Sun Cluster Data Service for DNS Guide for Solaris OS

Sun Microsystems, Inc.
4150 Network Circle
Santa Clara, CA 95054
U.S.A.

Part No: 819–2977–10
December 2006, Revision A

Copyright 2006 Sun Microsystems, Inc. 4150 Network Circle, Santa Clara, CA 95054 U.S.A. All rights reserved.

Sun Microsystems, Inc. has intellectual property rights relating to technology embodied in the product that is described in this document. In particular, and without limitation, these intellectual property rights may include one or more U.S. patents or pending patent applications in the U.S. and in other countries.

U.S. Government Rights – Commercial software. Government users are subject to the Sun Microsystems, Inc. standard license agreement and applicable provisions of the FAR and its supplements.

This distribution may include materials developed by third parties.

Parts of the product may be derived from Berkeley BSD systems, licensed from the University of California. UNIX is a registered trademark in the U.S. and other countries, exclusively licensed through X/Open Company, Ltd.

Sun, Sun Microsystems, the Sun logo, the Solaris logo, the Java Coffee Cup logo, docs.sun.com, Java, and Solaris are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the U.S. and other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc.

The OPEN LOOK and Sun Graphical User Interface was developed by Sun Microsystems, Inc. for its users and licensees. Sun acknowledges the pioneering efforts of Xerox in researching and developing the concept of visual or graphical user interfaces for the computer industry. Sun holds a non-exclusive license from Xerox to the Xerox Graphical User Interface, which license also covers Sun's licensees who implement OPEN LOOK GUIs and otherwise comply with Sun's written license agreements.

Products covered by and information contained in this publication are controlled by U.S. Export Control laws and may be subject to the export or import laws in other countries. Nuclear, missile, chemical or biological weapons or nuclear maritime end uses or end users, whether direct or indirect, are strictly prohibited. Export or reexport to countries subject to U.S. embargo or to entities identified on U.S. export exclusion lists, including, but not limited to, the denied persons and specially designated nationals lists is strictly prohibited.

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

Copyright 2006 Sun Microsystems, Inc. 4150 Network Circle, Santa Clara, CA 95054 U.S.A. Tous droits réservés.

Sun Microsystems, Inc. détient les droits de propriété intellectuelle relatifs à la technologie incorporée dans le produit qui est décrit dans ce document. En particulier, et ce sans limitation, ces droits de propriété intellectuelle peuvent inclure un ou plusieurs brevets américains ou des applications de brevet en attente aux Etats-Unis et dans d'autres pays.

Cette distribution peut comprendre des composants développés par des tierces personnes.

Certaines composants de ce produit peuvent être dérivées du logiciel Berkeley BSD, licenciés par l'Université de Californie. UNIX est une marque déposée aux Etats-Unis et dans d'autres pays; elle est licenciée exclusivement par X/Open Company, Ltd.

Sun, Sun Microsystems, le logo Sun, le logo Solaris, le logo Java Coffee Cup, docs.sun.com, Java et Solaris sont des marques de fabrique ou des marques déposées de Sun Microsystems, Inc. aux Etats-Unis et dans d'autres pays. Toutes les marques SPARC sont utilisées sous licence et sont des marques de fabrique ou des marques déposées de SPARC International, Inc. aux Etats-Unis et dans d'autres pays. Les produits portant les marques SPARC sont basés sur une architecture développée par Sun Microsystems, Inc.

L'interface d'utilisation graphique OPEN LOOK et Sun a été développée par Sun Microsystems, Inc. pour ses utilisateurs et licenciés. Sun reconnaît les efforts de pionniers de Xerox pour la recherche et le développement du concept des interfaces d'utilisation visuelle ou graphique pour l'industrie de l'informatique. Sun détient une licence non exclusive de Xerox sur l'interface d'utilisation graphique Xerox, cette licence couvrant également les licenciés de Sun qui mettent en place l'interface d'utilisation graphique OPEN LOOK et qui, en outre, se conforment aux licences écrites de Sun.

Les produits qui font l'objet de cette publication et les informations qu'il contient sont régis par la legislation américaine en matière de contrôle des exportations et peuvent être soumis au droit d'autres pays dans le domaine des exportations et importations. Les utilisations finales, ou utilisateurs finaux, pour des armes nucléaires, des missiles, des armes chimiques ou biologiques ou pour le nucléaire maritime, directement ou indirectement, sont strictement interdites. Les exportations ou réexportations vers des pays sous embargo des Etats-Unis, ou vers des entités figurant sur les listes d'exclusion d'exportation américaines, y compris, mais de manière non exclusive, la liste de personnes qui font objet d'un ordre de ne pas participer, d'une façon directe ou indirecte, aux exportations des produits ou des services qui sont régis par la legislation américaine en matière de contrôle des exportations et la liste de ressortissants spécifiquement designés, sont rigoureusement interdites.

LA DOCUMENTATION EST FOURNIE "EN L'ETAT" ET TOUTES AUTRES CONDITIONS, DECLARATIONS ET GARANTIES EXPRESSES OU TACITES SONT FORMELLEMENT EXCLUES, DANS LA MESURE AUTORISEE PAR LA LOI APPLICABLE, Y COMPRIS NOTAMMENT TOUTE GARANTIE IMPLICITE RELATIVE A LA QUALITE MARCHANDE, A L'APTITUDE A UNE UTILISATION PARTICULIERE OU A L'ABSENCE DE CONTREFACON.

061121@15490

Contents

Preface 5

Installing and Configuring Sun Cluster HA for DNS 9
Overview of the Installation and Configuration Process for Sun Cluster HA for DNS 9
Installing DNS 10
▼ How to Install DNS 10
Installing the Sun Cluster HA for DNS Packages 12
▼ How to Install the Sun Cluster HA for DNS Packages 13
Registering and Configuring Sun Cluster HA for DNS 14
Setting Sun Cluster HA for DNS Extension Properties 15
▼ How to Register and Configure Sun Cluster HA for DNS 15
Verifying Data Service Installation and Configuration 18
Tuning the Sun Cluster HA for DNS Fault Monitor 19
Operations by the Fault Monitor During a Probe 19

A Sun Cluster HA for DNS Extension Properties 21

Index 23

Preface

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

Note – This Sun Cluster release supports systems that use the SPARC and x86 families of processor architectures: UltraSPARC, SPARC64, and AMD64. In this document, the label x86 refers to systems that use the AMD64 family of processor architectures.

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 book assume knowledge of the Solaris™ Operating System (Solaris OS) and expertise with the volume-manager software that is used with Sun Cluster software.

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.

Using 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 conventions that are used in this book.

TABLE P–1 Typographic Conventions

Typeface	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	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*. A *cache* is a copy that is stored locally. Do *not* save the file. **Note:** Some emphasized items appear bold online.

Shell Prompts in Command Examples

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

TABLE P–2 Shell Prompts

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

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 3.1 - 3.2 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

The Sun web site provides information about the following additional resources:

- Documentation (`http://www.sun.com/documentation/`)
- Support (`http://www.sun.com/support/`)
- Training (`http://www.sun.com/training/`)

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 number and serial number of your systems
- The release number of the Solaris Operating System (for example, Solaris 10)
- The release number of Sun Cluster (for example, Sun Cluster 3.2)

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
`/usr/cluster/bin/clnode show-rev`	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 DNS

This chapter describes the steps to install and configure the Sun Cluster HA for Domain Name Service (DNS) data service on your Sun Cluster servers.

This chapter contains the following sections.

- "Overview of the Installation and Configuration Process for Sun Cluster HA for DNS" on page 9
- "Installing DNS" on page 10
- "Installing the Sun Cluster HA for DNS Packages" on page 12
- "Registering and Configuring Sun Cluster HA for DNS" on page 14
- "Verifying Data Service Installation and Configuration" on page 18
- "Tuning the Sun Cluster HA for DNS Fault Monitor" on page 19

You must configure Sun Cluster HA for DNS as a failover data service. See Chapter 1, "Planning for Sun Cluster Data Services," in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* and the *Sun Cluster Concepts Guide for Solaris OS* document for general information about data services, resource groups, resources, and other related topics.

Note – The Sun Cluster HA for DNS can be configured to run in a whole root or a sparse root non-global zone, if required.

Overview of the Installation and Configuration Process for Sun Cluster HA for DNS

The following table lists the sections that describe the installation and configuration tasks.

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

Task	Instructions
Install DNS	"Installing DNS" on page 10
Install Sun Cluster HA for DNS packages	"How to Install the Sun Cluster HA for DNS Packages" on page 13
Configure and start Sun Cluster HA for DNS	"Registering and Configuring Sun Cluster HA for DNS" on page 14
Verify the data service installation and configuration	"Verifying Data Service Installation and Configuration" on page 18
Tune the Sun Cluster HA for DNS fault monitor	"Tuning the Sun Cluster HA for DNS Fault Monitor" on page 19

Installing DNS

This section describes the steps to install DNS and to enable DNS to run as Sun Cluster HA for DNS.

Sun Cluster HA for DNS uses the Internet Domain Name Server (`in.named`) software that is bundled with the Solaris 8, Solaris 9, and Solaris 10 operating systems. See the `in.named`(1M) man page for information about how to set up DNS. The Sun Cluster configuration involves the following differences.

- The DNS database is located on the cluster file system, not a local file system.
- A network resource (relocatable IP address), not the name of a physical host, identifies the name of a DNS server.

▼ How to Install DNS

This section describes how to install the DNS.

1 On a cluster member, become superuser or assume a role that provides `solaris.cluster.admin` RBAC authorization.

2 Decide on the network resource that will provide the DNS service.

This name should be an IP address (logical hostname) that you set up when you install the Sun Cluster software. See the *Sun Cluster Concepts Guide for Solaris OS* document for details about network resources.

3 Ensure that the DNS executable (`in.named`) is in the directory `/usr/sbin`.

The DNS executable is bundled with the Solaris 8, Solaris 9, and Solaris 10 operating systems. Ensure that this executable is located in the `/usr/sbin` directory before you begin the installation.

4 **Create directory structure `/global/dns/named` on the cluster file system to hold the DNS configuration files (at level `/global/dns`) and database files (at level `/global/dns/named`).**

See the *Sun Cluster Software Installation Guide for Solaris OS* for information on how to set up cluster file systems.

```
# mkdir -p /global/dns/named
```

5 **Place the configuration file for DNS, `named.conf` or `named.boot`, under the `/global/dns` directory.**

If you have already installed DNS, you can copy the existing `named.conf` or `named.boot` file to the `/global/dns` directory. Otherwise, create a `named.conf` file in this directory. See the `in.named`(1M) man page for information on the types of entries to place in `named.conf` or `named.boot`. Either the `named.conf` file or the `named.boot` file must exist. Both files can exist.

6 **Place all of the DNS database files (listed in the `named.conf` file) under the `/global/dns/named` directory.**

7 **On all of the clients of Sun Cluster HA for DNS, create an entry for the network resource of the DNS service in the `/etc/resolv.conf` file.**

On all of the nodes or zones, edit the `/etc/resolv.conf` file to contain the network resource. The following example shows the entries for a four-node configuration (`phys-schost-1`, `phys-schost-2`, `phys-schost-3`, and `phys-schost-4`) with the logical hostname `schost-1.eng.sun.com`.

```
domain eng.sun.com

; schost-1.eng.sun.com
```

(Only entry to be added if the file is already present.)

```
nameserver 192.29.72.90

; phys-schost-2.eng
nameserver 129.146.1.151

; phys-schost-3.eng
nameserver 129.146.1.152

; phys-schost-4.eng
nameserver 129.144.134.19

; phys-schost-1.eng
nameserver 129.144.1.57
```

Make the network resource the first entry after the domain name. DNS attempts to use the addresses in the order that they are listed in the `resolv.conf` file to access the server.

Note – If the `/etc/resolv.conf` is already present on the nodes or zones, just add the first entry that shows the logical hostname in the preceding example. The order of the entries determines the order in which DNS tries to access the server.

8 On all of the cluster nodes or zones, edit the `/etc/inet/hosts` file to create an entry for the network resource of the DNS service.

In the following example, perform these steps.

- Replace the *IPaddress* variable with your actual IP address, such as `129.146.87.53`.
- Replace the *logical-hostname* variable with your actual network resource (logical hostname).

```
127.0.0.1                       localhost
IPaddress                       logical-hostname
```

9 On all of the cluster nodes or zones, edit the `/etc/nsswitch.conf` file to add the string `dns` after `cluster` and `files` to the `hosts` entry.

Example:

```
hosts:            cluster files dns
```

10 On all of the cluster nodes or zones, test DNS.

The following example shows how to test DNS.

```
# /usr/sbin/in.named -c /global/dns/named.conf
# nslookup phys-schost-1
```

11 On all of the cluster nodes or zones, stop DNS.

Be sure to stop the `in.named` executable before you proceed.

```
# pkill -x in.named
```

Next Steps If you installed the Sun Cluster HA for DNS packages during your Sun Cluster installation, go to "Registering and Configuring Sun Cluster HA for DNS" on page 14. Otherwise, go to "Installing the Sun Cluster HA for DNS Packages" on page 12.

Installing the Sun Cluster HA for DNS Packages

If you did not install the Sun Cluster HA for DNS packages during your initial Sun Cluster installation, perform this procedure to install the packages. To install the packages, use the Sun Java Enterprise System Common Installer.

▼ How to Install the Sun Cluster HA for DNS Packages

Perform this procedure on each cluster node where you are installing the Sun Cluster HA for DNS packages.

You can run the Sun Java Enterprise System Common Installer 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.

Note – Even if you plan to configure this data service to run in non-global zones, install the packages for this data service in the global zone. The packages are propagated to any existing non-global zones and to any non-global zones that are created after you install the packages.

Before You Begin Ensure that you have the Sun Java™ Availability Suite DVD-ROM.

If you intend to run the Sun Java Enterprise System Common Installer with a GUI, ensure that your `DISPLAY` environment variable is set.

1. **On the cluster node where you are installing the data service packages, become superuser.**

2. **Load the Sun Java Availability Suite DVD-ROM into the DVD-ROM drive.**

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

3. **Change to the Sun Java Enterprise System Common Installer directory of the DVD-ROM.**

   - **If you are installing the data service packages on the SPARC® platform, type the following command:**

     ```
     # cd /cdrom/cdrom0/Solaris_sparc
     ```

   - **If you are installing the data service packages on the x86 platform, type the following command:**

     ```
     # cd /cdrom/cdrom0/Solaris_x86
     ```

4. **Start the Sun Java Enterprise System Common Installer.**

   ```
   # ./installer
   ```

5. **When you are prompted, accept the license agreement.**

   If any Sun Java Enterprise System components are installed, you are prompted to select whether to upgrade the components or install new software.

6. **From the list of Sun Cluster agents under Availability Services, select the data service for Domain Name Service (DNS).**

7 **If you require support for languages other than English, select the option to install multilingual packages.**

English language support is always installed.

8 **When prompted whether to configure the data service now or later, choose Configure Later.**

Choose Configure Later to perform the configuration after the installation.

9 **Follow the instructions on the screen to install the data service packages on the node.**

The Sun Java Enterprise System Common Installer displays the status of the installation. When the installation is complete, the wizard displays an installation summary and the installation logs.

10 **(GUI only) If you do not want to register the product and receive product updates, deselect the Product Registration option.**

The Product Registration option is not available with the CLI. If you are running the Sun Java Enterprise System Common Installer with the CLI, omit this step

11 **Exit the Sun Java Enterprise System Common Installer.**

12 **Unload the Sun Java Availability Suite DVD-ROM from the DVD-ROM drive.**

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

b. **Eject the DVD-ROM.**

```
# eject cdrom
```

Next Steps See "Registering and Configuring Sun Cluster HA for DNS" on page 14 to register Sun Cluster HA for DNS and to configure the cluster for the data service.

Registering and Configuring Sun Cluster HA for DNS

This procedure describes how to use the `clresource(1CL)` command to register and configure Sun Cluster HA for DNS.

Note – Other options also enable you to register and configure the data service. See "Tools for Data Service Resource Administration" in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* for details about these options.

Setting Sun Cluster HA for DNS Extension Properties

The sections that follow contain instructions for registering and configuring Sun Cluster HA for DNS resources. For information about the extension properties, see Appendix A. The Tunable entry indicates when you can update a property.

See Appendix B, "Standard Properties," in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* for details about all the Sun Cluster properties.

To set an extension property of a resource, include the following option in the `clresource(1CL)` command that creates or modifies the resource:

`-p` *property***=***value*

`-p` *property*
Identifies the extension property that you are setting.

value
Specifies the value to which you are setting the extension property.

You can also use the procedures in Chapter 2, "Administering Data Service Resources," in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* to configure resources after the resources are created.

▼ How to Register and Configure Sun Cluster HA for DNS

This section describes how to register and configure Sun Cluster HA for DNS.

To perform this procedure, you need the following information about your configuration.

- The name of the resource type for Sun Cluster HA for DNS. This name is `SUNW.dns`.
- The names of the cluster nodes that master the data service.
- The network resource that clients use to access the data service. You normally set up this IP address when you install the cluster. See the *Sun Cluster Concepts Guide for Solaris OS* document for details about network resources.
- The path to the DNS configuration files, which you must install on a cluster file system. This path maps to the `Config_dir` resource property that is configured in this procedure.

Note – Perform this procedure on any cluster member.

---

1 On a cluster member, become superuser or assume a role that provides `solaris.cluster.admin` RBAC authorization.

2 Disable the SMF service `/network/dns/server:default`.

Perform this step before starting any Sun Cluster HA for DNS resource.

In the event of any failure in the initial primary node or zone, failover is possible only if the Service Management Facility (SMF) service `/network/dns/server:default` is disabled. On all potential primary nodes, disable this service by running the following command.

```
# svcadm disable /network/dns/server:default
```

3 Register the resource type for the data service.

```
# clresourcetype register SUNW.dns
```

`SUNW.dns`
Specifies the predefined resource type name for your data service.

4 Create a resource group for network and DNS resources to use.

You can use the `-n` option to optionally select the set of nodes or zones on which the data service can run.

```
# clresourcegroup create [-n node-zone-list] resource-group
```

[`-n` *node-zone-list*]
Specifies a comma-separated, ordered list of zones that can master this resource group. The format of each entry in the list is *node*. In this format, *node* specifies the node name and *zone* specifies the name of a non-global Solaris zone. To specify the global zone, or to specify a node without non-global zones, specify only *node*.

This list is optional. If you omit this list, the global zone of each cluster node can master the resource group.

resource-group
Specifies the name of the resource group. This name can be your choice but must be unique for the resource groups within the cluster.

5 Add network resources to the resource group.

For example, run the following command to add a logical hostname to a resource group.

```
# clreslogicalhostname create -g resource-group -h logical-hostname [logical-hostname] \
[-N netiflist] logical-hostname
```

`-h` *logical-hostname*
Specifies a comma-separated list of network resources (logical hostname). If you require a fully qualified hostname, you must specify the fully qualified name with the `-h` option and you cannot use the fully qualified form in the resource name.

`-N` *netiflist*
Specifies an optional, comma-separated list that identifies the IP Networking Multipathing groups that are on each node or zone. The format of each entry in the list is *netif*`@`*node*. The replaceable items in this format are as follows:

netif Specifies an IPMP group name, such as `sc_ipmp0`, or a public network interface card (NIC). If you specify a public NIC, Sun Cluster attempts to create the required IPMP groups.

node Specifies the name or ID of a node. To specify the global zone, or to specify a node without non-global zones, specify only *node*.

Note – Sun Cluster does not currently support the use of the adapter name for `netif`.

---

6 Add a DNS application resource to the resource group.

```
# clresource create -g resource-group \
-t SUNW.dns -p Resource_Dependencies=network-resource,... \
-p Port_list=port-number/protocol -p DNS_mode=config-file \
-p Confdir_list=config-directory resource
```

The resource is created in the enabled state.

`-t SUNW.dns`
Specifies the name of the resource type to which this resource belongs. This entry is required.

`-p Resource_Dependencies=`*network-resource*, …
Specifies a comma-separated list of network resources (logical hostnames) that DNS will use. If you do not specify this property, the value defaults to all the network resources that are contained in the resource group.

`-p Port_list=`*port-number/protocol*
Specifies a port number and the protocol to be used. If you do not specify this property, the value defaults to `53/udp`.

`-p DNS_mode=`*config-file*
Specifies the configuration file to use, either `conf` (which specifies the file `named.conf`) or `boot` (which specifies the file `named.boot`). If you do not specify this property, the value defaults to `conf`.

`-p Confdir_list=`*config-directory*
Specifies the DNS configuration directory, which must be on the cluster file system. Sun Cluster HA for DNS requires this extension property. The 'directory' directive in the global portion (options) of the `named.conf` should match this value.

resource
Specifies the DNS application resource name.

7 Run the `clresourcegroup(1CL)` command to complete the following tasks.

- Enable the resource and fault monitoring.
- Move the resource group into a managed state.
- Bring the resource group online.

```
# clresourcegroup online -M resource-group
```

`-M`
Moves all resources within the resource group to the `MANAGED` state.

resource-group
Specifies the name of the resource group.

Example 1 Registering Failover Sun Cluster HA for DNS

The following example shows how to register Sun Cluster HA for DNS on a two-node cluster. Note that at the end, the `clresourcegroup` command starts Sun Cluster HA for DNS.

Cluster Information
Node names: phys-schost-1, phys-schost-2
Logical hostname: schost-1
Resource group: resource-group-1 (for all the resources)
Resources: schost-1 (logical hostname), dns-1 (DNS application resource)

(Disable the SMF service /network/dns/server:default.)

```
# svcadm disable /network/dns/server:default
```

(Register the DNS resource type.)

```
# clresourcetype register SUNW.dns
```

(Add the resource group to contain all the resources.)

```
# clresourcegroup create resource-group-1
```

(Add the logical hostname resource to the resource group.)

```
# clreslogicalhostname create -g resource-group-1 -h schost-1 schost-1
```

(Add DNS application resources to the resource group.)

```
# clresource create -g resource-group-1 -t SUNW.dns \
-p Resource_Dependencies=schost-1 -p Port_list=53/udp \
-p DNS_mode=conf -p Confdir_list=/global/dns dns-1
```

(Bring the failover resource group online.)

```
# clresourcegroup online -M resource-group-1
```

Verifying Data Service Installation and Configuration

To verify that you have correctly installed and configured Sun Cluster HA for DNS, run the following command after you complete the procedure "How to Register and Configure Sun Cluster HA for DNS" on page 15.

```
# nslookup logical-hostname logical-hostname
```

In this example, *logical-hostname* is the name of the network resource that you have configured to service DNS requests—for example, `schost-1`—as shown in the previous registration example. The output should indicate that the network resource that you specified answered (served) the query.

Tuning the Sun Cluster HA for DNS Fault Monitor

The Sun Cluster HA for DNS fault monitor is contained in the resource that represents DNS. You create this resource when you register and configure Sun Cluster HA for DNS. For more information, see "Registering and Configuring Sun Cluster HA for DNS" on page 14.

System properties and extension properties of this resource control the behavior of the fault monitor. The default values of these properties determine the preset behavior of the fault monitor. The preset behavior should be suitable for most Sun Cluster installations. Therefore, you should tune the Sun Cluster HA for DNS fault monitor *only* if you need to modify this preset behavior.

For more information, see the following sections.

- "Tuning Fault Monitors for Sun Cluster Data Services" in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS*
- "Changing Resource Type, Resource Group, and Resource Properties" in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS*
- Appendix B, "Standard Properties," in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS*

Operations by the Fault Monitor During a Probe

The fault monitor probe uses the `nslookup` command to query the health of DNS. Before the probe actually queries the DNS server, a check is made to confirm that network resources are configured in the same resource group as the DNS data service. If no network resources are configured, an error message is logged, and the probe exits with failure.

The result of the `nslookup` command can be either failure or success. If DNS successfully replied to the `nslookup` query, the probe returns to its infinite loop, waiting for the next probe time.

If the `nslookup` fails, the probe considers this scenario a failure of the DNS data service and records the failure in its history. The DNS probe considers every failure a complete failure.

Based on the success or failure history, a failure can cause a local restart or a data service failover. "Tuning Fault Monitors for Sun Cluster Data Services" in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* further describes this action.

◆ ◆ ◆ APPENDIX A

Sun Cluster HA for DNS Extension Properties

This section describes the extension properties for the resource type `SUNW.dns`. This resource type represents the DNS application in a Sun Cluster configuration.

For details about system-defined properties, see the `r_properties(5)` man page and the `rg_properties(5)` man page.

The extension properties of the `SUNW.dns` resource type are as follows:

`Confdir_list`
The DNS configuration directory, which contains the configuration file for a DNS instance.

Data type String

Default No default defined

Range Not applicable

Tunable At creation

`DNS_mode`
The DNS configuration file to use, either `conf` (which specifies the file `named.conf`) or `boot` (which specifies the file `named.boot`).

Data type String

Default `conf`

Range Not applicable

Tunable At creation

`Monitor_retry_count`
The number of times that the process monitor facility (PMF) restarts the fault monitor during the time window that the `Monitor_retry_interval` property specifies. This property refers to restarts of the fault monitor itself rather than to the resource. The system-defined properties `Retry_interval` and `Retry_count` control resource restarts.

Data type Integer

Default 4

Range 0 - 2,147,483,641

–1 indicates an infinite number of retry attempts.

Tunable At any time

`Monitor_retry_interval`

The time (in minutes) over which failures of the fault monitor are counted. If the number of times that the fault monitor fails exceeds the value that is specified in the extension property `Monitor_retry_count` within this period, the PMF does not restart the fault monitor.

Data type Integer

Default 2

Range 0 – 2,147,483,641

–1 indicates an infinite retry interval.

Tunable At any time

`Probe_timeout`

The timeout value (in seconds) that the fault monitor uses to probe a DNS instance.

Data type Integer

Default 120

Range 0 – 2,147,483,641

Tunable At any time

Index

C

`clnode` command, 8
commands, node information, 8
configuring, Sun Cluster HA for DNS, 15

D

DNS
  See also Sun Cluster HA for DNS
  installation
    installing software, 10
Domain Name Service
  See DNS
  See Sun Cluster HA for DNS

E

error messages, cluster, 8
extension properties, `SUNW.dns` resource type, 21-22

F

fault monitor, Sun Cluster HA for DNS, 19

G

global zone, 13

H

help, 8

I

installing
  DNS, 10
  Sun Cluster HA for DNS, 12-14

L

local zones, *See* non-global zones

M

`messages` file, 8

N

non-global zones, 13

P

packages, 12-14
`prtconf -v` command, 8
`prtdiag -v` command, 8
`psrinfo -v` command, 8

R

registering, Sun Cluster HA for DNS, 15
restrictions, zones, 13

S

`show-rev` subcommand, 8
`showrev –p` command, 8
software packages, 12-14
Sun Cluster HA for DNS
  See also DNS
  fault monitor, 19
  installation
    verifying, 18
  installing, 12-14
  registering and configuring, 15
  software packages
    installing, 12-14
  task map, 9
`SUNW.dns` resource type, extension properties, 21-22

T

task map, Sun Cluster HA for DNS, 9
technical support, 8

V

`/var/adm/messages` file, 8
verifying, Sun Cluster HA for DNS installation, 18

Z

zones, 13