0.4.1) preinstallation requirements for Windows.

This chapter contains these topics:



## Hardware Requirements

Table 3–1 describes the minimum hardware requirements for each installation of Oracle Collaboration Suite.

***Table 3–1 Oracle Collaboration Suite Hardware Requirements[1]***

| Requirement | Value |
|---|---|
| CPU | ■ Oracle Collaboration Suite and the Oracle9*i*AS infrastructure require an Intel Pentium 300 MHz, or faster, processor.<br>■ Oracle Collaboration Suite information storage requires an Intel Pentium 166 MHz, or faster, processor. |
| Monitor | 256 color viewing capability |
| Memory (minimum requirement) | ■ Oracle9*i*AS infrastructure: 512 MB<br>■ Oracle Collaboration Suite information storage: 128 MB<br>■ Oracle Collaboration Suite middle tier: 256 MB |
| `TMP` or `TEMP` directory | Oracle9*i*AS infrastructure and Oracle Collaboration Suite middle tier require at least 300 MB of free space |
| Disk Space | ■ Oracle9*i*AS infrastructure: 3.58 GB<br>■ Oracle Collaboration Suite information storage:<br>■ Oracle Collaboration Suite middle tier: 1 GB |

[1] For detailed information regarding Oracle Files hardware and sizing requirements, see the *Oracle Files Planning Guide*.

## Additional Hardware Requirements for Oracle Web Conferencing

Oracle Web Conferencing offers document and voice conversion services. Document conversion services convert Microsoft Office documents into HTML for viewing in Document Presentation mode. Voice conversion services allow for voice streaming and for capturing and recording of the audio portion of a conference.

Document conversion is provided through the Document Conversion Server, which must reside on a separate computer from the middle tier. The computer must have Microsoft Windows 2000. The Voice Conversion Server must also reside on a separate computer from the middle tier, and this computer must have Microsoft Windows 2000. In addition, the Voice Conversion Server must have an Intel Dialogic card. Depending on your sizing requirements, you can install both servers on a single computer.

> **See Also:** *Oracle Web Conferencing Sizing Guide* for specific information on sizing requirements for your system

# Operating System Versions

Table 3–2 describes the operating system requirements for each installation of Oracle Collaboration Suite.

***Table 3–2 Operating System Requirements for Oracle Collaboration Suite***

| Requirement | Value |
|---|---|
| Operating System | Oracle9*i*AS infrastructure and Oracle Collaboration Suite middle tier:<br>■ Microsoft Windows NT 4.0 Workstation and Server with Service Pack 6a, or higher<br>■ Microsoft Windows 2000 Professional and Server with Service Pack 1 or higher<br>Oracle Collaboration Suite information storage:<br>■ Microsoft Windows NT 4.0 Workstation and Server with Service Pack 5, or higher<br>■ Microsoft Windows 2000 Professional and Server with Service Pack 1, or higher |
| Virtual Memory | Oracle9*i*AS infrastructure:<br>■ 1024 MB minimum<br>■ 2 GB recommended<br>Oracle Collaboration Suite information storage:<br>■ 200 MB minimum<br>■ 400 MB maximum<br>Oracle Collaboration Suite middle tier:<br>■ 512 MB minimum<br>■ 1 GB recommended<br>See Also: "Changing the Size of the Virtual Memory Paging File" on page 3-5 |

## Additional Software Requirements for Oracle Web Conferencing

Oracle Web Conferencing voice conversion services and document conversion services require additional hardware and software. Voice conversion services are enabled with the Oracle Web Conferencing Voice Conversion server and document conversion

services are enabled with the Oracle Web Conferencing Voice Conversion server. For a description of these servers and their hardware requirements, see "Additional Hardware Requirements for Oracle Web Conferencing" on page 3-2.

The computer or computers on which Oracle Web Conferencing voice and document conversion services reside must have the Microsoft Windows 2000 operating system. The computer with the Voice Conversion Server must also have the Intel Dialogic software. The computer with the Document Conversion Server must have Microsoft Office 2000. Depending on your sizing requirements, both servers can be installed on a single computer, but all hardware and software requirements must be met.

# Multilingual Support

The Oracle Collaboration Suite user interface is available in the following languages: Arabic, Brazilian Portuguese, Danish, Dutch, English, Finnish, French, German, Greek, Italian, Japanese, Korean, Norwegian, Portuguese, Simplified Chinese, Spanish, Swedish, Traditional Chinese, and Turkish.

## Oracle Calendar Multilingual Support Limitations

Oracle Calendar server administration tools have an English interface but support entering data in all Oracle Collaboration Suite supported languages.

The Oracle Calendar clients are available only in English with the following exceptions:

- **Oracle Connector for Outlook**: All Oracle Collaboration Suite supported languages, except Arabic
- **Oracle Calendar Web client**: All Oracle Collaboration Suite supported languages, except Arabic
- **Oracle Calendar desktop client for Windows**: English, French, German, and Japanese
- **Oracle Calendar Sync for Palm for Windows**: English, French, German, and Japanese
- **Oracle Calendar Sync for Pocket PC for Windows**: English, French, German, and Japanese

# Online Documentation Requirements

You can view Oracle Collaboration Suite documentation online using a Web browser or Portable Document Format (PDF) Viewer.

Table 3–3 lists the requirements for viewing Oracle Collaboration Suite online documentation.

*Table 3–3 Online Documentation Requirements*

| Requirement | Items |
|---|---|
| Online Readers | Any one of the following:<br>HTML<br>■ Netscape Navigator 4.1, or later<br>■ Microsoft Internet Explorer 5.0, or later<br>PDF<br>■ Acrobat Reader 4.0, or later<br>■ Acrobat Reader+Search 4.0, or later<br>■ Acrobat Exchange 4.0, or later<br>■ PDFViewer Web browser plug-in 1.0, or later |
| Library-wide HTML search and navigation | Active Internet connection |
| Disk Space | 37.5 MB |

**See Also:** *Oracle Collaboration Suite Documentation Roadmap*

# Port Allocations

Following installation, the Oracle Universal Installer creates a file named `portlist.ini` showing the ports assigned during the installation of Oracle Collaboration Suite components. The installation process automatically detects any port conflicts and selects an alternate port in the range allocated for that component.

# Certified Software

Many Oracle Collaboration Suite components require a Web browser. All Oracle Collaboration Suite installations require an Oracle9*i*AS infrastructure and Oracle9*i* database. A complete list of certified software, including certified Oracle9*i*AS infrastructure releases, database releases, and Web browsers for Oracle Collaboration Suite is located at Oracle*MetaLink*:

`http://metalink.oracle.com`

# Environment Preinstallation Tasks

This section contains these topics:

- Setting Environment Variables
- Changing the Size of the Virtual Memory Paging File
- Real Application Clusters for Oracle Collaboration Suite Information Storage Installation

## Setting Environment Variables

When installing the Oracle9*i*AS infrastructure or the Oracle Collaboration Suite middle tier, ensure that the `TMP` or `TEMP` directory has 300 MB, or more, of free space.

**Important:** The ORACLE_HOME environment variable is automatically set in the registry. Do not set this variable as a System Environment variable, as it prevents installation.

To change the TMP or TEMP directory path on Windows NT:

1. Select **Start** > **Settings** > **Control Panel** > **System**.
2. Select the **Environment** tab.
3. Select the TMP or TEMP variable from the **User Variables for** ***username*** list box.
4. Change the **Value** field to a directory with 300 MB, or more, of free space.
5. Click **Set**.
6. Click **OK**.

To change the TMP or TEMP directory path on Windows 2000:

1. Select **Start** > **Settings** > **Control Panel** > **System**.
2. Select the **Advanced** tab.
3. Click **Environment Variables**.
4. Select the TMP or TEMP variable from the **User Variables for** ***username*** list box.
5. Click **Edit**.
6. Change the **Variable Value** field to a directory with 300 MB, or more, of free space.
7. Click **OK** until you exit System Properties.

## Changing the Size of the Virtual Memory Paging File

To change the amount of virtual memory on Windows NT:

1. Select **Start** > **Settings** > **Control Panel** > **System**.
2. Select the **Performance** tab.
3. Click **Change**.
4. Select the appropriate drive and enter the new value in the **Initial size (MB)** field.
5. Click **Set**.
6. Click **OK** until you exit System Properties.

To change the amount of virtual memory on Windows 2000:

1. Select **Start** > **Settings** > **Control Panel** > **System**.
2. Select the **Advanced** tab.
3. Click **Performance Options**.
4. Click **Change**.
5. Select the appropriate drive and enter the new value in the **Initial size (MB)** field.
6. Click **Set**.
7. Click **OK** until you exit System Properties.

## Real Application Clusters for Oracle Collaboration Suite Information Storage Installation

Perform the following preinstallation steps to install Real Application Clusters. This information is also described in the Oracle Cluster Setup Wizard online help.

> **See Also:** *Oracle9i Real Application Clusters Setup and Configuration* for more information on preinstallation steps for Real Application Clusters. This manual is available on Oracle Technology Network at
>
> `http://www.oracle.com/technology`

This section contains these topics:

- Raw Device Requirements
- Real Application Clusters Preinstallation Tasks

### Raw Device Requirements

Each instance shares a set of unformatted devices on a shared disk subsystem for data files. The number and type of raw devices required depends on several factors.

If you plan to use one of the General Purpose, Transaction Processing, or Data Warehouse database configuration types, you must create specific tablespaces using the minimum sizes listed in Table 3–4. When considering size requirements for your disks, remember to account for the initial signature of 1 or 2 MB on each disk that cannot be used for extended partitions. These requirements are the same for both the vendor-supplied clusterware layer and the Oracle-supplied clusterware layer.

If you do not create the database with the database configuration assistant, the number of logical drives you create depends on the number of data files, redo log files, and control files you plan to create. However, you must still create a logical drive of 100 MB for the Voting disk.

***Table 3–4 Logical Drive Disk Sizes for Database Configuration Assistant***

| Create a Partition for... | File Size |
|---|---|
| `SYSTEM` tablespace | 420 MB |
| server parameter file | 5 MB |
| `USERS` tablespace | 120 MB |
| `TEMP` tablespace | 120 MB |
| `UNDOTBS` tablespace | 320 MB |
| `EXAMPLE` tablespace | 160 MB |
| `CWMLITE` tablespace | 100 MB |
| `XDB` tablespace | 50 MB |
| `ODM` tablespace | 280 MB |
| `INDX` tablespace | 70 MB |
| `TOOLS` tablespace | 12 MB |
| `DRSYS` tablespace | 250 MB |
| First control file | 110 MB |
| Second control file | 110 MB |

*Table 3–4 (Cont.) Logical Drive Disk Sizes for Database Configuration Assistant*

| Create a Partition for... | File Size |
|---|---|
| Two redo log files for each instance | 120 MB |
| `srvcfg` (Voting disk for clusterware) | 100 MB |

By default, the database configuration assistant uses automatic undo management. Create one Undo tablespace for each instance. Logical drive for the Undo tablespace for all preconfigured database templates must be at least 320 MB. If you use manual undo management, make the RBS logical drive at least 625 MB in size.

> **See Also:** *Oracle9i Real Application Clusters Setup and Configuration* for more information on planning your raw device creation strategy and DBCA database configuration options

## Real Application Clusters Preinstallation Tasks

Perform the following tasks on your Windows NT or Windows 2000 computer to prepare a set of nodes for cluster software installation:

- Task 1: Creating an Extended Partition and Logical Drives
- Task 2: Assigning Symbolic Link Names
- Task 3: Creating a Cluster

## Task 1: Creating an Extended Partition and Logical Drives

To configure unformatted logical drives, create an extended partition and multiple logical drives.

From one node in the cluster, run Windows NT Disk Administrator or Disk Management to create an extended partition and multiple logical drives. Each computer must be a member of the same domain or within a trusted domain.

> **See Also:** Your Windows Disk Administrator or Disk Management online help for more information about creating and managing extended partitions and logical drives

This section contains instructions for:

- Creating Partitions and Drives on Windows NT
- Creating Partitions and Drives on Windows 2000

### Creating Partitions and Drives on Windows NT

Run Windows NT Disk Administrator from one node to create an extended partition and configure logical drives on the shared disk for the entire cluster. You can use more than one disk to accommodate all the partitions, depending on your shared disk array's configuration. Each computer must be a member of the same domain or within a trusted domain.

To create an extended partition:

1. Log in as member of the Administrators Group.
2. Choose **Start** > **Programs** > **Administrative Tools** > **Disk Administrator** to display the Disk Administrator window.

3. Right-click an unpartitioned disk, or an area of free space on a disk that does not contain an extended partition.
4. Select **Create Extended**. The Disk Administrator displays the maximum sizes for the extended partition.
5. Enter the size of the partition of the extended partition, then click **OK**.

To create a logical drive:

> **Note:** When storing Oracle files on raw devices, Oracle Corporation recommends that you do not create more than 120 logical drives within an extended partition. Doing so can significantly increase the time needed to restart your computer and start the disk administration tools.

1. Select an area of free space in the extended partition.
2. Click **Partition** > **Create**.

   The Disk Administrator window displays the minimum and maximum sizes for the logical drive.

   a. Enter the size of the logical drive that you want to create. Create the logical drives with file sizes shown in Table 3–4 on page 3-6.

   b. Click **OK**.
3. Select the logical drive.
4. Click **Tools** > **Assign Drive Letter**.
5. Select the **Do not assign a drive letter** option.
6. Click **OK**.

> **Note:** Optionally, run the `LetterDelete` utility after creating all logical drives to remove all drive letter assignments with a single command.

7. Repeat steps 1-5 until all required logical drives are created.
8. Click **Partition** > **Commit Changes Now**.

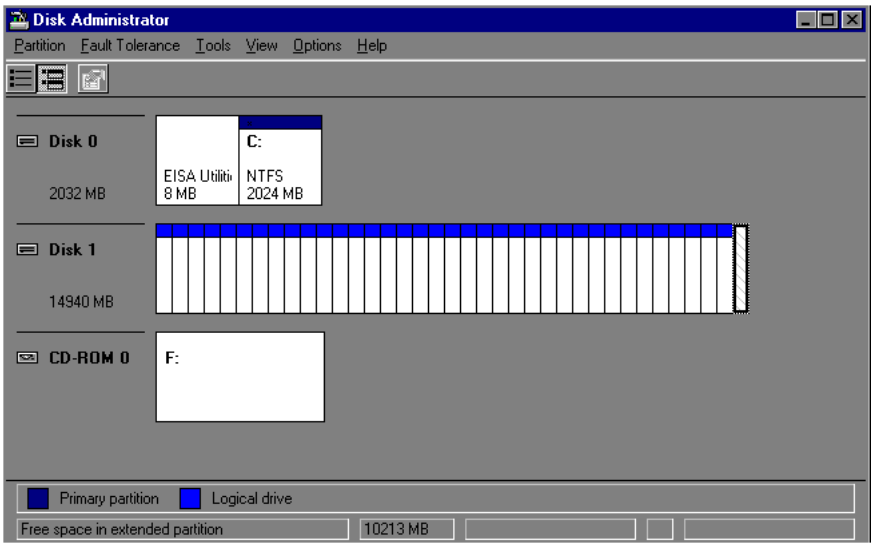
   A confirmation dialog displays, informing you that changes have been made to the disk.
9. Click **Yes** to acknowledge the message.

   A dialog box displays, informing you the disks have been updated successfully.
10. Click **OK**.
11. Click **Partition** > **Exit**.

    Changes should be visible on all nodes.

The Disk Administrator window shown in Figure 3–1 illustrates an example of a disk configuration. The logical partitions are sized to allow the database configuration assistant to create a cluster database.

***Figure 3–1 Disk Administrator Window***




| Disk | Contains |
|---|---|
| Disk 0 | A primary partition |
| Disk 1 | An extended partition with 36 logical partitions and an area of free space |

### Creating Partitions and Drives on Windows 2000

Run Windows 2000 Disk Management from one node to create an extended partition and configure logical drives on the shared disk for the entire cluster. You can use more than one disk to accommodate all the partitions, depending on your shared disk array's configuration. Each computer must be a member of the same domain or within a trusted domain.

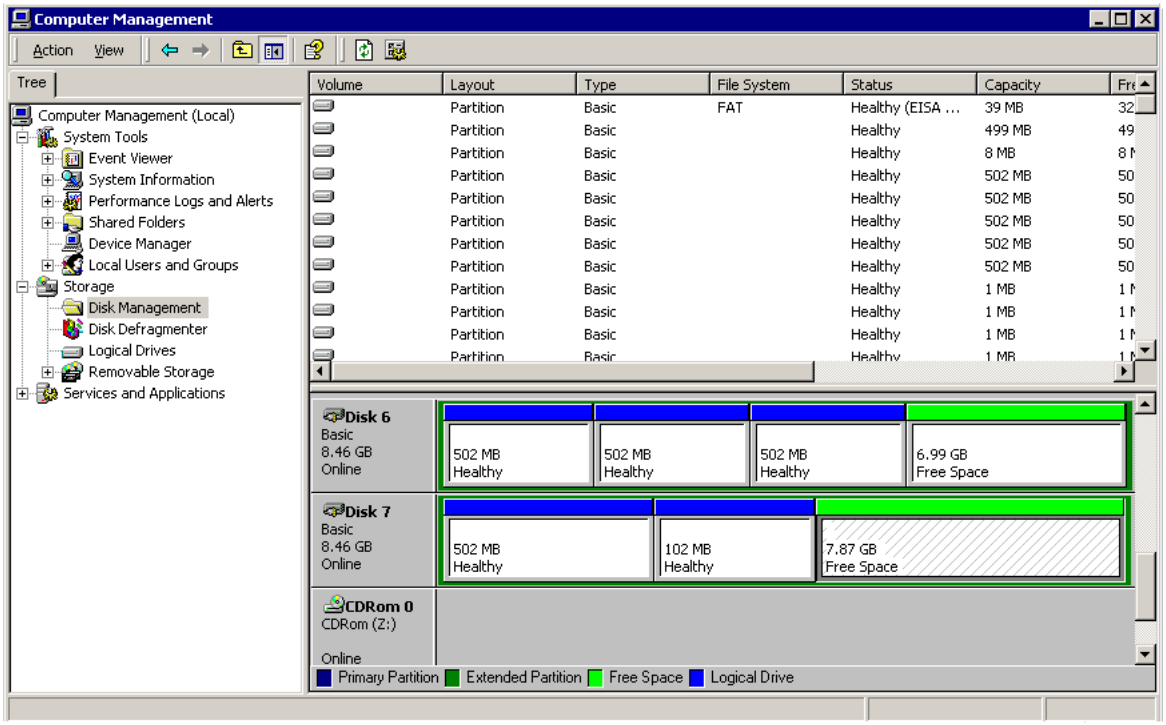
You must create primary partitions, an extended partition, and logical drives on basic disks. Dynamic disks are not supported. A basic disk uses the same partitions as earlier versions of Windows and can contain up to four primary partitions, or three primary partitions and one extended partition.

To create an extended partition and logical drives:

1. Click **Settings** > **Control Panel**.
2. Double-click **Administrative Tools**.
3. Click the **+** next to **Storage**, then select **Disk Management**.

   The Computer Management window displays. View the status of a disk or volume in the **Status** column. Figure 3–2 shows the status of Healthy for volumes, and Online for disks.

***Figure 3–2 Computer Management Window***




4. Right-click an unallocated region of a basic disk, and click **Create Partition**. Or, right-click free space in an extended partition, and click **Create Logical Drive**.
5. Click **Next** > **Extended Partition** > **Next**, or **Logical Drive** > **Next**. Set the appropriate logical drive size for each tablespace data file listed in Table 3–4 on page 3-6.
6. Click **Next**.
7. Select the **Do not assign a drive letter or drive path** option.
8. Click **Next**.
9. Select the **Do not format this partition** option.
10. Click **Next**.
11. Click **Finish**.

---

**Note:** If the Disk Management window is open during any disk management modifications, such as creating symbolic links or adding logical partitions, you need to close and open the window to view any changes you applied.

---

### Task 2: Assigning Symbolic Link Names

Use one of the following methods to assign symbolic link names:

- Using Oracle Cluster Setup Wizard
- Using Object Link Manager
- Using ImportSYMLinks Utility

### Using Oracle Cluster Setup Wizard

The Oracle Cluster Setup Wizard assists with cluster creation and the addition of nodes to an existing cluster. It also enables you to assign symbolic link names to logical drives. Refer to "Task 3: Creating a Cluster" on page 3-12 to create symbolic link names and create a cluster using Oracle Cluster Setup Wizard.

### Using Object Link Manager

Object Link Manager is a graphical user interface (GUI) tool that assigns symbolic link names or renames existing symbolic link names.

> **See Also:** "Installing the Raw Devices Management Utilities Manually" on page 3-15 to install Oracle Object Link Manager

1. Select `c:\temp\GUIOracleOBJManager.exe`, where *temp* is the temporary directory defined in step 2 of the "Installing the Raw Devices Management Utilities Manually" section on page 3-15.

   The Oracle Object Manager window displays.

2. Select the row to update and click any point within the highlighted row.

   An edit window, with an active blinking cursor, opens in the **New Link Name** column.

3. Enter the new link name and click **Enter**.

4. Repeat steps 2 and 3 to create additional symbolic link names.

> **Note:** Do not proceed to step 5 if the edit window is active. Changes will not apply.

5. Select **Options** > **Commit**.

### Using ImportSYMLinks Utility

The `ImportSYMLinks` utility is a command line tool that assigns symbolic link names or renames existing symbolic link names.

> **See Also:** "Installing the Raw Devices Management Utilities Manually" on page 3-15 to install the `ImportSYMLinks` utility

1. Create a `TBL` file.

| Task | Procedure |
|---|---|
| Modify an existing symbolic link name | Export existing links to a `TBL` file using the following command:<br>`ExportSYMLinks.exe /f:filename`<br>If `/f:filename` is not specified, then the default filename, `symmap.tbl`, is generated in the current working directory. |
| Create a `TBL` file | A sample ASCII file is located in the following directory on the first component CD-ROM:[1]<br>`\preinstall_rac\olm\sample.tbl`<br>1. Create a `TBL` file.<br>2. Save the file. |

[1] This sample file contains symbolic link names associated with raw partitions for a two-node cluster database.

2. Use the following command to import symbolic link mappings:

   ```
   ImportSYMLinks.exe /f:filename
   ```

   For example,

   ```
   ImportSYMLinks.exe \f:c:\temp\mysymlinks.tbl
   ```

   where temp is the temporary directory defined in step 2 of the "Installing the Raw Devices Management Utilities Manually" section on page 3-15 and *filename* is the full path and filename of the valid `TBL` file.

### Task 3: Creating a Cluster

If you intend to use Oracle9*i* operating system dependent clusterware, use the Oracle Cluster Setup Wizard to install the clusterware, assign symbolic links, and create a cluster. If you intend to use vendor operating system dependent clusterware, refer to your vendor documentation.

If you intend to use vendor operating system dependent clusterware instead of Oracle9*i* operating system dependent clusterware, you do not need to run the Oracle Cluster Setup Wizard. However, the raw device management utilities are required to configure a raw device before the Oracle Universal Installer is invoked. You must temporarily install the raw device management utilities.

Run the Oracle Cluster Setup Wizard on a node that is to become a node in the cluster. Running the wizard from a node that will not become a node in the cluster is not supported. To add a node to an existing cluster, run the Oracle Cluster Setup Wizard from the CD-ROM at any time.

> **See Also:** *Oracle9i* Real Application Clusters Administration for more information about adding a node at the clusterware layer on a Windows platform

#### Before you Begin

- Ensure all the nodes to be part of the cluster are up and can communicate with each other in a TCP/IP environment
- Ensure you have 2 MB available on each node to install the Oracle operating system dependent clusterware and Object Link Manager
- Stop the vendor operating system dependent clusterware. This only applies if you plan to install the Oracle operating system dependent clusterware, and have a version of your vendor operating system dependent clusterware running.

> **Note:** Oracle Corporation recommends using the same username and password on each node in a cluster, or a domain username. You must have administrative privileges and each node must be in the same domain.

To verify administrative privileges, from the node on which the Oracle Cluster Setup Wizard runs, enter the following for each node in the cluster:

```
NET USE \\host_name\C$
```

where *host_name* is the public network name for the other node.

For example, if you run the Oracle Cluster Setup Wizard on node1 and plan to create a four-node cluster with `node1`, `node2`, `node3`, and `node4`, enter the following commands on `node1`:

```
NET USE \\node2\C$
NET USE \\node3\C$
NET USE \\node4\C$
```

When the command completes successfully, you have administrative privileges on each node.

To create a cluster:

1. Insert the first component CD-ROM on one node of the cluster, and go to the `\preinstall_rac\clustersetup` directory.
2. Select `clustersetup.exe` to launch the Oracle Cluster Setup Wizard.
3. Click **Next**.
4. Choose to Create a cluster, then click **Next** to display the Disk Configuration screen.
5. Optionally, perform one of the tasks listed in Table 3–5 to rename or add a symbolic link:

***Table 3–5 Symbolic Link Tasks***

| Task | Procedure |
|---|---|
| Rename a symbolic link | 1. Click **Create Oracle Symbolic Links** to display the Oracle Object Link Manger window.<br>2. Select a row to update from the **Symbolic Link** column.<br>The cursor starts blinking.<br>3. Enter the new link name.<br>4. Repeat steps 2 and 3 to rename any additional symbolic link names.<br>5. Click **Apply**.<br>6. Click **Close** when the progress bar at the bottom of the screen stops moving. |
| Create a symbolic link | 1. Click **Create Oracle Symbolic Links** to display the Oracle Object Link Manger window.<br>2. Select an empty row from the **Symbolic Link** column.<br>The cursor starts blinking.<br>3. Enter a link name.<br>4. Repeat steps 2 and 3 to assign any additional symbolic link names.<br>5. Click **Close** when the progress bar at the bottom of the screen stops moving. |

6. Assign a Voting disk, labeled as `srvcfg`, by highlighting the corresponding row.
7. Click **Next**.
8. Choose **Create a cluster** and click **Next**, to display the Network Selection window.

9. Select **Use private network for interconnect** if the nodes are connected by a high speed private network. Otherwise, select **Use public network for interconnect** and click **Next** to display the Network Configuration window.
10. Enter the names of the nodes and click **Next**.
    - Enter the public and private names for the nodes if private network was chosen in step 9 of this section
    - Enter the public names if public network was chosen in step 9 of this section

    The VIA Detection window displays if VIA is detected on the local node. Go to step 11. Otherwise, go to step 12.
11. Chose whether or not to use VIA for the clusterware interconnect. After making your selection, click **Next** to display the Install Location window.
12. Choose an installation location and click **Next**.

    A progress window displays the various actions performed by Oracle Cluster Setup Wizard.

**See Also:** Oracle Cluster Setup Wizard online Help

### Raw Devices Management Utilities Overview

Additional disk management utilities, listed in Table 3–6, are installed by the Oracle Cluster Setup Wizard on all nodes. These utilities are not installed if you do not run Oracle Cluster Setup Wizard.

***Table 3–6 Raw Devices Disk Management Utilities***

| Utility | Task |
|---|---|
| Object Link Manager | A graphical user interface (GUI) tool that creates or modifies symbolic links to logical drives. This utility can be used as part of the Oracle Cluster Setup Wizard, or separately. |
| `DeleteDisk` | Reformats an entire disk and deletes its contents. |
| `LetterDelete` | Removes all drive letters from Oracle raw partitions and updates the disk key registry to disable mappings when you restart your computer. |
| `LogPartFormat` | Initializes all space in a logical partition to zero and removes the symbolic link name. |
| `crlogdr` | Creates and deletes logical drives and their associated symbolic names on a disk that does not have a primary partition and one extended partition. Use this tool to review the disk layout. |
| `ExportSYMLinks` | Reads persistent symbolic links from their respective disk drives and generates a `TBL` file of the list (named by default `symmap.tbl`). |
| `ImportSYMLinks` | Reads a `TBL` file and creates persistent symbolic links on the disks and on all nodes in the cluster. |

**See Also:**

- "Installing the Raw Devices Management Utilities Manually" on page 3-15
- The `README` on using the utilities, which, along with the disk management tools, is located in the *`directory`*`\olm` directory, where *`directory`* is where you installed the Oracle operating system dependent clusterware with Oracle Cluster Setup Wizard

### Installing the Raw Devices Management Utilities Manually

If you did not install Oracle9*i* operating system dependent clusterware using the Oracle Cluster Setup Wizard, manually install the raw device management utilities.

To manually install the disk management utilities, perform the following tasks on each node of the cluster:

1. Create a temporary directory.
2. Copy the contents of the `\preinstall_rac\olm` directory from the first component CD-ROM to the temporary directory you created.
3. Install Oracle Object Service by entering the following command from the temporary directory you created:

```
C:\temp> OracleOBJService \INSTALL
```

**Note:** The Oracle Cluster Setup Wizard automatically creates and starts this service.

Set the `Oracle Object Service` service on each node in the cluster to automatic. Refer to your Microsoft online help for more information about configuring, starting, and stopping services.

# 4

# Preinstallation Requirements for AIX

This chapter discusses Oracle Collaboration Suite Release 2 (9.0.4.1) preinstallation requirements for AIX-based systems.

This chapter contains these topics:



## Hardware Requirements

This section contains these topics:



Table 4–1 describes the minimum hardware requirements for each installation of Oracle Collaboration Suite.

***Table 4–1 Oracle Collaboration Suite Hardware Requirements[1]***

| Requirement | Value |
|---|---|
| AIX CPU[2] | All AIX compatible processors (64-bit) |
| Monitor | 256 color viewing capability |

*Table 4–1 (Cont.) Oracle Collaboration Suite Hardware Requirements*[1]

| Requirement | Value |
|---|---|
| `/var/tmp` Directory Space | Oracle Collaboration Suite: 33 MB<br>Oracle9*i*AS Infrastructure: 7 MB<br>Oracle Collaboration Suite Information Storage: 34 MB |
| Swap Space | 2 GB |
| Memory<br>(minimum requirement) | Oracle Collaboration Suite: 512 MB<br>Oracle9*i*AS Infrastructure: 512 MB<br>Oracle Collaboration Suite information storage: 512 MB<br>**Note:** Allocate additional memory depending on the applications and the number of users on the systems. |
| Disk Space for AIX | Oracle Collaboration Suite: 6.0 GB<br>Oracle9*i*AS Infrastructure: 5.6 GB<br>Oracle Collaboration Suite Information Storage: 6.0 GB |

[1] For detailed information regarding Oracle Files hardware and sizing requirements, see the *Oracle Files Planning Guide*.

[2] An additional CPU is recommended on the computer where the Oracle Collaboration Suite information store is running if you want Oracle Text indexing of documents in Oracle Files or e-mail messages in Oracle Email.

**Note:** Regardless of the operating system, disk space must be available on a single disk. Oracle Collaboration Suite does not support spanning the installation over multiple disks.

## Determining Available Disk Space

To determine the amount of disk space available on the system, enter the following command:

```
# df -k
```

To determine the amount of disk space available in the `/var/tmp` directory, enter the following command:

```
# df -k /var/tmp
```

## Determining Random Access Memory

Use the following command to determine the amount of random access memory installed on the system:

```
# /usr/sbin/lsattr -E -1 sys0 -a realmem
```

If the amount of RAM installed is less than 512 MB, you must install more before you can continue for the installation.

## Determining Swap Space

To determine the size of configured swap space, enter the following command:

```
# /usr/sbin/lsps -a
```

# Operating System Versions

Table 4–2 lists the operating system version requirements, and the command to determine the current operating system version.

***Table 4–2 Operating System Versions and Requirements***

| Item | Operating System Requirements |
|---|---|
| Operating System | AIX 5.1 (64-bit only) or AIX 5.2 (64-bit only).<br>Use the following command to determine the operating system version currently installed on your system:<br>`# oslevel -r`<br>`5100-02` |
| Software | IBM JDK 1.3.1, with patches IY30887, IY33957, and IY47055.<br>To determine what version of JDK is installed in the default location, enter the following command:<br>`$ /usr/java131/bin/java -fullversion`<br>This should display the following:<br>`java full version "J2RE 1.3.1 IBM AIX build ca131-20030630a"`<br>If the JDK is not found, or if the version installed is lower than 1.3.1, download and install JDK 1.3.1 from the following Web site:<br>`http://www.ibm.com/developerworks/java/jdk/aix/index.html` |
| Window Manager | Use any supported IBM AIX window manager that supports Motif, such as dtwm, twm and olwm. |

# Operating System Patches and Packages

Your operating system can require the installation of patches and packages. Several of the patches listed in the following tables have dependency patches that must also be installed. See the `readme` files included with the patches and packages for additional information. When downloading a specific patch or package, verify dependencies and download the dependency patches or packages, if required.

---

**Note:** Your operating system must include the `sendmail` program.

---

## Required AIX-Based System Patches for *Oracle9i*AS Infrastructure and Oracle Collaboration Suite

Table 4–3 lists the operating system patches you must install for *Oracle9i*AS Infrastructure installation and Oracle Collaboration Suite installation on AIX-based systems.

*Table 4–3 Required AIX-Based System Patches for Oracle9iAS Infrastructure and Oracle Collaboration Suite*

| Operating System | Required Patches |
|---|---|
| AIX 5.1 | ■ ML04<br>■ Fileset `bos.adt.libm`<br>■ Fileset `bos.perf.libperfstat`<br>■ IY39508<br>■ IY40840 |
| AIX 5.2 | ■ ML01<br>■ Fileset `bos.adt.libm`<br>■ Fileset `bos.perf.libperfstat`<br>■ IY39508<br>■ IY40840 |
| Clusterware patches for AIX-based systems | ■ HACMP/ES CRM 4.4.1<br>■ IY21047<br>■ IY28111<br>■ PSSP 3.4 |

## Required AIX-Based System Patches for Oracle Collaboration Suite Information Storage

Table 4–4 lists the operating system patches you must install for Oracle Collaboration Suite information storage on AIX-based systems.

*Table 4–4 Patches and Packages for Oracle Collaboration Suite Information Storage*

| Operating System | Required Patches | Download Location |
|---|---|---|
| AIX 5.1 | Maintenance Level 04 (ML04), IY339508, IY40840 | http://techsupport.services.ibm.com/server/fixes |
| AIX 5.2 | Maintenance Level 01 (ML01), IY339508, IY40840 | http://techsupport.services.ibm.com/server/fixes |

## Operating System Requirements to Support Real Application Clusters

Table 4–5 lists the operating system packages and patches required to support Real Application Clusters.

*Table 4–5 Patches and Packages for Real Application Clusters*

| Platform | Packages and Patches |
|---|---|
| AIX-Based Systems | PSSP 3.4 (SP only), HACMP/ES CRM 4.4.1 (RS6000 only) |

## Additional Operating System Requirements

Table 4–6 lists additional software required for all platforms:

*Table 4–6 Additional Required Operating System Requirements*

| Software | Requirement |
|---|---|
| X Server and Window Manager | Use any X Server and window manager supported by your UNIX operating system.<br>For Hummingbird Exceed, use a native window manager.<br>For WRQ Reflections, allow a remote window manager.<br>To determine if your X Window System is working properly on your local system, enter the following command:<br>`prompt> xclock`<br>The X clock should appear on your monitor. |
| Required executables | The following executables must be present: `make`, `ar`, `ld`, and `nm`. |

# Additional Software Requirements for Oracle Web Conferencing

Oracle Web Conferencing uses a Document Conversion Server to convert Microsoft Office documents into HTML or other compatible formats for sharing during conferences. The server must reside on a separate computer from the middle tier, and it must have Microsoft Windows NT and Microsoft Office 2000 or Microsoft Office XP.

Oracle Web Conferencing also uses a Voice Conversion Server to support streaming voice data during conferences or playback of recorded conferences with voice data. The server requires Microsoft Windows 2000 Server SP4 or above, and Intel Dialogic System Software 5.1.1 SP1 or above.

> **See Also:** *Oracle Web Conferencing Sizing Guide* for more details about required hardware and software

# Multilingual Support

The Oracle Collaboration Suite user interface is available in the following languages: Arabic, Brazilian Portuguese, Danish, Dutch, English, Finnish, French, German, Greek, Italian, Japanese, Korean, Norwegian, Portuguese, Simplified Chinese, Spanish, Swedish, Traditional Chinese, and Turkish.

## Oracle Calendar Multilingual Support Limitations

Oracle Calendar server administration tools have an English interface but support entering data in all Oracle Collaboration Suite supported languages.

The Oracle Calendar clients are available only in English with the following exceptions:

- **Oracle Connector for Outlook**: All Oracle Collaboration Suite supported languages, except Arabic
- **Oracle Calendar Web client**: All Oracle Collaboration Suite supported languages, except Arabic
- **Oracle Calendar desktop client for Windows**: English, French, German, and Japanese
- **Oracle Calendar Sync for Palm for Windows**: English, French, German, and Japanese
- **Oracle Calendar Sync for Pocket PC for Windows**: English, French, German, and Japanese

# Online Documentation Requirements

You can view Oracle Collaboration Suite documentation online using a Web browser or Portable Document Format (PDF) Viewer.

Table 4–7 lists the requirements for viewing Oracle Collaboration Suite online documentation.

***Table 4–7 Online Documentation Requirements***

| Requirement | Items |
|---|---|
| Online Readers | Any one of the following:<br>HTML<br>■ Netscape Navigator 4.7 or later<br>■ Microsoft Internet Explorer 5.0 or later<br>PDF<br>■ Acrobat Reader 4.0 or later<br>■ Acrobat Reader+Search 4.0 or later<br>■ Acrobat Exchange 4.0 or later<br>■ PDFViewer Web browser plug-in 1.0 or later |
| Library-wide HTML search and navigation | Active Internet connection |
| Disk Space | 37.5 MB |

**See Also:** *Oracle Collaboration Suite Documentation Roadmap*

# Port Allocations

Following installation, Oracle Universal Installer creates a file named `portlist.ini` showing the ports assigned during the installation of Oracle Collaboration Suite components. The installation process automatically detects any port conflicts and selects an alternate port in the range allocated for that component. The file is located at:

```
$ORACLE_HOME/install/portlist.ini
```

# Certified Software

Many Oracle Collaboration Suite components require a Web browser. All Oracle Collaboration Suite installations require an *Oracle9i*AS Infrastructure and *Oracle9i* database. A complete list of certified software, including certified *Oracle9i*AS Infrastructure releases, database releases, and Web browsers for Oracle Collaboration Suite is located at *OracleMetaLink*:

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

# Release Notes

Before installing Oracle Collaboration Suite, Oracle Corporation recommends that you read *Oracle Collaboration Suite Release Notes*, available in the `doc` directory of each Oracle Collaboration Suite installation CD-ROM and on Oracle Technology Network. See *Oracle Collaboration Suite Documentation Roadmap* for more information about Oracle Collaboration Suite documentation. Although this document is accurate at the

time of publication, you can access the latest information and documentation on Oracle Technology Network:

`http://otn.oracle.com/`

# Environment Preinstallation Tasks

This section contains these topics:

- Setting Environment Variables
- Hostnames File Configuration
- Creating UNIX Accounts and Groups
- Real Application Clusters for Oracle Collaboration Suite Information Storage Installation
- Configuring Kernel Parameters for Oracle9iAS Infrastructure and Oracle Collaboration Suite
- Configuring Kernel Parameters for Oracle Collaboration Suite Information Storage

## Setting Environment Variables

Table 4–8 explains how to set and unset environment variables.

***Table 4–8 Setting and Unsetting Environment Variables***

| To... | C shell | Bourne/Korn shell |
|---|---|---|
| Set an environment variable | `prompt> setenv VARIABLE value` | `prompt> VARIABLE=value;export VARIABLE` |
| Unset an environment variable | `prompt> unsetenv VARIABLE` | `prompt> unset VARIABLE` |

**Note:** You do not need to set the environment variables `ORACLE_HOME`, `LIBPATH`, `TMP`, `TMPDIR`, and `TNS_ADMIN`.

### DISPLAY

Before starting Oracle Universal Installer, set the `DISPLAY` environment variable to refer to the X Server that displays Oracle Universal Installer. The format of the `DISPLAY` environment variable is:

*`hostname:display_number.screen_number`*

Oracle Collaboration Suite requires a running X Server to properly create graphics for Oracle Universal Installer, Web applications, and management tools. The frame buffer X Server installed with your operating system requires that you remain logged in and have the frame buffer running at all times. If you do not want to do this, then you must use a virtual frame buffer, such as X Virtual Frame Buffer (XVFB) or Virtual Network Computing (VNC).

Oracle Universal Installer configures this instance to use the same X Server from the installation process for applications and management tools. This X Server must either always be running or you must reconfigure Oracle Collaboration Suite to use another X Server that is always running after the installation completes.

**See Also:**

- Your operating system documentation for more information about the `DISPLAY` environment variable
- Oracle Technology Network (`http://otn.oracle.com/`) for information about obtaining and installing XVFB or other virtual frame buffer solutions. Search Oracle Technology Network for "frame buffer".

### Installing From a Remote Computer

Setting the `DISPLAY` environment variable enables you to run Oracle Universal Installer remotely from another workstation. On the system where you launch Oracle Universal Installer, set `DISPLAY` to the system name or IP address of your local workstation.

**Note:** You can use a PC X emulator to run the install if it supports a PseudoColor color model or PseudoColor visual. Set the PC X emulator to use a PseudoColor visual, and then start Oracle Universal Installer. See the X emulator documentation for instructions on how to change the color model or visual settings.

If you get an Xlib error similar to "Failed to connect to server", "Connection refused by server," or "Can't open display" when starting Oracle Universal Installer, then run the commands on your local workstations as listed in Table 4–9.

***Table 4–9 DISPLAY Environment Variable Commands***

| Shell Types | On Server Where Oracle Universal Installer Is Running | In Session on Your Workstation |
|---|---|---|
| C shell | `prompt> setenv DISPLAY hostname:0.0` | `prompt> xhost + server_name` |
| Bourne/Korn shell | `prompt> DISPLAY=hostname:0.0;export DISPLAY` | `prompt> xhost + server_name` |

## Hostnames File Configuration

Oracle Universal Installer requires that the fully-qualified hostname information appear in the configuration files for your computer. A fully-qualified hostname includes both the name of the system and its domain.

Failure to properly configure the hostname information in the listed files may result in runtime errors during Oracle Collaboration Suite installation.

Verify that `/etc/hosts` has the following format:

```
ip_address fully_qualified_hostname short_hostname aliases
```

The following example shows a properly configured `/etc/hosts` file:

```
148.87.9.44 oasdocs.us.oracle.com oasdocs oracleinstall
```

Verify that the `hostname` command returns this fully-qualified hostname before starting the install.

## Creating UNIX Accounts and Groups

The installation process requires a special UNIX account and several special groups. See the following subsections for more information:

- UNIX Group Name for the Oracle Universal Installer Inventory
- UNIX Account to Own Oracle Software
- UNIX Group Names for Privileged Groups

> **Note:** You must use the same operating system user account when adding additional Oracle Collaboration Suite installations on the same host.

### UNIX Group Name for the Oracle Universal Installer Inventory

Use the `admintool` or `groupadd` utility to create a group name such as `oinstall`. The `oinstall` group owns the Oracle Universal Installer `oraInventory` directory. The `oracle` user account that runs the installation must have the `oinstall` group as its primary group.

> **Note:** The UNIX group name must not exceed 8 characters, otherwise the Oracle Calendar configuration assistant will fail.

For more information about these utilities, see your operating system documentation.

### UNIX Account to Own Oracle Software

The `oracle` account is the UNIX account that owns Oracle software for your system. You must run Oracle Universal Installer from this account.

Create an `oracle` account with the properties listed in Table 4–10.

***Table 4–10 Oracle Account Properties***

| Variable | Property |
|---|---|
| Login Name | Select any name to access the account. This document refers to the name as the `oracle` account. |
| Group Identifier | The `oinstall` group is used in this document. |
| Home Directory | Select a home directory consistent with other user home directories. |
| Login Shell | The default shell can be either the C, Bourne, or Korn shell. |

> **Note:** Use the `oracle` account only for installing and maintaining Oracle software. Never use it for purposes unrelated to Oracle Universal Installer. Do not use `root` as the `oracle` account.

### UNIX Group Names for Privileged Groups

Two privileged groups are required for *Oracle9i*AS Infrastructure installation and Oracle Collaboration Suite information storage installation:

- Database operator group

- Database administrator group

These privileged groups are not required for Oracle Collaboration Suite installation.

Oracle documentation refers to these groups as OSOPER and OSDBA, respectively. Databases use these groups for operating system authentication. This is necessary in situations where the database is shut down and database authentication is unavailable.

The privileges of these groups are given to either a single UNIX group or two corresponding UNIX groups. There are two ways to choose which groups get the privileges:

- If the oracle account is a member of the dba group before starting Oracle Universal Installer, then dba is given the privileges of both OSOPER and OSDBA.
- If the oracle account is not a member of the dba group, then Oracle Universal Installer prompts you for the group names that get these privileges.

Table 4–11 lists the privileges for the OSOPER and OSDBA groups.

***Table 4–11 Privileges for the OSOPER and OSDBA Groups***

| Group | Privileges |
|---|---|
| OSOPER | Permits the user to perform STARTUP, SHUTDOWN, ALTER DATABASE OPEN/MOUNT, ALTER DATABASE BACKUP, ARCHIVE LOG, and RECOVER, and includes the RESTRICTED SESSION privilege. |
| OSDBA | Contains all system privileges with ADMIN OPTION, and the OSOPER role; permits CREATE DATABASE and time-based recover. |

## Real Application Clusters for Oracle Collaboration Suite Information Storage Installation

Perform the following preinstallation steps to install Real Application Clusters.

> **See Also:** *Oracle9i Real Application Clusters Setup and Configuration* for more information about preinstallation steps for Real Application Clusters. This manual is available on Oracle Technology Network at
>
> http://otn.oracle.com/

### Steps to Perform as the root User for Real Application Clusters Installation

1. Log in as the root user.
2. Ensure that you have the OSDBA group defined in the /etc/group file on all nodes in the cluster. The OSDBA group name and number, and OSOPER group if you plan to designate one, must be identical for all nodes of a UNIX cluster accessing a single database. The default UNIX group name for the OSDBA group is dba.
3. Create the oracle account on each node of the cluster so that the account:
   - Has the ORAINVENTORY group as the primary group
   - Has the dba group as the secondary group
   - Is used only to install and update Oracle software
   - Has write permissions on remote directories

4. Create a mount point directory on each node to serve as the top of the Oracle software directory structure so that:
   - The name of the mount point on each node is identical to that on the initial node
   - The `oracle` account has read, write, and execute privileges
5. Set up user equivalence by adding entries for all nodes in the cluster on the node from which to run Oracle Universal Installer, including the local node, to either the `.rhosts` file of the `oracle` account or the `/etc/hosts.equiv` file.
6. Check user equivalence by executing a remote command on every node as the `oracle` user. For example, enter the following at the prompt:

   ```
   prompt> rsh another_host pwd
   ```

7. Check RCP equivalence by copying a small file from every node to every node. For example, enter:

   ```
   prompt> rcp /tmp/dummy_file another_host:/tmp/dummy_file

   This is required for Oracle Universal Installer to install Oracle software on
   all selected nodes of the clusster.
   ```

### Steps to Perform as the oracle User for Real Application Clusters

1. Log in as the `oracle` account.
2. Verify that the Cluster Membership Monitor is running, using the following commands for AIX-based systems:

   HACMP

   ```
   $ /usr/bin/lssrc -ls grpsvcs
   ```

   **Note:** Verify that the CLSTRMGR_*cluster_id* has number of providers equal to the number of nodes.

   PSSP 3.4

   ```
   $ /usr/bin/lssrc -ls hags
   ```

   **Note:** Verify that `css` has the correct number of nodes. There should also be a local provider.
3. Check for user equivalence of the `oracle` account by performing a remote login (`rlogin`) to each node in the cluster.

   If you are prompted for a password, the `oracle` account does not have user equivalence. Ensure that you gave the same attributes to the `oracle` user on all the nodes in the cluster. Oracle Universal Installer cannot use the `rcp` command to copy Oracle products to the remote directories without user equivalence.

   If you have not set up user equivalence, you must perform Step 6 in "Steps to Perform as the root User for Real Application Clusters Installation" on page 4-10.
4. Create at least one shared configuration file as an information repository for the database server configuration. If your platform supports the Cluster File System, skip this step.

   Create a shared raw device of at least 100 MB for the Server Management (SRVM) configuration. Oracle Universal Installer prompts you for the name of this shared file on the Shared Configuration File Name Page. Alternatively, set the

environment variable SRVM_SHARED_CONFIG to the absolute path name of the shared raw device from which Oracle Universal Installer can retrieve the configuration file.

**See Also:** *Oracle9i Real Application Clusters Setup and Configuration* for more information about setting up a shared configuration file

## Configuring Kernel Parameters for Oracle9*i*AS Infrastructure and Oracle Collaboration Suite

On AIX Based Systems you do not need to configure kernel parameters before installing Oracle9*i*AS Infrastructure and Oracle Collaboration Suite. However, you might need to modify some kernel parameters for performance reasons.

For more information, refer to Appendix A of the *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP 9000 Series HP-UX, Linux Intel, and Sun Solaris*.

## Configuring Kernel Parameters for Oracle Collaboration Suite Information Storage

Oracle Collaboration Suite information storage uses UNIX resources such as shared memory, swap memory, and semaphore extensively for interprocess communication. If your parameter settings are insufficient for Oracle Collaboration Suite information storage, then you experience problems during installation and instance startup.

The greater the amount of data you can store in memory, the faster your database operates. In addition, by maintaining data in memory, the UNIX kernel reduces disk I/O activity.

Review your kernel parameter settings to ensure that they meet Oracle Collaboration Suite information storage requirements. If you do not do this, you may experience errors during installation, or operational errors after installation. These are the recommended kernel parameter requirements for a typical Oracle Collaboration Suite information storage environment.

If you have previously tuned your kernel parameters to levels that meet your application needs, then continue to use these values. A system restart is necessary if you change the kernel settings for the kernel changes to take effect.

### Kernel Parameter Settings for AIX-Based Systems)

AIX Based Systems do not require kernel parameter configuration prior to Oracle9*i* installation. However, certain system parameters may need to be adjusted to increase performance.

For more information, refer to Appendix A of the *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP 9000 Series HP-UX, Linux Intel, and Sun Solaris*.

# Before You Install

Before you begin the Oracle Collaboration Suite installation, enter the following commands:

```
# mv /usr/java131/bin/java /usr/java131/bin/java.ORIG
# cd /usr/java131/bin
# ln -sf ../jre/bin/java ./java
```

# Installing Oracle Collaboration Suite on a Single Computer

Although Oracle Corporation recommends that you install the Oracle9*i*AS Infrastructure, Oracle Collaboration Suite information storage database, and Oracle Collaboration Suite middle tier on separate computers for better performance, you can install Oracle Collaboration Suite on one computer. A single-computer installation DVD is provided in the CD pack for Linux and Windows platforms. For other platforms, you can perform a single-computer installation using the CD-ROM sets in the CD pack.

**See Also:**

`http://otn.oracle.com/software/products/cs/files/README.html`

for information about single-computer installations on Windows and

`http://otn.oracle.com/software/products/cs/files/readme_linux.html`

for information about single-computer installations on Linux

---

**Note:** The Oracle Web Conferencing document conversion server and voice conversion server must be installed on a separate computer from the Oracle Collaboration Suite middle tier. Additionally, Oracle Corporation recommends that you install the Oracle Web Conferencing document conversion server and voice conversion server on separate computers. Both the Oracle Web Conferencing document conversion server and voice conversion server must be installed on Windows platforms.

---

**See Also:** *The Oracle Web Conferencing Administrator's Guide* for more information about the Oracle Web Conferencing document and voice conversion servers

# Part II

# Oracle Collaboration Suite Patch Set Preinstallation Requirements

Part II contains pre-installation requirements that you should read before installing Oracle Collaboration Suite Release 2 Patch Set 1 (9.0.4.2).

Part II contains the following chapters:

# 5

# Patch Set Preinstallation Requirements for Solaris, hp-ux PA-RISC (64-bit), and Linux x86

This chapter discusses Oracle Collaboration Suite Release 2, Patch Set 1 (9.0.4.2) preinstallation requirements for Solaris, hp-ux PA-RISC (64-bit), and Linux x86.

**Note:**

- The patch set cannot be installed in a Traditional Chinese or Korean language OS environment. Change the environment to English, as follows:

  ```
  setenv LANG C
  setenv LC_ALL C
  ```

- Oracle Collaboration Suite Release 2 (9.0.4.0.0) or Release 2 (9.0.4.1.0) must be installed prior to installing the patch set.
- Oracle recommends backing up the environment prior to installing the patch set.
- Oracle recommends upgrading the Oracle Collaboration Suite information storage database to Oracle Database Release 9.2.0.5, or later, to address the following bugs: 2643723, 2774862, 2919655, 2944866, 3017434, and 3019979.
- Oracle Database patch set Release 9.2.0.5 requires that Oracle Universal Installer Release 10.1.0.2 be installed, and is included in the Oracle Database patch set 9.2.0.5 shiphome. Due to bug 3540563, the installation of this release of Oracle Universal Installer from the database patch set 9.2.0.5 shiphome may hang.
- Oracle recommends checking Oracle*MetaLink* periodically for new patch sets and updates to Oracle Collaboration Suite.

**See Also:**

Oracle Collaboration Suite Installation and Configuration Guide for Solaris for complete preinstallation instructions

Search Oracle*MetaLink* at `http://metalink.oracle.com` for

- Bug 3501955 to obtain the Oracle Database 9.2.0.5 patch set for your platform
- Bug 3540563 to install Oracle Universal Installer 10.1.0.2 and proceed with the Oracle Database patch set 9.2.0.5 installation

This section includes the following topics:



## Oracle Enterprise Manager Preinstallation Information

Oracle Universal Installer will detect whether Oracle Enterprise Manager is running when you attempt to install the patch set on the infrastructure and the middle tier, and warn you to shut it down before proceeding.

---

**Note:** For silent installations of the patch set, ensure that Oracle Enterprise Manager is shut down prior to installation. When installation is complete, restart Oracle Enterprise Manager.

---

## Oracle Collaboration Suite Web Client Preinstallation Information

If you chose to configure the Oracle Collaboration Suite Web client when you installed Oracle Collaboration Suite, the patch set will upgrade the Web client.

## Oracle Calendar Server Preinstallation Tasks

This section covers the following Oracle Calendar server preinstallation topics:

## Installing the Patch Set while the Oracle Calendar Server Is Running

It is not necessary to stop the Oracle Calendar server before installing the patch set. The installation program automatically stops and restarts the Oracle Calendar server.

## Working with Oracle Calendar Server Configuration Files that Are Modified or Overwritten

If you previously made changes to the `$ORACLE_HOME/ocal/misc/unison.ini` file, the installation program recognizes this and modifies the file with any necessary parameter changes.

If you have not modified the `category.ini` file, it is overwritten when installing the patch set. If you have modified the `category.ini` file, it is not overwritten when installing the patch set and may require a manual update after installation, as described in Chapter 3 of the *Oracle Collaboration Suite Readme Release 2 Patch Set 1*.

The following files are not overwritten when installing the patch set:

```
user.ini
resource.ini
eventcal.ini
```

The following files are always overwritten when installing the patch set:

```
timezone.ini
timezone_os.ini
categorytype.ini
```

During installation in some languages, dialog boxes may open informing you that `categorytype.ini.`*`date_time`* and `timezone_os.ini.`*`date_time`* cannot be backed up. If for any reason you want to keep the existing copies of these files, back them up manually, then press **C** to continue with the installation.

## Upgrading Oracle Calendar from Version 9.0.3 to 9.0.4.2

Upgrade Oracle Calendar from version 9.0.3 to 9.0.4 as described in the following steps.

1. Install Oracle Calendar Release 2 (9.0.4.1.0) into a different `ORACLE_HOME` from your existing installation, as described in the *Oracle Collaboration Suite Installation and Configuration Guide for Solaris*.
2. Install Oracle Collaboration Suite Release 2 Patch Set 1 (9.0.4.2.0) over Release 2 (9.0.4.1.0).
3. Upgrade your 9.0.3 data to Release 2 (9.0.4) as described in the *Oracle Collaboration Suite Installation and Configuration Guide for Solaris*.

If you do not follow these steps, unexpected behavior may result. For instance, if you upgrade your data to Release 2 (9.0.4.1.0) and *then* install the patch set, users will no longer be able to log in as event calendars or resources because the corresponding passwords will be lost. The passwords can, however, be reset using the Oracle Calendar Administrator.

## Changes in Hardware Requirements for Upgrades

Before you upgrade, Oracle recommends that you re-evaluate your sizing calculations based on the requirements provided for the new software. For CPU usage, the hardware requirements have changed as a result of added functionality, as follows:

- If you are upgrading from Oracle Calendar 5.*x* or 9.0.3 to release 9.0.4.2, an increase in CPU usage is expected. If in your current Oracle Calendar 5.*x* or 9.0.3 installation you track regular peaks in CPU usage at 60% or greater, several times a day, additional CPU capacity might be required for this upgrade.
- If you are upgrading from Oracle Calendar 9.0.4 or 9.0.4.1 to release 9.0.4.2 and you continue to use the same feature set, no increase in CPU usage is expected.
- An upgrade to 9.0.4.2 from Calendar 5.x or 9.0.3 will require approximately four times the current disk space.

**See Also:** *Oracle Calendar Administrator's Guide Release 2 (9.0.4)*

# Oracle Calendar Application System Preinstallation Requirements

This section covers the following Oracle Calendar application system preinstallation topics:

- Configuring Time Zone Behavior for the Oracle Calendar Portlet
- Working with Oracle Calendar Application System Configuration Files that Are Modified or Overwritten

## Configuring Time Zone Behavior for the Oracle Calendar Portlet

An issue resolved by this patch set is that of time zone behavior on the Oracle Calendar portlet (bug 3088332). For this particular fix to work, you must add the following `xml` text to the `$ORACLE_HOME/config/jazn-data.xml` file (if it is not already present) before the `</jazn-policy>` tag located at the end of this file, on the Oracle9*i*AS Portal middle tier that runs the Oracle Calendar portlet, before you install the patch set. Back up the file before making any changes. Replace the *`$ORACLE_HOME`* with the physical Oracle Home of the middle tier.

---

**Note:** This is only necessary if you are running the Oracle Calendar portlet.

---

```
<grant>
  <grantee>
    <codesource>
      <url>file:$ORACLE_HOME/webclient/lib/webclient_common.jar</url>
    </codesource>
  </grantee>
  <permissions>
    <permission>
 <class>oracle.ias.repository.schemaimpl.CheckRepositoryPermission</class>
      <name>connectAs</name>
    </permission>
  </permissions>
</grant>
```

If you are running Oracle9*i*AS Portal on a different middle tier, you must copy two newly installed files over to that middle tier after installation, as described in Chapter 3, of the *Oracle Collaboration Suite Readme Release 2 Patch Set 1*.

### Working with Oracle Calendar Application System Configuration Files that Are Modified or Overwritten

The `$ORACLE_HOME/ocas/conf/ocst.conf` file is updated during installation. The previous `ocst.conf` file is backed up as `$ORACLE_HOME /ocas/conf/ocst.conf.bck`.

## Oracle Email Preinstallation Requirements

Oracle Internet Directory on the infrastructure server must be running prior to installing the patch set.

It is not necessary to stop the Oracle Email servers on the middle tier before installing the patch set. The installation program automatically stops all Oracle Email servers at the beginning of installation and restarts them when installation is complete.

---

**Note:** For silent installations of the patch set on the middle tier, ensure that Oracle Email servers are stopped prior to starting the patch set installation on the middle tier.

---

**See Also:** *Oracle Email Administrator's Guide* for instructions on how to stop Oracle Email processes

## Oracle Files Preinstallation Requirements

Ensure that the following requirements are met prior to installing the patch set:

- The database server must be running.
- If you have customized the Oracle Files Web interface, you must back up the customized files before applying the patch set, then restore the files to their original locations after the patch set has been installed.

  **See Also:** *Oracle Files Administrator's Guide* for information about customizing the Oracle Files Web interface

- All Oracle Files processes, including the Oracle Files domain, regular nodes, and HTTP nodes, must be stopped prior to installing the patch set. To see whether Oracle Files processes are running, execute the following commands:
  - `./ifsctl status -n` from `$ORACLE_HOME/ifs/files/bin` to see whether the Oracle Files domain and regular nodes are running
  - `./dcmctl getState -co OC4J_iFS_files -v` from `$ORACLE_ HOME/dcm/bin` to see whether the Oracle Files HTTP node is running

To stop the Oracle Files domain and regular nodes, follow these steps:

1. If it is not running already, start Oracle Enterprise Manager by executing the following command:

   ```
   $ORACLE_HOME/bin/emctl start
   ```

2. Using a Web browser, access the Oracle Enterprise Manager Web site at `http://host_name:port`, where *host_name* is the name of the Oracle Files middle-tier computer. The port is typically 1810.
3. Enter the authentication information in the pop-up window. The user name is typically `ias_admin`.
4. Click the name of the application server instance where Oracle Files is running. The Oracle9*i*AS Home Page appears.
5. Click the Oracle Files domain link. The domain appears in the following format:

   `iFS_db_host_name:port:db_service_name:files_schema`

6. Click **Stop Domain**.
7. Click **OK**.

To stop Oracle Files HTTP nodes, follow these steps on each Oracle Files middle tier:

1. From the Oracle9*i*AS Home Page on the Oracle Enterprise Manager Web site, select `OC4J_iFS_files`.
2. Click **Stop**. On the Warning page, click **Yes** to stop the OC4J instance.

   Alternatively, you can use the following commands from the command line:

```
$ORACLE_HOME/ifs/files/bin/ifsctl stop
$ORACLE_HOME/dcm/bin/dcmctl stop -co OC4J_iFS_files -v -t 360
```

# Oracle Web Conferencing Preinstallation Requirements

This section includes the following topics:

- Shut Down Oracle Real-Time Collaboration Services
- Required Disk Space on Information Storage Database Server
- How Installation Interacts with Oracle Internet Directory

Ensure that the following requirements are met prior to installing the patch set:

- You must have at least 1 GB of space on your information storage database host

  **See Also:** "Required Disk Space on Information Storage Database Server" on page 5-7 for more details on disk space requirements

- You must have access to the password for the Oracle Internet Directory administrator account, and the Oracle Directory Integration and Provisioning server must be running on the Oracle Internet Directory system

  **See Also:** "How Installation Interacts with Oracle Internet Directory" on page 5-8 for more details

- You cannot use middle tiers with multiple versions of the Oracle Web Conferencing system if those middle tiers use the same database, because the schema has been updated for this patch set. Specifically, a middle tier running Oracle Collaboration Suite Release 2 (9.0.4.0.0) or Release 2 (9.0.4.1.0) cannot share an information storage database with a middle tier running the patch set.

In addition, you must perform the following tasks before installing the patch set:

- You should back up your information storage database. At a minimum, remember to back up the Oracle Real-Time Collaboration `RTC` and `RTC_APP` schemas. You may need this backup if you have to restore the system in case of fatal patch failure.
- Retrieve all certificates that were imported into the `$ORACLE_HOME /imeeting/conf/certdb.txt` file so that you can reimport them after the patch set is applied.

  **See Also:** *Oracle9i*AS Web Cache Administration and Deployment Guide (9.0.2) for more details

- Make a backup copy of the `$ORACLE_HOME/imeeting/conf /certdb.txt` file.
- Shut down *all* Oracle Real-Time Collaboration services and instances on each `ORACLE_HOME` to which you are applying the patch set.

  **See Also:** "Shut Down Oracle Real-Time Collaboration Services" on page 5-7 for more details

## Shut Down Oracle Real-Time Collaboration Services

Before installing the patch set, you must shut down all Oracle Real-Time Collaboration services and instances in your Oracle Collaboration Suite setup (that is, on each `ORACLE_HOME` with Oracle Real-Time Collaboration installed).

1. Stop all Oracle Real-Time Collaboration servers, both core components and document and voice conversion servers (if used), as follows:

   ```
   $ORACLE_HOME/imeeting/bin/imtctl stop
   ```

   Shut down the document and voice conversion servers on Windows systems as follows:

   ```
   %ORACLE_HOME%\imeeting\bin\imtctl stop
   ```

   **Note:** If you cannot shut down the processes and you know that there are no Oracle Real-Time Collaboration instances running, you may have to manually terminate the processes using your operating system tools.

2. Stop the Oracle Real-Time Collaboration OC4J instance, as follows:

   ```
   $ORACLE_HOME/dcm/bin/dcmctl stop -co OC4J_imeeting -v -t 360
   ```

   **See Also:** *Oracle9i*AS Web Cache Administration and Deployment Guide for more details

## Required Disk Space on Information Storage Database Server

During installation, the following tablespaces with the following initial sizes will be created for Oracle Web Conferencing in the information storage database. You must have at least 1 GB of free space in the directory that you specify as the tablespace location while running the Oracle Universal Installer.

*Table 5–1 Default Tablespace Sizes for Oracle Web Conferencing*

| Tablespace Name | Default Size (MB) |
|---|---|
| rtc_lookup_data | 16 |
| rtc_lookup_index | 8 |
| rtc_transaction_data | 256 |
| rtc_transaction_index | 64 |
| rtc_archive_data | 64 |
| rtc_archive_index | 16 |
| rtc_document_data | 64 |
| rtc_document_index | 8 |
| rtc_recording_data | 64 |
| rtc_recording_index | 8 |
| rtc_transient_data | 128 |
| rtc_transient_index | 32 |
| rtc_transient_lob_data | 64 |
| rtc_transient_lob_index | 8 |
| rtc_report_data | 64 |
| rtc_report_index | 8 |
| rtc_temp | 128 |
| **TOTAL SIZE REQUIRED** | **1000 MB (1 GB)** |

The above tablespaces are created with the AUTOEXTEND setting ON and a maximum file size of 2 GB. Make sure you have enough space available for future expansion. Depending upon your use of the system, you may want to increase the size of the tablespaces.

## How Installation Interacts with Oracle Internet Directory

As the Oracle Real-Time Collaboration installation process runs, it uses the Oracle Internet Directory administrator account to do the following tasks in the Oracle Internet Directory installation. The relevant files listed below are located in the following directory, $ORACLE_HOME/imeeting/install/oid, on the Oracle Real-Time Collaboration core components installation.

- Create a container named RTC (rtccontainer.ldi)
- Create an entity named RTCApplication in the RTC container (rtcentity.ldi)
- Set up an Oracle Directory Integration and Provisioning process between the Oracle Internet Directory and Oracle Real-Time Collaboration services (rtccreateprof.sh)

As noted previously, you must make sure the Oracle Directory Integration and Provisioning server is running on the Oracle Internet Directory system before running the installation, otherwise the installation process may hang.

The Oracle Web Conferencing system stores the following data about Web conferencing users in its information store, to improve performance:

First Name
Middle Name
Last Name
User Name
E-mail address

The Oracle Real-Time Collaboration services use the Oracle Directory Integration and Provisioning service offered by Oracle Internet Directory to synchronize this data in the information store in case any of the data changes (for example, a user changes his e-mail address).

## Oracle9*i*AS Wireless Preinstallation Requirements

1. Access information is not automatically retrieved when the patch set is applied. Prior to applying the patch set, ensure that your information is correct and make a copy of the `portal.properties` file, found in the `$ORACLE_HOME/wireless/server/classes/messages` directory.
2. Shut down `OC4J_Wireless`, all Messaging Server instances, and the PIM Notification Dispatcher process.

# 6

# Patch Set Preinstallation Requirements for Windows

This chapter discusses Oracle Collaboration Suite Release 2, Patch Set 1 (9.0.4.2.1) preinstallation requirements for Windows.

---

**Note:**

- Oracle recommends backing up the environment prior to installing the patch set.
- Oracle Collaboration Suite Release 2 (9.0.4.1.1) must be installed prior to installing the patch set. Users of Oracle Collaboration Suite Release 9.0.3 for Windows must upgrade to Oracle Collaboration Suite Release 2 (9.0.4.1.1) first, then install the patch set.
- Oracle recommends upgrading the Oracle Collaboration Suite information storage database to Oracle Database Release 9.2.0.5, or later, to address the following bugs: 2643723, 2774862, 2919655, 2944866, 3017434, and 3019979.
- Oracle Database patch set Release 9.2.0.5 requires that Oracle Universal Installer Release 10.1.0.2 be installed, and is included in the Oracle Database patch set 9.2.0.5 shiphome. Due to bug 3540563, the installation of this release of Oracle Universal Installer from the database patch set 9.2.0.5 shiphome may be suspended.

Search Oracle*MetaLink* at `http://metalink.oracle.com` for

- Bug 3501955 to obtain the Oracle Database 9.2.0.5 patch set for your platform
- Bug 3540563 to install Oracle Universal Installer 10.1.0.2 and proceed with the Oracle Database patch set 9.2.0.5 installation
- OC4J patch 3535985 on Oracle *i*AS 9.0.2.3 in order to address bugs 3535985 and 3728421

Oracle recommends checking Oracle*MetaLink* periodically for new patch sets and updates to Oracle Collaboration Suite.

---

**See Also:**

*Oracle Collaboration Suite Installation and Configuration Guide Release 2 (9.0.4.1.1)* for complete preinstallation instructions

This section includes the following topics:



## Oracle Enterprise Manager Preinstallation Information

Oracle Universal Installer detects whether Oracle Enterprise Manager is running when you attempt to install the patch set on the infrastructure and the middle tier, and warns you to shut it down before proceeding.

**Note:** For silent installations of the patch set, ensure that Oracle Enterprise Manager is shut down prior to installation. When installation is complete, restart Oracle Enterprise Manager.

## Oracle Collaboration Suite Web Client Preinstallation Information

If you chose to configure the Oracle Collaboration Suite Web client when you installed Oracle Collaboration Suite, the patch set will upgrade the Web client.

## Oracle Collaboration Suite Web Client Preinstallation Tasks

A port number must be explicitly defined for the URL associated with each of applications listed in the Web Client page. After installing the patch set, HTTP and HTTPS ports (port 80 and port 443, respectively) are not appended by default to the URL. Therefore, if a port number is not explicitly defined for the URL associated with each application in the Web Client page, no port number automatically appends to the server hostname for the application.

To define port numbers for the URL:

1. Open the `webclient.properties` file located in:

   ```
   %ORACLE_HOME%\webclient\classes\oracle\collabsuite
   \webclient\resources
   ```

2. Enter a port number for the URL for each of the portlet providers and application links.

If you have defined the port numbers correctly, the URL appear as in the following example for Web Conferencing:

```
http://imeetingserver.com:80
```

## Oracle Collaboration Suite Information Store Preinstallation Tasks

Before installing the patch set, you must verify that SYS privileges have been granted to the logminer based email recovery packages. If privileges have not been granted, logminer based email recovery will not function. The following procedure explains how to check for SYS privileges and grant the missing privileges. The procedure must be performed from the mailstore ORACLE_HOME environment.

1. To identify whether necessary privileges have been granted to the logminer recovery database objects, execute the following query from the SQLPLUS as SYS user.

   ```
   SQL> SELECT object_name , owner
             FROM dba_objects
             WHERE  object_name = 'LMMR_SETUP'
             AND object_type = 'PACKAGE';
   ```

2. If the actions in Step 1 return no rows then do the following:

   ```
   cd %ORACLE_HOME%\oes\install\sql
   ```

   From the SQLPLUS as SYS user:

   ```
   SQL>@install_backend_sys.sql
   ```

If the above procedure is not done, the patchset installation will display an error in the upgrade9042.log file as shown below.

```
507/5    PL/SQL: SQL Statement ignored
509/14  PL/SQL: ORA-00942: table or view does not exist
creating package body MAIL_RECOVERY
Warning: Package Body created with compilation errors.
Errors for PACKAGE BODY MAIL_RECOVERY:

LINE/COL ERROR
108/21   PLS-00201: identifier 'SYS.V_$LOGMNR_CONTENTS' must be declared
108/21   PL/SQL: Item ignored
109/21   PLS-00201: identifier 'SYS.V_$LOGMNR_CONTENTS' must be declared
109/21   PL/SQL: Item ignored
```

## Oracle Calendar Server Preinstallation Tasks

This section covers the following Oracle Calendar server preinstallation topics:

- Installing the Patch Set while the Oracle Calendar Server Is Running
- Working with Oracle Calendar Server Configuration Files that Are Modified or Overwritten
- Upgrading Oracle Calendar from Version 9.0.3 to 9.0.4.2.1
- Changes in Hardware Requirements for Upgrades

**Note:** Prior to installing the patch set, you must have Calendar patch 3222285 for 9.0.4.1.1 installed. If you have not already done so, go to http://metalink.oracle.com , navigate to the Patches web page, and download the patch listed under Patch Number 3322285 onto the ORACLE_HOME on which you installed Oracle Calendar Release 2 (9.0.4.1.1)

## Installing the Patch Set while the Oracle Calendar Server Is Running

It is not necessary to stop the Oracle Calendar server before installing the patch set. The installation program automatically stops and restarts the Oracle Calendar server.

## Working with Oracle Calendar Server Configuration Files that Are Modified or Overwritten

If you previously made changes to the `%Oracle_Home%\ocal\misc\unison.ini` file, the installation program recognizes this and modifies the file with any necessary parameter changes.

The following files are not overwritten when installing the patch set:

```
user.ini
resource.ini
eventcal.ini
```

The following files are always overwritten when installing the patch set:

```
timezone.ini
timezone_os.ini
```

During installation in some languages, dialog boxes may open informing you that `categorytype.ini.`*`date_time`* and `timezone_os.ini.`*`date_time`* cannot be backed up. If for any reason you want to keep the existing copies of these files, back them up manually, then press **C** to continue with the installation.

## Upgrading Oracle Calendar from Version 9.0.3 to 9.0.4.2.1

Upgrade Oracle Calendar from version 9.0.3 to 9.0.4.2.1 as described in the following steps.

1. Install Oracle Calendar Release 2 (9.0.4.1.1) into a different `ORACLE_HOME` from your existing installation, as described in the *Oracle Collaboration Suite Installation and Configuration Guide Release 2 (9.0.4.1.1)*.
2. If using Windows, go to `http://metalink.oracle.com`, navigate to the Patches web page, and download the patch listed under Patch Number 3322285 onto the `ORACLE_HOME` on which you installed Oracle Calendar Release 2 (9.0.4.1.1).
3. Install Oracle Collaboration Suite Release 2 Patch Set 1 (9.0.4.2.1) over Release 2 (9.0.4.1.1).
4. Verify that the 9.0.3 and the 9.0.4.2.1 Calendar servers are down.
5. Run `OcalPreUpg.cmd` from the Calendar 9.0.4.2.1 `%ORACLE_HOME%\ocal\upgrade` directory.
6. Run `ocsua.bat` from the 9.0.4.2.1 `%ORACLE_HOME%\upgrade` directory.

If you do not follow these steps, unexpected behavior may result. For instance, if you upgrade your data to Release 2 (9.0.4.1.1) and *then* install the patch set, users will no longer be able to log in as event calendars or resources because the corresponding passwords will be lost. The passwords can, however, be reset using the Oracle Calendar Administrator.

### Changes in Hardware Requirements for Upgrades

Before you upgrade, Oracle recommends that you re-evaluate your sizing calculations based on the requirements provided for the new software. For CPU usage, the hardware requirements have changed as a result of added functionality, as follows:

- If you are upgrading from Oracle Calendar 5.*x* or 9.0.3 to release 9.0.4.2.1, an increase in CPU usage is expected. If in your current Oracle Calendar 5.*x* or 9.0.3 installation you track regular peaks in CPU usage at 60% or greater, several times a day, additional CPU capacity might be required for this upgrade.
- An upgrade to 9.0.4.2.1 from Calendar 5.x or 9.0.3 requires approximately four times the current disk space.

**See Also:** *Oracle Calendar Administrator's Guide Release 2 (9.0.4)*

## Oracle Calendar Application System Preinstallation Requirements

This section covers the following Oracle Calendar application system preinstallation topics:

- Configuring Time Zone Behavior for the Oracle Calendar Portlet
- Working with Oracle Calendar Application System Configuration Files that Are Modified or Overwritten

### Configuring Time Zone Behavior for the Oracle Calendar Portlet

An issue resolved by this patch set is that of time zone behavior on the Oracle Calendar portlet (bug 3088332). For this particular fix to work, you must add the following `xml` text (if it is not already present) to the `%ORACLE_HOME%\config\jazn-data.xml` file before the `</jazn-policy>` tag at the end of this file. This must be done on the Oracle9*i*AS Portal middle tier that runs the Oracle Calendar portlet before you install the patch set. Back up the file before making any changes. Replace the *`%ORACLE_HOME%`* with the physical Oracle Home of the middle tier.

**Note:** This is only necessary if you are running the Oracle Calendar portlet.

```
<grant>
  <grantee>
    <codesource>
      <url>file:%ORACLE_HOME%\webclient\lib\webclient_common.jar</url>
    </codesource>
  </grantee>
  <permissions>
    <permission>
 <class>oracle.ias.repository.schemaimpl.CheckRepositoryPermission</class>
      <name>connectAs</name>
```

```
      </permission>
    </permissions>
  </grant>
```

If you are running Oracle9*i*AS Portal on a different middle tier, you must copy two newly installed files over to that middle tier after installation, as described in Chapter 3 of the *Oracle Collaboration Suite Readme Release 2 Patch Set 1*.

### Working with Oracle Calendar Application System Configuration Files that Are Modified or Overwritten

The `%ORACLE_HOME%\ocas\conf\ocst.conf` file is updated during installation. The previous `ocst.conf` file is backed up as `%ORACLE_HOME%\ocas\conf\ocst.conf.bck`

## Oracle Email Preinstallation Requirements

Oracle Internet Directory on the infrastructure server must be running prior to installing the patch set.

---

**Note:** For silent installations of the patch set on the middle tier, ensure that Oracle Email servers are stopped prior to starting the patch set installation on the middle tier.

---

**See Also:** *Oracle Email Administrator's Guide* for instructions on how to stop Oracle Email processes

### Installing the Patchset on the Information Store

It is necessary to stop the email servers before installing the patchset on the information store that the middle tier is serving. If the information store is being served by multiple middle tiers running email servers, all email servers on these middle tiers need to be shutdown prior to installing the patch set on the information store.

### Installing the Patchset on the Middle Tier

It is normally not necessary to stop the Oracle Email servers on the middle tier before installing the patch set on that middle tier. Normally, the installation program automatically stops all Oracle Email servers at the beginning of the installation and restarts them when installation is complete. This will not be the case if the existing configuration uses non-qualified hostnames, for example, a hostname missing the domain suffix as part of an email service target name. To check whether non-qualified hostnames exist, run the following command from a command prompt window:

```
oesctl show targets
```

If the output contains non-qualified hostnames, shutdown the server prior to performing the upgrade.

### Installing the Patchset on a Windows NT 4.0 Middle Tier

On Windows NT 4.0 only, you must shut down email server processes before installing the patchset on the middle tier. Restart email server processes after installing

the patchset on the middle tier. This procedure does not apply to Windows 2000 or Windows 2003 Enterprise.

## Oracle Files Preinstallation Requirements

Ensure that the following requirements are met prior to installing the patch set:

- The database server must be running.
- If you have customized the Oracle Files Web interface, you must back up the customized files before applying the patch set, then restore the files to their original locations after the patch set has been installed.

  **See Also:** *Oracle Files Administrator's Guide* for information about customizing the Oracle Files Web interface

- All Oracle Files processes, including the Oracle Files domain, regular nodes, and HTTP nodes, must be stopped prior to installing the patch set. To see whether Oracle Files processes are running, execute the following commands:
  - `ifsctl status -n` from `%ORACLE_HOME%\ifs\files\bin` to see whether the Oracle Files domain and regular nodes are running
  - `dcmctl getState -co OC4J_iFS_files -v` from `%ORACLE_HOME%\dcm\bin` to see whether the Oracle Files HTTP node is running

To stop the Oracle Files domain and regular nodes, follow these steps:

1. If it is not running already, start Oracle Enterprise Manager by executing the following command:

   ```
   %ORACLE_HOME%\bin\emctl start
   ```

2. Using a Web browser, access the Oracle Enterprise Manager Web site at `http://`*`host_name`*`:`*`port`*, where *`host_name`* is the name of the Oracle Files middle-tier computer. The port is typically 1810.
3. Enter the authentication information in the pop-up window. The user name is typically `ias_admin`.
4. Click the name of the application server instance where Oracle Files is running. The Oracle9*i*AS Home Page appears.
5. Click the Oracle Files domain link. The domain appears in the following format:

   ```
   iFS_db_host_name:port:db_service_name:files_schema
   ```

6. Click **Stop Domain**.
7. Click **OK**.
8. Stop Oracle Enterprise Manager before installing the patch set. Use the following command to stop Oracle Enterprise Manager:

   ```
   %ORACLE_HOME%\bin\emctl stop
   ```

To stop Oracle Files HTTP nodes, follow these steps on each Oracle Files middle tier:

1. From the Oracle9*i*AS Home Page on the Oracle Enterprise Manager Web site, select `OC4J_iFS_files`.
2. Click **Stop**. On the Warning page, click **Yes** to stop the OC4J instance.

   Alternatively, you can use the following commands from the command line:

```
%ORACLE_HOME%\ifs\files\bin\ifsctl stop
%ORACLE_HOME%\dcm\bin\dcmctl stop -co OC4J_iFS_files -v -t 360
```

# Oracle Web Conferencing Preinstallation Requirements

This section includes the following topics:

- Shut Down Oracle Real-Time Collaboration Services
- Required Disk Space on Information Storage Database Server
- How Installation Interacts with Oracle Internet Directory

Ensure that the following requirements are met prior to installing the patch set:

- You have at least 1 GB of space on your information storage database host

  **See Also:** "Required Disk Space on Information Storage Database Server" on page 6-9 for more details on disk space requirements

- You have access to the password for the Oracle Internet Directory administrator account, and the Oracle Directory Integration and Provisioning server must be running on the Oracle Internet Directory system

  **See Also:** "How Installation Interacts with Oracle Internet Directory" on page 6-10 for more details

- You have installed the patch set to all Real-Time Collaboration middle tiers. You cannot use middle tiers with multiple versions of the Oracle Web Conferencing system if those middle tiers use the same database, because the schema has been updated for this patch set. Specifically, a middle tier running Oracle Collaboration Suite Release 2 (9.0.4.1.1) cannot share an information storage database with a middle tier running the patch set.

In addition, you must perform the following tasks before installing the patch set:

- Back up your information storage database. At a minimum, remember to back up the Oracle Real-Time Collaboration `RTC` and `RTC_APP` schemas. You may need this backup if you have to restore the system in case of fatal patch failure.
- Retrieve all certificates that were imported into the `%ORACLE_HOME%\imeeting\conf\certdb.txt` file so that you can reimport them after the patch set is applied.

  **See Also:** *Oracle9iAS Web Cache Administration and Deployment Guide* (9.0.2) for more details

- Make a backup copy of the `%ORACLE_HOME%\imeeting\conf\certdb.txt` file.
- Shut down *all* Oracle Real-Time Collaboration services and instances on each `ORACLE_HOME` to which you are applying the patch set.

  **See Also:** "Shut Down Oracle Real-Time Collaboration Services" on page 6-9 for more details

## Shut Down Oracle Real-Time Collaboration Services

Before installing the patch set, you must shut down all Oracle Real-Time Collaboration services and instances in your Oracle Collaboration Suite setup (that is, on each ORACLE_HOME with Oracle Real-Time Collaboration installed).

1. Stop all Oracle Real-Time Collaboration servers, both core components and document and voice conversion servers (if used), as follows:

```
%ORACLE_HOME%\imeeting\bin\imtctl stop
```

> **Note:** If you cannot shut down the processes and you know that there are no Oracle Real-Time Collaboration instances running, you may have to manually terminate the processes using your operating system tools.

2. Stop the Oracle Real-Time Collaboration OC4J instance, as follows:

```
%ORACLE_HOM%\dcm\bin\dcmctl stop -co OC4J_imeeting -t 360 -v
```

> **See Also:** *Oracle9i*AS Web Cache Administration and Deployment Guide for more details

## Required Disk Space on Information Storage Database Server

During installation, the following tablespaces with the following initial sizes are created for Oracle Web Conferencing in the information storage database. You must have at least 1 GB of free space in the directory that you specify as the tablespace location while running the Oracle Universal Installer.

***Table 6–1 Default Tablespace Sizes for Oracle Web Conferencing***

| Tablespace Name | Default Size (MB) |
|---|---|
| rtc_lookup_data | 16 |
| rtc_lookup_index | 8 |
| rtc_transaction_data | 256 |
| rtc_transaction_index | 64 |
| rtc_archive_data | 64 |
| rtc_archive_index | 16 |
| rtc_document_data | 64 |
| rtc_document_index | 8 |
| rtc_recording_data | 64 |
| rtc_recording_index | 8 |
| rtc_transient_data | 128 |
| rtc_transient_index | 32 |
| rtc_transient_lob_data | 64 |
| rtc_transient_lob_index | 8 |
| rtc_report_data | 64 |

*Table 6–1 (Cont.) Default Tablespace Sizes for Oracle Web Conferencing*

| Tablespace Name | Default Size (MB) |
|---|---|
| rtc_report_index | 8 |
| rtc_temp | 128 |
| **TOTAL SIZE REQUIRED** | **1000 MB (1 GB)** |

The above tablespaces are created with the AUTOEXTEND setting ON and a maximum file size of 2 GB. Make sure you have enough space available for future expansion. Depending upon your use of the system, you may want to increase the size of the tablespaces.

## How Installation Interacts with Oracle Internet Directory

As the Oracle Real-Time Collaboration installation process runs, it uses the Oracle Internet Directory administrator account to do the following tasks in the Oracle Internet Directory installation. The relevant files listed below are located in the following directory, %ORACLE_HOME%\imeeting\install\oid, on Oracle Real-Time Collaboration core components installation.

- Create a container named RTC (rtccontainer.ldi)
- Create an entity named RTCApplication in the RTC container (rtcentity.ldi)
- Set up an Oracle Directory Integration and Provisioning process between the Oracle Internet Directory and Oracle Real-Time Collaboration services (install_rtc_oid.cmd)

As noted previously, you must make sure the Oracle Directory Integration and Provisioning server is running on the Oracle Internet Directory system before running the installation, otherwise the installation process may suspend.

The Oracle Web Conferencing system stores the following data about Web conferencing users in its information store, to improve performance:

First Name
Middle Name
Last Name
User Name
E-mail address

The Oracle Real-Time Collaboration services use the Oracle Directory Integration and Provisioning service offered by Oracle Internet Directory to synchronize the data in the information store in case any of the data changes (for example, a user changes his e-mail address).

# Oracle9*i*AS Wireless Preinstallation Requirements

Access information is not automatically retrieved when the patch set is applied. Prior to applying the patch set, ensure that your information is correct and make a copy of the portal.properties file, found in the %ORACLE_HOME%\wireless\server\classes\messages directory.

Using Enterprise Manager, shut down OC4J_Wireless, all Messaging Server instances, and the PIM Notification Dispatcher process.