Eigner PLM 5.1

Installation Manual for Oracle 9.2 for Eigner PLM 5.1 on UNIX

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CONTENTS

Chapter 1

Introduction

This guide is intended to be quick handbook for installing Oracle 9.2 and adapting the Oracle database for use with Eigner PLM 5.1 running under any of the following operating systems:

- ❑ HP-UX 11.11
- ❑ Sun Solaris 9
- ❑ IBM AIX 5.2
- ❑ SuSE Linux Enterprise Server 8.

  For information, refer to the SuSE web site:

  - German site (http://www.suse.de)
  - English site (http://www.suse.com)
  - http://www.suse.de/en/business/certifications/certified_software/oracle/index.html

The sections relevant for you, will depend on whether you purchased Oracle 9.2 through Eigner or through another vendor

Chapter 2, *Requirements* – Eigner PLM 5.1 customers who purchased Oracle 9.2 through Eigner can refer to this section for information on hardware and software requirements.

Chapter 3, *Installing Oracle 9.2* – Eigner PLM 5.1 customers who purchased Oracle 9.2 through Eigner can refer to this section for step-by-step Oracle 9.2 installation instructions.

Chapter 4, *Adapting the Oracle Database* – All Eigner PLM 5.1 customers—whether they purchased Oracle 9.2 through Eigner or through another vendor—should refer to this section for information on adapting the Oracle database for use with Eigner PLM 5.1.

Where To Go For More Information

For information on installing Oracle 9.2 and Eigner PLM at the same time, refer to the document *Installing the Eigner PLM 5.1 UNIX Server*.

> Note: The Eigner PLM installation guides are available in the doc directory on the product CD/DVD. To view Adobe® Portable Document Format (PDF) files, use Adobe Acrobat Reader® software, which is available at no charge at www.adobe.com.

Chapter 2
Requirements

This chapter is provided for Eigner PLM 5.1 customers who purchased Oracle 9.2 through Eigner.

For more information, consult the Oracle 9.2 installation and administration documentation, which is available on the Oracle Server CD/DVD.

Operating System Related Requirements

For information on operating system and patch requirements, refer to the document *Eigner PLM 5.1 Prerequisites Guide.*

Kernel Parameters

Oracle Minimum Values

Parameter	Minimum Value	Description
shmmax	8388608 or higher than the maximal SGA	Defines the system-wide maximum allowed shared memory segment size in bytes. Consider using the maximum allowed value on your system.
shmmin	1	
shmmni	100	Specifies the maximum number of shared memory segments allowed to exist simultaneously, system-wide.
shmseg	10	Specifies the maximum number of shared memory segments that can be attached to a process at any given time

Application And Database Server Minimum Values

Parameter	Minimum Value	Description
maxusers	Number of concurrent Eigner PLM 5.1 users if the Eigner PLM 5.1 process is running under the system account of the user (not axalantrt)	Maximum number of users simultaneous login in the system.

Parameter	Minimum Value	Description
Nproc	Eigner PLM 5.1 users * 3, plus Oracle Instance processes (8), plus system processes	Number of processes; nproc specifies the maximum total number of processes that can exist simultaneously in the system.
maxuprc	Eigner PLM 5.1 users * 2 (Eigner PLM 5.1 processes run by axalantrt) Oracle connects (number of Eigner PLM 5.1 users), plus Oracle Instance processes (8)	Maximum number of processes per user. Set maximum number of simultaneous user processes.

To get information about shared memory and semaphores use:

```
/usr/bin/ipcs -a
```

```
$ORACLE_HOME/bin/tstshm
```

HP-UX Minimum Values

The following table describes the minimum recommended values to be set in the configuration file:

```
/usr/conf/master.d/core-hpux
```

Parameter	Minimum Value	Description
SHMMAX	1073741824 or 0X40000000	The maximum size (in bytes) of a single shared memory segment.
SHMMIN	1	The minimum size (in bytes) of a single shared memory segment.
SHMMNI	100	The number of shared memory identifiers.
SHMSEG	10	The maximum number of shared memory segments that can be attached to a process.
SEMMNS	200	The number of semaphores in the system.
SEMMNI	70	The number of semaphore set identifiers in the system. SEMNI determines the number of semaphore sets that can be

		created at any one time.

Use SAM to configure the HP-UX kernel, and then reboot the system. You can use SAM to verify that the system has been configured with enough shared memory.

In addition, consider the parameters maxusers, nproc and maxuprc. For HP-UX, however, consider nfile—which is derived from maxuprc—and mark the maximum number of open files. Each database connect process opens every database file. The parameter nfile should be set higher than connects * datafiles.

Recommended Values for Solaris Parameters

Set parameters for Solaris in the configuration file:

/etc/system

For the parameters to take effect, you must reboot the machine after setting them in the system file.

Parameter	Recommended Value	Description
SHMMAX	4294967295	The maximum size (in bytes) of a single shared memory segment.
SHMMIN	1	The minimum size (in bytes) of a single shared memory segment.
SHMMNI	100	The number of shared memory identifiers.
SHMSEG	10	The maximum number of shared memory segments that can be attached to a process.
SEMMNS	200	The number of semaphores in the system.
SEMMNI	100	The number of semaphore set identifiers in the system. SEMMNI determines the number of semaphore sets that can be created at one time.
SEMMSL	10 plus value of the initialization parameter PROCESSES	The maximum number of semaphores that can be in one semaphore set. Should be the same size as the maximum number of Oracle processes.

Examples:

```
set shmsys:shminfo_shmmax=4294967295

set shmsys:shminfo_shmmin=1
```

```
set shmsys:shminfo_shmmni=100

set shmsys:shminfo_shmseg=10

set semsys:seminfo_semmns=200

set semsys:seminfo_semmni=100

set semsys:seminfo_semmsl=50
```

Setting Up An Oracle OS User

Creating an Oracle account

To create an Oracle account, do the following:

1. Create the dba group for the machine on which Oracle is being installed:

   ```
   groupadd –g 1001 dba
   ```

2. Create an Oracle user “oracle” with the home directory ”/app/oracle” (the directory must be created first) login shell ”/bin/csh” and member of the group "dba":

   ```
   useradd –u 1001 –g dba –d /app/oracle –s /bin/csh oracle
   ```

3. Log into Oracle and create the directories /app/oracle/bin, /app/oracle/product, and /app/oracle/product/9.2:
4. Create the directory, links and mountpoints for distribution of the datafiles:

   ```
   /app/oracle/mnt1/oradata/plm

   /app/oracle/mnt2/oradata/plm

   /app/oracle/mnt3/oradata/plm
   ```

   The datafiles are stored on local disks only.

Setting up the shell environment variables for Oracle9.2

To set up the shell environment variables, do the following:

1. Copy scripts from the OracleAddOn folder to $HOME and source cshORA9.2 the file from .login or .cshrc

   ```
   cd
   (cd /cdrom/EignerPLM51/doc/OracleAddOn/unix/scripts; tar cvf – bin csh_ORA9.2)|tar xf -

   chmod 754 bin/*
   chmod 644 csh_ORA9.2

   .cshrc:
   ..
   source $HOME/csh_ORA9.2
   ..
   ```

2. Set file creation permissions with the “umask” command:

   .login:

   umask 022

3. Verify the environment:
4. Log off and log in as the Oracle user to ensure all environment settings are active.
5. Type `env | sort` at the Unix prompt to view all the environment variables.

Software Item	Requirements
DISPLAY	Set it to the machine name and monitor of the station from which you are connecting to the server machine (setenv DISPLAY hostname:0.0).
LD_LIBRARY_PATH SHLIB_PATH (HP-UX) LIBPATH (AIX)	Required for Oracle products using shared libraries. Must include $ORACLE_HOME/lib.
ORACLE_BASE	Not required, but recommended as part of an OFA-compliant installation.
ORACLE_HOME	Must be set to the directory where the Oracle software will be installed.
ORACLE_SID	Specifies the instance name, or SID of the Oracle Server. Must be unique for Oracle instances running on the same machine. Oracle Corporation recommends using four characters or fewer.
ORACLE_TERM	Required by all character mode and Motif mode Oracle products. 386 386x 386u 386s dgd2 dgd4 hftc hft hpterm 3151 ncd220 sun sun5 vt100 vt220 wy50 wy150 xsun xsun5.
ORA_NLS33	Required when creating a database with character set other than US7ASCII. Set to $ORACLE_HOME/ocommon/nls/admin/data.
PATH	The search path must include: $ORACLE_HOME/bin, /bin, /usr/bin, and /usr/local/bin.
SRCHOME	Should be undefined when running the Installer. If SRCHOME is set, the Installer defaults to the location it specifies as the source of software to install.
TWO_TASK	Should be undefined when installing the Oracle8 Server.

Software Item	Requirements
TMPDIR	A directory with at least 20 MB space available where the Oracle account has write permission. The default location on Linux is /usr/tmp.
LINK_CNTRL	If on AIX 4.3.X, set: setenv LINK_CNTRL L_PTHREADS_D7

```
#!/bin/csh
#
# Initial script for Oracle C-shell environment
#
setenv ORACLE_BASE      /app/oracle
setenv ORACLE_HOME      $ORACLE_BASE/product/9.2
setenv ORACLE_SID       plm
setenv ORACLE_DOC       $ORACLE_HOME/doc
setenv TMPDIR           $HOME/tmp # 400 MB disc space
setenv TMP              $HOME/tmp
setenv ORACLE_TERM      xterm
setenv NLS_LANG         AMERICAN_AMERICA.WE8ISO8859P15
setenv ORA_NLS33        $ORACLE_HOME/ocommon/nls/admin/data
# NET8
setenv TNS_ADMIN        $ORACLE_HOME/network/admin


switch ( `uname` )
 case HP-UX:
       set path = ($ORACLE_HOME/bin /usr/bin /etc /usr/bin/X11 /usr/local/bin $path
$HOME/bin)
       if ( $?SHLIB_PATH ) then
          setenv SHLIB_PATH "$ORACLE_HOME/lib32:${SHLIB_PATH}"
       else
          setenv SHLIB_PATH "$ORACLE_HOME/lib32"
       endif
    breaksw

 case AIX:
       set path = ($ORACLE_HOME/bin /usr/bin /etc /usr/lbin /usr/bin/X11 /usr/local/bin
$path $HOME/bin )
       if ( $?LIBPATH  ) then
          setenv  LIBPATH  "$ORACLE_HOME/lib32:$ORACLE_HOME/lib:${LIBPATH}"
       else
          setenv  LIBPATH  "$ORACLE_HOME/lib32:$ORACLE_HOME/lib"
       endif
    breaksw

case Linux:
       set path = ( $ORACLE_HOME/bin /usr/bin /bin /usr/local/bin /usr/bin/X11
/usr/X11R6/bin $path $HOME/bin )
       if ( $?LD_LIBRARY_PATH  ) then
          setenv  LD_LIBRARY_PATH  "$ORACLE_HOME/lib:${LIBPATH}"
       else
          setenv  LD_LIBRARY_PATH  "$ORACLE_HOME/lib"
       endif
    breaksw

 case SunOS:
       set path = ($ORACLE_HOME/bin /usr/ccs/bin /usr/bin /etc /usr/openwin/bin
/usr/local/bin /opt/SUNWspro/bin $path $HOME/bin /usr/sbin /sbin )
       if ( $?LD_LIBRARY_PATH  ) then
          setenv  LD_LIBRARY_PATH  "$ORACLE_HOME/lib:${LD_LIBRARY_PATH}"
       else
          setenv  LD_LIBRARY_PATH  "$ORACLE_HOME/lib"
       endif
       # 64-bit Solaris
```

```
       # setenv LD_LIBRARY_PATH $ORACLE_HOME/lib32
       # setenv LD_LIBRARY_PATH_64 $ORACLE_HOME/lib
    breaksw

default:
      set path = ( $ORACLE_HOME/bin /usr/bin /bin /usr/local/bin /usr/bin/X11 $path
$HOME/bin )
      if ( $?LD_LIBRARY_PATH  ) then
          setenv  LD_LIBRARY_PATH  "$ORACLE_HOME/lib:${LD_LIBRARY_PATH}"
       else
          setenv  LD_LIBRARY_PATH  "$ORACLE_HOME/lib"
       endif
    breaksw

endsw

umask 022

if ( $?prompt == 0) then
  set history=150               # previous commands to remember.
  set savehist=240              # number to save across sessions.
  set notify
  alias h history
  #  stty erase '^?'
  #  stty erase '^H'
  #  stty intr '^C'
endif
```

Copying database start and stop scripts

1. If not already done, copy the start and stop scripts from doc/OracleAddOn/unix/bin folder to the directory `/app/oracle/bin.`

The default environment file `~/csh_ORA9.2` includes the directory in the search path.

start_PLM	#!/bin/csh source $HOME/bin/csh_plm setenv ORACLE_SID plm lsnrctl start sqlplus /nolog << EOF connect / as sysdba startup EOF

stop_PLM	#!/bin/csh source $HOME/bin/csh_plm setenv ORACLE_SID plm lsnrctl stop sqlplus /nolog << EOF connect / as sysdba shutdown EOF

stop_PLM_transactional	#!/bin/csh source $HOME/bin/csh_plm setenv ORACLE_SID plm lsnrctl stop sqlplus /nolog << EOF connect / as sysdba shutdown transactional EOF

stop_PLM_immediate	#!/bin/csh source $HOME/bin/csh_plm setenv ORACLE_SID plm lsnrctl stop sqlplus /nolog << EOF connect / as sysdba shutdown immediate EOF

stop_PLM_abort	#!/bin/csh source $HOME/bin/csh_plm setenv ORACLE_SID plm lsnrctl stop sqlplus /nolog << EOF connect / as sysdba shutdown abort EOF

Mounting CDs To Your File System

The Eigner PLM 5.1 CD, Oracle 9.2 CD, and Agile Oracle Add-On CD each has an ISO 9660 file system with Rock Ridge extensions (rrip). If you get file names such as “filename;1” (DECUNIX, HP-UX), use the mount option rrip to get correct file names. The mount command needs the name of the device or the special file (`/dev/*`). See `/etc/fstab` or use the system tools.

Mounting CDs on HP-UX

1. Establish the file /etc/pfs_fstab:

   <device_file> <mount_point><file_type> <translation_method>

   /dev/dsk/c5t2d0 /SD_CDROM pfs-rrip xlat=unix 0 0

   The file contains only one line (for example, /dev/dsk/c1t2d0 /SD_CDROM pfs-rrip xlat=unix 0 0).

2. Create the mount point:

   mkdir /SD_CDROM

   Insert the CD .

3. Enter the following commands:

   nohup /usr/sbin/pfs_mountd &

   nohup /usr/sbin/pfsd &

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

Use the CD.

4. To release the CD, enter:

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

If you are using the command df, the CDROM file system is not attached. Check the existence of the CDROM file system using cd `/SD_CDROM` and ls. The command pfs_mount inserts an entry in /etc/mnttab. If you do not create a file /etc/pfs_fstab, you can add the options to the pfs_mount command.

```
pfs_mount –t rrip –x /dev/dsk/...    /SD_CDROM

pfs_mount –t rrip –x /dev/dsk/c1t2d0 /SD_CDROM
```

If you stop the processes pfs_mountd and pfsd using the kill command, the child processes pfs_mountd.rpc and pfsd.rpc are stopped by the parent process. Do not kill the processes that mounted the file system.

Note: If you make a mistake during the mount procedure, it might be necessary to reboot the machine.

Mounting CDs on Solaris

The operating system should recognize the inserted CD automatically and mount it to /cdrom or /CDROM.

To release the CD, use the command eject /cdrom.

If the automatic mount does not run, use the following commands with root privileges to mount the CD:

```
mount -r -F hsfs device_name /cdrom

mount -r -F /dev/... /cdrom
```

Mounting CDs on Aix

```
mount -o ro -v cdrfs /dev/cd0  /cdrom

or use smit
```

Mounting CDs on Linux

If you are using auto mounting software, the CD-ROM should be mounted automatically. If it is not, use the following command:

```
mount -t iso9660 /dev/cdrom /cdrom
```

Chapter 3

Installing Oracle 9.2

The guidelines in this section are provided for Eigner PLM 5.1 customers who purchased Oracle 9.2 through Eigner.

Starting the Oracle Server Installation

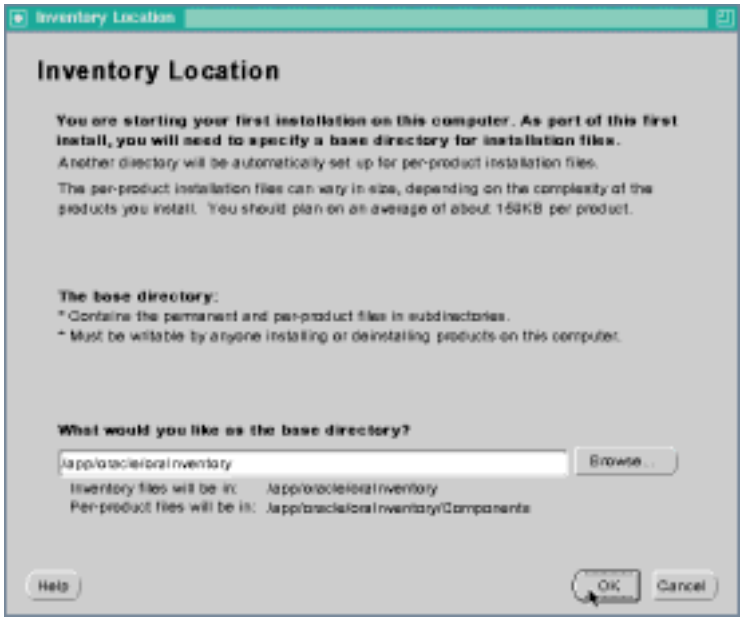
1. Log in as the Oracle user.
2. Start the Oracle Installer.

   For example, type:

   /cdrom/runInstaller
   or
   /cdrom/EignerPLM51/disk1/runInstaller

   The Welcome Screen is opened
3. Click **Next**.

   If you start the Oracle Installer on this machine you have to set the location of the Oracle Inventory.



4. Confirm the inventory location and click **OK**.

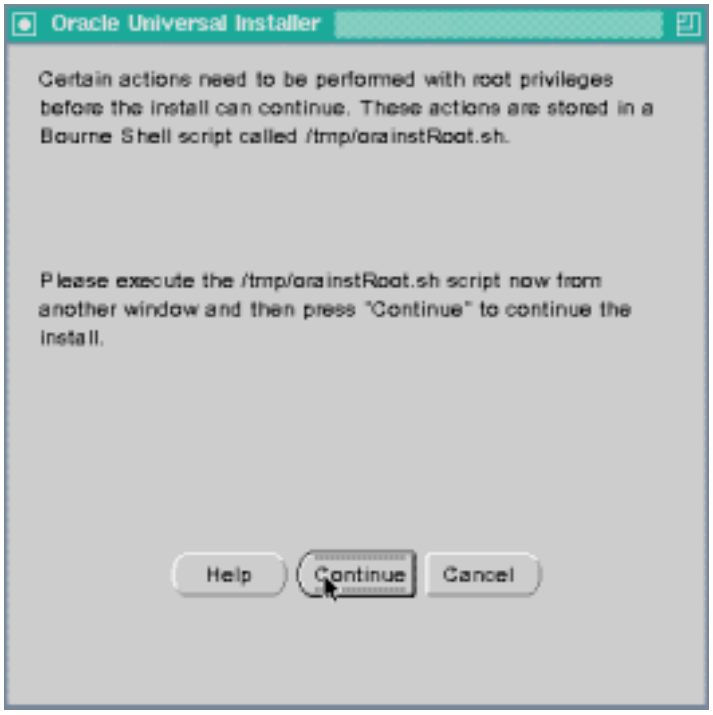
   The screen for the UNIX Group Name is opened.

   This is the group maintaining the Oracle software. Members of this group will have permission to update Oracle software on this system.

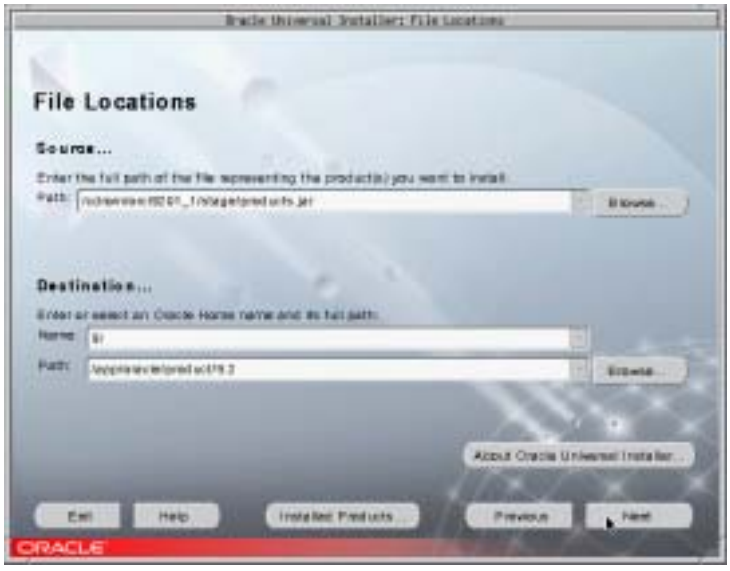
5. Enter the group name "dba" and click **Continue**

6. Before the installation can continue: Log in as super user (root) from another window and execute the shell script:

   /tmp/orainstRoot.sh.



7. Click **Continue**
8. Enter 9i as Oracle Home name and click **Next**.



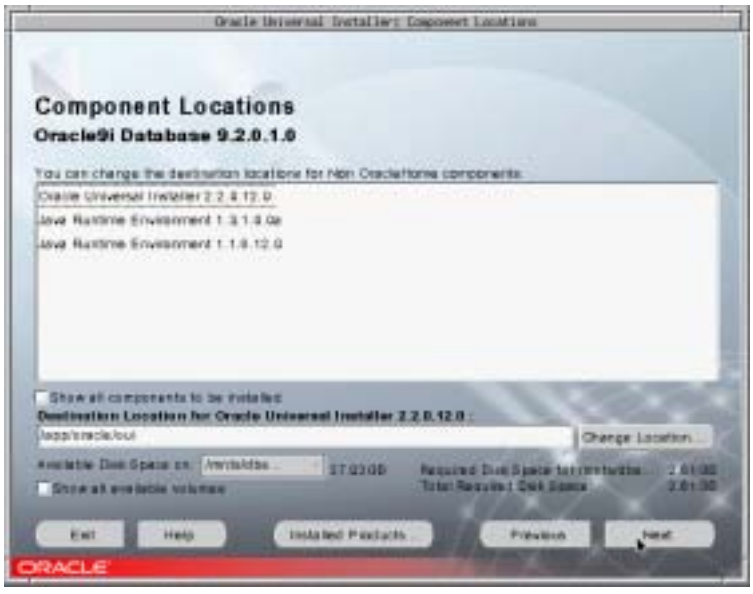
9. Select **Oracle Database** or **Client**, if you want to perform a server or client installation and click **Next**.

10. Select the **Custom** installation type e and click **Next**.

11. Select the components you want to install from the product list and click **Next**:

Oracle Data Mining 9.2.0.1.0	Not Installed
Oracle Net Services 9.2.0.1.0	New Install
Oracle Net Listener 9.2.0.1.0	New Install
Oracle Connection Manager 9.2.0.1.0	Not Installed
Oracle Names 9.2.0.1.0	Not Installed
Oracle Enterprise Manager Products 9.2.0.1.0	New Install
Oracle Intelligent Agent 9.2.0.1.0	New Install
Enterprise Manager Web Site 9.2.0.1.0	Not Installed
Oracle Management Server 9.2.0.1.0	Not Installed
Enterprise Manager Client 9.2.0.1.0	New Install
Oracle Change Management Pack 9.2.0.1.0	Not Installed
Oracle Diagnostics Pack 9.2.0.1.0	Not Installed
Oracle Tuning Pack 9.2.0.1.0	Not Installed
Oracle Management Pack for Oracle Applications 9.2.0....	Not Installed
Oracle Management Pack for Oracle Standard Edition 9...	Not Installed
Oracle9i Development Kit 9.2.0.1.0	Not Installed
Oracle C++ Call Interface 9.2.0.1.0	Not Installed
Oracle Call Interface (OCI) 9.2.0.1.0	New Install
Oracle Programmer 9.2.0.1.0	Not Installed
Oracle XML Developer's Kit 9.2.0.1.0	Not Installed
Oracle9i for UNIX Documentation 9.2.0.1.0	Not Installed
Oracle HTTP Server 9.2.0.1.0	Not Installed
Oracle Transparent Gateways 9.2.0.1.0	Not Installed
iSQL*Plus 9.2.0.1.0	Not Installed
Oracle JDBC/OCI Interfaces 9.2.0.1.0	Not Installed

12. Confirm or change the destination locations and click **Next**.



13. Enter the group "dba" and click **Next**.

Next screen asks if a database should be created

14. IMPORTANT: Select **No** on the Create Database screen, and then click **Next** to continue.

    (You will create the database later in a separate step.)

15. On the Summary screen, review the options you have chosen. If necessary, click **Previous** to perform changes. If the options are correct, click **Install** to start the installation.

    The Install screen shows the install process.

16. When requested exchange the Oracle CD and click **OK**.

    On Solaris the auto mounter creates a new mount point so you have to adapt the path.

17. You are asked to execute a script as user root.

    Open a second terminal by the root user and run the script

    ```
    # cd /app/oracle/product/9.2

    # ./root.sh
    ```

    The following environment variables are set as:

    ORACLE_OWNER= oracle

    ORACLE_HOME= /app/oracle/product/9.2

    Enter the full pathname of the local bin directory: [/usr/local/bin]: /var/opt/oracle/bin

18. **Cancel** Net Configuration

    The **End of Installation** screen is opened.

19. Leave the installation with **Exit**.

20. When the installation is finished, use the instructions below for your operation system to create symbolic links:

    SUN Solaris and Linux:

    Change to the directory $ORACLE_HOME/product/9.2/lib32 and create the following link:

```
ln –s libclntsh.so.9.0 libclntsh.so.1.0
ln –s libclntsh.so.9.0 libclntsh.so.8.0
```

If there is no “lib32” directory than change to the directory $ORACLE_HOME/product/9.2/lib32 and create the following link:

```
ln –s libclntsh.so.9.0 libclntsh.so.1.0
ln –s libclntsh.so.9.0 libclntsh.so.8.0
```

HP-UX:

Change to the directory $ORACLE_HOME/product/9.2/lib32 and create the following link:

```
ln –s libclntsh.sl.9.0 libclntsh.sl.1.0
ln –s libclntsh.sl.9.0 libclntsh.sl.8.0
```

Installing Patches

After you have installed the Oracle Server Software from the original Oracle CD, copy the corresponding Patch set from Agile Oracle Add-On CD to your server

If possible, create the database after you have installed the patches. If you have created the database prior to installing the patches, see the patch readme file for the necessary task to adapt the database.

The last patch set for Oracle 9i release 2 is 9.2.0.4.

1. Please extract the patch set on your machine as user oracle

   ```
   cd /app/oracle

   mkdir patch

   cd patch

   unzip –a /cdrom/patch/solaris/p3095277_9204_SOLARIS.zip

   cpio -idmv < p3095277_9204_SOLARIS.cpio

   cd Disk1
   ```

2. Start the Oracle Installer.

   ```
   ./runInstaller
   ```

   The Welcome Screen is opened

3. Click **Next**.

   The ‘File Locations’ screen is opened.

4. Check if Oracle Home ‘9i’ is selected and click **Next**.

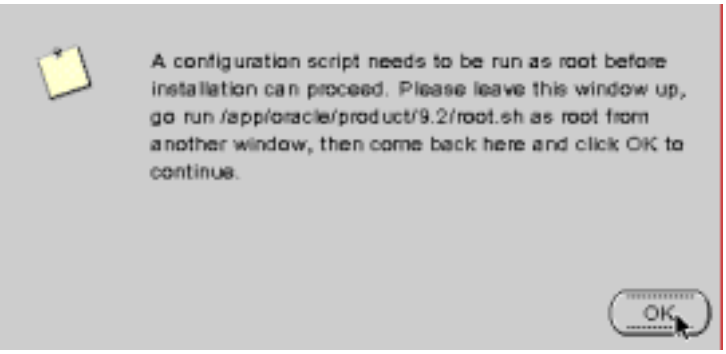
   The ‘Available Products’ screen is opened.

5. Select the **Oracle Universal Installer (OUI 2.2.*)** to install and click **Next**.

6. Check the summary screen and click **Install**.

7. If OUI installation was successful, click **Next Install**.
8. Select the **Oracle 9i patch set** and click **Next**.
9. Check the summary window and click **Install**.

   After successful patch installation you have to run a root script. (Same step as done after the Oracle software installation.)



10. Click **OK** to approve.
11. Click **Exit** in the **End of Installation** window to close the Oracle Installer.

Installing the Database

The database will be created using Database Configuration Assistant (DBCA) templates provided on the Agile Oracle Add-On CD. DBCA templates include database options, initialization parameters, and storage information for datafiles, tablespaces, control files and redo logs.

Six different templates are predefined to meet different requirements according to purpose, size and amount of the Eigner PLM database installation.

Template Name	Description
plm_laptop	small sized database especially designed for laptop installations
plm_test	database designed for test installations number of concurrent users < 40 no archiving
plm_prod_small	database designed for productive use number of concurrent users < 40 approximate database dump size: 250 MB archiving
plm_prod_medium	database designed for productive use number of concurrent users: 40 - 80 approximate database dump size: 1 GB

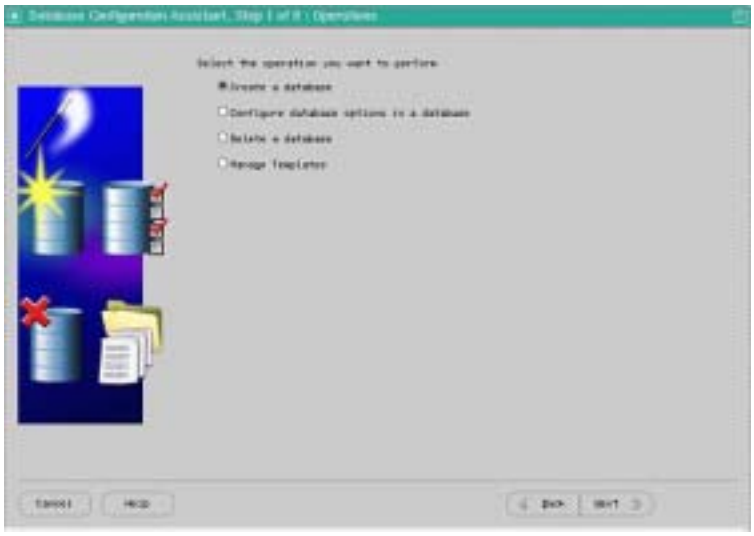
	archiving
plm_prod_large	database designed for productive use number of concurrent users: 80 – 120 approximate database dump size: 2 GB archiving
plm_prod_huge	database designed for productive use number of concurrent users: 120 - 150 approximate database dump size: 2 GB and above archiving

Additional information on significant database parameters and settings of each template can be found in the Appendix. Decide which templates corresponds to your needs approximately. It is also possible to adapt any of the values during the database creation process.

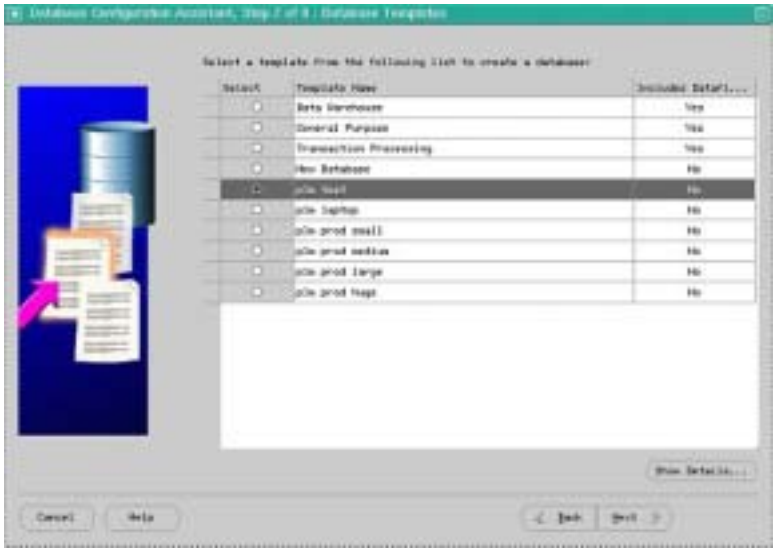
1. Copy the DBCA template file (e.g. plm_test.dbt) from Agile Oracle Add-On CD to {ORACLE_HOME}/assistants/dbca/templates.
2. Start the Oracle Database Configuration Assistant.

   /app/oracle/product/9.2/bin/dbca

   The Welcome screen is opened.
3. Click **Next**.
4. Select **Create a database** and click **Next**.



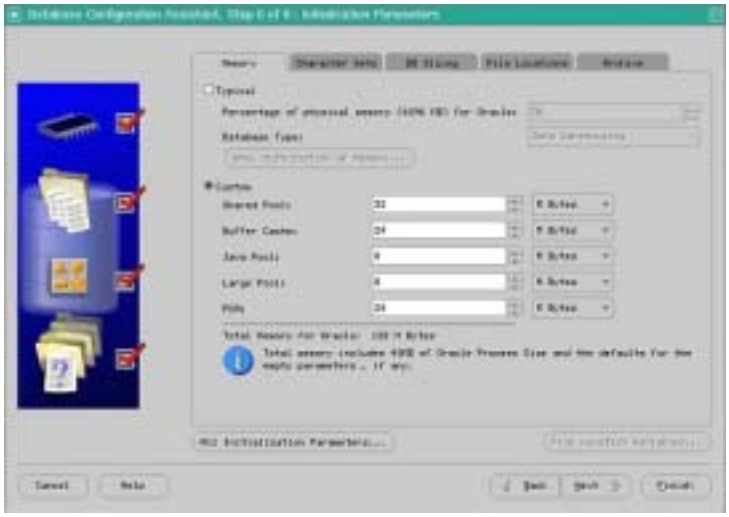
A list of different templates is provided. You should also see the template that you have chosen and copied in step 1.



5. Select the template you want to use and click **Next**.
6. Enter the global database name and SID (default: plm).

   The next window provides database features and the possibility to run custom scripts after database creation. It is not recommended to change the settings provided by the template.
7. Click **Next**.
8. Select **Dedicated Server Mode** and click **Next** .

   The next window provides several database parameters. You can navigate to the setting of memory, character sets, databases sizing, file locations, and archiving.



   The values are Agile's recommendations for the selected kind of database installation.
9. Adjust the values if necessary.

Note: For productive installations it is highly recommended to archive the database. The archive log mode and the destination of the archive directory can be specified at the Archive folder.

10. Click **File Location Variables** to review and adapt the file location to your system.

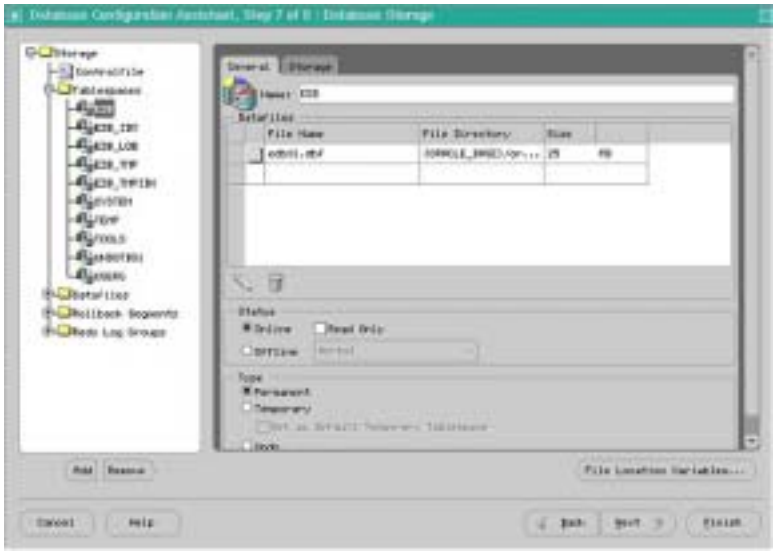
SeePlease see table below for detailed information on predefined file destination variables.

Variable	Description
ORADATA1	Data files of tablespaces EDB, EDB_LOB, EDB_TMPIDX
ORADATA2	Data files of tablespaces EDB_IDX, EDB_TMP
ORADATA3	Data files of temporary tablespace TEMP
ORADATA4	Data files of undo tablespace
ORADATA5	Data files of tablespaces SYSTEM, TOOLS, USERS
ORAARCH	archive log files
REDO1	redo log files group 0
REDO2	redo log files group 1

Note: If the Shared Pool size is smaller than 32MB (e.g. when using plm_laptop template), there will be a warning that Oracle's minimum size recommendation is not met. This can be ignored by clicking **No**.

11. Click **Next.**

12. In the next step, the storage parameters for control files, tablespaces, datafiles, rollback segments and redo log files can be reviewed and modified.

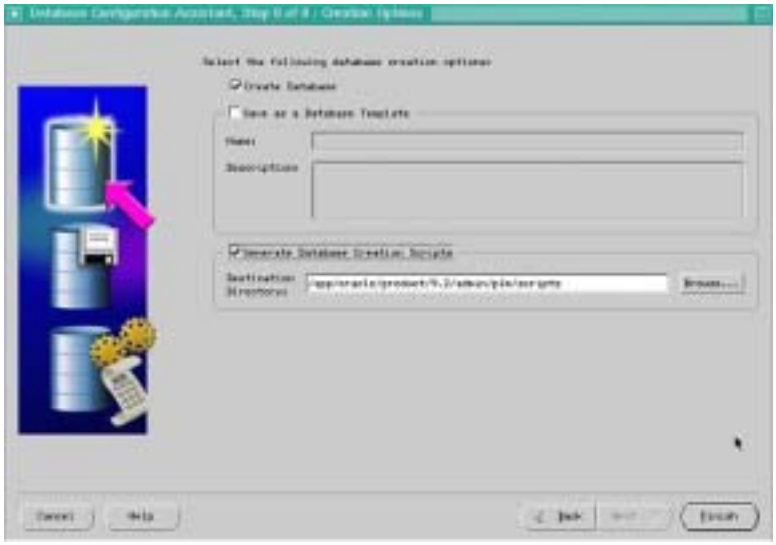


13. Double-click an object on the left if you want to edit and modify the settings in the right window section.

    Note: The predefined values are reflecting Agile's recommendations according to the chosen kind of database installation.

14. Click **Next**.

15. Select **Create Database** to start the database creation immediately.



    It is recommended to choose also the option **Generate Database Creation Scripts** and to define a destination directory (default: {ORACLE_BASE}/admin/plm/scripts). Those scripts are useful for future reference or use.

16. Click **Finish.**

    A summary of the database parameter is displayed.

17. Click **Save as HTML file** for future reference and click **OK**.

The database creation process is started.

Note: During the database instance creation (in step “Creating data dictionary views”) it is possible that following warning occurs: **ORA-29807: specified operator does not exist**'. This is a known Oracle bug (will be fixed in next release). Click Ignore to continue.

18. After successful database creation, enter a password for the SYS and SYSTEM accounts in the new database.

    Note: The password “manager” is not allowed.

19. Click **Exit** to finish the process.

Configuring the Oracle Listener

1. Copy the listener configuration files from Agile Oracle Add-On CD to your installation.

   cp listener.ora /app/oracle/product/9.2/network/admin

   cp tnsnames.ora /app/oracle/product/9.2/network/admin

   cp tnsnav.ora /app/oracle/product/9.2/network/admin

   cp sqlnet.ora /app/oracle/product/9.2/network/admin

2. Adapt the configuration files (especially, tnsnames.ora and listener.ora to reflect the correct hostname and other information).
3. Start listener and test the database connection.

   lsnrctl start

   tnsping plm

   sqlplus system@plm

About the Directory Structure

The Oracle Software is placed in $ORACLE_HOME. The Software directory contains the network configuration, trace and log files.

$ORACLE_HOME -> /app/oracle/product/9.2

$ORACLE_HOME/network/admin

$ORACLE_HOME/network/trace

$ORACLE_HOME/network/log

In the directory `$ORACLE_HOME/dbs` you will find the links to the initialization files.

configPLM.ora -> /app/oracle/admin/PLM/pfile/configPLM.ora

initPLM.ora -> /app/oracle/admin/PLM/pfile/initPLM.ora

`/app/oracle/admin` contain the create scripts, the log trace and init files of all databases.

/app/oracle/admin/PLM:

- bdump: alert_PLM.log Alert file, background process trace files
- If an error occurs, always consult the alert file first. You can see every start and stop of the instance and every log switch. Errors are written in the file.
- cdump: core dump files
- create: crdbPLM.sql, crdb2PLM.sql database create scripts
- pfile: configPLM.ora, initPLM.ora instance parameter files
- udump: user SQL traces

Chapter 4

Modifying the Oracle Database

Creating a Database User

You will need to create the Eigner PLM database user and provide the necessary privileges and quotas. You can do this using the commands in the following section, or using the Oracle Enterprise Manager Console, as described in the section below.

Using SQL to create a user

1. Create a database user (named, for example, plm):

```
CREATE USER PLM
IDENTIFIED BY <PASSWORD>
DEFAULT TABLESPACE "EDB"
TEMPORARY TABLESPACE "TEMP"
PROFILE DEFAULT
QUOTA UNLIMITED ON "EDB"
QUOTA UNLIMITED ON "EDB_IDX"
QUOTA UNLIMITED ON "EDB_TMP"
QUOTA UNLIMITED ON "EDB_TMPIDX"
QUOTA UNLIMITED ON "EDB_LOB"
ACCOUNT UNLOCK;
GRANT "CONNECT" TO PLM;
GRANT CREATE PROCEDURE TO PLM;
GRANT CREATE VIEW TO PLM;
GRANT CREATE TRIGGER TO PLM;
ALTER USER PLM DEFAULT ROLE ALL;
```

A default script (cre_plm_usr.sql) with these commands can be found on the Agile Oracle Add-On CD or in OracleAddOn folder of the install media.

Importing the Database Dump

1. Import the Eigner PLM dump using the following commands, and then check the log file for errors.

```
imp plm/plm@plm file=plm50.dmp log=plm50.log buffer=132000 commit=y analyze=n full=y
```

commit=y rollback segments cannot get too small

analyze=n	no statistics will be created
buffer=132000	necessary for lobs, better performance
full=y	imports full dump even if the dump was exported by different user

Create Statistics

If you are using Oracle's cost based optimizer (optimizer_mode=choose), which is the default setting, Agile highly recommends creating statistics in order to avoid performance loss. This should be done after the dump import and has to repeated periodically.

Calculate statistics on all tables and indexes in db schema PLM:

```
SQL> EXECUTE DBMS_STATS.GATHER_SCHEMA_STATS('PLM',CASCADE =>true);
```

Calculate statistics on all tables and indexes in db schema PLM with 5% of the rows:

```
SQL> EXECUTE DBMS_STATS.GATHER_SCHEMA_STATS('PLM', estimate_percent => 5, CASCADE
=>true);
```

Drop all statistics of PLM schema objects. Optimizer is now running in rule mode.

```
SQL> EXECUTE DBMS_STATS.DELETE_SCHEMA_STATS('PLM');
```

For all schema objects, their must be statistics available to support the cost based optimizer. If tables and indexes are modified or created, statistics must be established.

Calculate statistics on all tables without statistics and their indexes in db schema PLM with 5% of the rows:

```
SQL> EXECUTE DBMS_STATS.GATHER_SCHEMA_STATS(ownname => 'PLM',options => 'GATHER
EMPTY', estimate_percent => 5, CASCADE =>true);
```

Calculate statistics on tables t_master_dat and their indexes in db schema PLM_ENTW with 10% of the rows:

```
SQL> exec sys.dbms_stats.gather_table_stats(ownname=> 'PLM_ENTW', tabname=> 'T_MASTER_DAT',
partname=> NULL , estimate_percent=> 10 ,cascade=> true);
```

Statistic information can be viewed e.g. in user_tables and user_indexes. These are information like average row length and number of rows.

Chapter 5

Appendix A

The most significant parameters of the predefined Database Configuration Assistant templates are described in this chapter.

Recommended Settings

Parameter	Value
db_name	plm
instance_name	plm
undo_management	AUTO
hash_join_enabled	FALSE
compatible	9.2.0.0.0
optimizer_index_caching	90
optimizer_index_cost_adj	50
timed_statistics	FALSE
characterSet	WE8ISO8859P15
nationalCharacterSet	UTF8

Template “plm_test”

Parameter/Setting	Value
db_block_size	2 k
db_cache_size (buffer)	75 MB
db_file_multiblock_read_count	64
shared_pool_size	32 MB
sort_area_size	524288
open_cursors	600
processes	80

pga_aggregate_target	24 MB
Tablespaces	local manageded
EDB	100 MB
EDB_IDX	100 MB
EDB_LOB	5 MB
EDB_TMP	5 MB
EDB_TMP_IDX	5 MB
Redolog file size	5 MB
archiveLogMode	FALSE

Template “plm_prod_small” 40 users max

Parameter/Setting	Value
db_block_size	4 k
db_cache_size (buffer)	100 MB
db_file_multiblock_read_count	32
shared_pool_size	32 MB
sort_area_size	524288
open_cursors	600
processes	80
pga_aggregate_target	24 MB
Tablespaces	local managed
EDB	300 MB
EDB_IDX	300 MB
EDB_LOB	5 MB
EDB_TMP	5 MB
EDB_TMP_IDX	5 MB
Redolog file size	5 MB

archiveLogMode	TRUE

Template “plm_prod_medium” 80 users max

Parameter/Setting	Value
db_block_size	8 k
db_cache_size (buffer)	250 MB
db_file_multiblock_read_count	32
shared_pool_size	50 MB
sort_area_size	524288
open_cursors	600
processes	180
pga_aggregate_target	40 MB
Tablespaces	local managed
EDB	1,5 GB
EDB_IDX	1,5 GB
EDB_LOB	5 MB
EDB_TMP	5 MB
EDB_TMP_IDX	5 MB
Redolog file size	10 MB
archiveLogMode	TRUE

Template “plm_prod_large” 120 user max

Parameter/Setting	Value
db_block_size	8 k
db_cache_size (buffer)	500 MB
db_file_multiblock_read_count	64
shared_pool_size	65 MB

sort_area_size	524288
open_cursors	600
processes	260
pga_aggregate_target	60 MB
Tablespaces	local managed
EDB	2 data files, each 1,5 GB
EDB_IDX	2 data files, each 1,5 GB
EDB_LOB	5 MB
EDB_TMP	10 MB
EDB_TMP_IDX	10 MB
Redolog file size	10 MB
archiveLogMode	TRUE

Template “plm_prod_huge” 150 users max

Parameter/Setting	Value
db_block_size	8 k
db_cache_size (buffer)	500 MB
db_file_multiblock_read_count	64
shared_pool_size	95 MB
sort_area_size	524288
open_cursors	600
processes	320
pga_aggregate_target	75 MB
Tablespaces	local managed
EDB	2 data files, each 1,5 GB
EDB_IDX	2 data files, each 1,5 GB
EDB_LOB	5 MB

EDB_TMP	10 MB
EDB_TMP_IDX	10 MB
Redolog file size	10 MB
archiveLogMode	TRUE

Kernel settings for templates

Plm_test, plm_prod_small

HP-UX Kernel Parameter		/usr/conf/master.d/core-hpux
SHMMAX	=	1073741824
SHMMIN	=	1
SHMMNI	=	100
SHMSEG	=	32
MAXUSERS	=	256
MAXUPRC	=	110
SEMMNS	=	210
SEMMNI	=	100
max_thread_proc	=	1024
maxfiles	=	256
Solaris Kernel Parameters		/etc/system
set shmsys:shminfo_shmmax	=	4294967295
set shmsys:shminfo_shmmin	=	1
set shmsys:shminfo_shmmni	=	100
set shmsys:shminfo_shmseg	=	32
set semsys:seminfo_semmns	=	210
set semsys:seminfo_semmni	=	100
set semsys:seminfo_semmsl	=	110
set semsys:seminfo_semvmx	=	32767
set semsys:seminfo_semopm	=	100
Linux Kernel Parameters		/proc/sys/kernel
SHMMAX	=	RAM / 2
SHMMIN	=	1
SHMMNI	=	100
SHMSEG	=	32
SEMMNS	=	210
SEMMNI	=	100
SEMOPM	=	100
SEMVMX	=	32767

Plm_prod_medium

HP-UX Kernel Parameter		/usr/conf/master.d/core-hpux
SHMMAX	=	1073741824
SHMMIN	=	1
SHMMNI	=	100

SHMSEG	=	32
MAXUSERS	=	400
MAXUPRC	=	210
SEMMNS	=	390
SEMMNI	=	190
max_thread_proc	=	1024
maxfiles	=	256
Solaris Kernel Parameters	/etc/system	
set shmsys:shminfo_shmmax	=	4294967295
set shmsys:shminfo_shmmin	=	1
set shmsys:shminfo_shmmni	=	100
set shmsys:shminfo_shmseg	=	32
set semsys:seminfo_semmns	=	390
set semsys:seminfo_semmni	=	190
set semsys:seminfo_semmsl	=	200
set semsys:seminfo_semvmx	=	32767
set semsys:seminfo_semopm	=	100
Linux Kernel Parameters	/proc/sys/kernel	
SHMMAX	=	RAM / 2
SHMMIN	=	1
SHMMNI	=	100
SHMSEG	=	32
SEMMNS	=	390
SEMMNI	=	190
SEMOPM	=	100
SEMVMX	=	32767

Plm_prod_large

HP-UX Kernel Parameter	/usr/conf/master.d/core-hpux	
SHMMAX	=	1073741824
SHMMIN	=	1
SHMMNI	=	100
SHMSEG	=	32
MAXUSERS	=	600
MAXUPRC	=	310
SEMMNS	=	570
SEMMNI	=	280
max_thread_proc	=	1024
maxfiles	=	256
Solaris Kernel Parameters	/etc/system	
set shmsys:shminfo_shmmax	=	4294967295
set shmsys:shminfo_shmmin	=	1
set shmsys:shminfo_shmmni	=	100
set shmsys:shminfo_shmseg	=	32
set semsys:seminfo_semmns	=	570
set semsys:seminfo_semmni	=	280
set semsys:seminfo_semmsl	=	290
set semsys:seminfo_semvmx	=	32767
set semsys:seminfo_semopm	=	100
Linux Kernel Parameters	/proc/sys/kernel	
SHMMAX	=	RAM / 2

SHMMIN	=	1
SHMMNI	=	100
SHMSEG	=	32
SEMMNS	=	570
SEMMNI	=	280
SEMOPM	=	100
SEMVMX	=	32767

Plm_prod_huge

HP-UX Kernel Parameter		/usr/conf/master.d/core-hpux
SHMMAX	=	1073741824
SHMMIN	=	1
SHMMNI	=	100
SHMSEG	=	32
MAXUSERS	=	760
MAXUPRC	=	380
SEMMNS	=	710
SEMMNI	=	350
max_thread_proc	=	1024
maxfiles	=	256
Solaris Kernel Parameters		/etc/system
set shmsys:shminfo_shmmax	=	4294967295
set shmsys:shminfo_shmmin	=	1
set shmsys:shminfo_shmmni	=	100
set shmsys:shminfo_shmseg	=	32
set semsys:seminfo_semmns	=	710
set semsys:seminfo_semmni	=	350
set semsys:seminfo_semmsl	=	360
set semsys:seminfo_semvmx	=	32767
set semsys:seminfo_semopm	=	100
Linux Kernel Parameters		/proc/sys/kernel
SHMMAX	=	RAM / 2
SHMMIN	=	1
SHMMNI	=	100
SHMSEG	=	32
SEMMNS	=	710
SEMMNI	=	350
SEMOPM	=	100
SEMVMX	=	32767