



Sun™ Cluster 3.0 U1 Release Notes

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Part No. 806-7078-10
July 2001, Revision A

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Sun Cluster 3.0 U1 Release Notes

This document provides the following information for Sun™ Cluster 3.0 Update 1 (U1).

- [New Features and Functionality](#)
- [Supported Products](#)
- [Features Nearing End of Life](#)
- [Sun Cluster AnswerBooks Installation](#)
- [PDF Files](#)
- [Restrictions](#)
- [Patches and Required Firmware Levels](#)
- [Sun Management Center Software Upgrade](#)
- [System Administration and Procedure Updates](#)
- [Known Problems](#)
- [Known SunPlex Manager Problems](#)

The appendices to this document include installation planning worksheets and examples for planning the Sun Cluster 3.0 U1 software and data services installation.

New Features and Functionality

The following table lists new features and functionality that require updates to the Sun Cluster documentation. The second column identifies the documentation that was updated. Contact your Sun sales representative for the complete list of supported hardware and software.

TABLE 0-1 New Features

Feature or Functionality	Documentation Updates
SunPlex™ Manager GUI	Extensive online help is supplied with the GUI.
Accessibility Features in the SunPlex Manager GUI	SunPlex Manager supports third-party accessibility software when run through an accessible browser, such as Internet Explorer 5. Accessibility features include text-based menus, keyboard navigation, and text-based alternatives to information presented pictorially. See <i>Sun Cluster 3.0 U1 System Administration Guide</i> for more information about accessibility features in the SunPlex Manager.
Sun Cluster HA for SAP data service NOTE: You must install Sun Cluster 3.0 Update 1 software before you can run Sun Cluster HA for SAP. It will not run under the Sun Cluster 3.0 GA release.	<ul style="list-style-type: none">• A new chapter has been added to the <i>Sun Cluster 3.0 U1 Data Services Installation and Configuration Guide</i> to describe installation and configuration.• A new section has been added to the chapter “Understanding Data Service Fault Monitors” to describe the Sun Cluster HA for SAP fault monitor.• Two new man pages, <code>SUNW.sap_as(5)</code>, and <code>SUNW.sap_ci(5)</code>, have been added to describe the Sun Cluster HA for SAP resource properties.
Sun Cluster HA for Sybase ASE data service NOTE: Although the Sun Cluster software is capable of running in 32-bit and 64-bit modes, the Sun Cluster HA for Sybase ASE data service is only capable of running in 32-bit mode.	<ul style="list-style-type: none">• A new chapter has been added to the <i>Sun Cluster 3.0 U1 Data Services Installation and Configuration Guide</i> to describe installation and configuration.• A new section has been added to the chapter “Understanding Data Service Fault Monitors” to describe the Sun Cluster HA for Sybase ASE fault monitor.• A new man page, <code>SUNW.sybase_ase(5)</code> has been added to describe the Sun Cluster HA for Sybase ASE resource properties.

TABLE 0-1 New Features *(Continued)*

Feature or Functionality	Documentation Updates
Enhancements to the <code>scsetup</code> utility for resources and resource groups	The <i>Sun Cluster 3.0 U1 Data Services Installation and Configuration Guide</i> has been updated to include <code>scsetup</code> as an interface for RGM updates within data service installation and configuration procedures.
SunPlex Agent Builder	The <i>Sun Cluster 3.0 U1 Data Services Developer's Kit</i> describes this wizard for creating new data services. There are also three new man pages describing the feature: <code>scdsbuilder(1HA)</code> , <code>scdsconfig(1HA)</code> , and <code>scdscreate(1HA)</code> .
Data Service Enabling Technologies	The <i>Sun Cluster 3.0 U1 Data Services Developer's Kit</i> describes this new application development interface.
<code>scvxinstall(1M)</code> script	This new script simplifies the process of configuring VERITAS Volume Manager in a SunPlex system. This script is documented in the <i>Sun Cluster 3.0 U1 Installation Guide</i> and the <code>scvxinstall(1M)</code> man page.
Sun StorEdge A3500FC system	The Sun StorEdge A3x00 chapter in the <i>Sun Cluster 3.0 U1 Hardware Guide</i> has been updated to include installation, configuration, and maintenance procedures for the A3500FC system.
Sun StorEdge T3 Array - single brick configuration	A new chapter on Sun StorEdge T3 Array - single brick configuration has been added to the <i>Sun Cluster 3.0 U1 Hardware Guide</i> to describe the installation, configuration, and maintenance procedures for this new storage configuration.
Solaris Resource Manager 1.2 coexistence	This coexistence is described in "Installing and Configuring Solaris Resource Manager with Sun Cluster 3.0 Updates". This document is available in the Solaris Resource Manager 1.2 AnswerBook2 Collection at http://docs.sun.com .
Sun Management Center 3.0	New documentation is included in " Sun Management Center Software Upgrade " on page 17 and " Sun Management Center GUI " on page 20 in this document.

Notes on New Features and Functionality

This section includes additional information on new features and functionality.

SunPlex Manager

SunPlex Manager is a web-based GUI interface for installing, configuring, and managing the SunPlex system. SunPlex Manager can be used to install and configure all of the software needed to run a Sun Cluster 3.0 configuration. The GUI functionality is documented in the online help included with SunPlex Manager.

SunPlex Agent Builder

SunPlex Agent Builder is a tool that automates the creation and packaging of resource types (data services) to be run under control of the Sun Cluster Resource Group Manager. This reduces the development time for new resource types.

Data Service Enabling Technologies

The data service enabling technologies adds to the base Sun Cluster 3.0 development API and provides the following new functionality.

- Provides a higher level model commonly used for data service development, including all of Sun supplied data services
- Integrates commonly used facilities for data service development in an integrated API framework
- Provides a pre-canned model for fault monitoring, easily accessible through a set of APIs

All of these new benefits are primarily geared towards easing and expediting the development of more robust data services.

Enhancements to `scsetup` (1M)

Resource Group Manager (RGM) extensions to the `scsetup` utility enable you to create resource groups and to add both network and data service resources to resource groups. When you add data service resources, the `scsetup` utility searches for both registered and unregistered resource types. The `scsetup` utility also provides for automatic registration of unregistered resource types as needed when you add data service resources.

To launch the RGM submenu, choose option 2 from the `scsetup` main menu.

scvxinstall (1M) Script

`scvxinstall` is a script designed to automate the process of installing VERITAS Volume Manager (VxVM) as the Sun Cluster volume manager. It also (optionally) encapsulates the root disk. Root disk encapsulation enables you to either mirror your root disk or reduce the total amount of local disk space required by VxVM. This script replaces the VxVM installation and root-disk encapsulation procedures previously documented in the GA release of the *Sun Cluster 3.0 U1 Installation Guide*.

Supported Products

This section describes the supported software and memory requirements for Sun Cluster 3.0 Update 1.

- **Operating environment and patches** – Supported Solaris versions and patches are available at the following URL.

<http://sunsolve.sun.com>

For more details, see [“Patches and Required Firmware Levels” on page 15](#).

- **Volume managers** – Solstice DiskSuite™ 4.2.1 and VERITAS Volume Manager 3.0.4 and 3.1.
- **Data services (agents)** – Contact your Sun sales representative for the complete list of supported data services and application versions. Specify the resource type names when installing the data services with the `scinstall(1M)` utility and when registering the resource types associated with the data service with the `scrgadm(1M)` utility.

TABLE 0-2 Supported Data Services for Sun Cluster 3.0 Update 1

Data Service	Sun Cluster Resource Type
Sun Cluster HA for DNS	dns
Sun Cluster HA for NFS	nfs
Sun Cluster HA for iPlanet Web Server	iws
Sun Cluster HA for Netscape LDAP	nsldap
Sun Cluster HA for Oracle	oracle
Sun Cluster HA for Oracle Parallel Server	N/A
Sun Cluster HA for Apache	apache
Sun Cluster HA for SAP	scsap
Sun Cluster HA for Sybase ASE	scsybase

- **Memory Requirements** – Sun Cluster 3.0 requires extra memory above what is configured for a node under a normal workload. The extra memory equals 128 Mbytes plus ten percent. For example, if a standalone node normally requires 1 Gbyte of memory, you need an extra 256 Mbytes to meet memory requirements.

Features Nearing End of Life

Public Network Management (PNM) will not be supported in the next Sun Cluster feature release. Network adapter monitoring and failover for Sun Cluster will instead be performed by Solaris IP Multipathing.

Public Network Management (PNM)

PNM should be used to configure and administer network interface card monitoring and failover. However, the user interfaces to the PNM daemon and PNM administration commands are obsolete and will be removed in the next Sun Cluster feature release. Users are strongly discouraged from developing tools that rely on these interfaces.

The following interfaces are officially supported in the current release, but are expected to be removed in the next Sun Cluster feature release.

- `pnmd(1M)`
- `pnmconfig(4)`
- `pnmstat(1M)`
- `pnmset(1M)`
- `pnmrtop(1M)`
- `pnmptor(1M)`

With the integration of IP Multipathing in the next feature release, the Solaris IP Multipathing administration model and interfaces should be used for network availability management. See the *Solaris IP Multipathing Administration Guide* for more details.

Sun Cluster AnswerBooks Installation

The Sun Cluster 3.0 Update 1 user documentation is available online in AnswerBook2™ format for use with AnswerBook2 documentation servers. The Sun Cluster 3.0 Update 1 AnswerBook2 documentation set consists of the following collections.

- The Sun Cluster 3.0 7/01 Collection, which includes the following manuals.

Sun Cluster 3.0 U1 Installation Guide

Sun Cluster 3.0 U1 System Administration Guide

Sun Cluster 3.0 U1 Hardware Guide

Sun Cluster 3.0 U1 Data Services Developer's Kit

Sun Cluster 3.0 U1 Concepts

Sun Cluster 3.0 U1 Error Messages Manual

- The Sun Cluster 3.0 7/01 Data Services Collection, which includes the following manual.

Sun Cluster 3.0 U1 Data Services Installation and Configuration Guide

Setting Up the AnswerBook2 Documentation Server

The Solaris operating environment release includes AnswerBook2 documentation server software. The Solaris documentation CD-ROM, which is separate from the Solaris operating environment CD-ROM, includes the documentation server software. You need the Solaris documentation CD-ROM to install an AnswerBook2 documentation server.

If you have installed an AnswerBook2 documentation server at your site, you can use the same server for the Sun Cluster 3.0 Update 1 AnswerBooks. Otherwise, install a documentation server on a machine at your site. We recommend that you use the administrative console as the administrative interface to your cluster for the documentation server. Do not use a cluster node as your AnswerBook2 documentation server.

For information on installing an AnswerBook2 documentation server, load the Solaris documentation CD-ROM on a server, and view the README files.

Viewing Sun Cluster AnswerBooks

Install the Sun Cluster AnswerBook2 documents on a file system on the same server on which you install the documentation server. The Sun Cluster 3.0 Update 1 AnswerBooks include a post-install script that automatically adds the documents to your existing AnswerBook library.

To setup your AnswerBook2 servers:

- You must have root (superuser) access to the documentation server.
- The AnswerBook2 server must have a CD-ROM drive.
- If you do not have an installed AnswerBook2 documentation server, you need the Solaris operating environment documentation CD-ROM, which contains the software instructions for installing an AnswerBook2 documentation server.
- The Sun Cluster 3.0 7/01 CD-ROM includes the Sun Cluster 3.0 7/01 collection. The Sun Cluster 3.0 7/01 Agents CD-ROM contains the Sun Cluster 3.0 7/01 Data Services Collection.

▼ How to Install the Sun Cluster AnswerBooks

Use this procedure to install the Sun Cluster AnswerBook packages for the Sun Cluster 3.0 7/01 Collection and Sun Cluster 3.0 7/01 Data Services Collection.

1. **Become superuser on the server that has an AnswerBook2 documentation server.**
2. **If you have previously installed the Sun Cluster AnswerBooks, remove the old packages.**

```
# pkgrm SUNWscfab SUNWscdab
```

If you have never installed Sun Cluster AnswerBooks, ignore this step.

3. **Insert the Sun Cluster CD-ROM or Sun Cluster 3.0 7/01 Agents CD-ROM into a CD-ROM drive attached to your documentation server.**

The Volume Management daemon, `vold(1M)`, mounts the CD-ROM automatically.

4. Change directory to the CD-ROM location that contains the Sun Cluster AnswerBook package.

The AnswerBook packages reside at the following locations.

■ Sun Cluster CD-ROM

`suncluster_3_0/SunCluster_3.0/Packages`

■ Sun Cluster 3.0 7/01 Agents CD-ROM.

`scdataservices_3_0/components/SunCluster_Data_Service_Answer_Book_3.0/Packages`

5. Use the `pkgadd(1)` command to install the package.

```
# pkgadd -d .
```

6. Select the Sun Cluster 3.0 7/01 Collection (SUNWscfab) and the Sun Cluster 3.0 7/01 Data Services Collection (SUNWscdab) packages to install.

7. From the `pkgadd` installation options menu, choose `heavy` to add the complete package to the system and update the AnswerBook2 catalog.

Select either the Sun Cluster 3.0 7/01 Collection (SUNWscfab) or the Sun Cluster 3.0 7/01 Data Services Collection (SUNWscdab).

The document collection package on each CD-ROM includes a post-installation script that adds the collection to the documentation server's database and restarts the server. You can now view the Sun Cluster AnswerBooks from your documentation server.

PDF Files

The Sun Cluster CD-ROMs include a PDF file for each book in the Sun Cluster documentation set.

Similar to the Sun Cluster AnswerBooks, six PDF files reside on the Sun Cluster CD-ROM and one PDF file resides on the Agents CD-ROM. The PDF file names are abbreviations of the books (see [TABLE 0-3](#)).

The PDF files reside at the following locations.

■ Sun Cluster CD-ROM

`./suncluster_3_0/SunCluster_3.0/Docs/locale/C/PDF`

■ Agents CD-ROM

`./scdataservices_3_0/components/SunCluster_Data_Service_Answer_Book_3.0/Docs/locale/C/PDF`

TABLE 0-3 Mapping of PDF Abbreviations to Book Titles

CD-ROM	PDF Abbreviation	Book Title
Sun Cluster	CLUSTINSTALL	<i>Sun Cluster 3.0 U1 Installation Guide</i>
	CLUSTNETHW	<i>Sun Cluster 3.0 U1 Hardware Guide</i>
	CLUSTAPIPG	<i>Sun Cluster 3.0 U1 Data Services Developer's Kit</i>
	CLUSTSYSADMIN	<i>Sun Cluster 3.0 U1 System Administration Guide</i>
	CLUSTCONCEPTS	<i>Sun Cluster 3.0 U1 Concepts</i>
	CLUSTERRMSG	<i>Sun Cluster 3.0 U1 Error Messages Manual</i>
Data Services	CLUSTDATASVC	<i>Sun Cluster 3.0 U1 Data Services Installation and Configuration Guide</i>

Restrictions

The following restrictions apply to the Sun Cluster 3.0 Update 1 release:

- **Remote Shared Memory (RSM) transport types** – These transport types are mentioned in the documentation, but they are not supported.
- **Scalable Coherent Interface (SCI)** – The SCI interface is not supported as a cluster interconnect.
- **Automatic disk path monitoring** – The disk path functionality is not supported. You must manually monitor disk paths to avoid double failures or loss of path to a quorum device. The monitor detects active disk path failures only, but not inactive disk paths.
- **Storage devices with more than two physical paths to the enclosure** – More than two paths are not supported. The Sun StorEdge A3500, for which two paths are supported to each of two nodes, is an exception.
- **SunVTS™** – This is not supported.
- **Framework and data service upgrades** – Upgrades are only supported between major Sun Cluster releases, not update releases. Therefore, there is no automated upgrade between Sun Cluster 3.0 GA and Sun Cluster 3.0 Update 1. The manual upgrade procedure can be found in the UPGRADE_README file on the Sun Cluster 3.0 7/01 CD-ROM at the following location:
`/cdrom/suncluster_3_0u1/SunCluster_3.0/Tools/Upgrade/`
- **Multihost tape and CD-ROM** – This is not supported.
- **Loopback File System** – The software does not support the use of the loopback file system (LOFS) on cluster nodes.
- **Running client applications on the cluster nodes** – This is not supported. Switchover or failover of a resource group might cause a TCP (telnet/rlogin) connection to be broken. This switchover or failover includes connections that the cluster nodes initiated and connections that client hosts outside the cluster initiated.
- **Running high priority process scheduling classes on cluster nodes** – This is not supported. Do not run, on any cluster node, any processes that run in the time-sharing scheduling class with a higher-than-normal priority or any processes that run in the real-time scheduling class. Sun Cluster 3.0 relies on kernel threads that do not run in the real-time scheduling class. Other time-sharing processes that run at higher-than-normal priority or real-time processes can prevent the Sun Cluster kernel threads from acquiring needed CPU cycles.
- **File system quotas** – Quotas are not supported in Sun Cluster 3.0 Update 1.
- **Logical network interfaces** – These interfaces are reserved for use by Sun Cluster 3.0 Update 1.

■ Cluster file system restrictions

- The command `umount -f` behaves in the same manner as the `umount` command without the `-f` option. It does not support forced unmounts.
- The command `unlink (1M)` is not supported on non-empty directories.
- The command `lockfs -d` is not supported. Use `lockfs -n` as a workaround.
- The cluster file system does not support any of the file system features of Solaris by which one would put a communication end-point in the file system name space. Therefore, you cannot create a UNIX domain socket whose name is a pathname into the cluster file system. Nor can you create fifos or named pipes. Nor should you attempt to use `fattach`.
- It is not supported to execute binaries off of file systems mounted using the `forcedirectio` mount option.

■ Network Adapter Failover (NAFO) restrictions

- All public networking adapters must be in NAFO groups.
- Only one NAFO group exists per IP subnet for each node. Sun Cluster 3.0 does not support even the weak form of IP striping, in which multiple IP addresses exist on the same subnet.
- Only one adapter in a NAFO group can be active at any time.
- Sun Cluster 3.0 does not support setting `local-mac-address?=true` in the OpenBoot™ PROM.

■ Service and application restrictions

- Sun Cluster 3.0 can provide service for only those data services that are either supplied with the Sun Cluster product or set up with the Sun Cluster data services API.
- Do not use cluster nodes as mail servers because the Sun Cluster environment does not support the `sendmail(1M)` subsystem. Mail directories must reside on non-Sun Cluster nodes.
- Do not configure cluster nodes as routers (gateways). If the system goes down, the clients cannot find an alternate router and cannot recover.
- Do not configure cluster nodes as NIS or NIS+ servers. However, cluster nodes can be NIS or NIS+ clients.
- Do not use a Sun Cluster configuration to provide a highly available boot or install service on client systems.
- Do not use a Sun Cluster 3.0 configuration to provide an `rarpd` service.
- The Sun Cluster 3.0 data services API supports only 32-bit data services. The application on which the Sun Cluster data service depends can be a 64-bit application, but the data services' methods and monitors that support the application in a cluster must be 32-bit programs.

■ Sun Cluster 3.0 HA for NFS restrictions

- On any cluster node, do not run, any application that accesses a Sun Cluster HA for NFS file system on any other node. Access such file systems through the cluster file system only. Using an NFS exported file system from a cluster node might lead to unpredictable locking behavior.
- Sun Cluster HA for NFS requires that all NFS client mounts be “hard” mounts.
- For Sun Cluster HA for NFS, do not use hostname aliases for network resources. NFS clients mounting cluster file systems using hostname aliases might experience `statd` lock recovery problems.
- Sun Cluster 3.0 does not support Secure NFS or the use of Kerberos with NFS. In particular, the `secure` and `kerberos` options to the `share_nfs(1M)` subsystem.

■ Volume manager restrictions

- In Solstice DiskSuite configurations that use mediators, the number of mediator hosts configured for a diskset must be exactly two.
- DiskSuite Tool (`metatool`) is not compatible with Sun Cluster 3.0.
- VxVM Dynamic Multipathing (DMP) with Sun Cluster 3.0 software is not supported.
- Software RAID 5 is not supported.

■ Hardware restrictions

- With the exception of clusters using Sun StorEdge A3x00, a pair of cluster nodes must have at least two multihost disk enclosures.
- RAID 5 is only supported in hardware with the Sun StorEdge A3x00.
- Alternate Pathing (AP) is not supported.

Patches and Required Firmware Levels

The SunSolve OnlineSM Web site provides 24-hour access to the most up-to-date information regarding patches, software, and firmware for Sun products. Access the SunSolve Online site at <http://sunsolve.sun.com> for the most current matrixes of supported software, firmware, and patch revisions.

Note – You must have a SunSolve account registered to view and download the required patches for the Sun Cluster product. If you don't have an account registered, contact your Sun service representative or sales engineer, or register through the SunSolve Online Web site.

You can find Sun Cluster 3.0 patch information using the SunSolve EarlyNotifierSM Service. To view the EarlyNotifier information, log into SunSolve and access the Simple search selection from the top of the main page. From the Simple Search page, click on the EarlyNotifier box and type Sun Cluster 3.0 in the search criteria box. This will bring up the EarlyNotifier page for Sun Cluster 3.0.

Before installing Sun Cluster 3.0 and applying patches to a cluster component (Solaris operating system, Sun Cluster software, volume manager or data services software, or disk hardware), review the EarlyNotifier information and any README files that accompany the patches. All cluster nodes must have the same patch level for proper cluster operation.

For specific patch procedures and tips on administering patches, see the *Sun Cluster 3.0 U1 System Administration Guide*.

Required SAP Patches for Sun Cluster HA for SAP

The latest patch for the executable `sapstart` (see OSS note 0396321) protects you from multiple startups of SAP instances when an instance is already active on one node. The patch is important because duplication of SAP instances crashes the instance that was already active. Furthermore, the crash prevents SAP shutdown scripts from clean shut down of the SAP instances, which might cause data corruption.

To overcome this problem, install the latest patch for the `sapstart` executable, and configure the new parameter in the SAP startup profile for the application server and central instance.

For example, edit the profile `START_DVEBMGS00` (the profile for the central instance) to add the new SAP parameter, `sapstart/lockfile`.

```
sapstart/lockfile =/usr/sap/D01/DVEBMGS00/work/startup_lockfile
```

<code>sapstart/lockfile</code>	New parameter name.
<code>/usr/sap/D01/DVEBMGS00/work</code>	Work directory for the central instance.
<code>startup_lockfile</code>	Lock file name that Sun Cluster HA for SAP uses.

Note – You must locate the lock file path on the cluster file system. If you locate the lock file path locally on the nodes, start ups of the same instance from different nodes cannot be prevented.

Even if you configure the lock file in the SAP profile, you do not have to manually create the lock file. The Sun Cluster HA for SAP data service will create the lock file.

With this configuration, when you start the SAP instance, the SAP software locks the file `startup_lockfile`. If you start up the SAP instance outside of the Sun Cluster environment and then try to bring up SAP under the Sun Cluster environment, the Sun Cluster HA for SAP data service will attempt to start up the instance. However, because of the file-locking mechanism, this attempt will fail. The data service will log appropriate error messages in `syslog`.

Sun Management Center Software Upgrade

This section describes how to upgrade from Sun Management Center 2.1.1 to Sun Management Center 3.0 on a Sun Cluster 3.0 U1 configuration.

▼ How to Upgrade Sun Management Center Software

Perform this procedure to upgrade from Sun Management Center 2.1.1 to Sun Management Center 3.0 software on a Sun Cluster 3.0 U1 configuration. For procedures to upgrade Sun Management Center on Sun Cluster 3.0 configurations, see “Sun Management Center 3.0” in the *Sun Cluster 3.0 Release Notes Supplement*.

1. Have available the following items.

- **Sun Cluster 3.0 CD-ROM GA release or the path to the CD-ROM image.** You will use the CD-ROM to reinstall the Sun Cluster module packages after you upgrade Sun Management Center software.
- **Sun Management Center 3.0 documentation.**
- **Sun Management Center 3.0 and Sun Cluster module patches.** See [“Patches and Required Firmware Levels” on page 15](#) for the location of patches and installation instructions.

2. Stop any Sun Management Center processes.

- a. **If the Sun Management Center console is running, exit the console.**

In the console window, select File>Exit from the menu bar.

- b. **On each Sun Management Center agent machine (cluster node), stop the Sun Management Center agent process.**

```
# /opt/SUNWsymon/sbin/es-stop -a
```

- c. **On the Sun Management Center server machine, stop the Sun Management Center server process.**

```
# /opt/SUNWsymon/sbin/es-stop -S
```

3. As superuser, remove Sun Cluster module packages from the locations listed in [TABLE 0-4](#).

You must remove all Sun Cluster module packages from all locations. Otherwise, the Sun Management Center software upgrade might fail because of package dependency problems. After you upgrade Sun Management Center software, you will reinstall these packages.

```
# pkgrm module-package
```

TABLE 0-4 Sun Cluster Module Package Removal Locations

Location	Package to Remove
Each cluster node	SUNWscsam, SUNWscsal
Sun Management Center console machine	SUNWscscn
Sun Management Center server machine	SUNWscssv
Sun Management Center help server machine	SUNWscshl

4. Upgrade Sun Management Center software.

Follow the upgrade procedures in your Sun Management Center 3.0 documentation.

5. As superuser, reinstall Sun Cluster module packages to the locations listed in [TABLE 0-5](#).

For Sun Management Center 3.0, you install the help server package SUNWscshl on the console machine as well as on the help server machine. The cluster node packages are installed in [Step 6](#).

```
# cd /cdrom/suncluster_3_0/SunCluster_3.0/Packages  
# pkgadd module-package
```

TABLE 0-5 Sun Cluster Module Package Installation Locations

Location	Package to Install
Sun Management Center console machine	SUNWscscn, SUNWscshl
Sun Management Center server machine	SUNWscssv
Sun Management Center help server machine	SUNWscshl

6. Apply Sun Cluster module patches and any Sun Management Center patches to each node of the cluster.

A Sun Cluster module patch installs the Sun Cluster 3.0 U1 versions of the SUNWscsam and SUNWscsal packages.

7. Restart the Sun Management Center agent, server, and console processes on all involved machines.

Follow procedures in “How to Start Sun Management Center” in the *Sun Cluster 3.0 U1 Installation Guide*.

8. Load the Sun Cluster module.

Follow procedures in “How to Load the Sun Cluster Module” in the *Sun Cluster 3.0 U1 Installation Guide*.

If the Sun Cluster module was previously loaded, unload the module and then reload it to clear all cached alarm definitions on the server. To unload the module, from the console’s Details window select Module>Unload Module.

System Administration and Procedure Updates

This section describes changes and updates to procedures that administer a cluster.

Sun Management Center GUI

The Sun Cluster 3.0 Update 1 patch for Sun Management Center enables support on the Sun Cluster module for Sun Management Center versions 2.1.1 and 3.0. This patch includes the following updates to the Sun Cluster module console.

- **Access the create resource or resource group configuration tool from anywhere within the Sun Cluster module console** – You can now access the create resource or resource group configuration tool from the Sun Cluster module hierarchy (tree) view and topology view. To access the tool, double-click the Sun Cluster operating system then click with the right mouse button on the Resource Groups item, or on any item within the Resource Groups subtree. Then select “Create New Resource Group” or “Create New Resource” from the pop-up menu.

You can also access this configuration tool from the Failover Resource Groups or Scalable Resource Groups windows. To use the tool from these locations, from either hierarchy or topology view select the Sun Cluster operating system then double-click Resource Groups, then Status. Select either the Failover Resource Groups or Scalable Resource Groups item, depending on which type of resource you want to change. Place the mouse pointer over any cell entry, excluding the header row, in the Resource Group Status or the Resource Status table. Click the right mouse button, then select “Create New Resource Group” or “Create New Resource” from the pop-up menu.

- **Edit status or state, or delete a resource or resource group, from two new locations** – You can now edit status or state, or delete a resource or a resource group, from the Failover Resource Groups or Scalable Resource Groups status tables. To access these tables, from either the hierarchy (tree) or topology view select the Sun Cluster operating system then double-click Resource Groups. Double-click Status, then either the Failover Resource Groups or Scalable Resource Groups item, depending on which type of resource you want to change. Select (highlight) in the Resource Group Status or Resource Status table the resource or resource group that you want to edit or delete. If you plan to change the *state* of one resource or resource group, select the state cell in the row of that resource or resource group. Finally, click your right mouse button, and select a task to perform from the pop-up menu.

Note – When you edit status or delete a resource or resource group, the Sun Cluster module launches a Probe Viewer window. If the Sun Cluster module successfully performs the task that you select, the Probe Viewer window gives the message, “Probe command returned no data.”

See Sun Management Center documentation and associated online help for more information about Sun Management Center.

Known Problems

The following known problems affect the operation of the Sun Cluster 3.0 U1 release. For the most current information, see the online *Sun Cluster 3.0 U1 Release Notes Supplement* at <http://docs.sun.com>.

Bug ID 4314698

Problem Summary: After installing Solstice DiskSuite software, the `scgdevs(1M)` command must be run for the Solstice DiskSuite device links to appear in the global namespace.

Workaround: Run the `scgdevs` command manually to make sure that Solstice DiskSuite device nodes are created.

BugId 4358349

Problem Summary: Do not create Sun Cluster HA for NFS resources in a resource group that contains a `SharedAddress` resource. Sun Cluster software does not support the use of `SharedAddress` resources with that data service.

Workaround: Add the desired logical hostname resources into the failover resource group.

You must set up a `LogicalHostname` resource with this step. The hostname used with Sun Cluster HA for NFS cannot be a `SharedAddress` resource.

```
# scrgadm -a -L -g resource-group-name -l hostname,...
```

<code>-a -L -g resource-group-name</code>	Specifies the failover resource group into which to place the logical hostname resources.
<code>-l hostname,...</code>	Specifies the network resources (logical hostnames) to be added.

Bug ID 4359321

Problem Summary: The `scinstall` utility enables you to specify `/global` as the directory name for the global devices file system. However, because the mount point for the global devices file system is `/global/.devices/node@nodeid`, this specification should not be enabled.

Workaround: Re-install the node using `/globaldevices` as the directory name for the global devices file system.

Although not preferred, fixing the entries in the `/etc/vfstab` files, rebooting the cluster, and then running the `scgdevs` command is a possible workaround. Check that each `/global/.devices/node@nodeid` entry in each `/etc/vfstab` file has the `global` mount option set.

Bug ID 4362925

Problem Summary:

```
nodeA# scshutdown -g0 -y
scshutdown: Unmount of /dev/md/sc/dsk/d30 failed: Device busy.
scshutdown: Could not unmount all PxFS filesystems.
```

The Networker packages were bundled and installed during the Oracle installation. Therefore, the `nsrmmmd` daemon is running and mounting the `/global/oracle` directory, which prevents the unmount of all cluster file systems.

```
nodeA# umount /global/oracle
umount: global/oracle busy
nodeA# fuser -c /global/oracle
/global/oracle: 335co 317co 302co 273co 272co
nodeA# ps -ef|grep 335
root 335 273 0 17:17:41 ?          0:00 /usr/sbin/nsrmmmd -n 1
root 448 397 0 17:19:37 console 0:00 grep 335
```

This problem occurs during Sun Cluster shutdown when the shutdown tries to unmount a cluster file system that the process `nsrmmmd` is still referencing.

Workaround: Run the `fuser(1M)` command on each node to establish a list of all processes still using the cluster file systems that cannot be unmounted. Check that no Resource Group Manager resources have been restarted since the failed `scshutdown(1M)` command was first run. Kill all these processes with the `kill -9`

command. This kill list should not include any processes under the control of the Resource Group Manager. After all such processes have terminated, rerun the `scshutdown` command, and the shutdown should run to successful completion.

Bug ID 4369668

Problem Summary: When the system administrator edits the `Nodelist` property of a managed resource group, the Resource Group Manager should run the `INIT` method on all resources in the resource group that have the property `Init_nodes=RG_PRIMARIES`, on all nodes that have been added to the node list. The Resource Group Manager should run the `FINI` method on such resources, on nodes that were deleted from the node list.

Similarly, if the `Installed_nodes` property of a resource type is edited, the Resource Group Manager should run the `INIT` or `FINI` method on all resources of that type that reside in managed resource groups and have the property `Init_nodes=RT_installed_nodes`.

Currently, the Resource Group Manager does not run `INIT` or `FINI` methods when these updates are performed. As a result, the resources might not be properly initialized or cleaned up on these nodes.

Workaround: Using the `scswitch` command, `unmanage` and then re-manage the affected resource groups. Unfortunately, this process requires that the administrator take the resource group offline. Alternatively, the administrator can run the equivalent `INIT` or `FINI` actions manually (without unmanaging the resource group), if such procedures are documented for the resource types that occur within the group.

This workaround is unnecessary if none of the resources in the group have `INIT` or `FINI` methods. The only Sun-supplied resource types that use `INIT` and `FINI` methods are:

- `SUNW.SharedAddress` (shared address resource type)
- `SUNW.apache` (Apache Web Server) configured in scalable mode
- `SUNW.iws` (iPlanet/Netscape web server) configured in scalable mode

Resource types that customers or third parties implement might also use `INIT` or `FINI` methods. If so, this workaround is necessary for resource groups that contain such resource types.

Note – All scalable services implicitly use `INIT` and `FINI` methods, even if such methods are not explicitly declared for the resource type.

Bug ID 4370760

Problem Summary: You cannot remove the last node from a Solstice DiskSuite diskset unless you first take the device group offline.

Workaround: To remove the last node from a diskset, take the device group offline first. To remove the last node, run the following two commands as superuser from the nodeto be removed.

```
# /usr/cluster/bin/scswitch -m -D disksetname
# metaset -s disksetname -d -h nodename
```

Bug ID 4373911

Problem Summary: If you do the following:

- Configure multiple Sun Cluster HA for NFS resources on the cluster.
- Switch an HA-NFS resource on or off and leave another online on the same node.

The HA-NFS fault monitor might display the following warning message.

```
clnt_tp_create_timed of program statd failed:RPC:Program not registered
```

Workaround: No workaround is necessary. The warning message can safely be ignored.

BugId 4376171

Problem Summary: Placing a FC-AL SBus Card (FC100/S) and a Sun Quad FastEthernet™ 2.0 (SQFE/S) on the same SBus might cause unexpected resets on the QFE card.

Workaround: Avoid configuring cluster nodes with a FC-AL SBus Card (FC100/S) and a Sun Quad FastEthernet 2.0 (SQFE/S) on the same SBus.

Bug ID 4378553

Problem Summary: A resource group's Nodelist property is an ordered list of nodes that can master the resource group, with the most-preferred node listed first. The Resource Group Manager should always host a resource group on the

most-preferred node that is available. However, when an administrator reboots the cluster (when all nodes are rebooting at once), managed resource groups might end up being mastered on nodes other than the most-preferred node. This problem occurs only upon reboot of the entire cluster.

Workaround: After rebooting the cluster, use the `scswitch` command to switch resource groups onto the desired nodes. The `Nodelist` preference order will be enforced automatically from that point onward, as long as the cluster remains up.

BugId 4396185

Problem Summary: The usage message for `pnmstat` returns unsupported options.

Workaround: Use the `pnmstat` man page to determine supported options.

BugId 4449906

Problem Summary: Sun Cluster HA for Sybase ASE encounters several problems, including core dump, when the `Wait_for_online` extension property is set to `TRUE`.

Workaround: Always set the `Wait_for_online` extension property to its default value, `FALSE`.

BugId 4459021

Problem Summary: Oracle installation requires the following Solaris packages: `SUNWarc`, `SUNWbtool`, `SUNWhea`, `SUNWlibm`, `SUNWlibms`, `SUNWsprot`, and `SUNWtoo`. These packages must be present before running the SunPlex Manager Oracle data service installation.

Workaround: Install these packages manually, as described in the Oracle documentation.

BugId 4460312

Problem Summary: The SunPlex Manager installation of Oracle does not configure `tnsnames.ora` on the cluster nodes. `abase`.

Workaround: If the cluster nodes are to be used as clients of the Oracle database, the appropriate `tnsnames.ora` files must be manually updated.

BugId 4461863

Problem Summary: The SunPlex Manager will not function properly if the hostname of one or more cluster nodes is multi-homed, has more than one IP address assigned to it. However, multi-homed logical addresses may be safely used for data services.

Workaround: Comment out the BindAddress line in /opt/SUNWscvw/conf/httpd.conf, and then start the server with /etc/init.d/initspm start.

BugId 4462957

Problem Summary: The following message may be encountered during initial boot of a cluster node.

```
cl_runtime: WARNING: Major number for driver (did) does not match
the one on other nodes.  Confirm that the /etc/name_to_major files
are in sync on all cluster nodes
```

Workaround: Contact your authorized Sun service provider to determine whether a workaround or patch is available.

BugId 4464476

Problem Summary: A 2.2 to 3.0 Sun Cluster upgrade for Netra machines requires the use of the -O option of scinstall (1M) during the initial phase of the upgrade. Otherwise, the Netra hardware platforms might not be recognized causing the upgrade to fail.

Workaround: Use the -O option of scinstall (1M) during the initial phase of the upgrade. This option overrides hardware checking.

BugId 4464870

Problem Summary: Calling seds_free_netaddr_list when there are more than two ports specified in the portlist causes the program to dump core.

Workaround: If you specified more than two ports in the portlist, do not call `scds_free_netaddr_list` to free memory allocated by `scds_get_netaddr_list`. This memory will be automatically reallocated when the process terminates.

Known SunPlex Manager Problems

This section discusses documentation errors you might encounter and steps to correct these problems.

SunPlex Manager

The SunPlex Manager allows you to use a limited character set to increase security. Characters that are not a part of the set are silently filtered out when HTML forms are submitted to the SunPlex Manager server. The following characters are accepted by the SunPlex Manager.

`() + , - . / 0 - 9 : = @ A - Z ^ _ a - z { | } ~`

This filter will potentially cause problems in two areas.

- Password entry for iPlanet services. If the password contains unusual characters, these characters will be stripped out resulting in two problems. Either the resulting password will be under 8 characters and will fail, or the application will be configured with a different password than the user expects.
- Localization. Alternative character sets (for example: accented characters or Asian characters) will not work for input.

SunPlex Manager Online Help

A note in the SunPlex Manager's online help is inaccurate. The note appears in the Oracle data service installation procedure. The correction is as follows.

Incorrect:

Note: If no entries exist for the `shmsys` and `semsys` variables in the `/etc/system` file when SunPlex Manager packages are installed, default values for these variables are automatically put in the `/etc/system` file. The system must then be rebooted. Check Oracle installation documentation to verify that these values are appropriate for your database.

Correct:

Note: If no entries exist for the `shmsys` and `semsys` variables in the `/etc/system` file when you install the Oracle data service, default values for these variables can be automatically put in the `/etc/system` file. The system must then be rebooted. Check Oracle installation documentation to verify that these values are appropriate for your database.

Sun Cluster Installation and Configuration Worksheets

This appendix provides worksheets to plan various components of your cluster configuration and examples of completed worksheets for your reference. See [Appendix B](#) for configuration worksheets for resources, resource types, and resource groups.

Installation and Configuration Worksheets

If necessary, make additional copies of a worksheet to accommodate all the components in your cluster configuration. Follow planning guidelines in the *Sun Cluster 3.0 U1 Installation Guide* to complete these worksheets. Then refer to your completed worksheets during cluster installation and configuration.

Note – The data used in the worksheet examples is intended as a guide only. The examples do not represent a complete configuration of a functional cluster.

The following table lists the planning worksheets and examples provided in this appendix, as well as the titles of sections in Chapter 1 of the *Sun Cluster 3.0 U1 Installation Guide* that contain related planning guidelines.

TABLE A-1 Cluster Installation Worksheets and Related Planning Guidelines (Sheet 1 of 2)

Worksheet	Example	Section Titles of Planning Guidelines
"Local File System Layout Worksheet" on page 34	"Example—Local File System Layout, With and Without Mirrored Root" on page 35	"System Disk Partitions" "Mirroring the Root Disk"
"Cluster and Node Names Worksheet" on page 36	"Example—Cluster and Node Names" on page 37	"Cluster Name" "Node Names" "Private Network" "Private Hostnames"
"Cluster Interconnect Worksheet" on page 38	"Example—Cluster Interconnect" on page 39	"Cluster Interconnect"
"Public Networks Worksheet" on page 40	"Example—Public Networks" on page 41	"Public Networks" "NAFO Groups"
"Local Devices Worksheet" on page 42	"Example—Local Devices" on page 43	---
"Disk Device Group Configurations Worksheet" on page 44	"Example—Disk Device Group Configurations" on page 45	"Disk Device Groups" "Planning Volume Management"

TABLE A-1 Cluster Installation Worksheets and Related Planning Guidelines (Sheet 2 of 2)

Worksheet	Example	Section Titles of Planning Guidelines
“Volume Manager Configurations Worksheet” on page 46	“Example—Volume Manager Configurations” on page 47	“Planning Volume Management” Your volume manager documentation
“Metadevices Worksheet (Solstice DiskSuite)” on page 48	“Example—Metadevices (Solstice DiskSuite)” on page 49	“Planning Volume Management” Your Solstice DiskSuite documentation

Local File System Layout Worksheet

Node name _____

Mirrored root

Volume Name	Component	Component	File System	Size
			/	
			swap	
			/globaldevices	

Non-mirrored root

Device Name	File System	Size
	/	
	swap	
	/globaldevices	

Example—Local File System Layout, With and Without Mirrored Root

Node name phys-schost-1

Mirrored root

Volume Name	Component	Component	File System	Size
d1	c0t0d0s0	c1t0d0s0	/	1168MB
d2	c0t0d0s1	c1t0d0s1	swap	750MB
d3	c0t0d0s3	c1t0d0s3	/globaldevices	100MB
d7	c0t0d0s7	c1t0d0s7	SDS replica	10MB

Non-mirrored root

Device Name	File System	Size
c0t0d0s0	/	1168 MB
c0t0d0s1	swap	750MB
c0t0d0s3	/globaldevices	100MB
c0t0d0s7	SDS replica	10MB

Cluster and Node Names Worksheet

Cluster name _____

Private network address: _____ . _____ . 0 . 0 (default: 172 . 16 . 0 . 0)

Private network mask: 255 . 255 . _____ . _____ (default: 255 . 255 . 0 . 0)

First-installed node name _____

Private hostname

Default name: clusternode____-priv
nodeID#

Change name to: _____
(optional)

Additional node name _____

Private hostname

Default name: clusternode____-priv
nodeID#

Change name to: _____
(optional)

Additional node name _____

Private hostname

Default name: clusternode____-priv
nodeID#

Change name to: _____
(optional)

Additional node name _____

Private hostname

Default name: clusternode____-priv
nodeID#

Change name to: _____
(optional)

Example—Cluster and Node Names

Cluster name sc-cluster

Private network address: 172 . 16 . 0 . 0 (default: 172 . 16 . 0 . 0)

Private network mask: 255 . 255 . 0 . 0 (default: 255 . 255 . 0 . 0)

First-installed node name phys-schost-1

Private hostname

Default name: clusternode 1 -priv
nodeID#

Change name to: phys-schost-1-priv
(optional)

Additional node name phys-schost-2

Private hostname

Default name: clusternode 2 -priv
nodeID#

Change name to: phys-schost-2-priv
(optional)

Additional node name _____

Private hostname

Default name: clusternode _____ -priv
nodeID#

Change name to: _____
(optional)

Additional node name _____

Private hostname

Default name: clusternode _____ -priv
nodeID#

Change name to: _____
(optional)

Cluster Interconnect Worksheet

Adapters

Cabling

Junctions

Draw lines between cable endpoints

Node name _____

Adapter Type	Adapter Name

Node name _____

Adapter Type	Adapter Name

Node name _____

Adapter Type	Adapter Name

Node name _____

Adapter Type	Adapter Name

Junction name _____

Junction type _____

Port Name

Junction name _____

Junction type _____

Port Name

Example—Cluster Interconnect

<u>Adapters</u>	<u>Cabling</u>	<u>Junctions</u>						
<i>Draw lines between cable endpoints</i>								
Node name <u>phys-schost-1</u>								
<table border="1"><thead><tr><th>Adapter Type</th><th>Adapter Name</th></tr></thead><tbody><tr><td>dlpi</td><td>hme0</td></tr><tr><td>dlpi</td><td>hme1</td></tr></tbody></table>	Adapter Type	Adapter Name	dlpi	hme0	dlpi	hme1		Junction name <u>switch1</u> Junction type <u>switch</u>
Adapter Type	Adapter Name							
dlpi	hme0							
dlpi	hme1							
		<table border="1"><thead><tr><th>Port Name</th></tr></thead><tbody><tr><td>1</td></tr><tr><td>2</td></tr><tr><td></td></tr><tr><td></td></tr></tbody></table>	Port Name	1	2			
Port Name								
1								
2								
Node name <u>phys-schost-2</u>								
<table border="1"><thead><tr><th>Adapter Type</th><th>Adapter Name</th></tr></thead><tbody><tr><td>dlpi</td><td>hme0</td></tr><tr><td>dlpi</td><td>hme1</td></tr></tbody></table>	Adapter Type	Adapter Name	dlpi	hme0	dlpi	hme1		
Adapter Type	Adapter Name							
dlpi	hme0							
dlpi	hme1							
Node name _____								
<table border="1"><thead><tr><th>Adapter Type</th><th>Adapter Name</th></tr></thead><tbody><tr><td></td><td></td></tr><tr><td></td><td></td></tr></tbody></table>	Adapter Type	Adapter Name						Junction name <u>switch2</u> Junction type <u>switch</u>
Adapter Type	Adapter Name							
		<table border="1"><thead><tr><th>Port Name</th></tr></thead><tbody><tr><td>1</td></tr><tr><td>2</td></tr><tr><td></td></tr><tr><td></td></tr></tbody></table>	Port Name	1	2			
Port Name								
1								
2								
Node name _____								
<table border="1"><thead><tr><th>Adapter Type</th><th>Adapter Name</th></tr></thead><tbody><tr><td></td><td></td></tr><tr><td></td><td></td></tr></tbody></table>	Adapter Type	Adapter Name						
Adapter Type	Adapter Name							

```
graph LR
    subgraph Node1 [phys-schost-1]
        A1[dlpi hme0]
        A2[dlpi hme1]
    end
    subgraph Node2 [phys-schost-2]
        A3[dlpi hme0]
        A4[dlpi hme1]
    end
    subgraph Junction1 [switch1]
        P1[1]
        P2[2]
    end
    subgraph Junction2 [switch2]
        Q1[1]
        Q2[2]
    end
    A1 --- P1
    A2 --- P2
    A3 --- Q2
    A4 --- Q1
```

Public Networks Worksheet

Node name _____

Primary hostname _____

NAFO group number: nafo_____

Adapter name _____

Backup adapter(s): _____
(*optional*)

Network name _____

Secondary hostname _____

NAFO group number: nafo_____

Adapter name _____

Backup adapter(s): _____
(*optional*)

Network name _____

Secondary hostname _____

NAFO group number: nafo_____

Adapter name _____

Backup adapter(s): _____
(*optional*)

Network name _____

Secondary hostname _____

NAFO group number: nafo_____

Adapter name _____

Backup adapter(s): _____
(*optional*)

Network name _____

Node name _____

Primary hostname _____

NAFO group number: nafo_____

Adapter name _____

Backup adapter(s): _____
(*optional*)

Network name _____

Secondary hostname _____

NAFO group number: nafo_____

Adapter name _____

Backup adapter(s): _____
(*optional*)

Network name _____

Secondary hostname _____

NAFO group number: nafo_____

Adapter name _____

Backup adapter(s): _____
(*optional*)

Network name _____

Secondary hostname _____

NAFO group number: nafo_____

Adapter name _____

Backup adapter(s): _____
(*optional*)

Network name _____

Example—Public Networks

Node name phys-schost-1

Primary hostname phys-schost-1

NAFO group number: nafo_0

Adapter name qfe0

Backup adapter(s): qfe4
(optional)

Network name net-85

Secondary hostname phys-schost-1-86

NAFO group number: nafo_1

Adapter name qfe1

Backup adapter(s): qfe5
(optional)

Network name net-86

Secondary hostname _____

NAFO group number: nafo_____

Adapter name _____

Backup adapter(s): _____
(optional)

Network name _____

Secondary hostname _____

NAFO group number: nafo_____

Adapter name _____

Backup adapter(s): _____
(optional)

Network name _____

Node name phys-schost-2

Primary hostname phys-schost-2

NAFO group number: nafo_0

Adapter name qfe0

Backup adapter(s): qfe4
(optional)

Network name net-85

Secondary hostname phys-schost-2-86

NAFO group number: nafo_1

Adapter name qfe1

Backup adapter(s): qfe5
(optional)

Network name net-86

Secondary hostname _____

NAFO group number: nafo_____

Adapter name _____

Backup adapter(s): _____
(optional)

Network name _____

Secondary hostname _____

NAFO group number: nafo_____

Adapter name _____

Backup adapter(s): _____
(optional)

Network name _____

Local Devices Worksheet

Node name _____

Local disks

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Other local devices

Device type _____ Name _____

Device type _____ Name _____

Device type _____ Name _____

Device type _____ Name _____

Node name _____

Local disks

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Other local devices

Device type _____ Name _____

Device type _____ Name _____

Device type _____ Name _____

Device type _____ Name _____

Example—Local Devices

Node name phys-schost-1

Local disks

Disk name c0t0d0 Size 2G

Disk name c0t1d0 Size 2G

Disk name c1t0d0 Size 2G

Disk name c1t1d0 Size 2G

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Other local devices

Device type tape Name /dev/rmt/0

Device type _____ Name _____

Device type _____ Name _____

Device type _____ Name _____

Node name _____

Local disks

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Disk name _____ Size _____

Other local devices

Device type _____ Name _____

Device type _____ Name _____

Device type _____ Name _____

Device type _____ Name _____

Disk Device Group Configurations Worksheet

Volume manager

☐ Solstice DiskSuite

☐ VERITAS Volume Manager

Disk group/diskset name _____

Node names (1) _____

(5) _____

(2) _____

(6) _____

(3) _____

(7) _____

(4) _____

(8) _____

Ordered priority? ☐ Yes ☐ No

Failback? ☐ Yes ☐ No

Disk group/diskset name _____

Node names (1) _____

(5) _____

(2) _____

(6) _____

(3) _____

(7) _____

(4) _____

(8) _____

Ordered priority? ☐ Yes ☐ No

Failback? ☐ Yes ☐ No

Disk group/diskset name _____

Node names (1) _____

(5) _____

(2) _____

(6) _____

(3) _____

(7) _____

(4) _____

(8) _____

Ordered priority? ☐ Yes ☐ No

Failback? ☐ Yes ☐ No

Example—Disk Device Group Configurations

Volume manager

☒ Solstice DiskSuite

☐ VERITAS Volume Manager

Disk group/diskset name dg-schost-1

Node names (1) phys-schost-1

(5) _____

(2) phys-schost-2

(6) _____

(3) _____

(7) _____

(4) _____

(8) _____

Ordered priority? ☒ Yes ☐ No

Failback? ☒ Yes ☐ No

Disk group/diskset name _____

Node names (1) _____

(5) _____

(2) _____

(6) _____

(3) _____

(7) _____

(4) _____

(8) _____

Ordered priority? ☐ Yes ☐ No

Failback? ☐ Yes ☐ No

Disk group/diskset name _____

Node names (1) _____

(5) _____

(2) _____

(6) _____

(3) _____

(7) _____

(4) _____

(8) _____

Ordered priority? ☐ Yes ☐ No

Failback? ☐ Yes ☐ No

Volume Manager Configurations Worksheet

Volume manager:

☐ Solstice DiskSuite

☐ VERITAS Volume Manager

Name	Type	Component	Component

Example—Volume Manager Configurations

Volume manager: ☒ Solstice DiskSuite ☐ VERITAS Volume Manager

Name	Type	Component	Component
dg-schost-1/d0	trans	dg-schost-1/d1	dg-schost-1/d4
dg-schost-1/d1	mirror	c0t0d0s4	c4t4d0s4
dg-schost-1/d4	mirror	c0t0d2s5	c4t4d2s5

Metadevices Worksheet (Solstice DiskSuite)

[illegible]

Example—Metadevices (Solstice DiskSuite)

[illegible]

Data Service Configuration Worksheets and Examples

This appendix provides worksheets for planning resource-related components of your cluster configuration and examples of completed worksheets for your reference. See [Appendix A](#) for worksheets for other components of your cluster configuration.

Configuration Worksheets

If necessary, make additional copies of a worksheet to accommodate all the resource-related components in your cluster configuration. Follow planning guidelines in the Sun Cluster 3.0 U1 Installation Guide and the Data Services Installation and Configuration Guide to complete these worksheets. Then refer to your completed worksheets during cluster installation and configuration.

Note – The data used in the worksheet examples is intended as a guide only. The examples do not represent a complete configuration of a functional cluster.

- [“Resource Types” on page 54](#)
- [“Resource Groups—Failover” on page 56](#)
- [“Network Resources” on page 58](#)
- [“Resource Groups—Scalable” on page 60](#)
- [“Application Resources” on page 62](#)

Resource Types

(other than logical host or shared address)
Indicate the nodes on which the resource type will run.

Resource type name _____

Node names _____

Resource type name _____

Node names _____

Resource type name _____

Node names _____

Resource type name _____

Node names _____

Resource type name _____

Node names _____

Resource type name _____

Node names _____

Example: Resource Types

(other than logical host or shared address)

Resource type name SUNW.nshttp

Node names phys-schost-1 phys-schost-2 _____

Resource type name SUNW.oracle_listener

Node names phys-schost-1 phys-schost-2 _____

Resource type name SUNW.oracle_server

Node names phys-schost-1 phys-schost-2 _____

Resource type name _____

Node names _____

Resource type name _____

Node names _____

Resource type name _____

Node names _____

Resource Groups—Failover

Resource group name _____

(Must be unique within the cluster.)

Function of this resource group _____

Failback? ☐ Yes ☐ No

(Will this resource group switch back to the primary node, after the primary node has failed and been restored?)

Node names (1) _____ (2) _____ (3) _____ (4) _____
(ordered list)
(5) _____ (6) _____ (7) _____ (8) _____

(Indicate the cluster nodes that may host this resource group. The first node in this list should be the primary, with others being the secondaries. The order of the secondaries will indicate preference for becoming primaries.)

Disk device groups upon which this resource group depends _____

(If the resources in this resource group need to create files for administrative purposes, include the subdirectory they should use.)

Example: Resource Groups—Failover

Resource group name rg-oracle

(Must be unique within the cluster.)

Function of this resource group Contains the Oracle resources

Failback? ☐ Yes ☒ No

(Will this resource group switch back to the primary node, after the primary node has failed and been restored?)

Node names (1) phys-schost-1 (2) phys-schost-2 (3) _____ (4) _____
(ordered list)
(5) _____ (6) _____ (7) _____ (8) _____

(Indicate the cluster nodes that may host this resource group. The first node in this list should be the primary, with others being the secondaries. The order of the secondaries will indicate preference for becoming primaries.)

Disk device groups upon which this resource group depends schost1-dg

(If the resources in this resource group need to create files for administrative purposes, include the subdirectory they should use.)

Network Resources

Resource name _____

Resource group name _____

Resource type:

☐ Logical hostname

☐ Shared address

☐ Data service/other

Hostnames used _____

Network name _____

Adapter or NAFO group:

Node name	Adapter/NAFO group name

Resource type name _____

Dependencies _____

Extension properties:

Name	Value

Example: Network Resources—LogicalHostname

Resource name relo-galileo

Resource group name rg-oracle

Resource type:

☒ Logical hostname

☐ Shared address

☐ Data service/other

Hostnames used relo-galileo

Network name net-85

Adapter or NAFO group:

Node name	Adapter/NAFO group name
phys-schost-1	nafo0
phys-schost-2	nafo0

Resource type name

Dependencies

Extension properties:

Name	Value

Resource Groups—Scalable

Resource group name _____

(Must be unique within the cluster.)

Function of this resource group _____

Maximum number of primaries _____

Desired number of primaries _____

Failback? ☐ Yes ☐ No

(Will this resource group switch back to the primary node, after the primary node has failed)

Node names (1) _____ (2) _____ (3) _____ (4) _____

(5) _____ (6) _____ (7) _____ (8) _____

(Indicate the cluster nodes that may host this resource group. The first node in this list should be the primary, with others being the secondaries. The order of the secondaries will indicate preference for becoming primaries.)

Dependencies _____

(Does this resource depend upon another resource group.)

Resource group name _____

(Must be unique within the cluster.)

Function of this resource group _____

Maximum number of primaries _____

Desired number of primaries _____

Failback? ☐ Yes ☐ No

(Will this resource group switch back to the primary node, after the primary node has failed)

Node names (1) _____ (2) _____ (3) _____ (4) _____

(5) _____ (6) _____ (7) _____ (8) _____

(Indicate the cluster nodes that may host this resource group. The first node in this list should be the primary, with others being the secondaries. The order of the secondaries will indicate preference for becoming primaries.)

Dependencies _____

(Does this resource depend upon another resource group.)

Example: Resource Groups—Scalable

Resource group name rg-http

(Must be unique within the cluster.)

Function of this resource group Contains the web server resources

Maximum number of primaries 2

Desired number of primaries 2

Failback? ☐ Yes ☒ No

(Will this resource group switch back to the primary node, after the primary node has failed)

Node names (1) phys-schost-1 (2) phys-schost-2 (3) _____ (4) _____
(ordered list)

(5) _____ (6) _____ (7) _____ (8) _____

(Indicate the cluster nodes that may host this resource group. The first node in this list should be the primary, with others being the secondaries. The order of the secondaries will indicate preference for becoming primaries.)

Dependencies rg-shared

(Does this resource depend upon another resource group.)

Resource group name rg-shared

(Must be unique within the cluster.)

Function of this resource group Contains the shared address resources

Maximum number of primaries 1

Desired number of primaries 1

Failback? ☐ Yes ☒ No

(Will this resource group switch back to the primary node, after the primary node has failed)

Node names (1) phys-schost-1 (2) phys-schost-2 (3) _____ (4) _____
(ordered list)

(5) _____ (6) _____ (7) _____ (8) _____

(Indicate the cluster nodes that may host this resource group. The first node in this list should be the primary, with others being the secondaries. The order of the secondaries will indicate preference for becoming primaries.)

Dependencies _____

(Does this resource depend upon another resource group.)

Application Resources

Resource name _____

Resource group name _____

Resource type:

☐ Logical host

☐ Shared address

☐ Data service/other

Hostnames used _____

Network name _____

Adapter or NAFO group:

Node name	Adapter/group name

Resource type name _____

Dependencies _____

Extension properties:

Name	Value

Example: Resources—Application

Resource name oracle-listener

Resource group name rg-oracle

Resource type:

☐ Logical host

☐ Shared address

☒ Data service/other

Hostnames used _____

Network name _____

Adapter or NAFO group:

Node name	Adapter/group name

Resource type name SUNW.oracle_listener

Dependencies _____

Extension properties:

Name	Value

Example: Resources—SharedAddress

Resource name sh-galileo

Resource group name rg-shared

Resource type:

☐ Logical hostname ☒ Shared address

☐ Data service/other

Hostnames used sh-galileo

Network name net-85

Adapter or NAFO group:

Node name	Adapter/NAFO group name
phys-schost-1	nafo0
phys-schost-2	nafo0

Resource type name _____

Dependencies _____

Extension properties:

Name	Value