Sun Cluster Data Service for DHCP Guide for Solaris OS

Adobe PostScript™

050509@11223

Contents

Preface

Sun Cluster Data Service for DHCP Guide for Solaris OS explains how to install and configure Sun™ Cluster HA for DHCP on both SPARC® and x86 based systems.

Note – In this document, the term "x86" refers to the Intel 32-bit family of microprocessor chips and compatible microprocessor chips made by AMD.

This document is intended for system administrators with extensive knowledge of Sun software and hardware. Do not use this document as a planning or presales guide. Before reading this document, you should have already determined your system requirements and purchased the appropriate equipment and software.

The instructions in this document assume knowledge of the Solaris™ Operating System and expertise with the volume manager software that is used with Sun Cluster.

Note – Sun Cluster software runs on two platforms, SPARC and x86. The information in this document pertains to both platforms unless otherwise specified in a special chapter, section, note, bulleted item, figure, table, or example.

UNIX Commands

This document contains information about commands that are specific to installing and configuring Sun Cluster data services. The document does *not* contain comprehensive information about basic UNIX® commands and procedures, such as shutting down the system, booting the system, and configuring devices. Information about basic UNIX commands and procedures is available from the following sources:

- Online documentation for the Solaris Operating System
- Solaris Operating System man pages
- Other software documentation that you received with your system

Typographic Conventions

The following table describes the typographic changes that are used in this book.

TABLE P–1 Typographic Conventions

Typeface or Symbol	Meaning	Example
`AaBbCc123`	The names of commands, files, and directories, and onscreen computer output	Edit your `.login` file. Use `ls -a` to list all files. `machine_name% you have mail.`
`AaBbCc123`	What you type, contrasted with onscreen computer output	`machine_name%` **`su`** `Password:`
AaBbCc123	Command-line placeholder: replace with a real name or value	The command to remove a file is rm *filename*.
AaBbCc123	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the *User's Guide*. Perform a *patch analysis*. Do *not* save the file. [Note that some emphasized items appear bold online.]

Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P–2 Shell Prompts

Shell	Prompt
C shell prompt	`machine_name%`
C shell superuser prompt	`machine_name#`
Bourne shell and Korn shell prompt	`$`
Bourne shell and Korn shell superuser prompt	`#`

Related Documentation

Information about related Sun Cluster topics is available in the documentation that is listed in the following table. All Sun Cluster documentation is available at `http://docs.sun.com`.

Topic	Documentation
Data service administration	*Sun Cluster Data Services Planning and Administration Guide for Solaris OS*
	Individual data service guides
Concepts	*Sun Cluster Concepts Guide for Solaris OS*
Overview	*Sun Cluster Overview for Solaris OS*
Software installation	*Sun Cluster Software Installation Guide for Solaris OS*
System administration	*Sun Cluster System Administration Guide for Solaris OS*
Hardware administration	*Sun Cluster 3.0-3.1 Hardware Administration Manual for Solaris OS*
	Individual hardware administration guides
Data service development	*Sun Cluster Data Services Developer's Guide for Solaris OS*
Error messages	*Sun Cluster Error Messages Guide for Solaris OS*
Command and function reference	*Sun Cluster Reference Manual for Solaris OS*

For a complete list of Sun Cluster documentation, see the release notes for your release of Sun Cluster at `http://docs.sun.com`.

Related Third-Party Web Site References

Third-party URLs that are referenced in this document provide additional related information.

Note – Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused or alleged to be caused by or in connection with use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

Documentation, Support, and Training

Sun Function	URL	Description
Documentation	`http://www.sun.com/documentation/`	Download PDF and HTML documents, and order printed documents
Support and Training	`http://www.sun.com/supportraining/`	Obtain technical support, download patches, and learn about Sun courses

Product Training

Sun Microsystems offers training in many Sun technologies through a variety of instructor-led courses and self-paced courses. For information about the training courses that Sun offers and to enroll in a class, visit Sun Microsystems Training at `http://training.sun.com/`.

Getting Help

If you have problems installing or using Sun Cluster, contact your service provider and provide the following information:

- Your name and email address (if available)
- Your company name, address, and phone number
- The model and serial numbers of your systems
- The release number of the Solaris Operating System (for example, Solaris 8)
- The release number of Sun Cluster (for example, Sun Cluster 3.0)

Use the following commands to gather information about each node on your system for your service provider.

Command	Function
prtconf -v	Displays the size of the system memory and reports information about peripheral devices
psrinfo -v	Displays information about processors
showrev –p	Reports which patches are installed
SPARC: prtdiag -v	Displays system diagnostic information
scinstall -pv	Displays Sun Cluster release and package version information

Also have available the contents of the /var/adm/messages file.

Installing and Configuring Sun Cluster HA for DHCP

This chapter explains how to install and configure Sun Cluster HA for DHCP.

This chapter contains the following sections.

Installing and Configuring Sun Cluster HA for DHCP

Table 1 lists the tasks for installing and configuring Sun Cluster HA for DHCP. Perform these tasks in the order that they are listed.

TABLE 1 Task Map: Installing and Configuring Sun Cluster HA for DHCP

Task	For Instructions, Go To
1. Plan the installation.	"Planning the Sun Cluster HA for DHCP Installation and Configuration" on page 13
2. Install and configure DHCP.	"How to Install and Configure DHCP" on page 18
3. Verify installation and configuration.	"How to Verify the Installation and Configuration of DHCP" on page 20
4. Install Sun Cluster HA for DHCP Packages.	"How to Install the Sun Cluster HA for DHCP Packages using the `scinstall` utility" on page 22
5. Register and Configure Sun Cluster HA for DHCP.	"How to Register and Configure Sun Cluster HA for DHCP" on page 23
6. Verify Sun Cluster HA for DHCP Installation and Configuration.	"How to Verify the Sun Cluster HA for DHCP Installation and Configuration" on page 25
6. Upgrading Sun Cluster HA for DHCP.	"Upgrading Sun Cluster HA for DHCP" on page 26
7. Understand Sun Cluster HA for DHCP fault monitor.	"Understanding Sun Cluster HA for DHCP Fault Monitor" on page 27
8. Debug Sun Cluster HA for DHCP.	"How to turn on debug for Sun Cluster HA for DHCP" on page 28

Sun Cluster HA for DHCP Overview

Solaris DHCP provides dynamic TCP/IP configuration to a DHCP client. The Sun Cluster HA for DHCP data service uses the DHCP software that is bundled with Solaris 8/9. For further information on DHCP refer to the `dhcp(4)` man page.

The Sun Cluster HA for DHCP data service provides a mechanism for orderly startup and shutdown, fault monitoring and automatic failover of the DHCP service.

Note – *If you are upgrading the DHCP agent with this version on a SC.3.1 cluster you must reconfigure the DHCP resource, due to changes in the agent.*

TABLE 2 Protection of Components

Component	Protected by
DHCP server	Sun Cluster HA for DHCP

Planning the Sun Cluster HA for DHCP Installation and Configuration

This section contains the information you need to plan your Sun Cluster HA for DHCP installation and configuration.

Configuration Restrictions

Consider the restrictions in this section to plan the installation and configuration of Sun Cluster HA for DHCP.This section provides a list of software and hardware configuration restrictions that apply to Sun Cluster HA for DHCP only.

Caution – Your data service configuration might not be supported if you do not observe these restrictions.

For restrictions that apply to all data services, see the *Sun Cluster Release Notes*.

- **The Sun Cluster HA for DHCP data service can be configured only as a failover service –** DHCP cannot operate as a scalable service and therefore the Sun Cluster HA for DHCP data service can be configured only to run as a failover service.

- **Sun Cluster Carrier-Grade —**You can only use the Sun Cluster Carrier-Grade options in a Sun Cluster Carrier-Grade deployment.

- **DHCP server –** DHCP must operate as a DHCP server and not as a relay host.

- **DHCP single instance per resource –** You can configure only one DHCP instance within Sun Cluster, but you can have multiple DHCP networks within that DHCP instance.

- **DHCP network table –** The DHCP network table can be text or binary files. You can mount it as either a Failover File System (FFS) or a Global File System (GFS).

> **Note –** It is considered best practice to mount Global File Systems with the /global prefix and to mount Failover File Systems with the /local prefix.

Configuration Requirements

These requirements apply to Sun Cluster HA for DHCP only. You must meet these requirements before you proceed with your Sun Cluster HA for DHCP installation and configuration.

> **Caution –** Your data service configuration might not be supported if you do not adhere to these requirements.

DHCP component and its dependencies — You can configure the Sun Cluster HA for DHCP data service to protect a DHCP component. This component and its dependencies are described.

TABLE 3 DHCP components and their dependencies (via → symbol)

Componet	Description
DHCP server(Mandatory)	→ *SUNW.HAStoragePlus* resource The SUNW.HAStoragePlus resource manages the DHCP File System Mount points and ensures that DHCP is not started until these are mounted.

The DHCP component has a configuration and registration file under /opt/SUNWscdhc/util. These files allow you to register the DHCP components with Sun Cluster.

EXAMPLE 1 DHCP configuration and registration file for Sun Cluster

```
# cd /opt/SUNWscdhc
#
# ls -l util/*
total 6
-rwxr-xr-x   1 root      sys           1094 Dec 20 14:44 dhcp_config
-rwxr-xr-x   1 root      sys            514 Dec 20 14:44 dhcp_register
#
# more util/*
::::::::::::::
util/dhcp_config
::::::::::::::
#
# Copyright 2003 Sun Microsystems, Inc.  All rights reserved.
```

```
# Use is subject to license terms.
#
# This file will be sourced in by dhcp_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
#        RS - name of the resource for the application
#        RG - name of the resource group containing RS
#      PORT - name of any port number, as it's ignored
#        LH - name of the LogicalHostname SC resource
#   NETWORK - name of the DHCP Network, separated with a /
#             where each network is made up of the following
#             <network>@<nafo or ipmp>@node number
#
# Additional parameters to Sun Cluster Carrier-Grade Edition
#  USE_CGTP - ff CGTP is being used (TRUE/FALSE)
#  USE_STATIC_DHCP - ff static DHCP tables should be used (TRUE/FALSE)
#  TEST_CLIENTID - the mac-address of the test-client
#  TFTPTESTFILE - path to Tftp testfile
#
#      The following two examples illustrate sample parameters
#      for DHCP on a 2 node cluster (tequila/sunrise)
#
#      Sun Cluster 3.0 using nafo
#
#      NETWORK=192.168.100.0@nafo0@1/192.168.100.0@nafo0@2
#
#      Sun Cluster 3.1 using ipmp
#
#      NETWORK=192.168.100.0@ipmp0@1/192.168.100.0@ipmp0@2
#
RS=
RG=
PORT=
LH=
NETWORK=
HAS_RS=

# Options to Sun Cluster Carrier-Grade Edition

USE_CGTP=FALSE
USE_STATIC_DHCP=FALSE
TEST_CLIENTID=
TFTPTESTFILE=
::::::::::::::
```

Sun Cluster HA for DHCP data service – Requires Solaris 8 7/01 (or later) with patches 109077-12 (or later) and 111302-02 (or later) or Solaris 9.

Note – Ensure that /etc/inet/dhcpsvc.conf is consistent on all nodes within Sun Cluster that will host the DHCP service, or is linked on a directory on a Cluster File System.

/etc/inet/dhcpsvc.conf parameters – You must set the following /etc/inet/dhcpsvc.conf parameters:

- **DAEMON_ENABLED** is always set to true.
- **PATH** points to the Cluster File System for the DHCP network table.
- **RUN_MODE** is always set to SERVER
- **RESOURCE** is set to either SUNWbinfiles or SUNWfiles.

  You cannot set the following parameter in etc/inet/dhcpsvc.conf unless Sun Cluster Carrier-Grade Edition is deployd.

- **INTERFACE** can't be used

Note – For responses to DHCP requests, use SUNWbinfiles for the DHCP network table to achieve the best DHCP performance.

Configuration Requirements for Sun Cluster Carrier-Grade deployment

These requirements apply to Sun Cluster HA for DHCP only. You must meet these requirements before you proceed with your Sun Cluster HA for DHCP installation and configuration.

Caution – Your data service configuration might not be supported if you do not adhere to these requirements.

DHCP component and its dependencies —You can configure the Sun Cluster HA for DHCP data service to protect a DHCP component.

The DHCP component has a configuration and registration file under /opt/SUNWscdhc/util. These files allow you to register the DHCP components with Sun Cluster.

EXAMPLE 2 DHCP configuration and registration file for Sun Cluster

```
# cd /opt/SUNWscdhc
#
# ls -l util/*
```

```
total 6
-rwxr-xr-x   1 root     sys          1094 Dec 20 14:44 dhcp_config
-rwxr-xr-x   1 root     sys           514 Dec 20 14:44 dhcp_register
#
# more util/*
::::::::::::::
util/dhcp_config
::::::::::::::
#
# Copyright 2003 Sun Microsystems, Inc.  All rights reserved.
# Use is subject to license terms.
#
# This file will be sourced in by dhcp_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
#        RS - name of the resource for the application
#        RG - name of the resource group containing RS
#      PORT - name of any port number, as it's ignored
#        LH - name of the LogicalHostname SC resource
#   NETWORK - name of the DHCP Network, separated with a /
#               where each network is made up of the following
#              <network>@<nafo or ipmp>@node number
#
# Additional parameters to Sun Cluster Carrier-Grade Edition
#  USE_CGTP - ff CGTP is being used (TRUE/FALSE)
#  USE_STATIC_DHCP - ff static DHCP tables should be used (TRUE/FALSE)
#  TEST_CLIENTID - the mac-address of the test-client
#  TFTPTESTFILE - path to Tftp testfile
#
#       The following two examples illustrate sample parameters
#       for DHCP on a 2 node cluster (tequila/sunrise)
#
#       Sun Cluster 3.0 using nafo
#
#       NETWORK=192.168.100.0@nafo0@1/192.168.100.0@nafo0@2
#
#       Sun Cluster 3.1 using ipmp
#
#       NETWORK=192.168.100.0@ipmp0@1/192.168.100.0@ipmp0@2
#
RS=
RG=
PORT=
LH=
NETWORK=
HAS_RS=

# Options to Sun Cluster Carrier-Grade Edition

USE_CGTP=FALSE
USE_STATIC_DHCP=FALSE
```

EXAMPLE 2 DHCP configuration and registration file for Sun Cluster   *(Continued)*

```
TEST_CLIENTID=
TFTPTESTFILE=
::::::::::::::
```

Sun Cluster HA for DHCP data service – Requires Solaris 8 7/01 (or later) with patches `109077-12` (or later) and `111302-02` (or later) or Solaris 9.

Note – Ensure that /etc/inet/dhcpsvc.conf is consistent on all nodes within Sun Cluster that will host the DHCP service, or is linked on a directory on a Cluster File System.

If Tftp daemon check is being used you must create a non-zero testfile in defined tftpdirectory on all the nodes in the cluster that will use DHCP.

/etc/inet/dhcpsvc.conf parameters – You must set the following /etc/inet/dhcpsvc.conf parameters:

- **DAEMON_ENABLED** is always set to true.
- **PATH** points to the Cluster File System for the DHCP network table or local filesystem, if static DHCP is beeing used.
- **INTERFACE** must be used, if Carrier-Grade Transport Procol is beeing used.
- **RUN_MODE** is always set to `SERVER`
- **ICMP_VERIFY** is always set to false, if active testing is being used.
- **RESOURCE** is set to either `SUNWbinfiles` or `SUNWfiles`.

Installing and Configuring DHCP

This section contains the procedures you need to install and configure DHCP.

How to Install and Configure DHCP

Use this procedure to install and configure DHCP.

1. **Install the following packages from the Solaris CD:**

    - **SUNWdhcsu**
    - **SUNWdhcsb**

- **SUNWdhcm**

2. **Mount DHCP Cluster File Systems –** Ensure that the Cluster File System for the DHCP network table is mounted.

Note – If a Failover File System is used by the DHCP network table, you must mount this manually.

---

3. **Install the required DHCP patches.**

   Refer to "Configuration Requirements" on page 14 for a list of patches that you need to install.

4. **Run the following commands to configure DHCP –**

   # `/usr/sadm/admin/bin/dhcpmgr`

   - Choose `Configure` as `DHCP Server`.
   - Choose `Text files` or `Binary files`.
   - Enter a path for the DHCP network table.
   - Choose which name services to use to store host records.
   - Choose `Length of Lease` and whether clients can renew their leases.
   - If used, supply a DNS configuration for the DHCP client of this server.
   - Add which network and network mask should provide ip-addresses.
   - Choose `LAN` as `Network Type`.
   - If used, supply a NIS configuration for the DHCP clients of this server.
   - If used, supply a NIS+ configuration for the DHCP clients of this server.
   - Create your addresses and macros.

5. Check whether **/etc/inet/dhcpsvc.conf** has the following parameters defined.

   - **DAEMON_ENABLED** is always set to true.
   - **PATH** points to a Cluster File System.
   - **RUN_MODE** is always set to `SERVER`
   - **RESOURCE** is set to either `SUNWbinfiles` or `SUNWfiles`.

6. make sure **/etc/inet/dhcpsvc.conf** is consistent on all nodes within Sun Cluster that will host the DHCP service.

   This can be done by either:

   - Copying /etc/inet/dhcpsvc.conf onto each node with Sun Cluster;

   - Moving your edited dhcpsvc.conf to your Cluster File System, and creating a symbolic link from /etc/inet/dhcpsvc.conf to dhcpsvc.conf within the Cluster File System.

7. **Ensure that DHCP is stopped on all nodes.**

   # `/etc/rc2.d/K21dhcp stop`

8. **Disable DHCP startup on boot on all nodes.**

   # `rm /etc/rc3.d/S34dhcp`

Verifying the Installation and Configuration of DHCP

This section contains the procedure you need to verify the installation and configuration.

▼ How to Verify the Installation and Configuration of DHCP

This procedure does not verify that your application is highly available because you have not installed your data service yet.

Steps 1. **Check /etc/inet/dhcpsvc.conf.**

   Ensure that the parameters are set accordingly to your requirements:

   - **SERVER_MODE**
   - **PATH**
   - **DAEMON_ENABLED**

2. **Check that /etc/inet/dhcpsvc.conf is consistent on all nodes within Sun Cluster.**

3. **Check that DHCP startup on boot has been disabled.**

Installing the Sun Cluster HA for DHCP Packages

If you did not install the Sun Cluster HA for DHCP packages during your initial Sun Cluster installation, perform this procedure. Perform this procedure on each cluster node where you are installing the Sun Cluster HA for DHCP packages. To complete this procedure, you need the Sun Cluster Agents CD-ROM.

If you are installing more than one data service simultaneously, perform the procedure in "Installing the Software" in *Sun Cluster Software Installation Guide for Solaris OS*.

Install the Sun Cluster HA for DHCP packages by using one of the following installation tools:

- Web Start program

- `scinstall` utility

Note – If you are using Solaris 10, install these packages *only* in the global zone. To ensure that these packages are not propagated to any local zones that are created after you install the packages, use the `scinstall` utility to install these packages. Do *not* use the Web Start program.

▼ How to Install the Sun Cluster HA for DHCP Packages Using the Web Start Program

You can run the Web Start program with a command-line interface (CLI) or with a graphical user interface (GUI). The content and sequence of instructions in the CLI and the GUI are similar. For more information about the Web Start program, see the `installer`(1M) man page.

Steps   1. **On the cluster node where you are installing the Sun Cluster HA for DHCP packages, become superuser.**

2. **(Optional) If you intend to run the Web Start program with a GUI, ensure that your `DISPLAY` environment variable is set.**

3. **Insert the Sun Cluster Agents CD-ROM into the CD-ROM drive.**

   If the Volume Management daemon `vold`(1M) is running and configured to manage CD-ROM devices, it automatically mounts the CD-ROM on the `/cdrom/scdataservices_3_1_vc` directory.

4. **Change to the Sun Cluster HA for DHCP component directory of the CD-ROM.**

   The Web Start program for the Sun Cluster HA for DHCP data service resides in this directory.

   ```
   # cd /cdrom/scdataservices_3_1_vc/components/SunCluster_HA_DHCP_3.1
   ```

5. **Start the Web Start program.**

   ```
   # ./installer
   ```

6. **When you are prompted, select the type of installation.**

   - To install only the C locale, select Typical.
   - To install other locales, select Custom.

7. **Follow the instructions on the screen to install the Sun Cluster HA for DHCP packages on the node.**

   After the installation is finished, the Web Start program provides an installation summary. This summary enables you to view logs that the Web Start program created during the installation. These logs are located in the

`/var/sadm/install/logs` directory.

8. **Exit the Web Start program.**

9. **Remove the Sun Cluster Agents CD-ROM from the CD-ROM drive.**

   a. **To ensure that the CD-ROM is not being used, change to a directory that does *not* reside on the CD-ROM.**

   b. **Eject the CD-ROM.**

   ```
   # eject cdrom
   ```

▼ How to Install the Sun Cluster HA for DHCP Packages using the `scinstall` utility

You need the Sun Cluster Agents CD-ROM to perform this procedure. This procedure assumes that you did not install the data service packages during your initial Sun Cluster installation.

If you installed the Sun Cluster HA for DHCP packages as part of your initial Sun Cluster installation, proceed to "Registering and Configuring Sun Cluster HA for DHCP" on page 23.

Otherwise, use this procedure to install the Sun Cluster HA for DHCP packages. Perform this procedure on all nodes that can run Sun Cluster HA for DHCP.

Steps 1. **Load the Sun Cluster Agents CD-ROM into the CD-ROM drive.**

2. **Run the `scinstall` utility with no options.**
   This step starts the `scinstall` utility in interactive mode.

3. **Choose the menu option, Add Support for New Data Service to This Cluster Node.**
   The `scinstall` utility prompts you for additional information.

4. **Provide the path to the Sun Cluster Agents CD-ROM.**
   The utility refers to the CD as the "data services cd."

5. **Specify the data service to install.**
   The `scinstall` utility lists the data service that you selected and asks you to confirm your choice.

6. **Exit the `scinstall` utility.**

7. **Unload the CD from the drive.**

Registering and Configuring Sun Cluster HA for DHCP

This section contains the procedures you need to configure Sun Cluster HA for DHCP.

▼ How to Register and Configure Sun Cluster HA for DHCP

This procedure assumes that you installed the data service packages during your initial Sun Cluster installation.

If you did not install the Sun Cluster HA for DHCP packages as part of your initial Sun Cluster installation, go to

Steps   **1. Become superuser on one of the nodes in the cluster that will host DHCP.**

2. Register the SUNW.gds resource type.

```
# scrgadm -a -t SUNW.gds
```

3. Register the SUNW.HAStoragePlus resource type.

```
# scrgadm -a -t SUNW.HAStoragePlus
```

4. Create a failover resource group.

```
# scrgadm -a -g DHCP-failover-resource-group
```

5. Create a resource for the DHCP Disk Storage.

```
# scrgadm -a -j DHCP-has-resource   \
 -g DHCP-failover-resource-group      \
 -t SUNW.HAStoragePlus  \
 -x FilesystemMountPoints=DHCP- instance-mount-points
```

6. Create a resource for the DHCP Logical Hostname.

```
# scrgadm -a -L -j DHCP-lh-resource   \
 -g DHCP-failover-resource-group    \
 -l DHCP-logical-hostname
```

7. Enable the failover resource group that now includes the DHCP Disk Storage and Logical Hostname resources.

```
# scswitch -Z -g DHCP-failover-resource-group
```

8. **a) Create and register the DHCP component.**

```
# cd /opt/SUNWscdhc/util
```

Edit the dhcp_configfile and follow the comments within that file:

```
# These parameters can be customized in (key=value) form
#        RS - name of the resource for the application
#        RG - name of the resource group containing RS
#      PORT - name of any port number, as it's ignored
#        LH - name of the LogicalHostname SC resource
#   NETWORK - name of the DHCP Network, however comprised of following
#                <network>@<nafo or ipmp>@<node number>
#    HAS_RS - name of the DHCP HAStoragePlus SC resource
```

The following is an example for DHCP for a 2 node Sun Cluster 3.1 with IPMP.

```
RS=dhcp-res
RG=dhcp-rg
PORT=23
LH=dhcp-lh-res
NETWORK=192.168.100.0@ipmp0@1/192.168.100.0@ipmp1@2
HAS_RS=dhcp-has-res
```

After editing dhcp_config, you now register the resource.

```
# ./dhcp_register
```

9. **b) Create and register the DHCP component for a Sun Cluster Carrier-Grade deployment.**

```
# cd /opt/SUNWscdhc/util
```

Edit the dhcp_configfile and follow the comments within that file:

```
# These parameters can be customized in (key=value) form
#        RS - name of the resource for the application
#        RG - name of the resource group containing RS
#      PORT - name of any port number, as it's ignored
#        LH - name of the LogicalHostname SC resource
#   NETWORK - name of the DHCP Network, however comprised of following
#                <network>@<nafo or ipmp>@<node number>
#    HAS_RS - name of the DHCP HAStoragePlus SC resource
# Additional parameters to Sun Cluster Carrier-Grade Edition
#  USE_CGTP - ff CGTP is being used (TRUE/FALSE)
#  USE_STATIC_DHCP - ff static DHCP tables should be used (TRUE/FALSE)
#  TEST_CLIENTID - the mac-address of the test-client
#  TFTPTESTFILE - path to Tftp testfile
```

The following is an example for DHCP for a 2 node Sun Cluster 3.1 with CGTP, static DHCP, active client and tftp monitoring.

```
RS=dhcp-res
RG=dhcp-rg
PORT=23
LH=dhcp-lh-res
NETWORK=
HAS_RS=dhcp-has-res
USE_CGTP=TRUE
```

```
USE_STATIC_DHCP=TRUE
TEST_CLIENTID=8:0:20:a7:95:f9
TFTPTESTFILE=/tftpboot/SCTESTFILE
```

After editing `dhcp_config`, you now register the resource.

`# ./dhcp_register`

10. Enable each DHCP resource.

Repeat this step for each DHCP component as in the previous step.

`# scstat`

`# scswitch -e -j` *DHCP-resource*

Verifying the Sun Cluster HA for DHCP Installation and Configuration

This section contains the procedure you need to verify that you installed and configured your data service correctly.

▼ How to Verify the Sun Cluster HA for DHCP Installation and Configuration

Steps **1. Become superuser on one of the nodes in the cluster that will host DHCP.**

2. Ensure that all the DHCP resources are online with `scstat`.

`# scstat`

For each DHCP resource that is not online, use the `scswitch` command as follows.

`# scswitch -e -j` *DHCP- resouce*

3. Run the `scswitch` command to switch the DHCP resource group to another cluster node, such as *node2***.**

`# scswitch -z -g` *DHCP-failover-resource-group* `-h` *node2*

Upgrading Sun Cluster HA for DHCP

As a result of bug fixes, the configuration for IPMP based clusters has changed. If you are running Sun Cluster HA for DHCP on an IPMP-based cluster, you have to disable, delete and reregister the DHCP resource.

▼ How to Upgrade Sun Cluster HA for DHCP

Steps

1. **Save the Sun Cluster DHCP resource definitions.**

   # **scrgadm -pvv -j** *resource* **>** *file1*

2. **Disable the Sun Cluster DHCP resource.**

   # **scswitch -n -j** *resource*

3. **Remove the Sun Cluster DHCP resource.**

   # **scrgadm -r -j** *resource*

4. **Configure and register the Sun Cluster DHCP resource.**

   a. **Go to the directory that contains the `dhcp_config` file and the `dhcp_register` file.**

      # **cd /opt/SUNWscdhc/util**

   b. **Edit the `dhcp_config` file.**

      # **vi dhcp_config**

   c. **Run the `dhcp_register` file.**

      # **./dhcp_register**

5. **Save the Sun Cluster DHCP resource definitions.**

   # **scrgadm -pvv -j** *resource* **>** *file2*

6. **Compare the updated definitions to the definitions that you saved before you updated the resource.**
   Comparing these definitions enables you to determine if any existing extension properties have changed, for example, time-out values.

   # **diff** *file1 file2*

7. **Amend any resource properties that were reset.**

   # **scrgadm -c -j** *resource* **-x|y** *resource*

8. **Bring online the Sun Cluster DHCP resource.**

    # **scswitch -e -j** *resource*

Understanding Sun Cluster HA for DHCP Fault Monitor

This section describes the Sun Cluster HA for DHCP fault monitor's probing algorithm or functionality, states the conditions, messages, and recovery actions associated with unsuccessful probing.

For conceptual information on fault monitors, see the *Sun Cluster Concepts Guide*.

Resource Properties

Sun Cluster HA for DHCP fault monitor uses the same resource properties as resource type SUNW.gds. Refer to the SUNW.gds(5) man page for a complete list of resource properties used.

Probing Algorithm and Functionality

- DHCP probing steps:
    - Sleeps for Thorough_probe_interval.
    - Checks whether if PNM (Public Network Monitoring) has changed the active interface for the network that DHCP is using. If this fails, then the probe will restart the DHCP resource.
- DHCP probing steps for Sun Cluster Carrier-Grade deployment:
    - Sleeps for Thorough_probe_interval.
    - If active client testing is defined, the probe will send out dhcp-request and will expexed an ip-number in return. If this fails, then the probe will failover the resourcegroup.
    - If tftp testing is defined, the probe will connect to localhost and try to retrieve the defined testfile to /tmp. The test will fail if a timeout has occured, the retrieved file don't exist or is zero bytes long.

Debug Sun Cluster HA for DHCP

Read the information in this section to understand how to turn on debug for Sun
Cluster HA for DHCP.

The DHCP component has a DEBUG file under /opt/SUNWscdhc/etc.

This file allows you to turn on debug for the DHCP resource on a particular node
within Sun Cluster. If you require debug to be turned on for the DHCP resource across
the whole Sun Cluster, to repeat this step on all nodes within Sun Cluster.

▼ How to turn on debug for Sun Cluster HA for DHCP

Steps **1. Edit /etc/syslog.conf and change daemon.notice to daemon.debug.**

```
# grep daemon /etc/syslog.conf
*.err;kern.debug;daemon.notice;mail.crit          /var/adm/messages
*.alert;kern.err;daemon.err                       operator
#
```

Change the daemon.notice to daemon.debug and restart syslogd. The output
below, from the command grep daemon /etc/syslog.conf, shows that
daemon.debug has been set.

```
# grep daemon /etc/syslog.conf
*.err;kern.debug;daemon.debug;mail.crit           /var/adm/messages
*.alert;kern.err;daemon.err                       operator
#
# pkill -1 syslogd
#
```

**2. Edit /opt/SUNWscdhc/etc/config and change DEBUG= to DEBUG=ALL or
DEBUG=*resource*.**

```
# cat /opt/SUNWscdhc/etc/config
#
# Copyright 2003 Sun Microsystems, Inc.  All rights reserved.
# Use is subject to license terms.
#
# Usage:
#       DEBUG=<RESOURCE_NAME> or ALL
#
DEBUG=ALL
#
```

Note – To turn off debug, reverse the steps shown above.

Index

S
scinstall -pv command, 9
showrev –p command, 9
Sun Cluster HA for DHCP
   installing
      by using Web Start program, 21-22

T
training, 8

V
/var/sadm/install/logs directory, 21

W
Web Start program, 21-22

Z
zones, 21