



Sun Cluster Data Service for SWIFTAlliance Access Guide for Solaris OS

SPARC Platform Edition



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

Part No: 820-2576-10
February 2008, Revision A

Copyright 2008 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 2008 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 États-Unis et dans d'autres pays.

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

Certains composants de ce produit peuvent être dérivés du logiciel Berkeley BSD, licenciés par l'Université de Californie. UNIX est une marque déposée aux États-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 États-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 États-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 législation 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 États-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 législation américaine en matière de contrôle des exportations et la liste de ressortissants spécifiquement désignés, 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.

Contents

Preface	5
Installing and Configuring Sun Cluster HA for SWIFTAlliance Access	9
Overview of Installing and Configuring Sun Cluster HA for SWIFTAlliance Access	9
Sun Cluster HA for SWIFTAlliance Access Overview	10
Planning the Sun Cluster HA for SWIFTAlliance Access Installation and Configuration	11
Configuration Restrictions	11
Configuration Requirements	12
Installing and Configuring SWIFTAlliance Access	13
▼ How to Install and Configure SWIFTAlliance Access	13
Verifying the Installation and Configuration of SWIFTAlliance Access	17
▼ How to Verify the Installation and Configuration of SWIFTAlliance Access	17
Installing the Sun Cluster HA for SWIFTAlliance Access Packages	18
▼ How to Install the Sun Cluster HA for SWIFTAlliance Access Packages	18
Registering and Configuring Sun Cluster HA for SWIFTAlliance Access	20
▼ How to Register and Configure Sun Cluster HA for SWIFTAlliance Access as a Failover Service	20
Verifying the Sun Cluster HA for SWIFTAlliance Access Installation and Configuration	21
▼ How to Verify the Sun Cluster HA for SWIFTAlliance Access Installation and Configuration	22
Understanding the Sun Cluster HA for SWIFTAlliance Access Fault Monitor	22
Resource Properties	22
Probing Algorithm and Functionality	23
Debugging Sun Cluster HA for SWIFTAlliance Access	23
▼ How to turn on debugging for Sun Cluster HA for SWIFTAlliance Access	23
Index	25

Preface

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

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.

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 <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name% you have mail.</code>
AaBbCc123	What you type, contrasted with onscreen computer output	<code>machine_name% su</code> Password:
<i>aabbcc123</i>	Placeholder: replace with a real name or value	The command to remove a file is <code>rm filename</code> .
<i>AaBbCc123</i>	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . A <i>cache</i> is a copy that is stored locally. Do <i>not</i> 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	<code>machine_name%</code>
C shell for superuser	<code>machine_name#</code>
Bourne shell and Korn shell	<code>\$</code>
Bourne shell and Korn shell for superuser	<code>#</code>

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	<i>Sun Cluster Data Services Planning and Administration Guide for Solaris OS</i> Individual data service guides
Concepts	<i>Sun Cluster Concepts Guide for Solaris OS</i>
Overview	<i>Sun Cluster Overview for Solaris OS</i>
Software installation	<i>Sun Cluster Software Installation Guide for Solaris OS</i>
System administration	<i>Sun Cluster System Administration Guide for Solaris OS</i>
Hardware administration	<i>Sun Cluster 3.1 - 3.2 Hardware Administration Manual for Solaris OS</i> Individual hardware administration guides
Data service development	<i>Sun Cluster Data Services Developer's Guide for Solaris OS</i>
Error messages	<i>Sun Cluster Error Messages Guide for Solaris OS</i>
Command and function reference	<i>Sun Cluster Reference Manual for Solaris OS</i>

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 \(http://www.sun.com/documentation/\)](http://www.sun.com/documentation/)
- [Support \(http://www.sun.com/support/\)](http://www.sun.com/support/)
- [Training \(http://www.sun.com/training/\)](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
<code>prtconf -v</code>	Displays the size of the system memory and reports information about peripheral devices
<code>psrinfo -v</code>	Displays information about processors
<code>showrev -p</code>	Reports which patches are installed
<code>prtdiag -v</code>	Displays system diagnostic information
<code>/usr/cluster/bin/clnode show-rev</code>	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 SWIFTAlliance Access

This Chapter explains how to install and configure Sun Cluster HA for SWIFTAlliance Access.

This Chapter contains the following sections.

- “Overview of Installing and Configuring Sun Cluster HA for SWIFTAlliance Access” on page 9
- “Sun Cluster HA for SWIFTAlliance Access Overview” on page 10
- “Planning the Sun Cluster HA for SWIFTAlliance Access Installation and Configuration” on page 11
- “Installing and Configuring SWIFTAlliance Access” on page 13
- “Verifying the Installation and Configuration of SWIFTAlliance Access” on page 17
- “Installing the Sun Cluster HA for SWIFTAlliance Access Packages” on page 18
- “Registering and Configuring Sun Cluster HA for SWIFTAlliance Access” on page 20
- “Verifying the Sun Cluster HA for SWIFTAlliance Access Installation and Configuration” on page 21
- “Understanding the Sun Cluster HA for SWIFTAlliance Access Fault Monitor” on page 22
- “Debugging Sun Cluster HA for SWIFTAlliance Access” on page 23

Overview of Installing and Configuring Sun Cluster HA for SWIFTAlliance Access

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

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

Task	For Instructions, Go To
1. Plan the installation.	“Planning the Sun Cluster HA for SWIFTAlliance Access Installation and Configuration” on page 11
2. Install Sun Cluster HA for SWIFTAlliance Access Packages.	“How to Install and Configure SWIFTAlliance Access” on page 13
3. Verify installation and configuration.	“Verifying the Installation and Configuration of SWIFTAlliance Access” on page 17
4. Register and Configure Sun Cluster HA for SWIFTAlliance Access.	“Registering and Configuring Sun Cluster HA for SWIFTAlliance Access” on page 20
5. Verify Sun Cluster HA for SWIFTAlliance Access Installation and Configuration.	“Verifying the Sun Cluster HA for SWIFTAlliance Access Installation and Configuration” on page 21
6. Understand Sun Cluster HA for SWIFTAlliance Access fault monitor.	“Understanding the Sun Cluster HA for SWIFTAlliance Access Fault Monitor” on page 22
7. Debug Sun Cluster HA for SWIFTAlliance Access.	“Debugging Sun Cluster HA for SWIFTAlliance Access” on page 23

Sun Cluster HA for SWIFTAlliance Access Overview

The HA agent is written to work with SWIFTAlliance Access versions 5.5, 5.9, and 6.0. IBM DCE version 3.2 is not used anymore by SWIFTAlliance Access 5.9 and later, and must only be installed for SWIFTAlliance Access 5.5. SWIFTAlliance Access™ is a trademark of SWIFT.

The Sun Cluster HA for SWIFTAlliance Access data service provides a mechanism for orderly startup, shutdown, fault monitoring, and automatic failover of the Sun Cluster service. The Sun Cluster components protected by the Sun Cluster HA for SWIFTAlliance Access data service are the following.

TABLE 2 Protection of Components

Component	Protected by
DCE daemon	Sun Cluster HA for SWIFTAlliance Access (version 5.5 only)
SWIFT Alliance Access	Sun Cluster HA for SWIFTAlliance Access

Note – By default the HA agent provides a fault monitor for the DCE component only when using the SWIFTAlliance Access 5.5. The fault monitoring for SWIFTAlliance Access is switched off by default. If the SWIFTAlliance Access application fails, the agent will not restart the SWIFTAlliance Access application automatically. This behavior was explicitly requested by SWIFT. It will enable you to operate the application in a way that the probe does not interfere with the normal behavior of some SWIFTAlliance Access features like:

- operator manually triggering the SWIFTAlliance Access restart function , for example, to run SWIFTAlliance Access in housekeeping mode.
- automatic or scheduled SWIFTAlliance Access restart, for example, to run database backup and other maintenance or end-of-day processes.
- any graceful SWIFTAlliance Access restart or recovery, in case of a SWIFTAlliance Access transient local error.

The HA agent provides the start, stop, takeover, and switchover functionality. This means that when a node fails, the other node will automatically start the SWIFTAlliance Access application. The HA agent also provides an option to turn on fault monitoring for SWIFTAlliance Access at registration time. However, this option is not recommended by SWIFT.

Planning the Sun Cluster HA for SWIFTAlliance Access Installation and Configuration

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

Configuration Restrictions

This section provides a list of software and hardware configuration restrictions that apply to Sun Cluster HA for SWIFTAlliance Access only.



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

- You can configure the Sun Cluster HA for SWIFTAlliance Access *only as a HA agent and not as a scalable agent*.
- You can install the SWIFTAlliance Access software on a global file system. Best practice is to use a failover file system. For SWIFTAlliance Access 5.5, you must install the IBM DCE software on local storage.

- Only one SWIFTAlliance Access instance is supported by this agent.

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

Configuration Requirements

These requirements apply to Sun Cluster HA for SWIFTAlliance Access only. You must meet these requirements before you proceed with your Sun Cluster HA for SWIFTAlliance Access installation and configuration. Follow the SWIFTAlliance Access installation guide for the installation of the mandatory patch levels and the installation of the software.



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

Sun Cluster components and their dependencies

Configure the Sun Cluster HA for SWIFTAlliance Access data service to protect a Sun Cluster instance and its respective components. These components, and their dependencies, are briefly described next.

Component	Description
DCE daemon	→ <i>SUNW.LogicalHost</i> resource
SWIFTAlliance Access	→ <i>SUNW.LogicalHost</i> resource → <i>SUNW.HAStoragePlus</i> resource The <i>SUNW.HAStoragePlus</i> resource manages the SWIFTAlliance Access System Mount points and ensures that Sun Cluster is not started until these are mounted. → <i>DCE daemon</i> (version 5.5 only)

The Sun Cluster component has two configuration and registration files in the `/opt/SUNWscsaa/util` directory. These files enable you to register the Sun Cluster component with Sun Cluster.

Within these files, the appropriate dependencies have already been defined. You must update the `saa_config` file before you run the `saa_register` script.

Installing and Configuring SWIFTAlliance Access

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

Throughout the following sections, references will be made to some user-accessible directories for SWIFTAlliance Access.

Note – Sun Cluster HA for SWIFTAlliance Access can be configured to run in a whole root or a sparse root non-global zone for SWIFTAlliance Access version 6.0, if required.

▼ How to Install and Configure SWIFTAlliance Access

Use this procedure to install and configure SWIFTAlliance Access.

Note – IBM DCE client software is a prerequisite for SWIFTAlliance Access version 5.5. The client software must be installed and configured before the SWIFTAlliance Access application.

1 Create the resources for SWIFTAlliance Access.

- **Create a resource group for SWIFTAlliance Access.**

```
# clresourcegroup create [-n node-zone-list] swift-rg
```

```
-n node-zone-list
```

Specifies a comma-separated, ordered list of zones that can master the 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.

- **Create a logical host.**

Add the hostname and IP address in the `/etc/inet/hosts` file on all cluster nodes or zones that can master the resource group. Register the logical host and add it to the resource group.

```
# clreslogicalhostname create -g swift-rg -l swift-lh swift-saa-lh-rs
```

- **Create the device group and file system.**

See *Sun Cluster Data Services Installation and Configuration Guide* for instructions on how to create global file systems.

- **Create an HAStoragePlus resource.**

Although you can use global file system, it is recommended to create a HAStoragePlus failover resource to contain the SWIFTAlliance Access application and configuration data.

In the example, we use `/global/saadg/alliance` as the path, but you can choose the location.

```
# clresource create -g swift-rg \
-t SUNW.HASStoragePlus \
-x FilesystemMountPoints=/global/saadg/alliance swift-ds
```

- **Bring the resource group online.**

```
# clresouregroup online -M swift-rg
```

- **Create configuration directory** —This directory contains SWIFTAlliance Access information and creates a link from the `/usr`.

```
# cd /global/saadg/alliance
```

```
# mkdir swa
```

```
# ln -s /global/saadg/alliance/swa /usr/swa
```

Note – For Solaris 10 only: if you install SWIFTAlliance Access in a sparse root zone, that is the `/usr` directory is inherited in read-only mode through a loopback mount, the link needs to be created within the global zone.

2 Install IBM DCE client software on all cluster nodes or zones that can master the resource group.



Caution – This step is valid only for SWIFTAlliance Access versions prior to 5.9 and should only be installed when needed.

Skip this step if you are using SWIFTAlliance Access version 5.9 or 6.0.

- **Install IBM DCE client software on all cluster nodes or zones that can master the resource group** Use local disks to install this application. The software comes in Sun package format (`IDCEclnt`). Because the installed files will reside at various locations on your system, it is not practical to have this installed on global file systems. Install this application on both cluster nodes.

```
# pkgadd -d ./IDCEclnt.pkg
```

- **Configure DCE client RPC.**

```
# /opt/dcelocal/tcl/config.dce -cell_name swift -dce_hostname swift-lh RPC
```

- **Test DCE.**

Run the tests on all cluster nodes or zones that can master the resource group.

```
# /opt/dcelocal/tcl/start.dce
```

Verify that the dced daemon is running.

```
# /opt/dceLocal/tcl/stop.dce
```

3 Install SWIFTAlliance Access software.

Perform the following steps on all cluster nodes or zones that can master the resource group.

- Create the users `all_adm`, `all_usr` and the group `alliance` on all cluster nodes or zones that can master the resource group with the same user ID and group ID.

```
# groupadd -g groupid alliance
```

```
# useradd -m -g alliance -d /export/home/all_adm -s /usr/bin/ksh all_adm
```

```
# useradd -m -g alliance -d /export/home/all_usr -s /usr/bin/ksh all_usr
```

- On Solaris 10: Create a project called `swift` and assign the users `all_adm` and `all_usr` to it.

```
# projadd -U all_adm,all_usr swift
```

- On Solaris 10: Set the values of the resource controls for the project `swift`:

```
# projmod -s -K "project.max-sem-ids=(privileged,128,deny)" swift
```

```
# projmod -s -K "project.max-sem-nsems=(privileged,512,deny)" swift
```

```
# projmod -s -K "project.max-sem-ops=(privileged,512,deny)" swift
```

```
# projmod -s -K "project.max-shm-memory=(privileged,4294967295,deny)" swift
```

```
# projmod -s -K "project.max-shm-ids=(privileged,128,deny)" swift
```

```
# projmod -s -K "project.max-msg-qbytes=(privileged,4194304,deny)" swift
```

```
# projmod -s -K "project.max-msg-ids=(privileged,500,deny)" swift
```

```
# projmod -s -K "project.max-sem-messages=(privileged,8192,deny)" swift
```

The previous values are examples only. For more accurate values refer to the latest SWIFT documentation release notes.

- On Solaris 10: Assign the project `swift` as the default project for `all_adm` and `all_usr` by editing the file `/etc/user_attr` and adding the following two lines at the end of the file:

```
all_adm:::project=swift
```

```
all_usr:::project=swift
```

- For versions prior to Solaris 10, refer the latest SWIFT documentation and release notes to determine the necessary setup for `/etc/system`.

Use the shared storage configured in [Step 1](#) for the installation of this application. The installation procedure will modify system files and might also reboot the system. After the reboot, you must continue with the installation on the same node or zone. Ensure that the resource group is online on this node or zone. Repeat the installation of the software on the other node or zone that can master the resource group, but you must end the installation before the SWIFTAlliance Access software licensing step.

4 Continue configuring SWIFTAlliance Access.

To enable clients to connect to the failover IP address, create a file named `.alliance_ip_name` (`interfaces.rpc` in versions 5.9 and 6.0) on the data subdirectory of the SWIFTAlliance Access software.

When you are using the same file system as shown in the examples, this directory will be `/global/saadg/alliance/data`. This file must contain the IP address of the logical host as configured within the SWIFTAlliance Access resource group.

```
# cd /global/saadg/alliance/data
```

```
# chown all_admin:alliance interfaces.rpc
```

If MESSENGER is licensed, create a file called `interfaces.mas` and add the cluster logical IP address used to communicate with SAM.

```
# cd /global/saadg/alliance/data
```

```
# chown all_admin:alliance interfaces.mas
```

5 Add a symbolic link and entries.

- Add the symbolic link `/usr/swa` on all cluster nodes or zones that can master the resource group, see [Step 1](#) last bullet.
- Entries in `/etc/services` has to be added on all cluster nodes or zones that can master the resource group. This can be done as root by running the `/usr/swa/apply_alliance_ports` script.
- The `rc.alliance` and `rc.swa_boot` scripts (`swa_rpcd` in SWIFTAlliance Access versions prior to 5.9) in `/etc/init.d` must remain in place. Any references to these files in `/etc/rc?.d` need to be removed, the access rights must be as follows:

```
# cd /etc/init.d
```

```
# chmod 750 rc.alliance rc.swa_boot
```

```
# chown root:sys rc.alliance rc.swa_boot
```

If the SWIFTAlliance Access Installer displays “Start this SWIFTAlliance at Boottime”, choose **No**.

You must copy the `rc.alliance` and `rc.swa_boot` scripts to all other cluster nodes or zones that can master the resource group:

```
# scp rc.alliance rc.swa_boot node2:/etc/init.d
```

6 Install SWIFTAlliance Access Remote API (RA)

- Install RA after SWIFTAlliance Access on shared storage using the following options:
Instance RA1 (default), user `all_admin`
- Copy all files in the home directory of the `all_admin` and `all_usr` user to all cluster nodes or zones that can master the resource group.

Verifying the Installation and Configuration of SWIFTAlliance Access

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

▼ How to Verify the Installation and Configuration of SWIFTAlliance Access

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

1 Start the SWIFTAlliance Access application.

For SWIFTAlliance Access versions other than SWIFTAlliance Access version 5.5, type:

```
# su - all_admin
```

For SWIFTAlliance Access version 5.5, choose Alliance —> Start SWIFTAlliance Servers.

Note – If DCE does not start, choose GUI: OS Configuration —> DCE RPC.

2 Test the application.

a. Start the SWIFTAlliance Access application.

b. Choose Alliance —> Start User Interface.

3 Stop the SWIFTAlliance Access application.

Start the GUI:

```
# su - all_admin
```

Choose the menu: Alliance —> Stop SWIFTAlliance Servers.

Installing the Sun Cluster HA for SWIFTAlliance Access Packages

If you did not install the Sun Cluster HA for SWIFTAlliance Access packages during your initial Sun Cluster installation, perform this procedure to install the packages. To install the packages, use the Sun Java™ Enterprise System Installation Wizard.

▼ How to Install the Sun Cluster HA for SWIFTAlliance Access Packages

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

You can run the Sun Java Enterprise System Installation Wizard 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 Installation Wizard 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 `volfd(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 Installation Wizard 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
```
- 4 **Start the Sun Java Enterprise System Installation Wizard.**

```
# ./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 in Availability Services, select the data service for SWIFTAlliance Access.**
- 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 Installation Wizard 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 Installation Wizard with the CLI, omit this step.
- 11 **Exit the Sun Java Enterprise System Installation Wizard.**
- 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 Go to “[Registering and Configuring Sun Cluster HA for SWIFTAlliance Access](#)” on page 20

Registering and Configuring Sun Cluster HA for SWIFTAlliance Access

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

▼ How to Register and Configure Sun Cluster HA for SWIFTAlliance Access as a Failover Service

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

Steps 1 to 6 will normally already be done in order to prepare for the installation of the IBM DCE and SWIFTAlliance Access software. See “[How to Install and Configure SWIFTAlliance Access](#)” on page 13. Typically, you should go directly to step 7.

1 Become superuser on one of the nodes in the cluster that will host Sun Cluster.

2 Register the SUNW.gds resource type.

```
# clresourcetype register SUNW.gds
```

3 Register the SUNW.HAStoragePlus resource type.

```
# clresourcetype register SUNW.HAStoragePlus
```

4 Create a failover resource group .

```
# clresourcegroup create [-n node-zone-list] swift-rg
```

`-n node-zone-list` Specifies a comma-separated, ordered list of zones that can master the 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.

5 Create a resource for the Sun Cluster Disk Storage.

```
# clresource create -g swift-rg \  
-t SUNW.HAStoragePlus \  
-x FilesystemMountPoints=/global/saadg/alliance swift-ds
```

6 Create a resource for the Sun Cluster Logical Hostname.

```
# clreslogicalhostname create -g swift-rg\  
-h swift-lh swift-lh-rs
```

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

```
# clresourcegroup online -M swift-rg
```

8 Create a resource for SWIFTAlliance Access.

a. Before running this script, check that the names of the resources match what is configured in `/opt/SUNWscsaa/util/saa_config`.

```
# /opt/SUNWscsaa/util/saa_register
```

b. Run the registration script provided as part of the SWIFTAlliance Access HA agent.

9 Start the SWIFTAlliance Access instance manually.

```
su - all_admin
```

The GUI will open up. From within the GUI, select the menu Alliance - Start Alliance Servers

10 Stop the SWIFTAlliance Access manually.

```
su - all_admin
```

The GUI will come up. Stop the application from within the GUI.

11 Enable each Sun Cluster resource.

```
# clresourcegroup status -g swift-rg  
# clresource enable swift-saa-rs
```

Verifying the Sun Cluster HA for SWIFTAlliance Access 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 SWIFTAlliance Access Installation and Configuration

1 Become superuser on one of the nodes in the cluster that will host Sun Cluster.

2 Ensure all the Sun Cluster resources are online with `cluster status`.

```
# cluster status
```

For each Sun Cluster resource that is not online, use the `cl resource` command as follows.

```
# clresource enable resource-name
```

3 Run the `cl resourcegroup` command to switch the Sun Cluster resource group to another cluster node, such as `node2`.

```
# clresourcegroup switch swift-rg -h node2
```

4 Check that SWIFTAlliance Access is stopped on the first node and that the application is restarted on the second node.

When using a failover file system, this should disappear on the first node and will be mounted on the second node.

Understanding the Sun Cluster HA for SWIFTAlliance Access Fault Monitor

This section describes the Sun Cluster HA for SWIFTAlliance Access fault monitor's probing algorithm or functionality, and 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

The Sun Cluster HA for SWIFTAlliance Access 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

By default, the HA agent provides a fault monitor for the DCE component only when using SWIFTAlliance Access 5.5. The fault monitoring for SWIFTAlliance Access is switched off by default. If the SWIFTAlliance Access application fails, the agent will not restart the SWIFTAlliance Access application automatically. This behavior was explicitly requested by SWIFT. It will enable you to operate the application in a way that the probe does not interfere with the normal behavior of some SWIFTAlliance Access features like:

- operator manually triggering the SWIFTAlliance Access restart function , for example, to run SWIFTAlliance Access in housekeeping mode.
- automatic or scheduled SWIFTAlliance Access restart, for example, to run database backup and other maintenance or end-of-day processes.
- any graceful SWIFTAlliance Access restart or recovery, in case of a SWIFTAlliance Access transient local error.

The HA agent will update the resource status message to output Degraded - SAA Instance offLine.

If an automatic failover occurs with default setting, it is most likely that there was a DCE problem. The SWIFTAlliance Access application will cause a failover only when it does not start on the current node.

The HA agent provides an option to turn on fault monitoring for SWIFTAlliance Access at registration time. However, this option is not recommended by SWIFT. The optional probing checks for the existence of the SWIFTAlliance Access instance by calling the `alliance` command that is part of the application and by evaluating its return code. If the SWIFTAlliance Access instance is not running, return code 100 is sent to `SUNW.gds`, which in turn will perform an automatic restart depending on the configuration of the resource properties.

Debugging Sun Cluster HA for SWIFTAlliance Access

▼ How to turn on debugging for Sun Cluster HA for SWIFTAlliance Access

Each Sun Cluster component has a `DEBUG` file in `/opt/SUNWcsaa/etc` directory, where `saa` is a three-character abbreviation for the respective Sun Cluster component.

These files enable you to turn on debugging for all Sun Cluster instances or for a specific Sun Cluster instance on a particular node with Sun Cluster. If you require debugging to be turned

on for Sun Cluster HA for SWIFTAlliance Access across the entire Sun Cluster installation, repeat this step on all nodes or zones that can master the resource group.

1 Edit /etc/syslog.conf

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 following output, 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/SUNWscsaa/etc/config

Change `DEBUG=` to `DEBUG=ALL` or `DEBUG=resource`

```
# cat /opt/SUNWscsaa/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 debugging, reverse the previous steps.

Index

C

- clnode command, 8
- commands
 - clresource, 22
 - clresourcegroup, 21
 - clresourcetype, 20
 - cluster status, 22
 - node information, 8

Configuration

- directory for SAA, 14
- Registering Sun Cluster HA for SWIFTAlliance Access, 20-21
- Requirements, 12
- Restrictions, 11-12
- SWIFTAlliance Access, 13-17
- Verify, 17-18

Configure, DCE, 14

D

Debugging, How to turn on, 23-24

E

error messages, cluster, 8

F

Fault Monitor

- Probing Algorithm and Functionality in, 23

Fault Monitor (*Continued*)

- Resource Properties, 22
- Understanding, 22-23

G

global zone, 18

H

help, 8

I

Install

- DCE, 14
- SWIFTAlliance Access, 13-17

installing, Sun Cluster HA for SWIFTAlliance Access, 18-20

L

local zones, *See* non-global zones

M

messages file, 8

N

non-global zones, 18

P

packages, 18-20
prtconf -v command, 8
prtdiag -v command, 8
psrinfo -v command, 8

R

Resource
 logical host, 21
 SUNW.HAStoragePlus, 20
 SWIFTAlliance Access, 21
Resource Group, 13, 20
 logical host, 13
Resource Types
 SUNW.gds, 20
 SUNW.HAStoragePlus, 20
restrictions, zones, 18

S

show - rev subcommand, 8
showrev -p command, 8
software packages, 18-20
Sun Cluster HA for SWIFTAlliance Access
 installing, 18-20
 software packages
 installing, 18-20

T

technical support, 8
Test, DCE, 14

V

/var/adm/messages file, 8

Z

zones, 18