Requirements for Installing Oracle 9iR2 64-bit on RHEL 4 x86-64 (AMD64/EM64T) (Doc ID 353529.1)

In this Document

APPLIES TO:

Oracle Database - Enterprise Edition - Version 9.2.0.1 to 9.2.0.8 [Release 9.2]
Linux x86-64

PURPOSE

Following requirements needs to be met for a successful installation of Oracle RDBMS Enterprise Edition version 9.2.0.x on Red Hat Enterprise Linux AS/ES 4.0 (RHEL4) on platform Linux x86_64 .

It is NOT the purpose of this NOTE to repeat every "how-to" step that is presented in the 9iR2 Installation Guide manual. For example this NOTE does not include how to create the Linux OS account named "oracle", nor does it cover how to set environment variables. Both are adequate covered in Chapter 2 "Oracle Database Preinstallation Requirements" of the 9iR2 Installation Guide manual.

You can download the base 9.2.0.4 from following URL. But you require a valid "edelivery" account for download.
http://edelivery.oracle.com/EPD/Download/get_form?egroup_aru_number=10285079

As can be observed in the Certifications for 9iR2 on x86_64 RHEL4, Oracle RDBMS Enterprise Edition version 9.2.0.7 is the minimum required version. You will begin with a "software only" (no database) installation of 9.2.0.4, and immediately patch it to 9.2.0.7. The DBCA can then be used to create a 9.2.0.7 database. (A new or custom database will be at 9.2.0.7, a template database will be at 9.2.0.1. - reference [Note 339614.1](#))

You can download the 9.2.0.7 patchset from Metalink as [patch 4163445](#).   But you require a valid Metalink account for download.

SCOPE

The intended audience for this note is Oracle DBA's and customer's wanting to install Oracle 9iR2 64-bit on Red Hat Enterprise Linux 4.0 x86-64 (AMD64/EM64T). Since it is the expressed goal to keep Oracle Enterprise Linux functionally IDENTICAL to RHEL, this NOTE is also completely applicable to 64-bit (x86_64) OEL 4 update 4 or greater.

DETAILS

1. Install the required OS components

- This list is based upon a "default-RPMs" installation of RHEL AS/ES 4 update 1. When a newer "update" level is used, the RPM release numbers (such as 2.4-9.1.87) may be slightly higher (such as 2.4-9.1.93 or 2.4-9.2.37). This is fine so long as you are still using RHEL AS/ES 4 RPMs.
- glibc-kernheaders-2.4-9.1.87.x86_64.rpm
- glibc-headers-2.3.4-2.9.x86_64.rpm
- glibc-devel-2.3.4-2.9.x86_64.rpm   <
- compat-gcc-32-3.2.3-47.3.x86_64.rpm
- compat-gcc-32-c++-3.2.3-47.3.x86_64.rpm
- libstdc++-devel-3.4.3-22.1.x86_64.rpm
- libaio-0.3.103-3.x86_64.rpm

- **Please do not rush, skip, or minimize this critical step.** This list is based upon a "default-RPMs" installation of RHEL AS/ES 4. Additional RPMs (beyond anything known to Oracle) may be needed if a "less-than-default-RPMs" installation of RHEL AS/ES 4 is performed. For additional information on "default-RPMs", please see Note 376183.1, "Defining a "default RPMs" installation of the RHEL OS"

The x86-64 packages are on the Red Hat Enterprise Linux 4 x86-64 distribution. The i386 packages are also on the Red Hat Enterprise Linux 4 x86-64 distribution.

The command syntax to differentiate between installed i386 RPMs and installed x86-64 RPMs is presented in the last item of the "Additional Notes" section below.

NOTE: i386 packages might require the --force option during installation if the 64-bit version of the same package is already installed. For example, "rpm -ivh --force glibc-devel-2.3.4-2.9.i386.rpm" may be required.

2. Configure the Unix environment

The first **critical** environment item is related to the gcc v3.2 and g++ v3.2 RPMs that were installed above. Run these commands:

    mv /usr/bin/gcc /usr/bin/gcc.orig
    mv /usr/bin/g++ /usr/bin/g++.orig
    ln -s /usr/bin/x86_64-redhat-linux-gcc32 /usr/bin/gcc
    ln -s /usr/bin/x86_64-redhat-linux-g++32 /usr/bin/g++

If the "mv" (move) command lines above return an error, it only means that your system did not have a pre-existing /usr/bin/gcc or /usr/bin/g++ to rename.

Next, the following environment settings are required for the Unix user performing the installation (eg. oracle) :

     umask needs to be set to 0022

    % echo $LD_ASSUME_KERNEL
    2.4.19

- Modify your kernel settings in /etc/sysctl.conf (RedHat) as follows:
       kernel.shmall = physical RAM size / pagesize For most systems, this will be the value 2097152. See Note 301830.1 for more information.
       kernel.shmmax = 1/2 of physical RAM. This would be the value 2147483648 for a system with 4Gb of physical RAM.
       kernel.shmmni = 4096
       kernel.sem = 250 32000 100 128
       fs.file-max = 512 x processes (for example 327680 for 640 processes)
       net.ipv4.ip_local_port_range = 9000 65500
          @per Bug 7507772
          The runInstaller (OUI) checks may expect this to be the old guidance of "1024 65000". The new guidance from Oracle development is "9000 65500". Please allow the runInstaller (OUI) to proceed with the new guidance from Oracle development.
       kernel.hostname = #<--- full qualified hostname !!
       kernel.domainname = #<--- correct domain name !!

  Then run "sysctl -p" to activate these new settings

Next, the "hostname" command should return the fully qualified hostname as shown below:

    % hostname
    hostname.domainname

Next, if any Java packages are installed on the system, unset any Java environment variables (for example JAVA_HOME)

The Unix user performing the installation (eg. oracle) should **not** have the Oracle install related variables set by default. For example setting ORACLE_HOME, PATH, LD_LIBRARY_PATH to include Oracle binaries in .profile, .bash_profile, .login file and /etc/profile.d should be completely avoided.

3. Configure the Unix user process and file limits

Assuming that the "oracle" Unix user will perform the installation, do the following:

    - Add the following settings to /etc/security/limits.conf

```
oracle          soft    nproc   2047
oracle          hard    nproc   16384
oracle          soft    nofile  1024
oracle          hard    nofile  65536
```

- Add or edit the following line in the /etc/pam.d/login file, if it does not already exist:
```
session     required    pam_limits.so
```

- Add the following lines to /etc/profile:

```
if [ $USER = "oracle" ]; then
   if [ $SHELL = "/bin/ksh" ]; then
      ulimit -p 16384
      ulimit -n 65536
   else
      ulimit -u 16384 -n 65536
   fi
fi
```

4. Install 9iR2 using the Oracle Universal Installer (OUI)

When performing the 9.2.0.4 "software only" installation, make sure to use the "runInstaller" version that comes with 9.2.0.4 software (OUI 2.2.0.18)

When performing the 9.2.0.7 installation, make sure to use the "runInstaller" version that comes with 9.2.0.7 (OUI 10.1.0.4)

ADDITIONAL NOTES

1. Linux x86-64, support on AMD64/EM64T and Intel Processor Chips that adhere to the x86-64 architecture with supported Linux releases:

   -- Oracle 32-bit running on AMD64/EM64T with 32-bit OS is supported.

   -- Oracle 32-bit running on AMD64/EM64T with 64-bit OS is **not** supported .

2. Asynchronous I/O on ext2 and ext3 file systems is supported if your scsi/fc driver supports that functionality.

3. No extra patch is required for the DIRECTIO support for x86_64.

4. The following "rpm" command can be used to distinguish between a 32-bit or 64-bit package:

   # rpm -qa --queryformat "%{NAME}-%{VERSION}-%{RELEASE} (%{ARCH})\n" | grep <RPM_name>

For example:

   # rpm -qa --queryformat "%{NAME}-%{VERSION}-%{RELEASE} (%{ARCH})\n" | grep glibc-devel

   glibc-devel-2.3.4-2.13 (i386)

REFERENCES

NOTE:301830.1 - Upon startup of Linux database get ORA-27102: out of memory Linux-X86_64 Error: 28: No space left on device
NOTE:339614.1 - DBA_REGISTRY Shows Components Of A New Database Are At The Base Level, Even Though A Patchset Is Installed
NOTE:376183.1 - Defining a "default RPMs" installation of the RHEL OS
NOTE:567506.1 - Maximum SHMMAX values for Linux x86 and x86-64

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