

Oracle 9iR2 Install on RedHat AS 2.1

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Agenda

- Installation Prerequisites
- Linux VLM support
- Installation procedure
- Hands-on lab

Installation Prerequisites

- Memory
- Free Disk space
- Kernel Parameters
- OS packages

Memory Requirements

- 512 MB Physical memory minimum
 - `/usr/sbin/dmmsg | grep "Physical:"`
- Swap space requirement of 2 x Physical Memory or 1 GB, which ever is greater
 - `/sbin/swapon -s`

Disk Space

- 3.5 GB necessary for Database software installation
- 1 GB needed if the seeded demo database is installed
- To check free physical disk space:
 - `df -k`

Disk Space

- /tmp needs a minimum of 400MB of free space in order to successfully complete the installation.
 - \$TMP and \$TMPDIR can be set instead to a directory with sufficient space.

Kernel Parameters to be set

- Semaphores
- Shared Memory
- File-handles

Semaphores

- 4 Semaphore Settings:
 - SEMMSL – Set to the largest process parameter of a the Oracle database + 10
 - SEMMNS - Defines the maximum number of Semaphores for the entire system
 - SEMOPM - Maximum number of operations per semop call
 - SEMMNI – number of Semaphore sets for the entire OS

Checking Semaphores

- `sysctl -a | grep sem`
- `cat /proc/sys/kernel/sem`

Setting Semaphores

- 2 methods
 - Edit the `/etc/sysctl.conf` and add the following entries:
 - `kernel.sem= 100 32000 100 100`
 - SEMMSL, SEMMNS, SEMOPM, SEMMNI Respectively
 - Execute `sysctl -p` to load changes into running kernel
 - Echo `"100 32000 100 100"> /proc/sys/kernel/sem`
 - Edit `rc.local` to reapply settings on reboot

Shared Memory

- 3 Shared Memory Settings:
 - SHMMAX – Maximum size of allocable contiguous memory segment (in bytes)
 - SHMMNI – Maximum number of shared memory segments
 - SHMALL – Maximum amount of shared memory that can be used at one time

Checking Shared Memory Settings

- /sbin/sysctl -a | grep shm
- cat /proc/sys/kernel/{key}
 - i.e. shmmax, shmmni, shmall

Setting Shared Memory Segments

■ 2 Methods

- Add entries to the `sysctl.conf`
 - `kernel.shmmni = 4096`
 - `kernel.shmall = 2097152`
 - `kernel.shmmax = 2147483648` (bytes)
 - Execute `sysctl -p` to load changes into running kernel
- Echo “value”>/proc/sys/kernel/{key}
 - i.e. `echo “2147483648”> /proc/sys/kernel/shmmax`
 - Edit `rc.local` to reapply settings on reboot

Setting/Checking File handles

- Check running values:
 - `sysctl -a | grep file-max`
 - `cat /proc/sys/fs/file-max`
- Setting the value one of three ways:
 - `echo "65536"> /proc/sys/fs/file-max`
 - Edit `sysctl.conf` add `fs.file-max=65526`
 - Use `ulimit -n 65536`

Other OS gotchas

- Make sure to update the Redhat AS 2.1 installed kernel from 2.4.9 e9 to at least 2.4.9 e12. This kernel includes a fix for kswapd.
- Make sure to set the following kernel parameter for file system buffering:
 - `vm.pagecache=2 10 30, min_percent, borrow_percent, max_percent` respectively. The default is 90% maximum!
- Always be sure to match any binutils package requirements for installation even if you need to apply a previous version!

Linux SGA > 1.7 GB Support

- 32 bit environments allow for a maximum sga (shared global area) for Oracle of ~ 1.7 GB
- Redhat AS 2.1 was built to compensate for 32 bit OS limitations. Redhat AS allows for theoretical maximum SGA sizes of up to ~ 62 GB
- Practical Limitation: 4GB – 8GB

2 Methods for Increased SGA sizes

- Lowering mapped_base
 - Allows for SGA increase from ~ 1.7 GB to ~ 2.7 GB
 - Pro's: Allows for increase of buffer cache and shared pool
 - Con's: Is somewhat difficult to implement, and can use up existing virtual memory.
- VLM support
 - Allows for an increased buffer cache over 4 GB (Theoretical 62 GB)
 - Con's: Performance impact because of the method used to "extend" memory resources.

Installation Procedure

- Install RH AS 2.1
- Check binutils version, should be binutils-2.11.90.0.8.13.i386.rpm (Metalink Patch 2414946).
- Create oracle user (oracle) and group (dba).
- Verify Xserver is working correctly, run xclock from the command line
- Mount Disk1 mount /cdrom
- Switch to the oracle user, su - oracle
- Run the installer, e.g. /cdrom/oracle9i/runInstaller
- Configure the Oracle Software directories and options
- Finish the Installation!



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