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ORACLE10gR2 HA on Solaris10_SunT5140 Installation Guide

DBStyle

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www.dbstyle.net

1 环境介绍

1.1 硬件

	硬件	
主机 1	Public NIC	Public IP:192.168.100.93
	VIP	192.168.100.85
	Private NIC	Private IP:10.10.10.93
主机 2	Public NIC	Public IP: 192.168.100.94
	VIP	192.168.100.85
	Private NIC	Private IP: 10.10.10.94
存储	EMC	

- 主机：两台 SUN T5140，CPU、内存、磁盘配置完全一样；每台主机四个独立网卡。
- 存储设备：EMC 存储

1.2 软件

	软件
操作系统	Solaris 10
集群件	Sun Cluster 3.3
数据库	Oracle Database 10.2.0.1→10.2.0.5
集群文件系统	zfs

- 操作系统：Solaris 10
- 集群件：Sun Cluster 3.3
- 数据库：Oracle Database 10.2.0.5
- 集群文件系统：zfs

2 任务列表

HA 部署过程的任务列表

阶段	任务列表
前期规划	确认集群节点数量，每个节点的主机名；
	区分 Public、Private NIC；确认 3 个 IP 地址；
	准备 iLOM 口的 IP 地址及网络连通性
	存储空间规划，包括软件安装位置、数据库文件位置规划
配置节点主机	配置主机名和 3 个 IP 地址；RPM 包检查；
	配置 iLOM 口 ip 地址；
	磁盘分区；
	系统需求（OS Kernel 参数、空间需求）；
	创建 Oracle 用户，要求每个节点 UID、GID 相同；
	定义 Oracle 用户的环境变量，包括\$ORACLE_HOME、资源数量限制；
安装部署	安装 Oracle Database，安装后进行检查；
	安装 Sun Cluster；
	配置 Listener；创建数据库；
	安装后测试，Failover

3 规划阶段

按照上面的任务列表，在这个阶段需要完成 3 个任务。

- (1) 确认集群节点数量，每个节点的主机名；区分 Public、Private NIC；确认每个主机的 3 个 IP 地址。
- (2) 存储空间规划，包括软件安装位置、数据文件位置规划。

3.1 需要提前申请的内容：

- (1) 主机 1 的 IP
- (2) 主机 2 的 IP
- (3) 双机浮动 IP（如需要 nms 双机，还需要 1 个浮动 IP）
- (4) 主机 1 的 iLOM 口 IP
- (5) 主机 2 的 iLOM 口 IP

3.2 确认主机名和 3 个 IP 地址

定义网络

	主机 1	主机 2
主机名	racdb1	racdb2
网卡：Public NIC	aggr1(eth0,eth2)	aggr1(eth0,eth2)
网卡：Private NIC	aggr2(eth1,eth3)	aggr2(eth1,eth3)
IP/网络名：Public IP	IP: 192.168.100.93	IP: 192.168.100.94
	Netmask: 255.255.255.0	Netmask: 255.255.255.0
	Gateway: 192.168.100.1	Gateway: 192.168.100.1
IP/网络名：Private IP	10.10.10.93/ racdb1-priv	10.10.10.94/ racdb2-priv
IP/网络名：VIP	192.168.100.85/ racdb	

3.3 iLOM 口地址

定义 iLOM 网络

	主机 1	主机 2
主机名	racdb1	racdb2
iLOM 网卡	iLOM	iLOM
iLOM IP	IP: 192.168.100.73 Netmask: 255.255.255.0 Gateway: 192.168.100.1	IP: 192.168.100.74 Netmask: 255.255.255.0 Gateway: 192.168.100.1

3.4 存储空间规划

共享存储分区方案

LUN	racdb1	racdb2
LUN1(1GB)	/dev/mapper/mpath0	/dev/mapper/mpath0
LUN2(100GB)	/dev/mapper/mpath1	/dev/mapper/mpath1

务必确保共享存储上的每个 LUN 在每个主机的设备名称一样。

磁盘分区规划

	LUN1	LUN2	LUN3	LUN4	用途说明
/oradata	300G				数据文件
/oradata		300G			数据文件
/oracle/flash_recovery_area			500GB		归档文件及备份
/oracle/flash_recovery_area				500GB	归档文件及备份

4 实施阶段

4.1 主机配置

4.1.1 使用 iLOM 口连接 T5140

通过 serial 管理口，使用 root/changeme 默认密码登录 iLOM 口；

查询到 Net 管理口 IP 后，即可使用网络口进行安装；

```
-> ls /SP/network

/SP/network
Targets:
    test

Properties:
    commitpending = (Cannot show property)
    dhcp_server_ip = none
    ipaddress = 192.168.100.74
    ipdiscovery = static
    ipgateway = 192.168.100.1
    ipnetmask = 255.255.255.0
    macaddress = 00:21:28:58:54:6F
    pendingipaddress = 192.168.100.74
    pendingipdiscovery = static
    pendingipgateway = 192.168.100.1
    pendingipnetmask = 255.255.255.0
    state = enabled

Commands:
    cd
    set
    show

->
```

使用 NET 管理口登录 iLOM，切换到操作系统中；

```
Waiting for daemons to initialize...

Daemons ready

Sun(TM) Integrated Lights Out Manager

Version 3.0.10.1.a r55406

Copyright 2010 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.

Warning: password is set to factory default.

-> start /SP/console
Are you sure you want to start /SP/console (y/n)? y
```

注意：如果出现以下错误：

```
-> start /SP/console
Are you sure you want to start /SP/console (y/n)? y
Console session already in use. [view mode]

Serial console started. To stop, type #.

Serial console stopped.

->
```

需要先停掉 console，再启动即可；

```
-> stop /SP/console
Are you sure you want to stop /SP/console (y/n)? y

-> start /SP/console
Are you sure you want to start /SP/console (y/n)? y

Serial console started. To stop, type #.
```

4.1.2 安装操作系统

(1) 使用光盘启动;

```
{0} ok boot cdrom
Boot device: /pci@400/pci@0/pci@1/pci@0/usb@0,2/hub@4/device@4/storage@0/disk@0:
f File and args:
SunOS Release 5.10 Version Generic_147440-01 64-bit
Copyright (c) 1983, 2011, Oracle and/or its affiliates. All rights reserved.
Configuring devices.
NOTICE: nxge0: xcvr addr:0x1d - link is up 100 Mbps full duplex
NOTICE: nxge1: xcvr addr:0x1c - link is up 100 Mbps full duplex
WARNING: /pci@400/pci@0/pci@c/SUNW,qlc@0/fp@0,0/ssd@w500601603b205115,3 (ssd4):
Corrupt label; wrong magic number

WARNING: /pci@400/pci@0/pci@c/SUNW,qlc@0/fp@0,0/ssd@w500601613b205115,3 (ssd8):
Corrupt label; wrong magic number

NOTICE: nxge0: xcvr addr:0x1d - link is up 100 Mbps full duplex
Using RPC Bootparams for network configuration information.
Attempting to configure interface nxge3...
NOTICE: nxge1: xcvr addr:0x1c - link is up 100 Mbps full duplex
NOTICE: nxge2: xcvr addr:0x1b - link is down
NOTICE: nxge3: xcvr addr:0x1a - link is down
Skipped interface nxge3
Attempting to configure interface nxge2...
Skipped interface nxge2
Attempting to configure interface nxge1...
Skipped interface nxge1
Attempting to configure interface nxge0...
Skipped interface nxge0
USB keyboard
Setting up Java. Please wait...
Serial console, reverting to text install
Beginning system identification...
Searching for configuration file(s)...
Search complete.
Discovering additional network configuration...
```

(2) 选择安装语言为 0;

```
Select a Language

0. English
1. Brazilian Portuguese
2. French
3. German
4. Italian
5. Japanese
6. Korean
7. Simplified Chinese
8. Spanish
9. Swedish
10. Traditional Chinese

Please make a choice (0 - 10), or press h or ? for help: █
```

(3) 选择终端类型为 DEC VT100;

```
what type of terminal are you using?
1) ANSI Standard CRT
2) DEC VT52
3) DEC VT100
4) Heathkit 19
5) Lear Siegler ADM31
6) PC Console
7) Sun Command Tool
8) Sun Workstation
9) Televideo 910
10) Televideo 925
11) Wyse Model 50
12) X Terminal Emulator (xterms)
13) CDE Terminal Emulator (dtterm)
14) Other
Type the number of your choice and press Return:
```

(4) 安装说明，按 F2 继续；

```
- The Solaris Installation Program -

The Solaris installation program is divided into a series of short sections
where you'll be prompted to provide information for the installation. At
the end of each section, you'll be able to change the selections you've
made before continuing.

About navigation...
- The mouse cannot be used
- If your keyboard does not have function keys, or they do not
  respond, press ESC; the legend at the bottom of the screen
  will change to show the ESC keys to use for navigation.

F2_Continue  F6_Help
```

(5) 确认系统，按 F2 继续；

```
- Identify This System -

On the next screens, you must identify this system as networked or
non-networked, and set the default time zone and date/time.

If this system is networked, the software will try to find the information
it needs to identify your system; you will be prompted to supply any
information it cannot find.

> To begin identifying this system, press F2.

F2_Continue  F6_Help
```

(6) 启用网络，按 F2 继续；

```
-- Network Connectivity --
Specify Yes if the system is connected to the network by one of the solaris
or vendor network/communication Ethernet cards that are supported on the
Solaris CD. See your hardware documentation for the current list of
supported cards.
Specify No if the system is connected to a network/communication card that
is not supported on the Solaris CD, and follow the instructions listed under
Help.

Networked
[ X ] Yes
[ ] No

F2_Continue    F6_Help
```

(7) 配置网络接口，按 F2 继续；

```
-- Configure Multiple Network Interfaces --
Multiple network interfaces have been detected on this system. Specify all
of the network interfaces you want to configure.
Note: You must choose at least one interface to configure.

Network interfaces
[ X ] nxge0
[ ] nxge1
[ ] nxge2
[ ] nxge3

F2_Continue    F6_Help
```

(8) 不使用 DHCP，按 F2 继续；

```
- DHCP for nxge0 -  
  
Specify whether or not this network interface should use DHCP to configure  
itself. Choose Yes if DHCP is to be used, or No if the network interface is  
to be configured manually.  
  
NOTE: DHCP support will not be enabled, if selected, until after the system  
reboots.  
  
    Use DHCP for nxge0  
    [ ] Yes  
    [X] No  
  
F2_Continue    F6_Help
```

(9) 配置主机名，按 F2 继续；

```
- Host Name for nxge0 -  
  
Enter the host name which identifies this system on the network. The name  
must be unique within your domain; creating a duplicate host name will cause  
problems on the network after you install Solaris.  
  
A host name must have at least one character; it can contain letters,  
digits, and minus signs (-).  
  
    Host name for nxge0 racdb1  
  
F2_Continue    F6_Help
```

(10) 配置 IP 地址，按 F2 继续；

```
- IP Address for nxge0 -  
  
Enter the Internet Protocol (IP) address for this network interface. It  
must be unique and follow your site's address conventions, or a  
system/network failure could result.  
  
IP addresses contain four sets of numbers separated by periods (for example  
129.200.9.1).  
  
IP address for nxge0 192.168.100.93  
  
F2_Continue F6_Help
```

(11) 启用子网掩码，按 F2 继续；

```
- Subnet for nxge0 -  
  
On this screen you must specify whether this system is part of a subnet. If  
you specify incorrectly, the system will have problems communicating on the  
network after you reboot.  
  
> To make a selection, use the arrow keys to highlight the option and  
press Return to mark it [X].  
  
System part of a subnet  
[X] Yes  
[ ] No  
  
F2_Continue F6_Help
```

(12) 配置子网掩码，按 F2 继续；

```
- Netmask for nxge0 -  
On this screen you must specify the netmask of your subnet. A default  
netmask is shown; do not accept the default unless you are sure it is  
correct for your subnet. A netmask must contain four sets of numbers  
separated by periods (for example 255.255.255.0).  
  
Netmask for nxge0 255.255.255.0 █  
  
F2_Continue F6_Help
```

(13) 不启用 IPv6，按 F2 继续；

```
- IPv6 for nxge0 -  
Specify whether or not you want to enable IPv6, the next generation Internet  
Protocol, on this network interface. Enabling IPv6 will have no effect if  
this machine is not on a network that provides IPv6 service. IPv4 service  
will not be affected if IPv6 is enabled.  
  
> To make a selection, use the arrow keys to highlight the option and  
press Return to mark it [X].  
  
Enable IPv6 for nxge0  
[ ] Yes  
[X] No  
  
F2_Continue F6_Help
```

(14) 确认网络配置，按 F2 继续；

```
- Confirm Information for nxge0 -
> Confirm the following information. If it is correct, press F2;
  to change any information, press F4.

      Networked: Yes
      Use DHCP: No
      Host name: racdb1
      IP address: 192.168.100.93
System part of a subnet: Yes
      Netmask: 255.255.255.0
      Enable IPv6: No

F2_Continue  F4_Change  F6_Help
```

(15) 禁用安全策略，按 F2 继续；

```
- Configure Security Policy: -
Specify Yes if the system will use the Kerberos security mechanism.
Specify No if this system will use standard UNIX security.

  Configure Kerberos Security
  [ ] Yes
  [X] No

F2_Continue  F6_Help
```

(16) 确认配置策略，按 F2 继续；

```
- Confirm Information -
> Confirm the following information. If it is correct, press F2;
  to change any information, press F4.

      Configure Kerberos Security: No

F2_Continue  F4_Change  F6_Help
```

(17) 不使用命名服务，按 F2 继续；

```
- Name Service -
On this screen you must provide name service information. Select the name
service that will be used by this system, or None if your system will either
not use a name service at all, or if it will use a name service not listed
here.

> To make a selection, use the arrow keys to highlight the option
  and press Return to mark it [X].

      Name service
      [ ] NIS+
      [ ] NIS
      [ ] DNS
      [ ] LDAP
      [X] None

F2_Continue  F6_Help
```

(18) 确认命名服务配置，按 F2 继续；

```
- Confirm Information -
> Confirm the following information. If it is correct, press F2;
  to change any information, press F4.

      Name service: None

F2_Continue  F4_Change  F6_Help
```

(19) 配置 NFSv4 域名服务，按 F2 继续；

```
- NFSv4 Domain Name -
NFS version 4 uses a domain name that is automatically derived from the
system's naming services. The derived domain name is sufficient for most
configurations. In a few cases, mounts that cross domain boundaries might
cause files to appear to be owned by "nobody" due to the lack of a common
domain name.

The current NFSv4 default domain is: ""

NFSv4 Domain Configuration
[ X ] Use the NFSv4 domain derived by the system
[ ] Specify a different NFSv4 domain

F2_Continue  F6_Help
```

(20) 确认 NFSv4 域名服务，按 F2 继续；

```
- Confirm Information for NFSv4 Domain -
> Confirm the following information.  If it is correct, press F2;
  to change any information, press F4.

      NFSv4 Domain Name:  << value to be derived dynamically >>

F2_Continue  F4_Change  F6_Help
```

(21) 选择 Asia 时区，按 F2 继续；

```
- Time Zone -
On this screen you must specify your default time zone.  You can specify a
time zone in three ways:  select one of the continents or oceans from the
list, select other - offset from GMT, or other - specify time zone file.
> To make a selection, use the arrow keys to highlight the option and
  press Return to mark it [X].

  Continents and Oceans
  -----
  [ ] Africa
  [ ] Americas
  [ ] Antarctica
  [ ] Arctic Ocean
  [X] Asia
  [ ] Atlantic Ocean
  [ ] Australia
  [ ] Europe
  [ ] Indian Ocean

F2_Continue  F6_Help
```

(22) 选择国家，按 F2 继续；

```
- Country or Region -
> To make a selection, use the arrow keys to highlight the option and
  press Return to mark it [X].

  Countries and Regions
  -----
  [ ] Afghanistan
  [ ] Armenia
  [ ] Azerbaijan
  [ ] Bahrain
  [ ] Bangladesh
  [ ] Bhutan
  [ ] Brunei
  [ ] Cambodia
  [X] China
  [ ] Cyprus
  [ ] East Timor
  [ ] Georgia
  [ ] Hong Kong
  v

F2_Continue  F6_Help
```

(23) 配置日期和时间，按 F2 继续；

```
- Date and Time -
> Accept the default date and time or enter
  new values.

Date and time: 2012-07-31 14:54

      Year (4 digits) : 2012
      Month (1-12)   : 07
      Day (1-31)     : 31
      Hour (0-23)    : 14
      Minute (0-59)  : 54

F2_Continue  F6_Help
```

(24) 确认时区，按 F2 继续；

```
- Confirm Information -
> Confirm the following information. If it is correct, press F2;
  to change any information, press F4.

                Time zone: PRC
                Date and time: 2012-07-31 14:54:00

F2_Continue  F4_Change  F6_Help
```

(25) 设置 root 密码，按 F2 继续；

```
- Root Password -
Please enter the root password for this system.
The root password may contain alphanumeric and special characters. For
security, the password will not be displayed on the screen as you type it.
> If you do not want a root password, leave both entries blank.

Root password: ****
Root password: ****

F2_Continue  F6_Help
```

(26) 启用远程服务，按 F2 继续；

```
- Enabling remote services -

would you like to enable network services for use by remote clients?

Selecting "No" provides a more secure configuration in
which Secure Shell is the only network service provided to
remote clients.  Selecting "Yes" enables a larger set of
services as in previous Solaris releases.  If in doubt, it is
safe to select "No" as any services can be individually enabled
after installation.

Note: This choice only affects initial installs.  It doesn't affect upgrades.

Remote services enabled
-----
[X] Yes
[ ] No

F2 Continue      F6 Help
```

(27) 取消 oracle 注册, 按 F2 继续;

```
- Provide Solaris Auto Registration Info:

To improve products and services, Oracle Solaris communicates configuration
data to Oracle after rebooting.

You can register your version of Oracle Solaris to capture this data for
your use, or the data is sent anonymously.

For information about what configuration data is communicated and how to
control this facility, see the Release Notes or
www.oracle.com/goto/solarisautoreg.

> Use the arrow keys to select the option and press Return to
   mark it [X].

_____
[ X ] I would like to register using My Oracle Support information.

_____
F2_Continue    F6_Help
```

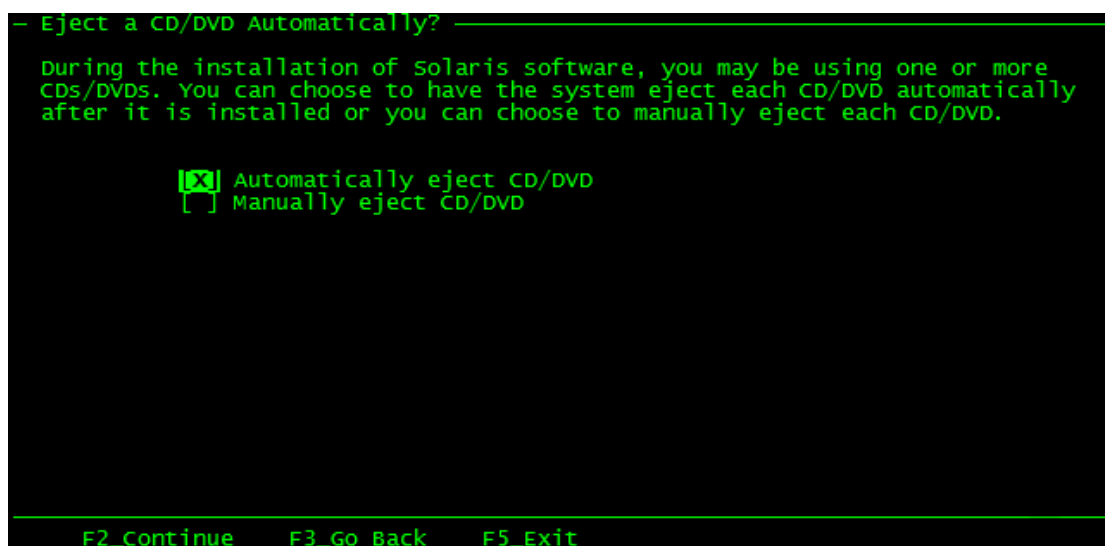
(28) 不配置代理，按 F2 继续；

```
- Provide Solaris Auto Registration Info: -  
  
To send the configuration data anonymously, complete the following fields.  
If using a proxy server, provide the proxy settings.  
  
For information about what configuration data is communicated and how to  
control this facility, see the Release Notes or  
www.oracle.com/goto/solarisautoreg.  
  
Proxy Server Host Name:   
Proxy Server Port Number:   
HTTP Proxy User Name:   
HTTP Proxy Password:   
  
F2_Continue F6_Help
```

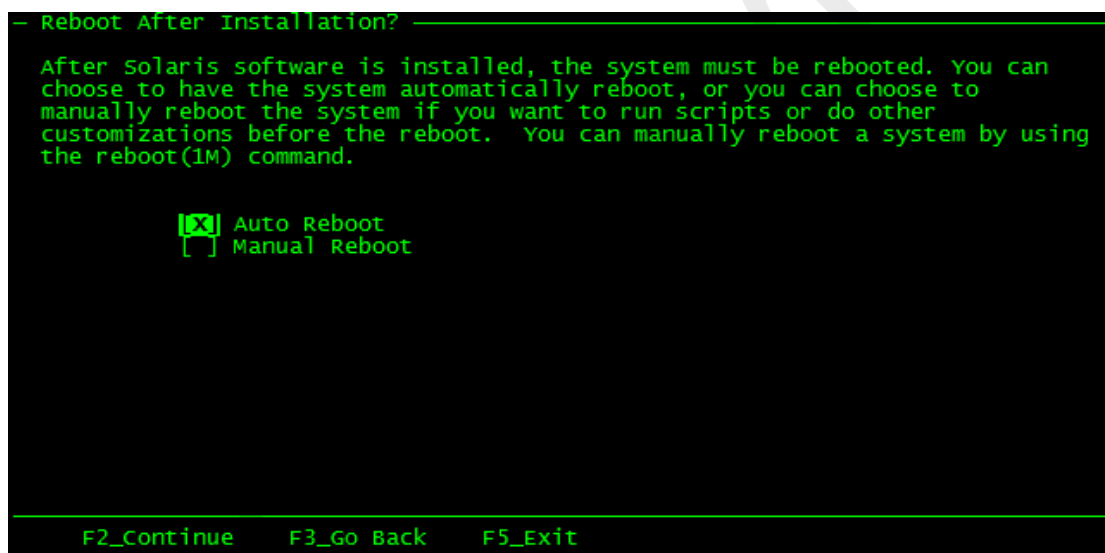
(29) 选择 F2 标准安装方式，按 F2 继续；

```
- Solaris Interactive Installation -  
  
On the following screens, you can accept the defaults or you can customize  
how Solaris software will be installed by:  
  
- Selecting the type of Solaris software to install  
- Selecting disks to hold software you've selected  
- Selecting unbundled products to be installed with Solaris  
- Specifying how file systems are laid out on the disks  
  
After completing these tasks, a summary of your selections (called a  
profile) will be displayed.  
  
There are two ways to install your Solaris software:  
  
- "Standard" installs your system from a standard Solaris distribution.  
  Selecting "Standard" allows you to choose between initial install  
  and upgrade, if your system is upgradable.  
- "Flash" installs your system from one or more Flash Archives.  
  
F2_Standard F4_Flash F5_Exit F6_Help
```

(30) 自动弹出 DVD，按 F2 继续；



(31) 自动重启，按 F2 继续；



(32) 安装提示，按 F2 继续；

```

- Solaris Interactive Installation -

There are existing ZFS pools available on this system.  However, they can
only be upgraded using the Live Upgrade tools.  The following screens will
only allow you to install a ZFS root system, not upgrade one.

F2_Continue    F3_Go Back    F5_Exit    F6_Help

```

(33) 接受 License, 按 F2 继续;

```
- License
```

You acknowledge that your use of this software is subject to (i) the license terms that you accepted when you obtained a right to use this software; or (ii) the license terms that you signed when you placed your software order with us; or (iii) the license terms included in hard copy form with the hardware that you acquired from us; or, if (i), (ii) or (iii) are not applicable, then, (iv) the Oracle Electronic Delivery Trial License Agreement (which you acknowledge that you have read and understand), available at edelivery.oracle.com. Note: Software downloaded for trial use or downloaded as replacement media may not be used to update any unsupported software.

```
F2_Accept License    F5_Exit
```

(34) 选择安装语言包，按 F2 继续：

```
- Select Geographic Regions -----
select the geographic regions for which support should be installed.

[ ] Hindi UTF-8
[ ] Indonesian (UTF-8)
[ ] Japanese EUC (ja)
[ ] Japanese PC Kanji (ja_JP.PCK)
[ ] Japanese UTF-8 (ja_JP.UTF-8)
[ ] Kannada, India (UTF-8)
[ ] Korean EUC
[ ] Korean UTF-8
[ ] Malay, Malaysia (UTF-8)
[ ] Marathi, India (UTF-8)
[X] Simplified Chinese EUC
[X] Simplified Chinese GB18030
[X] Simplified Chinese GBK
[X] Simplified Chinese UTF-8
[ ] Tamil, India (UTF-8)
[ ] Telugu, India (UTF-8)

Locale is deselected. Press Return to select

F2_Continue F3_Go Back F5_Exit F6_Help
```

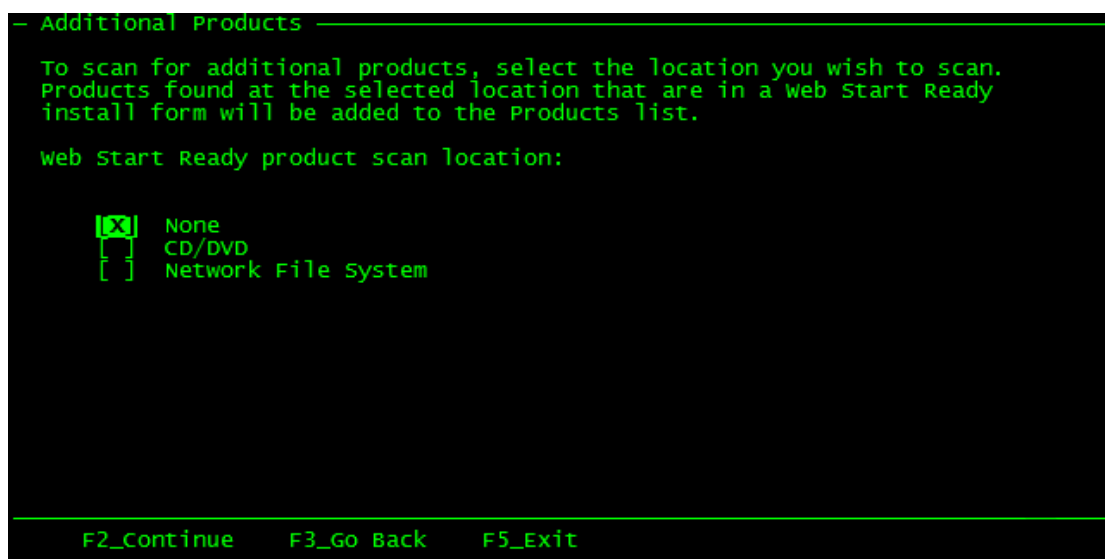
(35) 选择本地默认语言，按 F2 继续；

```
- Select System Locale -----
select the initial locale to be used after the system has been installed.

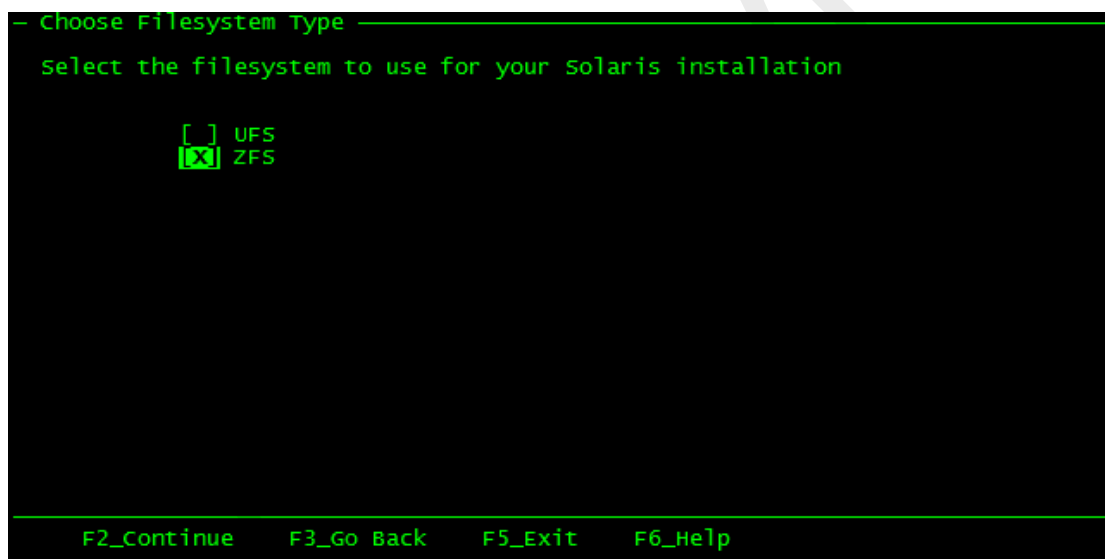
[X] POSIX C ( C )
Asia
[ ] Simplified Chinese EUC ( zh )
[ ] Simplified Chinese GB18030 ( zh_CN.GB18030 )
[ ] Simplified Chinese GBK ( zh.GBK )
[ ] Simplified Chinese UTF-8 ( zh.UTF-8 )

F2_Continue F3_Go Back F5_Exit F6_Help
```

(36) 不选择附加产品，按 F2 继续；



(37) 选择 ZFS 文件系统，按 F2 继续；



(38) 选择安装版本，按 F2 继续；

```

- Select Software -
select the solaris software to install on the system.

NOTE: After selecting a software group, you can add or remove software by
customizing it. However, this requires understanding of software
dependencies and how solaris software is packaged.

[X] Entire Distribution plus OEM support ..... 8590.00 MB
[ ] Entire Distribution ..... 8549.00 MB
[ ] Developer System Support ..... 8358.00 MB
[ ] End User System Support ..... 7146.00 MB
[ ] Core System Support ..... 3119.00 MB
[ ] Reduced Networking Core System Support ..... 3061.00 MB

F2_Continue    F3_Go Back    F4_Customize    F5_Exit    F6_Help

```

(39) 选择安装磁盘，按 F2 继续；

```

- Select Disks -
On this screen you must select the disks for installing solaris software.
Start by looking at the suggested Minimum field; this value is the
approximate space needed to install the software you've selected. For ZFS,
multiple disks will be configured as mirrors, so the disk you choose, or the
slice within the disk must exceed the Suggested Minimum value.
NOTE: ** denotes current boot disk

Disk Device                                     Available Space
=====
[X] ** c1t0d0                                   139989 MB (F4 to edit)
[ ] c1t1d0                                   139989 MB
[ ] c2t500601603B205115d3                     0 MB
[ ] c2t500601613B205115d3                     0 MB
[ ] c2t500601683B205115d3                     0 MB
[ ] c2t500601693B205115d3                     0 MB

Maximum Root Size: 139989 MB
Suggested Minimum: 8590 MB

F2_Continue    F3_Go Back    F4_Edit    F5_Exit    F6_Help

```

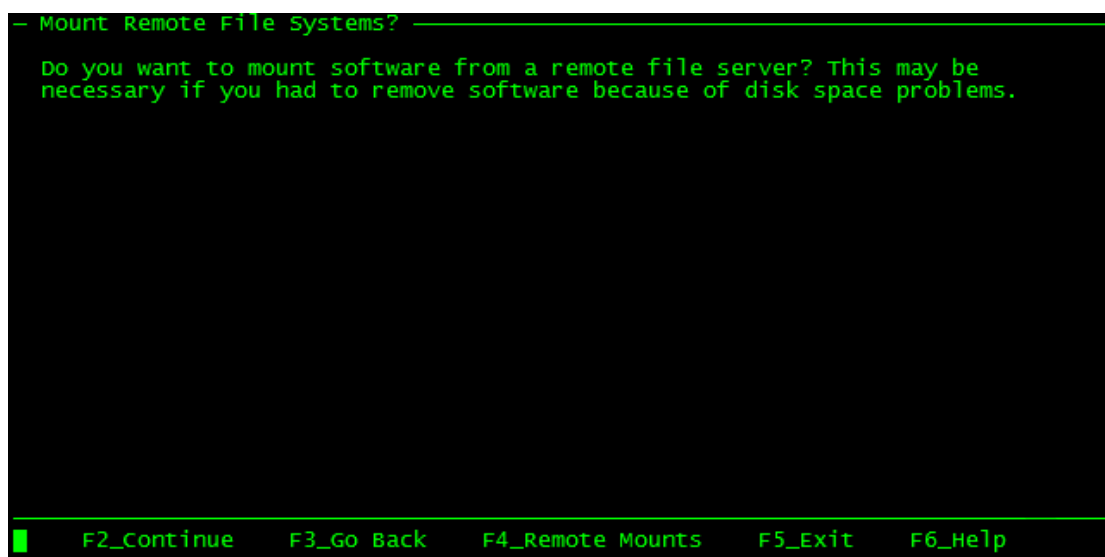
(40) 不保留数据，按 F2 继续；

```
- Preserve Data? -  
  
Do you want to preserve existing data? At least one of the disks you've  
selected for installing Solaris software has file systems or unnamed slices  
that you may want to save.  
  
F2_Continue    F3_Go Back    F4_Preserve    F5_Exit    F6_Help
```

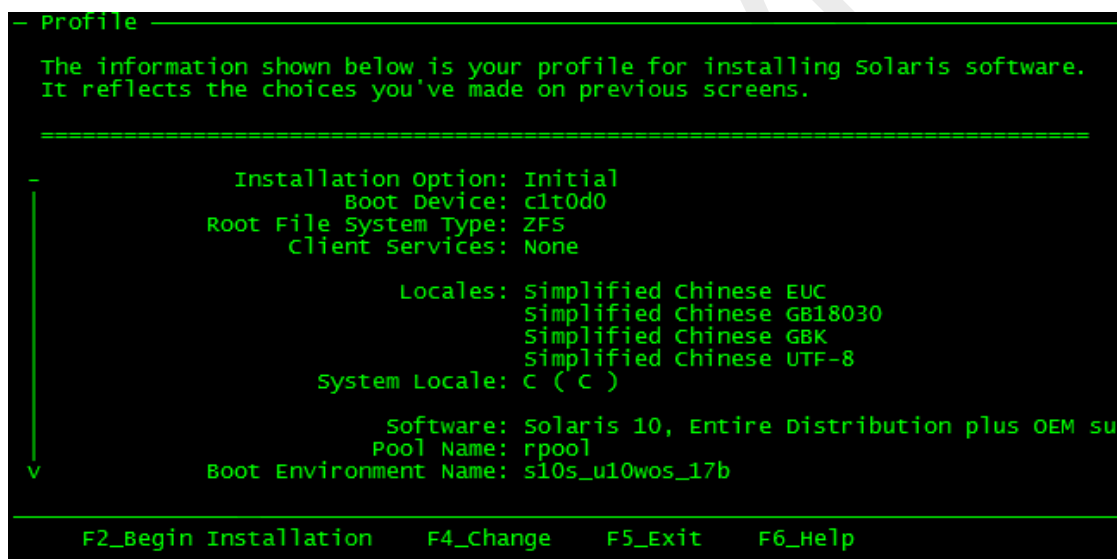
(41) 配置 ZFS 磁盘空间，修改 Swap Area，按 F2 继续；

```
- Configure ZFS Settings -  
  
Specify the name of the pool to be created from the disk(s) you have chosen.  
Also specify the name of the dataset to be created within the pool that is  
to be used as the root directory for the filesystem.  
  
ZFS Pool Name: pool  
ZFS Root Dataset Name: s10s_u10wos_17b  
ZFS Pool Size (in MB): 139990  
Size of Swap Area (in MB): 8196  
Size of Dump Area (in MB): 1536  
(Pool size must be between 6542 MB and 139990 MB)  
  
[X] Keep / and /var combined  
[ ] Put /var on a separate dataset  
  
F2_Continue    F3_Go Back    F5_Exit    F6_Help
```

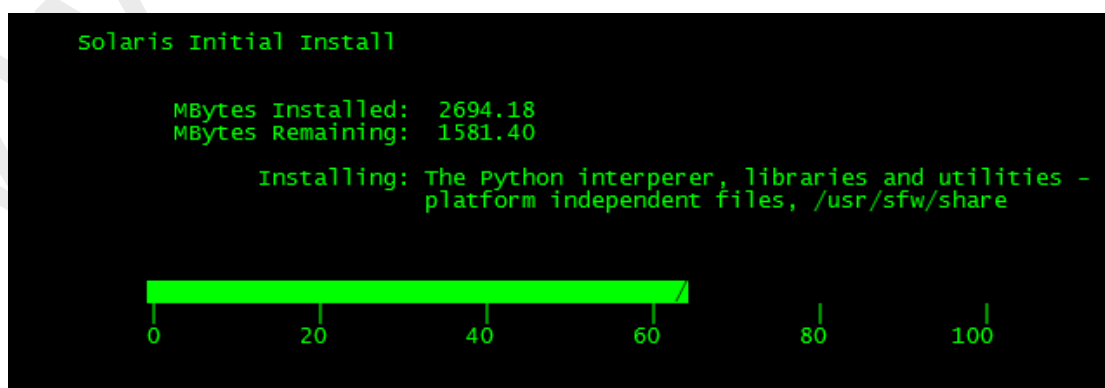
(42) 不 mount 远程文件系统，按 F2 继续；



(43) 确认配置策略，按 F2 开始安装；



(44) 开始过程：



4.1.3 网络设置

主要涉及 5 个文件

- /etc/hostname.nxge0
- /etc/hosts
- /etc/netmasks
- /etc/defaultrouter
- /etc/nodename

4.1.3.1 编辑 hosts 文件

```
# vi /etc/hosts
#
# Internet host table
#
::1      localhost
127.0.0.1      localhost loghost

192.168.100.93  racdb1
192.168.100.94  racdb2

10.10.10.93     racdb1-priv
10.10.10.94     racdb2-priv

192.168.100.85  racdb
```

4.1.3.2 创建 hostname.nxge0 文件

```
# vi /etc/hostname.nxge0
192.168.100.93
或者写出主机名 racdb1
```

4.1.3.3 编辑 netmasks 文件

```
# vi /etc/netmasks
#
# The netmasks file associates Internet Protocol (IP) address
# masks with IP network numbers.
#
#      network-number  netmask
#
# The term network-number refers to a number obtained from the Internet Network
# Information Center.
#
# Both the network-number and the netmasks are specified in
# "decimal dot" notation, e.g:
#
#           128.32.0.0 255.255.255.0
#
192.168.100.0      255.255.255.0
```

4.1.3.4 创建 defaultrouter 文件

```
# vi /etc/defaultrouter
192.168.100.1
```

4.1.3.5 修改主机名需要用到/etc/nodename 文件

```
bash-3.2# vi /etc/nodename
"/etc/nodename" 1 line, 7 characters
racdb1
~
```

4.1.3.6 设置网卡链路聚合

在每个节点进行 Public NIC 和 Private NIC 的绑定

(1) 查看物理网卡;

```

root@racdb1#dladm show-link
nxge0          type: non-vlan  mtu: 1500      device: nxge0
nxge1          type: non-vlan  mtu: 1500      device: nxge1
nxge2          type: non-vlan  mtu: 1500      device: nxge2
nxge3          type: non-vlan  mtu: 1500      device: nxge3

```

(2) 查看正在使用的网卡

```

root@racdb2#ifconfig -a
lo0:
flags=2001000849<UP,LOOPBACK,RUNNING,MULTICAST,IPv4,VIRTUAL> mtu
8232 index 1
    inet 127.0.0.1 netmask ff000000
nxge0: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu
1500 index 2
    inet 192.168.100.94 netmask fffffff0 broadcast 192.168.100.255
    ether 0:21:28:58:54:66

```

(3) 停止需要绑定的物理网卡；

```
root@racdb1#ifconfig nxge0 unplumb
```

(4) 创建聚合链路；

```
root@racdb1#dladm create-aggr -d nxge0 -d nxge1 1
```

(5) 新建网卡配置文件；

```

root@racdb1#vi /etc/hostname.aggr1
192.168.100.93

```

(6) 重启网络服务；

```

root@racdb1#svcadm disable physical
root@racdb1#svcadm enable physical

```

(7) 查看物理网卡；

```

root@racdb1#dladm show-aggr
key: 1 (0x0001) policy: L4      address: 0:21:28:58:d:12 (auto)
  device      address      speed      duplex    link    state
  nxge0       0:21:28:58:d:12  100 Mbps   full      up      attached
  nxge1       0:21:28:58:d:12  100 Mbps   full      up      attached

```

(8) racdb2 配置过程:

```

root@racdb2#ifconfig -a
lo0: flags=2001000849<UP,LOOPBACK,RUNNING,MULTICAST,IPv4,VIRTUAL>
mtu 8232 index "/etc/hostname.aggr1" [New file]
        inet 127.0.0.1 netmask ff000000
nxge0: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu 1500
index 2
        inet 192.168.100.94 netmask fffffff0 broadcast 192.168.100.255
        ether 0:21:28:58:54:66
root@racdb2#ifconfig nxge0 unplumb
root@racdb2#dladm show-link
        nxge0          type: non-vlan   mtu: 1500      device: nxge0
        nxge1          type: non-vlan   mtu: 1500      device: nxge1
        nxge2          type: non-vlan   mtu: 1500      device: nxge2
        nxge3          type: non-vlan   mtu: 1500      device: nxge3
root@racdb2#dladm create-aggr -d nxge0 -d nxge1 1
root@racdb2#vi /etc/hostname.aggr1
        192.168.100.94

"/etc/hostname.aggr2" [New file] 1 line, 15 characters
root@racdb2#dladm create-aggr -d nxge2 -d nxge3 2
root@racdb2#vi /etc/hostname.aggr2
        10.10.10.94

"/etc/hostname.aggr2" [New file] 1 line, 12 characters
root@racdb2#svcadm disable physical
root@racdb2#svcadm enable physical
        Aug  3 15:12:22 racdb2 ip: nxge0: DL_BIND_REQ failed: DL_SYSERR (errno
16)
        Aug  3 15:12:22 racdb2 ip: nxge0: DL_UNBIND_REQ failed: DL_OUTSTATE
        Aug  3 15:12:22 racdb2 nxge: NOTICE: nxge3: xcvr addr:0x1a - link is up 1000
Mbps full duplex
        Failed to plumb IPv4 interface(s): nxge0

        Aug  3 15:12:22 racdb2 nxge: NOTICE: nxge1: xcvr addr:0x1c - link is up 100
Mbps full duplex
        Aug  3 15:12:22 racdb2 nxge: NOTICE: nxge0: xcvr addr:0x1d - link is up 100

```

```

Mbps full duplex
Aug  3 15:12:22 racdb2 nxge: NOTICE: nxge2: xcvr addr:0x1b - link is up 1000
Mbps full duplex
root@racdb2#ifconfig -a
lo0:
flags=2001000849<UP,LOOPBACK,RUNNING,MULTICAST,IPv4,VIRTUAL> mtu
8232 index 1
    inet 127.0.0.1 netmask ff000000
aggr1: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu
1500 index 3
    inet 192.168.100.94 netmask fffffff0 broadcast 192.168.100.255
    ether 0:21:28:58:54:66
aggr2: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu
1500 index 4
    inet 10.10.10.94 netmask ff000000 broadcast 10.255.255.255
    ether 0:21:28:58:54:66
root@racdb2#dladm show-aggr
key: 1 (0x0001) policy: L4      address: 0:21:28:58:54:66 (auto)
  device      address      speed      duplex  link      state
  nxge0       0:21:28:58:54:66    100 Mbps   full    up        attached
  nxge1       0:21:28:58:54:66    100 Mbps   full    up        attached
key: 2 (0x0002) policy: L4      address: 0:21:28:58:54:66 (auto)
  device      address      speed      duplex  link      state
  nxge2       0:21:28:58:54:66    1000 Mbps  full    up        attached
  nxge3       0:21:28:58:54:66    1000 Mbps  full    up        attached
root@racdb2#

```

4.1.4 安装 EIS 补丁

4.1.4.1 安装说明

- (1) 确认当前系统版本

```

root@racdb1#uname -a
SunOS racdb1 5.10 Generic_147440-01 sun4v sparc SUNW,T5140

```

- (2) 挂载 EIS 的 ISO 镜像文件

```

root@racdb1#umount /dev/lofi/1

```

```

root@racdb1#lofiadm -d /dev/lofi/1    --如果之前挂载过其他的 iso，需要先删除
root@racdb1#lofiadm -a /export/home/eis-dvd-201206-1.iso /dev/lofi/1
root@racdb1#lofiadm
Block Device          File
/dev/lofi/1          /export/home/eis-dvd-201206-1.iso
root@racdb1#mkdir /mnt/iso
root@racdb1#mount -F hsfs -o ro /dev/lofi/1 /mnt/iso

```

(3) 设置安装标准:

```

root@racdb1#cd /mnt/iso
root@racdb1#ls
CONTENTS.txt      COPYRIGHT          DISCLAIMER.txt    README-20JUN12
history.txt       sun
root@racdb1# cd sun/install
root@racdb1# ./setup-standard.sh    --由于第一次执行结果没有了，此部分为第二次执行结果
Running setup-standard with EIS-DVD Vn 20-JUN-12
=====

*****
*   You are using a EIS-DVD that is > 50 days old!   *
* Please ensure that you use the most recent version *
*****

Loading /opt/sun/bin...

BEWARE: /.profile does NOT source /.profile-EIS
PLEASE: examine why this is not sourced!

The power daemon start-up has probably already been disabled....

Sun keyboard Power button is probably already disabled...

The buttons & dials have probably already been disabled....

Remote ROOT logins via SSH probably enabled: See /etc/ssh/sshd_config...

IPMITOOL.....
On this Solaris 10 system the installed IPMITOOL version is 1.8.10.4
No Update to IPMITOOL required.

```

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Service Tags Core packages.....

Service Tags Packages Vn 1.0 installed together with patch 138195-04.

=> no action required.

Product Serial Number (PSN) package....

Installed Package has current Version (1.1.4,REV=2008.04.25.10.21)

Hardware Service Tag Registration package....

Installed package has current Version (1.0,REV=2009.09.23.11.02)

Script /etc/rc3.d/S99EIS-DVDtag loaded.

Script /etc/rc3.d/S99EIS-DVDtag has been run.

Automated Core File Analysis Tool (ACT).....

Checking ACT Versions....

Installed ACT has current Version (8.17)

Oracle Remote Diagnostic Agent (RDA).....

Checking RDA Versions....

Installed RDA has current Version (4.28.12.6.8,REV=4.28.12.6.8)

Oracle Explorer Data Collector.....

Checking Explorer Versions....

Installed Explorer has current Version (7.0,REV=2012.6.13.10.32)

Oracle Serial Number in EEPROM (Sneep).....

Transferring <SUNWsneep> package instance

Checking Sneep Versions....

Installed Sneep has current Version (7.0)

* You have used an EIS-DVD that is > 50 days old! *

* Please ensure that you use the most recent version *

* BEWARE: ROOT's .profile does NOT source .profile-EIS *

* PLEASE: examine why this is not sourced! *

* For EIS scripts to function it MUST be sourced! *

* See file root-profile on EIS-DVD for suggestion! *

"ChassisSerialNumber" no change to eeprom.

setup-standard completed.

(4) 安装 EIS 补丁:

```
root@racdb1#cd /mnt/iso/sun/patch/10/
```

```
root@racdb1#../install/bin/unpack_patches
```

```
Are you ready to unpack patches into /tmp/10? [y/n]: y
```

```
Cleaning out /tmp/10...
```

```
Unpacking Recommended OS Patchset - will take some time...
```

```
10_Recommended.tar.bz2
```

```
You should cd /tmp/10 & install the required patch by hand
```

```
You should run: cd /tmp/10; ./install_all_patches
```

* Special Information for these patches *

Solaris 10 patches may only be installed from the EIS-DVD if at least one of the following applies:

- 1) This is a new installation a new server.
- 2) This system has a maintenance contract with entitlement to Solaris 10 patches.

```
root@racdb1#cd /tmp/10
```

```
root@racdb1#./install_all_patches
```

ONLY if your system has a graphics display:

- You are advised not to have a graphics display active whilst patching!

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- Suggestion: Exit from CDE etc. & log back in on command line!

Are you ready to continue with install? [y/n]: y

```
*****
** INFO: Solaris 10 KU 118833-36 is currently installed.  **
*****
```

Now the Solaris 10 Recommended Patches...

Setup .

Recommended OS Patchset Solaris 10 SPARC (2012.06.14)

The patch set will complete installation in this session. No intermediate reboots are required.

Application of patches started : 2012.08.16 09:39:35

Applying 120900-04 (1 of 350) ... skipped

Applying 121133-02 (2 of 350) ... skipped

Applying 119254-82 (3 of 350) ... skipped

.....

.....

.....

Applying 148657-01 (348 of 350) ... success

Applying 148948-01 (349 of 350) ... success

Applying 149191-01 (350 of 350) ... success

Application of patches finished : 2012.08.16 10:54:00

Following patches were applied :

144526-02	146470-06	147161-04	147708-01	148135-01
144112-02	146576-01	147194-03	147715-02	148165-02
144891-02	146666-04	147266-05	147988-01	148403-01
144909-03	146679-01	147270-01	147992-01	148407-01
147217-02	146681-02	147434-01	148002-01	148601-01
145080-06	146683-01	147440-19	148004-01	148625-01
145200-09	146834-02	147673-03	148006-01	148657-01
145899-08	147153-01	147705-01	148063-01	148948-01

146032-03	147159-03	147707-06	148065-02	149191-01
-----------	-----------	-----------	-----------	-----------

Following patches were skipped :

Patches already applied

120900-04	119648-03	123590-12	137282-01	142373-02
121133-02	120272-31	123938-02	137321-02	142394-01
119254-82	122640-05	124149-16	137871-02	142397-01
119317-01	126897-02	124325-01	138096-02	142428-02
121296-01	127755-01	124393-11	138181-01	142430-01
138215-01	125503-02	124397-02	138195-04	142529-01
147061-01	125547-02	124444-01	138245-01	142543-01
146054-07	140796-01	124939-04	138247-01	143368-01
142251-02	120011-14	124997-01	141016-01	143502-01
125555-12	139520-02	125075-01	139555-08	143506-05
118367-04	119757-22	125136-35	142292-01	143510-01
118666-38	119764-06	125137-35	141444-09	143513-02
118667-38	119783-21	125215-04	142911-01	143609-03
118705-02	120460-20	125279-05	142933-04	144500-19
118706-01	119812-16	125332-24	142909-17	143643-04
118707-05	119900-13	125505-01	138647-01	143725-01
118708-19	119903-02	125719-42	138649-01	143731-01
118711-03	119906-18	125725-02	138766-01	143739-01
118718-06	119963-24	125731-07	138822-09	143954-04
118918-24	119966-01	125891-01	138826-09	144047-01
138217-01	119986-03	126206-09	138852-01	144106-01
119578-30	120101-01	126363-08	139289-02	144188-02
140860-02	120201-05	126425-01	139602-01	144190-04
121453-02	120256-01	126440-01	139615-01	144327-02
121453-02	120284-07	126540-02	139944-01	144455-01
121118-19	120329-02	126868-04	139962-02	144492-01
118833-36	121975-01	127127-11	139980-01	144569-01
118945-01	120543-28	127724-02	139986-01	144895-02
118981-03	120719-03	127752-01	140455-01	144911-02
119059-61	120732-01	128292-01	140786-03	145006-02
119063-01	120739-08	128298-02	140912-01	145019-01
119081-25	120753-09	128310-01	141032-01	145023-01
119115-35	120830-06	128316-01	141104-04	145120-01
119130-33	121095-03	128332-01	141496-01	145786-02
119213-26	121337-01	136882-03	141514-04	145929-05
119246-39	120235-01	136998-10	141548-01	145953-06
123611-04	121428-15	137000-08	141558-01	145957-06
119280-25	121606-04	137032-01	141586-01	146334-01
119282-01	121946-01	137080-06	141596-01	146486-03

140899-01	122259-05	137093-01	141900-01	146489-05
119313-42	122911-30	137097-01	142049-01	146656-01
124188-03	123003-04	137102-01	142088-02	146673-01
119534-29	123252-01	137115-01	142234-01	146954-03
119538-19	123358-02	138866-03	142240-01	147023-01
120099-08	123406-02	137137-09	142244-02	147227-01
119546-08	123526-01	137147-06	142340-02	147378-01

Patches obsoleted by one or more patches already applied

118712-23	122660-10	120414-27	125533-15	140964-02
118777-16	119810-05	121308-20	126365-16	141532-04
119117-52	119955-05	122212-40	138361-01	143645-16
124628-10	120094-30	122470-03	138399-01	143733-01
119252-29	119368-04	124171-07	138623-04	144325-01
119278-38	120286-03	123630-03	138854-01	144486-05
119315-19	120292-02	123005-07	138876-01	144556-03
120199-15	120348-03	123893-22	139099-04	145096-03
118731-01	120410-33	124457-02	139620-01	145198-01
124204-04	120412-11	124630-42	140159-03	

Patches not applicable to packages on the system

121181-05	120815-01	121211-02	137004-09	143527-01
119309-03	120849-04	122031-01	137090-02	143651-01
119548-14	120928-32	122472-07	138824-09	143727-01
120195-02	121104-11	123301-01	139291-02	147692-01
120811-09	121136-02	125670-04	143317-03	147693-01
120812-32				

Installation of patch set complete. PLEASE REBOOT THE SYSTEM.

Install log files written :

/var/sadm/install_data/s10s_rec_patchset_short_2012.08.16_10.11.55.log

/var/sadm/install_data/s10s_rec_patchset_verbose_2012.08.16_10.11.55.log

root@racdb1#reboot

(5) 重启后检查系统版本

root@racdb1#uname -a

SunOS racdb1 5.10 Generic_147440-19 sun4v sparc SUNW,T5140

4.1.4.2 安装解释

(1) 将补丁盘放入相应主机或工作站控制台的光驱。

(2) 以 root 用户身份安装补丁安装工具:

```
# cd /cdrom/cdrom0/sun/install/
# sh ./setup-standard.sh
```

(3) 安装时会提示是否关掉电源管理 (Power daemon start-up), 选择<y>; 而在控制台安装时, 由于进行系统安装时已经设置相关参数, 因此无此提示:

```
Is the power saving daemon to be disabled? [y/n]: y
```

(4) 是否关掉键盘上的电源按钮(Keyboard Power Button), 选择<y>;

```
Sun keyboard Power button to be disabled? [y/n]: y
```

(5) 是否关掉 buttons & dials, 选择<y>;

```
Are the buttons & dials to be disabled? [y/n]: y
```

(6) root 用户是否可以远程登录, 选择<y>;

```
Are remote root logins to be allowed? [y/n]: y
```

(7) 是否安装 ACT(Automated Crash Analysis tool)软件包, 选择<y>; 开始安装 ACT 包:

```
Do you want to install the ACT package? [y/n]: y
```

(8) 输入安装包的 base 目录: 直接按 Enter 键表示选择缺省的/opt/CTEact

```
enter base directory for install (Default /opt/CTEact) [?,q]
```

(9) 是否激活 Email of Panic Facility, 直接按 Enter 键表示选择缺省的<y>;

(10) 输入 email 地址, 选择<n>; 不输入

```
Do you wish to enable the email of panic facility [y] [y,n,?] n
```

(11) 是否创建目录/opt/CTEact, 直接按 Enter 键表示选择缺省的<y>;

(12) 是否继续安装 CTEact 包, 直接按 Enter 键表示选择缺省的<y>; 开始安装 explorer 包

```
Agree to these terms? [y,n] y
```

```
...
```

```
Do you want to continue with the installation of <CTEact>; [y,n,?]n
```

(13) 安装路径: 直接按 Enter 键表示选择缺省的/opt/SUNWexplo

Where should this package be installed? [/opt/SUNWexplo]:

(14) 输入您公司的名字

Company name []:ultrapower

(15) 输入合同号 (Contract number), 回车即可

Contract ID []:

(16) 输入您的系统序列号 (System Serial number)

System serial number []:

(17) 输入您的1联系名(Contact Name)

Contact name []:

(18) (输入联系您的 email 地址)

Contact email address []:

(19) 输入您的电话号码

Phone number []:

(20) 输入您的地址 (第一行)

Address (line 1) []:

(21) 输入您的地址 (第二行)

Address (line 2) []:

(22) 输入您所在的城市

City []:

(23) 输入您所在的州

State []:

(24) 输入您的邮政编码

Zip []:

(25) 输入您的国家

Country []:

(26) 选择分析结果的 SUN 公司所在区域, 选择<APAC: Asia, Pacific>;

Geographic Region

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1 - AMERICAS - North and South America
 2 - EMEA - Europe, Middle-east and Africa
 3 - APAC - Asia, Pacific
 []: 3

(27) 是否将每次运行结果反馈给 SUN 公司的亚太服务中心进行分析, 选择<no>;

Would you like all explorer output to be sent to:
 explorer-database-apac@sun.com
 at the completion of explorer when -mail or -e is specified?[y,n] n

(输入将结果反馈的其他记 email 地址: 输入“-”表示无

(28) 输入分析结果的返回地址: 输入“-”表示无

(29) 显示您所设置的参数, 选择<y>;确认, 选择<n>;重新设置

You have answered:
 Company name: ultrapower
 Contract ID:
 ...
 Geography: APAC
 Mail output to:
 Mail output from:
 Are these values okay? [y,n] y

(30) 您是否想每个星期运行 explorer 工具, 选择<n>;

Do you wish to run explorer once a week? [y,n] n

(31) 在本次安装过程中您是否想运行 explorer 工具, 并将结果反馈给 SUN 公司进行分析, 选择<n>;

The command to do this would be:
 /opt/SUNWexplo/bin/explorer -q -e
 Would you like to do this now? [y,n] n

(32) 目录/opt/SUNWexplo 不存在, 是否创建, 选择<y>;创建

(33) 您是否想继续本次安装, 选择 yes

Do you ... with the installation of <SUNWexplo>; [y,n,?] y

(34) 执行/.profile 使环境变量生效

#. /.profile

4.1.5 配置 xmanager 允许 root 登录

```
root@racdb1#vi /etc/default/login
"/etc/default/login" [Read only] 77 lines, 2258 characters
#ident "@(#)login.dfl 1.14 04/06/25 SMI"
#
# Copyright 2004 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.

# Set the TZ environment variable of the shell.
#
#TIMEZONE=EST5EDT

# ULIMIT sets the file size limit for the login. Units are disk blocks.
# The default of zero means no limit.
#
#ULIMIT=0

# If CONSOLE is set, root can only login on that device.
# Comment this line out to allow remote login by root.
#
#CONSOLE=/dev/console --注释掉此行

# PASSREQ determines if login requires a password.
#
PASSREQ=YES

# ALTSHELL determines if the SHELL environment variable should be set
#
ALTSHELL=YES

# PATH sets the initial shell PATH variable
#
#PATH=/usr/bin:

# SUPATH sets the initial shell PATH variable for root
#
#SUPATH=/usr/sbin:/usr/bin

# TIMEOUT sets the number of seconds (between 0 and 900) to wait before
# abandoning a login session.
#
```

```
#TIMEOUT=300
```

```
# UMASK sets the initial shell file creation mode mask. See umask(1).
```

```
"/etc/default/login" 77 lines, 2259 characters
```

4.1.6 多路径设置

```
root@racdb1#luxadm probe
```

```
No Network Array enclosures found in /dev/es
```

```
Found Fibre Channel device(s):
```

```
Node WWN:50060160bb205115 Device Type:Disk device
```

```
Logical Path:/dev/rdisk/c2t500601603B205115d0s2
```

```
Logical Path:/dev/rdisk/c2t500601613B205115d0s2
```

```
Logical Path:/dev/rdisk/c2t500601683B205115d0s2
```

```
Logical Path:/dev/rdisk/c2t500601693B205115d0s2
```

```
Node WWN:50060160bb205115 Device Type:Disk device
```

```
Logical Path:/dev/rdisk/c2t500601603B205115d3s2
```

```
Logical Path:/dev/rdisk/c2t500601613B205115d3s2
```

```
Logical Path:/dev/rdisk/c2t500601683B205115d3s2
```

```
Logical Path:/dev/rdisk/c2t500601693B205115d3s2
```

```
root@racdb1#stmsboot -L
```

```
stmsboot: MPxIO is not enabled
```

```
stmsboot: MPxIO disabled
```

```
root@racdb1#stmsboot -e
```

```
WARNING: stmsboot operates on each supported multipath-capable controller  
detected in a host. In your system, these controllers are
```

```
/pci@400/pci@0/pci@9/SUNW,qlc@0/fp@0,0
```

```
/pci@400/pci@0/pci@c/SUNW,qlc@0/fp@0,0
```

```
/pci@400/pci@0/pci@8/scsi@0
```

```
If you do NOT wish to operate on these controllers, please quit stmsboot  
and re-invoke with -D { fp | mpt | mpt_sas } to specify which controllers you wish  
to modify your multipathing configuration for.
```

```
Do you wish to continue? [y/n] (default: y) y
```

```
WARNING: This operation will require a reboot.
```

```
Do you want to continue ? [y/n] (default: y) y
```

```
The changes will come into effect after rebooting the system.
```

```
Reboot the system now ? [y/n] (default: y) y
```

```
updating /platform/sun4v/boot_archive
```

重新启动系统后:

```
root@racdb1#luxadm probe
No Network Array enclosures found in /dev/es

Found Fibre Channel device(s):
  Node WWN:50060160bb205115  Device Type:Disk device
    Logical Path:/dev/rdisk/c2t500601603B205115d0s2
    Logical Path:/dev/rdisk/c2t500601613B205115d0s2
    Logical Path:/dev/rdisk/c2t500601683B205115d0s2
    Logical Path:/dev/rdisk/c2t500601693B205115d0s2
  Node WWN:50060160bb205115  Device Type:Disk device
    Logical Path:/dev/rdisk/c4t60060160A891280036A8E0C713F2DF11d0s2
root@racdb1#stmsboot -L
non-STMS device name          STMS device name
-----
/dev/rdisk/c2t500601683B205115d3 /dev/rdisk/c4t60060160A891280036A8E0C713F2DF11d0
/dev/rdisk/c2t500601603B205115d3 /dev/rdisk/c4t60060160A891280036A8E0C713F2DF11d0
/dev/rdisk/c2t500601693B205115d3 /dev/rdisk/c4t60060160A891280036A8E0C713F2DF11d0
/dev/rdisk/c2t500601613B205115d3 /dev/rdisk/c4t60060160A891280036A8E0C713F2DF11d0
/dev/rdisk/c1t0d0                /dev/rdisk/c4t5000CCA00A97C244d0
/dev/rdisk/c1t1d0                /dev/rdisk/c4t5000CCA00A926CACd0
root@racdb2#
```

4.1.7 创建 ZFS 文件系统

(1) 确定磁盘编号

```
root@racdb1#format
Searching for disks...done

c3t60060160A891280036A8E0C713F2DF11d0: configured with capacity of 100.00GB

AVAILABLE DISK SELECTIONS:
  0. c2t500601603B205115d0 <drive type unknown>
    /pci@400/pci@0/pci@c/SUNW,qlc@0/fp@0,0/ssd@w500601603b205115,0
  1. c2t500601613B205115d0 <drive type unknown>
    /pci@400/pci@0/pci@c/SUNW,qlc@0/fp@0,0/ssd@w500601613b205115,0
  2. c2t500601683B205115d0 <drive type unknown>
    /pci@400/pci@0/pci@c/SUNW,qlc@0/fp@0,0/ssd@w500601683b205115,0
```

```

3. c2t500601693B205115d0 <drive type unknown>
   /pci@400/pci@0/pci@c/SUNW,qlc@0/fp@0,0/ssd@w500601693b205115,0
4. c3t5000CCA00A97803Cd0 <SUN146G cyl 14087 alt 2 hd 24 sec 848>  solaris
   /scsi_vhci/disk@g5000cca00a97803c
5. c3t5000CCA00A941068d0 <SUN146G cyl 14087 alt 2 hd 24 sec 848>  solaris
   /scsi_vhci/disk@g5000cca00a941068
6. c3t60060160A891280036A8E0C713F2DF11d0 <DGC-RAID5-0429 cyl 51198 alt 2 hd
256 sec 16>
   /scsi_vhci/ssd@g60060160a891280036a8e0c713f2df11
Specify disk (enter its number):

```

(2) 确定 zpool 池情况

```

root@racdb1#zpool status
pool: rpool
state: ONLINE
scan: none requested
config:

    NAME                                STATE    READ WRITE CKSUM
    rpool                                ONLINE   0     0     0
    c3t5000CCA00A941068d0s0            ONLINE   0     0     0

errors: No known data errors

```

(3) 创建 oracle 池

```

root@racdb1#zpool create -f -m /oracle orapool c3t5000CCA00A97803Cd0s0
root@racdb1#zpool list
NAME      SIZE  ALLOC   FREE   CAP  HEALTH  ALTROOT
orapool   136G   120K   136G    0%  ONLINE  -
rpool     136G   6.21G   130G    4%  ONLINE  -
root@racdb1#zpool status
pool: orapool
state: ONLINE
scan: none requested
config:

    NAME                                STATE    READ WRITE CKSUM
    orapool                                ONLINE   0     0     0
    c3t5000CCA00A97803Cd0s0            ONLINE   0     0     0

errors: No known data errors

pool: rpool

```

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state: ONLINE

scan: none requested

config:

NAME	STATE	READ	WRITE	CKSUM
rpool	ONLINE	0	0	0
c3t5000CCA00A941068d0s0	ONLINE	0	0	0

errors: No known data errors

root@racdb1#zfs list

NAME	USED	AVAIL	REFER	MOUNTPOINT
orapool	102K	134G	31K	/oracle
rpool	14.5G	119G	106K	/rpool
rpool/ROOT	4.70G	119G	31K	legacy
rpool/ROOT/s10s_u10wos_17b	4.70G	119G	4.70G	/
rpool/dump	1.50G	119G	1.50G	-
rpool/export	63K	119G	32K	/export
rpool/export/home	31K	119G	31K	/export/home
rpool/swap	8.26G	128G	16K	-

root@racdb1#cd /oracle/

root@racdb1#ls

root@racdb1#df -h -F zfs

Filesystem	size	used	avail	capacity	Mounted on
rpool/ROOT/s10s_u10wos_17b	134G	4.7G	119G	4%	/
rpool/export	134G	32K	119G	1%	/export
rpool/export/home	134G	31K	119G	1%	/export/home
rpool	134G	106K	119G	1%	/rpool
orapool	134G	31K	134G	1%	/oracle

4.1.8 系统包检查

检查系统安装的系统包是否符合要求

检查命令: pkginfo -i SUNWarc SUNWbtool SUNWhea SUNWlibC SUNWlibm

SUNWlibms SUNWsprout SUNWtoo SUNWi1of SUNWi1cs SUNWi15cs SUNWxwfont SUNWcsl

```
root@racdb1#pkginfo -i SUNWarc SUNWbtool SUNWhea SUNWlibC SUNWlibm SUNWlibms
SUNWsprout SUNWtoo SUNWi1of SUNWi1cs SUNWi15cs SUNWxwfont SUNWcsl
system      SUNWarc    Lint Libraries (usr)
system      SUNWbtool  CCS tools bundled with SunOS
system      SUNWcsl    Core Solaris, (Shared Libs)
```

```

system      SUNWhea   SunOS Header Files
system      SUNWi1of  ISO-8859-1 (Latin-1) Optional Fonts
system      SUNWlibC   Sun Workshop Compilers Bundled libC
system      SUNWlibm  Math & Microtasking Library Headers & Lint Files (Usr)
system      SUNWlibms Math & Microtasking Libraries (Usr)
system      SUNWspot  Solaris Bundled tools
system      SUNWtoo   Programming Tools
system      SUNWxwft  X Window System platform required fonts
ERROR: information for "SUNWi1cs" was not found
ERROR: information for "SUNWi15cs" was not found
root@racdb1#

```

挂载安装盘:

```

root@racdb1#lofiadm -a /tmp/sol-10-u10-ga2-sparc-dvd.iso /dev/lofi/1
root@racdb1#lofiadm
Block Device          File
/dev/lofi/1           /tmp/sol-10-u10-ga2-sparc-dvd.iso
root@racdb1#mount -F hsfs -o ro /dev/lofi/1 /mnt/iso/
root@racdb1#mkdir /mnt/iso
root@racdb1#mount -F hsfs -o ro /dev/lofi/1 /mnt/iso/
root@racdb1#cd /mnt/iso
root@racdb1#ls
Copyright              boot
Offer_to_Provide_Source_Code.txt  installer
Solaris_10              platform
root@racdb1#

```

安装 SUNWi15cs 包:

```

root@racdb1#pkgadd SUNWi15cs

Processing package instance <SUNWi15cs> from </var/spool/pkg>

X11 ISO8859-15 Codeset Support(sparc) 2.0,REV=2004.08.23.14.43
Copyright 2004 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.
Using </> as the package base directory.
## Processing package information.
## Processing system information.
    6 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

```

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This package contains scripts which will be executed with super-user permission during the process of installing this package.

Do you want to continue with the installation of <SUNWi15cs> [y,n,?] y

Installing X11 ISO8859-15 Codeset Support as <SUNWi15cs>

Installing part 1 of 1.

1460 blocks

Installation of <SUNWi15cs> was successful.

root@racdb1#

安装 SUNWi1cs 包:

root@racdb1#pkgadd SUNWi1cs

Processing package instance <SUNWi1cs> from </var/spool/pkg>

X11 ISO8859-1 Codeset Support(sparc) 2.0,REV=2004.08.12.10.14

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Using </> as the package base directory.

Processing package information.

Processing system information.

8 package pathnames are already properly installed.

Verifying package dependencies.

Verifying disk space requirements.

Checking for conflicts with packages already installed.

Checking for setuid/setgid programs.

This package contains scripts which will be executed with super-user permission during the process of installing this package.

Do you want to continue with the installation of <SUNWi1cs> [y,n,?] y

Installing X11 ISO8859-1 Codeset Support as <SUNWi1cs>

Installing part 1 of 1.

245 blocks

Installation of <SUNWi1cs> was successful.

root@racdb1#

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4.1.9 root 用户环境变量设置

```
root@racdb1#cd ~
root@racdb1#vi .profile
PS1=root@`hostname`#
export PS1
TERM=vt100
export TERM
PATH=$PATH:/usr/cluster/bin
export PATH
```

4.1.10 创建 Oracle 用户、配置

(1) 创建 Oracle 用户和组

必须保证每台主机上的 Oracle 用户的 UID 和 DBA 用户组的 GID 相同。

racdb1:密码: yhjc756

```
root@racdb1#groupadd -g 500 dba
root@racdb1#groupadd -g 501 oinstall
root@racdb1# useradd -u 500 -g dba -G oinstall -s /bin/bash -d /export/home/oracle -m oracle
New Password:
Re-enter new Password:
passwd: password successfully changed for oracle
```

racdb2:

```
root@racdb2#groupadd -g 500 dba
root@racdb2#groupadd -g 501 oinstall
root@racdb2# useradd -u 500 -g dba -G oinstall -s /bin/bash -d /export/home/oracle -m oracle
root@racdb2#passwd oracle
New Password:
Re-enter new Password:
passwd: password successfully changed for oracle
root@racdb2#
```

(2) 配置 Oracle 用户的环境变量

不同主机的 ORACLE_SID 相同。

racdb1:

```
-bash-3.2$ vi .profile
```

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```
# This is the default standard profile provided to a user.
# They are expected to edit it to meet their own needs.

MAIL=/usr/mail/${LOGNAME:?}

PS1=oracle@`hostname`#
export PS1
TERM=vt100
export TERM

export ORACLE_BASE=/oracle
export ORACLE_TERM=xterm
export NLS_LANG=AMERICAN_AMERICA.ZHS16GBK
export CRS_HOME=/oracle/product/crs
export ORACLE_HOME=/oracle/product/database/10.2.0.5/
export ORA_NLS33=$ORACLE_HOME/ocommon/nls/admin/data
export PATH=$CRS_HOME/bin:$ORACLE_HOME/bin:$PATH
export ORACLE_SID=nmsha

ulimit -s 32768
ulimit -n 65536

-bash-3.2$ source .profile
oracle@racdb1#env|grep ORACLE
ORACLE_SID=nms
ORACLE_BASE=/oracle
ORACLE_TERM=xterm
ORACLE_HOME=/oracle/product/database/10.2.0.5
```

racdb2:

```
-bash-3.2$ vi .profile
"profile" 4 lines, 144 characters
# This is the default standard profile provided to a user.
# They are expected to edit it to meet their own needs.

MAIL=/usr/mail/${LOGNAME:?}

PS1=oracle@`hostname`#
export PS1
TERM=vt100
export TERM
```

```
export ORACLE_BASE=/oracle
export ORACLE_TERM=xterm
export NLS_LANG=AMERICAN_AMERICA.ZHS16GBK
export CRS_HOME=/oracle/product/crs
export ORACLE_HOME=/oracle/product/database/10.2.0.5
export ORA_NLS33=$ORACLE_HOME/ocommon/nls/admin/data
export PATH=$CRS_HOME/bin:$ORACLE_HOME/bin:$PATH
export ORACLE_SID=nmsha
```

```
ulimit -s 32768
ulimit -n 65536
```

```
-bash-3.2$ source .profile
oracle@racdb2#env|grep ORACLE
ORACLE_SID=nmsha
ORACLE_BASE=/oracle
ORACLE_TERM=xterm
ORACLE_HOME=/oracle/product/database/10.2.0.5/
```

(3) 修改两个节点的/etc/system 文件:

```
root@racdb1#vi /etc/system

set noexec_user_stack=1
set semsys:seminfo_semmni=100
set semsys:seminfo_semmns=1024
set semsys:seminfo_semmns=1024
set semsys:seminfo_semmns=1024
set semsys:seminfo_semmns=1024
set semsys:seminfo_semmns=1024
set semsys:seminfo_semmns=1024
set semsys:seminfo_semmns=1024
set shmsys:shminfo_shmmax=17179869180
set shmsys:shminfo_shmmni=100
```

4.1.11 配置 RSH 用户等价

分别在每台主机中配置如下文件:

使用 root 用户编辑/etc/hosts.equiv 文件

```
root@racdb1# vi /etc/hosts.equiv
+
```

使用 root 用户编辑家目录中的.rhosts 文件

```
root@racdb1# cd ~
```

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```
root@racdb1# vi .rhosts
+
```

分别到每台主机中进行测试

```
root@racdb1#rsh racdb2
root@racdb1#rsh racdb2-priv

root@racdb2#rsh racdb1
root@racdb2#rsh racdb1-priv
```

4.1.12 配置时间同步

所有节点的时间必须同步，如果没有外部时间服务器，可以选择集群中某个节点作为时间服务器。

(1) 在两个节点执行，启动时间服务：

```
root@racdb1#svcs -algrep time
disabled      22:15:13 svc:/network/daytime:dgram
disabled      22:15:13 svc:/network/daytime:stream
disabled      22:15:14 svc:/network/time:dgram
disabled      22:15:14 svc:/network/time:stream
root@racdb1#svcadm enable time:dgram
root@racdb1#svcadm enable time:stream
```

(2) 在节点 1 执行，与节点 2 的时间同步：

```
root@racdb1#rdate 192.168.100.94
```

4.2 安装 SUN Cluster

需要在两台主机中分别安装 Cluster 软件。

(1) 解压安装文件：

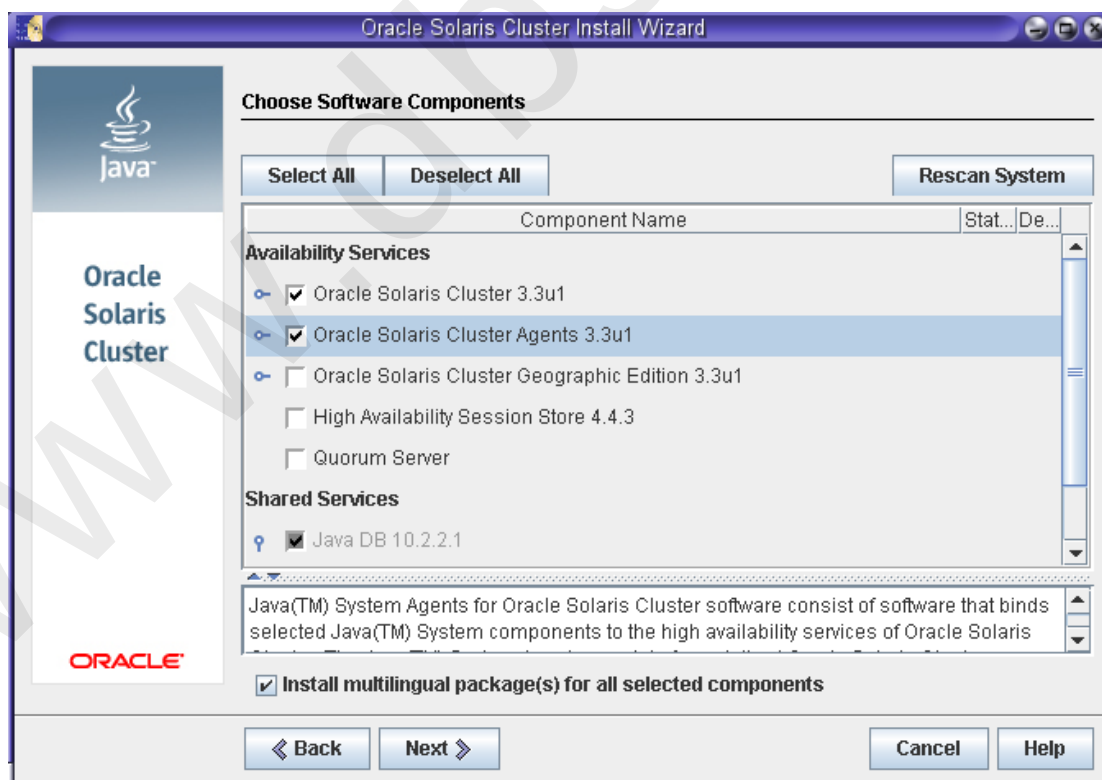
```
root@racdb1#unzip solaris-cluster-3_3u1-ga-sparc.zip
```

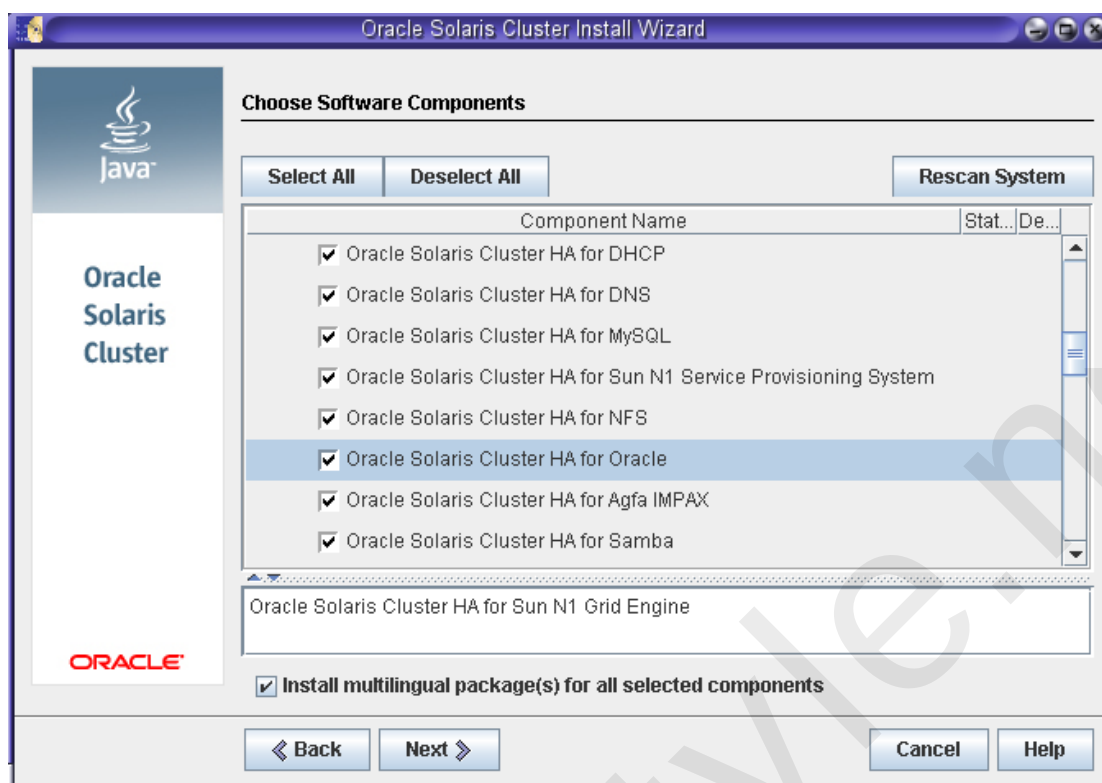
(2) 启动安装欢迎界面，点击“Next”；

```
root@racdb1#cd Solaris_sparc/
root@racdb1#./installer
```

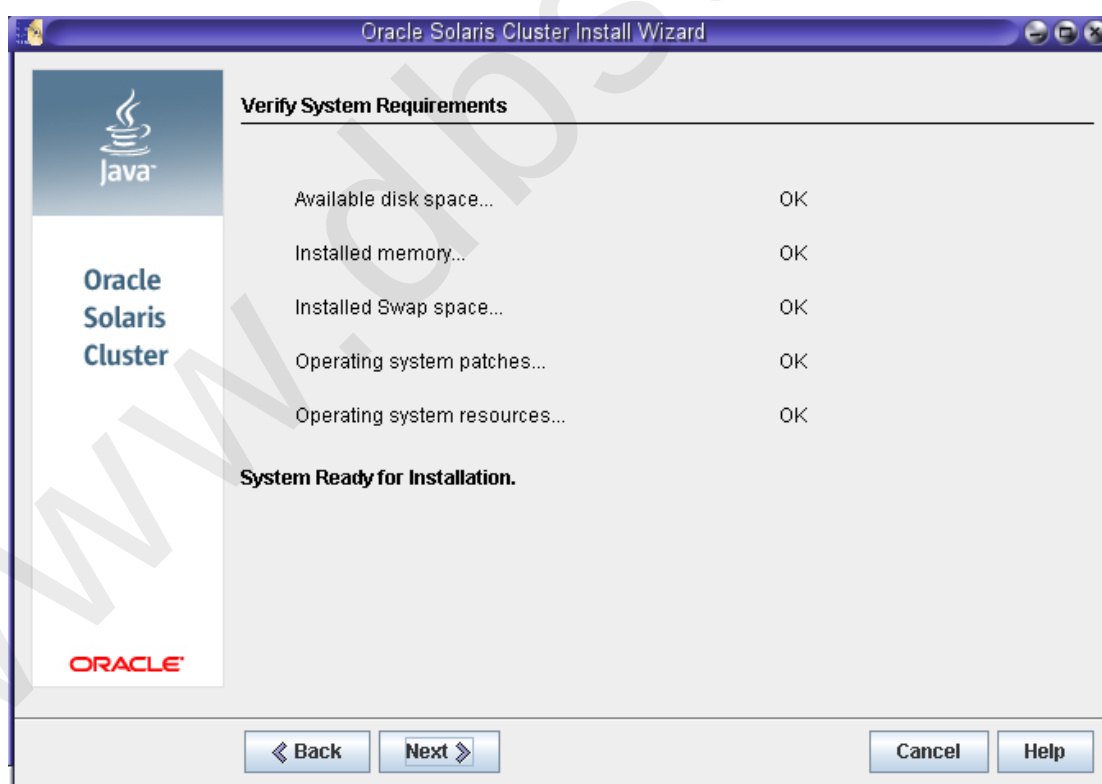


- (3) 选择安装的组件，Solaris Cluster 3.3u1 必须选择，Solaris Cluster Agents 3.3u1 需要选择 HA for Oracle，其他可以不选，点击“Next”；

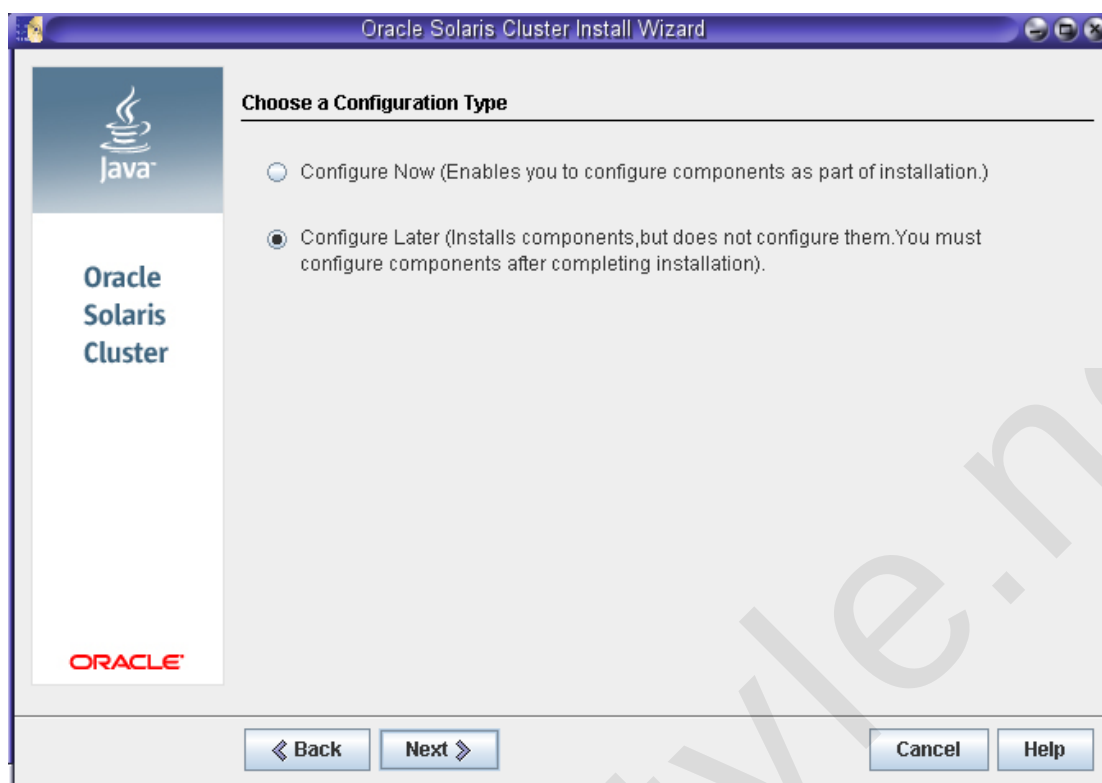




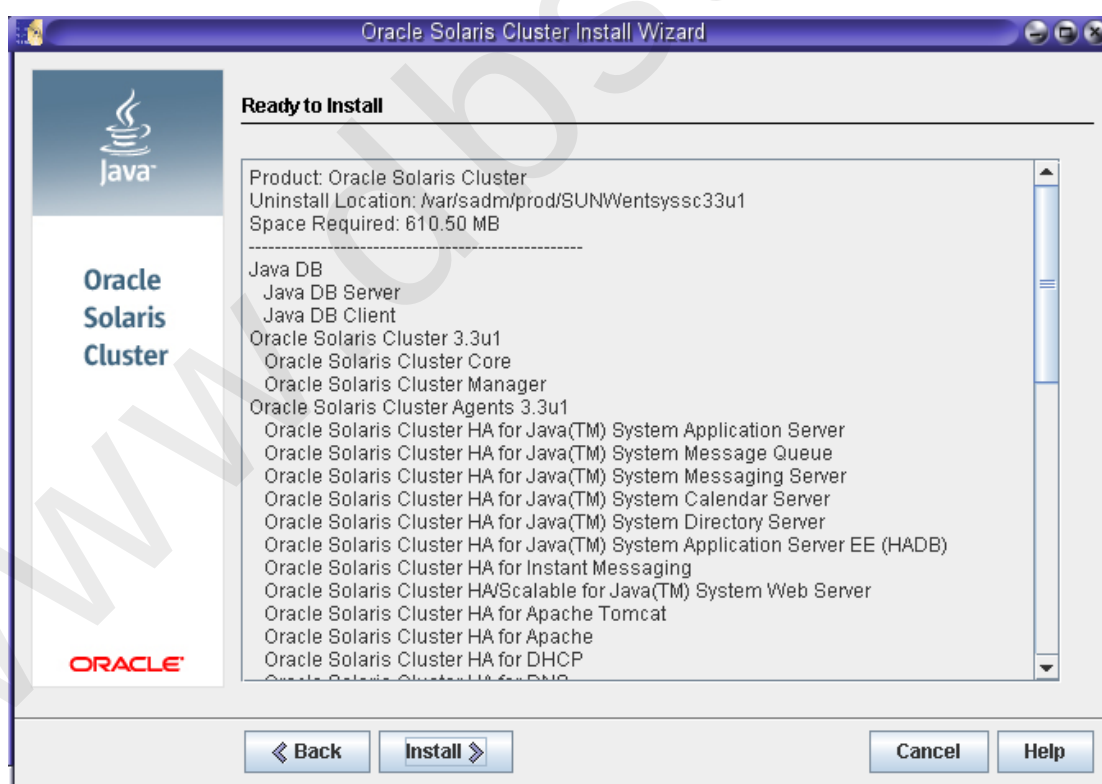
(4) 系统安装前环境检查，点击“Next”；



(5) 选择稍后配置组件，点击“Next”；



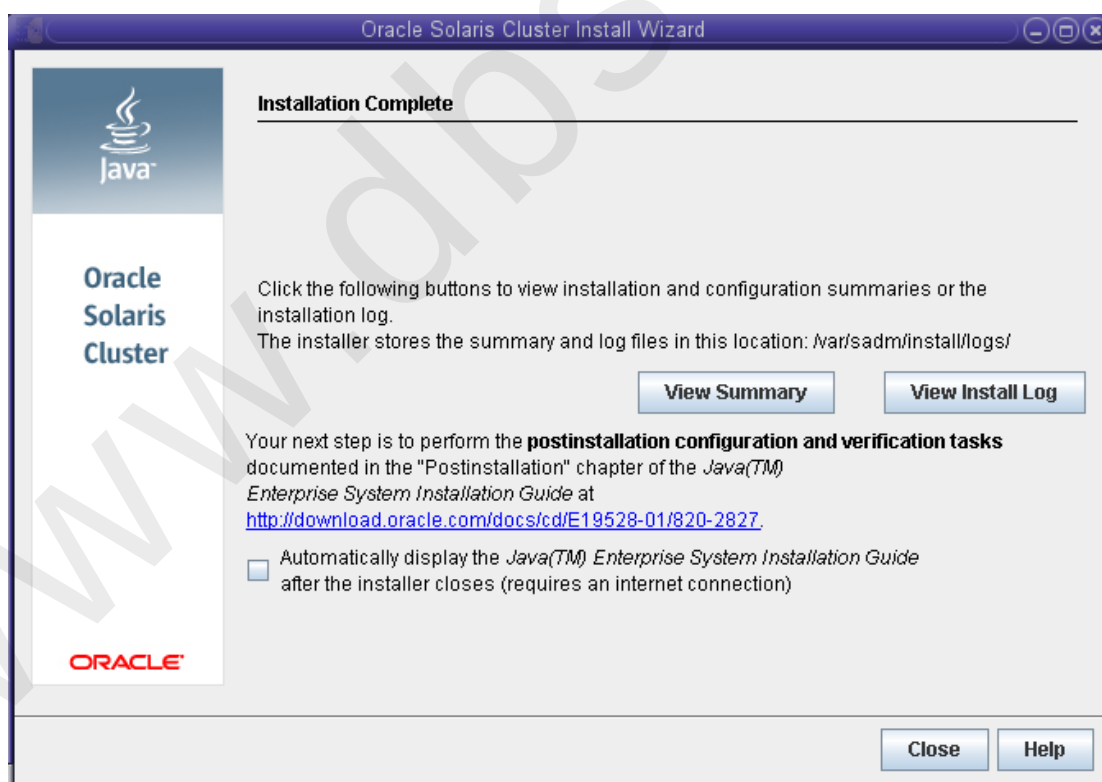
(6) 确认选择的组件，点击“Install”；



(7) 开始安装；



(8) 安装完成，点击“Close”；



(9) 检测安装的软件包版本；

```

root@racdb1# /usr/cluster/bin/scinstall -pv
Oracle Solaris Cluster 3.3u1 for Solaris 10 sparc
SUNWscu: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01
SUNWsccomu: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01
SUNWsczr: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWsccomzu: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01
SUNWsczu: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01
SUNWscsckr: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscscku: 3.3.0,REV=2010.07.26.13.19, 145638-04 800222-01
SUNWscr: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01
SUNWscrtlh: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01
SUNWscnmr: 3.3.0,REV=2011.04.17.19.27
SUNWscnmu: 3.3.0,REV=2011.04.17.19.27
SUNWscdev: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01
SUNWscgds: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscsmf: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01
SUNWscman: 3.3.0,REV=2010.06.29.16.26, 147073-02
SUNWscsal: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscsam: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscvm: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWmdmr: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWmdmu: 3.3.0,REV=2010.07.26.13.19, 146085-03 800222-01
SUNWscmasa: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscmasar: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscmasasen: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01
SUNWscmasazu: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01
SUNWscmasau: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01
SUNWscmautil: 3.3.0,REV=2010.07.26.13.19, 145640-04 800222-01
SUNWscmautilr: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWjfreechart: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscspmr: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscspmu: 3.3.0,REV=2010.07.26.13.19, 145640-04 800222-01
SUNWscderby: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01
SUNWsc telemetry: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWcsc: 3.3.0,REV=2010.07.26.12.28, 147141-01
SUNWcscspmu: 3.3.0,REV=2010.07.26.12.28, 147141-01
SUNWesc: 3.3.0,REV=2010.07.26.12.28, 147141-01
SUNWescspmu: 3.3.0,REV=2010.07.26.12.28, 147141-01
SUNWfsc: 3.3.0,REV=2010.07.26.12.28, 147141-01
SUNWfscspmu: 3.3.0,REV=2010.07.26.12.28, 147141-01
SUNWjsc: 3.3.0,REV=2010.07.26.12.28, 147141-01
SUNWjscman: 3.3.0,REV=2010.07.26.12.28, 147141-01
SUNWjscspmu: 3.3.0,REV=2010.07.26.12.28, 147141-01

```

SUNWscims:	6.0,REV=2003.10.29
SUNWscics:	6.0,REV=2003.11.14, 122066-01
SUNWscapc:	3.3.0,REV=2010.07.26.12.56, 146087-02 800220-01
SUNWscdns:	3.3.0,REV=2010.07.26.12.56, 147084-01 800220-01
SUNWschadb:	3.3.0,REV=2010.07.26.12.56, 147082-01 800220-01
SUNWschtt:	3.3.0,REV=2010.07.26.12.56, 145636-02 800220-01
SUNWscs1as:	3.3.0,REV=2010.07.26.12.56, 145345-02 800220-01
SUNWscs1rb5:	3.3.0,REV=2010.07.26.12.56, 147080-01 800220-01
SUNWscnfs:	3.3.0,REV=2010.07.26.12.56, 146093-02 800220-01
SUNWscor:	3.3.0,REV=2010.07.26.12.56, 145335-07 800220-01
SUNWscs1mq:	3.3.0,REV=2010.07.26.12.56, 145337-03 800220-01
SUNWscsap:	3.3.0,REV=2010.07.26.12.56, 147089-01 800220-01
SUNWscslc:	3.3.0,REV=2010.07.26.12.56, 147087-01 800220-01
SUNWscsapdb:	3.3.0,REV=2010.07.26.12.56, 147091-03 800220-01
SUNWscsapenq:	3.3.0,REV=2010.07.26.12.56, 146091-04 800220-01
SUNWscsaprepl:	3.3.0,REV=2010.07.26.12.56, 146091-04 800220-01
SUNWscsapscs:	3.3.0,REV=2010.07.26.12.56, 146091-04 800220-01
SUNWscsapwebas:	3.3.0,REV=2010.07.26.12.56, 146091-04 800220-01
SUNWscsbl:	3.3.0,REV=2010.07.26.12.56, 147086-02 800220-01
SUNWscsyb:	3.3.0,REV=2010.07.26.12.56, 146764-04 800220-01
SUNWscwls:	3.3.0,REV=2010.07.26.12.56, 145343-03 800220-01
SUNWsc9ias:	3.3.0,REV=2010.07.26.12.56, 800220-01
SUNWscPostgreSQL:	3.3.0,REV=2010.07.26.12.56, 145644-02 800220-01
SUNWsczone:	3.3.0,REV=2010.07.26.12.56, 147077-01 800220-01
SUNWscdhc:	3.3.0,REV=2010.07.26.12.56, 800220-01
SUNWscebs:	3.3.0,REV=2010.07.26.12.56, 146760-02 800220-01
SUNWscids:	3.3.0,REV=2010.07.26.12.56, 800220-01
SUNWscmqi:	3.3.0,REV=2010.07.26.12.56, 800220-01
SUNWscmq:	3.3.0,REV=2010.07.26.12.56, 800220-01
SUNWscmys:	3.3.0,REV=2010.07.26.12.56, 145646-03 800220-01
SUNWscsge:	3.3.0,REV=2010.07.26.12.56, 800220-01
SUNWscpax:	3.3.0,REV=2010.07.26.12.56, 147358-01 800220-01
SUNWscsaa:	3.3.0,REV=2010.07.26.12.56, 146241-04 800220-01
SUNWscsag:	3.3.0,REV=2010.07.26.12.56, 146241-04 800220-01
SUNWscsmb:	3.3.0,REV=2010.07.26.12.56, 800220-01
SUNWscsps:	3.3.0,REV=2010.07.26.12.56, 800220-01
SUNWscscomcat:	3.3.0,REV=2010.07.26.12.56, 145341-03 800220-01

4.3 安装 Cluster EIS 补丁

需要在两台主机中分别安装 Cluster EIS 补丁。

(1) 挂载 EIS 的 ISO 镜像文件

```

root@racdb1#umount /dev/lofi/1
root@racdb1#lofiadm -d /dev/lofi/1    --如果之前挂载过其他的 iso，需要先删除
root@racdb1#lofiadm -a /export/home/eis-dvd-201206-1.iso /dev/lofi/1
root@racdb1#lofiadm
Block Device          File
/dev/lofi/1           /export/home/eis-dvd-201206-1.iso
root@racdb1#mkdir /mnt/iso
root@racdb1#mount -F hsfs -o ro /dev/lofi/1 /mnt/iso

```

(2) 安装前环境配置:

```

root@racdb1#cd /mnt/iso/sun/patch/SunCluster/3.3/10
root@racdb1#ls
145333-11.zip 145638-07.zip 146091-06.zip 147077-01.zip 147089-01.zip 147494-01.zip
145335-12.zip 145640-04.zip 146093-05.zip 147079-01.zip 147091-03.zip 147497-01.zip
145337-04.zip 145644-02.zip 146241-04.zip 147080-01.zip 147095-01.zip 147499-01.zip
145341-04.zip 145646-03.zip 146760-04.zip 147082-01.zip 147141-01.zip 147501-01.zip
145343-04.zip 146085-04.zip 146762-04.zip 147084-01.zip 147358-01.zip 148636-01.zip
145345-03.zip 146087-02.zip 146764-06.zip 147086-02.zip 147490-01.zip README
145636-02.zip 146089-05.zip 147073-02.zip 147087-01.zip 147492-01.zip patch_order
root@racdb1#../../../../../install/bin/unpack_patches
Are you ready to unpack patches into /tmp/10? [y/n]: y

Cleaning out /tmp/10...

Unpacking.....
Patch 145333-11
Patch 145335-12
Patch 145337-04
Patch 145341-04
Patch 145343-04
Patch 145345-03
Patch 145636-02
Patch 145638-07
Patch 145640-04
Patch 145644-02
Patch 145646-03
Patch 146085-04
Patch 146087-02
Patch 146089-05
Patch 146091-06
Patch 146093-05

```

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```
Patch 146241-04
Patch 146760-04
Patch 146762-04
Patch 146764-06
Patch 147073-02
Patch 147077-01
Patch 147079-01
Patch 147080-01
Patch 147082-01
Patch 147084-01
Patch 147086-02
Patch 147087-01
Patch 147089-01
Patch 147091-03
Patch 147095-01
Patch 147141-01
Patch 147358-01
Patch 147490-01
Patch 147492-01
Patch 147494-01
Patch 147497-01
Patch 147499-01
Patch 147501-01
Patch 148636-01
```

```
You should run: cd /tmp/10; ./install_patches
root@racdb1#
```

(3) 安装 EIS 补丁:

```
root@racdb1#cd /tmp/10
root@racdb1#./install_patches
Patch cluster install script for Patches for SC 3.3 under Solaris 10
```

***WARNING* SYSTEMS WITH LIMITED DISK SPACE SHOULD *NOT* INSTALL PATCHES:**

With or without using the save option, the patch installation process will still require some amount of disk space for installation and administrative tasks in the /, /usr, /var, or /opt partitions where patches are typically installed. The exact amount of space will depend on the machine's architecture, software packages already installed, and the difference in the patched objects size. To be safe, it is not recommended that a patch cluster be installed on a

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system with less than 4 MBytes of available space in each of these partitions. Running out of disk space during installation may result in only partially loaded patches. Check and be sure adequate disk space is available before continuing.

Are you ready to continue with install? [y/n]: y

Determining if sufficient save space exists...

Sufficient save space exists, continuing...

Installing patches located in /tmp/10

Using /tmp/10/patch_order file for patch installation sequence

Installing 145333-11...

Installing 145335-12...

Installing 145337-04...

Installing 145341-04...

Installing 145343-04...

Installing 145345-03...

Skipping 145636-02...

Installing 145638-07...

Skipping 145640-04...

Skipping 145644-02...

Skipping 145646-03...

Installing 146085-04...

Skipping 146087-02...

Installing 146089-05...

Installation of 146089-05 failed. Return code 8

Installing 146091-06...

Installing 146093-05...

Skipping 146241-04...

Installing 146760-04...

Installing 146762-04...

Installing 146764-06...

Skipping 147073-02...

Skipping 147077-01...

Skipping 147079-01...

Skipping 147080-01...

Skipping 147082-01...

Skipping 147084-01...

Skipping 147086-02...

Skipping 147087-01...

Skipping 147089-01...

Skipping 147091-03...

Skipping 147095-01...

Skipping 147141-01...

```

Skipping 147358-01...
Installing 147490-01...
Installing 147492-01...
Installing 147494-01...
Installing 147497-01...
Installing 147499-01...
Installing 147501-01...
Installing 148636-01...

```

ERROR: The following patches were not able to be installed:
 146089-05 - Synopsis: Oracle Solaris Cluster 3.3: Quorum Server patch

For more installation messages refer to the installation logfile:
 /var/sadm/install_data/Patches_for_SC_3.3_under_Solaris_10_log

Use '/usr/bin/patchadd -p' to verify installed patch-ids.
 Refer to individual patch README files for more patch detail.
 Rebooting the system is usually necessary after installation.

(4) 重启后检查系统版本

```

root@racdb1# /usr/cluster/bin/scinstall -pv
Oracle Solaris Cluster 3.3u1 for Solaris 10 sparc
SUNWscu:      3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWsccomu:   3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWsczr:     3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWsccomzu:  3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWsczu:     3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscsckr:   3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscscku:   3.3.0,REV=2010.07.26.13.19, 145638-04 800222-01 145638-07
SUNWscr:      3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscrtlh:   3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscnmr:    3.3.0,REV=2011.04.17.19.27
SUNWscnmu:    3.3.0,REV=2011.04.17.19.27
SUNWscdev:    3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscgds:    3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscsmf:    3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscman:    3.3.0,REV=2010.06.29.16.26, 147073-02
SUNWscsal:    3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscsam:    3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscvm:     3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWmdmr:     3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWmdmu:     3.3.0,REV=2010.07.26.13.19, 146085-03 800222-01 146085-04
SUNWscmasa:   3.3.0,REV=2010.07.26.13.19, 800222-01

```

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SUNWscmasar: 3.3.0,REV=2010.07.26.13.19, 800222-01
 SUNWscmasasen: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
 SUNWscmasazu: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
 SUNWscmasau: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
 SUNWscmautil: 3.3.0,REV=2010.07.26.13.19, 145640-04 800222-01
 SUNWscmautilr: 3.3.0,REV=2010.07.26.13.19, 800222-01
 SUNWjfreechart: 3.3.0,REV=2010.07.26.13.19, 800222-01
 SUNWscspsmr: 3.3.0,REV=2010.07.26.13.19, 800222-01
 SUNWscspsmu: 3.3.0,REV=2010.07.26.13.19, 145640-04 800222-01
 SUNWscderby: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
 SUNWsc telemetry: 3.3.0,REV=2010.07.26.13.19, 800222-01
 SUNWscsc: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWscscpsmu: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWesc: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWescpsmu: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWfsc: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWfscpsmu: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWjsc: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWjscman: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWjscpsmu: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWscims: 6.0,REV=2003.10.29
 SUNWscics: 6.0,REV=2003.11.14, 122066-01
 SUNWscapc: 3.3.0,REV=2010.07.26.12.56, 146087-02 800220-01
 SUNWscdns: 3.3.0,REV=2010.07.26.12.56, 147084-01 800220-01
 SUNWschadb: 3.3.0,REV=2010.07.26.12.56, 147082-01 800220-01
 SUNWschtt: 3.3.0,REV=2010.07.26.12.56, 145636-02 800220-01
 SUNWscs1as: 3.3.0,REV=2010.07.26.12.56, 145345-02 800220-01 145345-03
 SUNWscs1rb5: 3.3.0,REV=2010.07.26.12.56, 147080-01 800220-01
 SUNWscnfs: 3.3.0,REV=2010.07.26.12.56, 146093-02 800220-01 146093-05
 SUNWscor: 3.3.0,REV=2010.07.26.12.56, 145335-07 800220-01 145335-12
 SUNWscs1mq: 3.3.0,REV=2010.07.26.12.56, 145337-03 800220-01 145337-04
 SUNWscsap: 3.3.0,REV=2010.07.26.12.56, 147089-01 800220-01
 SUNWscslc: 3.3.0,REV=2010.07.26.12.56, 147087-01 800220-01
 SUNWscsapdb: 3.3.0,REV=2010.07.26.12.56, 147091-03 800220-01
 SUNWscsapenq: 3.3.0,REV=2010.07.26.12.56, 146091-04 800220-01 146091-06
 SUNWscsaprepl: 3.3.0,REV=2010.07.26.12.56, 146091-04 800220-01 146091-06
 SUNWscsapscs: 3.3.0,REV=2010.07.26.12.56, 146091-04 800220-01 146091-06
 SUNWscsapwebas: 3.3.0,REV=2010.07.26.12.56, 146091-04 800220-01 146091-06
 SUNWscsbl: 3.3.0,REV=2010.07.26.12.56, 147086-02 800220-01
 SUNWscsyb: 3.3.0,REV=2010.07.26.12.56, 146764-04 800220-01 146764-06
 SUNWscwls: 3.3.0,REV=2010.07.26.12.56, 145343-03 800220-01 145343-04
 SUNWsc9ias: 3.3.0,REV=2010.07.26.12.56, 800220-01 147501-01
 SUNWscPostgreSQL: 3.3.0,REV=2010.07.26.12.56, 145644-02 800220-01

```

SUNWsczone: 3.3.0,REV=2010.07.26.12.56, 147077-01 800220-01
SUNWscdhc: 3.3.0,REV=2010.07.26.12.56, 800220-01 147497-01
SUNWscebs: 3.3.0,REV=2010.07.26.12.56, 146760-02 800220-01 146760-04
SUNWscids: 3.3.0,REV=2010.07.26.12.56, 800220-01 147494-01
SUNWscmqi: 3.3.0,REV=2010.07.26.12.56, 800220-01 147492-01
SUNWscmq: 3.3.0,REV=2010.07.26.12.56, 800220-01 147490-01
SUNWscmys: 3.3.0,REV=2010.07.26.12.56, 145646-03 800220-01
SUNWscsge: 3.3.0,REV=2010.07.26.12.56, 800220-01
SUNWscpax: 3.3.0,REV=2010.07.26.12.56, 147358-01 800220-01
SUNWscsaa: 3.3.0,REV=2010.07.26.12.56, 146241-04 800220-01
SUNWscsag: 3.3.0,REV=2010.07.26.12.56, 146241-04 800220-01
SUNWscsmb: 3.3.0,REV=2010.07.26.12.56, 800220-01 147499-01
SUNWscsps: 3.3.0,REV=2010.07.26.12.56, 800220-01
SUNWscsctomcat: 3.3.0,REV=2010.07.26.12.56, 145341-03 800220-01 145341-04
root@racdb1#

```

4.4 配置 Cluster

(1) Root 用户下执行 `scinstall` 进入集群配置界面；

```
root@racdb1#scinstall
```

(2) 选择创建一个新集群或者添加集群节点，输入 1；

```

*** Main Menu ***

Please select from one of the following (*) options:

* 1) Create a new cluster or add a cluster node
* 2) Configure a cluster to be JumpStarted from this install server
* 3) Manage a dual-partition upgrade
* 4) Upgrade this cluster node
* 5) Print release information for this cluster node

* ?) Help with menu options
* q) Quit

option: 1

```

(3) 选择创建新的集群，输入 1；

```
*** New Cluster and Cluster Node Menu ***

Please select from any one of the following options:

1) Create a new cluster
2) Create just the first node of a new cluster on this machine
3) Add this machine as a node in an existing cluster

?) Help with menu options
q) Return to the Main Menu

Option: 1
```

(4) 选择继续;

```
*** Create a New Cluster ***

This option creates and configures a new cluster.

You must use the Oracle Solaris Cluster installation media to install
the Oracle Solaris Cluster framework software on each machine in the
new cluster before you select this option.

If the "remote configuration" option is unselected from the Oracle
Solaris Cluster installer when you install the Oracle Solaris Cluster
framework on any of the new nodes, then you must configure either the
remote shell (see rsh(1)) or the secure shell (see ssh(1)) before you
select this option. If rsh or ssh is used, you must enable root access
to all of the new member nodes from this node.

Press Control-d at any time to return to the Main Menu.

Do you want to continue (yes/no) [yes]? yes
```

(5) 选择配置模式为自定义, 输入 2;

```
>>> Typical or Custom Mode <<<

This tool supports two modes of operation, Typical mode and Custom.
For most clusters, you can use Typical mode. However, you might need
to select the Custom mode option if not all of the Typical defaults
can be applied to your cluster.

For more information about the differences between Typical and Custom
modes, select the Help option from the menu.

Please select from one of the following options:

1) Typical
2) Custom

?) Help
q) Return to the Main Menu

Option [1]: 2
```

(6) 设置集群名称, 输入 ultranms;

```
>>> Cluster Name <<<
```

Each cluster has a name assigned to it. The name can be made up of any characters other than whitespace. Each cluster name should be unique within the namespace of your enterprise.

What is the name of the cluster you want to establish? ultranms

(7) 设置集群节点中主机的主机名；（完成需要输入 ctrl+D）

```
>>> Cluster Nodes <<<
```

This Oracle Solaris cluster release supports a total of up to 16 nodes.

Please list the names of the other nodes planned for the initial cluster configuration. List one node name per line. When finished, type Control-D:

```
Node name (Control-D to finish): racdb1
Node name (Control-D to finish): racdb2
Node name (Control-D to finish): ^D
```

This is the complete list of nodes:

```
racdb1
racdb2
```

Is it correct (yes/no) [yes]?

Attempting to contact "racdb2" ... done

Searching for a remote configuration method ... done

The remote shell (see rsh(1)) will be used for remote execution.

(8) 设置是否启用 DES 验证，选择默认 no；

```
>>> Authenticating Requests to Add Nodes <<<
```

Once the first node establishes itself as a single node cluster, other nodes attempting to add themselves to the cluster configuration must be found on the list of nodes you just provided. You can modify this list by using claccess(1CL) or other tools once the cluster has been established.

By default, nodes are not securely authenticated as they attempt to add themselves to the cluster configuration. This is generally considered adequate, since nodes which are not physically connected to the private cluster interconnect will never be able to actually join the cluster. However, DES authentication is available. If DES authentication is selected, you must configure all necessary encryption keys before any node will be allowed to join the cluster (see keyerv(1M), publickey(4)).

Do you need to use DES authentication (yes/no) [no]?

(9) 设置集群互联（心跳）是否是双网卡，输入不是双网卡输入 no；

```
>>> Minimum Number of Private Networks <<<
```

```
Each cluster is typically configured with at least two private
networks. Configuring a cluster with just one private interconnect
provides less availability and will require the cluster to spend more
time in automatic recovery if that private interconnect fails.
```

```
should this cluster use at least two private networks (yes/no) [yes]? █
```

(10) 设置集群互联（心跳）是否连接到交换机，输入 no 为直连方式；

```
>>> Point-to-Point Cables <<<
```

```
The two nodes of a two-node cluster may use a directly-connected
interconnect. That is, no cluster switches are configured. However,
when there are greater than two nodes, this interactive form of
scinstall assumes that there will be exactly one switch for each
private network.
```

```
Does this two-node cluster use switches (yes/no) [yes]? no█
```

(11) 设置集群互联（心跳）的两个网卡；

```
Select the first cluster transport adapter:
```

- 1) nxge0
- 2) nxge1
- 3) nxge2
- 4) nxge3
- 5) other

```
Option: 4
```

```
Adapter "nxge3" is an Ethernet adapter.
```

```
Searching for any unexpected network traffic on "nxge3" ... done
Verification completed. No traffic was detected over a 10 second
sample period.
```

```
The "dlpi" transport type will be set for this cluster.
```

```
Name of adapter (physical or virtual) on "racdb2" to which "nxge3" is connected? nxge3
```

```
Select the second cluster transport adapter:
```

- 1) nxge0
- 2) nxge1
- 3) nxge2
- 4) nxge3
- 5) other

```
option: 4
```

(12) 设置集群互联（心跳）的 IP 地址，默认会分配 172.16 段的 IP，若使用自己规划的 IP，选择 no；

```
>>> Network Address for the Cluster Transport <<<

The cluster transport uses a default network address of 172.16.0.0. If
this IP address is already in use elsewhere within your enterprise,
specify another address from the range of recommended private
addresses (see RFC 1918 for details).

The default netmask is 255.255.240.0. You can select another netmask,
as long as it minimally masks all bits that are given in the network
address.

The default private netmask and network address result in an IP
address range that supports a cluster with a maximum of 64 nodes, 10
private networks, and 12 virtual clusters.

Is it okay to accept the default network address (yes/no) [yes]? █
```

```
>>> Network Address for the Cluster Transport <<<

The cluster transport uses a default network address of 172.16.0.0. If
this IP address is already in use elsewhere within your enterprise,
specify another address from the range of recommended private
addresses (see RFC 1918 for details).

The default netmask is 255.255.240.0. You can select another netmask,
as long as it minimally masks all bits that are given in the network
address.

The default private netmask and network address result in an IP
address range that supports a cluster with a maximum of 64 nodes, 10
private networks, and 12 virtual clusters.

Is it okay to accept the default network address (yes/no) [yes]?
Is it okay to accept the default netmask (yes/no) [yes]?
Plumbing network address 172.16.0.0 on adapter nxge3 >> NOT DUPLICATE ... done
```

(13) 设置是否禁用 Global Fencing, 选择 no

```
>>> Set Global Fencing <<<

Fencing is a mechanism that a cluster uses to protect data integrity
when the cluster interconnect between nodes is lost. By default,
fencing is turned on for global fencing, and each disk uses the global
fencing.

Most of the time, leave fencing turned on. However, turn off fencing
when at least one of the following conditions is true: 1) Your shared
storage devices, such as Serial Advanced Technology Attachment (SATA)
disks, do not support SCSI; 2) You want to allow systems outside your
cluster to access storage devices attached to your cluster; 3) Sun
Microsystems has not qualified the SCSI persistent group reservation
(PGR) support for your shared storage devices.

If you choose to turn off global fencing now, after your cluster
starts you can still use the cluster(1CL) command to turn on global
fencing.

Do you want to turn off global fencing (yes/no) [no]? █
```

(14) 禁用自动仲裁设备选择, 选择 yes;

>>> Quorum Configuration <<<

Every two-node cluster requires at least one quorum device. By default, scinstall selects and configures a shared disk quorum device for you.

This screen allows you to disable the automatic selection and configuration of a quorum device.

You have chosen to turn on the global fencing. If your shared storage devices do not support SCSI, such as Serial Advanced Technology Attachment (SATA) disks, or if your shared disks do not support SCSI-2, you must disable this feature.

If you disable automatic quorum device selection now, or if you intend to use a quorum device that is not a shared disk, you must instead use clsetup(1M) to manually configure quorum once both nodes have joined the cluster for the first time.

Do you want to disable automatic quorum device selection (yes/no) [no]? yes

- (15) 设置/globaldevices 文件系统，默认选择创建/globaldevices 文件系统，由于使用 zfs 文件系统，因此需要使用 lofi 设备创建/globaldevices;

>>> Global Devices File System <<<

Each node in the cluster must have a local file system mounted on /global/.devices/node@<nodeID> before it can successfully participate as a cluster member. Since the "nodeID" is not assigned until scinstall is run, scinstall will set this up for you.

You must supply the name of either an already-mounted file system or a raw disk partition which scinstall can use to create the global devices file system. This file system or partition should be at least 512 MB in size.

Alternatively, you can use a loopback file (lofi), with a new file system, and mount it on /global/.devices/node@<nodeid>.

If an already-mounted file system is used, the file system must be empty. If a raw disk partition is used, a new file system will be created for you.

If the lofi method is used, scinstall creates a new 100 MB file system from a lofi device by using the file /.globaldevices. The lofi method is typically preferred, since it does not require the allocation of a dedicated disk slice.

The default is to use /globaldevices.

For node "racdb1",

Is it okay to use this default (yes/no) [yes]? no

Is it okay to use the lofi method (yes/no) [yes]? yes

For node "racdb2",

Is it okay to use this default (yes/no) [yes]? no

Is it okay to use the lofi method (yes/no) [yes]? yes

done

- (16) 确认开始配置群集，配置前 sccheck 脚本将进行检查，选择检查到错误退出配置;

```
Is it okay to create the new cluster (yes/no) [yes]?
During the cluster creation process, cluster check is run on each of
the new cluster nodes. If cluster check detects problems, you can
either interrupt the process or check the log files after the cluster
has been established.
Interrupt cluster creation for cluster check errors (yes/no) [no]? yes
```

(17) 开始配置集群，并自动重新启动系统。

Cluster Creation

```
Log file - /var/cluster/global/logs/install/scinstall.log.1152
Started cluster check on "racdb1".
Started cluster check on "racdb2".
cluster check completed with no errors or warnings for " racdb1".
cluster check completed with no errors or warnings for " racdb2".
Configuring "racdb2" ... done
Rebooting "racdb2" ... done
Configuring "racdb1" ... done
Rebooting "racdb1" ...
Log file - /var/cluster/logs/install/scinstall.log.23039
Rebooting ...
```

4.5 配置仲裁盘

执行 scinstall 后集群处于 installmode，此过程将会重置此模式及投票数。

仲裁盘需要使用 DID 设备，而不能使用分区。

4.5.1 检查仲裁盘设备

(1) 识别仲裁盘设备

```
root@racdb1#scdidadm -L
1      racdb2:/dev/rdsk/c4t60060160A891280036A8E0C713F2DF11d0 /dev/did/rdsk/d1
1      racdb1:/dev/rdsk/c3t60060160A891280036A8E0C713F2DF11d0 /dev/did/rdsk/d1
2      racdb2:/dev/rdsk/c4t5000CCA00A97C244d0 /dev/did/rdsk/d2
3      racdb2:/dev/rdsk/c2t500601603B205115d0 /dev/did/rdsk/d3
3      racdb2:/dev/rdsk/c2t500601693B205115d0 /dev/did/rdsk/d3
3      racdb2:/dev/rdsk/c2t500601683B205115d0 /dev/did/rdsk/d3
3      racdb2:/dev/rdsk/c2t500601613B205115d0 /dev/did/rdsk/d3
3      racdb1:/dev/rdsk/c2t500601613B205115d0 /dev/did/rdsk/d3
```

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```

3      racdb1:/dev/rds/c2t500601683B205115d0 /dev/did/rds/d3
3      racdb1:/dev/rds/c2t500601693B205115d0 /dev/did/rds/d3
3      racdb1:/dev/rds/c2t500601603B205115d0 /dev/did/rds/d3
4      racdb2:/dev/rds/c4t5000CCA00A926CACd0 /dev/did/rds/d4
5      racdb1:/dev/rds/c3t5000CCA00A941068d0 /dev/did/rds/d5
6      racdb1:/dev/rds/c3t5000CCA00A97803Cd0 /dev/did/rds/d6

```

(2) 刷新 DID 设备;

```

root@racdb1#cldevice populate
Configuring DID devices
Configuring the /dev/global directory (global devices)
obtaining access to all attached disks
root@racdb1#cldevice list -v
DID Device          Full Device Path
-----
d1                  racdb2:/dev/rds/c4t60060160A891280036A8E0C713F2DF11d0
d1                  racdb1:/dev/rds/c3t60060160A891280036A8E0C713F2DF11d0
d2                  racdb2:/dev/rds/c4t5000CCA00A97C244d0
d3                  racdb2:/dev/rds/c2t500601603B205115d0
d3                  racdb2:/dev/rds/c2t500601693B205115d0
d3                  racdb2:/dev/rds/c2t500601683B205115d0
d3                  racdb2:/dev/rds/c2t500601613B205115d0
d3                  racdb1:/dev/rds/c2t500601613B205115d0
d3                  racdb1:/dev/rds/c2t500601683B205115d0
d3                  racdb1:/dev/rds/c2t500601693B205115d0
d3                  racdb1:/dev/rds/c2t500601603B205115d0
d4                  racdb2:/dev/rds/c4t5000CCA00A926CACd0
d5                  racdb1:/dev/rds/c3t5000CCA00A941068d0
d6                  racdb1:/dev/rds/c3t5000CCA00A97803Cd0
root@racdb1#

```

(3) 查看 DID 设备，发现增加了 D7

```

root@racdb1#scdidadm -L
1      racdb2:/dev/rds/c4t60060160A891280036A8E0C713F2DF11d0 /dev/did/rds/d1
1      racdb1:/dev/rds/c3t60060160A891280036A8E0C713F2DF11d0 /dev/did/rds/d1
2      racdb2:/dev/rds/c4t5000CCA00A97C244d0 /dev/did/rds/d2
3      racdb2:/dev/rds/c2t500601603B205115d0 /dev/did/rds/d3
3      racdb2:/dev/rds/c2t500601693B205115d0 /dev/did/rds/d3
3      racdb2:/dev/rds/c2t500601683B205115d0 /dev/did/rds/d3
3      racdb2:/dev/rds/c2t500601613B205115d0 /dev/did/rds/d3
3      racdb1:/dev/rds/c2t500601613B205115d0 /dev/did/rds/d3
3      racdb1:/dev/rds/c2t500601683B205115d0 /dev/did/rds/d3
3      racdb1:/dev/rds/c2t500601693B205115d0 /dev/did/rds/d3

```

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```

3      racdb1:/dev/rdsk/c2t500601603B205115d0 /dev/did/rdsk/d3
4      racdb2:/dev/rdsk/c4t5000CCA00A926CACd0 /dev/did/rdsk/d4
5      racdb1:/dev/rdsk/c3t5000CCA00A941068d0 /dev/did/rdsk/d5
6      racdb1:/dev/rdsk/c3t5000CCA00A97803Cd0 /dev/did/rdsk/d6
7      racdb1:/dev/rdsk/c3t60060160A8912800447A5E5FDA3FE011d0 /dev/did/rdsk/d7
7      racdb2:/dev/rdsk/c4t60060160A8912800447A5E5FDA3FE011d0 /dev/did/rdsk/d7

```

4.5.2 配置仲裁盘

(1) 执行 `scsetup` 或者 `clsetup` 配置仲裁盘；

```
root@racdb1#clsetup
```

(2) 选择仲裁盘的类型，选择 1 为直连共享存储作为仲裁盘；

```

>>> Initial Cluster Setup <<<

This program has detected that the cluster "installmode" attribute is
still enabled. As such, certain initial cluster setup steps will be
performed at this time. This includes adding any necessary quorum
devices, then resetting both the quorum vote counts and the
"installmode" property.

Please do not proceed if any additional nodes have yet to join the
cluster.

Is it okay to continue (yes/no) [yes]?
Do you want to add any quorum devices (yes/no) [yes]?

Following are supported Quorum Devices types in Oracle Solaris
Cluster. Please refer to Oracle Solaris Cluster documentation for
detailed information on these supported quorum device topologies.

What is the type of device you want to use?

    1) Directly attached shared disk
    2) Network Attached Storage (NAS) from Network Appliance
    3) Quorum Server

    q) Return to the quorum menu

Option: 1

```

(3) 指定共享磁盘作为仲裁盘（全局 DID 设备）并指定是否添加另一个仲裁设备；

```
>>> Add a SCSI Quorum Disk <<<

A SCSI quorum device is considered to be any Oracle Solaris cluster
supported attached storage which connected to two or more nodes of the
cluster. Dual-ported SCSI-2 disks may be used as quorum devices in
two-node clusters. However, clusters with more than two nodes require
that SCSI-3 PGR disks be used for all disks with more than two
node-to-disk paths.

You can use a disk containing user data or one that is a member of a
device group as a quorum device.

For more information on supported quorum device topologies, see the
Oracle Solaris Cluster documentation.

Is it okay to continue (yes/no) [yes]?

which global device do you want to use (d<N>)? d7

Is it okay to proceed with the update (yes/no) [yes]?

scconf -a -q globaldev=d7

Command completed successfully.

Press Enter to continue:

Do you want to add another quorum device (yes/no) [yes]? no
```

(4) 重置 installmode 模式;

```
Once the "installmode" property has been reset, this program will skip
"Initial Cluster Setup" each time it is run again in the future.
However, quorum devices can always be added to the cluster using the
regular menu options. Resetting this property fully activates quorum
settings and is necessary for the normal and safe operation of the
cluster.

Is it okay to reset "installmode" (yes/no) [yes]? yes

scconf -c -q reset
scconf -a -T node=.

Cluster initialization is complete.

Type ENTER to proceed to the main menu:
```

(5) 执行 scstat 查看目前群集的状态;

```
root@racdb1#scstat
```

```
-- Cluster Nodes --
```

	Node name	Status
	-----	-----
Cluster node:	racdb2	Online
Cluster node:	racdb1	Online

-- Cluster Transport Paths --

	Endpoint	Endpoint	Status
	-----	-----	-----
Transport path:	racdb2:nxge3	racdb1:nxge3	Path online

-- Quorum Summary from latest node reconfiguration --

Quorum votes possible: 3

Quorum votes needed: 2

Quorum votes present: 3

-- Quorum Votes by Node (current status) --

	Node Name	Present Possible Status		
	-----	-----	-----	-----
Node votes:	racdb2	1	1	Online
Node votes:	racdb1	1	1	Online

-- Quorum Votes by Device (current status) --

	Device Name	Present Possible Status		
	-----	-----	-----	-----
Device votes:	/dev/did/rdisk/d7s2	1	1	Online

-- Device Group Servers --

Device Group	Primary	Secondary
-----	-----	-----

-- Device Group Status --

Device Group	Status
-----	-----

```
-- Multi-owner Device Groups --
```

Device Group	Online Status
-----	-----

```
-- IPMP Groups --
```

Node Name	Group	Status	Adapter	Status
-----	-----	-----	-----	-----
IPMP Group: racdb2	sc_ipmp0	Online	aggr2	Online
IPMP Group: racdb2	sc_ipmp1	Online	aggr1	Online
IPMP Group: racdb1	sc_ipmp0	Online	aggr2	Online
IPMP Group: racdb1	sc_ipmp1	Online	aggr1	Online

```
-- IPMP Groups in Zones --
```

Zone Name	Group	Status	Adapter	Status
-----	-----	-----	-----	-----

```
root@racdb1#
```

4.6 创建存放数据文件的共享盘（ZFS）

(1) 创建 zfs 池所使用的磁盘分区

```
root@racdb1#format
Searching for disks...done
```

AVAILABLE DISK SELECTIONS:

0. c2t500601603B205115d0 <drive type unknown>
/pci@400/pci@0/pci@c/SUNW,qlc@0/fp@0,0/ssd@w500601603b205115,0
1. c2t500601613B205115d0 <drive type unknown>
/pci@400/pci@0/pci@c/SUNW,qlc@0/fp@0,0/ssd@w500601613b205115,0
2. c2t500601683B205115d0 <DGC-RAID5-0429 cyl 32766 alt 2 hd 4 sec 16>

```

        /pci@400/pci@0/pci@c/SUNW,qlc@0/fp@0,0/ssd@w500601683b205115,0
3. c2t500601693B205115d0 <DGC-RAID5-0429 cyl 32766 alt 2 hd 4 sec 16>
        /pci@400/pci@0/pci@c/SUNW,qlc@0/fp@0,0/ssd@w500601693b205115,0
4. c3t5000CCA00A97803Cd0 <SUN146G cyl 14087 alt 2 hd 24 sec 848>   solaris
        /scsi_vhci/disk@g5000cca00a97803c
5. c3t5000CCA00A941068d0 <SUN146G cyl 14087 alt 2 hd 24 sec 848>   solaris
        /scsi_vhci/disk@g5000cca00a941068
6. c3t60060160A891280036A8E0C713F2DF11d0 <DGC-RAID5-0429 cyl 51198 alt 2 hd
256 sec 16>
        /scsi_vhci/ssd@g60060160a891280036a8e0c713f2df11
7. c3t60060160A8912800447A5E5FDA3FE011d0 <DGC-RAID5-0429 cyl 32766 alt 2 hd
4 sec 16>
        /scsi_vhci/ssd@g60060160a8912800447a5e5fda3fe011

```

Specify disk (enter its number): 6

selecting c3t60060160A891280036A8E0C713F2DF11d0

[disk formatted]

FORMAT MENU:

```

disk          - select a disk
type          - select (define) a disk type
partition     - select (define) a partition table
current       - describe the current disk
format        - format and analyze the disk
repair        - repair a defective sector
label         - write label to the disk
analyze       - surface analysis
defect        - defect list management
backup        - search for backup labels
verify        - read and display labels
save          - save new disk/partition definitions
inquiry       - show vendor, product and revision
volname       - set 8-character volume name
!<cmd>       - execute <cmd>, then return
quit

```

format> p

PARTITION MENU:

```

0          - change `0' partition
1          - change `1' partition
2          - change `2' partition
3          - change `3' partition

```

4 - change `4' partition
 5 - change `5' partition
 6 - change `6' partition
 7 - change `7' partition
 select - select a predefined table
 modify - modify a predefined partition table
 name - name the current table
 print - display the current table
 label - write partition map and label to the disk
 !<cmd> - execute <cmd>, then return
 quit

partition> p

Current partition table (original):

Total disk cylinders available: 51198 + 2 (reserved cylinders)

Part	Tag	Flag	Cylinders	Size	Blocks	
0	unassigned	wm	20680 - 20729	100.00MB	(50/0/0)	204800
1	unassigned	wu	20730 - 21241	1024.00MB	(512/0/0)	2097152
2	backup	wu	0 - 51197	100.00GB	(51198/0/0)	209707008
3	unassigned	wm	0	0	(0/0/0)	0
4	unassigned	wm	0	0	(0/0/0)	0
5	unassigned	wm	200 - 20679	40.00GB	(20480/0/0)	83886080
6	unassigned	wm	1 - 149	298.00MB	(149/0/0)	610304
7	unassigned	wm	150 - 199	100.00MB	(50/0/0)	204800

partition> 0

Part	Tag	Flag	Cylinders	Size	Blocks	
0	unassigned	wm	20680 - 20729	100.00MB	(50/0/0)	204800

Enter partition id tag[unassigned]:

Enter partition permission flags[wu]:

Enter new starting cyl[20680]: 0

Enter partition size[204800b, 50c, 49e, 100.00mb, 0.10gb]: 0

partition>

partition> p

Current partition table (unnamed):

Total disk cylinders available: 51198 + 2 (reserved cylinders)

Part	Tag	Flag	Cylinders	Size	Blocks	
0	unassigned	wm	0	0	(0/0/0)	0
1	unassigned	wu	20730 - 21241	1024.00MB	(512/0/0)	2097152
2	backup	wu	0 - 51197	100.00GB	(51198/0/0)	209707008
3	unassigned	wm	0	0	(0/0/0)	0

4 unassigned	wm	0	0	(0/0/0)	0
5 unassigned	wm	200 - 20679	40.00GB	(20480/0/0)	83886080
6 unassigned	wm	1 - 149	298.00MB	(149/0/0)	610304
7 unassigned	wm	150 - 199	100.00MB	(50/0/0)	204800

partition> 1

Part	Tag	Flag	Cylinders	Size	Blocks
1 unassigned	wu		20730 - 21241	1024.00MB	(512/0/0) 2097152

Enter partition id tag[unassigned]:
Enter partition permission flags[wu]:
Enter new starting cyl[20730]: 0
Enter partition size[2097152b, 512c, 511e, 1024.00mb, 1.00gb]: 0

partition> p

Current partition table (unnamed):
Total disk cylinders available: 51198 + 2 (reserved cylinders)

Part	Tag	Flag	Cylinders	Size	Blocks
0 unassigned	wm		0	0	(0/0/0) 0
1 unassigned	wu		0	0	(0/0/0) 0
2 backup	wu		0 - 51197	100.00GB	(51198/0/0) 209707008
3 unassigned	wm		0	0	(0/0/0) 0
4 unassigned	wm		0	0	(0/0/0) 0
5 unassigned	wm		200 - 20679	40.00GB	(20480/0/0) 83886080
6 unassigned	wm		1 - 149	298.00MB	(149/0/0) 610304
7 unassigned	wm		150 - 199	100.00MB	(50/0/0) 204800

partition> 0

Part	Tag	Flag	Cylinders	Size	Blocks
0 unassigned	wm		0	0	(0/0/0) 0

Enter partition id tag[unassigned]:
Enter partition permission flags[wu]:
Enter new starting cyl[0]: 20680
Enter partition size[0b, 0c, 20680e, 0.00mb, 0.00gb]: 40g

partition> p

Current partition table (unnamed):
Total disk cylinders available: 51198 + 2 (reserved cylinders)

Part	Tag	Flag	Cylinders	Size	Blocks
0 unassigned	wm		20680 - 41159	40.00GB	(20480/0/0) 83886080
1 unassigned	wu		0	0	(0/0/0) 0
2 backup	wu		0 - 51197	100.00GB	(51198/0/0) 209707008

3 unassigned	wm	0	0	(0/0/0)	0
4 unassigned	wm	0	0	(0/0/0)	0
5 unassigned	wm	200 - 20679	40.00GB	(20480/0/0)	83886080
6 unassigned	wm	1 - 149	298.00MB	(149/0/0)	610304
7 unassigned	wm	150 - 199	100.00MB	(50/0/0)	204800

partition> label

Ready to label disk, continue? yes

partition> p

Current partition table (unnamed):

Total disk cylinders available: 51198 + 2 (reserved cylinders)

Part	Tag	Flag	Cylinders	Size	Blocks
0 unassigned	wm		20680 - 41159	40.00GB	(20480/0/0) 83886080
1 unassigned	wu		0	0	(0/0/0) 0
2 backup	wu		0 - 51197	100.00GB	(51198/0/0) 209707008
3 unassigned	wm		0	0	(0/0/0) 0
4 unassigned	wm		0	0	(0/0/0) 0
5 unassigned	wm		200 - 20679	40.00GB	(20480/0/0) 83886080
6 unassigned	wm		1 - 149	298.00MB	(149/0/0) 610304
7 unassigned	wm		150 - 199	100.00MB	(50/0/0) 204800

partition> quit

FORMAT MENU:

- disk - select a disk
- type - select (define) a disk type
- partition - select (define) a partition table
- current - describe the current disk
- format - format and analyze the disk
- repair - repair a defective sector
- label - write label to the disk
- analyze - surface analysis
- defect - defect list management
- backup - search for backup labels
- verify - read and display labels
- save - save new disk/partition definitions
- inquiry - show vendor, product and revision
- volname - set 8-character volume name
- !<cmd> - execute <cmd>, then return
- quit

```
format> save
Please name this partition type before saving it
format> quit
root@racdb1#
```

(2) 查看共享 DID 设备情况，确定使用 d1 设备

```
root@racdb1#scdidadm -L
1      racdb2:/dev/rdisk/c4t60060160A891280036A8E0C713F2DF11d0 /dev/did/rdsk/d1
1      racdb1:/dev/rdisk/c3t60060160A891280036A8E0C713F2DF11d0 /dev/did/rdsk/d1
2      racdb2:/dev/rdisk/c4t5000CCA00A97C244d0 /dev/did/rdsk/d2
3      racdb2:/dev/rdisk/c2t500601603B205115d0 /dev/did/rdsk/d3
3      racdb2:/dev/rdisk/c2t500601693B205115d0 /dev/did/rdsk/d3
3      racdb2:/dev/rdisk/c2t500601683B205115d0 /dev/did/rdsk/d3
3      racdb2:/dev/rdisk/c2t500601613B205115d0 /dev/did/rdsk/d3
3      racdb1:/dev/rdisk/c2t500601613B205115d0 /dev/did/rdsk/d3
3      racdb1:/dev/rdisk/c2t500601683B205115d0 /dev/did/rdsk/d3
3      racdb1:/dev/rdisk/c2t500601693B205115d0 /dev/did/rdsk/d3
3      racdb1:/dev/rdisk/c2t500601603B205115d0 /dev/did/rdsk/d3
4      racdb2:/dev/rdisk/c4t5000CCA00A926CACd0 /dev/did/rdsk/d4
5      racdb1:/dev/rdisk/c3t5000CCA00A941068d0 /dev/did/rdsk/d5
6      racdb1:/dev/rdisk/c3t5000CCA00A97803Cd0 /dev/did/rdsk/d6
7      racdb1:/dev/rdisk/c3t60060160A8912800447A5E5FDA3FE011d0 /dev/did/rdsk/d7
7      racdb2:/dev/rdisk/c4t60060160A8912800447A5E5FDA3FE011d0 /dev/did/rdsk/d7
```

(3) 创建 orahapool 池

```
root@racdb1#zpool create -f orahapool /dev/did/dsk/d1s0
root@racdb1#zfs create -o mountpoint=/oradata orahapool/oradata
root@racdb1#zfs quota=20G orahapool/oradata
root@racdb1#chown -R oracleha:dba /oradata
root@racdb1#zfs list
```

NAME	USED	AVAIL	REFER	MOUNTPOINT
orahapool	140K	39.1G	31K	/orahapool
orahapool/oradata	31K	20.0G	31K	/oradata
orapool	3.88G	130G	3.88G	/oracle
rpool	30.3G	104G	106K	/rpool
rpool/ROOT	6.41G	104G	31K	legacy
rpool/ROOT/s10s_u10wos_17b	6.41G	104G	6.41G	/
rpool/dump	1.50G	104G	1.50G	-
rpool/export	14.1G	104G	32K	/export
rpool/export/home	14.1G	104G	14.1G	/export/home
rpool/swap	8.26G	104G	8.00G	-

```
root@racdb1#
```

(4) 在节点 1 中释放 orahapool 池的访问权

```
root@racdb1#zpool export orahapool
root@racdb1#zfs list
```

NAME	USED	AVAIL	REFER	MOUNTPOINT
orapool	3.88G	130G	3.88G	/oracle
rpool	30.3G	104G	106K	/rpool
rpool/ROOT	6.41G	104G	31K	legacy
rpool/ROOT/s10s_u10wos_17b	6.41G	104G	6.41G	/
rpool/dump	1.50G	104G	1.50G	-
rpool/export	14.1G	104G	32K	/export
rpool/export/home	14.1G	104G	14.1G	/export/home
rpool/swap	8.26G	104G	8.00G	-

```
root@racdb1#
```

(5) 在节点 2 中获得 orahapool 池的访问权

```
root@racdb2#zpool import orahapool
root@racdb2#zfs list
```

NAME	USED	AVAIL	REFER	MOUNTPOINT
orahapool	142K	39.1G	31K	/orahapool
orahapool/oradata	31K	20.0G	31K	/oradata
orapool	3.85G	130G	3.85G	/oracle
rpool	29.4G	104G	106K	/rpool
rpool/ROOT	6.42G	104G	31K	legacy
rpool/ROOT/s10s_u10wos_17b	6.42G	104G	6.42G	/
rpool/dump	1.50G	104G	1.50G	-
rpool/export	13.2G	104G	32K	/export
rpool/export/home	13.2G	104G	13.2G	/export/home
rpool/swap	8.26G	105G	8.01G	-

```
root@racdb2#
```

验证了 orahapool 可以使用。

4.7 安装 Oracle Database

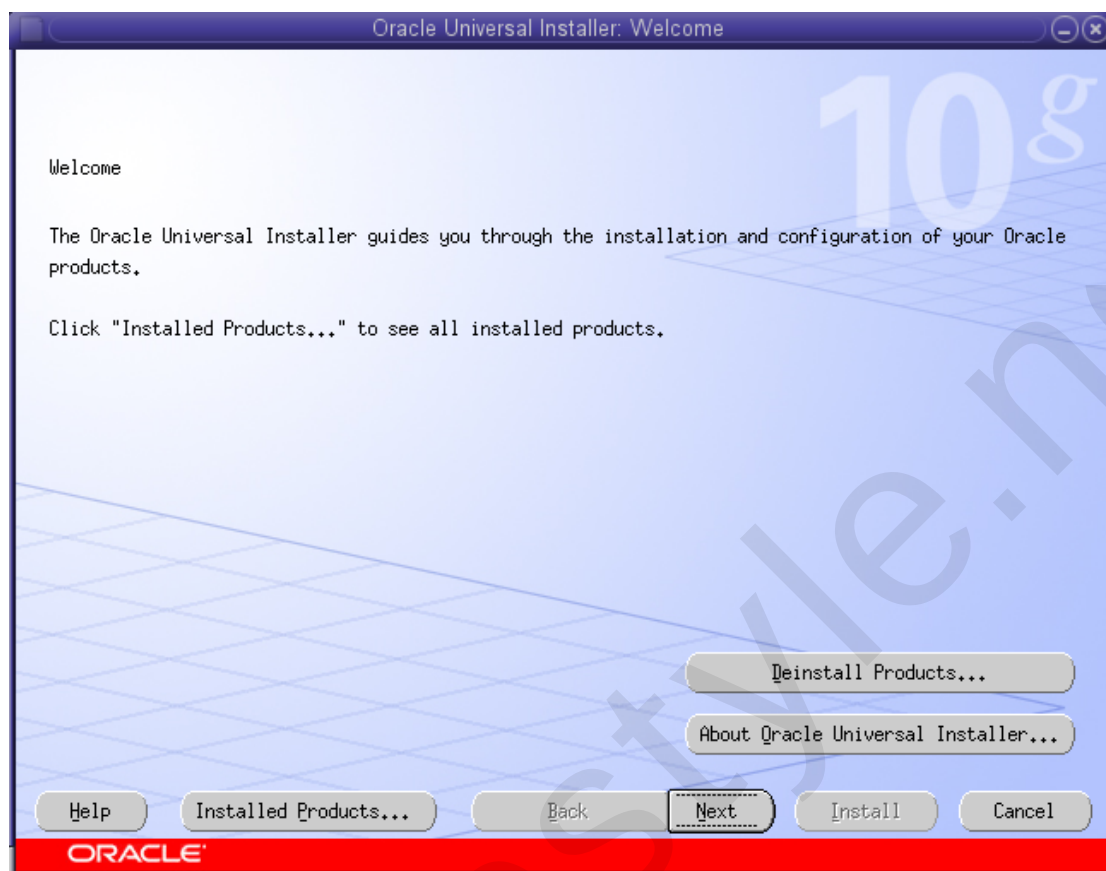
(1) 解压安装程序

```
oracle@racdb1#gunzip 10gr2_db_sol.cpio.gz
oracle@racdb1#cpio -idmv < 10gr2_db_sol.cpio
```

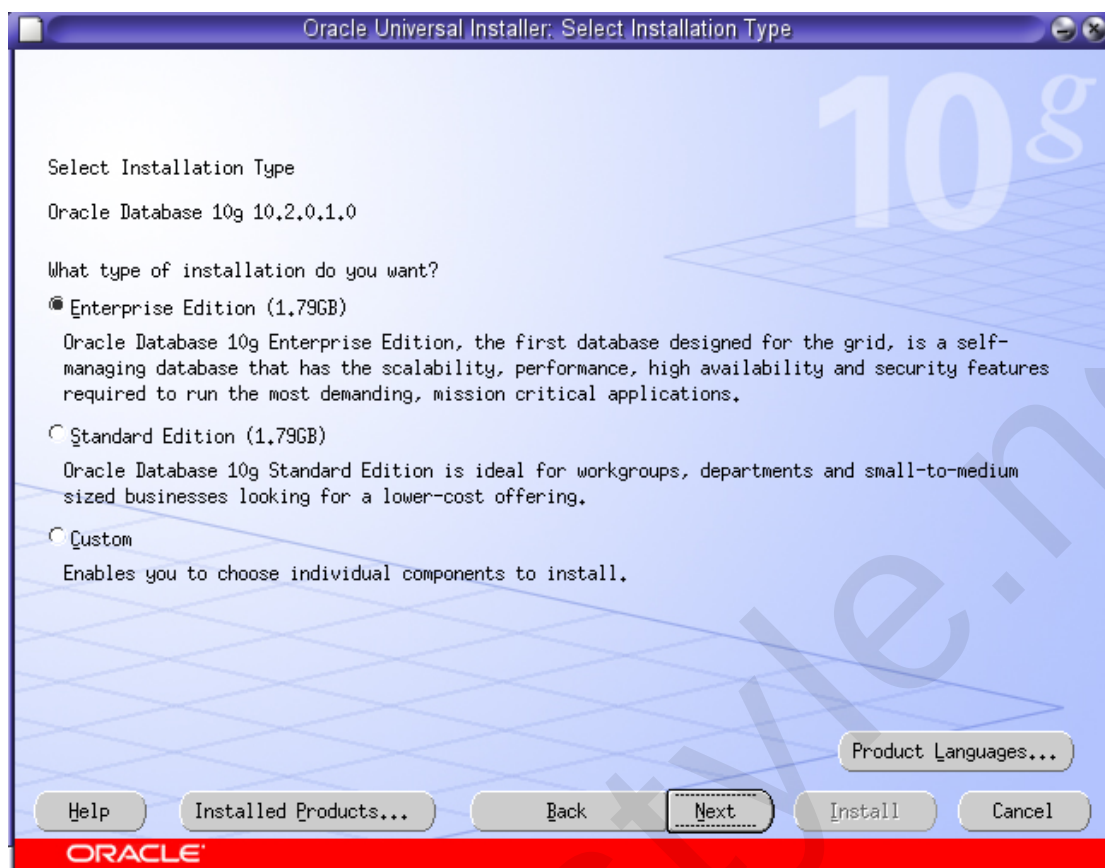
(2) 启动安装程序

```
[oracle@server1 ~]$ ./runInstall
```

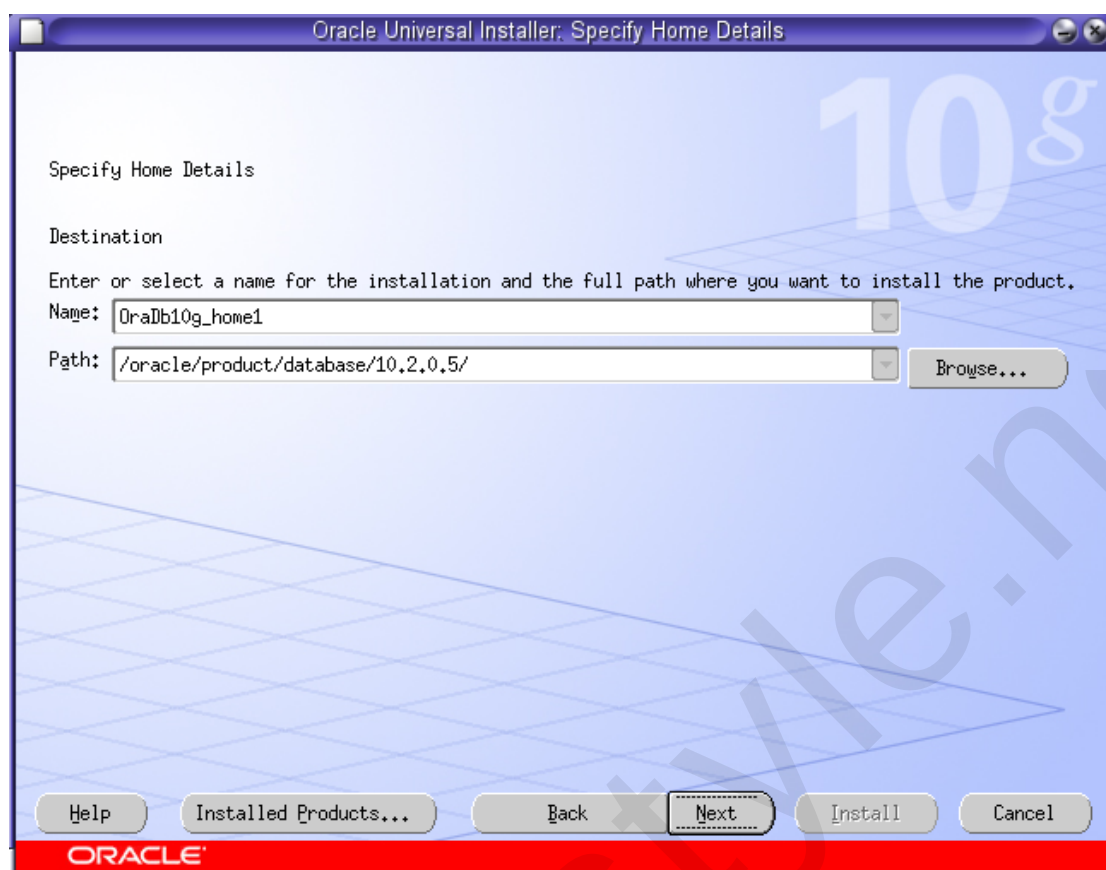
(3) 开始安装，点击“Next”；



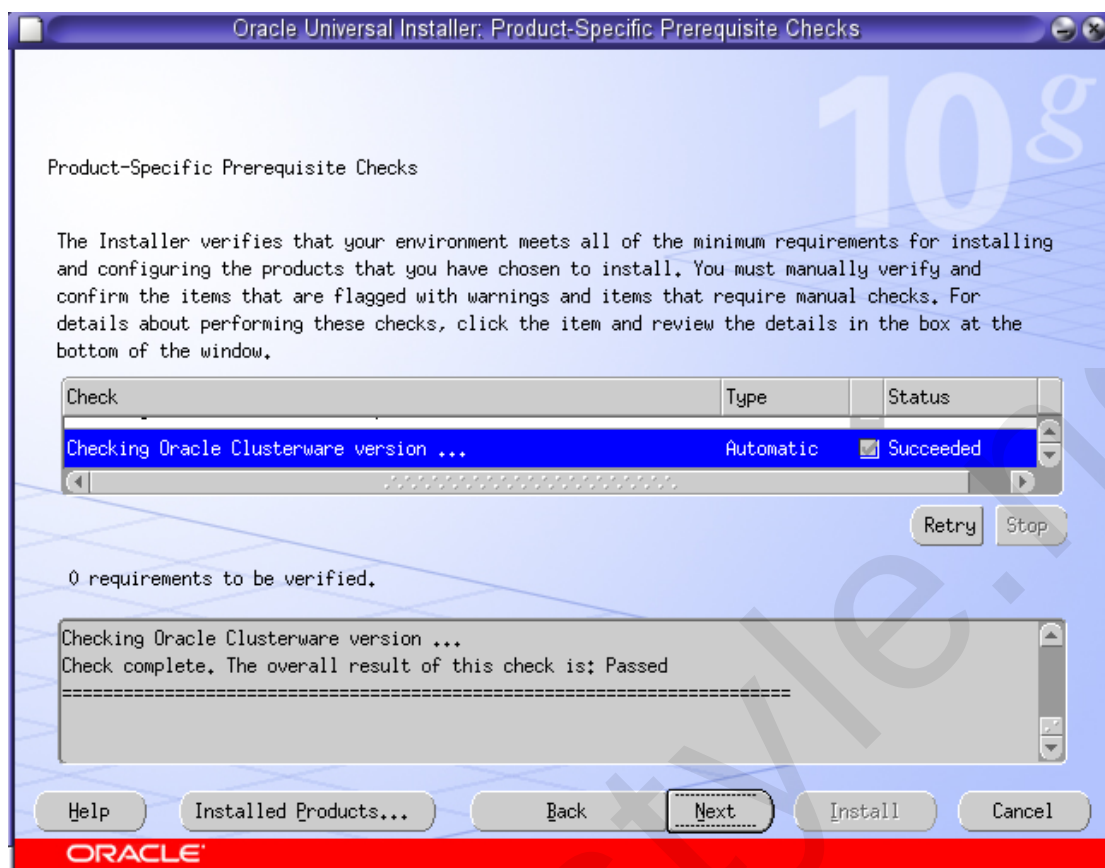
(4) 选择“企业版”，点击“Next”；



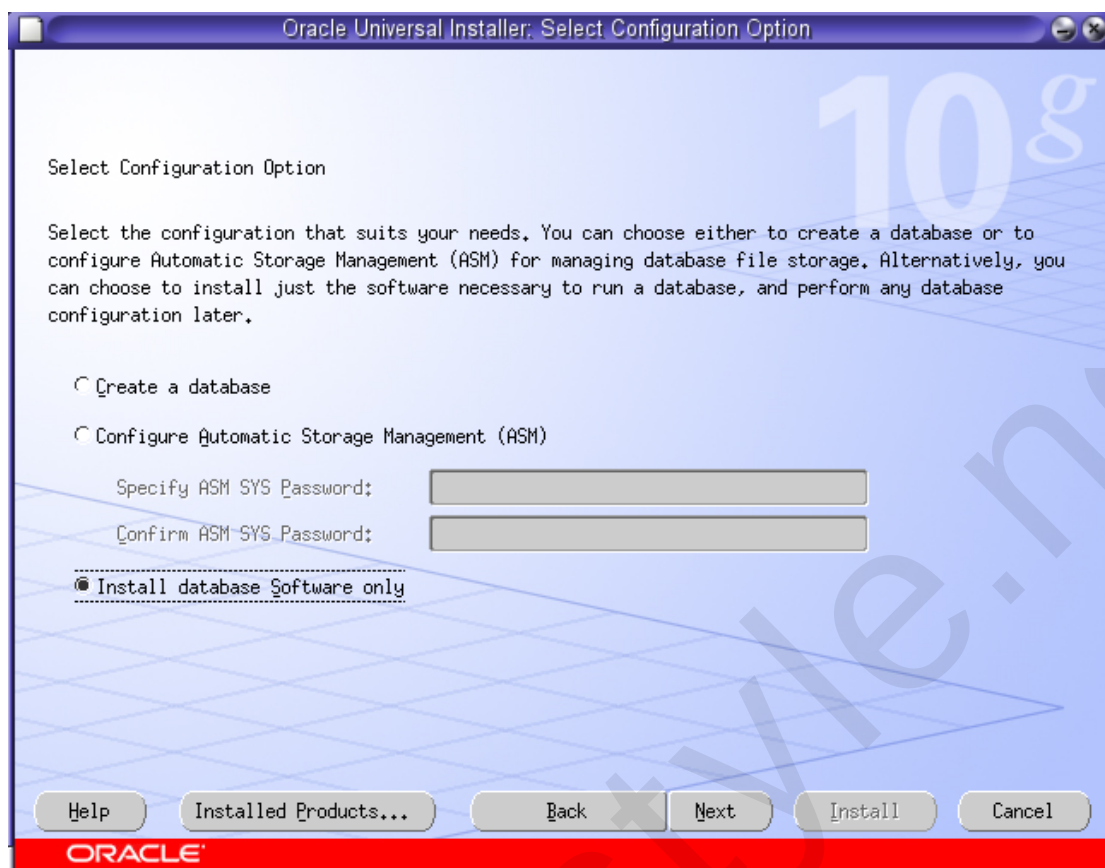
(5) 选择安装目录，点击“Next”；



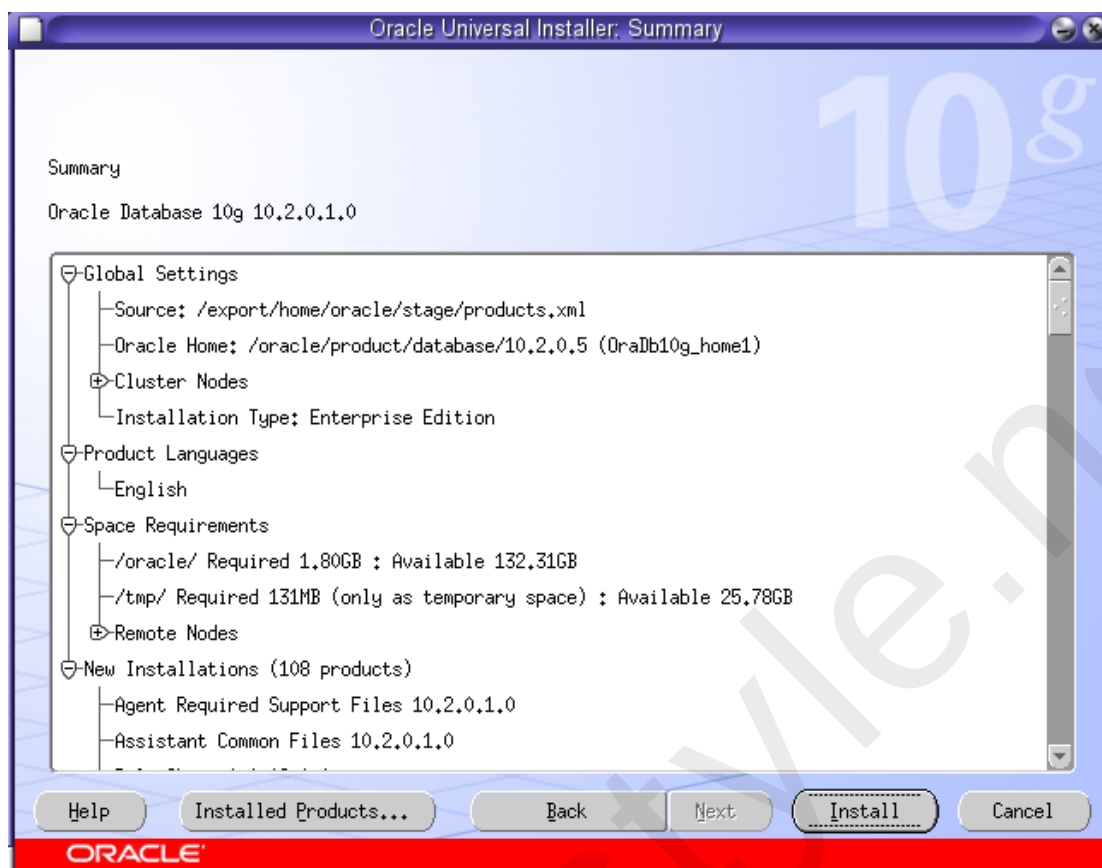
(6) 安装前检测，忽略警告，点击“Next”；



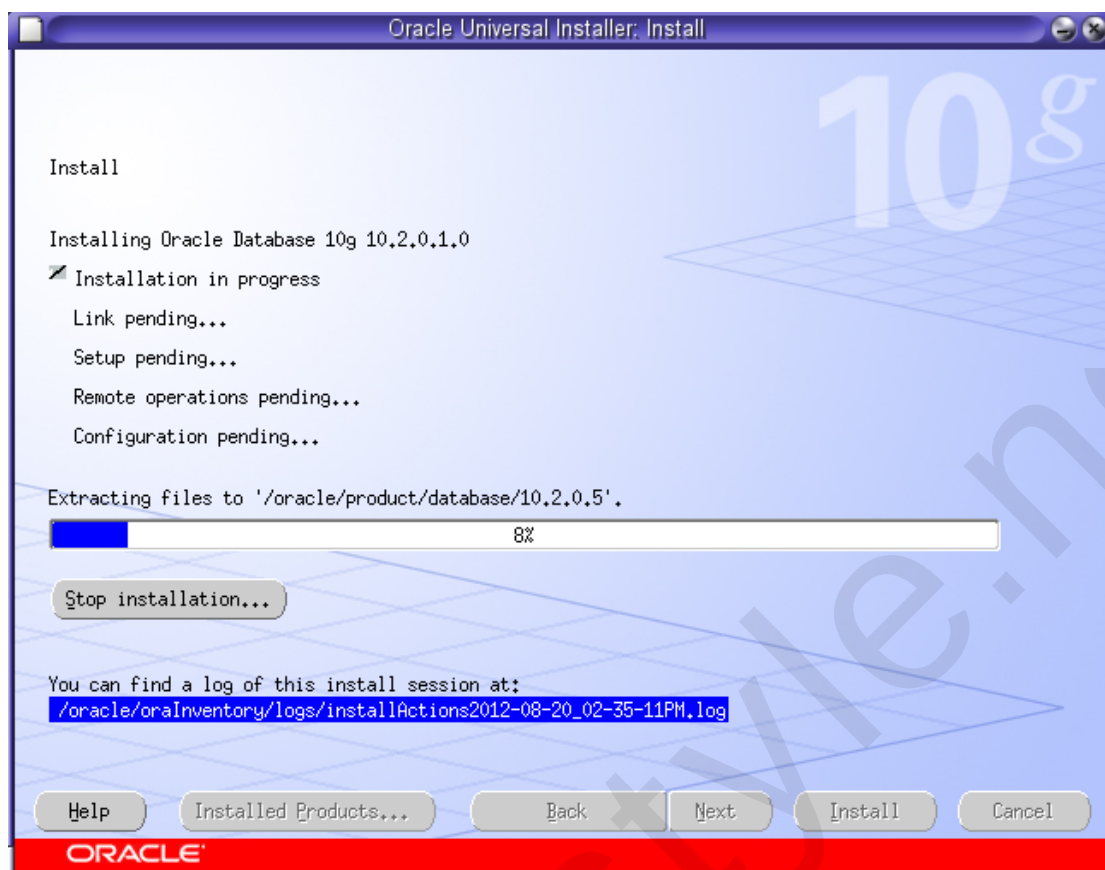
(7) 选择“只安装数据软件”点击“Next”;



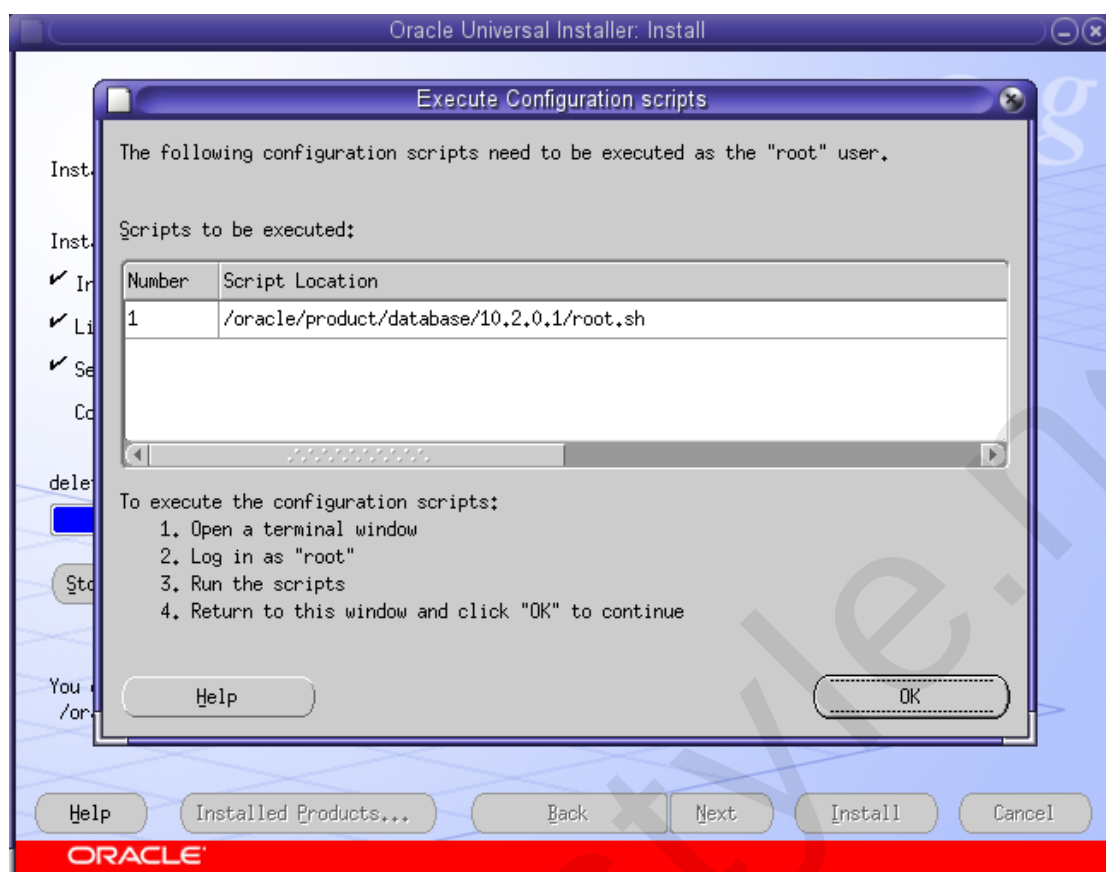
(8) 安装总结，点击“Install”；



(9) 安装进行中;



(10) 安装最后，需要到每个节点使用 root 账号，执行 root.sh 脚本；



(11) 节点执行过程;

racdb1:

```
root@racdb1# /oracle/product/database/10.2.0.5/root.sh
Running Oracle10 root.sh script...

The following environment variables are set as:
  ORACLE_OWNER= oracle
  ORACLE_HOME=  /oracle/product/database/10.2.0.5

Enter the full pathname of the local bin directory: [/usr/local/bin]:
Creating /usr/local/bin directory...
  Copying dbhome to /usr/local/bin ...
  Copying oraenv to /usr/local/bin ...
  Copying coraenv to /usr/local/bin ...

Creating /var/opt/oracle/oratab file...
Entries will be added to the /var/opt/oracle/oratab file as needed by
Database Configuration Assistant when a database is created
```

Finished running generic part of root.sh script.
Now product-specific root actions will be performed.

root@racdb1#

racdb2:

root@racdb2#/oracle/product/database/10.2.0.5/root.sh

Running Oracle10 root.sh script...

The following environment variables are set as:

ORACLE_OWNER= oracle

ORACLE_HOME= /oracle/product/database/10.2.0.5

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

Creating /usr/local/bin directory...

Copying dbhome to /usr/local/bin ...

Copying oraenv to /usr/local/bin ...

Copying coraenv to /usr/local/bin ...

Creating /var/opt/oracle/oratab file...

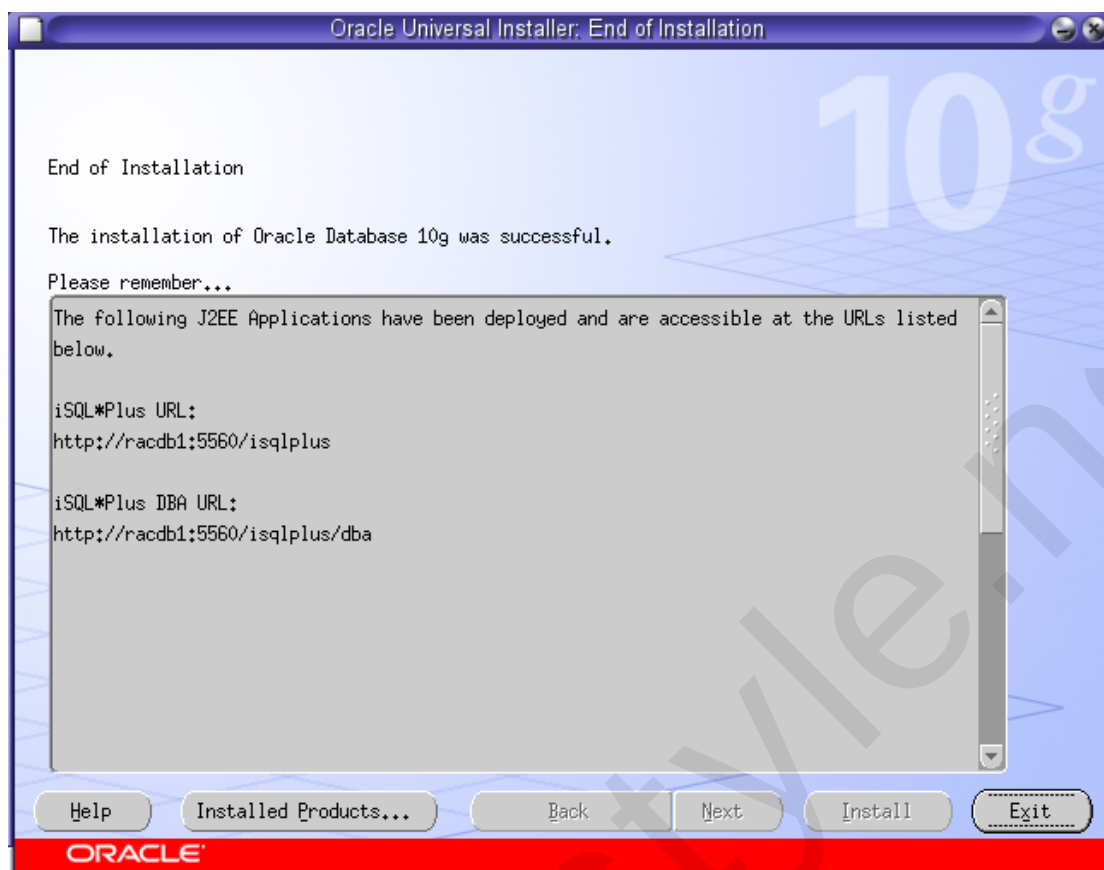
Entries will be added to the /var/opt/oracle/oratab file as needed by
Database Configuration Assistant when a database is created

Finished running generic part of root.sh script.

Now product-specific root actions will be performed.

root@racdb2#

(12) 数据库软件安装完毕。



4.8 升级数据库

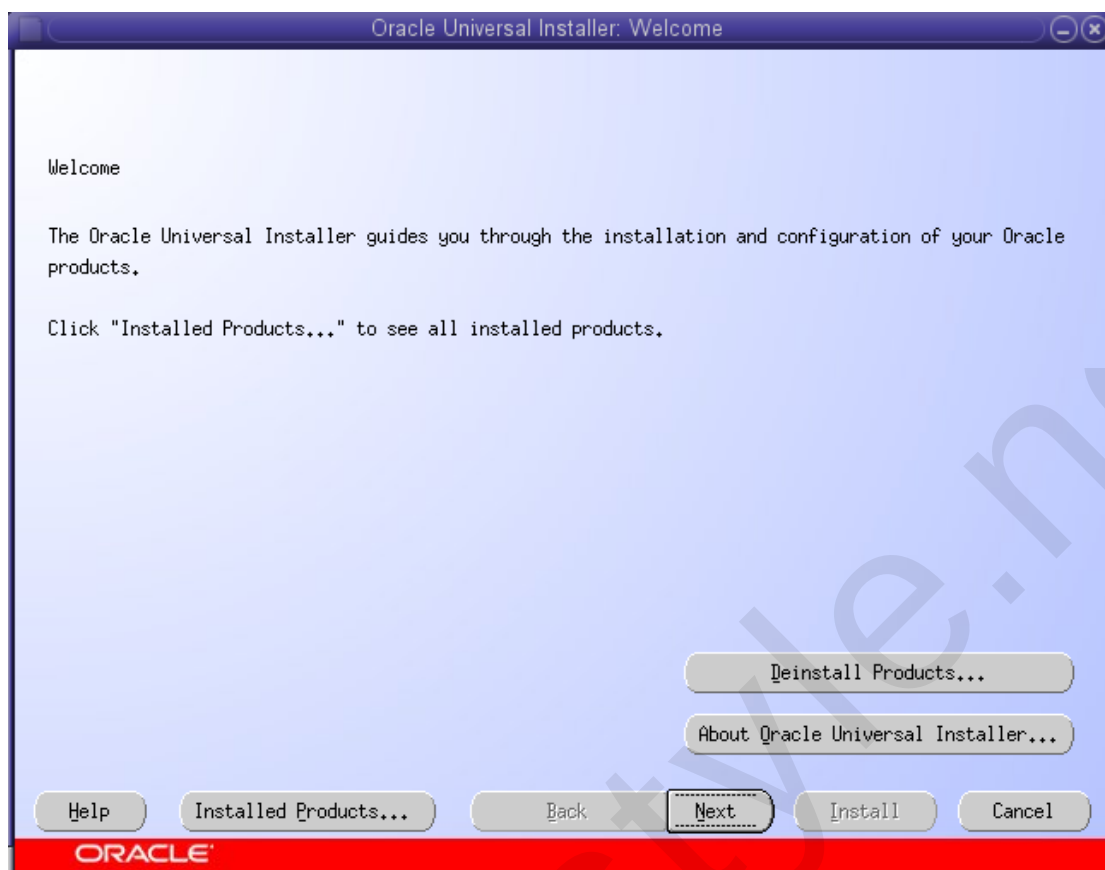
如果需要升级数据库软件，则先要升级 Clusterware 到和数据库相同的升级版本。

(1) 解压升级程序；

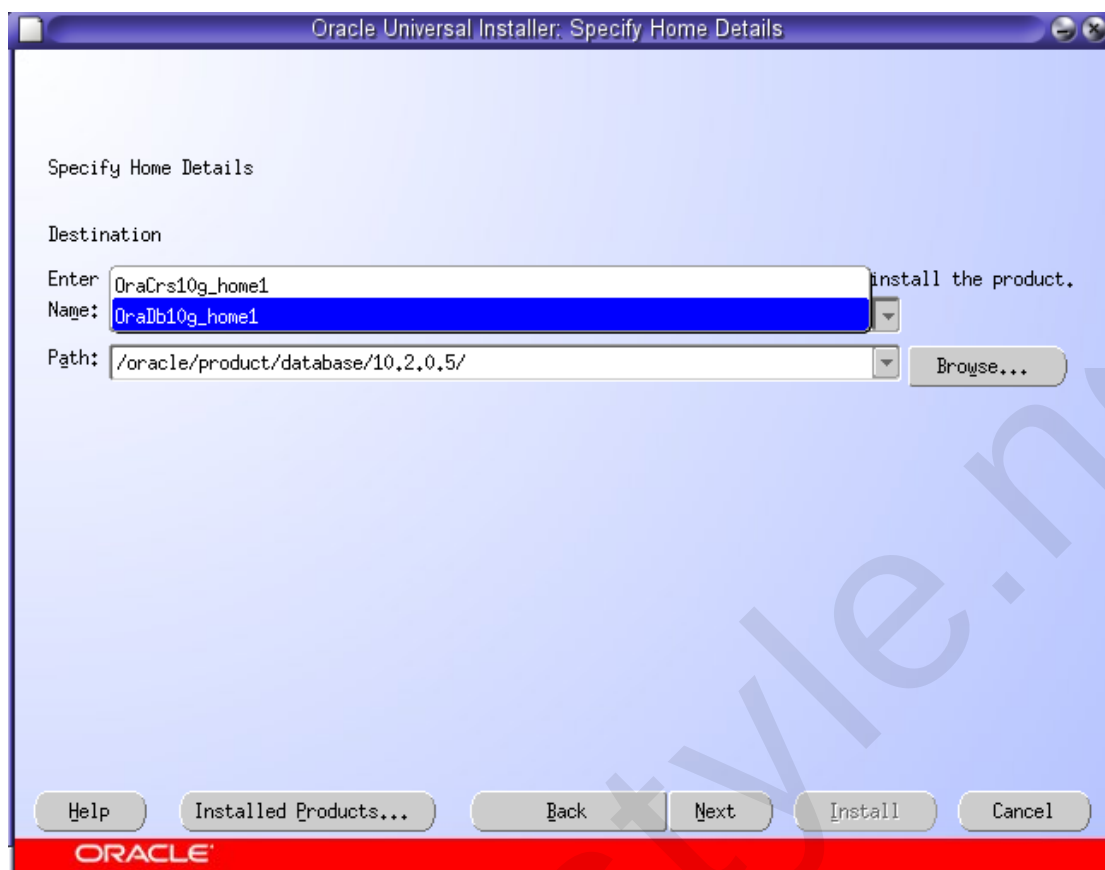
```
oracle@racdb1#unzip p8202632_10205_SOLARIS64.zip
```

(2) 开始安装，点击“Next”；

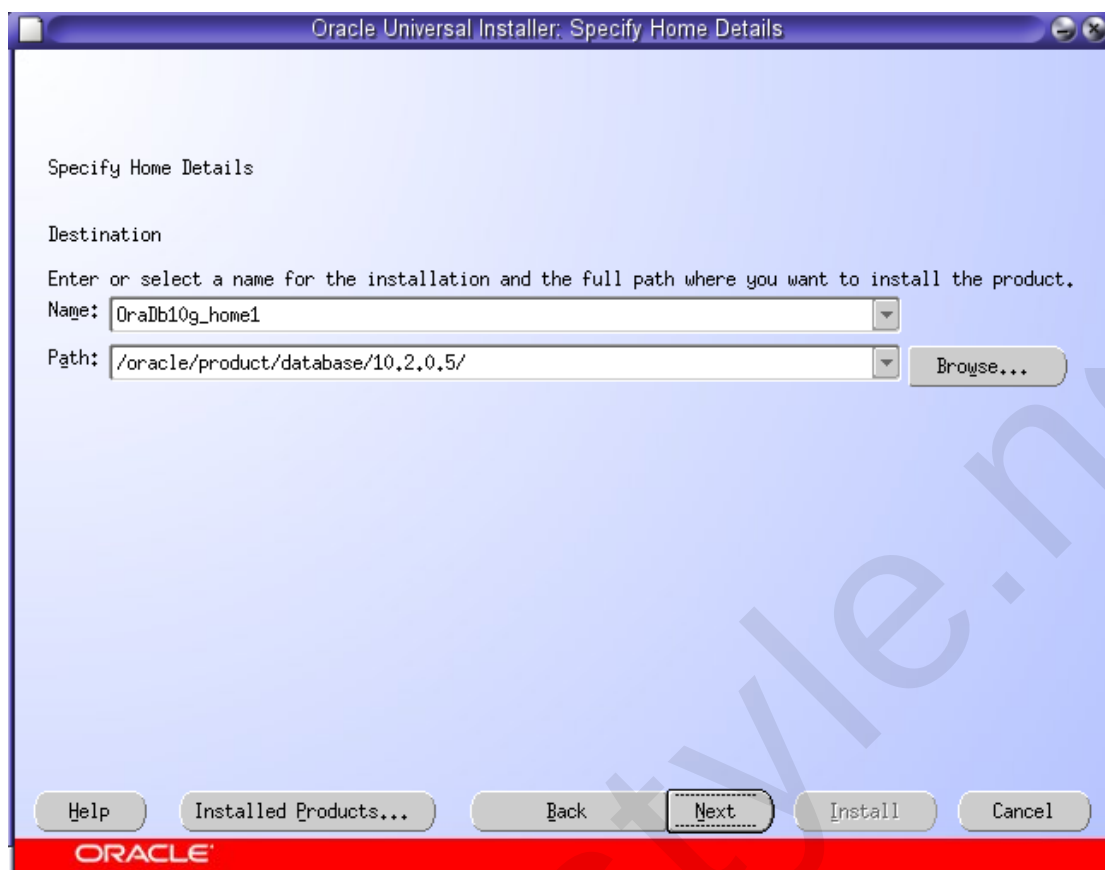
```
oracle@racdb1Disk1#./runInstaller
```



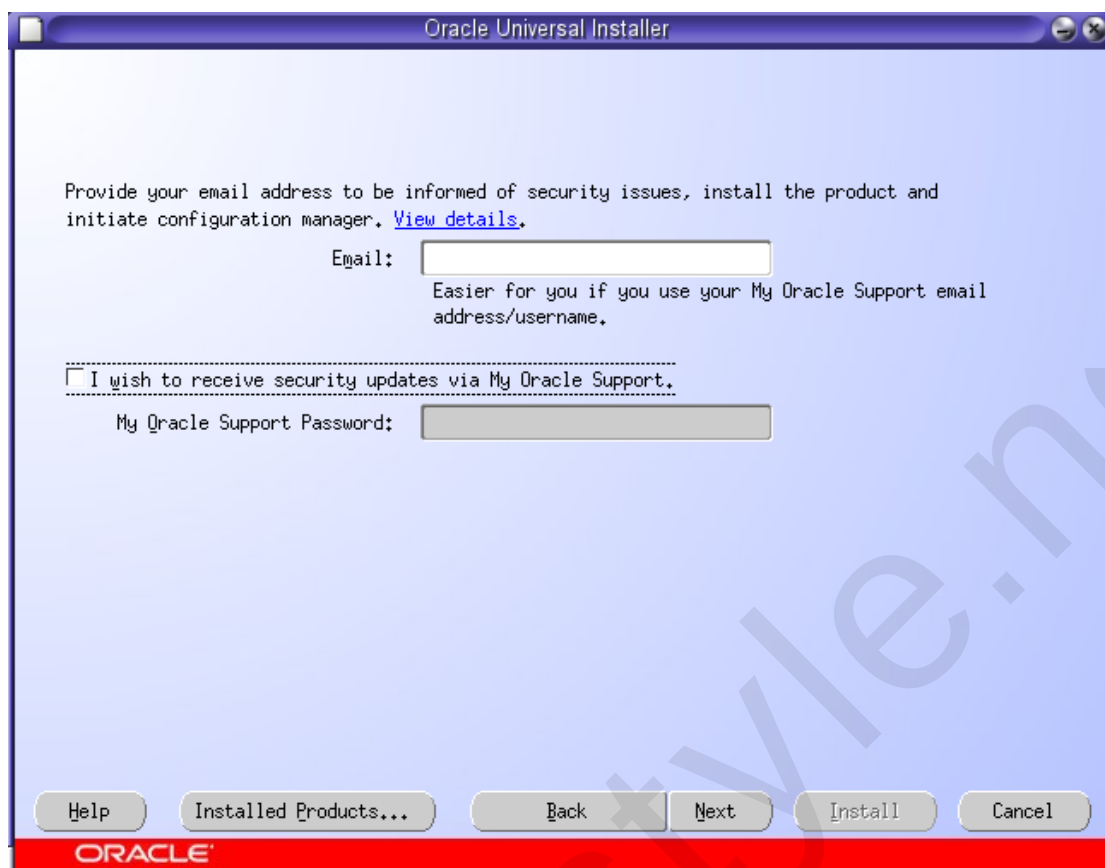
(3) 点击 Name 的下拉列表，选择 Database 的安装目录；



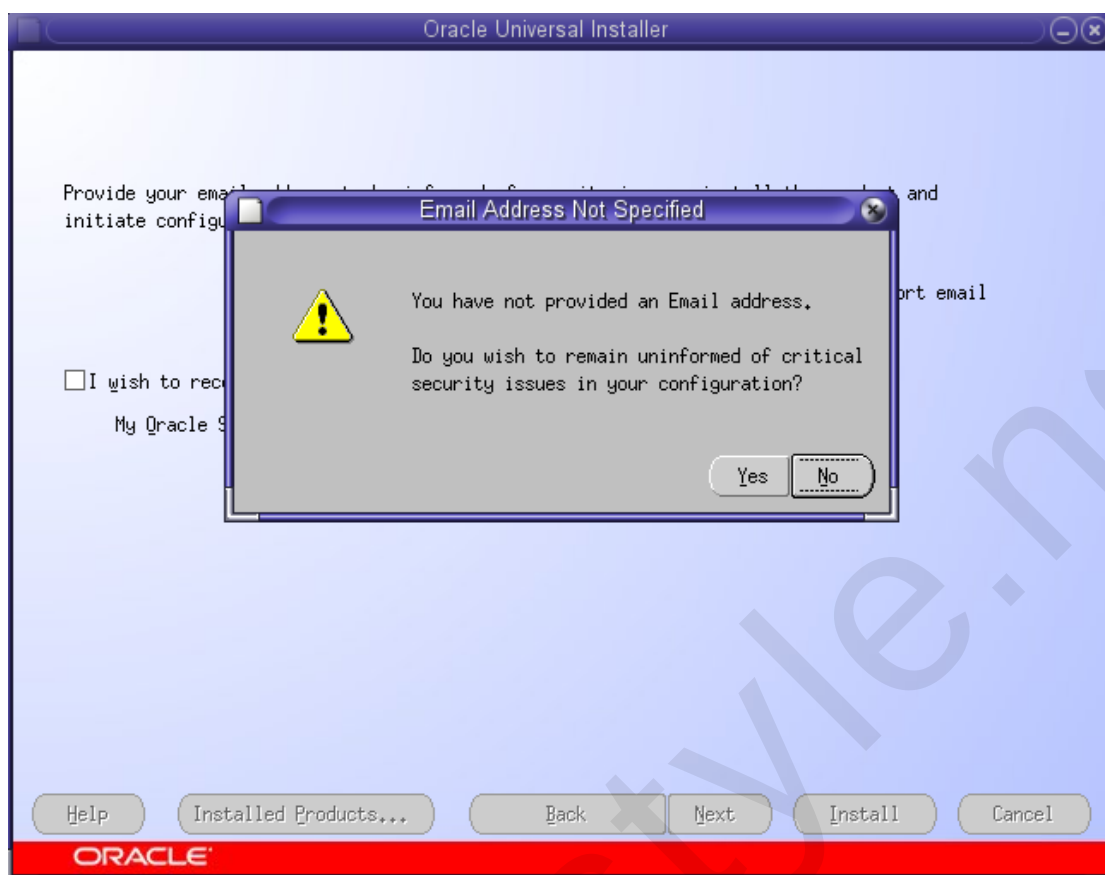
(4) 选择目录后，点击“Next”；



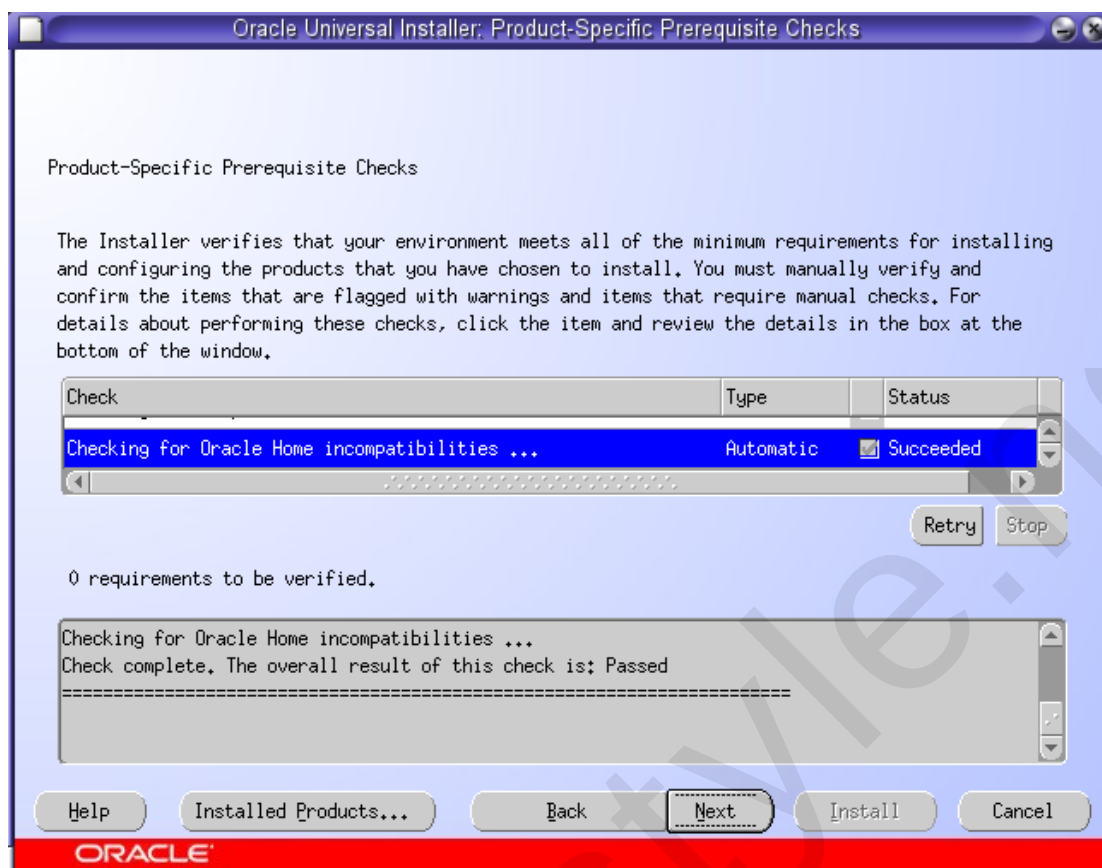
(5) 取消接收 oracle 安装升级的选项，点击“Next”；



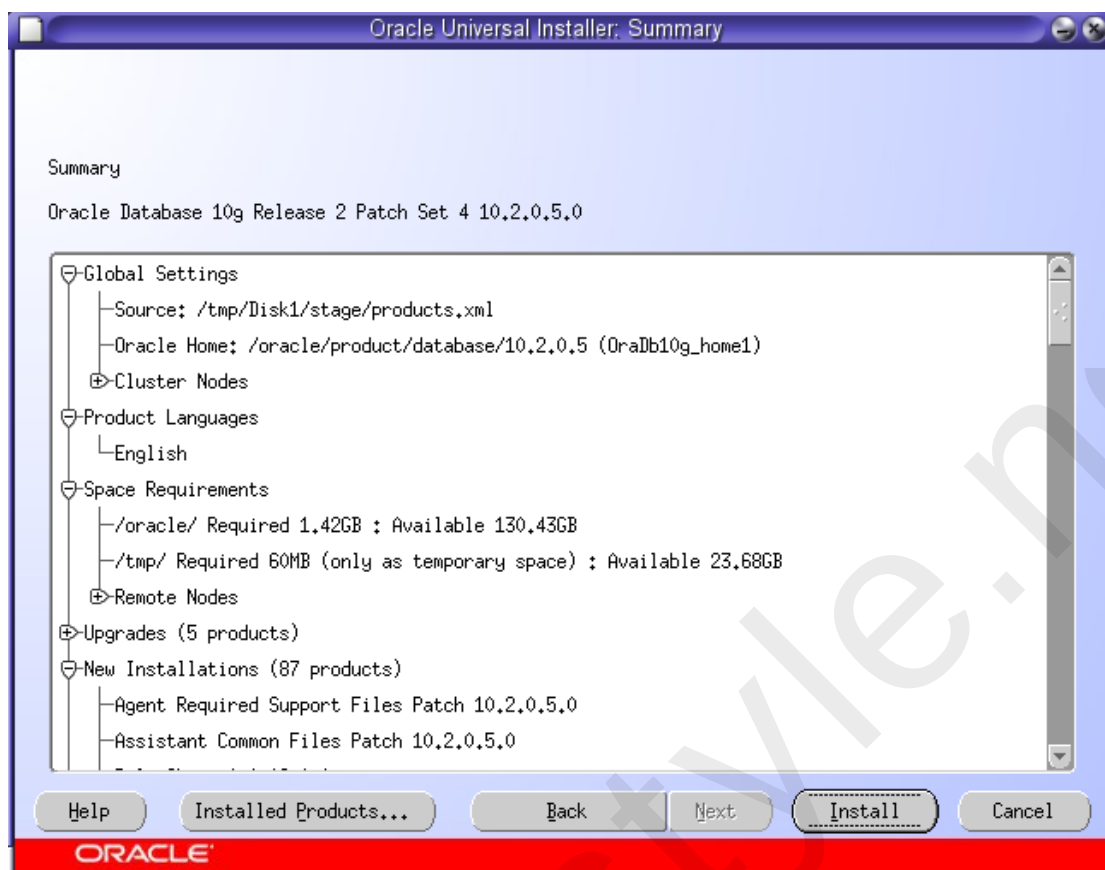
(6) 出现警告，提示没有设置邮件，点击 “Yes”；



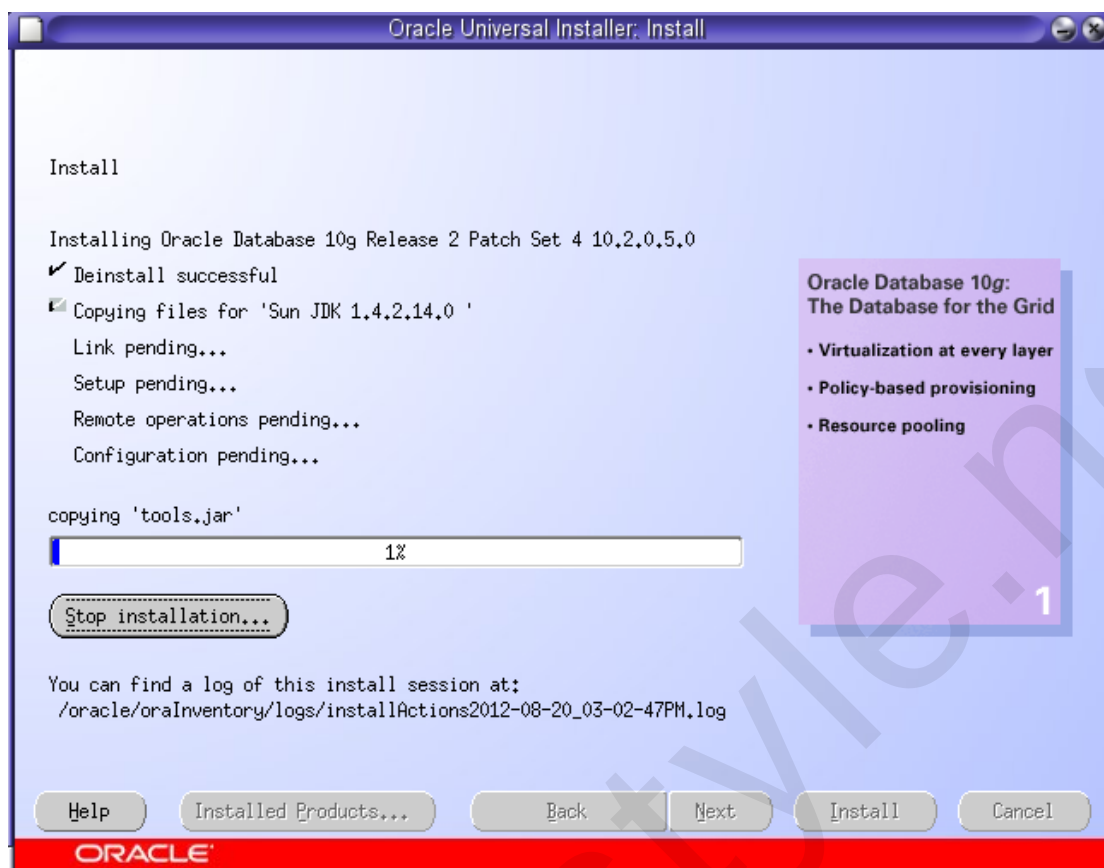
(7) 环境检查，点击“Next”；



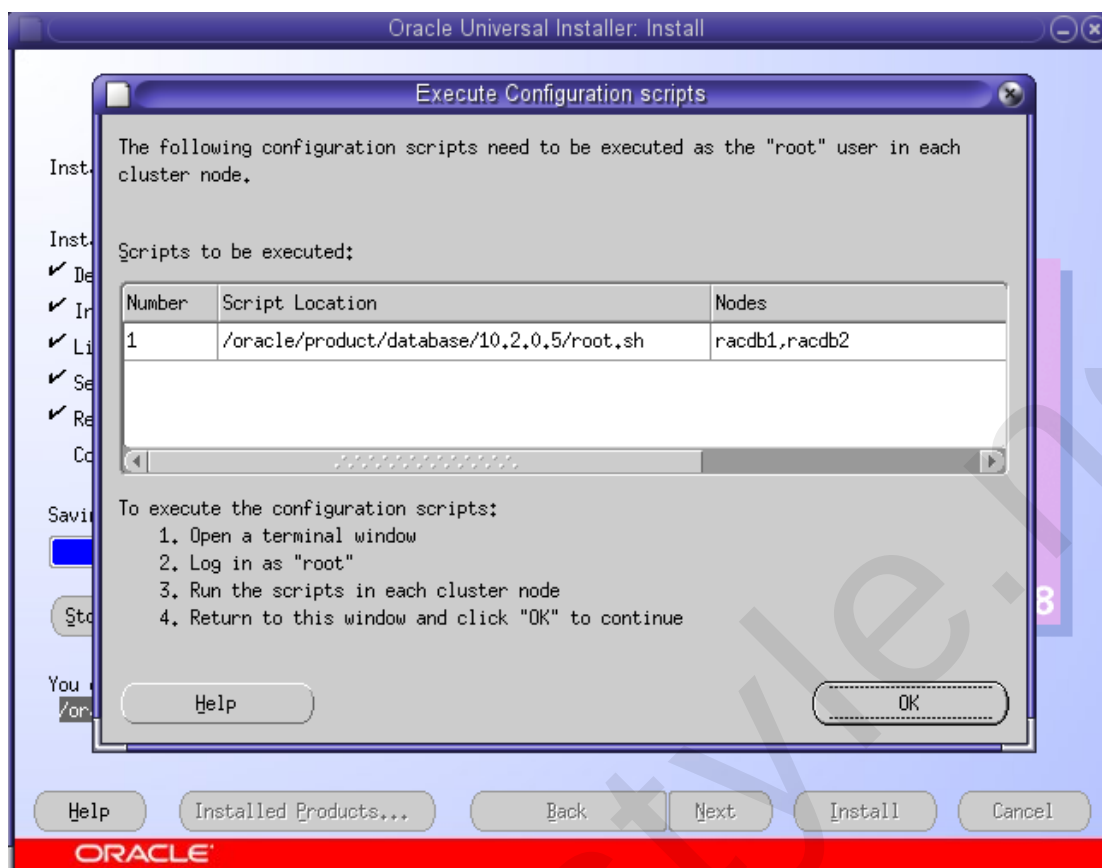
(8) 显示摘要信息，点击“Install”；



(9) 开始安装;



(10) 每个节点使用 root 用户执行个脚本;



Racdb1:

```
root@racdb1# /oracle/product/database/10.2.0.5/root.sh
```

Running Oracle 10g root.sh script...

The following environment variables are set as:

ORACLE_OWNER= oracle

ORACLE_HOME= /oracle/product/database/10.2.0.5

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

The file "dbhome" already exists in /usr/local/bin. Overwrite it? (y/n) [n]: y

Copying dbhome to /usr/local/bin ...

The file "oraenv" already exists in /usr/local/bin. Overwrite it? (y/n) [n]: y

Copying oraenv to /usr/local/bin ...

The file "coraenv" already exists in /usr/local/bin. Overwrite it? (y/n) [n]: y

Copying coraenv to /usr/local/bin ...

Entries will be added to the /var/opt/oracle/oratab file as needed by

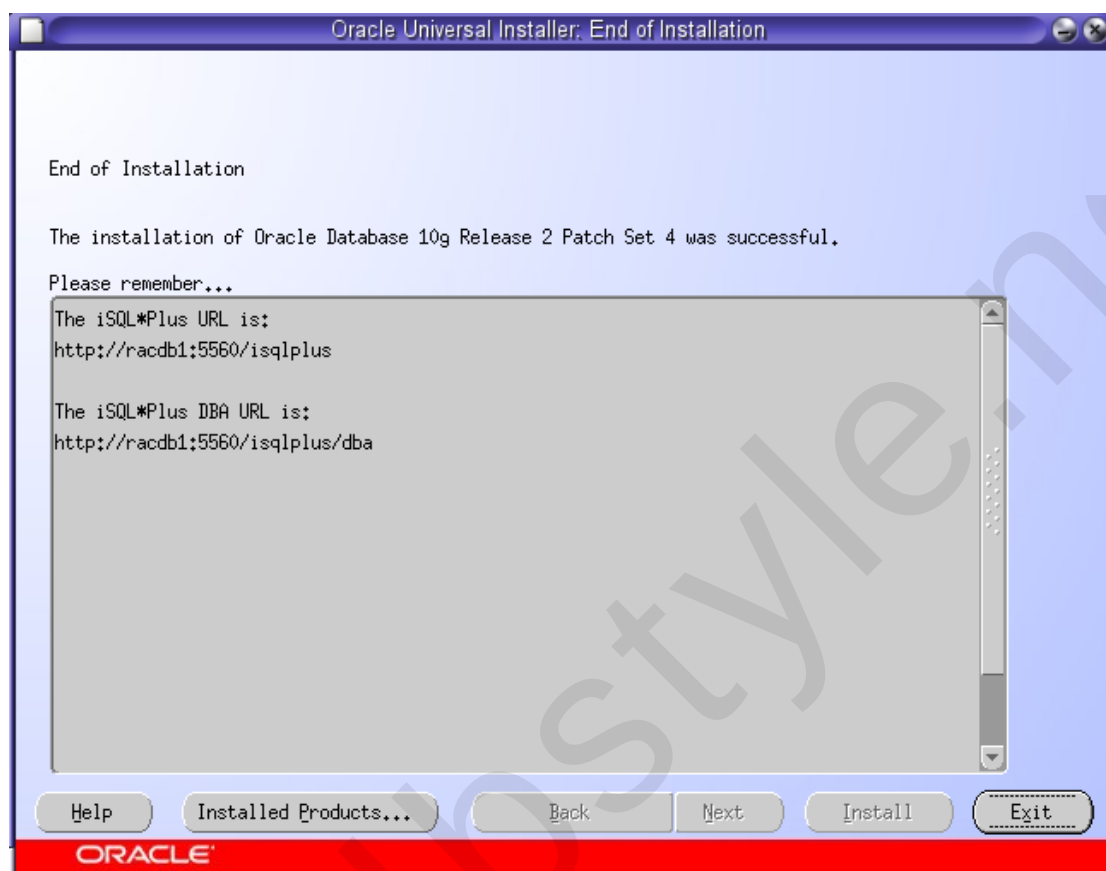
Database Configuration Assistant when a database is created

Finished running generic part of root.sh script.

Now product-specific root actions will be performed.

```
root@racdb1#
```

(11) 安装完成;

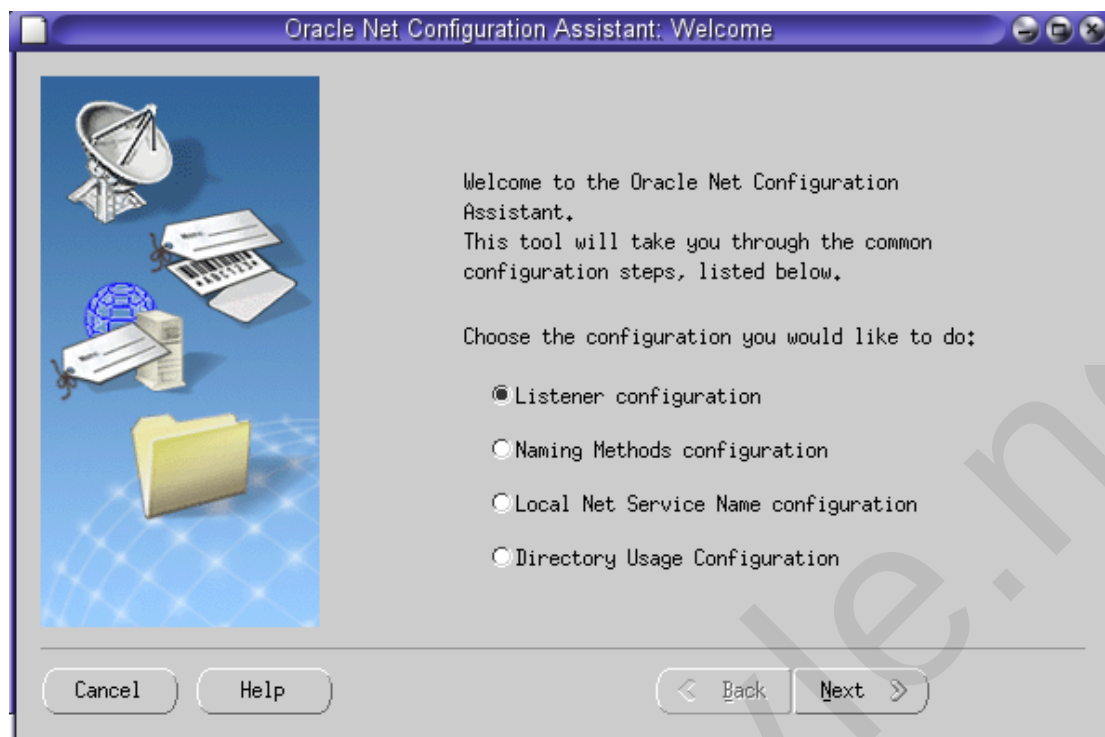


4.9 配置 Listener

(1) 在任意节点上执行 Netca, 启动 Listener 配置程序;

```
oracle@racdb1# netca
```

(2) 选择监听器配置, 点击 “Next”;



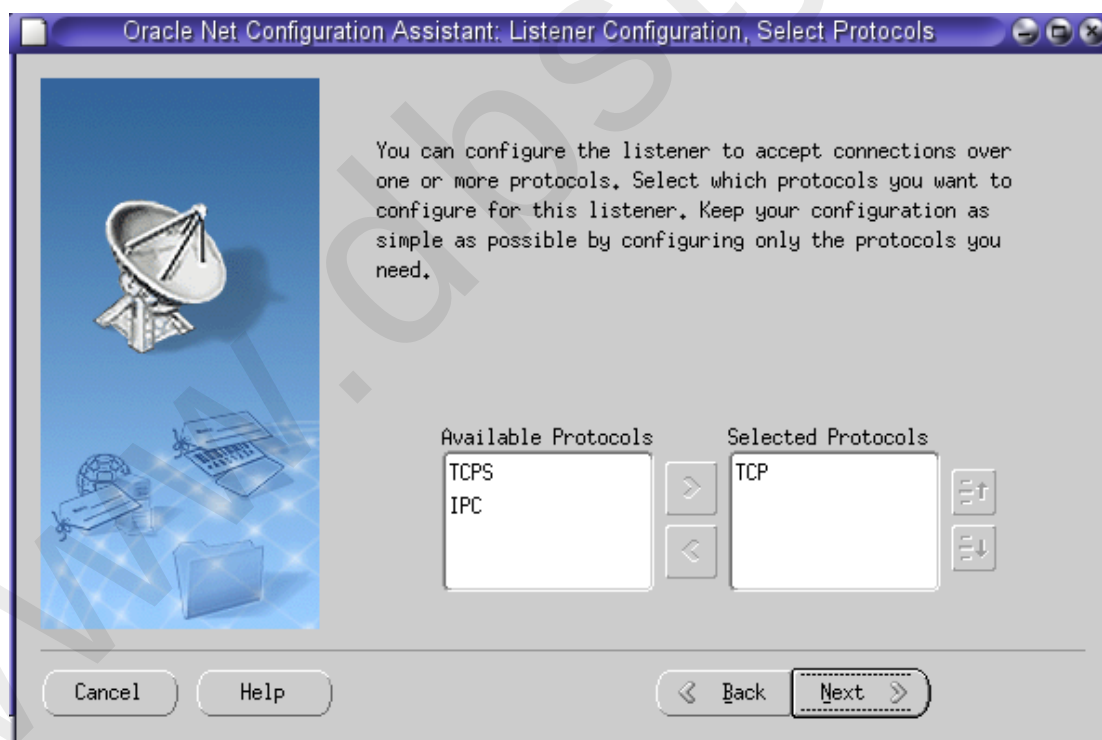
(3) 选择添加，点击“Next”；



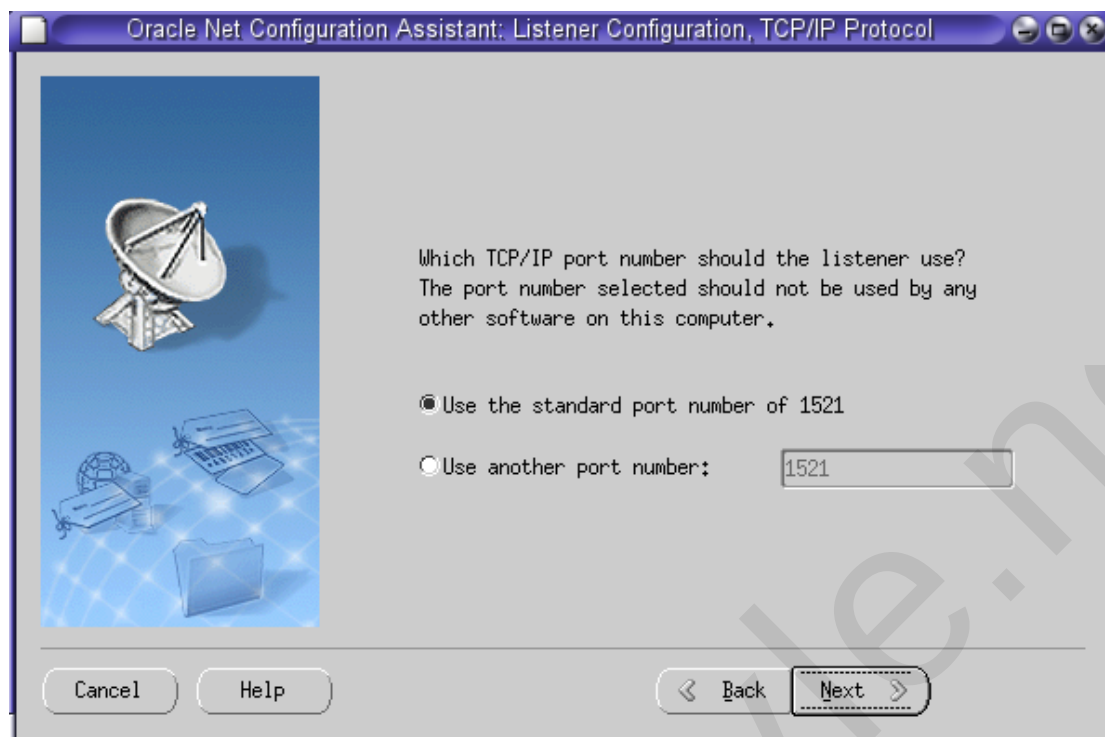
(4) 使用默认的监听名称 LISTENER，点击“Next”；



(5) 使用默认的 TCP 协议，点击 “Next”；



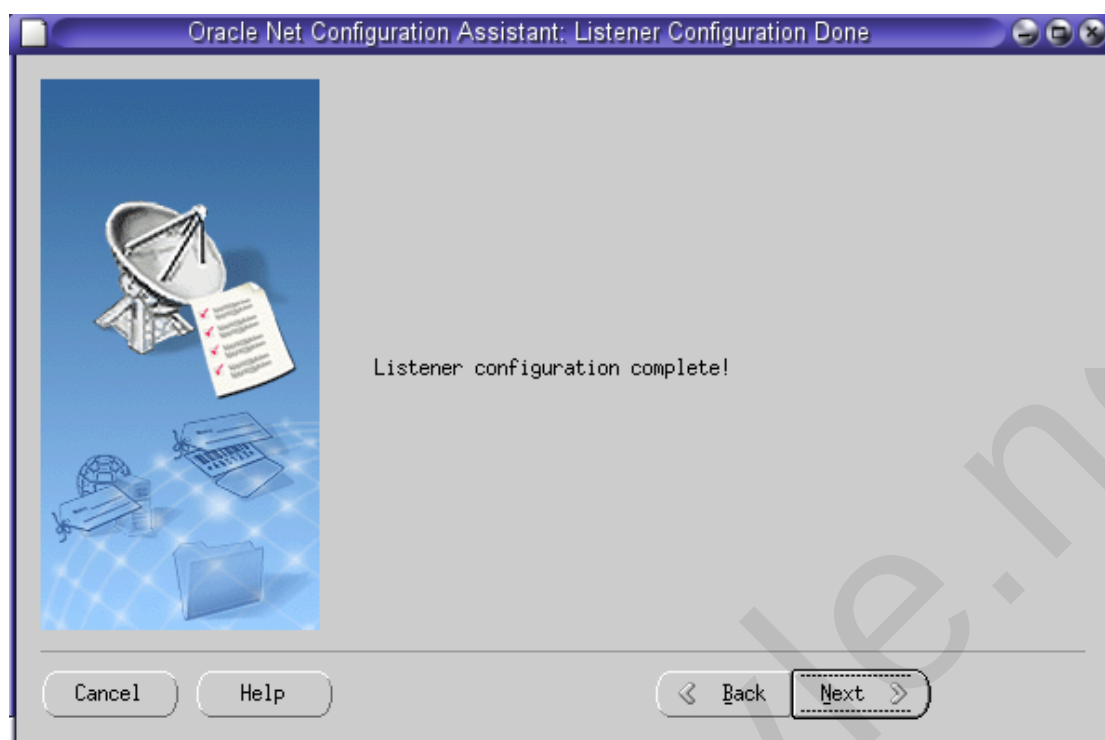
(6) 使用默认的 1521 端口，点击 “Next”；



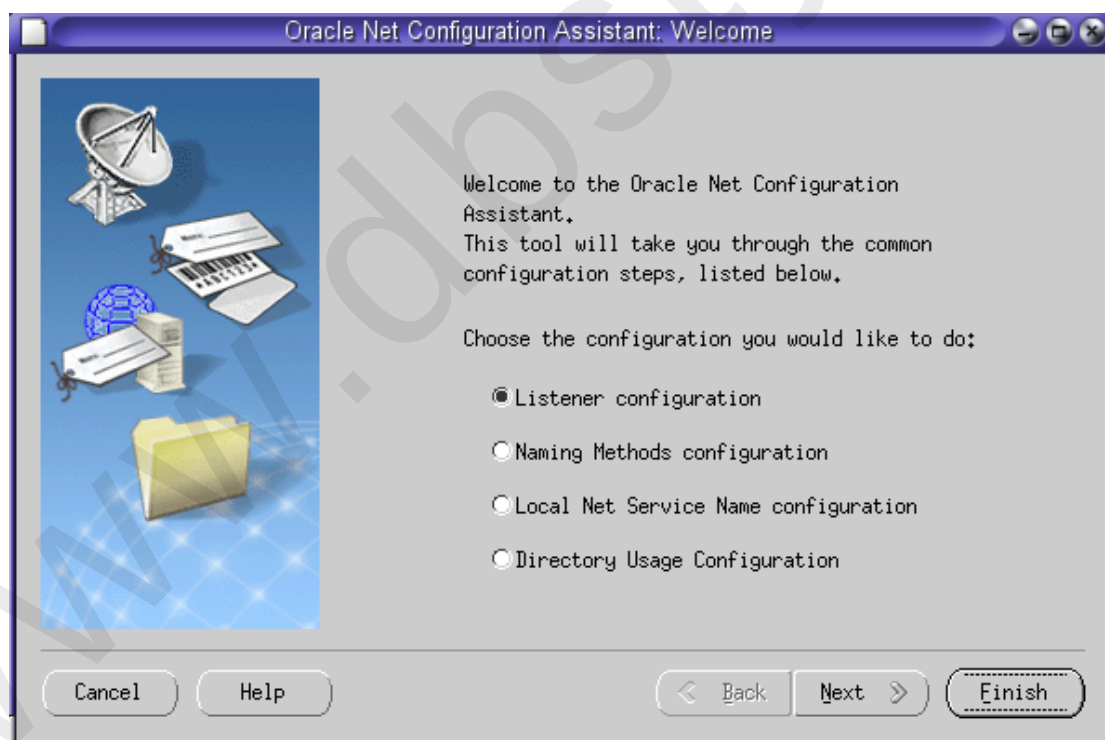
(7) 不再配置另一个监听器，点击“Next”；



(8) 配置完成，点击“Next”；



(9) 点击 Finish。



(10) 检查两台主机中的 listener.ora

racdb1:

```

oracle@racdb1#cat /oracle/product/database/10.2.0.5/network/admin/listener.ora
#          listener.ora.racdb1          Network          Configuration          File:
/oracle/product/database/10.2.0.5//network/admin/listener.ora.racdb1
# Generated by Oracle configuration tools.

LISTENER_RACDB1 =
  (DESCRIPTION_LIST =
    (DESCRIPTION =
      (ADDRESS = (PROTOCOL = TCP)(HOST = racdb1-vip)(PORT = 1521)(IP = FIRST))
      (ADDRESS = (PROTOCOL = TCP)(HOST = 192.168.100.93)(PORT = 1521)(IP = FIRST))
    )
  )

SID_LIST_LISTENER_RACDB1 =
  (SID_LIST =
    (SID_DESC =
      (SID_NAME = PLSExtProc)
      (ORACLE_HOME = /oracle/product/database/10.2.0.5/)
      (PROGRAM = extproc)
    )
  )

oracle@racdb1#

```

racdb2:

```

oracle@racdb2#cat /oracle/product/database/10.2.0.5/network/admin/listener.ora
#          listener.ora.racdb2          Network          Configuration          File:
/oracle/product/database/10.2.0.5//network/admin/listener.ora.racdb2
# Generated by Oracle configuration tools.

LISTENER_RACDB2 =
  (DESCRIPTION_LIST =
    (DESCRIPTION =
      (ADDRESS = (PROTOCOL = TCP)(HOST = racdb2-vip)(PORT = 1521)(IP = FIRST))
      (ADDRESS = (PROTOCOL = TCP)(HOST = 192.168.100.94)(PORT = 1521)(IP = FIRST))
    )
  )

SID_LIST_LISTENER_RACDB2 =
  (SID_LIST =
    (SID_DESC =
      (SID_NAME = PLSExtProc)
      (ORACLE_HOME = /oracle/product/database/10.2.0.5/)
    )
  )

```

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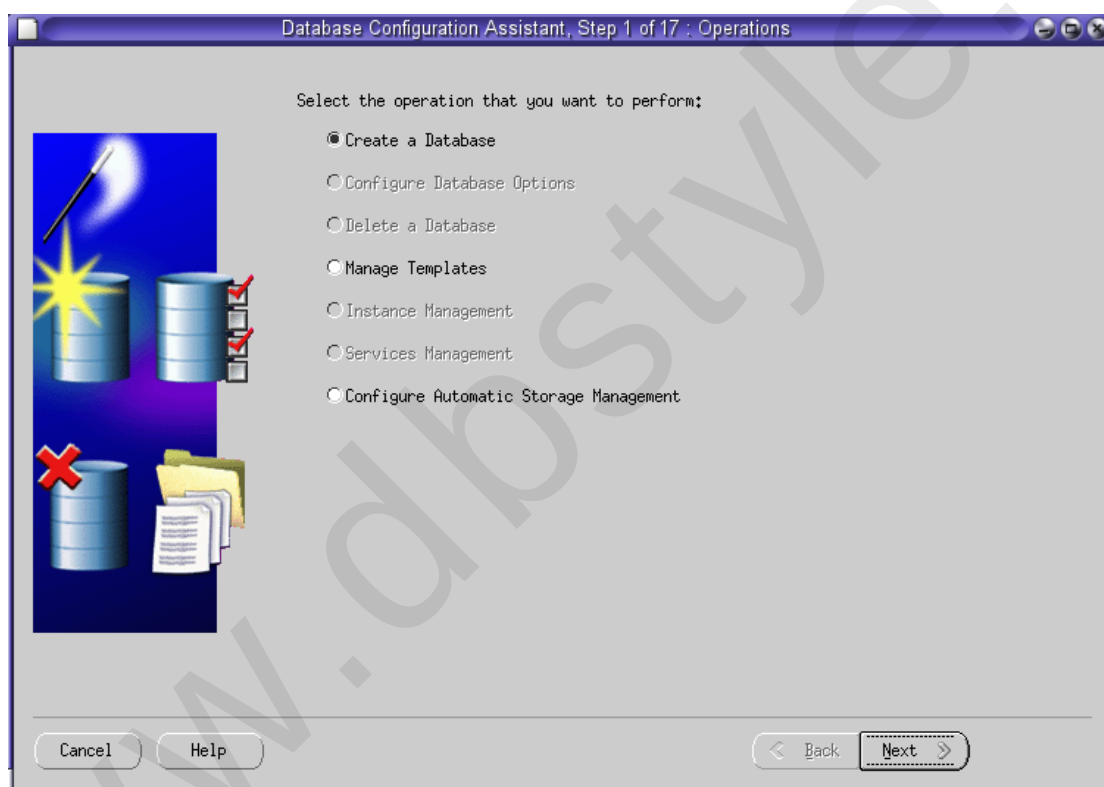
```
(PROGRAM = extproc)
)
)
oracle@racdb2#
```

4.10 创建数据库

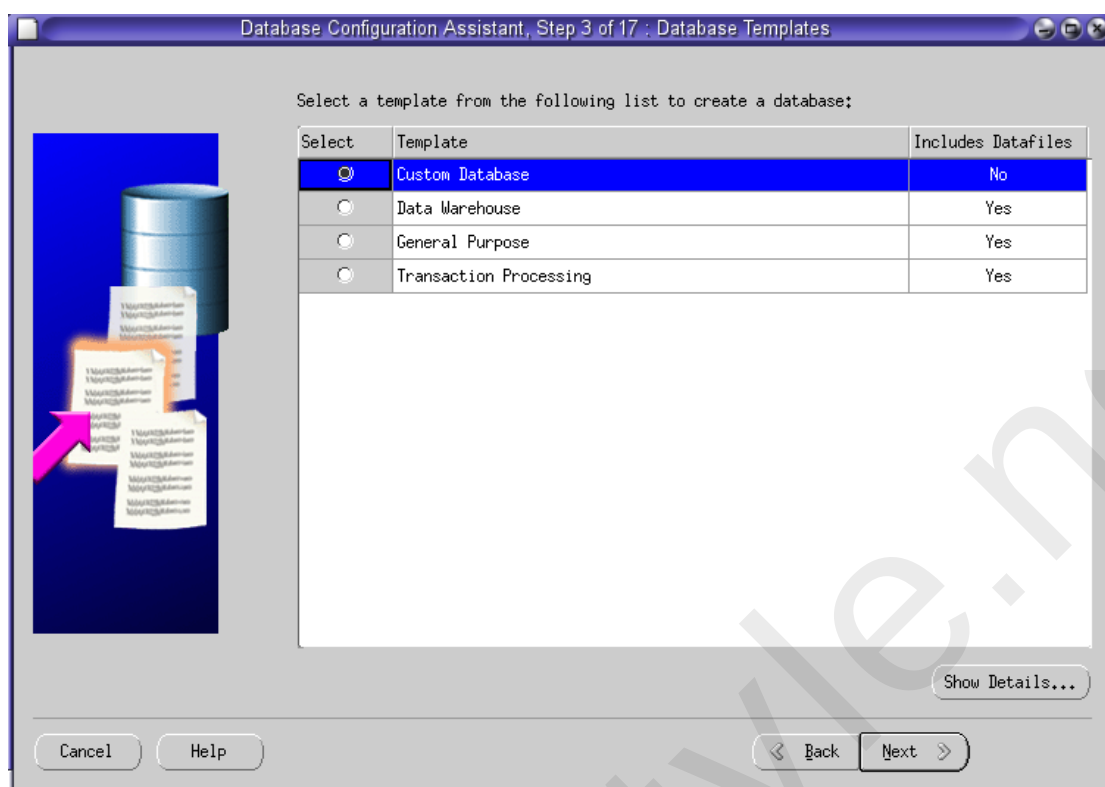
(1) 在任意节点上执行 dbca，启动数据库配置程序；

```
oracle@racdb1#dbca
```

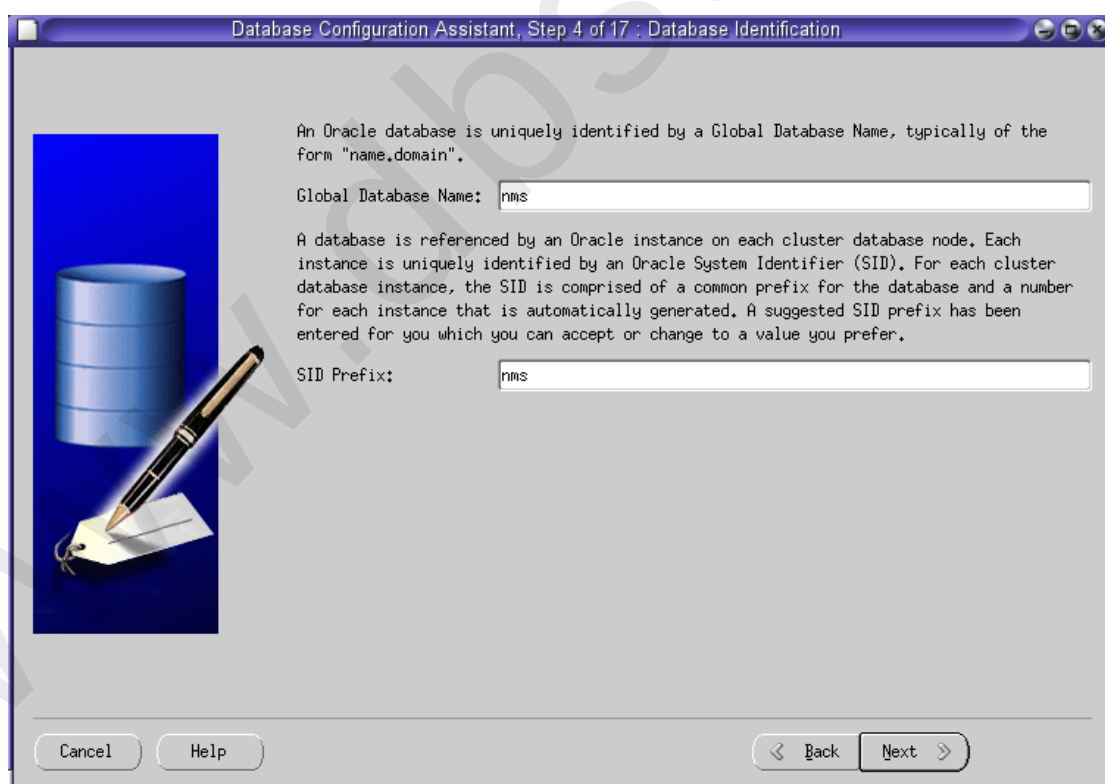
(2) 选择创建数据库，点击“Next”；



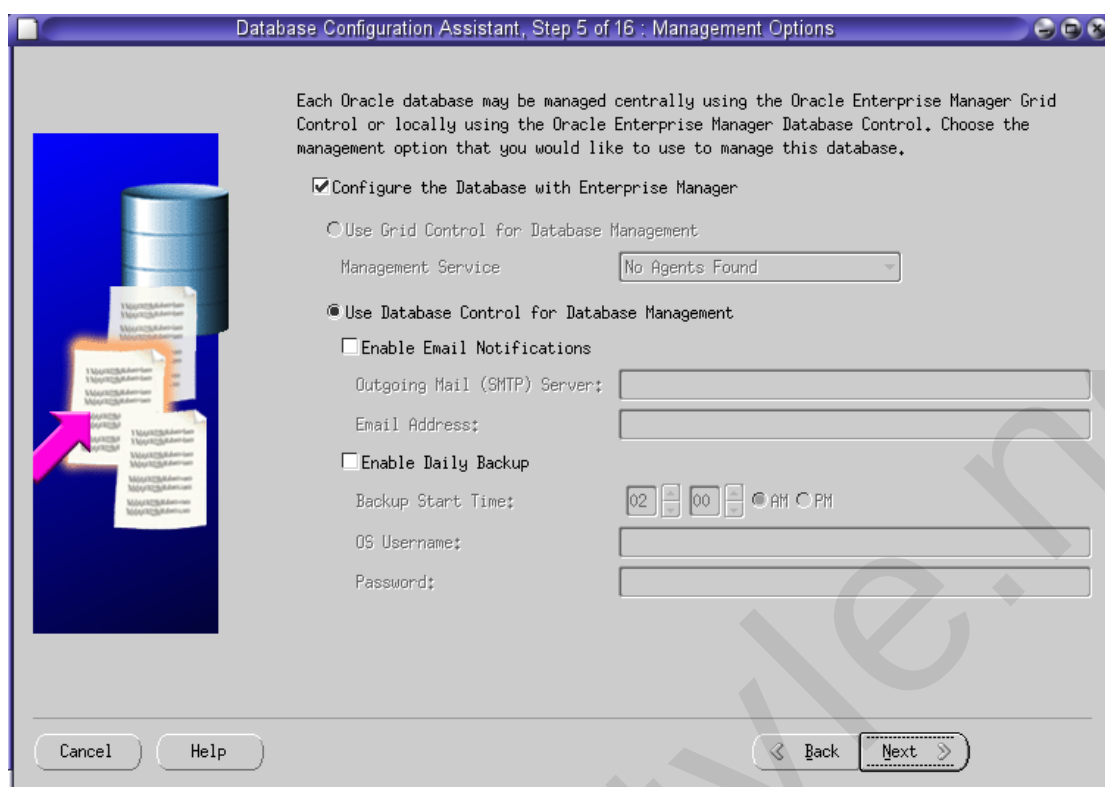
(3) 选择自定义数据库，点击“Next”；



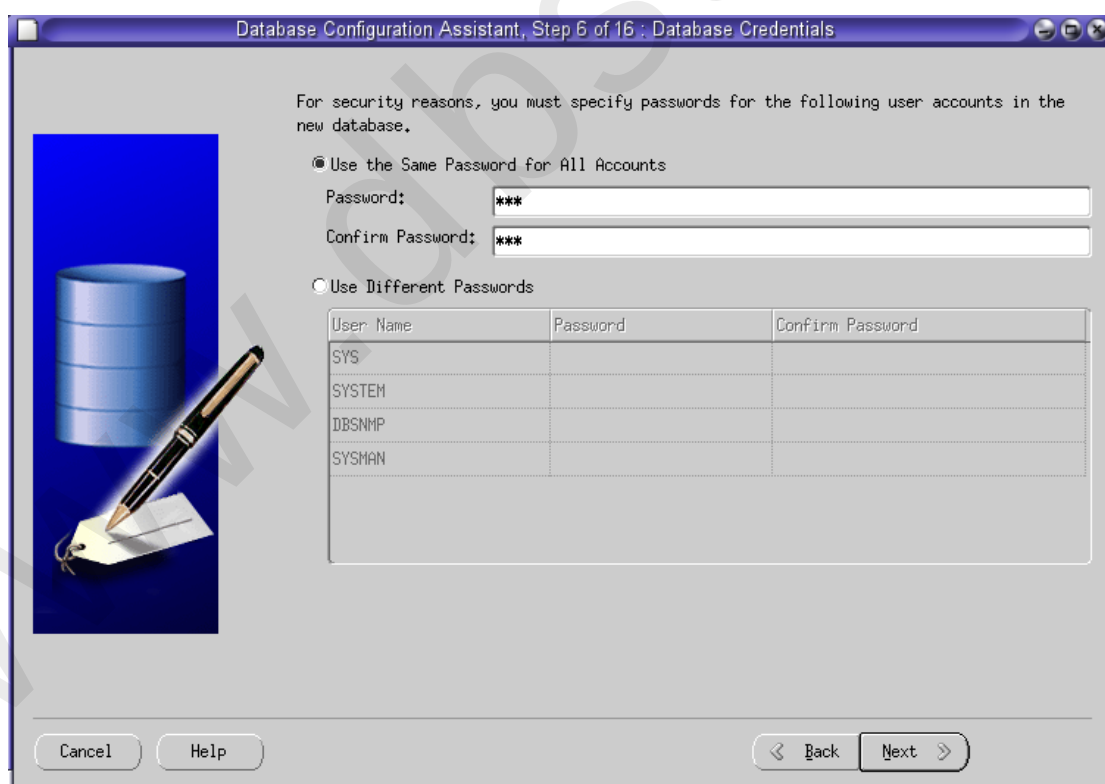
(4) 填写实例名: nms, 点击 “Next”;



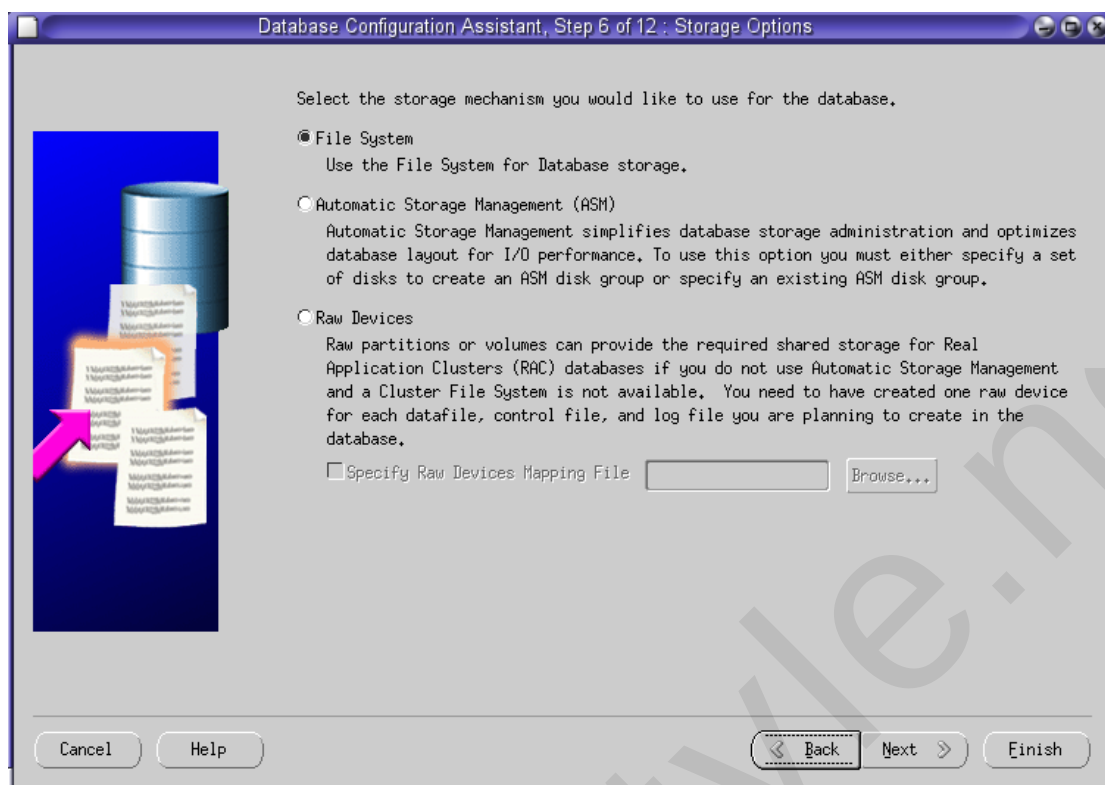
(5) 选择配置企业管理器, 点击 “Next”;



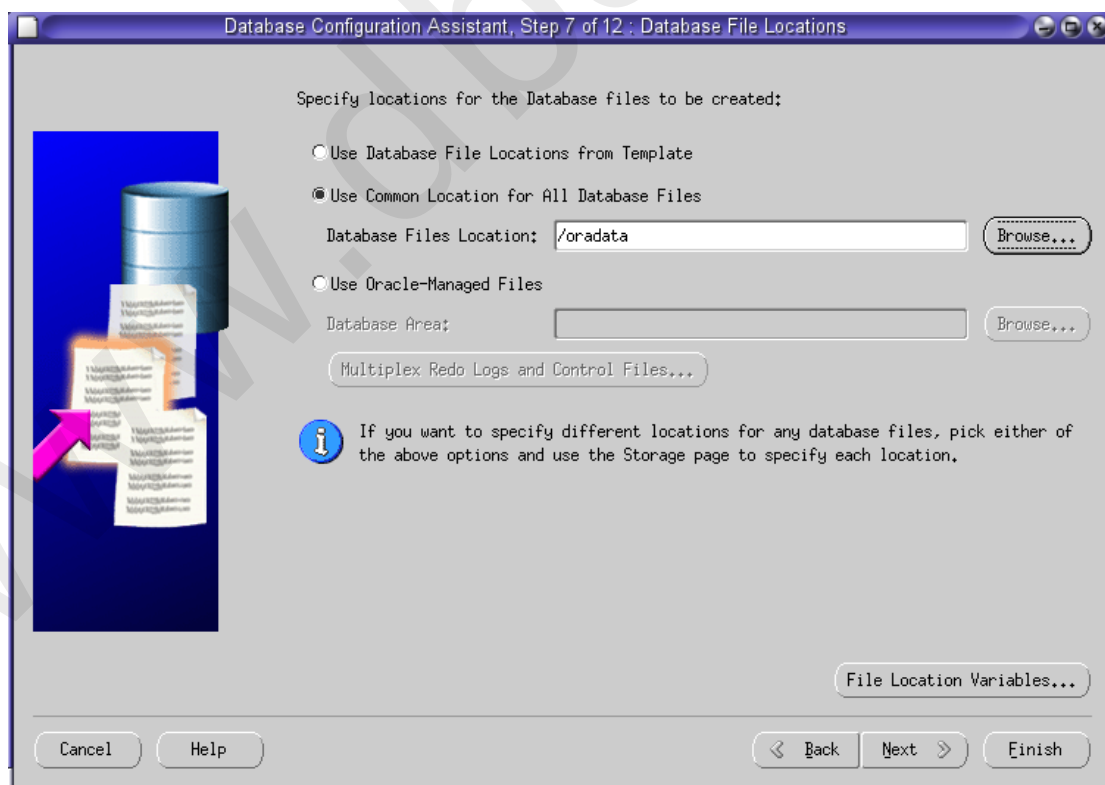
(6) 设置统一的密码，点击“Next”；



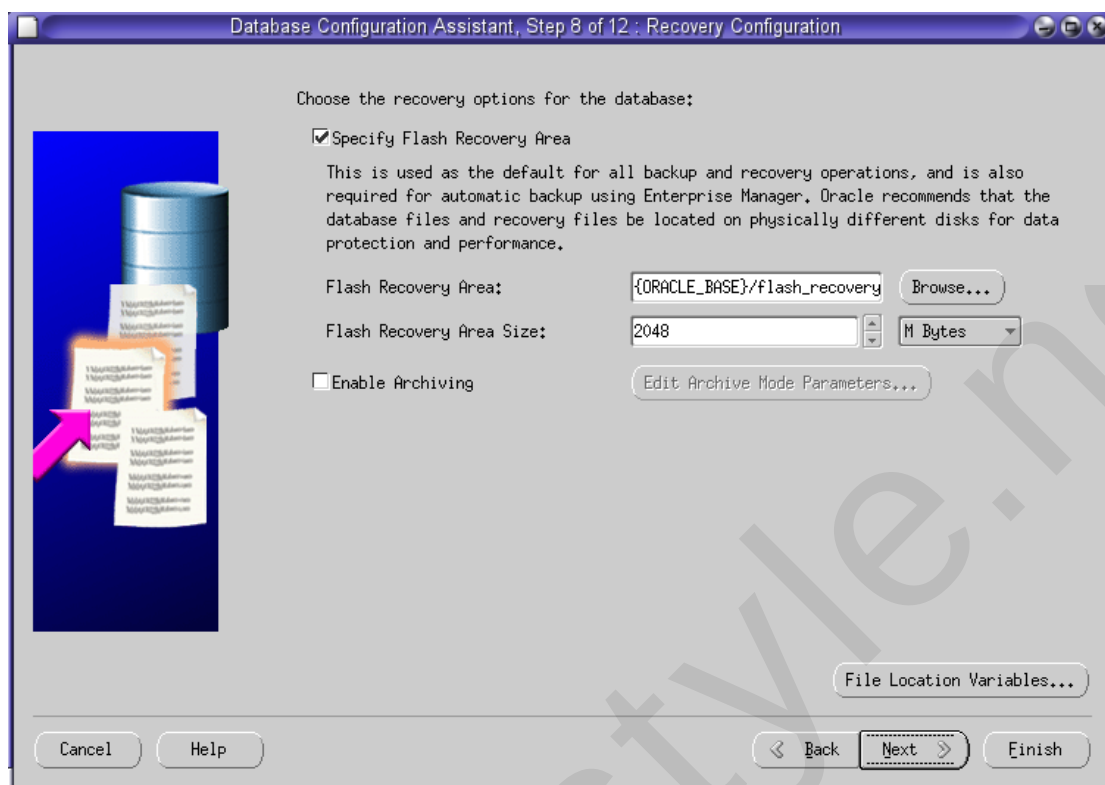
(7) 存储类型选择 ASM，点击“Next”；



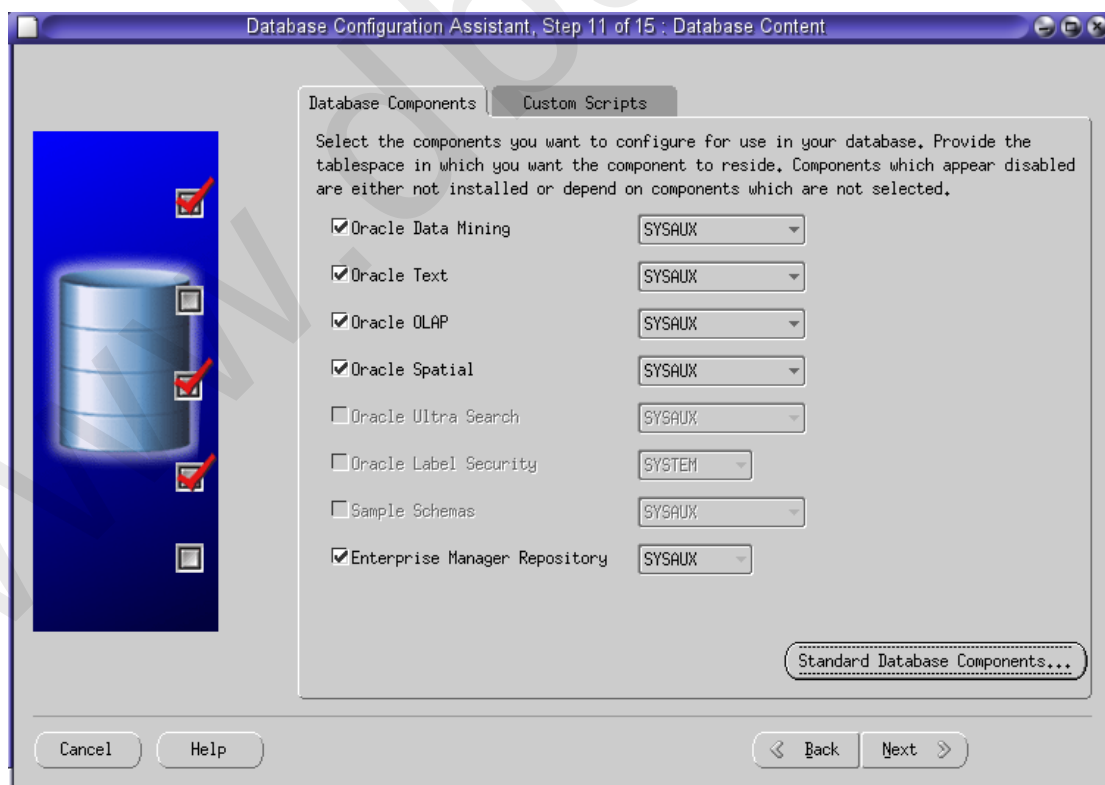
(8) 选择使用普通的本地文件，点击“Next”；



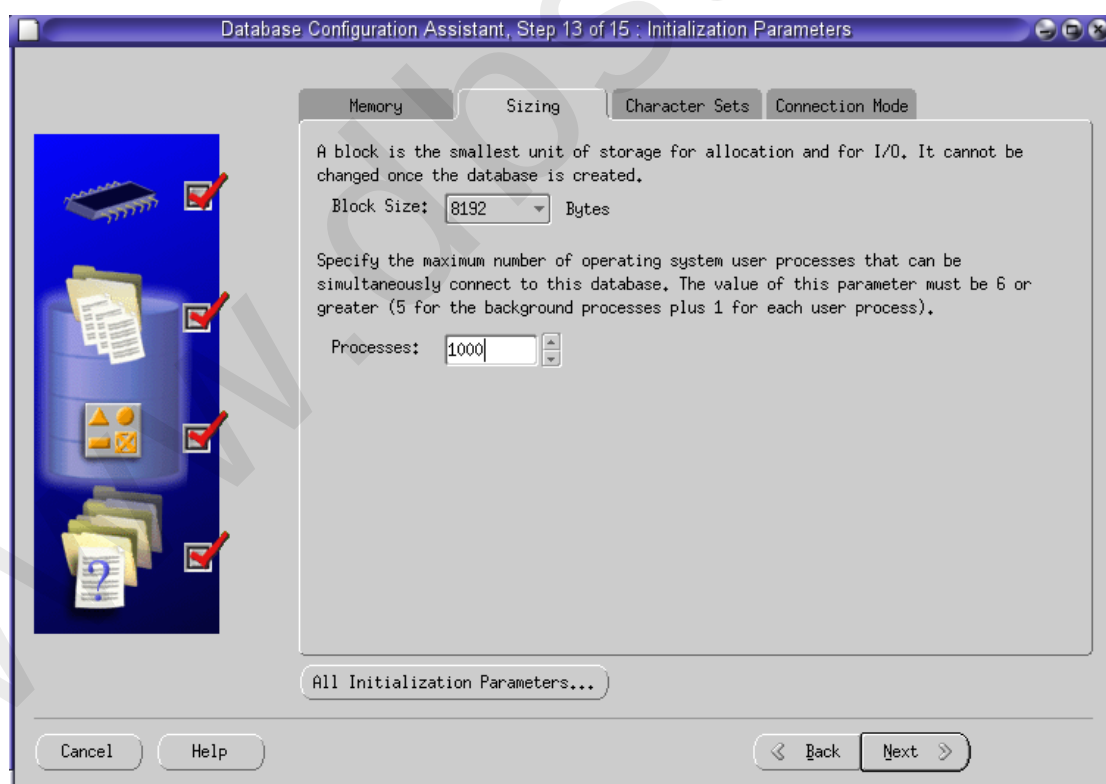
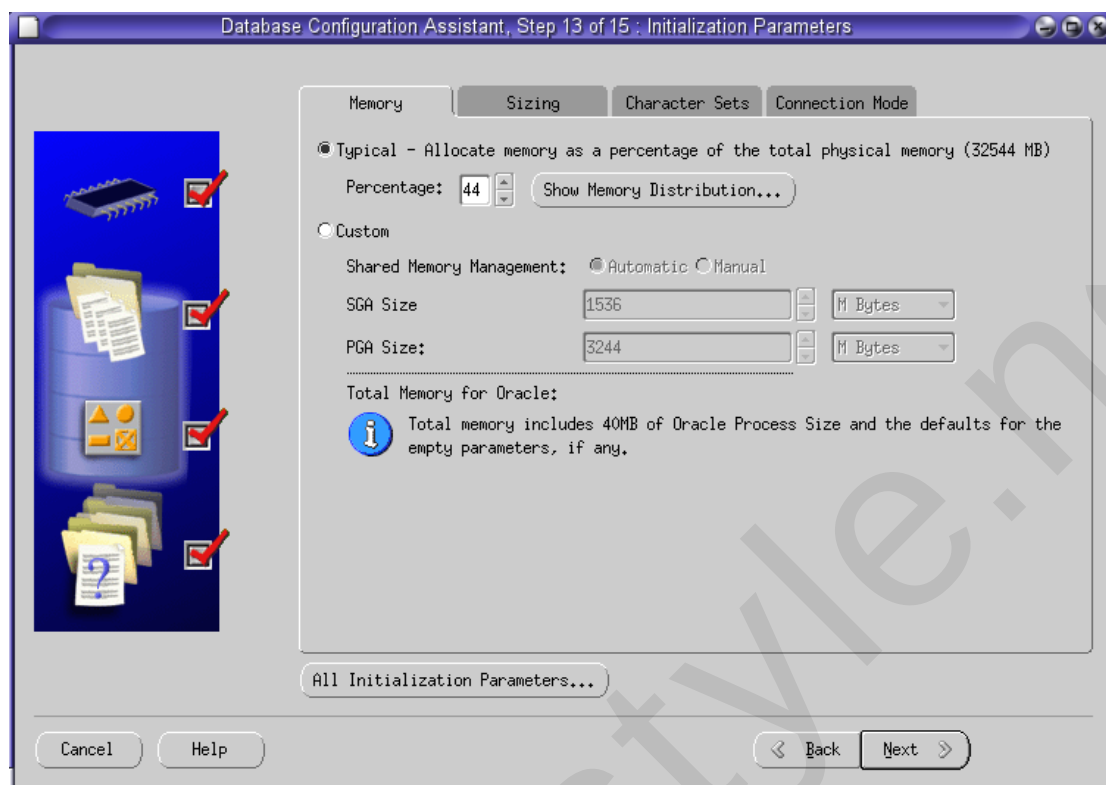
(9) 配置快速闪回区和归档日志，点击“Next”；

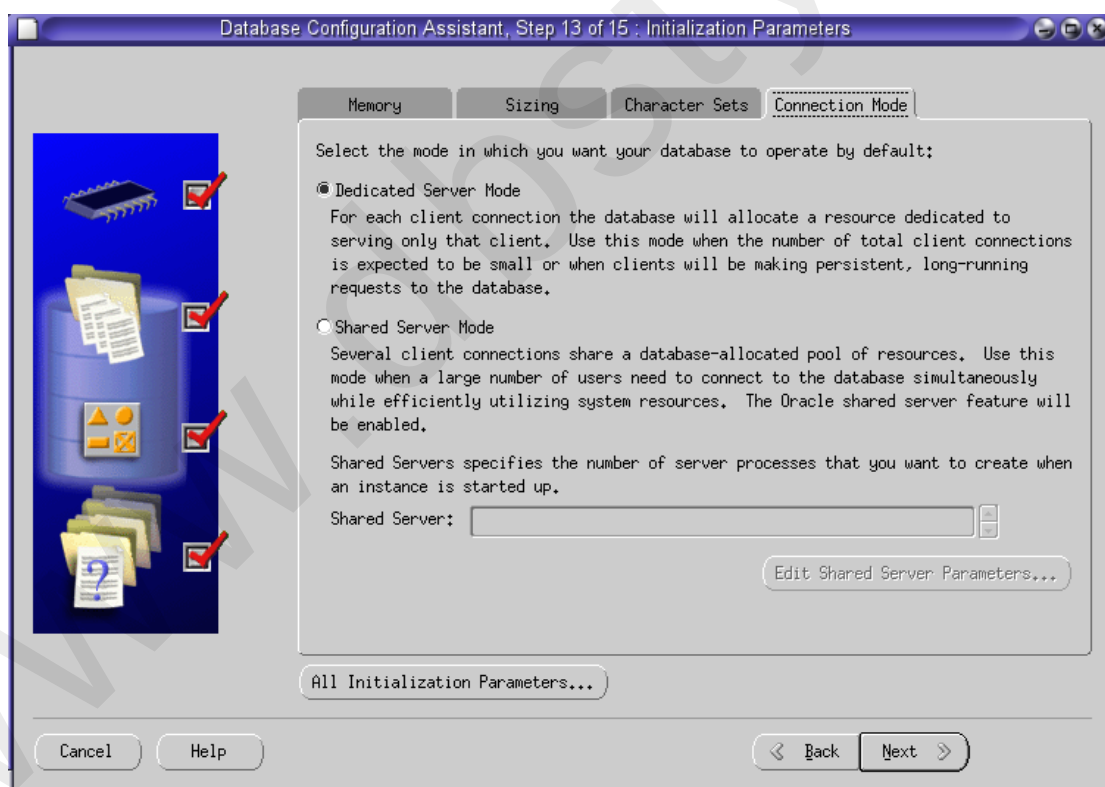
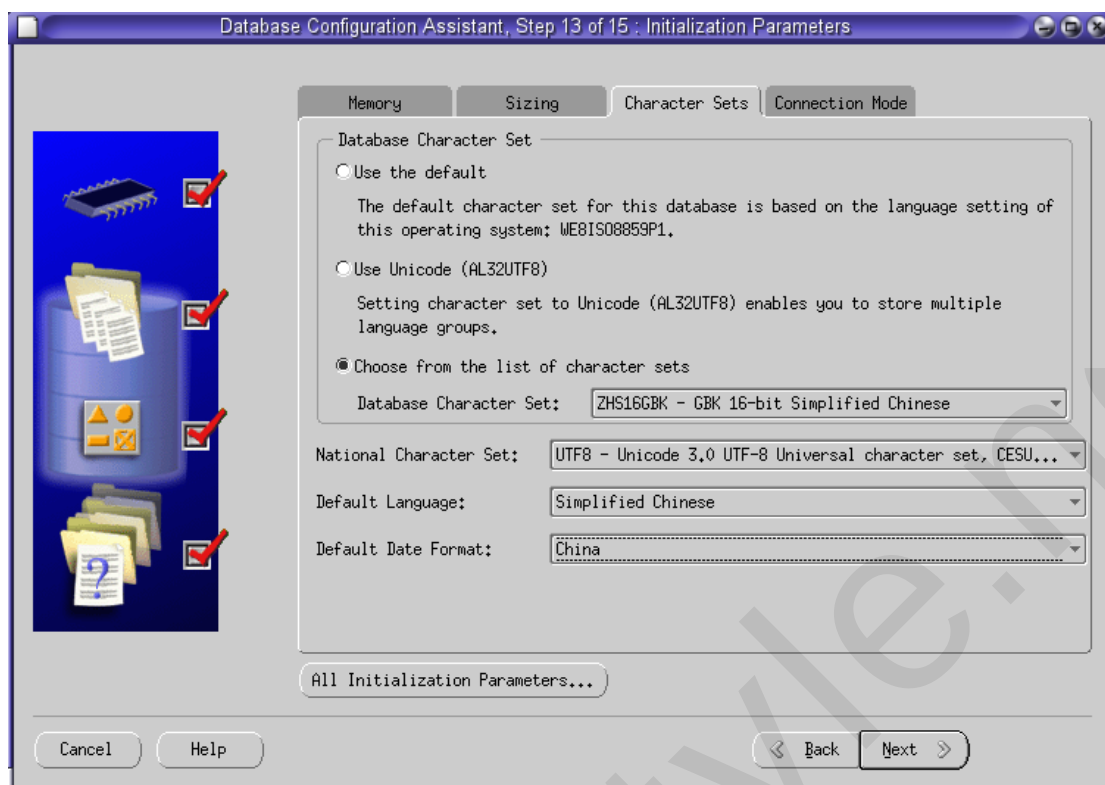


(10) 选择数据库的内容，点击“Next”；

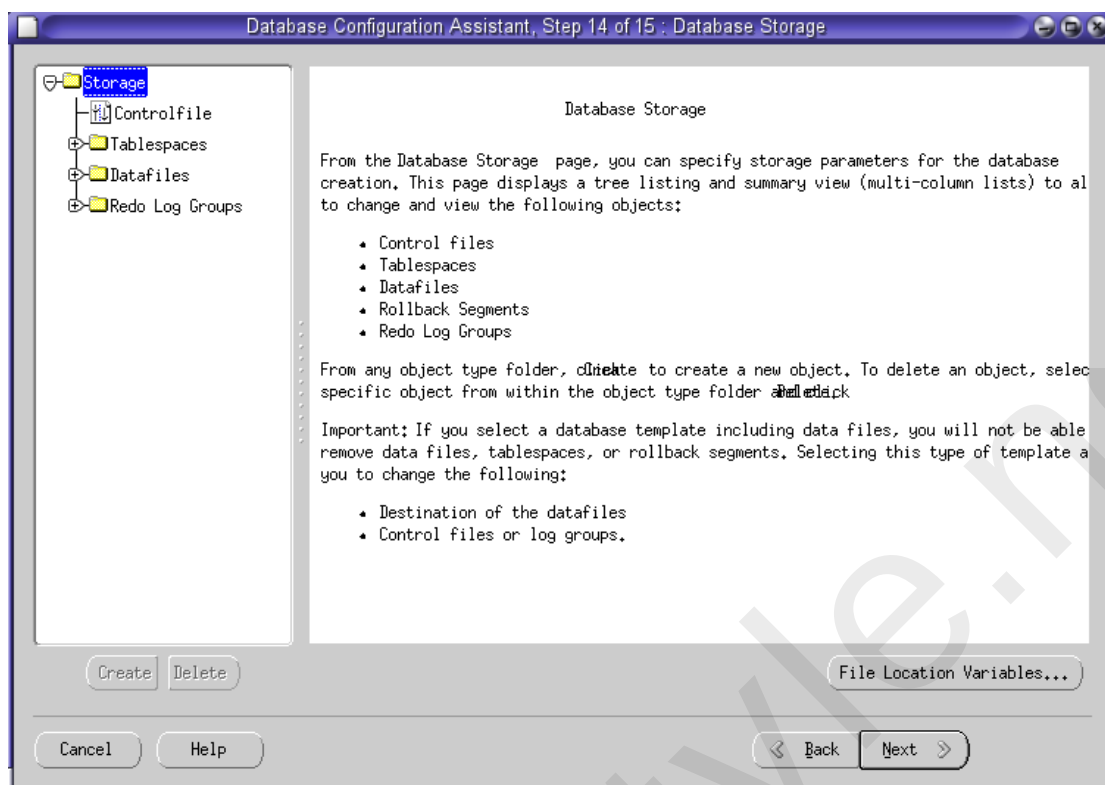


(11) 设置数据库参数，点击“Next”；

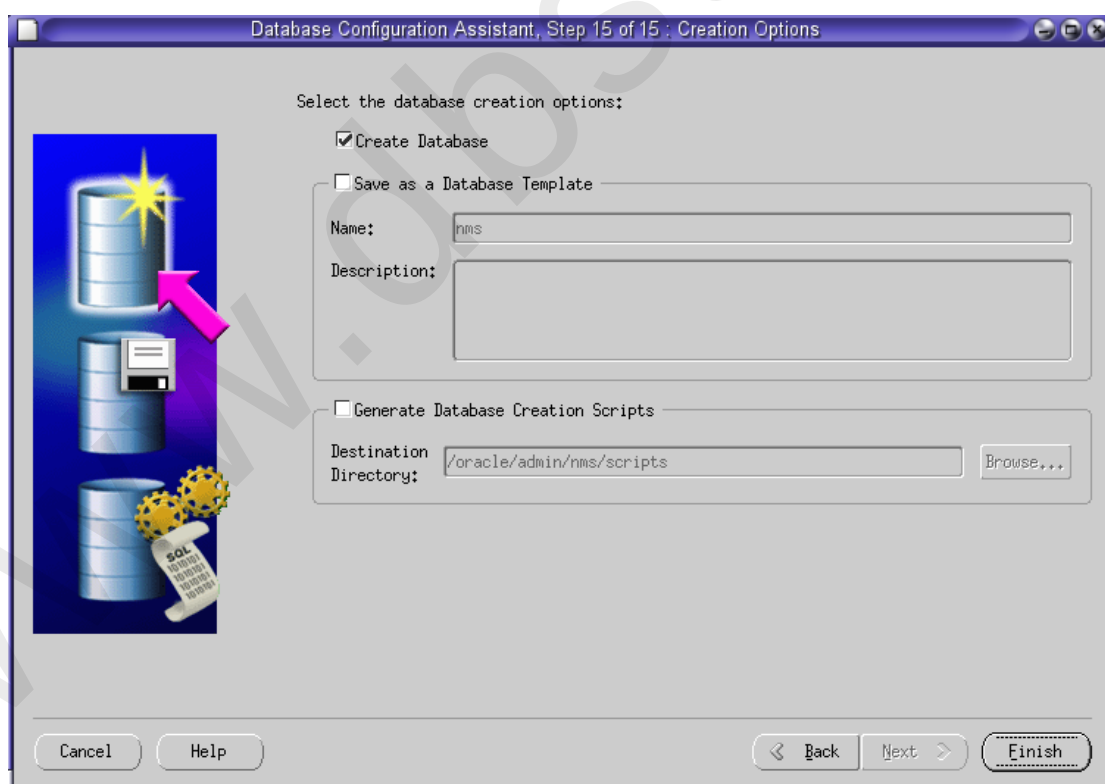




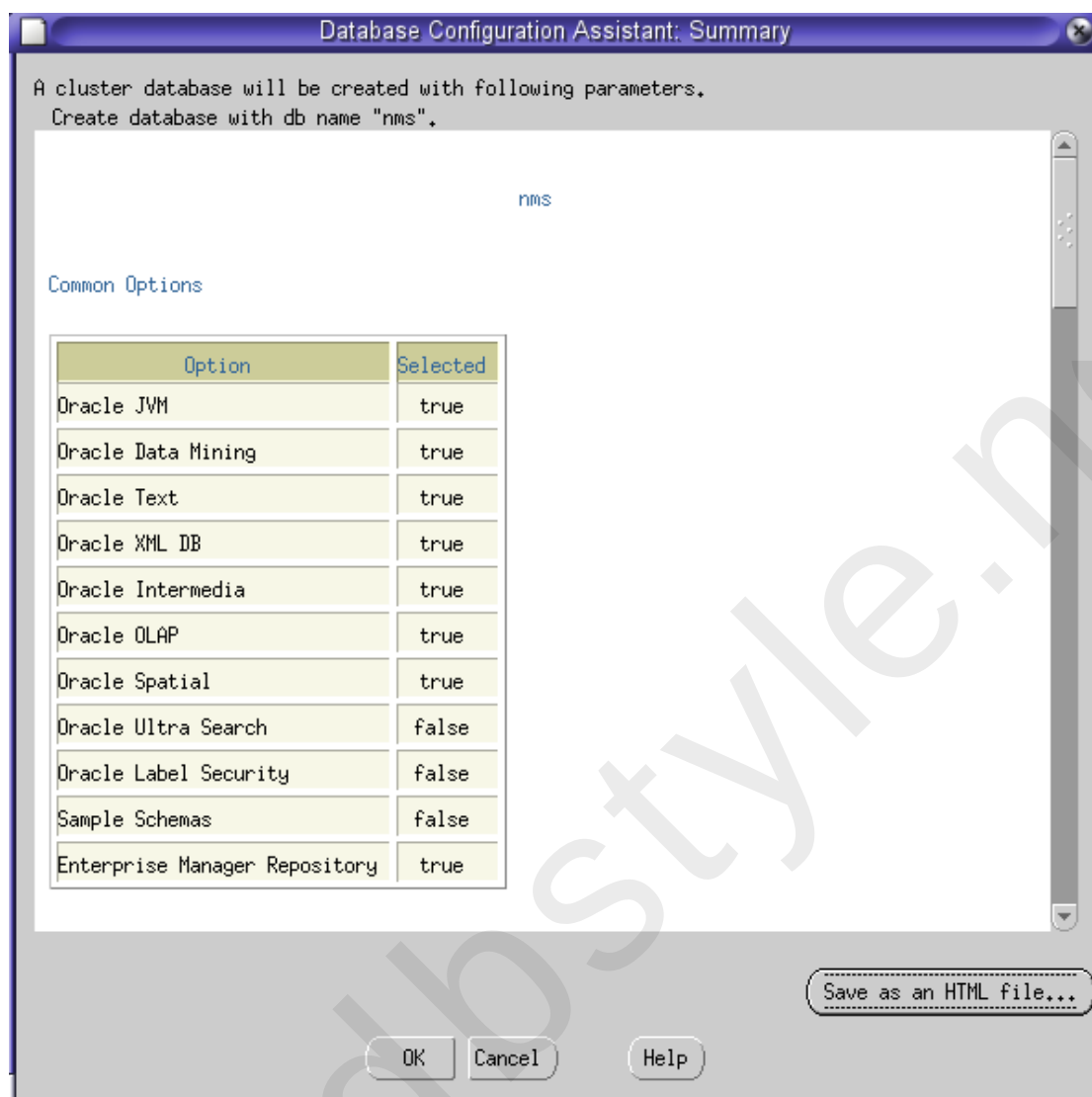
(12) 配置数据库存储结构，点击“Next”；



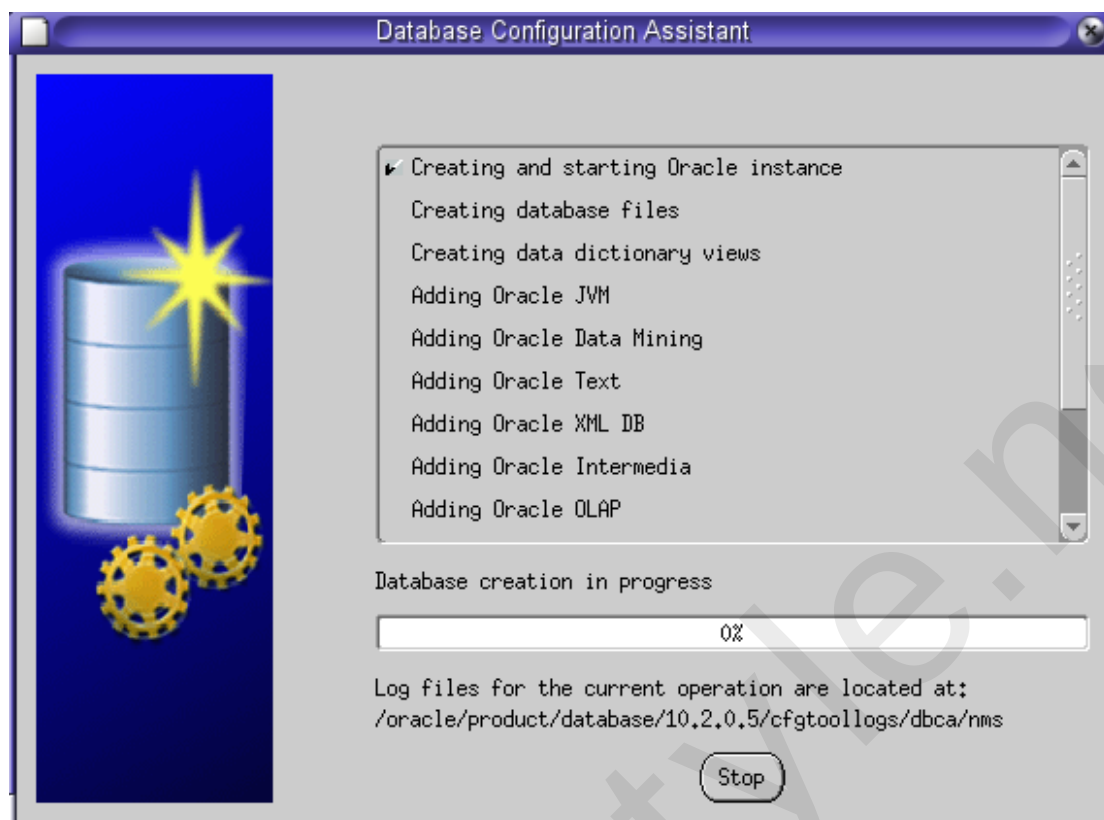
(13) 创建数据库，点击“Finish”；



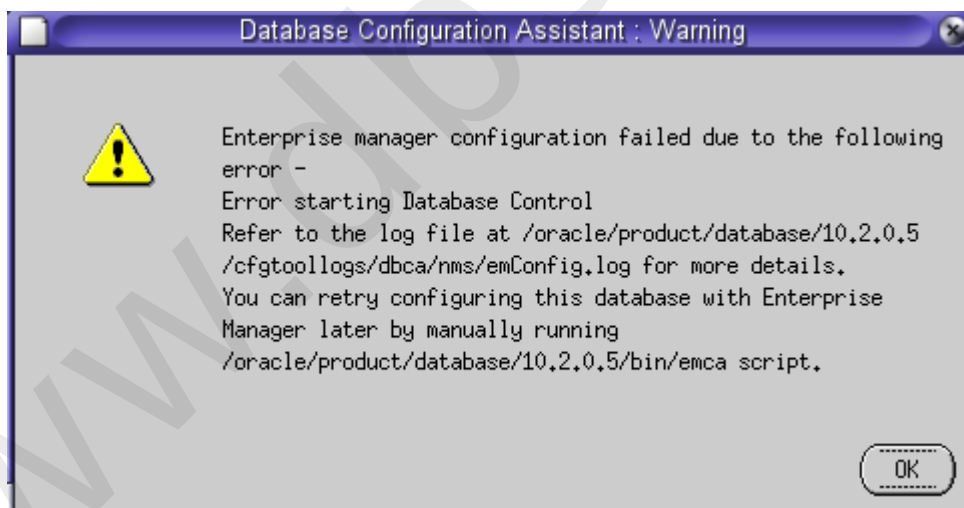
(14) 数据库总览，点击“OK”，开始创建过程；



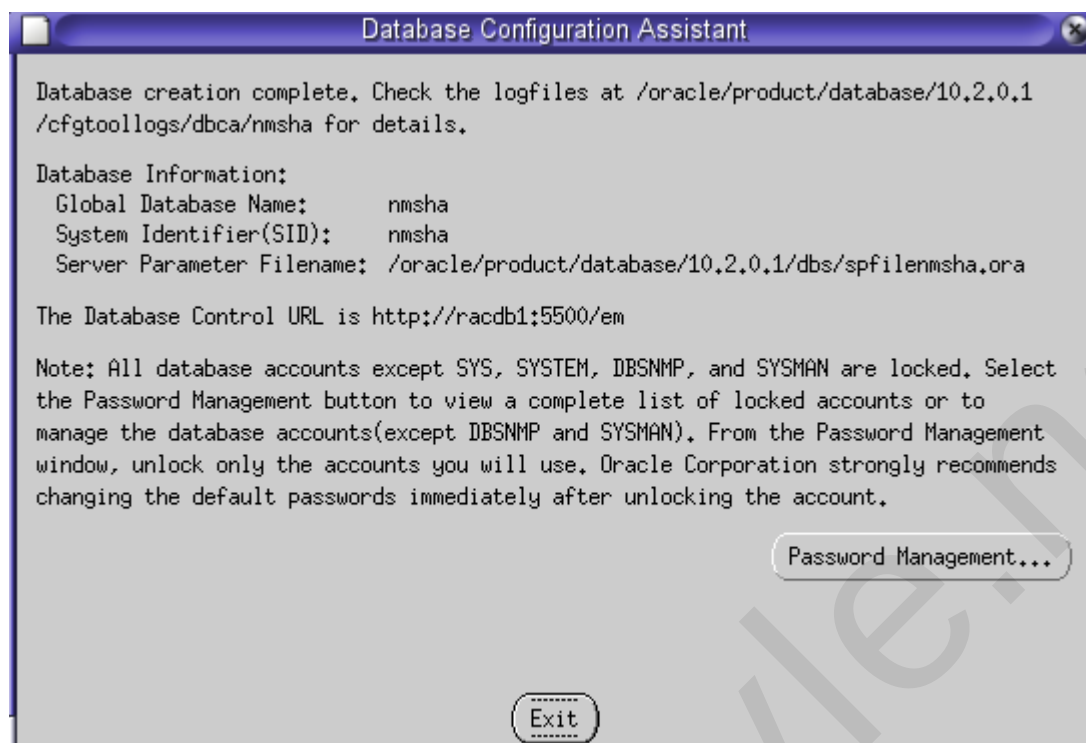
(15) 创建进行中;



(16) DB Control 没有正常启动，没有关系，点击“OK”；



(17) 创建完成，出现说明，点击“Exit”；



4.11 复制 Oracle 软件

(1) 停止数据库;

```
oracle@racdb1# sqlplus / as sysdba

SQL*Plus: Release 10.2.0.5.0 - Production on Fri Jul 27 10:32:32 2012

Copyright (c) 1982, 2010, Oracle. All Rights Reserved.

Connected to:
Oracle Database 10g Enterprise Edition Release 10.2.0.5.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL> shutdown immediate
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL>
```

(2) 将 oracle 软件复制到另一台主机相同目录中;

```
oracleha@racdb1#tar cvf - /oracle/product/database/10.2.0.1 | gzip -qc > oracle.tar.gz
```

```

oracleha@racdb1#scp oracle.tar.gz root@192.168.100.94:/oracle/product/database/
The authenticity of host '192.168.100.94 (192.168.100.94)' can't be established.
RSA key fingerprint is 37:3d:da:7d:f8:56:ce:61:09:b5:e4:0e:f5:2e:c1:d1.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.100.94' (RSA) to the list of known hosts.
Password:
oracle.tar.gz          100% |*****| 859 MB
01:16

```

(3) 执行 root.sh 脚本;

```

root@racdb2# cd /oracle/product/database/10.2.0.5/
root@racdb2# ./root.sh
Running Oracle 10g root.sh script...

The following environment variables are set as:
    ORACLE_OWNER= oracle
    ORACLE_HOME=  /oracle/product/database/10.2.0.5

Enter the full pathname of the local bin directory: [/usr/local/bin]:
    Copying dbhome to /usr/local/bin ...
    Copying oraenv to /usr/local/bin ...
    Copying coraenv to /usr/local/bin ...

Creating /etc/oratab file...
Entries will be added to the /etc/oratab file as needed by
Database Configuration Assistant when a database is created
Finished running generic part of root.sh script.
Now product-specific root actions will be performed.
[root@server2 10.2.0.5]# cd /oracle/oraInventory/
[root@server2 oraInventory]# ./orainstRoot.sh
Changing permissions of /oracle/oraInventory to 770.
Changing groupname of /oracle/oraInventory to dba.
The execution of the script is complete
[root@server2 oraInventory]#

```

(4) 修改 listener 和 tnsname 文件;

```

oracleha@racdb1#vi /oracle/product/database/10.2.0.1/network/admin/listener.ora
"/oracle/product/database/10.2.0.1/network/admin/listener.ora" 20 lines, 500 characters
# listener.ora Network Configuration File: /oracle/product/database/10.2.0.1/network/admin
/listener.ora
# Generated by Oracle configuration tools.

```

```

SID_LIST_LISTENER =
  (SID_LIST =
    (SID_DESC =
      (SID_NAME = PLSExtProc)
      (ORACLE_HOME = /oracle/product/database/10.2.0.1/)
      (PROGRAM = extproc)
    )
  )

LISTENER =
  (DESCRIPTION_LIST =
    (DESCRIPTION =
      (ADDRESS = (PROTOCOL = TCP)(HOST = racdb)(PORT = 1522))
      (ADDRESS = (PROTOCOL = IPC)(KEY = EXTPROC0))
    )
  )

oracleha@racdb1#vi /oracle/product/database/10.2.0.1/network/admin/tnsnames.ora
"/oracle/product/database/10.2.0.1/network/admin/tnsnames.ora" 27 lines, 601 characters
# tnsnames.ora Network Configuration File: /oracle/product/database/10.2.0.1/network/admin/
tnsnames.ora
# Generated by Oracle configuration tools.

NMSHA =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = racdb)(PORT = 1522))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = nmsha)
    )
  )

LISTENER_NMSHA =
  (ADDRESS = (PROTOCOL = TCP)(HOST = racdb)(PORT = 1522))

EXTPROC_CONNECTION_DATA =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = IPC)(KEY = EXTPROC0))
    )
    (CONNECT_DATA =
      (SID = PLSExtProc)
    )
  )

```

```
(PRESENTATION = RO)
)
)
```

(5) 挂载 oradata 目录;

```
[root@server2 oracle]# lvscan
/dev/cdrom: open failed: No medium found
inactive          '/dev/VolGroup01/LogVol07' [47.65 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol00' [5.00 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol06' [10.00 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol02' [4.00 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol04' [10.00 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol01' [5.00 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol03' [10.00 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol05' [8.00 GB] inherit
[root@server2 oracle]# lvchange -a y /dev/VolGroup01/LogVol07
/dev/cdrom: open failed: No medium found
[root@server2 oracle]# lvscan
/dev/cdrom: open failed: No medium found
ACTIVE            '/dev/VolGroup01/LogVol07' [47.65 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol00' [5.00 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol06' [10.00 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol02' [4.00 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol04' [10.00 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol01' [5.00 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol03' [10.00 GB] inherit
ACTIVE            '/dev/VolGroup00/LogVol05' [8.00 GB] inherit
[root@server2 oracle]# mount /dev/VolGroup01/LogVol07 /oradata
```

(6) 启动 oracle 进行测试并停止;

```
[oracle@server2 ~]$ lsnrctl start

LSNRCTL for Linux: Version 10.2.0.5.0 - Production on 27-JUL-2012 10:31:45

Copyright (c) 1991, 2010, Oracle. All rights reserved.

Starting /oracle/product/database/10.2.0.5/bin/tnslsnr: please wait...

TNSLSNR for Linux: Version 10.2.0.5.0 - Production
System parameter file is /oracle/product/database/10.2.0.5/network/admin/listener.ora
Log messages written to /oracle/product/database/10.2.0.5/network/log/listener.log
Listening on: (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=server2)(PORT=1521)))
Listening on: (DESCRIPTION=(ADDRESS=(PROTOCOL=ipc)(KEY=EXTPROC)))
```

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```

Connecting                                                                 to
(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=server2)(PORT=1521)))
STATUS of the LISTENER
-----
Alias                               LISTENER
Version                             TNSLSNR for Linux: Version 10.2.0.5.0 - Production
Start Date                           27-JUL-2012 10:31:45
Uptime                               0 days 0 hr. 0 min. 0 sec
Trace Level                           off
Security                             ON: Local OS Authentication
SNMP                                  OFF
Listener Parameter File               /oracle/product/database/10.2.0.5/network/admin/listener.ora
Listener Log File                     /oracle/product/database/10.2.0.5/network/log/listener.log
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=server2)(PORT=1521)))
  (DESCRIPTION=(ADDRESS=(PROTOCOL=ipc)(KEY=EXTPROC)))
Services Summary...
Service "PLSExtProc" has 1 instance(s).
  Instance "PLSExtProc", status UNKNOWN, has 1 handler(s) for this service...
The command completed successfully
[oracle@server2 ~]$ sqlplus / as sysdba

SQL*Plus: Release 10.2.0.5.0 - Production on Fri Jul 27 10:40:42 2012

Copyright (c) 1982, 2010, Oracle.  All Rights Reserved.

Connected to an idle instance.

SQL> startup
ORACLE instance started.

Total System Global Area 1224736768 bytes
Fixed Size                  2095896 bytes
Variable Size               318768360 bytes
Database Buffers            889192448 bytes
Redo Buffers                 14680064 bytes
Database mounted.
Database opened.
SQL> shutdown immediate
Database closed.
Database dismounted.
ORACLE instance shut down.

```

```
SQL>
```

(7) 卸载 oradata 目录;

```
[root@server2 ~]# umount /oradata
```

4.12 修改 Listener 文件

4.13 创建 Oracle 双机软件使用的监听用户

启用进行故障监视时要使用的用户和密码的访问权限。

- (1) 要使用 Oracle 验证方法, 请授予此用户访问 v_\$sysstat 视图和 v_\$archive_dest 视图的权限。

```
oracleha@racdb1#sqlplus / as sysdba
```

```
SQL*Plus: Release 10.2.0.1.0 - Production on Fri Aug 24 23:04:48 2012
```

```
Copyright (c) 1982, 2005, Oracle. All rights reserved.
```

```
Connected to an idle instance.
```

```
SQL> startup
```

```
ORACLE instance started.
```

```
Total System Global Area 1.0217E+10 bytes
```

```
Fixed Size 2093664 bytes
```

```
Variable Size 1513885088 bytes
```

```
Database Buffers 8623489024 bytes
```

```
Redo Buffers 77856768 bytes
```

```
Database mounted.
```

```
Database opened.
```

```
SQL> create user ora_monitor identified by ora_monitor default tablespace system quota 1m on system;
```

```
User created.
```

```
SQL> grant select on v_$sysstat to ora_monitor;
```

```
Grant succeeded.
```

```
SQL> grant select on v_$archive_dest to ora_monitor;

Grant succeeded.

SQL> grant select on v_$database to ora_monitor;

Grant succeeded.

SQL> grant create session to ora_monitor;

Grant succeeded.

SQL> grant create table to ora_monitor;

Grant succeeded.

SQL>exit

--可以不执行
SQL> create profile profile limit PASSWORD_LIFE_TIME UNLIMITED;
SQL> alter user ora_monitor identified by ora_monitor profile profile;
```

(2) 要使用 Oracle Solaris 验证方法，请执行以下步骤：

a. 确认 remote_os_authent 参数设置为 TRUE。

```
# sqlplus "/ as sysdba"
sql> show parameter remote_os_authent
```

NAME	TYPE	VALUE
remote_os_authent	boolean	TRUE

b. 确定 os_authent_prefix 参数的设置。

```
# sql> show parameter os_authent_prefix
```

NAME	TYPE	VALUE
os_authent_prefix	string	ops\$

c. 授予数据库使用 Oracle Solaris 验证的权限。

```

sql> create user prefix user identified by externally default
tablespace system quota 1m on system;
sql> grant connect, resource to prefix user;
sql> grant select on v_$sysstat to prefix user;
sql> grant select on v_$archive_dest to prefix user;
sql> grant select on v_$database to prefix user;
sql> grant create session to prefix user;
sql> grant create table to prefix user;
sql> exit;

```

这些命令中的可替换项如下所述：

- prefix 是 os_authent_prefix 参数的设置。此参数的默认设置是 ops\$。
- user 是要为其启用 Oracle Solaris 验证的用户。确保此用户拥有 \$ORACLE_HOME 目录下的文件。

注 - 请勿在 prefix 和 user 之间键入空格

4.14 创建 Oracle 故障转移资源组

(1) 创建 oracle-rg 资源组；

```
root@racdb1#clresourcegroup create oracle-rg
```

(2) 创建浮动 IP；

```
root@racdb1#clreslogicalhostname create -g oracle-rg oradb
```

(3) 注册存储资源；

```
root@racdb1#clresourcetype register SUNW.HAStoragePlus
```

(4) 创建目录挂载资源；

```
root@racdb1#clresource create -g oracle-rg -t SUNW.HAStoragePlus -p zpools=orahapool -p
AffinityOn=TRUE oracle-hastorageplus
```

(5) 创建 oracle 服务和 oracle 监听资源；

```
root@racdb1#clresourcetype register SUNW.oracle_server
root@racdb1#clresourcetype register SUNW.oracle_listener
```

(6) 创建 oracle 服务资源；

```
root@racdb1#clresource create -g oracle-rg -t SUNW.oracle_server -p
ORACLE_HOME=/oracle/product/database/10.2.0.1 -p
Alert_log_file=/oracle/admin/nmsha/bdump/alert_nmsha.log -p ORACLE_SID=nmsha -p
```

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```
Connect_string=ora_monitor/ORA_MONITOR oracle-server
```

(7) 创建 oracle 监听资源;

```
root@racdb1#clresource create -g oracle-rg -t SUNW.oracle_listener -p  
ORACLE_HOME=/oracle/product/database/10.2.0.1 oracle-listener
```

(8) 启用资源组;

```
root@racdb1#clresourcegroup online -M oracle-rg
```

5 验证阶段

```
root@racdb1#cluster status
```

```
=== Cluster Nodes ===
```

```
--- Node Status ---
```

Node Name	Status
racdb2	Online
racdb1	Online

```
=== Cluster Transport Paths ===
```

Endpoint1	Endpoint2	Status
racdb2:nxge3	racdb1:nxge3	Path online

```
=== Cluster Quorum ===
```

```
--- Quorum Votes Summary from (latest node reconfiguration) ---
```

Needed	Present	Possible
2	3	3

```
--- Quorum Votes by Node (current status) ---
```

Node Name	Present	Possible	Status
racdb2	1	1	Online
racdb1	1	1	Online

```
--- Quorum Votes by Device (current status) ---
```

Device Name	Present	Possible	Status
d7	1	1	Online

```
=== Cluster Device Groups ===
```

```
--- Device Group Status ---
```

Device Group Name	Primary	Secondary	Status
-------------------	---------	-----------	--------

--- Spare, Inactive, and In Transition Nodes ---

Device Group Name	Spare Nodes	Inactive Nodes	In Transition Nodes
-----	-----	-----	-----

--- Multi-owner Device Group Status ---

Device Group Name	Node Name	Status
-----	-----	-----

=== Cluster Resource Groups ===

Group Name	Node Name	Suspended	State
-----	-----	-----	-----
oracle-rg	racdb2	No	Online
	racdb1	No	Offline

=== Cluster Resources ===

Resource Name	Node Name	State	Status Message
-----	-----	-----	-----
oracle-listener	racdb2	Online	Online
	racdb1	Offline	Offline
oracle-server	racdb2	Online	Online
	racdb1	Offline	Offline
oracle-hastorageplus	racdb2	Online	Online
	racdb1	Offline	Offline
racdb	racdb2	Online	Online - LogicalHostname online.
	racdb1	Offline	Offline

=== Cluster DID Devices ===

Device Instance	Node	Status
-----	-----	-----
/dev/did/rdsd/d1	racdb1	Ok
	racdb2	Ok
/dev/did/rdsd/d2	racdb2	Ok
/dev/did/rdsd/d3	racdb1	Ok
	racdb2	Ok

/dev/did/rdsk/d4	racdb2	Ok		
/dev/did/rdsk/d5	racdb1	Ok		
/dev/did/rdsk/d6	racdb1	Ok		
/dev/did/rdsk/d7	racdb1	Ok		
	racdb2	Ok		
=== Zone Clusters ===				
--- Zone Cluster Status ---				
Name	Node Name	Zone HostName	Status	Zone Status
---	-----	-----	-----	-----

6 Cluster 常用命令

可以使用以下命令进行资源组的一些相关操作：

- (1) 删除资源组及其它包含的所有资源

```
clresourcegroup delete -F oracle-rg
```

- (2) 把资源组切换到节点 2 上运行

```
clresourcegroup switch -n racdb2 oracle-rg
```

- (3) 使所有资源组上线

```
clresourcegroup online +
```

- (4) 使所有资源组离线

```
clresourcegroup offline +
```

- (5) 停用某个资源

```
clresource disable 资源名
```

- (6) 删除某个资源，删除前需要先停止它

```
clresource delete 资源名
```

- (7) 删除注册资源类型（如 SUNW.HAStoragePlus、SUNW.oracle_server、SUNW.oracle_listener）

```
clresourcetype unregister 注册资源名
```

- (8) 查看资源组运行情况

```
cluster status
```

可以切换资源组核查资源组运行情况，无误后可以使用 `scshutdown -g0 -y` 关闭主机，再 boot 开机查看资源组是否正常加载。

- (9) 查看集群配置

```

root@racdb1#scconf -p
Cluster name:                               ultranms
Cluster ID:                                0x503481B6
Cluster install mode:                      disabled
Cluster private net:                       172.16.0.0
Cluster private netmask:                   255.255.248.0
Cluster maximum nodes:                     64
Cluster maximum private networks:          10
Cluster new node authentication:            unix
Cluster authorized-node list:               <. - Exclude all nodes>
Cluster transport heart beat timeout:       10000
Cluster transport heart beat quantum:       1000
Round Robin Load Balancing UDP session timeout: 480
Cluster nodes:                             racdb2 racdb1

Cluster node name:                         racdb2
  Node ID:                                 1
  Node enabled:                            yes
  Node private hostname:                   clusternode1-priv
  Node quorum vote count:                  1
  Node reservation key:                    0x503481B600000001
  Node zones:                             <NULL>
  CPU shares for global zone:              1
  Minimum CPU requested for global zone:   1

Node transport adapters:                   nxge3

Node transport adapter:                    nxge3
  Adapter enabled:                         yes
  Adapter transport type:                   dlpi
  Adapter property:                        device_name=nxge
  Adapter property:                        device_instance=3
  Adapter property:                        lazy_free=1
  Adapter property:                        dlpi_heartbeat_timeout=10000
  Adapter property:                        dlpi_heartbeat_quantum=1000
  Adapter property:                        nw_bandwidth=80
  Adapter property:                        bandwidth=70
  Adapter property:                        ip_address=172.16.0.129
  Adapter property:                        netmask=255.255.255.128
  Adapter port names:                      0

Adapter port:                             0
Port enabled:                             yes

```

```

Cluster node name:                racdb1
Node ID:                          2
Node enabled:                     yes
Node private hostname:            clusternode2-priv
Node quorum vote count:           1
Node reservation key:             0x503481B600000002
Node zones:                       <NULL>
CPU shares for global zone:        1
Minimum CPU requested for global zone: 1

Node transport adapters:           nxge3

Node transport adapter:            nxge3
Adapter enabled:                   yes
Adapter transport type:            dlpi
Adapter property:                  device_name=nxge
Adapter property:                  device_instance=3
Adapter property:                  lazy_free=1
Adapter property:                  dlpi_heartbeat_timeout=10000
Adapter property:                  dlpi_heartbeat_quantum=1000
Adapter property:                  nw_bandwidth=80
Adapter property:                  bandwidth=70
Adapter property:                  ip_address=172.16.0.130
Adapter property:                  netmask=255.255.255.128
Adapter port names:                0

Adapter port:                      0
Port enabled:                      yes

Cluster transport switches:         <NULL>

Cluster transport cables

      Endpoint                Endpoint                State
      -----                -
Transport cable:  racdb1:nxge3@0    racdb2:nxge3@0    Enabled

Quorum devices:                    d7

Quorum device name:                d7

```

Quorum device votes:	1
Quorum device enabled:	yes
Quorum device name:	/dev/did/rdisk/d7s2
Quorum device type:	shared_disk
Quorum device hosts (enabled):	racdb2 racdb1
Quorum device hosts (disabled):	
Quorum device access mode:	scsi2

(10) 查看集群版本信息

```

root@racdb1#scinstall -p
3.3u1
root@racdb1#scinstall -pv
Oracle Solaris Cluster 3.3u1 for Solaris 10 sparc
SUNWscu:      3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWsccomu:   3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWsczr:     3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWsccomzu:  3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWsczu:     3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscsckr:   3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscscku:   3.3.0,REV=2010.07.26.13.19, 145638-04 800222-01 145638-07
SUNWscr:      3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscrtlh:   3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscnmr:    3.3.0,REV=2011.04.17.19.27
SUNWscnmu:    3.3.0,REV=2011.04.17.19.27
SUNWscdev:    3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscgds:    3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscsmf:    3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscman:    3.3.0,REV=2010.06.29.16.26, 147073-02
SUNWscsal:    3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscsam:    3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscvm:     3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWmdmr:     3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWmdmu:     3.3.0,REV=2010.07.26.13.19, 146085-03 800222-01 146085-04
SUNWscmasa:   3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscmasar:  3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscmasasen: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscmasazu: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscmasau:  3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
SUNWscmautil: 3.3.0,REV=2010.07.26.13.19, 145640-04 800222-01
SUNWscmautilr: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWjfreechart: 3.3.0,REV=2010.07.26.13.19, 800222-01
SUNWscspmr:   3.3.0,REV=2010.07.26.13.19, 800222-01

```

SUNWscspmu: 3.3.0,REV=2010.07.26.13.19, 145640-04 800222-01
 SUNWscderby: 3.3.0,REV=2010.07.26.13.19, 145333-08 800222-01 145333-11
 SUNWsc telemetry: 3.3.0,REV=2010.07.26.13.19, 800222-01
 SUNWsc: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWscspmu: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWesc: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWescspmu: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWfsc: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWfscspmu: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWjsc: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWjscman: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWjscspmu: 3.3.0,REV=2010.07.26.12.28, 147141-01
 SUNWscims: 6.0,REV=2003.10.29
 SUNWscics: 6.0,REV=2003.11.14, 122066-01
 SUNWscapc: 3.3.0,REV=2010.07.26.12.56, 146087-02 800220-01
 SUNWscdns: 3.3.0,REV=2010.07.26.12.56, 147084-01 800220-01
 SUNWschadb: 3.3.0,REV=2010.07.26.12.56, 147082-01 800220-01
 SUNWschtt: 3.3.0,REV=2010.07.26.12.56, 145636-02 800220-01
 SUNWscs1as: 3.3.0,REV=2010.07.26.12.56, 145345-02 800220-01 145345-03
 SUNWscrb5: 3.3.0,REV=2010.07.26.12.56, 147080-01 800220-01
 SUNWscnfs: 3.3.0,REV=2010.07.26.12.56, 146093-02 800220-01 146093-05
 SUNWscor: 3.3.0,REV=2010.07.26.12.56, 145335-07 800220-01 145335-12
 SUNWscs1mq: 3.3.0,REV=2010.07.26.12.56, 145337-03 800220-01 145337-04
 SUNWscsap: 3.3.0,REV=2010.07.26.12.56, 147089-01 800220-01
 SUNWscslc: 3.3.0,REV=2010.07.26.12.56, 147087-01 800220-01
 SUNWscsapdb: 3.3.0,REV=2010.07.26.12.56, 147091-03 800220-01
 SUNWscsapenq: 3.3.0,REV=2010.07.26.12.56, 146091-04 800220-01 146091-06
 SUNWscsaprepl: 3.3.0,REV=2010.07.26.12.56, 146091-04 800220-01 146091-06
 SUNWscsapscs: 3.3.0,REV=2010.07.26.12.56, 146091-04 800220-01 146091-06
 SUNWscsapwebas: 3.3.0,REV=2010.07.26.12.56, 146091-04 800220-01 146091-06
 SUNWscsbl: 3.3.0,REV=2010.07.26.12.56, 147086-02 800220-01
 SUNWscsyb: 3.3.0,REV=2010.07.26.12.56, 146764-04 800220-01 146764-06
 SUNWscwls: 3.3.0,REV=2010.07.26.12.56, 145343-03 800220-01 145343-04
 SUNWsc9ias: 3.3.0,REV=2010.07.26.12.56, 800220-01 147501-01
 SUNWscPostgreSQL: 3.3.0,REV=2010.07.26.12.56, 145644-02 800220-01
 SUNWsczone: 3.3.0,REV=2010.07.26.12.56, 147077-01 800220-01
 SUNWscdhc: 3.3.0,REV=2010.07.26.12.56, 800220-01 147497-01
 SUNWscebs: 3.3.0,REV=2010.07.26.12.56, 146760-02 800220-01 146760-04
 SUNWscids: 3.3.0,REV=2010.07.26.12.56, 800220-01 147494-01
 SUNWscmqi: 3.3.0,REV=2010.07.26.12.56, 800220-01 147492-01
 SUNWscmq: 3.3.0,REV=2010.07.26.12.56, 800220-01 147490-01
 SUNWscmys: 3.3.0,REV=2010.07.26.12.56, 145646-03 800220-01
 SUNWscsge: 3.3.0,REV=2010.07.26.12.56, 800220-01

```

SUNWscpx:      3.3.0,REV=2010.07.26.12.56, 147358-01 800220-01
SUNWscsaa:     3.3.0,REV=2010.07.26.12.56, 146241-04 800220-01
SUNWscsag:     3.3.0,REV=2010.07.26.12.56, 146241-04 800220-01
SUNWscsmb:     3.3.0,REV=2010.07.26.12.56, 800220-01 147499-01
SUNWscsps:     3.3.0,REV=2010.07.26.12.56, 800220-01
SUNWscscomcat: 3.3.0,REV=2010.07.26.12.56, 145341-03 800220-01 145341-04

```

(11) 查看集群代理

```

root@racdb1#scrgadm -p

Res Type name:      SUNW.LogicalHostname:4
Res Type description: Logical Hostname Resource Type

Res Type name:      SUNW.SharedAddress:2
Res Type description: HA Shared Address Resource Type

Res Type name:      SUNW.HAStoragePlus:9
Res Type description: HA Storage Plus

Res Type name:      SUNW.oracle_server:8
Res Type description: Resource type for Oracle Server

Res Type name:      SUNW.oracle_listener:5
Res Type description: Resource type for Oracle Listener

Res Group name:      oracle-rg
Res Group RG_description: <NULL>
Res Group mode:      Failover

Res name:      racdb
Res R_description:
Res resource type: SUNW.LogicalHostname:4
Res type version: 4
Res resource group name: oracle-rg
Res resource project name: default

Res name:      oracle-hastorageplus
Res R_description:
Res resource type: SUNW.HAStoragePlus:9
Res type version: 9
Res resource group name: oracle-rg
Res resource project name: default

```

```

Res name:                oracle-server
  Res R_description:
  Res resource type:      SUNW.oracle_server:8
  Res type version:       8
  Res resource group name: oracle-rg
  Res resource project name: default

```

```

Res name:                oracle-listener
  Res R_description:
  Res resource type:      SUNW.oracle_listener:5
  Res type version:       5
  Res resource group name: oracle-rg
  Res resource project name: default

```

(12) 检测 cluster 使用代理类型:

```
root@racdb1#scrgadm -pv
```

```

Res Type name:                SUNW.LogicalHostname:4
(SUNW.LogicalHostname:4) Res Type description:    Logical Hostname Resource Type
(SUNW.LogicalHostname:4) Res Type base directory: /usr/cluster/lib/rgm/rt/hafoip
(SUNW.LogicalHostname:4) Res Type single instance: False
(SUNW.LogicalHostname:4) Res Type init nodes:      All potential masters
(SUNW.LogicalHostname:4) Res Type failover:        True
(SUNW.LogicalHostname:4) Res Type proxy:           False
(SUNW.LogicalHostname:4) Res Type version:         4
(SUNW.LogicalHostname:4) Res Type API version:     2
(SUNW.LogicalHostname:4) Res Type installed on nodes: <All>
(SUNW.LogicalHostname:4) Res Type packages:        SUNWscu
(SUNW.LogicalHostname:4) Res Type system:          True

```

```

Res Type name:                SUNW.SharedAddress:2
(SUNW.SharedAddress:2) Res Type description:      HA Shared Address Resource Type
(SUNW.SharedAddress:2) Res Type base directory:   /usr/cluster/lib/rgm/rt/hascip
(SUNW.SharedAddress:2) Res Type single instance: False
(SUNW.SharedAddress:2) Res Type init nodes:       All nodes
(SUNW.SharedAddress:2) Res Type failover:         True
(SUNW.SharedAddress:2) Res Type proxy:            False
(SUNW.SharedAddress:2) Res Type version:          2
(SUNW.SharedAddress:2) Res Type API version:      2
(SUNW.SharedAddress:2) Res Type installed on nodes: <All>
(SUNW.SharedAddress:2) Res Type packages:         SUNWscu

```

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(SUNW.SharedAddress:2) Res Type system: True

Res Type name: SUNW.HAStoragePlus:9

(SUNW.HAStoragePlus:9) Res Type description: HA Storage Plus

(SUNW.HAStoragePlus:9) Res Type base directory: /usr/cluster/lib/rgm/rt/hastorageplus

(SUNW.HAStoragePlus:9) Res Type single instance: False

(SUNW.HAStoragePlus:9) Res Type init nodes: All potential masters

(SUNW.HAStoragePlus:9) Res Type failover: False

(SUNW.HAStoragePlus:9) Res Type proxy: False

(SUNW.HAStoragePlus:9) Res Type version: 9

(SUNW.HAStoragePlus:9) Res Type API version: 2

(SUNW.HAStoragePlus:9) Res Type installed on nodes: <All>

(SUNW.HAStoragePlus:9) Res Type packages: SUNWscu

(SUNW.HAStoragePlus:9) Res Type system: False

Res Type name: SUNW.oracle_server:8

(SUNW.oracle_server:8) Res Type description: Resource type for Oracle Server

(SUNW.oracle_server:8) Res Type base directory: /opt/SUNWscor/oracle_server

(SUNW.oracle_server:8) Res Type single instance: False

(SUNW.oracle_server:8) Res Type init nodes: All potential masters

(SUNW.oracle_server:8) Res Type failover: True

(SUNW.oracle_server:8) Res Type proxy: False

(SUNW.oracle_server:8) Res Type version: 8

(SUNW.oracle_server:8) Res Type API version: 2

(SUNW.oracle_server:8) Res Type installed on nodes: <All>

(SUNW.oracle_server:8) Res Type packages: SUNWscor SUNWscorx

(SUNW.oracle_server:8) Res Type system: False

Res Type name: SUNW.oracle_listener:5

(SUNW.oracle_listener:5) Res Type description: Resource type for Oracle Listener

(SUNW.oracle_listener:5) Res Type base directory: /opt/SUNWscor/oracle_listener

(SUNW.oracle_listener:5) Res Type single instance: False

(SUNW.oracle_listener:5) Res Type init nodes: All potential masters

(SUNW.oracle_listener:5) Res Type failover: True

(SUNW.oracle_listener:5) Res Type proxy: False

(SUNW.oracle_listener:5) Res Type version: 5

(SUNW.oracle_listener:5) Res Type API version: 2

(SUNW.oracle_listener:5) Res Type installed on nodes: <All>

(SUNW.oracle_listener:5) Res Type packages: SUNWscor

(SUNW.oracle_listener:5) Res Type system: False

Res Group name: oracle-rg

(oracle-rg) Res Group RG_description: <NULL>

```

(oracle-rg) Res Group mode:                               Failover
(oracle-rg) Res Group management state:                   Managed
(oracle-rg) Res Group RG_project_name:                     default
(oracle-rg) Res Group RG_SLM_type:                         manual
(oracle-rg) Res Group RG_affinities:                       <NULL>
(oracle-rg) Res Group Auto_start_on_new_cluster: True
(oracle-rg) Res Group Failback:                            False
(oracle-rg) Res Group Nodelist:                            racdb2 racdb1
(oracle-rg) Res Group Maximum primaries:                   1
(oracle-rg) Res Group Desired primaries:                   1
(oracle-rg) Res Group RG_dependencies:                     <NULL>
(oracle-rg) Res Group network dependencies:                True
(oracle-rg) Res Group Global_resources_used:               <All>
(oracle-rg) Res Group Pingpong_interval:                   3600
(oracle-rg) Res Group Pathprefix:                          <NULL>
(oracle-rg) Res Group system:                              False
(oracle-rg) Res Group Suspend_automatic_recovery: False

(oracle-rg) Res name:                                     racdb
  (oracle-rg:racdb) Res R_description:
  (oracle-rg:racdb) Res resource type:                     SUNW.LogicalHostname:4
  (oracle-rg:racdb) Res type version:                      4
  (oracle-rg:racdb) Res resource group name:               oracle-rg
  (oracle-rg:racdb) Res resource project name:             default
  (oracle-rg:racdb{racdb2}) Res enabled:                   True
  (oracle-rg:racdb{racdb1}) Res enabled:                   True
  (oracle-rg:racdb{racdb2}) Res monitor enabled: True
  (oracle-rg:racdb{racdb1}) Res monitor enabled: True

(oracle-rg) Res name:                                     oracle-hastorageplus
  (oracle-rg:oracle-hastorageplus) Res R_description:
  (oracle-rg:oracle-hastorageplus) Res resource type:      SUNW.HAStoragePlus:9
  (oracle-rg:oracle-hastorageplus) Res type version:       9
  (oracle-rg:oracle-hastorageplus) Res resource group name: oracle-rg
  (oracle-rg:oracle-hastorageplus) Res resource project name: default
  (oracle-rg:oracle-hastorageplus{racdb2}) Res enabled:    True
  (oracle-rg:oracle-hastorageplus{racdb1}) Res enabled:    True
  (oracle-rg:oracle-hastorageplus{racdb2}) Res monitor enabled: True
  (oracle-rg:oracle-hastorageplus{racdb1}) Res monitor enabled: True

(oracle-rg) Res name:                                     oracle-server
  (oracle-rg:oracle-server) Res R_description:
  (oracle-rg:oracle-server) Res resource type:             SUNW.oracle_server:8

```

(oracle-rg:oracle-server) Res type version: 8
(oracle-rg:oracle-server) Res resource group name: oracle-rg
(oracle-rg:oracle-server) Res resource project name: default
(oracle-rg:oracle-server{racdb2}) Res enabled: True
(oracle-rg:oracle-server{racdb1}) Res enabled: True
(oracle-rg:oracle-server{racdb2}) Res monitor enabled: True
(oracle-rg:oracle-server{racdb1}) Res monitor enabled: True

(oracle-rg) Res name: oracle-listener
(oracle-rg:oracle-listener) Res R_description:
(oracle-rg:oracle-listener) Res resource type: SUNW.oracle_listener:5
(oracle-rg:oracle-listener) Res type version: 5
(oracle-rg:oracle-listener) Res resource group name: oracle-rg
(oracle-rg:oracle-listener) Res resource project name: default
(oracle-rg:oracle-listener{racdb2}) Res enabled: True
(oracle-rg:oracle-listener{racdb1}) Res enabled: True
(oracle-rg:oracle-listener{racdb2}) Res monitor enabled: True
(oracle-rg:oracle-listener{racdb1}) Res monitor enabled: True

7 客户端配置

7.1 客户端 tnsname.ora

编辑客户端的 tnsname.ora 文件

```
nmsa =  
  (DESCRIPTION =  
    (ADDRESS_LIST =  
      (ADDRESS = (PROTOCOL = TCP)(HOST = nmsa)(PORT = 1521))  
    )  
    (CONNECT_DATA =  
      (SERVICE_NAME = nms)  
      (SERVER = DEDICATED)  
    )  
  )  
)
```

7.2 连接 Oracle HA

(1) 通过 SQL*PLUS 连接:

```
C:\Users\Ryan>sqlplus system/sys@nmsa  
SQL*Plus: Release 11.2.0.1.0 Production on 星期一 8月 20 18:22:27 2012  
Copyright (c) 1982, 2010, Oracle. All rights reserved.
```

连接到:

```
Oracle Database 10g Enterprise Edition Release 10.2.0.5.0 - 64bit Production  
With the Partitioning, Real Application Clusters, OLAP, Data Mining  
and Real Application Testing options
```

```
SQL>
```

(2) 查看当前连接到的实例:

```
SQL> select instance_name from v$instance;
```

```
INSTANCE_NAME
```

```
-----  
nmsa
```

```
SQL>
```

8 修改归档模式

归档位置设计

	归档位置 1（本地）	归档位置 2（远程）
实例 1	本地/nmsdb1_arch	节点 2 的/nmsdb1_arch
实例 2	本地/nmsdb2_arch	节点 1 的/nmsdb2_arch

(1) 划分分区并挂载：

(2) 配置每个实例的归档位置：

```
SQL> alter system set log_archive_dest_1='location=/nmsdb1_arch' scope=spfile sid='nms1';
SQL> alter system set log_archive_dest_2='service=nms2' scope=spfile sid='nms1';
SQL> alter system set log_archive_dest_1='location=/nmsdb2_arch' scope=spfile sid='nms2';
SQL> alter system set log_archive_dest_2='service=nms1' scope=spfile sid='nms2';

SQL> alter system set standby_archive_dest='/nmsdb2_arch' scope=spfile sid='nms1';
SQL> alter system set standby_archive_dest='/nmsdb1_arch' scope=spfile sid='nms2';
```

(3) 修改数据库归档模式：

```
SQL> alter system set cluster_database=false scope=spfile sid='*';
```

(4) 关闭所有实例：

```
SQL> shutdown immediate;
```

(5) 把某个实例启动到 mount 状态，修改数据库的归档模式：

```
SQL> startup mount;
SQL> alter database mount;
SQL> alter database archivelog;
SQL> alter system set cluster_database=true scope=spfile sid='*';
```

(6) 重启数据库，确认归档生效：

```
SQL> archive log list;
```

(7) 确认归档位置生效，在每个实例上测试：

```
SQL> alter system switch logfile;
```

确保每个节点的对应归档目录下都能收到日志。