Oracle Application Server
10*g* Release 2 (10.1.2)
on
SUSE LINUX Enterprise Server 9

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Introduction

Oracle Application Server is supported and certified on SUSE LINUX Enterprise Server. Visit Oracle MetaLink (http://metalink.oracle.com) for more details on certifications. This document is provided to get you started with Oracle Application Server "J2EE and Web Cache" middle tier with orarun. Oracle has provided excellenet documents, please consult them for other add-on products like Oracle AS Infrastructure, Portal and Wireless, etc..

Your feedback is always welcome (arun.singh@novell.com). Please post your questions on SUSE-Oracle forum (suse-oracle@suse.com).

1. Hardware Requirements

Check that your computer meets the following disk space and memory requirements:

Item	J2EE and Web Cache	Portal and Wireless	OracleAS Infrastructure
Memory	512 MB	1 GB	1 GB
Disk space	700 MB	1.10 GB	3.3 GB
Space in /tmp	400 MB	400 MB	400 MB
Swap space	1.5 GB	1.5 GB	1.5 GB

1. To determine Physical RAM : #grep MemTotal /proc/meminfo

2. To determine available swap space: #grep SwapTotal /proc/meminfo

2. OS Requirements

Oracle Application Server 10*g* Release 2 (10.1.2) has been certified to run on systems running SUSE LINUX Enterprise Server 9 (SLES 9). Evaluation Software can be downloaded from respective web sites.

1. Novell SUSE Linux Enterprise Server 9 with latest Service Packs (http://www.novell.com/products/linuxenterpriseserver/eval.html)

2. Oracle Application Server 10g R2 (10.1.2) - Oracle Application Server J2EE and Web Cache (as_linux_x86_core_101200.cpio)

3.Installation Steps

1. Install SUSE LINUX Enterprise Server 9

If you have your SLES9 server pre-installed, just ensure you have required packages installed. Otherwise, follow Installation steps provided in SUSE LINUX Enterprise Server 9 manual. Make sure "C/C++ Compiler and Tools" and other required packages are installed i.e. db1, sysstat, etc.

a. Check that SUSE LINUX Enterprise Server 9 is installed:

    #cat /etc/SuSE-release

    SUSE LINUX Enterprise Server 9 (i586)
    VERSION = 9

b. The minimum supported kernel versions is: kernel 2.6.5-7.97
        #uname -r

c. Check that the following software packages, or higher versions, are installed:

    # rpm -q package_name

```
glibc-2.3.3-98.28
gcc-3.3.3-43.24
gcc-c++-3.3.3-43.24
libstdc++-3.3.3-43.24
libstdc++-devel-3.3.3-43.24
openmotif21-libs-2.1.30MLI4-119.1
pdksh-5.2.14-780.1
make-3.80-184.1
gnome-libs-1.4.1.7-671.1
gnome-libs-devel-1.4.1.7-671.1
sysstat-5.0.1-35.1
binutils-2.15.90.0.1.1-32.5
db1-1.85-85.1
compat-2004.7.1-1.2
```

d. libdb.so.2: If this files is not there then create following symbolic link or install db1 package.

    #ln -s /usr/lib/libdb.so.3 /usr/lib/libdb.so.2

e. /etc/hosts: Please comment out IPv6 addresses for localhost

    Make sure that the localhost entry in the /etc/hosts file is an IPv4 entry. If the IP entry for localhost is IPv6 format, installation cannot succeed. The following example shows

modified localhost entry:

```
# special IPv6 addresses
# ::1          localhost ipv6-localhost ipv6-loopback
```

Oracle provides perl script (patch 4015045) to fix above entries. These patches are available from http://metalink.oracle.com

f. /etc/services: Make sure that the following port ranges are available

1. Ports 1812-1829 required for Oracle Enterprise Manager (console)

2. Ports 1830-1849 required for Oracle Enterprise Manager (agent)

3. Ports 1850-1869 required for Oracle Enterprise Manager (RMI)

4. Ports 3060-3129 required for Oracle Internet Directory

5. Ports 3130-3199 required for Oracle Internet Directory (SSL)

If these ports are not available, the associated configuration assistants will fail during the installation. If necessary, remove entries from the "/etc/services" file and reboot the system. Oracle provides perl script (patch 3167528) to remove these entries.

2. Install orarun

SUSE provides orarun package to automate most of the Oracle pre-install task. Refer to Oracle installation document for complete list of prerequisites, If you choose to do on your own.

1. Install orarun package for SLES 9. You can download latest version of orarun from http://ftp.novell.com/partners/oracle/sles-9/. You can use YaST (/sbin/yast2) setup tool or install manually using rpm.

   #rpm -i /media/cdrom/suse/i586/orarun-1.8-109.5.i586.rpm

2. The account for "**oracle**" user is disabled.

   1. Enable it, by changing the shell for the "oracle" user from "/bin/false" to "/bin/bash", by editing the file "/etc/passwd".

   2. Set a new password for user "oracle" i.e. "/usr/bin/passwd oracle".

3. Run "/usr/sbin/rcoracle start " to set kernel parameters.

4. After installing the orarun package, complete the following steps to reset the environment for Oracle Application Server:

1. If any Java packages are installed on the system, unset the Java environment variables JAVA_HOME. Oracle Application Server installs and uses its own Java packages. Following will disable java at boot time on your server:

> # mv /etc/profile.d/alljava.sh /etc/profile.d/alljava.sh.bak

2. Edit **/etc/profile.d/oracle.sh** file to set/unset following environment variables:

   a) Command to unset JAVA and other environment variables: "unset JAVA_HOME TNS_ADMIN ORA_NLS33"

   b) Set proper ORACLE_HOME, ORACLE_SID. Unfortunately AS doesn't uses these but you should set it correct anyways.

   c) Set environment variable TMP i.e. export TMP=/tmp

3. Install Oracle Application Server 10g R2(10.1.2)

1. Make sure you are logged in as "**oracle**" user.

2. Get Oracle Application Server 10g R2 (10.1.2) Software from oracle web or use your Oracle Disks.

3. Run Oracle Universal Installer: $ ./runInstaller

   Note: If you start runInstaller from Disk1 then it will complain about oracle.sh file. Ignore this or start runInstaller from Disk1/install.

   Following welcome screen will appear and follow directions carefully.

If this is the first Oracle product to be installed on this computer, the installer displays these additional screens:
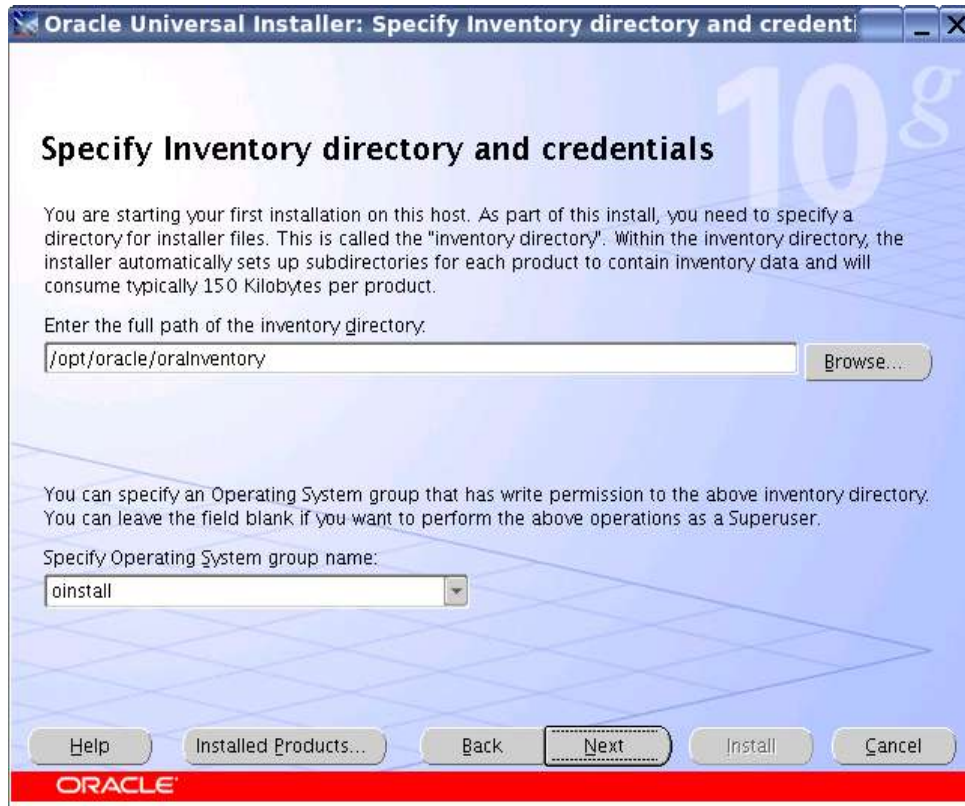
Specify File Locations:
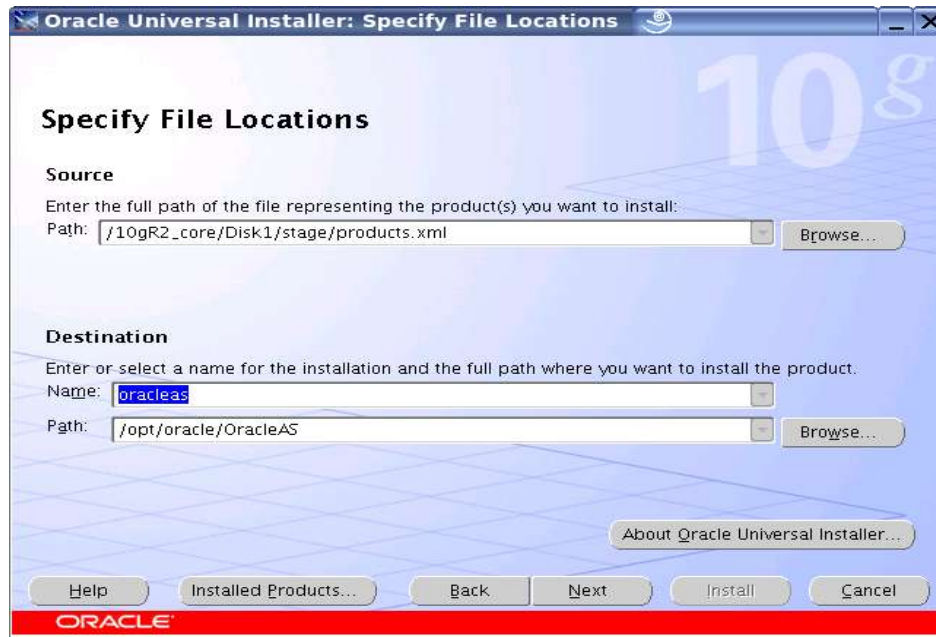
Product-specific Prerequisite Checks:

A warning is displayed if the system does not meet the requirements. If you need to change a kernel parameter, exit the installer and start the installation again.
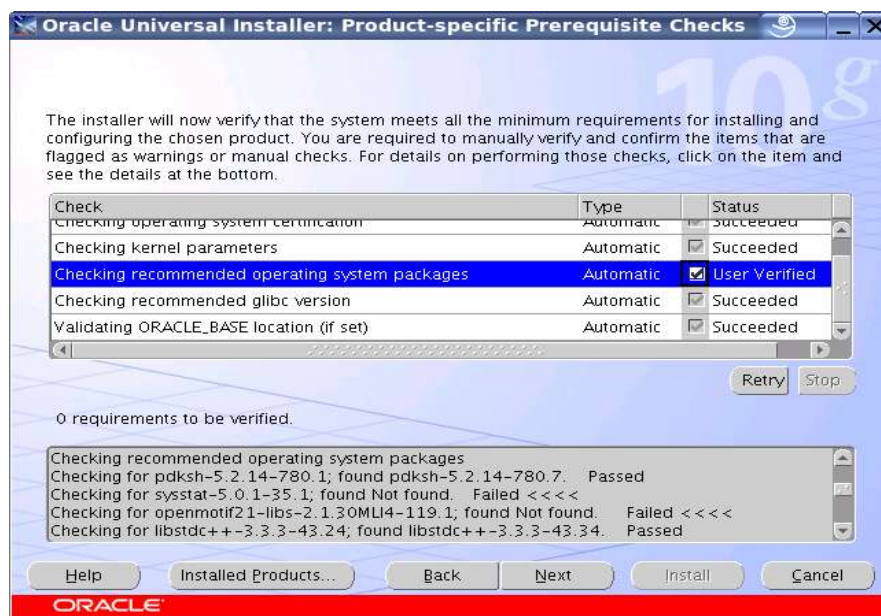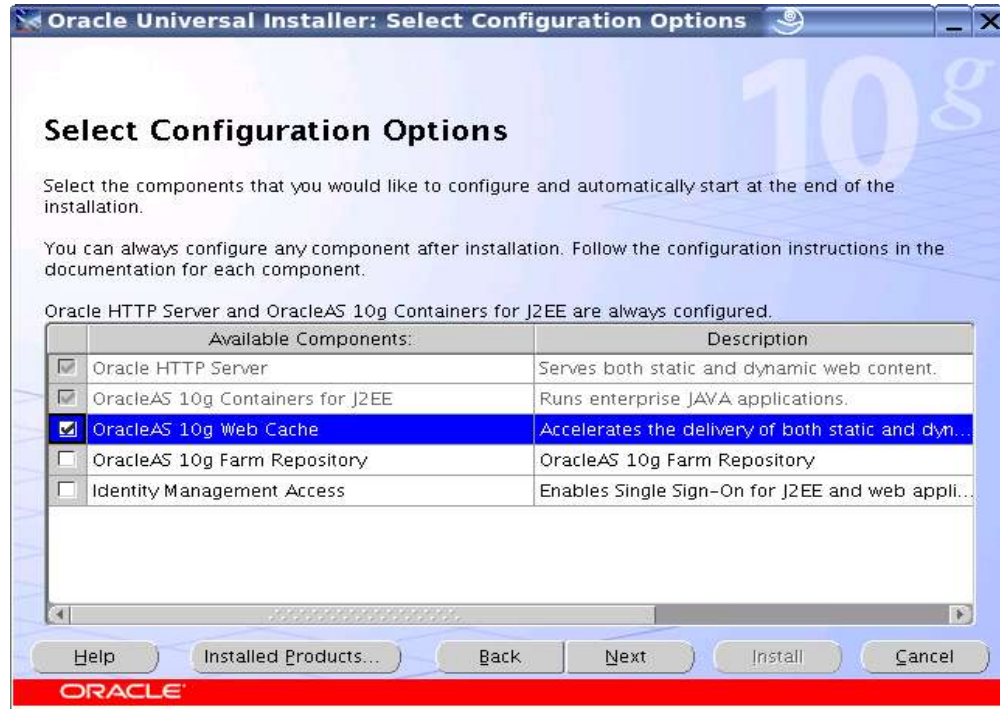

* ignore openmotif warning. SLES9 comes with latest version.

Confirm Pre-Installation Requirements:

Select components you would like to Install:

Specify Port Configuration Options: Select Automatic

OracleAS Instance Name and ias_admin Password:

Instance Name: Enter a name for this instance. Instance names can contain alphanumeric and _ (underscore) characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.

Example: `J2EE`

ias_admin Password and Confirm Password: Enter and confirm the password for the ias_admin user. This is the administrative user for this instance. Passwords must consist of at least five characters, and one of the characters must be a number.

Summary: Verify your selections and click Install.
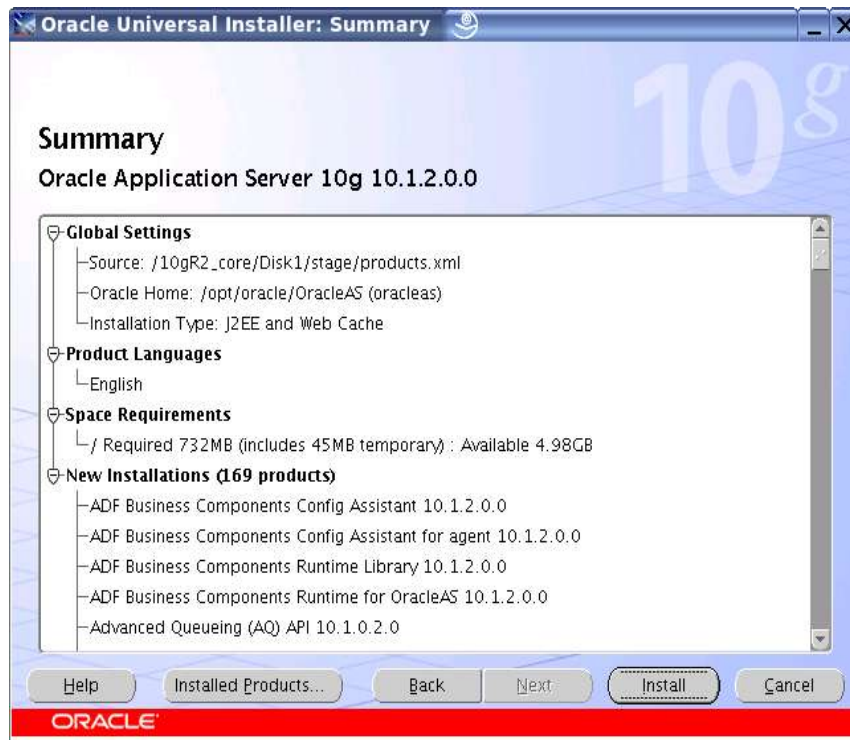
Run root.sh dialog: In a different window, log in as the root user and run the `root.sh` script. After you have run the `root.sh` script, click OK.
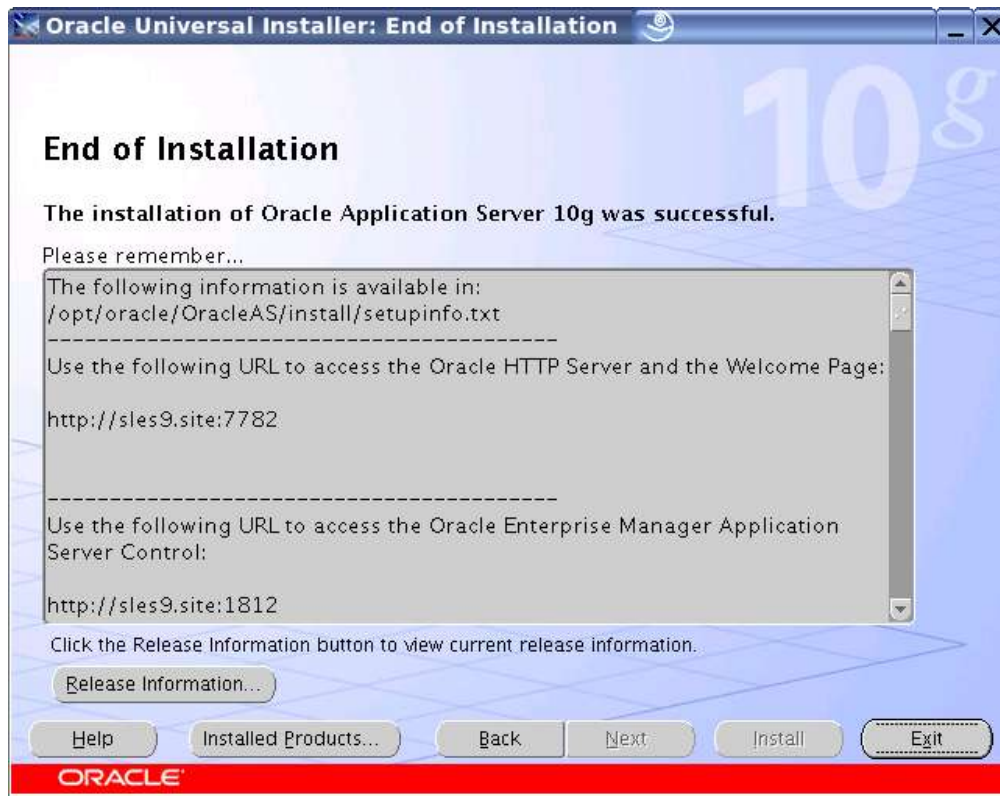
Configuration Assistants:

This screen displays the progress of configuration assistants. Configuration assistants configure Oracle Application Server components.
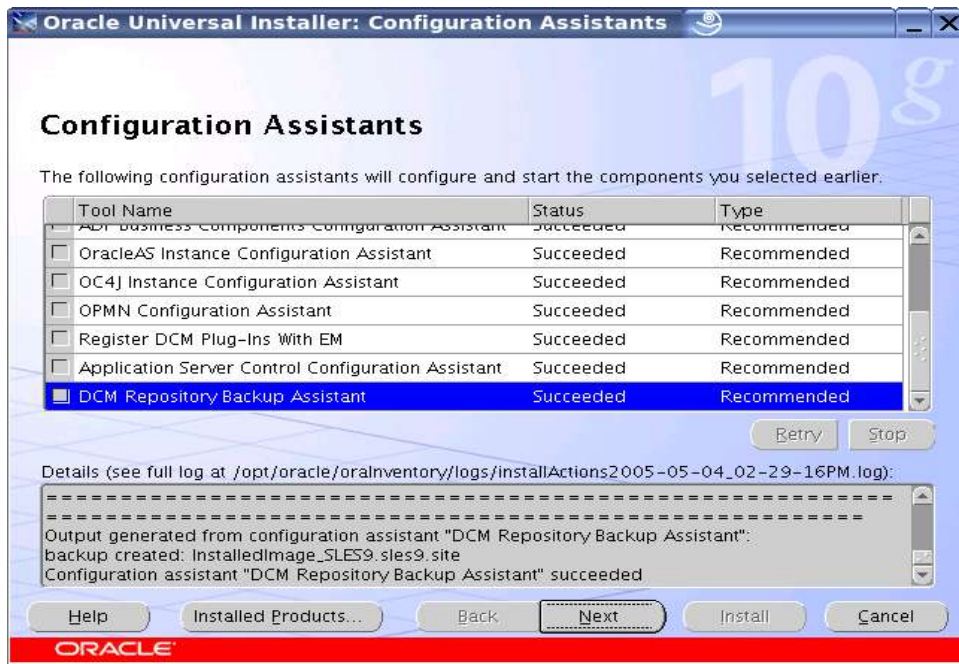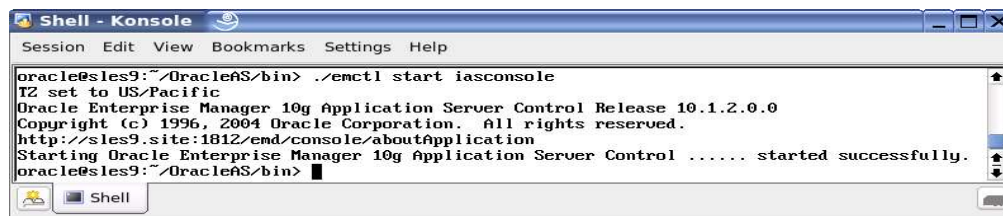
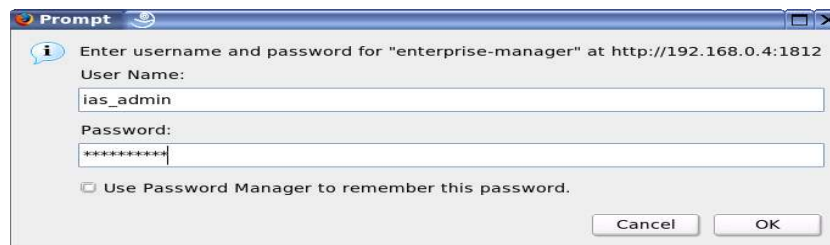**End of Installation: Click Exist.**

4. Oracle Enterprise Manager Application Server Control

If **iasconsole** services is not started, then start it manually by entering following command "emctl start iasconsole".

Use a browser to do routine Application Server administration tasks via web interface. URL: http://IP_Address:1812/

5. Oracle Application Server Automatic Startup/Shutdown

This section explains how to make Oracle Application Server start and stop automatically during server startup and shutdown on SUSE Linux.

1. Login as a root user and create a file called "/etc/init.d/ias" . Sample file is provided here.

2. Use chmod command to set the privileges to 750:
   ```
   chmod 750 /etc/init.d/ias
   ```

3. Add root user to the "dba and oinstall" groups to allow the script to function correctly.

4. Use "chkconfig" to enable/disbale ias script or create link manually to appropriare run-level.

   i.e. chkconfig ias on

Note: If you are expert in scrpting, you can merge above instrucstions to existing oracle script (/etc/init.d/oracle).

```
oracle@sles9:~/OracleAS/opmn/bin> ./opmnctl status

Processes in Instance: SLES9.sles9.site
----------------------+---------------------+---------+---------
ias-component         | process-type        |     pid | status
----------------------+---------------------+---------+---------
DSA                   | DSA                 |     N/A | Down
HTTP_Server           | HTTP_Server         |   11661 | Alive
LogLoader             | logloaderd          |     N/A | Down
dcm-daemon            | dcm-daemon          |   11478 | Alive
OC4J                  | home                |   11662 | Alive
WebCache              | WebCache            |   11665 | Alive
WebCache              | WebCacheAdmin       |   11664 | Alive

oracle@sles9:~/OracleAS/opmn/bin>
```

Sample Script (ias):

```
#! /bin/sh
#
# Author : Arun Singh, Novell Inc.
#
#  1. Add root to dba and oinstall group to function this script properly
#
#  2. Create this file in /etc/init.d directory (ias) and use  "chkconfig ias on"
#     You can put these and other commands in a single file (startup or shutdown)
#     and use as single command. This example is to make instruction clear.
#            $ORACLE_HOME/dcm/bin/dcmctl startup
#            $ORACLE_HOME/opmn/bin/opmnctl start
#            $ORACLE_HOME/bin/emctl start iasconsole
#
### BEGIN INIT INFO
# Provides: ias
# Required-Start: $network $syslog $remote_fs raw
# Required-Stop:
# Default-Start: 3 5
# Default-Stop: 0 1 2 6
# Description: Start the Oracle iAS
### END INIT INFO
ORACLE_BASE=/opt/oracle
ORACLE_HOME=$ORACLE_BASE/oracleas
ORA_OWNER=oracle
...
```

```
...
case "$1" in
  start)
    echo -n "Satring Oracle iAS"
            su - $ORA_OWNER --command="$ORACLE_HOME/dcm/bin/dcmctl start" &
            su - $ORA_OWNER --command="$ORACLE_HOME/opmn/bin/opmnctl startall" &
            su - $ORA_OWNER --command="$ORACLE_HOME/bin/emctl start iasconsole" &
    ;;

  stop)
    echo -n "Stopping Oracle iAS"

            su - $ORA_OWNER --command="$ORACLE_HOME/dcm/bin/dcmctl shutdown" &
            su - $ORA_OWNER --command="$ORACLE_HOME/opmn/bin/opmnctl stopall" &
            su - $ORA_OWNER --command="$ORACLE_HOME/bin/emctl stop iasconsole" &
    ;;

  status)
    echo -n "Checking for Oracle iAS"
            su - $ORA_OWNER --command="$ORACLE_HOME/bin/emctl status iasconsole" &
    ;;
  *)
    echo "Usage: $0 {start|stop|status}"
    exit 1
esac
```

6. Changing Kernel Parameters

If you are using orarun then recommended values are set. You can change and verify using YaST (/sbin/yast2->System->/etc/sysconfig Editor ->Productivity->Databases->Tools->Oracle->System).

If you want to change the value of kernel parameter not provided by orarun, then complete the following steps:

a. Using any text editor, create or edit the /etc/sysctl.conf file and add new kernel parameter values. For example message queues kernel parameter will looks like:

```
kernel.msgmni = 2878 (number of messages)
kernel.msgmax = 8192 (max no of bytes per message)
kernel.msgmnb = 65535 (total size of the queue)
```

By specifying the values in the /etc/sysctl.conf file, they persist when you reboot the system.

b. Enter the following command to change the current values of the kernel parameters.

```
# /sbin/sysctl -p
```

c. Enter the following command to make the system read the /etc/sysctl.conf file when it reboots:

```
# chkconfig boot.sysctl on
```

d. To view current values of kernel parameters:
   #/sbin/sysctl -a

4. Known Issues - Workaround

1. OC4J : DCM Error - /usr/lib/libdb.so.2 is missing.

   Install db1 package or create soft link for /usr/lib/libdb.so.2

2. OC4J: java.net.ConnectException: Connection refused

   Check /etc/hosts file for IPv6 entries.

3. EM64T/AMD64: comment out following lines from /etc/profile.d/oracle.sh

```
#test -d /lib/i686 && export LD_ASSUME_KERNEL=2.4.21
#test -f /usr/lib/libInternalSymbols.so && export
LD_PRELOAD=/usr/lib/libInternalSymbols.so
```

5. Refernces

Oracle Application Server10g Release 2 (10.1.2) Documentation Library
http://download-west.oracle.com/docs/cd/B15790_05/docs.htm

History:

Date	Changes
05/05/05	Initial Document created.

Enjoy!