Oracle9*i*

Release Notes

Release 1 (9.0.1) for HP 9000 Series HP-UX

January 2002

Part No. A90357-03

These release notes contain basic installation information requirements, as well as information not included in the Oracle9*i* documentation library on the Online Documentation CD-ROM. Requirements and parameter settings in these release notes supersedes those listed in the Quick Installation Procedure.

This document contains the following topics:

- System Requirements
- Kernel Parameters
- Documentation
- Installation Issues
- Product-Related Issues
- Post-Installation Issues

System Requirements

Meet the requirements listed in this section before installing Oracle9*i*.

Updated Requirements

The requirements in this release note are current as of the release date for Oracle9*i*. For the most current information, refer to the online release notes which are located at the following site:

```
http://docs.oracle.com
```

If you need assistance with navigating the Oracle documentation site, refer to the following site:

```
http://docs.oracle.com/instructions.html
```

Refer also to the Certify Web Page on Oracle*MetaLink*, which provides certified configuration information for Oracle and non-Oracle products. Use the following procedure to access Certify:

1. Register or log in to *MetaLink* at the following web address:

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

2. Select Product Lifecycle from the *MetaLink* navigation bar.
3. Select Certifications in the Product Lifecycle window navigation bar.

Hardware and Software Requirements

The following requirements must be met in order to perform a typical Oracle9*i* software installation.

- Memory: A minimum of 256 MB of RAM is required to install Oracle9*i* Server. A minimum of 256 MB is required to install Oracle9*i* Management and Integration. A minimum of 128 MB is required to install Oracle9*i* Client. Use the following command to verify the amount of memory installed on your system:

  ```
  $ /usr/sbin/dmesg | grep "Physical:"
  ```

- Memory and HyperMessaging Protocol (HMP): Each Oracle shadow process will require an additional 0.3 MB if HMP is used as the IPC protocol for Real Application Clusters. Allocate memory depending on the applications and the number of users on the systems.
- Swap Space: An amount of disk space equal to twice the amount of RAM or at least 400 MB, whichever is greater. Use the following command to determine the amount of swap space installed on your system:

  ```
  $ /usr/sbin/swapinfo -a (requires root privileges)
  ```

- CD-ROM: A CD-ROM drive capable of reading CD-ROM disks in the ISO 9660 format with RockRidge extensions.
- Disk Space: 2.5 GB for database software, and an additional 1 GB for a seed database.
- Temporary Disk Space: The Oracle Universal Installer requires up to 400 MB of space in the `/tmp` directory.

  Note: If there is not 400 MB of available space in the `/tmp` directory, then you can set the TMPDIR or TEMP (used by Oracle) environment variable to point to a directory that has at least 400 MB of available space. This directory must be writable by the user account performing the installation.

- Operating System: HP-UX version 11.0 (64-bit), or HP-UX version 11i (64-Bit). Use HP-UX version 11.0 for HMP. A patch for version 11i (64-Bit) will be made available soon.

  To determine if you have a 64-bit configuration on an HP-UX 11.0 or HP-UX 11i installation, enter the following command:

  ```
  $/bin/getconf KERNEL_BITS
  ```

  To determine your current operating system information, enter the following command:

  ```
  $ uname -a
  ```

- HyperFabric Switches: To use HP's HyperMessaging Protocol (HMP) for cluster interconnection in an Oracle9*i* Real Application Clusters environment on HP-UX, you must have Hewlett-Packard proprietary HyperFabric Switches. Two types of switches are available:
  - A4891A 16-port copper-based switch
  - 6384A fiber-based HyperFabric2 switch.

  Refer to the HyperFabric documentation at the following web site to obtain functional and configuration information about these switches:

  `http://docs.hp.com/hpux/onlinedocs/B6257-90026/00/00/1-toc.html`

- Operating System Patches: The following table lists the operating systems patches required to run Oracle applications and to run the Oracle HTTP Server.

HP-UX 11.0 (64 bit) Operating System Patches	Status
Dec 2000 patch bundle	Required

HP-UX 11.0 (64 bit) Operating System Patches	Status
PHCO_23092	Required
PHCO_23770	Required
PHCO_23919 Required for Oracle Real Application Clusters and Oracle Parallel Fail Safe	Required
PHKL_18543	Required for HMP
PHKL_22567	Required for HMP
PHKL_23226	Required
PHKL_24729	Required for HMP
PHKL_25525	Required for HMP
PHNE_23249 Note: refer to the special installation instructions to install any additional required patches.	Required
PHSS_23440	Required
HyperFabric driver: 11.00.12 (HP-UX 11.0)	Required only if your system has an older HyperFabric driver version
PHNE_24085	Required patch to use HMP for Oracle 9.01

HP-UX 11i (64 bit) Operating System Patches	Status
PHCO_23094 and PHCO_23772	Required
PHSS_23441	Required
PHNE_23502 Note: refer to the special installation instructions to install any additional required patches.	Required

Optional Patch: For DSS applications running on machines with more than 16 CPUs, we recommend installation of the HP-UX patch PHKL_22266. This patch addresses performance issues with the HP-UX Operating System.

HP provides patch bundles at:

`http://www.software.hp.com/SUPPORT_PLUS`

HP provides individual patches at:

`http://itresourcecenter.hp.com`

To determine which operating system patches are installed, enter the following command:

```
$ /usr/sbin/swlist -l patch
```

To determine if a specific operating system patch has been installed, enter the following command:

```
$ /usr/sbin/swlist -l patch patch_number
```

To determine which operating system bundles are installed, enter the following command:

```
$ /usr/sbin/swlist -l bundle
```

- JRE: Oracle applications use JRE 1.1.8.
- JDK: Oracle HTTP Server uses JDK 1.2.2.05.
- **Important Pre-installation step:**

  Due to a known HP bug (Doc.id. KBRC00003627), the default HP-UX 64-bit operating system installation does not create a few required X library symbolic links. These links must be created manually before starting Oracle9*i* installation. To create these links, you must have superuser privileges, as the links are to be created in the `/usr/lib` directory. After enabling superuser privileges, run the following commands to create the required links:

```
$  cd /usr/lib
$  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
```

- **Operating System Software Requirements**

  The following table lists the operating system software requirements for HP.

OS Software	Requirements
Operating System Packages	None.

OS Software	Requirements
Window Manager	Use any X server supported by your UNIX operating system vendor. Use any Motif-based window manager supported by your UNIX operating system vendor. For Hummingbird Exceed, use native window manager. For WRQ Reflections, allow remote window manager. To determine if your X Window System is working properly on your local system, enter the following command: `$ xclock`
Required Executables	The `make`, `ar`, `cc`, `ld`, and `nm` executables must be present in the `/usr/ccs/bin` directory.

- HP System Privileges: Grant the OSDBA group RTSCHED, RTPRIO and MLOCK privileges. These privileges are required for Oracle9*i*. For further information, refer to the *Oracle9i Administrator's Reference* accompanying this release.

Kernel Parameters

Oracle9*i* uses UNIX resources such as shared memory, swap memory, and semaphores extensively for interprocess communication. If your parameter settings are insufficient for Oracle9*i*, then you will experience problems during installation and instance startup. The greater the amount of data you can store in memory, the faster your database will operate. In addition, by maintaining data in memory, the UNIX kernel reduces disk I/O activity.

Use the System Administrator's Menu (SAM) to configure the HP kernel with the minimum requirements. Refer to the following table to determine if your system shared memory and semaphore kernel parameters are set correctly for Oracle9*i*.

Use the `ipcs` command to obtain a list of the system's current shared memory and semaphore segments, and their identification number and owner.

The parameters in the following table are the recommended values to run Oracle9*i* with a single database instance.

Kernel Parameter	Setting	Purpose
KSI_ALLOC_MAX	(NPROC * 8)	Defines the system wide limit of queued signal that can be allocated.
MAXDSIZ	1073741824 bytes	Refers to the maximum data segment size 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 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.
MAXSSIZ_64BIT	1073741824	Defines the maximum stack segment size in bytes for 64-bit systems.
MAXSWAPCHUNKS	(available memory)/2	Defines the maximum number of swap chunks where SWCHUNK is the swap chunk size (1 KB blocks). SWCHUNK is 2048 by default.
MAXUPRC	(NPROC + 2)	Defines maximum number of user processes.
MSGMAP	(NPROC + 2)	Defines the maximum number of message map entries.
MSGMNI	NPROC	Defines the number of message queue identifiers.
MSGSEG	(NPROC * 4)	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. VX_NCSIZE is by default 1024.
NFILE	(15 * NPROC + 2048)	Defines the maximum number of open files.
NFLOCKS	NPROC	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.

Kernel Parameter	Setting	Purpose
NPROC	4096	Defines the maximum number of processes.
SEMMAP	((NPROC * 2) + 2)	Defines the maximum number of semaphore map entries.
SEMMNI	(NPROC * 2)	Defines the maximum number of semaphore sets in the entire system.
SEMMNS	(NPROC * 2) * 2	Sets the number of semaphores in the system. The default value of SEMMNS is 128, which is, in most cases, too low for Oracle9*i* software.
SEMMNU	(NPROC - 4)	Defines the number of semaphore undo structures.
SEMVMX	32768	Defines the maximum value of a semaphore.
SHMMAX	Available physical memory	Defines 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	512	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.

Note: These are recommended kernel parameter requirements for a typical Oracle9*i* 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 for kernel changes to take effect.

Documentation

Additional product `README` files are located in their respective product directories under the `$ORACLE_HOME` directory and in the `$ORACLE_HOME/relnotes` directory.

Installation Issues

This section contains these topics:

- 32-Bit O / S Error Message
- Multiple CD-ROM Installation
- runInstaller Script
- Oracle Universal Installer
- Installation with Response Files

32-Bit O/S Error Message

Oracle9*i* is offered in a 64-bit version only. If you try to run 64-bit executables on a 32-bit operating system, then it will fail, and you will see the following error message:

```
./oracle: Exec format error. Wrong Architecture.
```

Multiple CD-ROM Installation

During the installation of Oracle9*i* release 1 (9.0.1), you will be prompted to insert additional CD-ROMs from the set that make up Oracle9*i* release 1 (9.0.1). Whenever prompted to mount the second CD-ROM, use the following procedure to unmount the first CD-ROM and mount the next one.

- On the window where you have started the installer, press Enter to get the UNIX prompt back and then change the directory to your system's root directory. Log in as the `root` user by using the following commands:

  ```
  $ cd /
  $ su root
  ```

- Unmount and remove the CD-ROM from the CD-ROM drive. Unmount the CD-ROM by using the following command:

  ```
  # /usr/sbin/pfs_umount/SD_CDROM
  ```

- Insert the required CD-ROM into the CD-ROM drive and mount it by using the following command:

  ```
  # /usr/sbin/pfs_mount/SD_CDROM
  ```

- Click OK to continue.

runInstaller Script

In an X Window environment, it is possible to launch Oracle Universal Installer by running the `runInstaller` script from a shell or by clicking on the script in the *File Manager* window. Do not do this. If you do, you will not be able to eject a software CD-ROM until you end the installation

session. It is necessary to insert and eject more than one CD-ROM during installation.

Oracle Universal Installer

- The following error message can be ignored during the migration of the database from release 8.1.*x* to release 1 (9.0.1):

  ```
  ORA-00604: error occurred at recursive SQL level 1
  ```

Installation with Response Files

For installation with a response file, the path to the response file must be the full path on the machine. The Oracle Universal Installer will not properly handle relative paths.

Product-Related Issues

This section contains these topics:

- Oracle Internet Directory
- Oracle Personalization
- Oracle Transparent Gateways
- Oracle Database Configuration Assistant
- Oracle Real Application Clusters
- Oracle Real Application Cluster Guard
- Oracle9i Real Application Clusters and Hyper Messaging Protocol (HMP)
- HMP tunable parameters
- Oracle Advanced Security
- Java Database Connectivity Driver
- Demo Schema
- Character Sets

Oracle Internet Directory

Upgrade from Oracle8*i* release 8.1.7 Enterprise Edition If you are upgrading from an Oracle8*i* release 8.1.7 Enterprise Edition with Oracle Internet Directory, then you must first upgrade Oracle Internet Directory to release 3.0.1 before upgrading to Oracle9*i* release 1 (9.0.1) Enterprise Edition.

Upgrade from Previous Release of Oracle Internet Directory Oracle9*i* release 1 (9.0.1) supports upgrades for releases of Oracle Internet Directory release 2.1.1.x.0 to Oracle Internet Directory release 3.0.1.

Password Management When performing an Oracle Internet Directory installation the Database Configuration Assistant opens an alert window and shows the passwords for the SYS and SYSTEM database roles. Do not change these passwords. Click OK.

Global Database Name and Oracle SID When performing a custom Oracle Internet Directory installation, do not change the global database name or the Oracle SID.

> **See Also:** For more information on Oracle Internet Directory utilities, and necessary pre-upgrade and post-upgrade tasks, refer to *Oracle Internet Directory README*.

Oracle Personalization

Oracle Personalization is a feature of the Oracle9*i* Application Server. The Oracle9*i* database does not include a license for Oracle Personalization.

Oracle Transparent Gateways

In the HTML versions of the Transparent Gateways administrator's guides, the hyperlinks to generic Oracle documentation are not active. To access the generic documentation, use the Oracle9*i* release 1 (9.0.1) generic documentation CD-ROM.

Oracle Database Configuration Assistant

When you use Oracle Database Configuration Assistant to create a custom database that includes Oracle JServer, it can take over an hour to load Oracle JServer into the database. The amount of time depends on your system's hardware configuration.

Oracle Real Application Clusters

Set the `instance_number` initialization parameter in `init.ora` file for all instances after upgrading from Oracle8*i* software.

For Oracle Real Application Clusters release 9.0.1, the PHSS_22876 patch is required for MC/Service Guard OPS Edition 11.09 or higher.

Oracle Real Application Cluster Guard

Oracle Real Application Cluster Guard Configuration Guide is available at the following website:

```
http://docs.oracle.com
```

Oracle9*i* Real Application Clusters and Hyper Messaging Protocol (HMP)

To use HMP, you must complete the following additional pre-installation and post-installation procedures:

Pre-installation Procedures: Perform the following additional pre-installation procedures:

1. Prior to installing Oracle9*i*, install the required HP patches for HMP
2. Prior to installing Oracle9*i*, grant the MLOCK privilege to the Oracle system privilege dba.
3. Enter the following command to verify that the HyperFabric switch is configured correctly:

   ```
   /opt/clic/clic_stat
   ```

   All nodes in the cluster should be reported in the output generated by the `clic_stat` command.

Post-installation Procedures Perform the following additional post-installation procedures:

1. Login as oracle
2. Install the fix for Oracle bug 2087537
3. Install the Oracle HMP patch for Oracle bug 2109240. You can download from the Oracle *MetaLink* site at the following URL:

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

4. Execute the following command:

   ```
   $ cd $ORACLE_HOME/rdbms/lib
   ```

5. Relink Oracle with HMP using the following commands:

   ```
   make -f ins_rdbms.mk rac_on
   make -f ins_rdbms.mk ipc_hmp ioracle
   ```

HMP tunable parameters

Oracle Corporation recommends that you review parameters and tune them for optimal HMP performance. A list of HMP tunable parameters can be found in the following file:

```
/opt/clic/lib/skgxp/skclic.conf
```

Oracle Advanced Security

Oracle9*i* release 1 (9.0.1) does not support Radius authentication adapter CHAP (challenge-response) mode and DCE adapter.

Java Database Connectivity Driver

The default behavior for the `ResultSet::getXXXStream()` has been modified to comply with the Java Database Connectivity (JDBC) specification so that the APIs return null values for database null `LONG/LONG RAW` values.

For Oracle8*i* release 8.1.*x* JDBC drivers, the default behavior was to return an empty stream for database null values. The Java property `jdbc.backward_compatible_to_8.1.7` allows the system to use the earlier JDBC default behavior when using the Oracle9*i* drivers and applies to Oracle9*i* JDBC Thin and OCI drivers.

For example, if the Java property is set at the virtual machine runtime, the following command will cause the Oracle9*i* JDBC drivers to return empty streams from calls to `ResultSet::getXXXStream()`:

```
java -Djdbc.backward_compatible_to_8.1.7 myJavaProgram
```

Demo Schema

If you select a multibyte character set or UTF as the national character set in Oracle9*i* release 1 (9.0.1), then you must recreate the demo schema and database installation.

For more information on creating schemas, schema dependencies and requirements, refer to the `readme.txt` file in the `$ORACLE_HOME/demo/schema` directory.

Character Sets

Oracle9*i* NCHAR Datatypes In Oracle9*i* release 1 (9.0.1), the SQL NCHAR datatypes are limited to the Unicode character set encoding (UTF8 and AL16UTF16). Alternative character sets such as the fixed-width Asian character set JA16SJISFIXED in Oracle8*i* are no longer supported.

To migrate existing NCHAR, NVARCHAR, and NCLOB columns, export and import NCHAR columns, use the following procedure:

1. Export all SQL NCHAR columns from Oracle8*i*.
2. Drop the SQL NCHAR columns.
3. Migrate the database to Oracle9*i*.
4. Import the SQL NCHAR columns into Oracle9*i*.

AL24UTFFSS Character Set Oracle9*i* release 1 (9.0.1) does not support the Unicode character set AL24UTFFSS, which was introduced in Oracle7. This character set was based on the Unicode standard 1.1, which is now obsolete.

Oracle9*i* release 1 (9.0.1) supports the Unicode database character sets AL32UTF8 and UTF8. These database character sets include the Unicode enhancements based on the Unicode standard 3.0.

To migrate the existing AL24UTFFSS database, upgrade your database character set to UTF8 before upgrading to Oracle9*i*. Oracle Corporation recommends that you use the Character Set Scanner for data analysis before attempting to migrate your existing database character set.

Character Set Scanner Set the LD_LIBRARY_PATH variable to include the `$ORACLE_HOME/lib` directory before running the Character Set Scanner (csscan) from the `$ORACLE_HOME` directory. If you do not correctly set the LD_LIBRARY_PATH variable, then the csscan utility will fail.

Products Not Supported for Oracle9*i* Release 1 (9.0.1) on HP

The following product is not supported for Oracle9*i* Release 1 (9.0.1) for HP 9000 Series HP-UX:

- Precompiler option Sqlmod*Ada

Post-Installation Issues

This section presents issues that can occur during post-installation.

Relink Script Errors

The relink script is located in `$ORACLE_HOME/bin`. If you run the command `relink all`, the relink script tries to relink the Oracle Names and Oracle Connection Manager executables even when these products are not installed. If you did not install Oracle Names and Oracle Connection Manager, you will see the following errors:

```
ld: fatal: File processing errors.  No output written to names
make: Fatal error:  Don't know how to make target
'<ORACLE_HOME>/network/lib/s0nfpc.o'
```

These errors should be ignored. They will not occur if Oracle Names and Oracle Connection Manager are installed.