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Contents

Preface

Sun Cluster Data Service for Apache Guide for Solaris OS explains how to install and configure Sun™ Cluster HA for Apache 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.

Accessing Sun Documentation Online

The docs.sun.com^{SM} Web site enables you to access Sun technical documentation online. You can browse the docs.sun.com archive or search for a specific book title or subject. The URL is `http://docs.sun.com`.

Ordering Sun Documentation

Sun Microsystems offers select product documentation in print. For a list of documents and how to order them, see "Buy printed documentation" at `http://docs.sun.com`.

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 Apache

This chapter describes the steps to install and configure Sun Cluster HA for Apache on your Sun Cluster servers.

This chapter contains the following sections.

You can configure Sun Cluster HA for Apache as a failover or a scalable 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 an overview of failover and scalable data services.

Note – You can use SunPlex™ Manager to install and configure this data service. See the SunPlex Manager online help for details.

Planning the Installation and Configuration

Before you install Sun Cluster HA for Apache, update the following information in the Apache configuration file `httpd.conf`.

Note – The location of the `httpd.conf` file varies according to installation. System administrators typically install the `httpd.conf` file on the cluster file system. The default installation places the `httpd.conf` file in the `/usr/local/apache/conf` directory. When installing Apache packages bundled with Solaris, the file is located in the `/etc/apache` directory.

- **The `ServerName` directive that contains the hostname –** For Sun Cluster HA for Apache to be highly available, you must set this directive to the name of the network address (logical hostname or shared address) that is used to access the server. You should have set up the logical hostname or shared address when you installed the cluster. See the *Sun Cluster Concepts Guide for Solaris OS* document for details on network resources.
- **The `BindAddress` directive, which you must set to the logical host or shared address –** You can configure Apache to bind to `INADDR_ANY`. However, each resource must bind to a unique combination of network resource and port number. For example, if you run multiple resources, you can use `INADDR_ANY` provided that the port number for each resource is different.
- **The `ServerType` directive –** This directive must be set to `standalone`, the default.
- **Multiple instances of Apache –** If you have multiple instances of Apache, you must manage each instance with a separate resource. Furthermore, each separate resource must have a unique `Bin_dir` setting. Under the specified `Bin_dir` property that starts the particular instance of Apache, an `apachect1` script must exist.

  Note – Different Apache resources can share the same `httpd` binary, that is, the `apachect1` scripts for different resources can specify the path to the same `httpd` binary. However, you must modify each `apachect1` script to use a different configuration file for specific Apache resources. To do so, use the `-f` option of the `httpd` command to specify a specific `httpd.conf` file.

- **The `DocumentRoot` directive that specifies the location of the documentation root directory –** This directive is a pointer to a location on the cluster file system, where the HTML documents are installed.
- **The `ScriptAlias` directive that contains the location on a cluster file system of the `cgi-bin` directory –** This directive is a pointer to a location on the cluster file system, where the `cgi-bin` files are installed.

Note – You must follow certain conventions when you configure URL mappings for the Web server. For example, when setting the CGI directory, locate the CGI directory on the cluster file system to preserve availability. For example, you might map your CGI directory to `/global/`*diskgroup*`/`*ServerRoot*`/cgi-bin`, where *diskgroup* is the disk device group that contains the Apache software. In situations where the CGI programs access "back-end" servers, such as an RDBMS, ensure that the Sun Cluster software controls the "back-end" server. If the server is an RDBMS that the Sun Cluster software supports, use one of the highly available RDBMS packages. Alternatively, you can use the APIs that the *Sun Cluster Data Services Developer's Guide for Solaris OS* documents to put the server under Sun Cluster control.

- **The lock file –** If you use a lock file, set the value of the `LockFile` directive in your `httpd.conf` file to a local file.
- The `PidFile` **directive –** Point this directive to a local file, as in the following example.

  ```
  PidFile /usr/local/apache/log/httpd.pid
  ```

- **The** `Port` **directive setting that the server port or ports access –** The defaults are set in each node's `httpd.conf` file. The `Port_list` resource property must include all of the ports that the `httpd.conf` files specify.

  The `Port_list` property assumes that the Web server serves all combinations of ports and IP addresses from the network resources as defined in the `Network_resources_used` property.

  ```
  Port_list="80/tcp,443/tcp,8080/tcp"
  ```

  The preceding `Port_list` configuration, for example, probes the following IP-port combinations.

Host	Port	Protocol
node1	`80`	`tcp`
node1	`443`	`tcp`
node1	`8080`	`tcp`
node2	`80`	`tcp`
node2	`443`	`tcp`
node2	`8080`	`tcp`

  However, if *node1* serves ports `80` and `443` only and *node2* serves ports `80` and `8080` only, you can configure the `Port_list` property for Apache as follows.

  `Port_list=`*node1*`/80/tcp,`*node1*`/443/tcp,`*node2*`/80/tcp,`*node2*`/8080/tcp`

Consider the following rules.

- You must specify hostnames or IP addresses (not network resource names) for *node1* and *node2*.
- If Apache serves *nodeN*/*port* for every *nodeN* in the `Network_resources_used` property, you can use a short form to replace the combination of *node1*/*port1*, *node2*/*port2*, and so on. See the following examples.

  Example One

  ```
  Port_list="80/tcp,node1/443/tcp,node2/8080/tcp"
  Network_resources_used=node1,node2
  ```

  This example probes the following IP-port combinations.

Host	Port	Protocol
node1	`80`	`tcp`
node1	`443`	`tcp`
node2	`80`	`tcp`
node2	`8080`	`tcp`

  Example Two

  ```
  Port_list="node1/80/tcp,node2/80/tcp"
  Network_resources_used=net-1,net-2
  #net-1 contains node1.
  #net-2 contains node2 and node3.
  ```

  This example probes the following IP-port combinations.

Host	Port	Protocol
node1	`80`	`tcp`
node2	`80`	`tcp`

- All of the hostnames (IP addresses) that the `Port_list` property specifies must not belong to a network resource that is specified in any other scalable resource's `Network_resources_used` property. Otherwise, as soon as a scalable service detects that another scalable resource already uses an IP address, creation of the Apache resource fails.

Note – If you run Sun Cluster HA for Apache and another HTTP server, configure the HTTP servers to listen on different ports. Otherwise, a port conflict can occur between the two servers.

To register and configure Sun Cluster HA for Apache, you must consider or provide information on the following points.

- Decide whether to run Sun Cluster HA for Apache as a failover or scalable data service.
- Decide whether to install a secure or non-secure version of the apache webserver.
- Decide which fault monitoring resource properties to set. In most cases, the default values suffice. See *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* for information about the standard properties and Appendix A for information about the extension properties.
- Provide the name of the resource type for Sun Cluster HA for Apache. This name is `SUNW.apache`.
- Provide the names of the cluster nodes that will master the data service.
- Provide the logical hostname (failover services) or shared address (scalable services) that clients use to access the data service. You typically set up this IP address when you install the cluster. See the *Sun Cluster Concepts Guide for Solaris OS* document for details on network resources.
- Provide the path to the application binaries. You can install the binaries on the local disks or on the cluster file system. See "Configuration Guidelines for Sun Cluster Data Services" in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* for a discussion of the advantages and disadvantages of each location.
- Modify each copy of `apachect1` to use the appropriate `httpd.conf` configuration file.
- Exercise caution when you change the `Load_balancing_weights` property for an online scalable service that has the `Load_balancing_policy` property set to `LB_STICKY` or `LB_STICKY_WILD`. Changing these properties while the service is online can cause existing client affinities to be reset, hence a different node might service a subsequent client request even if another cluster member previously serviced the client.

  Similarly, when a new instance of the service is started on a cluster, existing client affinities might be reset.
- Determine the entry for the `Port_list` property. The `Port_list` property can have multiple entries. See "How to Register and Configure Sun Cluster HA for Apache" on page 28 for details.
- Determine whether to utilize the `Monitor_Uri_List` extension property. This extension property enables you to monitor an arbitrary list of URIs. Arbitrary monitoring of URIs is beneficial if you require the Sun Cluster HA for Apache agent probe to monitor any applications (URIs) deployed on the Sun Cluster HA for