



Installation Instructions for

Oracle 9i Release 2 (9.2)

on

SuSE Linux Enterprise Server 8

Powered by United Linux 1.0

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Introduction

This document describes the step-by-step installation process of Oracle 9i R2 (9.2) on a Linux system **Powered by United Linux 1.0** (SuSE Linux Enterprise Server 8). For detailed instructions see the Oracle Installation Guide and the Oracle Administration Guide, both very good documents, that come with Oracle 9i R2. A must-read is the release notes document accompanying all Oracle products! For a selection of more Oracle documentation see <http://technet.oracle.com/>.

The Oracle Installation Guide provides a much more comprehensive overview over **all** the possible installation options. This document on the other hand uses only **one typical installation method** as an example. If you want to know all the details about the Oracle installer and the Oracle tools like the Database Creation Assistant, see the Oracle documentation.

This document is based on the Oracle Installation Guide provided by Oracle but leaves out the discussion of all available options and concentrates on providing one quick way to get Oracle installed and running!

SuSE maintains a special section of Oracle/UnitedLinux support webpages with information usable for all “Powered by UnitedLinux” systems at <http://www.suse.com/oracle/> -> “Support Matrix”.

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Oracle Products on Linux - SuSE/Oracle support matrix (see bottom of page)

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→ **Valuable Information**

Lots of interesting Information!

... and much more!

Links to Instructions!

	SuSE Linux					
Oracle	6.4	7.0	7.1	7.2	7.3	SLES-7
Database						
Oracle 8i						
8.1.6 (8iR2)	✓	✓	✓	✓	☐	✓ ✗
8.1.7 (8iR3)	☐	✓	✓	✓	✗	✓ ☐
Oracle 9i						
9i	✗	✗	✓	✓	✗	✓ ☐

What is “United Linux” (UL)

For a detailed description see <http://www.unitedlinux.com/>, this explanation here concentrates on technical and Oracle certification aspects of UL. We used the *SuSE Linux Enterprise Server 8* “Powered by UnitedLinux-1.0” as an example.

What is UL?

UL is a consortium of currently four companies to jointly develop a core Linux distribution used by all UL members. The focus is on “development” only, how the member companies market their products and what they do with the UL CDs they receive as a result of the development process is entirely up to the respective members (except that they are not allowed to make **any** changes to those UnitedLinux CDs)!

When you open your SLES-8 box you will find 4 CDs: One for “SuSE Linux Enterprise Server 8” and 3 labeled “United Linux 1.0, CD #1...#3”.

The UL CDs are **self-contained**, which means they are installable and contain a complete Linux system! This is what was used for the Oracle certification. The fourth CD contains add-on (“value add”) packages, the contents of this CD is different for each UL member company. The UL CDs on the other hand are **exactly** the same for each UL member.

The vendor “value add” CD **does not replace** any packages on the UL CDs! For example, there are no vendor specific kernels packages, there is only **one** kernel – the UnitedLinux kernel – for all UL based products.

What is on the vendor specific CD?

That depends on the vendor. On the SuSE Linux Enterprise Server (SLES) 8 CD, for example, you will find packages that give you additional YaST2 modules and other add-ons. None of them are essential for running Oracle though!

What if I install from the vendor CD?

You can start the installation with either UL CD #1 or with the vendor add-on CD. The difference is that if you start from the SuSE vendor CD your screen will read “SuSE Linux Enterprise Server 8” instead of “United Linux 1.0”, and you see the vendor add-on packages in the software selection instead of only the UL packages. Otherwise there is no difference! The installer will ask you to insert UL CD #1 immediately after start.

To install a minimum and Oracle certified system you need UL CDs #1 and #2 (#2 has the *gcc_old* package with gcc 2.95.3), and the “UL Service Pack #1” CD (or at least the latest kernel update).

What is a “Service Pack (SP)”?

Several times per year there will be a *Service Pack* released for United Linux. This SP is going to contain all patches and updates that have accumulated thus far.

If you are a SuSE customer: If you use YaST2 Online Update (YOU) to access the SuSE Maintenance Web you do not need the SP CDs since your system already has all the updates the SP contains. The SP is just a collection of patches that are available via *YOU*. It too is bootable!

Requirements

Hardware

For a detailed description of hardware- and disk space requirements see the Oracle Installation Guide that comes with Oracle 9iR2 for Linux. In general, we recommend a machine with at least two Intel or AMD CPUs and a fast I/O (disk) subsystem consisting of several physical hard disks on a RAID controller, with different disks available for the OS, Oracle and the database.

Memory requirements: We recommend a total of at least 2 GB total RAM - physical RAM of at least 256 MB but much better 512 MB and the rest as swap space. How much you actually need and how much of it should be physical RAM completely depends on how you are going to use the database and how many users are going to connect to it, and how your application works (does it do a lot of computing in the database, or does it pull the data to another tier, e.g. an application server, and does the processing there?). The extremes go from 512MB physical RAM for a slow single-user demo database to a big server system with several GB of RAM. Oracle provides sizing studies. This is an Oracle issue and not really a Linux issue. During Oracle certification UL-1.0 scaled successfully to far more than a thousand users on a 4 GB machine.

Software

- [United Linux 1.0 based Linux system](#)

The following vendors have United Linux 1.0 based Linux distributions: SuSE, SCO, TurboLinux, Connectiva.

- [Oracle 9i R2 CD or archive](#)

You need Oracle 9i R2 of course...

- [Patches/Service Packs for UnitedLinux 1.0](#)

Install the UnitedLinux patches after the operating system installation, and before the Oracle installation. The source of UL patches is the vendor you purchased your "Powered by UnitedLinux" system from!

- [Patches/Patchsets for Oracle 9i R2](#)

See Oracle Metalink. You must be an Oracle support customer to have access. The Oracle patches must be installed after the Oracle installation, obviously. You install patchsets using the Oracle Universal Installer. Each patch and patchset comes with detailed installation instructions.

- [SuSE Support Website for Oracle: <http://www.suse.com/oracle/>](#)

SuSE maintains a special section of support webpages for SuSE/UnitedLinux customers running Oracle.

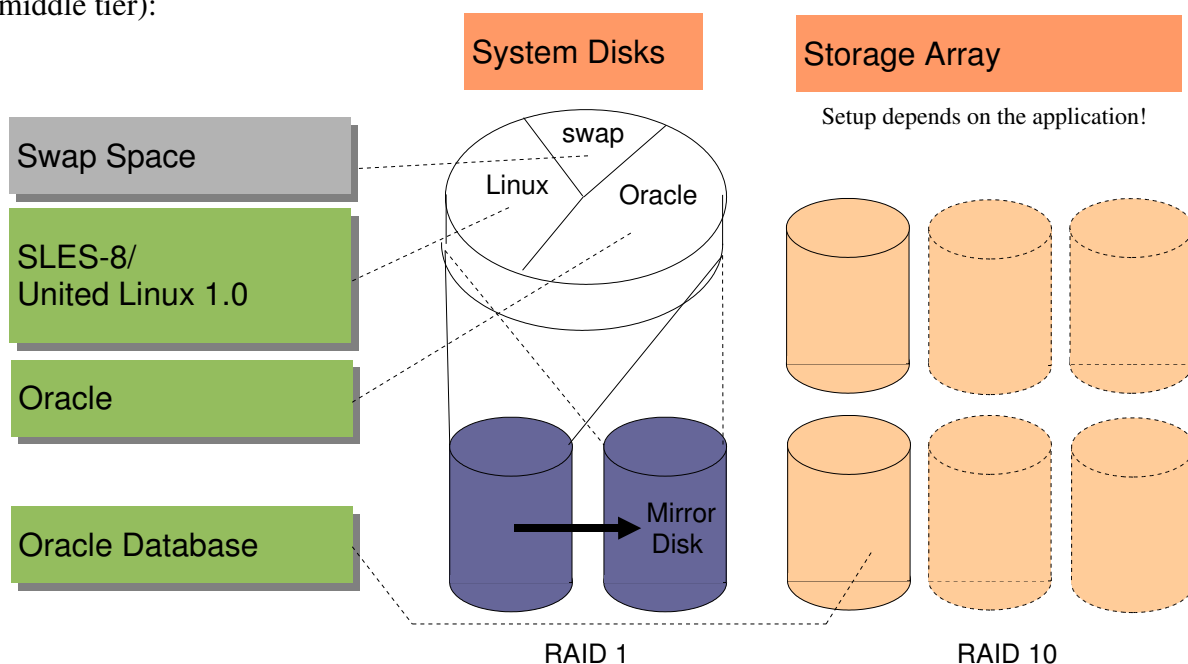
Please check the page for *Oracle 9i R2 on SuSE Linux Enterprise Server 8* for any news and additional information, reachable by clicking on the appropriate icon in the **Support Matrix** (direct URL: http://www.suse.com/oracle/db/9iR2_sles8.html).

Installation: SuSE Linux Enterprise Server

For complete instruction please have a look at the documentation that comes with SuSE Linux Enterprise Server. Here we only describe special aspects of an Oracle server installation.

Partitioning: Ideally you have partitioned your system in a way that allows you to install Oracle and the database files on different partitions than the OS. The advantage is that when you have to update the operating system at some point you can do a complete new, fresh installation and reformat the OS partition without losing your Oracle installation and/or data! We recommend to place the Oracle installation in `/opt/oracle`, for the only reason that this is what our add-on package `orarun.rpm`, described below, sets as default and because this is a Linux standard location (FHS – Filesystem Hierarchy Standard, part of LSB – Linux Standard Base) for such software. Feel free to choose any other location, though!

Here is an example for a setup we recommend for a production system (this is for the database, not the middle tier):



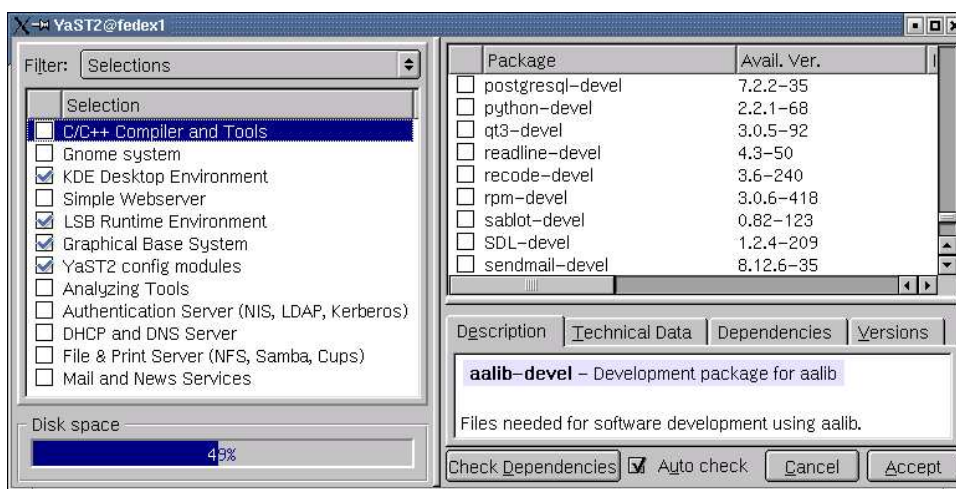
This document only considers the server part, the configuration of the storage array where the database itself will be stored depends on the application. There are Oracle performance guides available - in bookstores and for free from Oracle on OTN as online books and whitepapers - that deal with database administration. We do not need to concern ourselves with it at this point.

We suggest that you have at least two internal drives in the server unit, configured in a RAID-1 (mirroring) configuration in the hardware RAID controller of the server to protect against the loss of any one of the drives. There should be at least three main areas (partitions) on the disk (the virtual disk provided by the hardware RAID controller). One is the swap space, the other one is for the operating system - possibly divided further e.g. to put logfiles and the temporary directory in a different partition - and the third one is for the Oracle software.

You should give ca. 2-4 GB to Linux, at least 2 GB for swap and the rest is for Oracle. Note that on 32bit Intel the swap partition cannot be larger than 2 GB, so if you need more swap space you need more than one swap partition.

Software package selection: A good base to start is if you make these selections shown in the screenshot below in the software installation dialog during the Linux installation (or later). By default many more items will be installed, but this is really all you need.

The items in the left column are *Selections*, i.e. they are not individual packages, they represent a collection of packages. Each of these *Selections* is self-contained, i.e. if you select just (any) one you will get a fully functional system because each one contains the same core set of packages! By de-selecting a *Selection* you de-select all packages contained in this particular *Selection* but those packages also needed by another selection which is still active are not de-selected.



Note: This window shows only United Linux selections. If you install SLES-8 you get one more item ‘SLES Administration Tools’ at the bottom with additional YaST2 modules.

You do not need to select ‘C/C++ Compiler and Tools’!

Tip: Security related packages, some installed by default (only a sample):

- pam* (pluggable authentication modules, always installed)
- openssh* (Secure Shell – powerful encrypted default remote login service)
- cipe*, *vtun*, *freeswan* (IP tunneling to build VPNs)
- sslwrap*, *stunnel* (turn any inetd service into an encrypted service)
- cracklib* (password check)
- bastille* (security hardening program)
- aide* (intrusion detection system)
- seccheck* (security reports via via *cron*)
- nessus* (security scanner)
- saint* (security scanner)

After selecting the *Selections* above switch to *Search* in the top left of the installer window, marked ‘Filter:’. Search for *-* and make sure that they are selected for installation – the following packages: ***gcc_old***, ***glibc-devel***, ***libaio-devel***. All other packages you may need have already been selected since they are part of the *Selections* above!

Do **not** install/de-select any Java packages (since Oracle includes them already): Search for ‘java’ and de-select all packages displayed, which is 4 IBM-Java packages, plus the two packages *java2-jre* and *postgresql-jdbc*.

For your information, if you do not follow the above procedure:

Must Install:

- ✓ (Included in the above selection) Make sure that **X-Window** is installed and running, or that at least the X-Window libraries are present for a remote installation.
- ✓ You will also need to have the basic developments tools installed, like **make**, **gcc_old (2.95.3)**, and the **binutils** package.
- ✓ **Which compiler:** UnitedLinux-1.0 has been certified using the **gcc_old** (gcc 2.95.3) package rather than the **gcc** package (gcc 3.2). The **gcc_old** package installs gcc 2.95.3 in **/opt/gcc295/**, so you can have both gcc versions installed at the same time – which one you use depends on your path (which “gcc” executable is found first)!
- ✓ The **orarun** package.
- ✓ To view the Oracle documentation you need a **web browser** (e.g Mozilla or KDEs Konqueror) and a **PDF reader** (e.g. Adobe Acrobat Reader™, gv/ghostscript or xpdf).
- ✓ You may need to install package **pdksh**, which provides a Korn shell. Some Oracle scripts require this shell.
- ✓ **Java:** The Oracle Java GUI tools like **dbca** use their own JRE (Java Runtime Environment) bundled with Oracle. Oracle includes both version 1.1.8 and 1.3.1 of the JRE and also the JDK, so there is no need to install any additional Java package bundled with UnitedLinux 1.0.
- ✓ You should install the **orarun** package (see appendix and text below).
- ✓ You **must** install the latest UnitedLinux kernel update! Oracle was certified against an update kernel, the original UL-1.0 kernel is NOT certified!

Should NOT Install:

- x Do not install OpenLDAP, an LDAP directory server, if you do not plan to use it or if you plan to use Oracle Internet Directory (OID), which is Oracle's LDAP service.
- x We recommend you do not install any other server software. Production Oracle servers should run only Oracle and nothing else. One exception could be a Mail Transfer Agent (MTA) like sendmail or postfix.
- x Do not replace any core components of the Linux system with packages from outside sources. Oracle is supported and certified only with the original UnitedLinux 1.0, plus UL patches and patchsets. This is especially true for key components like the kernel. You loose certification and support if you use anything but the kernel UnitedLinux provides.

After the OS Installation

Required patches for the operating system: In order to get a certified Oracle system you have to at least update the kernel, but we highly recommend to install all applicable patches because they fix everything from stability to security problems and also provide support for new hardware.

To get an Oracle certified system you need at least the following kernel version:

- k_smp-2.4.19-196.i586.rpm - SMP kernel
- k_athlon-2.4.19-200.i586.rpm - Optimized for AMD Athlon
- k_deflt-2.4.19-207.i586.rpm - Single CPU
- k_debug-2.4.19-164.i586.rpm - Debug kernel
- k_psmp-2.4.19-201.i586.rpm - Support for *very* old Pentium CPUs
- kernel-source-2.4.19.SuSE-133.i586.rpm - for a self-compiled kernel (discouraged)

SuSE and Oracle tested and expect you to use the SMP kernel – a single CPU works but is not recommended for a production Oracle server.

Service Packs vs. SuSE Maintenance Web: There are two ways to install the required patches. You can use a United Linux Service Pack or you can use the SuSE Maintenance Web. The Maintenance Web contains the same patches as the Service Pack (naturally), and usually more – since the Maintenance Web is constantly updated with the latest patches while the Service Packs are released only a few times (2-4) per year.

Remote access: After the OS installation the only way to access the system remotely is via Secure Shell (*ssh*). Anything else, e.g. *telnet*, *ftp*, or *rsh*, will not work! For security reasons UnitedLinux by default does not activate the *inetd* daemon providing those services, they have to be enabled explicitly e.g. by editing */etc/inetd.conf* to enable services and then by calling (as *root*) "*chkconfig inetd on; rcinetd start*".

Special Partitioning: Set up the space for Oracle if you didn't do so already. The database files should be on different disks than the operating system, but the Oracle software itself should at least go into a different partition than the operating system (see the discussion above). We recommend a clean separation! Read the *Oracle 9i Administrator's Reference* (distributed with 9iR2) about the Oracle Flexible Architecture (OFA), the disk- and mount point setup Oracle recommends.

Since there are many different methods and all have their use and depend a lot on how the database is going to be used, we will not make any suggestions. A small demo/test system can very well have everything, OS, Oracle and data files in one partition, but a big production database on a server with many disks may have a very different setup.

Logical Volume Management and possibly also using raw I/O are more sophisticated methods to manage space. These make sense for larger systems and databases. See the Logical Volume Manager whitepaper at <http://www.suse.com/en/whitepapers/lvm/>.

Kernel parameters are something you do not need to worry about if you use our *orarun* package, we will set them dynamically during runtime! Refer to either the *Oracle Installation Guide for Linux* for which variables to set to what values, or simply read on, install the *orarun* package (see Appendix), and get that information from the file */etc/sysconfig/oracle*. For the installation you do not need to do this in any case, only for actually running Oracle.

Users and groups for Oracle (user *oracle*, groups *oinstall*, *dba*) are setup automatically when you install package *orarun* as described below.

Environment variables are another subject we will take care of during the installation, by installing a package *orarun* SuSE created to make these things easier.

Installation: Oracle 9i R2

Starting point: A plain UnitedLinux or a Linux distribution ‘Powered by UL’ has been installed and all partitioning has been done. The two screenshots on this page depict SuSE Linux Enterprise Server 8 but the only difference to any other UL based Linux is the logo!

(Skip to next page ‘Option 2: Remote installation’ if you are not working on the monitor attached to the machine you are installing on!)

Option 1: Local installation

1. Depending on if you have a GUI login window or are on a text console:
 Start X-Window and login (as yourself, the user you setup during the system installation). Or the other way around, depending on if you booted into the *xdm* runlevel 5 (X-Window is always on) or into the *cgonsole* runlevel 3 (X-Window is off by default, console login).

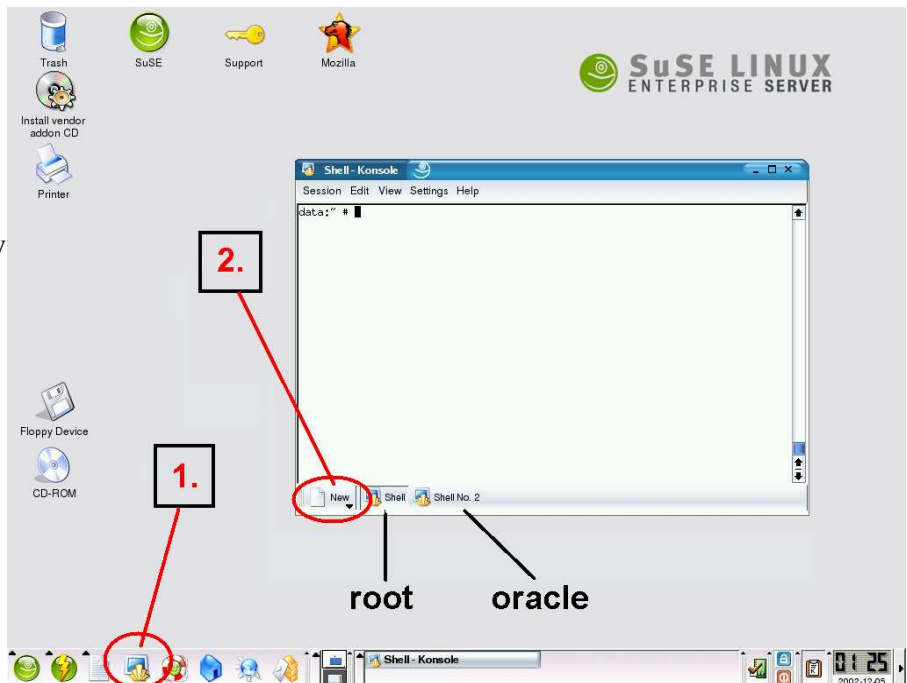
The picture shows the default SuSE login screen which you get if you configured X-Window during the installation process **and** included the KDE packages in the installation.



Click on the icon representing the user, or enter the user name manually. Then enter the password - note that you will not see anything you type for security reasons (someone might be looking over your shoulder, for example). We suggest to keep *KDE*, then press *GO*.

2. Open two *xterms* or KDE *konsoles*, or simply anything that provides a *shell* (a command line prompt).

See the picture, this is how your screen should look like afterwards. First (1.) you open a KDE *Terminal*, then you press the *New* button (2.) to open a second shell, and within the terminal window you can switch between the two shells by pressing the two buttons, marked *root* and *oracle* in the picture.



Option 2: Remote installation

1. You must have an X-server running on your local system to display the Oracle installer window running on the remote Oracle server. You need an X-server only for the connection for user *oracle*, but not for the part of the installation that is run as *root*.

2. Login to the machine over the network. You have several options:

- Secure shell:

```
ssh -X -l oracle remote-machine.yourdomain.com
```

SSH automatically forwards X-server connections!

- Telnet or rsh: You must have enabled those services on the server, by default they are turned off after a UL-1.0 installation – see above under ‘Pre-Installation’.

a) Enable remote Oracle server to connect to your X-server:

```
xhost + remote-machine.yourdomain.com
telnet remote-machine.yourdomain.com
export DISPLAY=your-desktop.yourdomain.com:0.0
```

Shell #1 (*root*):

3. To become user *root*, execute this command and enter the *root* password when prompted for it. Note that you will not see what you type at the password prompt, as always in a Unix system.

```
su -
```

Now you are logged in as the administrator - but only in this shell, everywhere else you are still the regular user you logged in as.

4. This package is on Service Pack CDs but not in the SuSE Maintenance Web. You can use the one on the Service Pack CDs or **get the latest** package *orarun.rpm* and install it:

```
wget ftp://ftp.suse.com/pub/suse/i386/supplementary/
commercial/Oracle/sles-8/orarun.rpm
rpm -Uvh orarun.rpm
```

5. Optional, since the defaults are okay for most databases: Check and edit file **/etc/sysconfig/oracle**

A description of this file is in the appendix of this document, and it comes with a lot of inline commentary for every single item.

6. Check the two files **/etc/profile.d/oracle.[c]sh**

There are two files for setting environment variables. The one ending in *.csh* is for C-shell users, the other one ending in *.sh* for Bourne shell users. Default in UnitedLinux is a Bourne shell, but you should set **both** because some Oracle shell scripts use C-shell!

The three most important variables are ORACLE_BASE, ORACLE_HOME and ORACLE_SID. For a detailed description of these and other environment variables used by

Oracle please see the Oracle 9iR2 Administrator's Reference and the Installation Guide!

By default UnitedLinux points ORACLE_BASE to the directory `/opt/oracle`, so if you do not change this setting this is where Oracle will get installed.

7. Run the command to set the kernel parameters via the just installed runlevel script, which is part of the *orarun* package:

```
rcoracle start
```

Ignore any error messages you get about ORACLE_HOME not found and the like – we have not installed Oracle yet so this is expected!

8. Prepare the Oracle user. To set password for the *oracle* user execute the command:

```
passwd oracle
```

9. **Optional:** Create extra `/home/oracle` for oracle user. By default it is in `/opt/oracle` since UnitedLinux by universally accepted standards is not allowed to install anything into the `/home` directory. Execute the following commands to create a full home directory:

```
cp -a /etc/skel/ /home/oracle  
chown -R oracle:oinstall /home/oracle  
usermod -d /home/oracle oracle
```

10. If you have an Oracle CD, mount CD-ROM, insert it into the CD-ROM drive and mount it by positioning your mouse pointer over the CD-ROM icon on your KDE desktop, then press the right mouse button and select *Mount* in the menu that appears.

Alternatively, just execute this command in the *root* shell that does the same:

```
mount /media/cdrom
```

Shell #2 (*oracle*):

11. Switch to the other shell and become user *oracle* by executing the command (do not use "su", "sux" takes care of the X-Window environment):

```
sux - oracle
```

12. If you use a CD, do **not** change into the Oracle source directory (e.g. `/media/cdrom`), remain in user *oracle*'s home directory. Start the installer (assuming you have a CD, otherwise adapt the path to wherever your Oracle installation source is located if it is not a CD):

```
/media/cdrom/runInstaller
```

If it does not start:

There is an installation problem on non-i686 architectures, when running the Oracle installer on any system where the `arch` command returns anything else but "i686". This is not a problem with the processor itself, just with the name. For background info see the SuSE support webpages for Oracle 9iR2 on SuSE Linux.

To workaround this problem do this: Start the installer and wait for the error, which will be something like "jre not found".

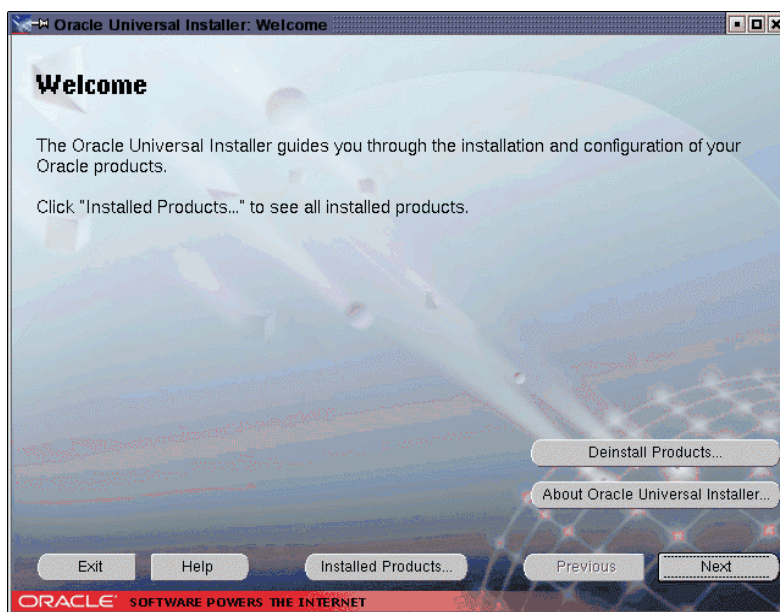
After you get the error the installer aborts, and you must execute the commands below (no need to switch to root). Afterwards just restart the installer with `runInstaller`, which this time will work:

```
cd /tmp/OraInstall/jre/bin/  
ln -s i686 i586  
cd ../lib/  
ln -s i686 i586
```

Oracle Universal Installer:

13. This is the welcome window of the Oracle Universal Installer and what you should see after starting it.

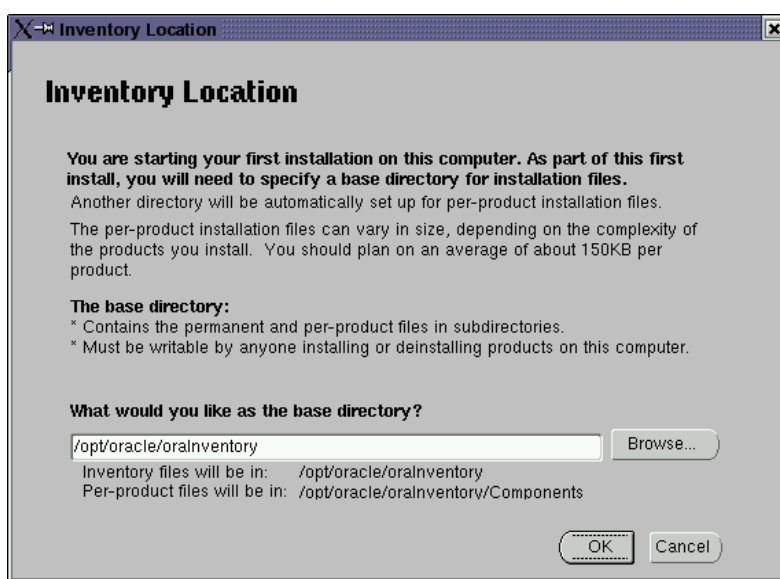
Press *Next*.



14. You will see this window only if no Oracle inventory exists yet (e.g. first installation of any Oracle product on this machine).

Inventory location: The text in this window is somewhat confusing. This is **not** about where to install Oracle software, this is only about the inventory database for the Oracle Universal Installer, so that it can keep track of which Oracle software and which components are installed and where.

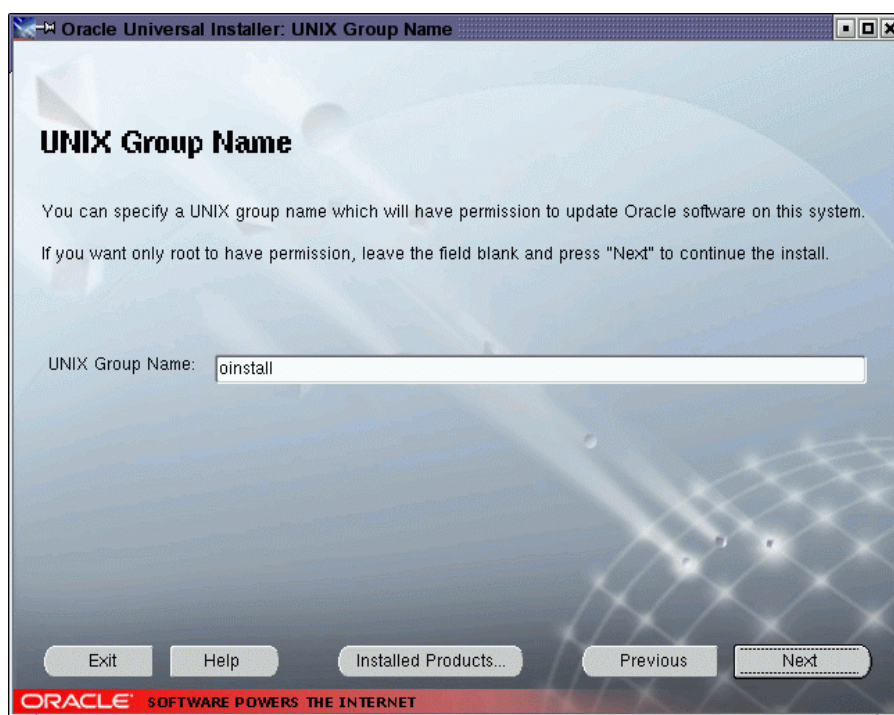
The suggested place is just under `ORACLE_BASE`.



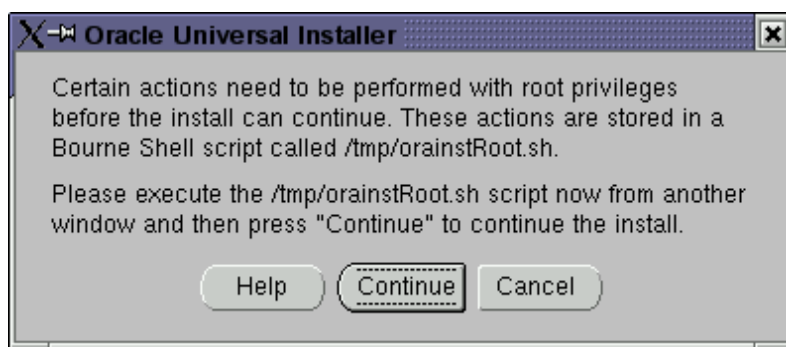
15. You will see the following two windows **only if there is no file `/etc/oraInst.loc`** yet on your machine, which this step will create.

The second sentence in this window is useless, since you should **never** start the Oracle Universal Installer as *root*. What it should say is that if you leave the field blank only the user you are running the installation as will be able to update the Oracle software.

We put the group *oinstall* in the field, but since only user *oracle* is a member of this group by default this is equivalent to leaving it blank, but leaves you with the flexibility to add user names to this group later should you wish so.



When this gray window pops up after you pressed *Next* in the previous screen *UNIX Group Name*, switch to the *root* shell window temporarily:



Shell #1 (*root*):

Just do what the text says and run the script!

Afterwards press *Continue* in that gray Oracle Installer window to continue with the installation.

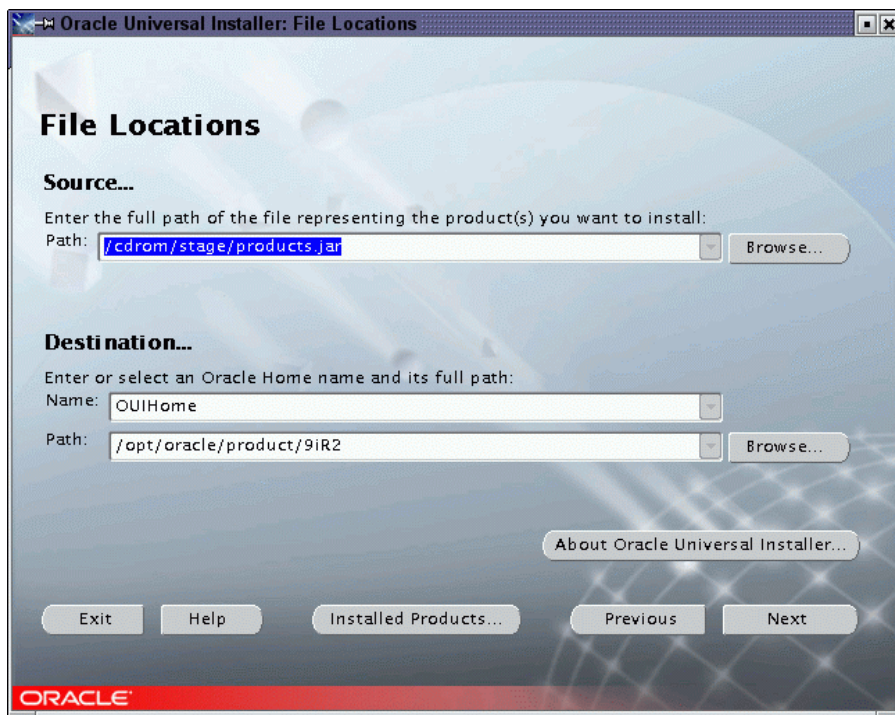
This is the end of this step. It creates a global Oracle Installer configuration file `/etc/oraInst.loc` with only two entries which will be used by Oracle Universal Installer for any other Oracle product as well. If this file exists this step does not exist and the message window won't come up.

Oracle Universal Installer:

16. The destination for the installation is already okay, the installer simply takes the value of ORACLE_HOME.

Should you want a different value you should edit the setting for the variable ORACLE_HOME as well (e.g. in `/etc/profile.d/oracle.sh`).

Press *Next*.



17. Select the installation type.

Info: The client tools (second item) are always included when you select any of the other options.

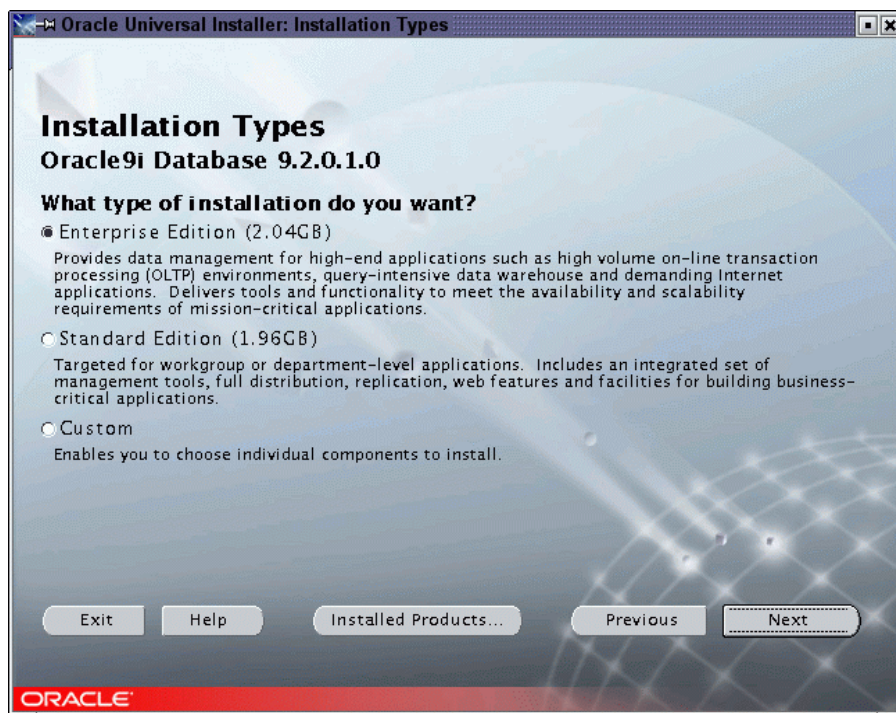
For these instructions we selected the first item, the **database server installation**.

Press *Next*.



18. You get three more choices now.

Tip: If you select *Custom* or not will also have significance at the end of the installation process when the Network Assistant and the Database Creation Assistant are run. In a *typical* installation those tools will perform a default operation, in a *custom* installation they will be much more interactive and will let you set a lot of parameters.



19. Database configuration.

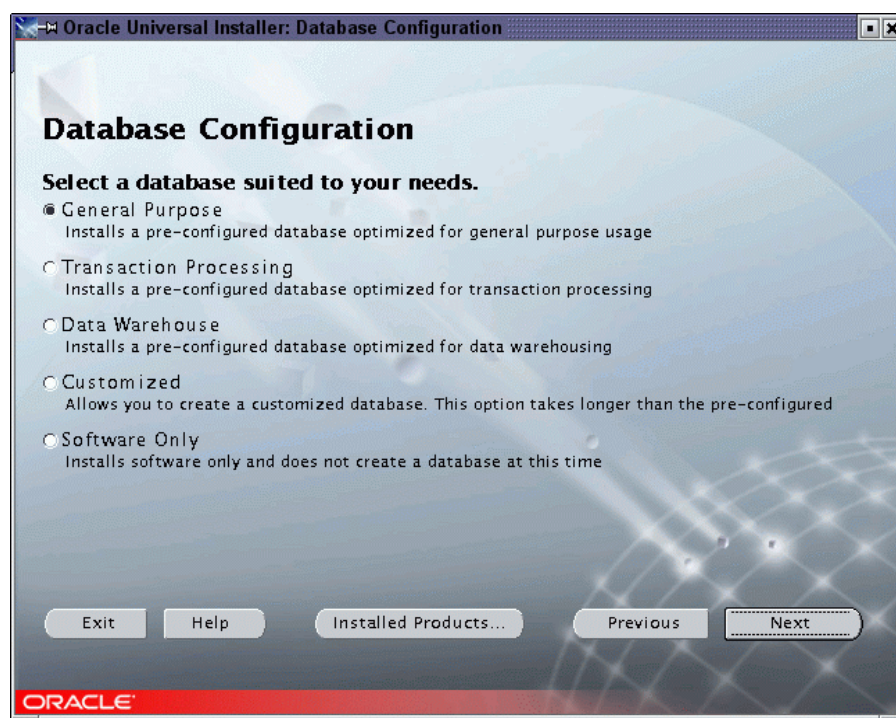
At this place you can select what kind of database will be installed as the demo database.

Customized will allow the selection of a lot of options and at the end of the software installation process will start the Database Creation Assistant which allows almost total customization.

Recommended:

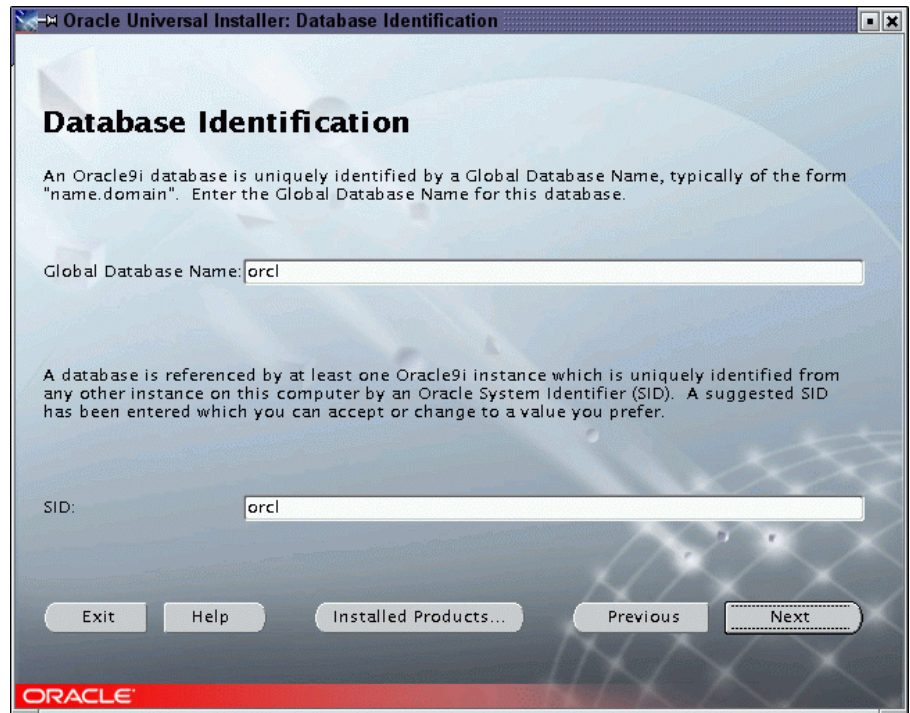
Software Only will skip the database creation entirely. We recommend to use this option even

though for the purpose of example we don't do it here! This gives you a chance to install any Oracle patchsets before creating a database which would then have to be upgraded!



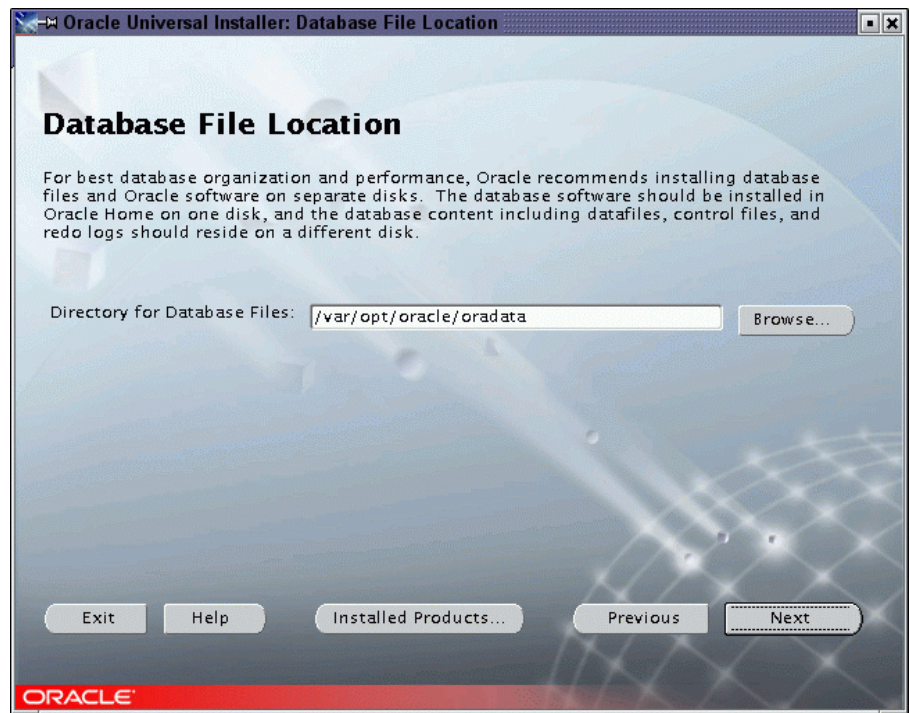
20.Database identification.

Select the name and the system identifier.



21.Database file location

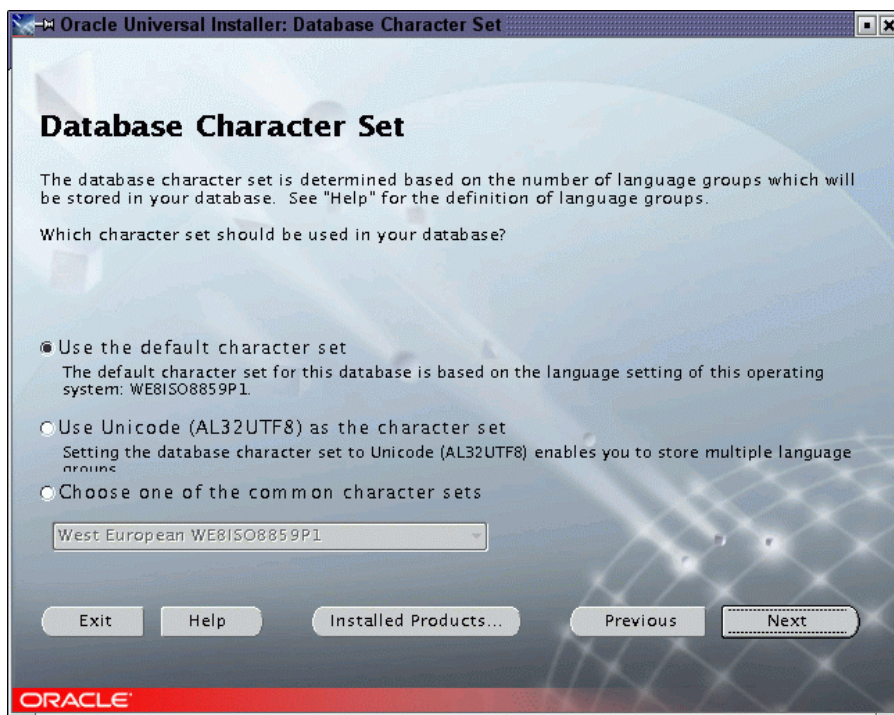
All the database files will be stored in this location.



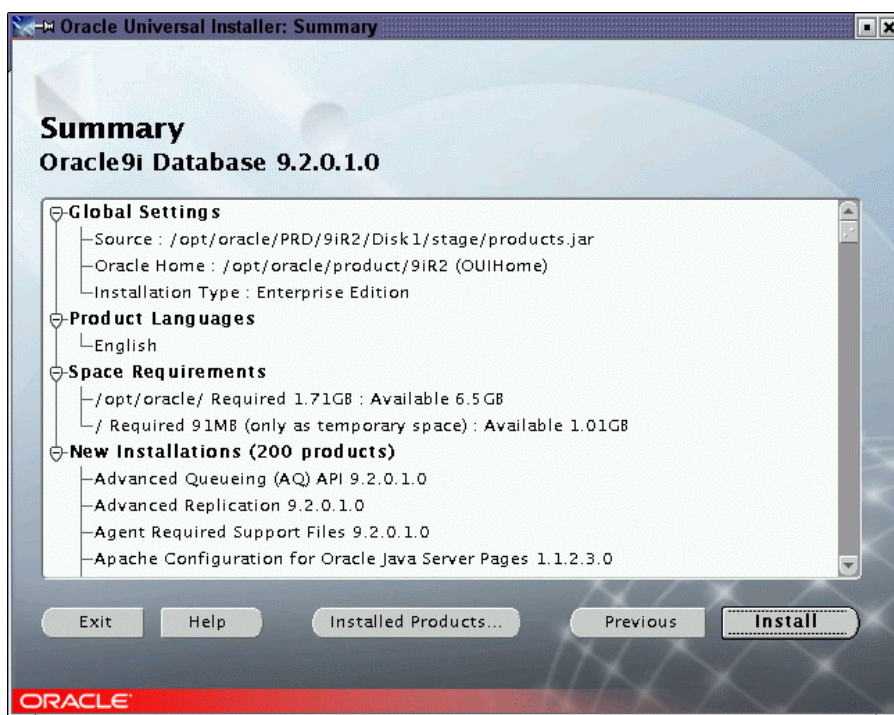
22.Database character set.

This choice is important:

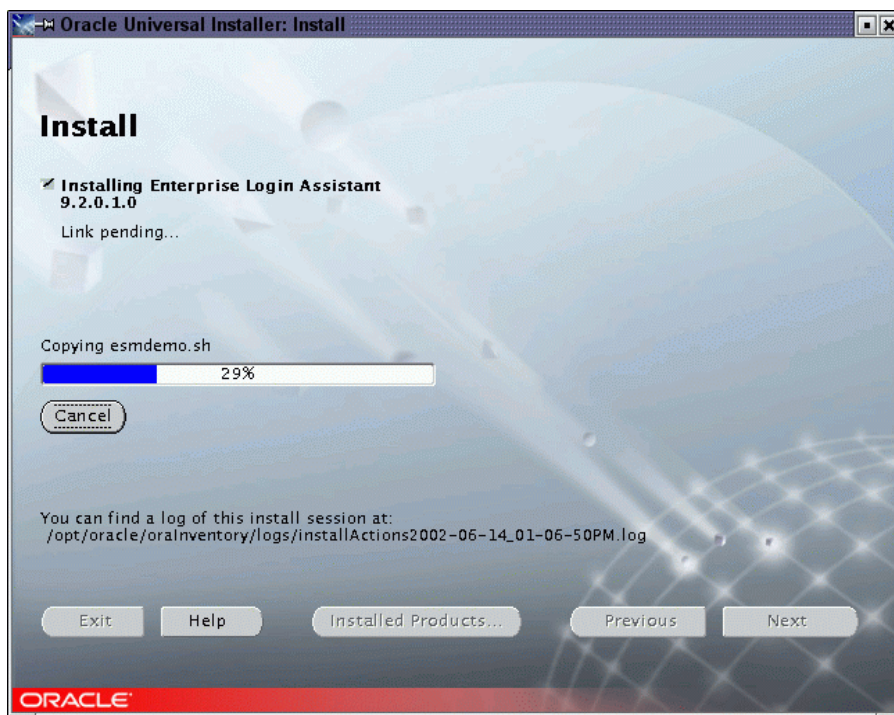
It is possible to change character set after a database is created, but it can be an expensive operation! This is documented in the Oracle 9iR2 Globalization Support Guide.



23.Summary screen - review your settings and press *Install* and go and have a cup of coffee, this will take quite a few minutes.



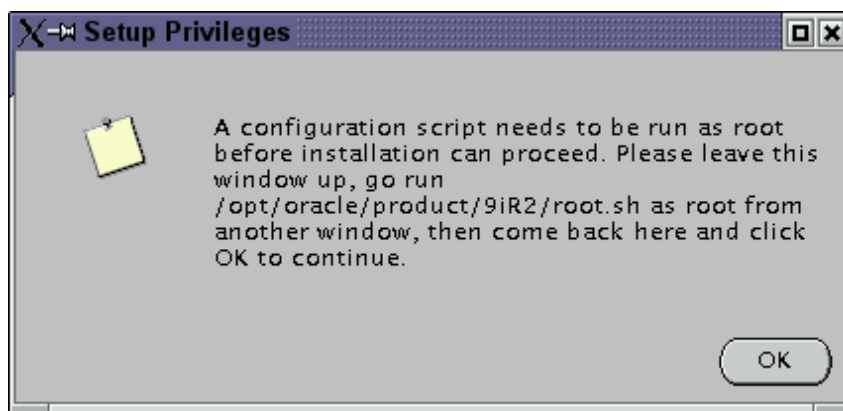
This can take a few minutes or a half hour, depending on how fast your system is.



24. After some time:

When the gray window with the message that tells you to run *root.sh* pops up we have to do a few things in the two terminals before we can continue with the Oracle Installer.

Do not press OK yet!



25. Open files `$ORACLE_HOME/bin/genclntsh` and `$ORACLE_HOME/bin/genagtsh` in an editor. Look for 'PATH', which will send you to a line that looks like this (or similar):

```
PATH=/bin:/usr/bin:/usr/local/bin:$PATH
```

Change it so that it looks like this:

```
PATH=/opt/gcc295/bin:/bin:/usr/bin:$PATH
```

You also have to edit the two makefiles `$ORACLE_HOME/network/lib/env_*.mk` (two files!). Both contain a hard-wired path to `/usr/bin/gcc`. Look for "gcc" and remove the `"/usr/bin"` in front of it (in both makefiles there will be a plain "gcc" but also one occurrence in each of the above).

26.Run this command:
relink all

The *orarun* package will have set your PATH to include */opt/gcc295/bin* as the first element (via */etc/profile.d/oracle.sh* but it does so for user *oracle* only) so the *relink* command will find and use gcc 2.95.3.

Shell #1 (root):

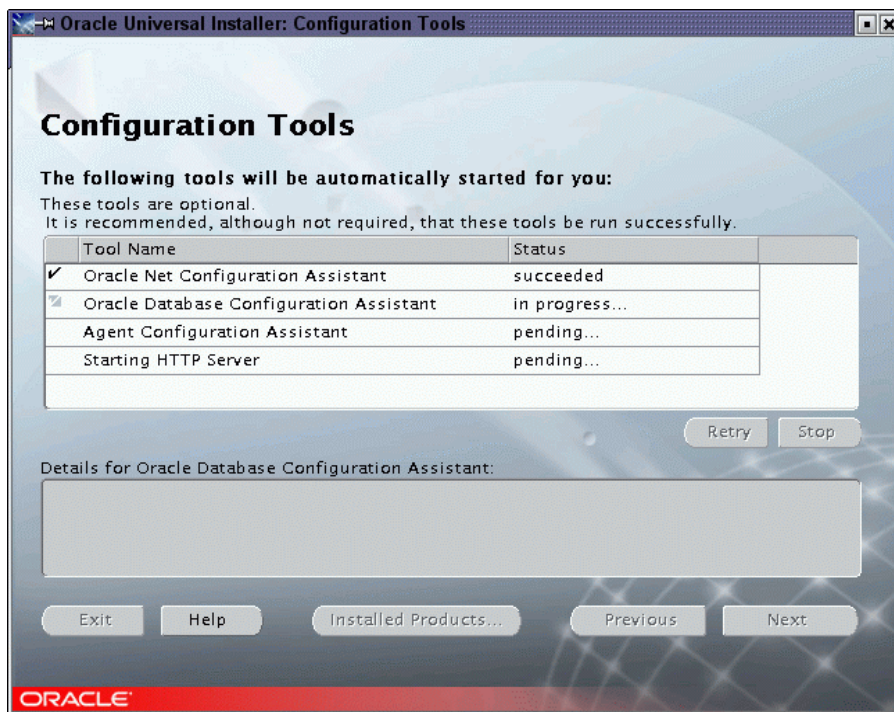
27.Run the script as the Oracle Installer says:
\$ORACLE_HOME/root.sh
Wait until it is finished, which may take several minutes.

Oracle Universal Installer:

28.**Now** you can close the gray message window by pressing *OK!*

29.The Oracle Installer will now configure Net8, create a demo database, and start the Apache webserver that comes with Oracle.

At this point Oracle is **fully installed** and if any of these tools fail it does not really matter. You can always call them on the command line manually (*netmgr* to create or edit a Net8 configuration (for experts), *netca* to create a Net8 configuration using a wizard (easier), *dbca* to create a database).



Net8 Configuration Assistant (*netca*)

Configure Net8. Usually, in a *Typical Installation* (vs. *Custom*), the installer will start the *netca* tool to do a *Typical Configuration* and it will just do that, no window is displayed. The connect string to use to connect to the database through Net8 will be the name of the database selected at the beginning - not the SID, the name! - plus the machines DNS domainname).

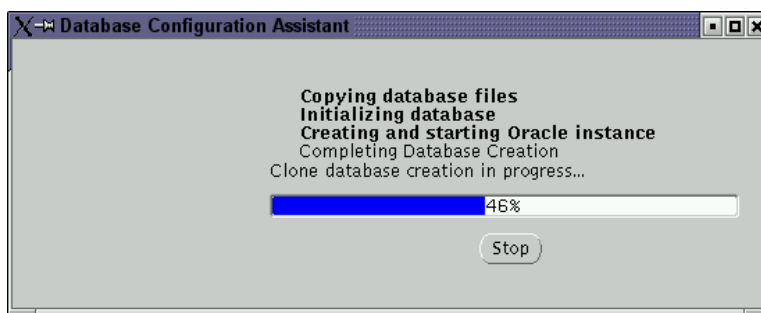
Example for db-name=orcl and domain=us.oracle.com: connect to the database using
sqlplus scott/tiger@orcl.us.oracle.com

Database Configuration Assistant (*dbca*)

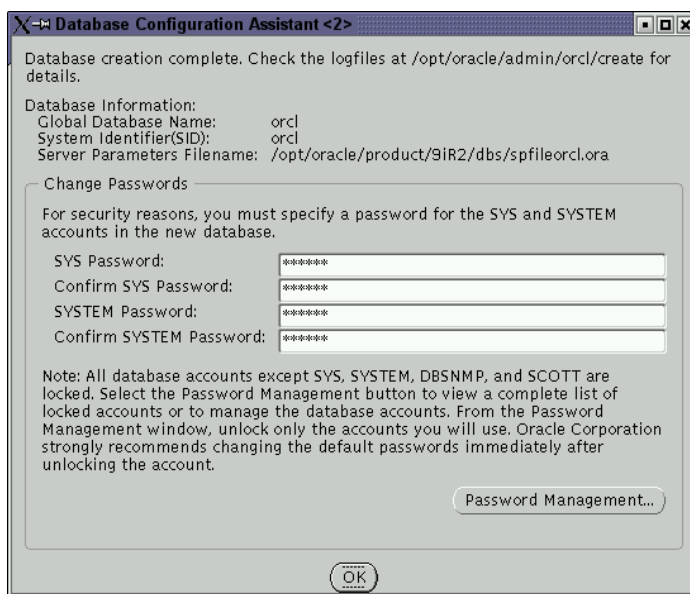
Create a demo database.

If you selected a *Typical* configuration at the beginning you are not asked any (more) questions.

Since we selected a *Typical* installation we get a default database copied into the system, already created and ready to be used immediately. No parameters like tablespace sizes can be set. In a *Custom* installation or when started from the command line this tool will offer a **lot** of dialog boxes!



At the end we get a summary of the database name and the system identifier, and we get to choose some passwords for the database administration.



30. The end. Select *Next Installation* e.g. to install Pro-C/C++, or exit the installer.

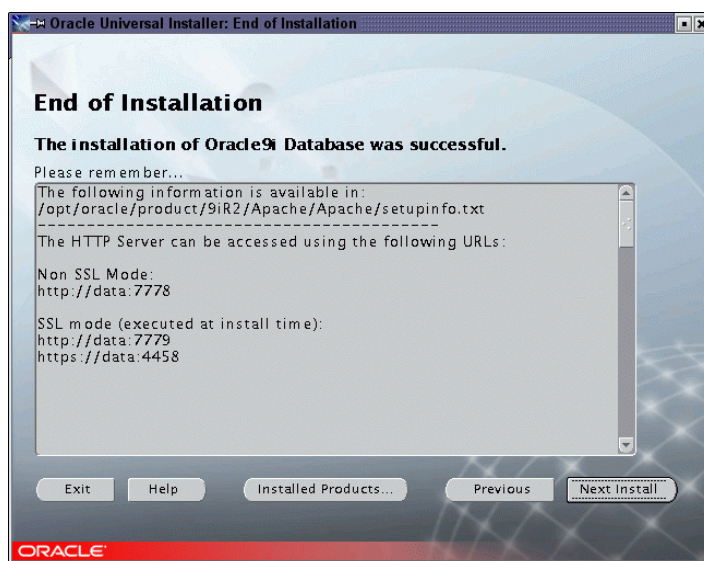
Now you should install the latest Oracle patchset, e.g. 9.2.0.3

Please note that due to an Oracle bug (see Metalink) you cannot use the same installer instance for multiple installations, i.e. you have to exit and start a new installer session!

Installer crashes: If you start the installed Oracle Universal Installer (i.e. from

`$ORACLE_HOME/bin/runInstaller` and not the one from the Oracle CD) the installer crashes during a patchset installation. To prevent this crash:

In directory `$ORACLE_BASE/oui/bin/linux/`, type the command
`ln -s libclntsh.so.9.0 libclntsh.so`



Please check <http://www.suse.com/oracle/> -> *Support Matrix* for any updates to these instructions!

END

Appendix – Package *oraron.rpm*

Package information

Name : oraron

License : GPL

Summary: Environment for running Oracle products

Description: This package

- sets the Oracle environment variables for each user, like ORACLE_HOME and PATH
- sets the recommended kernel parameters, e.g. SHMMAX
- provides for automated start/stop of Oracle processes at system startup/shutdown

You may want to or even have to edit `/etc/profile.d/oracle.[c]sh` (environment variables), `/etc/sysconfig/oracle` (which components to start/stop, values for kernel parameters).

File list:

Shell script: `/etc/init.d/oracle`

Shell variables: `/etc/profile.d/oracle.csh`

C-Shell variables: `/etc/profile.d/oracle.sh`

Shell variables: `/etc/sysconfig/oracle`

Documentation: `/usr/share/doc/packages/oraron/README`

Plus: Several symbolic links.

1.) It provides the environment variables for running Oracle. It does so for all users, by placing it in the `/etc/profile.d/` directory, and it provides a file each for Bourne shell users and for C shells (UnitedLinux default shell is *bash*, a Bourne shell). Some administrators may not like to have an Oracle environment set for all users, in this case just put the word “exit” at the very top of the file!

2.) The package also provides a script for **automated startup and shutdown** (when the system starts up or shuts down) of the Oracle database and of other Oracle components like the Apache webserver or the listener. Which components should be started by the script can be controlled by setting certain variables to *yes* or *no* in the text file `/etc/sysconfig/oracle`

3.) The startup script also takes care of **setting the kernel parameters** for running Oracle. This is because as of kernel 2.4 all the parameters that need be set according to the Oracle recommendations are dynamically (during runtime) adjustable, so no kernel rebuilding is necessary! The file storing the values is `/etc/sysconfig/oracle`. Have a look and edit it according to the instructions embedded in that text file! For small to medium databases no values need to be adjusted at all since UnitedLinux already provides reasonable defaults.

Note that the startup script does its two tasks - setting kernel parameters and starting/stopping Oracle processes - independent of one another, so even if `START_ORACLE_DB` is set to “no” the kernel parameters will still be set if this is set to “yes” (which is the default).

4.) This package has dependencies on the UL packages *pdksh*, *gcc_old*, *make*, *binutils*, *glibc-locale*, *glibc-devel*, *libaio*, *libaio-devel* – all of them are necessary for a successful Oracle installation. *libaio* is needed for asynchronous I/O.