



Sun Cluster Data Service for N1 Grid Service Provisioning System for Solaris OS



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Contents

Preface	9
Installing and Configuring Sun Cluster HA for N1 Service Provisioning System	13
Installing and Configuring Sun Cluster HA for N1 Service Provisioning System	13
Sun Cluster HA for N1 Service Provisioning System	15
Planning the Sun Cluster HA for N1 Service Provisioning System Installation and Configuration	15
N1 Grid Service Provisioning System and Solaris Containers	15
Configuration Restrictions	16
Configuration Requirements	17
Installing and Configuring N1 Grid Service Provisioning System	23
▼ How to enable the N1 Grid Service Provisioning System Components to run in the Global Zone	24
▼ How to Install the N1 Grid Service Provisioning System Components in a Global Zone	24
▼ How to enable the N1 Grid Service Provisioning System Components to run in a Zone	25
▼ How to Install the N1 Grid Service Provisioning System Components in a Zone	26
▼ How to enable the N1 Grid Service Provisioning System Components to run in a Failover Zone	27
▼ How to Install the N1 Grid Service Provisioning System Components in a Failover Zone	28
Verifying the Installation and Configuration of N1 Grid Service Provisioning System	29
▼ How to Verify the Installation and Configuration of N1 Grid Service Provisioning System Master Server	29
▼ How to Verify the Installation and Configuration of N1 Grid Service Provisioning System Remote Agent	30
▼ How to Verify the Installation and Configuration of N1 Grid Service Provisioning System Local Distributor	31
Installing the Sun Cluster HA for N1 Service Provisioning System Packages	32
▼ How to Install the Sun Cluster HA for N1 Service Provisioning System Packages	32
Preparation of the N1 Grid Service Provisioning System Master Servers database	34
▼ Preparation of the Master Servers database.	34

Registering and Configuring Sun Cluster HA for N1 Service Provisioning System	35
▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Master Server as a Failover Data Service	35
▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Master Server as a Failover Data Service in a Failover Zone	39
▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Master Server as a Failover Data Service in a zone	42
▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Remote Agent as a Failover Data Service	46
▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Remote Agent as a Failover Data Service in a Failover Zone	48
▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Local Distributor as a Failover Data Service	50
▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Local Distributor as a Failover Data Service in a Failover Zone	52
Verifying the Sun Cluster HA for N1 Service Provisioning System and Configuration	54
▼ How to Verify the Sun Cluster HA for N1 Service Provisioning System Installation and Configuration	54
Understanding the Sun Cluster HA for N1 Service Provisioning System Master Server Parameter File	55
Structure of the Sun Cluster HA for N1 Service Provisioning System Master Servers parameter file	55
Strategy to Chose the TestCmd and the ReturnString Variable	57
Understanding the fault monitor of the Sun Cluster HA for N1 Service Provisioning System	57
Resource Properties	57
Probing Algorithm and Functionality for the N1 Grid Service Provisioning System Master Server	57
Probing Algorithm and Functionality for the N1 Grid Service Provisioning System Remote Agent	58
Probing Algorithm and Functionality for the N1 Grid Service Provisioning System Local Distributor	58
How to debug Sun Cluster HA for N1 Service Provisioning System	59
▼ How to turn debug on for a Sun Cluster HA for N1 Service Provisioning System component ..	59
A Deployment Example: Installing N1 Grid Service Provisioning System in the Global Zone	63
Target Cluster Configuration	63
Software Configuration	63
Assumptions	64
Installing and Configuring N1 Grid Service Provisioning System Master Server on Shared Storage in	

the Global Zone	64
▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Master Server	64
▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Master Server	65
▼ Example: Installing the N1 Grid Service Provisioning System Master Server Software on Shared Storage	65
▼ Example: Modifying the N1 Grid Service Provisioning System Master Server Configuration and Parameter Files	67
▼ Example: Enabling the N1 Grid Service Provisioning System Master Server Software to Run in the Cluster	68
Installing and Configuring N1 Grid Service Provisioning System Remote Agent on Shared Storage in the Global Zone	68
▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Remote Agent	68
▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Remote Agent	69
▼ Example: Installing the N1 Grid Service Provisioning System Remote Agent Software on Shared Storage	69
▼ Example: Modifying the N1 Grid Service Provisioning System Remote Agent Configuration File	70
▼ Example: Enabling the N1 Grid Service Provisioning System Remote Agent Software to Run in the Cluster	70
Installing and Configuring N1 Grid Service Provisioning System Local Distributor on Shared Storage in the Global Zone	71
▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Local Distributor	71
▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Local Distributor	72
▼ Example: Installing the N1 Grid Service Provisioning System Local Distributor Software on Shared Storage	72
▼ Example: Modifying the N1 Grid Service Provisioning System Local Distributor Configuration File	73
▼ Example: Enabling the N1 Grid Service Provisioning System Local Distributor Software to Run in the Cluster	73
B Deployment Example: Installing N1 Grid Service Provisioning System in the Failover Zone	75
Target Cluster Configuration	75
Software Configuration	75
Assumptions	76
Installing and Configuring N1 Grid Service Provisioning System Master Server on Shared Storage in the Failover Zone	76
▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Master Server	76

- ▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Master Server 77
- ▼ Example: Configuring the Failover Zone 77
- ▼ Example: Installing the N1 Grid Service Provisioning System Master Server Software 79
- ▼ Example: Modifying the N1 Grid Service Provisioning System Master Server Configuration and Parameter Files 80
- ▼ Example: Enabling the N1 Grid Service Provisioning System Master Server Software to Run in the Cluster 81
- Installing and Configuring N1 Grid Service Provisioning System Remote Agent on Shared Storage in the Failover Zone 82
 - ▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Remote Agent 82
 - ▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Remote Agent 82
 - ▼ Example: Configuring the Failover Zone 83
 - ▼ Example: Installing the N1 Grid Service Provisioning System Remote Agent Software on Shared Storage 85
 - ▼ Example: Modifying the N1 Grid Service Provisioning System Remote Agent Configuration File 86
 - ▼ Example: Enabling the N1 Grid Service Provisioning System Remote Agent Software to Run in the Cluster 86
- Installing and Configuring N1 Grid Service Provisioning System Local Distributor on Shared Storage in the Failover Zone 87
 - ▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Local Distributor 87
 - ▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Local Distributor 87
 - ▼ Example: Configuring the Failover Zone 88
 - ▼ Example: Installing the N1 Grid Service Provisioning System Local Distributor Software 90
 - ▼ Example: Modifying the N1 Grid Service Provisioning System Local Distributor Configuration File 91
 - ▼ Example: Enabling the N1 Grid Service Provisioning System Local Distributor Software to Run in the Cluster 91
- C Deployment Example: Installing N1 Grid Service Provisioning System in the Zone 93**
 - Target Cluster Configuration 93
 - Software Configuration 93
 - Assumptions 94
 - Installing and Configuring N1 Grid Service Provisioning System Master Server on Shared Storage in the Zone 94
 - ▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Master Server 94

▼ Example: Configuring the Zone	95
▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Master Server	96
▼ Example: Installing the N1 Grid Service Provisioning System Master Server Software on Shared Storage	96
▼ Example: Modifying the N1 Grid Service Provisioning System Master Server Configuration and Parameter Files	98
▼ Example: Enabling the N1 Grid Service Provisioning System Master Server Software to Run in the Cluster	99
Installing and Configuring N1 Grid Service Provisioning System Remote Agent on Shared Storage in the Zone	99
▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Remote Agent	99
▼ Example: Configuring the Zone	100
▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Remote Agent	101
▼ Example: Installing the N1 Grid Service Provisioning System Remote Agent Software on Shared Storage	101
▼ Example: Modifying the N1 Grid Service Provisioning System Remote Agent Configuration File	102
▼ Example: Enabling the N1 Grid Service Provisioning System Remote Agent Software to Run in the Cluster	103
Installing and Configuring N1 Grid Service Provisioning System Local Distributor on Shared Storage in the Zone	103
▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Local Distributor ..	104
▼ Example: Configuring the Zone	104
▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Local Distributor	105
▼ Example: Installing the N1 Grid Service Provisioning System Local Distributor Software on Shared Storage	106
▼ Example: Modifying the N1 Grid Service Provisioning System Local Distributor Configuration File	107
▼ Example: Enabling the N1 Grid Service Provisioning System Local Distributor Software to Run in the Cluster	107
Index	109

Preface

Sun Cluster Data Service for N1 Grid Service Provisioning System for Solaris OS explains how to install and configure Sun™ Cluster HA for N1 Grid Service Provisioning System on both SPARC® based systems and x86 based systems.

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

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

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

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

Using UNIX Commands

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

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

Typographic Conventions

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

TABLE P-1 Typographic Conventions

Typeface	Meaning	Example
AaBbCc123	The names of commands, files, and directories, and onscreen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name%</code> you have mail.
AaBbCc123	What you type, contrasted with onscreen computer output	<code>machine_name%</code> su Password:
<i>aabcc123</i>	Placeholder: replace with a real name or value	The command to remove a file is <i>rm filename</i> .
<i>AaBbCc123</i>	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . <i>A 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.

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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>SPARCprtdiag -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 N1 Service Provisioning System

This chapter explains how to install and configure Sun Cluster HA for N1 Service Provisioning System.

This chapter contains the following sections.

- “Installing and Configuring Sun Cluster HA for N1 Service Provisioning System” on page 13
- “Sun Cluster HA for N1 Service Provisioning System” on page 15
- “Planning the Sun Cluster HA for N1 Service Provisioning System Installation and Configuration” on page 15
- “Installing and Configuring N1 Grid Service Provisioning System” on page 23
- “Verifying the Installation and Configuration of N1 Grid Service Provisioning System” on page 29
- “Installing the Sun Cluster HA for N1 Service Provisioning System Packages” on page 32
- “Preparation of the N1 Grid Service Provisioning System Master Servers database” on page 34
- “Registering and Configuring Sun Cluster HA for N1 Service Provisioning System” on page 35
- “Verifying the Sun Cluster HA for N1 Service Provisioning System and Configuration” on page 54
- “Understanding the Sun Cluster HA for N1 Service Provisioning System Master Server Parameter File” on page 55
- “Understanding the fault monitor of the Sun Cluster HA for N1 Service Provisioning System” on page 57
- “How to debug Sun Cluster HA for N1 Service Provisioning System” on page 59

Installing and Configuring Sun Cluster HA for N1 Service Provisioning System

Table 1 list the tasks for installing and configuring Sun Cluster HA for N1 Service Provisioning System. Perform these tasks in the order they are listed.

TABLE 1 Task Map: Installing and Configuring Sun Cluster HA for N1 Service Provisioning System

Task	For Instructions, Go To
1 Plan the installation.	“Planning the Sun Cluster HA for N1 Service Provisioning System Installation and Configuration” on page 15
2 Install and configure the N1 Grid Service Provisioning System.	“Installing and Configuring N1 Grid Service Provisioning System” on page 23
3 Verify installation and configuration.	“How to Verify the Installation and Configuration of N1 Grid Service Provisioning System Master Server” on page 29
4 Install Sun Cluster HA for N1 Service Provisioning System Packages.	“Installing the Sun Cluster HA for N1 Service Provisioning System Packages” on page 32
5 Register and configure Sun Cluster HA for N1 Service Provisioning System components	“Registering and Configuring Sun Cluster HA for N1 Service Provisioning System” on page 35
5.1 Register and configure Sun Cluster HA for N1 Service Provisioning System Master Server as a failover data service.	“How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Master Server as a Failover Data Service” on page 35
5.2 Register and configure Sun Cluster HA for N1 Service Provisioning System Remote Agent as a failover data service.	“How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Remote Agent as a Failover Data Service” on page 46
5.3 Register and Configure Sun Cluster HA for N1 Service Provisioning System Local Distributor as a failover data service.	“How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Local Distributor as a Failover Data Service” on page 50
6 Verify Sun Cluster HA for N1 Service Provisioning System Installation and Configuration.	“How to Verify the Sun Cluster HA for N1 Service Provisioning System Installation and Configuration” on page 54
7 Understanding the Sun Cluster HA for N1 Service Provisioning System parameter file.	“Understanding the Sun Cluster HA for N1 Service Provisioning System Master Server Parameter File” on page 55
8 Understanding the Sun Cluster HA for N1 Service Provisioning System Fault Monitor.	“Understanding the fault monitor of the Sun Cluster HA for N1 Service Provisioning System” on page 57
9 How to debug Sun Cluster HA for N1 Service Provisioning System.	“How to turn debug on for a Sun Cluster HA for N1 Service Provisioning System component” on page 59

Sun Cluster HA for N1 Service Provisioning System

The N1 Grid Service Provisioning System is Sun Microsystems product for service (software) Distribution in the N1 environment. It consists of four components:

1. The Master Server which is the core component for the service distribution.
2. The client component is called Remote Agent. It has to run on every target host.
3. A proxy component called Local Distributor. The Local Distributor is used to minimize data transfer between datacenters.
4. A command line interface which can be installed on every host.

The Master Server is built upon Apache Tomcat and the PostgreSQL Database. All other components are pure Java.

The Sun Cluster HA for N1 Service Provisioning System data service provides mechanisms for orderly startup and shutdown, fault monitoring, and automatic failover of the Master Server, the Remote Agent and the Local Distributor.

The following table describes the relation between the application components and the related Sun Cluster data service.

TABLE 2 Protection of Components

Component	Protected by
Master Server	Sun Cluster HA for N1 Service Provisioning System
Remote Agent	Sun Cluster HA for N1 Service Provisioning System
Local Distributor	Sun Cluster HA for N1 Service Provisioning System

Planning the Sun Cluster HA for N1 Service Provisioning System Installation and Configuration

This section contains the information you need to plan your Sun Cluster HA for N1 Service Provisioning System installation and configuration.

N1 Grid Service Provisioning System and Solaris Containers

Sun Cluster HA for N1 Service Provisioning System is supported in Solaris Containers, Sun Cluster is offering two concepts for Solaris Containers.

- Zones are containers which are running after a reboot of the node. These containers, combined with resource groups having the nodename *nodename:zonename* as a valid “nodename” in the resource groups nodename list.
- Failover Zone containers are managed by the Solaris Container agent, and are represented by a resource of a resource group.

Configuration Restrictions

This paragraph provides a list of software and hardware configuration restrictions that apply to Sun Cluster HA for N1 Service Provisioning System only.

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



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

Restriction for the N1 Grid Service Provisioning System Data Service Configuration

Sun Cluster HA for N1 Service Provisioning System can only be configured as a failover data service. Each component of N1 Grid Service Provisioning System can operate as a failover data service only. Therefore, all the components of the Sun Cluster HA for N1 Service Provisioning System can only be configured to run as failover data services.

Restriction for the N1 Grid Service Provisioning System Storage Configuration

Install the N1 Grid Service Provisioning System components on shared storage. The Master Server and the Local Distributor have to be installed on the shared storage. The remote agents which are configured to bind on the logical host have to be installed on the shared storage as well.

Note – This restriction is automatically adhered in failover zone configurations.

Restriction to configure the N1 Grid Service Provisioning System Remote Agent

Configure a Sun Cluster resource for the N1 Grid Service Provisioning System Remote Agent for raw and ssl communication only. The Master Server will start and stop the Remote Agent on every connection, as long as the Remote agent is configured for ssh communication. In this case, there is no Sun Cluster resource needed. In the ssh scenario, you have to install the N1 Grid Service Provisioning System Remote Agent on the shared storage and copy the ssh keys from one node to the remaining nodes of the cluster. This assures that all the cluster nodes have the same ssh personality.

Note – There is no need to copy ssh keys in failover zone configurations.

Restriction for the N1 Grid Service Provisioning System smf Service Name in a Failover Zone

The N1 Grid Service Provisioning System configuration in a failover zone uses the smf component of Sun Cluster HA for Solaris Containers. The registration of the N1 Grid Service Provisioning System data service in a failover zone defines an smf service to control the N1 Grid Service Provisioning System database. The name of this smf service is generated in this naming scheme: `svc:/application/sczone-agents:resource-name`. No other smf service with exactly this name can exist.

The associated smf manifest is automatically created during the registration process in this location and naming scheme: `/var/svc/manifest/application/sczone-agents/resource-name.xml`. No other manifest can coexist with this name.

Configuration Requirements

These requirements apply to Sun Cluster HA for N1 Service Provisioning System only. You must meet these requirements before you proceed with your Sun Cluster HA for N1 Service Provisioning System installation and configuration.



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

Configure the N1 Grid Service Provisioning System base directory on shared storage on a failover file system

Create the N1 Grid Service Provisioning System base directory on the shared storage. The location for the base directory can reside on a Global File System (GFS) or it can reside on a Failover File System (FFS) with an HAStoragePlus resource. It is best practice to store it on a FFS.

The FFS is required because the Master Server uses the directory structure to store its configuration, logs, deployed applications, database and so on. The Remote agent and the Local Distributor store their caches below the base directory. It is not recommended to store the binaries on the local storage and the dynamic parts of the data on the shared storage.

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

N1 Grid Service Provisioning System components and dependencies –

You can configure the Sun Cluster HA for N1 Service Provisioning System data service to protect one or more N1 Grid Service Provisioning System instances or components. Each instance or component needs to be covered by one Sun Cluster HA for N1 Service Provisioning System resource. The dependencies between the Sun Cluster HA for N1 Service Provisioning System resource and other necessary resources are described in the following table.

TABLE 3 Dependencies Between Sun Cluster HA for N1 Service Provisioning System Components in Failover Configurations

Component	Dependency
N1 Grid Service Provisioning System resource in a Solaris 10 global zone, zone or in Solaris 9.	SUNW.HASStoragePlus This dependency is required only, if the configuration uses a failover file system or file systems in a zone. SUNW.LogicalHostName
N1 Grid Service Provisioning System resource in a Solaris 10 failover zone.	Sun Cluster HA for the Solaris Container boot resource. SUNW.HASStoragePlus SUNW.LogicalHostName — This dependency is required only if the zones boot resource does not manage the zone's IP address.

Note – For more detailed information about N1 Grid Service Provisioning System, refer to the product documentation on the *docs.sun.com* webpage or the documentation delivered with the product.

Configuration and Registration Files

Each component of Sun Cluster HA for N1 Service Provisioning System has configuration and registration files in the directory `/opt/SUNWscsps/component-dir/uttl` — The term `component-dir` stands for the directory names `master`, `localdist` or `remoteagent`. These files let you register the N1 Grid Service Provisioning System component with Sun Cluster.

Within these files, you apply the appropriate dependencies.

EXAMPLE 1 N1 Grid Service Provisioning System master components configuration and registration file for Sun Cluster

```
# cd /opt/SUNWscsps/master
#
# ls -l uttl
total 38
-r-xr-xr-x  1 root   bin           913 Jun  6 13:54 db_prep_postgres
-r-xr-xr-x  1 root   bin          1271 Jun  6 13:54 spsma_config
-r-xr-xr-x  1 root   bin          7709 Jun  6 13:54 spsma_register
```

EXAMPLE 1 N1 Grid Service Provisioning System master components configuration and registration file for Sun Cluster (Continued)

```

-r-xr-xr-x  1 root    bin          5276 Jun  6 13:54 spsma_smf_register
-r-xr-xr-x  1 root    bin          1348 Jun  6 13:54 spsma_smf_remove
# more util/spsma_config
#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#

#ident      "@(#)spsma_config.ksh 1.2      06/03/17 SMI"

# This file will be sourced in by spsma_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
#      RS - name of the resource for the application
#      RG - name of the resource group containing RS
#      PORT - name of the port number to satisfy GDS registration
#      LH - name of the LogicalHostname SC resource
#      PFILE - name of the parameter file for additional variables
#      HAS_RS - name of the HAStoragePlus SC resource
#
# The following variables need to be set only if the agent runs in a
# failover zone
#
#      ZONE - Zonename where the zsmf component should be registered
#      ZONE_BT - Resource name of the zone boot component
#      PROJECT - A project in the zone, that will be used for the PostgreSQL
#                smf service.
#                If the variable is not set it will be translated as :default for
#                the smf credentialss.
#                Optional
#
RS=
RG=
PORT=8080
LH=
PFILE=
HAS_RS=

# failover zone specific options

ZONE=

```

EXAMPLE 1 N1 Grid Service Provisioning System master components configuration and registration file for Sun Cluster (Continued)

```
ZONE_BT=
PROJECT=
```

The `spsma_register` script validates the variables of the `spsma_config` script and registers the resource for the master server.

The master server component has an additional script `db_prep_postgres`. The purpose of this script is to prepare the PostgreSQL database of the Master Server for monitoring.

EXAMPLE 2 N1 Grid Service Provisioning System Remote Agent components configuration and registration file for Sun Cluster

```
# cd /opt/SUNWscsps/remoteagent
#
# ls -l util
total 34
-r-xr-xr-x  1 root  bin           1363 Jun  6 13:54 spsra_config
-r-xr-xr-x  1 root  bin           7556 Jun  6 13:54 spsra_register
-r-xr-xr-x  1 root  bin           4478 Jun  6 13:54 spsra_smf_register
-r-xr-xr-x  1 root  bin           1347 Jun  6 13:54 spsra_smf_remove
# more util/spsra_config
#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#

#ident  "@(#)spsra_config.ksh 1.2      06/03/17 SMI"

# This file will be sourced in by spsra_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
#     RS - name of the resource for the application
#     RG - name of the resource group containing RS
#     PORT - name of the port number to satisfy GDS registration
#     LH - name of the LogicalHostname SC resource
#     USER - name of the owner of the remote agent
#     BASE - name of the directory where the N1 Service Provisioning Server
#           is installed
#     HAS_RS - name of the HAStoragePlus SC resource
#
# The following variables need to be set only if the agent runs in a
# failover zone
#
```

EXAMPLE 2 N1 Grid Service Provisioning System Remote Agent components configuration and registration file for Sun Cluster *(Continued)*

```
#          ZONE - Zonename where the zsmf component should be registered
#          ZONE_BT - Resource name of the zone boot component
#          PROJECT - A project in the zone, that will be used for the PostgreSQL
#                  smf service.
#                  If the variable is not set it will be translated as :default for
#                  the smf credentialss.
#                  Optional
#
RS=
RG=
PORT=22
LH=
USER=
BASE=
HAS_RS=

# failover zone specific options

ZONE=
ZONE_BT=
PROJECT=
```

The `spsra_register` script validates the variables of the `spsra_config` script and registers the resource for the remote agent.

EXAMPLE 3 N1 Grid Service Provisioning System Local Distributors components configuration and registration file for Sun Cluster

```
# cd /opt/SUNWscsps/localdist
#
# ls -l util
total 34
-r-xr-xr-x  1 root  bin           1369 Jun  6 13:54 spsld_config
-r-xr-xr-x  1 root  bin           7550 Jun  6 13:54 spsld_register
-r-xr-xr-x  1 root  bin          4501 Jun  6 13:54 spsld_smf_register
-r-xr-xr-x  1 root  bin           1347 Jun  6 13:54 spsld_smf_remove
# more util/spsld_config
#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
#ident  "@(#)spsld_config.ksh 1.2      06/03/17 SMI"
```

EXAMPLE 3 N1 Grid Service Provisioning System Local Distributors components configuration and registration file for Sun Cluster *(Continued)*

```
# This file will be sourced in by spsld_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
#     RS - name of the resource for the application
#     RG - name of the resource group containing RS
#     PORT - name of the port number to satisfy GDS registration
#     LH - name of the LogicalHostname SC resource
#     USER - name of the owner of the local distributor
#     BASE - name of the directory where the N1 Service Provisioning Server
#           is installed
#     HAS_RS - name of the HAStoragePlus SC resource
#
#
# The following variables need to be set only if the agent runs in a
# failover zone
#
#     ZONE - Zonename where the zsmf component should be registered
#     ZONE_BT - Resource name of the zone boot component
#     PROJECT - A project in the zone, that will be used for the PostgreSQL
#              smf service.
#              If the variable is not set it will be translated as :default for
#              the smf credentialss.
#              Optional
#
RS=
RG=
PORT=22
LH=
USER=
BASE=
HAS_RS=

# failover zone specific options

ZONE=
ZONE_BT=
PROJECT=
```

The `spsld_register` script validates the variables of the `spsld_config` script and registers the resource for the local distributor.

Installing and Configuring N1 Grid Service Provisioning System

This section contains the procedures for installing and configuring N1 Grid Service Provisioning System components. The components are the Master Server, the Remote Agent and the Local Distributor.

Determine how N1 Grid Service Provisioning System will be deployed in the Sun Cluster

- Determine which component of the N1 Grid Service Provisioning System you will use.
- Determine which user name will run N1 Grid Service Provisioning System component.
- Determine how many N1 Grid Service Provisioning System component versions and instances will be deployed.
- Determine which Cluster File System will be used by each N1 Grid Service Provisioning System component instance.
- Determine the type of the target zone where you will install N1 Grid Service Provisioning System. Valid zone types are, the global zone, the failover zone, or a zone.

To deploy N1 Grid Service Provisioning System complete one of the following tasks:

To install and configure N1 Grid Service Provisioning System in a *global zone* configuration, complete the following tasks:

- [“How to enable the N1 Grid Service Provisioning System Components to run in the Global Zone” on page 24](#)
- [“How to Install the N1 Grid Service Provisioning System Components in a Global Zone” on page 24](#)

To install and configure N1 Grid Service Provisioning System in a zone configuration, complete the following tasks:

- [“How to enable the N1 Grid Service Provisioning System Components to run in a Zone” on page 25](#)
- [“How to Install the N1 Grid Service Provisioning System Components in a Zone” on page 26](#)

To install and configure N1 Grid Service Provisioning System in a failover zone configuration, complete the following tasks:

- [“How to enable the N1 Grid Service Provisioning System Components to run in a Failover Zone” on page 27](#)
- [“How to Install the N1 Grid Service Provisioning System Components in a Failover Zone” on page 28](#)

You will find installation examples for each zone type in:

- [Appendix A](#)
- [Appendix B](#)
- [Appendix C](#)

▼ How to enable the N1 Grid Service Provisioning System Components to run in the Global Zone

Perform these steps on one node only.

- 1 **Become superuser or assume a role that provides `solaris.cluster.verb` RBAC authorization on one of the nodes in the cluster that will host N1 Grid Service Provisioning System.**

- 2 **Register the `SUNW.HASStoragePlus` and `SUNW.gds` resource types.**

It is assumed that the file system of the N1 Grid Service Provisioning System component will be mounted as a failover file system.

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

- 3 **Create a failover resource group.**

```
# clresourcegroup create N1sps-component-resource-group
```

- 4 **Create a resource for the N1 Grid Service Provisioning System component Disk Storage.**

```
# clresource create \
> -g N1sps-component-resource-group \
> -t SUNW.HASStoragePlus \
> -p FilesystemMountPoints=N1sps-component-instance-mount-points \
> N1sps-component-has-resource
```

- 5 **Create a resource for the N1 Grid Service Provisioning System Master component Logical Host name.**

```
# clreslogicalhostname \
> -g N1sps-component-resource-group \
> -h N1 Grid Service Provisioning System-logical-hostname \
> N1sps-component-logical-hostname
```

- 6 **Enable the failover resource group, which now includes the N1 Grid Service Provisioning System Disk Storage and Logical Hostname resources.**

```
# clresourcegroup online -M N1sps-component-resource-group
```

▼ How to Install the N1 Grid Service Provisioning System Components in a Global Zone

- 1 **Create user and group if required — If the N1 Grid Service Provisioning System is to run under a non root user, you have to create the appropriate user, and the appropriate group. For these tasks use the following commands on every node.**

```
# groupadd -g 1000 sps
# useradd -u 1000 -g 1000 -d /global/sps -s /bin/ksh sps
```


- 2 **Install the N1 Grid Service Provisioning System components — Install the appropriate N1 Grid Service Provisioning System components on one node. Use a shared file system within Sun Cluster for the installation location.**

It is recommended that you install N1 Grid Service Provisioning System onto shared disks. For a discussion of the advantages and disadvantages of installing the software on a local versus a cluster file system, see “Determining the Location of the Application Binaries” in the *Sun Cluster Data Services Installation and Configuration Guide*.

Note – Refer to the N1 Grid Service Provisioning System product documentation on <http://docs.sun.com> for instructions about installing N1 Grid Service Provisioning System. For more information about N1 Grid Service Provisioning System, refer to the *docs.sun.com* web page.

▼ How to enable the N1 Grid Service Provisioning System Components to run in a Zone

- 1 **Become superuser or assume a role that provides solaris.cluster.verb RBAC authorization on one of the nodes in the cluster that will host N1 Grid Service Provisioning System.**
- 2 **Create and boot your zone *N1 Grid Service Provisioning System-zone* on all the nodes to host your N1 Grid Service Provisioning System data base.**
- 3 **Register the SUNW.HAStoragePlus and SUNW.gds resource types.**

It is assumed that the file system of the N1 Grid Service Provisioning System component will be mounted as a failover file system.

```
# clresource type register SUNW.gds SUNW.HAStoragePlus
```

- 4 **Create a failover resource group.**

```
# clresourcegroup create \  
> -n node1:N1 Grid Service Provisioning System-zone,node2:N1 Grid Service Provisioning System-zone \  
> N1sps-component-resource-group
```

- 5 **Create a resource for the N1 Grid Service Provisioning System component Disk Storage.**

```
# clresource create \  
> -g N1sps-component-resource-group \  
> -t SUNW.HAStoragePlus \  
> -p FilesystemMountPoints=N1sps-component-instance-mount-points \  
> N1sps-component-has-resource
```

- 6 **Create a resource for the N1 Grid Service Provisioning System Master component Logical Host name.**

```
# clreslogicalhostname \  
> -g N1sps-component-resource-group \  
> N1sps-component-logical-hostname
```

```
> -h N1 Grid Service Provisioning System-logical-hostname \  
> N1sps-component-logical-hostname
```

- 7 **Enable the failover resource group, which now includes the N1 Grid Service Provisioning System Disk Storage and Logical Hostname resources.**

```
# clresourcegroup online -M N1sps-component-resource-group
```

▼ How to Install the N1 Grid Service Provisioning System Components in a Zone

- 1 **Become superuser or assume a role that provides `solaris.cluster.modify` and `solaris.cluster.admin` RBAC authorizations.**

- 2 **Enter the target zone**

```
# zlogin sps-zone
```

- 3 **Create user and group if required — If the N1 Grid Service Provisioning System is to run under a non root user, you have to create the appropriate user, and the appropriate group. For these tasks use the following commands on every node.**

```
# groupadd -g 1000 sps  
# useradd -u 1000 -g 1000 -d /global/sps -s /bin/ksh sps
```

- 4 **Install the N1 Grid Service Provisioning System components — Install the appropriate N1 Grid Service Provisioning System components on one node. Use a shared file system within Sun Cluster for the installation location.**

It is recommended that you install N1 Grid Service Provisioning System onto shared disks. For a discussion of the advantages and disadvantages of installing the software on a local versus a cluster file system, see “Determining the Location of the Application Binaries” in the *Sun Cluster Data Services Installation and Configuration Guide*.

Note – Refer to the N1 Grid Service Provisioning System product documentation on <http://docs.sun.com> for instructions about installing N1 Grid Service Provisioning System. For more information about N1 Grid Service Provisioning System, refer to the docs.sun.com web page.

You installed the N1 Grid Service Provisioning System onto shared storage, so installing the software on one node is sufficient.

▼ How to enable the N1 Grid Service Provisioning System Components to run in a Failover Zone

1 Become superuser or assume a role that provides `solaris.cluster.verb` RBAC authorization on one of the nodes in the cluster that will host N1 Grid Service Provisioning System.

2 As superuser register the `SUNW.HASStoragePlus` and the `SUNW.gds` resource types.

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

3 Create a failover resource group.

```
# clresourcegroup create N1 Grid Service Provisioning System-resource-group
```

4 Create a resource for the N1 Grid Service Provisioning System zone's disk storage.

```
# clresource create -t SUNW.HASStoragePlus \
-p FileSystemMountPoints=N1 Grid Service Provisioning System-instance-mount-points \
N1 Grid Service Provisioning System-has-resource
```

5 (Optional) If you want the protection against a total adapter failure for your public network, create a resource for the N1 Grid Service Provisioning System's logical hostname.

```
# clreslogicalhostname create -g N1 Grid Service Provisioning System-resource-group \
-h logical-hostname \
N1 Grid Service Provisioning System-logical-hostname-resource-name
```

6 Place the resource group in the managed state.

```
# clresourcegroup online -M N1 Grid Service Provisioning System-resource-group
```

7 Install the zone.

Install the zone according to the Sun Cluster HA for Solaris Containers agent documentation, assuming that the resource name is `N1 Grid Service Provisioning System-zone-rs` and that the zone name is `N1 Grid Service Provisioning System-zone`.

8 Verify the zone's installation.

```
# zoneadm -z N1 Grid Service Provisioning System-zone boot
# zoneadm -z N1 Grid Service Provisioning System-zone halt
```

9 Register the zone's boot component.

a. Copy the container resource boot component configuration file.

```
# cp /opt/SUNWsczone/sczbt/util/sczbt_config zones-target-configuration-file
```

b. Use a plain text editor to set the following variables:

```
RS=N1 Grid Service Provisioning System-zone-rs
RG=N1 Grid Service Provisioning System-resource-group
```

```

PARAMETERDIR=N1 Grid Service Provisioning System-zone-parameter-directory
SC_NETWORK=true|false
SC_LH=N1 Grid Service Provisioning System-logical-hostname-resource-name
FAILOVER=true|false
HAS_RS=N1 Grid Service Provisioning System-has-resource
Zonename=N1 Grid Service Provisioning System-zone
Zonebootopt=zone-boot-options
Milestone=zone-boot-milestone
Mounts=

```

- c. Create the parameter directory for your zone's resource.

```
# mkdir N1 Grid Service Provisioning System-zone-parameter-directory
```

- d. Execute the Sun Cluster HA for Solaris Container's registration script.

```
# /opt/SUNWsczone/sczbt/util/sczbt_register -f zones-target-configuration-file
```

- e. Enable the Solaris Container resource

```
# clresource enable N1 Grid Service Provisioning System-zone-rs
```

- 10 Enable the resource group.

```
# clresourcegroup online N1 Grid Service Provisioning System-resource-group
```

▼ How to Install the N1 Grid Service Provisioning System Components in a Failover Zone

- 1 Insure that you are on the node where you enabled your resource group.

- 2 Enter the target zone

```
# zlogin sps-zone
```

- 3 Become superuser or assume a role that provides `solaris.cluster.modify` and `solaris.cluster.admin` RBAC authorizations.

- 4 Create user and group if required — If the N1 Grid Service Provisioning System is to run under a non root user, you have to create the appropriate user, and the appropriate group. For these tasks use the following commands on every node.

```
# groupadd -g 1000 sps
```

```
# useradd -u 1000 -g 1000 -d /global/sps -s /bin/ksh sps
```

- 5 Install the N1 Grid Service Provisioning System components — Install the appropriate N1 Grid Service Provisioning System components on one node. Use a shared file system within Sun Cluster for the installation location.**

It is recommended that you install N1 Grid Service Provisioning System onto shared disks. For a discussion of the advantages and disadvantages of installing the software on a local versus a cluster file system, see “Determining the Location of the Application Binaries” in the *Sun Cluster Data Services Installation and Configuration Guide*. In respect to the fact that the root file system of a failover zone is installed on shared storage, any directory of the root file system is sufficient.

Note – Refer to the N1 Grid Service Provisioning System product documentation on <http://docs.sun.com> for instructions about installing N1 Grid Service Provisioning System. For more information about N1 Grid Service Provisioning System, refer to the docs.sun.com web page.

You installed the N1 Grid Service Provisioning System in a failover zone zone on shared storage, so installing the software on one node is sufficient.

Verifying the Installation and Configuration of N1 Grid Service Provisioning System

This section contains the procedure you need for verifying the installation and configuration of N1 Grid Service Provisioning System.

This procedure does not verify that your applications are highly available because you have not installed your data service yet. Select the appropriate procedure for the N1 Grid Service Provisioning System application you installed.

▼ How to Verify the Installation and Configuration of N1 Grid Service Provisioning System Master Server

This procedure is for the installation verification of the master server.

- 1 (Optional) Log in to the target zone if the master server is installed in a non-global zone.**

```
# zlogin sps-zone
```

- 2 Start the N1 Grid Service Provisioning System Master Server.**

Switch to the N1 Grid Service Provisioning System Master Servers user name (in the following example, it is sps) and change to the directory where the software is located. In the following example the software version is 4.1.

Note – The output messages of the start and shutdown commands are highly version dependent.

```
# su - sps
$ cd N1_Service_Provisioning_System_4.1
$ cd server/bin
$ ./cr_server start
*** Starting database
*** Starting cr_server
```

3 Check the Installation

Start a web browser and connect to the cluster node with *http://logical-hostname:port*. The port is the web administration port configured in the installation procedure of the master server. If you see the default N1 Grid Service Provisioning System login page everything is working correctly.

4 Stop the N1 Grid Service Provisioning System Master Server.

```
$ ./cr_server stop
*** Stopping cr_server
Waiting for CR to complete shutdown...
*** Stopping database
waiting for postmaster to shut down.....done
postmaster successfully shut down
```

5 (Optional) Leave the target zone.

▼ How to Verify the Installation and Configuration of N1 Grid Service Provisioning System Remote Agent

This procedure is for the installation verification of the N1 Grid Service Provisioning System Remote Agent.

1 (Optional) Log in to the target zone if the master server is installed in a non-global zone.

```
# zlogin sps-zone
```

2 Start the N1 Grid Service Provisioning System Remote Agent.

Switch to the N1 Grid Service Provisioning System Remote Agents user name (in the following example, it is sps) and change to the directory where the software is located. In the following example the software version is 4.1.

Note – The output messages of the start and shutdown commands are highly version dependent.

```
# su - sps
$ cd N1_Service_Provisioning_System
```

```
$ cd agent/bin
$ ./cr_agent start
*** Starting cr_agent
```

3 Check the Installation

Check the process table with the following command:

```
$ /usr/ucb/ps -auxww |grep java|grep agent >/dev/null;echo $?
0
```

If the response is 0, everything is working correctly. You may omit the `|grep agent >/dev/null;echo $?` in this case you have to see a java process with agent in the process string.

4 Stop the N1 Grid Service Provisioning System Remote Agent.

```
$ ./cr_agent stop
*** Stopping cr_agent
```

5 (Optional) Leave the target zone.

▼ How to Verify the Installation and Configuration of N1 Grid Service Provisioning System Local Distributor

This procedure is for the installation verification of the N1 Grid Service Provisioning System Local Distributor.

1 (Optional) Log in to the target zone if the master server is installed in a non-global zone.

```
# zlogin sps-zone
```

2 Start the N1 Grid Service Provisioning System Local Distributor.

Switch to the N1 Grid Service Provisioning System Remote Agents user name (in the following example, it is sps) and change to the directory the software is located. In the following example the software version is 4.1.

Note – The output messages of the start and shutdown commands are highly version dependent.

```
# su - sps
$ cd N1_Service_Provisioning_System
$ cd ld/bin
$ ./cr_ld start
*** Starting cr_ld
```

3 Check the Installation

Check the process table with the following command:

```
$ /usr/ucb/ps -auxww |grep java|grep ld>/dev/null;echo $?  
0
```

If the response is 0, everything is working correctly. You may omit the `|grep ld>/dev/null;echo $?` in this case you have to see a java process with ld in the process string.

4 Stop the N1 Grid Service Provisioning System Local Distributor.

```
$ ./cr_ld stop  
*** Stopping cr_ld
```

5 (Optional) Leave the target zone.

Installing the Sun Cluster HA for N1 Service Provisioning System Packages

If you did not install the Sun Cluster HA for N1 Service Provisioning System 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 N1 Service Provisioning System Packages

Perform this procedure on each cluster node where you are installing the Sun Cluster HA for N1 Service Provisioning System 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 `vol(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
```

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

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

4 Start the Sun Java Enterprise System 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 under Availability Services, select the data service for N1 Grid Service Provisioning System.**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 See [“Preparation of the N1 Grid Service Provisioning System Master Servers database”](#) on page 34 to prepare the N1 Grid Service Provisioning System Master Servers database.

Preparation of the N1 Grid Service Provisioning System Master Servers database

In this section you prepare the database of the N1 Grid Service Provisioning System Master Server. It needs to contain the user `sc_test` and the table `sc_test`. The user and the table are needed to monitor the PostgreSQL database. The script `db_prep_postgres` is provided to create the user and the table.

▼ Preparation of the Master Servers database.

1 Start the N1 Grid Service Provisioning System Master Server as described in [“How to Verify the Installation and Configuration of N1 Grid Service Provisioning System Master Server”](#) on page 29.

2 Remain within the user of the Master Server and prepare the database.

For the preparation of the database you need the N1 Grid Service Provisioning System Master Servers base directory. It is the directory that contains the `server/bin` directory. You prepare the database with the following command:

```
$/opt/SUNWscsps/master/util/db_prep_postgres <Base Directory of the master Server>  
CREATE USER  
CREATE
```

An example for the Base Directory is: `/global/sps/N1_Service_Provisioning_System_4.1`.

3 Stop the N1 Grid Service Provisioning System Master Server as described in [“How to Verify the Installation and Configuration of N1 Grid Service Provisioning System Master Server”](#) on page 29.

Registering and Configuring Sun Cluster HA for N1 Service Provisioning System

This section contains the procedures you need to configure the Master Server, the Remote Agent, or the Local Distributor of Sun Cluster HA for N1 Service Provisioning System. Sun Cluster supports the configuration of the N1 Grid Service Provisioning System in the global zone, failover zone and zone. If you install it on Solaris 9 use the global zone procedures.

If you want to install the Master Server, complete one of the tasks:

- “How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Master Server as a Failover Data Service” on page 35
- “How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Master Server as a Failover Data Service in a Failover Zone” on page 39

If you want to install the Remote Agent, complete one of the tasks:

- “How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Remote Agent as a Failover Data Service” on page 46
- “How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Remote Agent as a Failover Data Service in a Failover Zone” on page 48

If you want to install the Local Distributor, complete one of the tasks:

- “How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Local Distributor as a Failover Data Service” on page 50
- “How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Local Distributor as a Failover Data Service in a Failover Zone” on page 52

▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Master Server as a Failover Data Service

This procedure assumes that you installed the data service packages. Perform this procedure if you want to install the N1 Grid Service Provisioning System master server in the global zone.

If you did not install the Sun Cluster HA for N1 Service Provisioning System packages, go to “Installing the Sun Cluster HA for N1 Service Provisioning System Packages” on page 32.

- 1 Become superuser or assume a role that provides solaris.cluster.verb RBAC authorization on one of the nodes in the cluster that will host N1 Grid Service Provisioning System Master Server.**
- 2 Prepare the parameter file, which is required by the Sun Cluster HA for N1 Service Provisioning System Master Server.**



Caution – The parameter files need to be available on every node that can host the N1 Grid Service Provisioning System Master Server data service. For a failover configuration store them on the shared storage. The parameter files cannot differ for a specific instance of N1 Grid Service Provisioning System Master Server on the various nodes. For a zone you must install it on the shared storage of this zone.

```
# cd /opt/SUNWscsps/master/bin
# cp pfile desired place
```

Choose a location on the shared storage for the pfile. Edit the parameter file pfile and follow the comments within that file. For example:

```
#!/usr/bin/ksh
#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#

#ident "@(#)pfile.ksh 1.2 06/03/17 SMI"

# Set the Centerrun specific environment variables which the start, stop
# and check fuctions will use
#
# User          Centerrun User
# Basepath      Absolute path to N1 Grid Service Proisioning Systems Apache Basedir directory
# Host          Hostname to test Apache Tomcat
# Tport        Port where the N1 Grid Service Proisioning Systems Apache Tomcat instance
#              is configured to listen
# TestCmd      Apache Tomcat test command, this variable needs different contents, depending on
#              your master server configuration.
#              Your master server answers http request, configure:
#              TestCmd="get /index.jsp"
#              Your master server answers https request, configure:
#              TestCmd="/index.jsp"
# ReturnString Use one of the strings below according to your N1 Grid Service Proisioning Systems
#              Server Version.
#              Version 4.1 and 5.x = SSL|Service
# Startwait    Sleeping $Startwait seconds after completion of the
#              start command
# WgetPath      If the Master server is configured to answer https requests only, the absolute path
#              to the wget command is needed here. Omit this variable if your master server answers
#              on http requests.
#              example: WgetPath=/usr/sfw/bin/wget
#              Optional
User=
Basepath=
Host=
```

```
Tport=
TestCmd="get /index.jsp"
ReturnString="SSL|Service"
Startwait=
WgetPath=
```

Note – If you configured your master server to answer https requests, you need to install a https capable wget. Follow the comments in the parameter file to configure the TestCmd variable.

The following is an example for a N1 Grid Service Provisioning System 4.1 Master Server.

```
User=sps
Basepath=/global/sps/N1_Service_Provisioning_System_4.1
Host=N1spsma-lh
Tport=8080
TestCmd="get /index.jsp"
ReturnString="SSL|Service"
Startwait=20
WgetPath=
```

This example is from an N1 Grid Service Provisioning System 4.1 Master Server. The Apache Tomcat is configured to listen on Port 8080. The default start page contains the string Service, or the string SSL if you configured it to respond on the SSL Port.

3 Configure the registration scripts for each required N1 Grid Service Provisioning System Master Server instance.

```
# cd /opt/SUNWscsps/master/util
# cp spsma_config desired place
```

Edit the spsma_config file and follow the comments within that file. For example:

```
#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
#ident "@(#)spsma_config.ksh 1.2 06/03/17 SMI"
#
# This file will be sourced in by spsma_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
# RS - name of the resource for the application
# RG - name of the resource group containing RS
# PORT - name of the port number to satisfy GDS registration
# LH - name of the LogicalHostname SC resource
# PFILE - name of the parameter file for additional variables
```

```
# HAS_RS - name of the HAStoragePlus SC resource
#
# The following variables need to be set only if the agent runs in a
# failover zone
#
#         ZONE - Zonename where the zsmf component should be registered
#         ZONE_BT - Resource name of the zone boot component
#         PROJECT - A project in the zone, that will be used for the PostgreSQL
#                   smf service.
#                   If the variable is not set it will be translated as :default for
#                   the smf credentialss.
#                   Optional
#
```

```
RS=
RG=
PORT=8080
LH=
PFILE=
HAS_RS=
```

```
# failover zone specific options
```

```
ZONE=
ZONE_BT=
PROJECT=
```

The following is an example for the Sun Cluster HA for N1 Service Provisioning System Master Server.

```
RS=N1spsma-res
RG=N1spsma-rg
PORT=8080
LH=N1spsma-lh
PFILE=/global/mnt1/N1spsma-pfile
HAS_RS=N1spsma-hastplus-res
```

The PORT variable is needed to satisfy the requirements of the generic data service.

4 After editing spsma_config register the resource.

```
# ksh ./spsma_register -f desired_place/spsma_config
Registration of resource N1spsma-rs succeeded
Validate resource N1spsma-rs in resourcegroup spsma-rg
Validation of resource spsma-rs succeeded
#
```

- 5 Enable each N1 Grid Service Provisioning System Master Server resource.

```
# clresource status
```

```
# clresource enable N1spsma-resource
```

- 6 (Optional) Repeat [Step 2](#) to [Step 5](#) for each N1 Grid Service Provisioning System Master Server instance you need.

▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Master Server as a Failover Data Service in a Failover Zone

This procedure assumes that you installed the data service packages. Perform this procedure if you want to install the N1 Grid Service Provisioning System Master Server in a failover zone.

If you did not install the Sun Cluster HA for N1 Service Provisioning System packages, go to [“Installing the Sun Cluster HA for N1 Service Provisioning System Packages”](#) on page 32.

- 1 Become superuser or assume a role that provides `solaris.cluster.verb` RBAC authorization on one of the nodes in the cluster that will host N1 Grid Service Provisioning System Master Server.
- 2 Log in to your failover zone.


```
# zlogin sps-zone
```
- 3 Prepare the parameter file, which is required by the Sun Cluster HA for N1 Service Provisioning System Master Server.



Caution – The parameter files need to be available on every node that can host the N1 Grid Service Provisioning System Master Server data service. For a failover configuration store them on the shared storage. The parameter files cannot differ for a specific instance of N1 Grid Service Provisioning System Master Server on the various nodes.

```
# cd /opt/SUNWscsps/master/bin
# cp pfile desired place
```

Choose a location on the shared storage for the `pfile`. Edit the parameter file `pfile` and follow the comments within that file. For example:

```
#!/usr/bin/ksh
#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
```

```
#ident "@(#)pfile.ksh 1.2      06/03/17 SMI"

# Set the Centerrun specific environment variables which the start, stop
# and check fuctions will use
#
# User          Centerrun User
# Basepath      Absolute path to N1 Grid Service Proisioning Systems Apache Basedir directory
# Host          Hostname to test Apache Tomcat
# Tport         Port where the N1 Grid Service Proisioning Systems Apache Tomcat instance
#              is configured to listen
# TestCmd       Apache Tomcat test command, this variable needs different contents, depending on
#              your master server configuration.
#              Your master server answers http request, configure:
#              TestCmd="get /index.jsp"
#              Your master server answers https request, configure:
#              TestCmd="/index.jsp"
# ReturnString  Use one of the strings below according to your N1 Grid Service Proisioning Systems
#              Server Version.
#              Version 4.1 and 5.x = SSL|Service
# Startwait     Sleeping $Startwait seconds after completion of the
#              start command
# WgetPath       If the Master server is configured to answer https requests only, the absolute path
#              to the wget command is needed here. Omit this variable if your master server answers
#              on http requests.
#              example: WgetPath=/usr/sfw/bin/wget
#              Optional
User=
Basepath=
Host=
Tport=
TestCmd="get /index.jsp"
ReturnString="SSL|Service"
Startwait=
WgetPath=
```

Note – If you configured your master server to answer https requests, you need to install a https capable wget. Follow the comments in the parameter file to configure the TestCmd variable.

The following is an example for a N1 Grid Service Provisioning System 4.1 Master Server.

```
User=sps
Basepath=/global/sps/N1_Service_Provisioning_System_4.1
Host=N1spsma-lh
Tport=8080
TestCmd="get /index.jsp"
ReturnString="SSL|Service"
```



```
Startwait=20
WgetPath=
```

This example is from an N1 Grid Service Provisioning System 4.1 Master Server. The Apache Tomcat is configured to listen on Port 8080. The default start page contains the string `Service`, or the string `SSL` if you configured it to respond on the SSL Port.

4 Leave the failover zone.

5 Configure the registration scripts for each required N1 Grid Service Provisioning System Master Server instance.

```
# cd /opt/SUNWscsps/master/util
# cp spsma_config desired place
```

Edit the `spsma_config` file and follow the comments within that file. For example:

```
#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
#ident  "@(#)spsma_config.ksh 1.2      06/03/17 SMI"

# This file will be sourced in by spsma_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
#       RS - name of the resource for the application
#       RG - name of the resource group containing RS
#       PORT - name of the port number to satisfy GDS registration
#       LH - name of the LogicalHostname SC resource
#       PFILE - name of the parameter file for additional variables
#       HAS_RS - name of the HAStoragePlus SC resource
#
# The following variables need to be set only if the agent runs in a
# failover zone
#
#       ZONE - Zonename where the zsmf component should be registered
#       ZONE_BT - Resource name of the zone boot component
#       PROJECT - A project in the zone, that will be used for the PostgreSQL
#                 smf service.
#                 If the variable is not set it will be translated as :default for
#                 the smf credentialss.
#                 Optional
#
```

```
RS=
RG=
PORT=8080
LH=
PFILE=
HAS_RS=
```

```
# failover zone specific options
```

```
ZONE=
ZONE_BT=
PROJECT=
```

The following is an example for the Sun Cluster HA for N1 Service Provisioning System Master Server.

```
RS=N1spsma-res
RG=N1spsma-rg
PORT=8080
LH=N1spsma-lh
PFILE=/global/mnt1/N1spsma-pfile
HAS_RS=N1spsma-hastplus-res
ZONE=sps-zone
ZONE_BT=sps-zone-rs
PROJECT=
```

The PORT variable is needed to satisfy the requirements of the generic data service.

6 After editing `spsma_config` register the resource.

```
# ksh ./spsma_register -f desired_place/spsma_config
```

7 Enable each N1 Grid Service Provisioning System Master Server resource.

```
# clresource status
```

```
# clresource enable N1spsma-resource
```

8 (Optional) Repeat [Step 2](#) to [Step 7](#) for each N1 Grid Service Provisioning System Master Server instance you need.

▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Master Server as a Failover Data Service in a zone

This procedure assumes that you installed the data service packages. Perform this procedure if you want to install the N1 Grid Service Provisioning System Master Server in a zone.

If you did not install the Sun Cluster HA for N1 Service Provisioning System packages, go to [“Installing the Sun Cluster HA for N1 Service Provisioning System Packages”](#) on page 32.

- 1 **Become superuser or assume a role that provides `solaris.cluster.verb` RBAC authorization on one of the nodes in the cluster that will host N1 Grid Service Provisioning System Master Server.**
- 2 **Log in to your zone.**
`zlogin sps-zone`
- 3 **Prepare the parameter file, which is required by the Sun Cluster HA for N1 Service Provisioning System Master Server.**



Caution – The parameter files need to be available on every node that can host the N1 Grid Service Provisioning System Master Server data service. For a failover configuration store them on the shared storage. The parameter files cannot differ for a specific instance of N1 Grid Service Provisioning System Master Server on the various nodes.

```
# cd /opt/SUNWscsps/master/bin
# cp pfile desired place
```

Choose a location on the shared storage for the pfile. Edit the parameter file `pfile` and follow the comments within that file. For example:

```
#!/usr/bin/ksh
#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#

#ident "@(#)pfile.ksh 1.2 06/03/17 SMI"

# Set the Centerrun specific environment variables which the start, stop
# and check fuctions will use
#
# User          Centerrun User
# Basepath      Absolute path to N1 Grid Service Proisioning Systems Apache Basedir directory
# Host          Hostname to test Apache Tomcat
# Tport        Port where the N1 Grid Service Proisioning Systems Apache Tomcat instance
#              is configured to listen
# TestCmd       Apache Tomcat test command, this variable needs different contents, depending on
#              your master server configuration.
#              Your master server answers http request, configure:
#              TestCmd="get /index.jsp"
#              Your master server answers https request, configure:
#              TestCmd="/index.jsp"
# ReturnString  Use one of the strings below according to your N1 Grid Service Proisioning Systems
#              Server Version.
```

```
#           Version 4.1 and 5.x = SSL|Service
# Startwait Sleeping $Startwait seconds after completion of the
#           start command
# WgetPath  If the Master server is configured to answer https requests only, the absolute path
#           to the wget command is needed here. Omit this variable if your master server answers
#           on http requests.
#           example: WgetPath=/usr/sfw/bin/wget
#           Optional
User=
Basepath=
Host=
Tport=
TestCmd="get /index.jsp"
ReturnString="SSL|Service"
Startwait=
WgetPath=
```

Note – If you configured your master server to answer https requests, you need to install a https capable wget. Follow the comments in the parameter file to configure the TestCmd variable.

The following is an example for a N1 Grid Service Provisioning System 4.1 Master Server.

```
User=sps
Basepath=/global/sps/N1_Service_Provisioning_System_4.1
Host=N1spsma-lh
Tport=8080
TestCmd="get /index.jsp"
ReturnString="SSL|Service"
Startwait=20
WgetPath=
```

This example is from an N1 Grid Service Provisioning System 4.1 Master Server. The Apache Tomcat is configured to listen on Port 8080. The default start page contains the string Service, or the string SSL if you configured it to respond on the SSL Port.

4 Leave the zone.

5 Configure the registration scripts for each required N1 Grid Service Provisioning System Master Server instance.

```
# cd /opt/SUNWscsps/master/util
# cp spsma_config desired place
```

Edit the spsma_config file and follow the comments within that file. For example:

```
#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
```

```
#ident "@(#)spsma_config.ksh 1.2 06/03/17 SMI"

# This file will be sourced in by spsma_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
#     RS - name of the resource for the application
#     RG - name of the resource group containing RS
#     PORT - name of the port number to satisfy GDS registration
#     LH - name of the LogicalHostname SC resource
#     PFILE - name of the parameter file for additional variables
#     HAS_RS - name of the HAStoragePlus SC resource
#
# The following variables need to be set only if the agent runs in a
# failover zone
#
#     ZONE - Zonename where the zsmf component should be registered
#     ZONE_BT - Resource name of the zone boot component
#     PROJECT - A project in the zone, that will be used for the PostgreSQL
#               smf service.
#               If the variable is not set it will be translated as :default for
#               the smf credentialss.
#               Optional
#
```

```
RS=
RG=
PORT=8080
LH=
PFILE=
HAS_RS=
```

```
# failover zone specific options
```

```
ZONE=
ZONE_BT=
PROJECT=
```

The following is an example for the Sun Cluster HA for N1 Service Provisioning System Master Server.

```
RS=N1spsma-res
RG=N1spsma-rg
PORT=8080
LH=N1spsma-lh
PFILE=/global/mnt1/N1spsma-pfile
```

```
HAS_RS=N1spsma-hastplus-res
ZONE=
ZONE_BT=
PROJECT=
```

The PORT variable is needed to satisfy the requirements of the generic data service.

- 6 After editing `spsma_config` register the resource.

```
# ksh ./spsma_register -f desired_place/spsma_config
```

- 7 Enable each N1 Grid Service Provisioning System Master Server resource.

```
# clresource status
```

```
# clresource enable N1spsma-resource
```

- 8 (Optional) Repeat [Step 2](#) to [Step 7](#) for each N1 Grid Service Provisioning System Master Server instance you need.

▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Remote Agent as a Failover Data Service

Perform this procedure if you want to install the N1 Grid Service Provisioning System Remote Agent in the global zone, or in a zone. This procedure assumes that you installed the data service packages.

Note – There is absolutely no difference in the procedure between a global zone and azone.

If you did not install the Sun Cluster HA for N1 Service Provisioning System packages, go to [“Installing the Sun Cluster HA for N1 Service Provisioning System Packages”](#) on page 32.

- 1 Become superuser or assume a role that provides `solaris.cluster.verb` RBAC authorization on one of the nodes in the cluster that will host N1 Grid Service Provisioning System Remote Agent.
- 2 Configure the registration scripts for each required N1 Grid Service Provisioning System Remote Agents instance.

```
# cd /opt/SUNWscsps/remoteagent/util
# cp spsra_config desired place
```

Edit the `spsra_config` file and follow the comments within that file. For example:

```
#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
```

```

#

#ident    "@(#)spsra_config.ksh 1.2    06/03/17 SMI"

# This file will be sourced in by spsra_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
#     RS - name of the resource for the application
#     RG - name of the resource group containing RS
#     PORT - name of the port number to satisfy GDS registration
#     LH - name of the LogicalHostname SC resource
#     USER - name of the owner of the remote agent
#     BASE - name of the directory where the N1 Service Provisioning Server
#           is installed
#     HAS_RS - name of the HASStoragePlus SC resource
#
# The following variables need to be set only if the agent runs in a
# failover zone
#
#     ZONE - Zonename where the zsmf component should be registered
#     ZONE_BT - Resource name of the zone boot component
#     PROJECT - A project in the zone, that will be used for the PostgreSQL
#              smf service.
#              If the variable is not set it will be translated as :default for
#              the smf credentialss.
#              Optional
#

RS=
RG=
PORT=22
LH=
USER=
BASE=
HAS_RS=

# failover zone specific options

ZONE=
ZONE_BT=
PROJECT=

The following is an example for the N1 Grid Service Provisioning System 4.1 Remote Agent.

RS=N1spsra-res
RG=N1spsra-rg
PORT=22

```

```
LH=N1spsra-lh
USER=sps
BASE=/global/sps/N1_Service_Provisioning_System
HAS_RS=N1spsra-hastplus-res
ZONE=
ZONE_BT=
PROJECT=
```

The PORT variable is needed to satisfy the requirements of the generic data service.

3 After editing spsra_config register the resource.

```
# ksh ./spsra_register -f desired_place/spsra_config
```

4 Enable each N1 Grid Service Provisioning System Remote Agent resource.

```
# clresource status
```

```
# clresource enable N1spsra-resource
```

5 (Optional) Repeat [Step 2](#) to [Step 5](#) for each N1 Grid Service Provisioning System Remote Agent instance you need.

▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Remote Agent as a Failover Data Service in a Failover Zone

This procedure assumes that you installed the data service packages.

If you did not install the Sun Cluster HA for N1 Service Provisioning System packages, go to [“Installing the Sun Cluster HA for N1 Service Provisioning System Packages”](#) on page 32.

1 Become superuser or assume a role that provides solaris.cluster.verb RBAC authorization on one of the nodes in the cluster that will host N1 Grid Service Provisioning System Remote Agent.

2 Configure the registration scripts for each required N1 Grid Service Provisioning System Remote Agents instance.

```
# cd /opt/SUNWscsps/remoteagent/util
# cp spsra_config desired place
```

Edit the spsra_config file and follow the comments within that file. For example:

```
#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
```



```

#ident    "@(#)spsra_config.ksh 1.2    06/03/17 SMI"

# This file will be sourced in by spsra_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
#     RS - name of the resource for the application
#     RG - name of the resource group containing RS
#     PORT - name of the port number to satisfy GDS registration
#     LH - name of the LogicalHostname SC resource
#     USER - name of the owner of the remote agent
#     BASE - name of the directory where the N1 Service Provisioning Server
#           is installed
#     HAS_RS - name of the HAStoragePlus SC resource
#
# The following variables need to be set only if the agent runs in a
# failover zone
#
#     ZONE - Zonename where the zsmf component should be registered
#     ZONE_BT - Resource name of the zone boot component
#     PROJECT - A project in the zone, that will be used for the PostgreSQL
#              smf service.
#              If the variable is not set it will be translated as :default for
#              the smf credentialss.
#              Optional
#
RS=
RG=
PORT=22
LH=
USER=
BASE=
HAS_RS=

# failover zone specific options

ZONE=
ZONE_BT=
PROJECT=

```

The following is an example for the N1 Grid Service Provisioning System 4.1 Remote Agent.

```

RS=N1spsra-res
RG=N1spsra-rg
PORT=22
LH=N1spsra-lh
USER=sps

```

```

BASE=/global/sps/N1_Service_Provisioning_System
HAS_RS=N1spsra-hastplus-res
ZONE=sps-zone
ZONE_BT=sps-zone-rs
PROJECT=
    
```

The PORT variable is needed to satisfy the requirements of the generic data service.

- 3 After editing `spsra_config` register the resource.


```
# ksh ./spsra_register -f desired_place/spsra_config
```
- 4 Enable each N1 Grid Service Provisioning System Remote Agent resource.


```
# clresource status

# clresource enable N1spsra-resource
```
- 5 (Optional) Repeat [Step 2](#) to [Step 4](#) for each N1 Grid Service Provisioning System Remote Agent instance you need.

▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Local Distributor as a Failover Data Service

Perform this procedure if you want to install the N1 Grid Service Provisioning System Remote Agent in the global zone, or in a zone. This procedure assumes that you installed the data service packages.

Note – There is absolutely no difference in the procedure between a global zone and azone.

If you did not install the Sun Cluster HA for N1 Service Provisioning System packages, go to [“Installing the Sun Cluster HA for N1 Service Provisioning System Packages”](#) on page 32.

- 1 Become superuser or assume a role that provides `solaris.cluster.verb` RBAC authorization on one of the nodes in the cluster that will host N1 Grid Service Provisioning System Local Distributor.
- 2 Configure the registration scripts for each required N1 Grid Service Provisioning System Local Distributor instance.

```

# cd /opt/SUNWscsps/localdist/util
# cp spsld_config desired place
    
```

Edit the `spsld_config` file and follow the comments within that file. For example:

```

#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
    
```

```

#

#ident    "@(#)spsld_config.ksh 1.2    06/03/17 SMI"

# This file will be sourced in by spsld_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
#     RS - name of the resource for the application
#     RG - name of the resource group containing RS
#     PORT - name of the port number to satisfy GDS registration
#     LH - name of the LogicalHostname SC resource
#     USER - name of the owner of the local distributor
#     BASE - name of the directory where the N1 Service Provisioning Server
#           is installed
#     HAS_RS - name of the HASStoragePlus SC resource
#
#
# The following variables need to be set only if the agent runs in a
# failover zone
#
#     ZONE - Zonename where the zsmf component should be registered
#     ZONE_BT - Resource name of the zone boot component
#     PROJECT - A project in the zone, that will be used for the
#              smf service.
#              If the variable is not set it will be translated as :default for
#              the smf credentialss.
#              Optional
#
RS=
RG=
PORT=22
LH=
USER=
BASE=
HAS_RS=

# failover zone specific options

ZONE=
ZONE_BT=
PROJECT=

```

The following is an example for N1 Grid Service Provisioning System 4.1 Local Distributor.

```

RS=N1spsld-res
RG=N1spsld-rg

```

```

PORT=22
LH=N1spsld-lh
USER=sps
BASE=/global/sps/N1_Service_Provisioning_System_4.1
HAS_RS=N1spsld-hastplus-res
ZONE=
ZONE_BT=
PROJECT=
    
```

The PORT variable is needed to satisfy the requirements of the generic data service.

3 After editing `spsld_config` register the resource.

```
# ksh ./spsld_register -f desired_place/spsld_config
```

4 Enable each N1 Grid Service Provisioning System Local Distributor resource.

```
# clresource status
```

```
# clresource enable N1spsra-resource
```

5 (Optional) Repeat [Step 2](#) to [Step 4](#) for each N1 Grid Service Provisioning System Local Distributor instance you need.

▼ How to Register and Configure Sun Cluster HA for N1 Service Provisioning System Local Distributor as a Failover Data Service in a Failover Zone

This procedure assumes that you installed the data service packages.

If you did not install the Sun Cluster HA for N1 Service Provisioning System packages, go to [“Installing the Sun Cluster HA for N1 Service Provisioning System Packages”](#) on page 32.

1 Become superuser or assume a role that provides `solaris.cluster.verb` RBAC authorization on one of the nodes in the cluster that will host N1 Grid Service Provisioning System Local Distributor.

2 Configure the registration scripts for each required N1 Grid Service Provisioning System Local Distributor instance.

```
# cd /opt/SUNWscsps/localdist/util
# cp spsld_config desired place
```

Edit the `spsld_config` file and follow the comments within that file. For example:

```

#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
    
```

```

#ident    "@(#)spsld_config.ksh 1.2    06/03/17 SMI"

# This file will be sourced in by spsld_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
#     RS - name of the resource for the application
#     RG - name of the resource group containing RS
#     PORT - name of the port number to satisfy GDS registration
#     LH - name of the LogicalHostname SC resource
#     USER - name of the owner of the local distributor
#     BASE - name of the directory where the N1 Service Provisioning Server
#           is installed
#     HAS_RS - name of the HAStoragePlus SC resource
#
#
# The following variables need to be set only if the agent runs in a
# failover zone
#
#     ZONE - Zonename where the zsmf component should be registered
#     ZONE_BT - Resource name of the zone boot component
#     PROJECT - A project in the zone, that will be used for the
#              smf service.
#              If the variable is not set it will be translated as :default for
#              the smf credentialss.
#              Optional
#
RS=
RG=
PORT=22
LH=
USER=
BASE=
HAS_RS=

# failover zone specific options

ZONE=
ZONE_BT=
PROJECT=

The following is an example for N1 Grid Service Provisioning System 4.1 Local Distributor.

RS=N1spsld-res
RG=N1spsld-rg
PORT=22

```

```
LH=N1spsld-lh
USER=sps
BASE=/global/sps/N1_Service_Provisioning_System_4.1
HAS_RS=N1spsld-hastplus-res
ZONE=sps-zone
ZONE_BT=sps-zone-rs
PROJECT=
```

The PORT variable is needed to satisfy the requirements of the generic data service.

- 3 After editing `spsld_config` register the resource.

```
# ksh ./spsld_register -f desired_place/spsld_config
```

- 4 Enable each N1 Grid Service Provisioning System Local Distributor resource.

```
# clresource status
```

```
# clresource enable N1spsra-resource
```

- 5 (Optional) Repeat [Step 2](#) to [Step 4](#) for each N1 Grid Service Provisioning System Local Distributor instance you need.

Verifying the Sun Cluster HA for N1 Service Provisioning System 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 N1 Service Provisioning System Installation and Configuration

- 1 Become superuser on one of the nodes in the cluster which will host the N1 Grid Service Provisioning System component. A component can be the Master Server, the Remote Agent or the Local Distributor.

- 2 Ensure all the N1 Grid Service Provisioning System resources are online with the command `clresource`.

```
# clresource status
```

For each N1 Grid Service Provisioning System resource which is not online, use the `scswitch` command as follows.

```
# clresource enable N1sps-resource
```

- 3 Run the `clresourcegroup` command to switch the N1 Grid Service Provisioning System resource group to another cluster node, such as `node2` with the command described below. Use the alternative form with `:zone` for zone installations only.

```
# clresourcegroup online -h node2 N1sps-resource-group
```

```
# clresourcegroup online -h node2:zone N1sps-resource-group
```

Understanding the Sun Cluster HA for N1 Service Provisioning System Master Server Parameter File

Use the information to understand the contents of the Sun Cluster HA for N1 Service Provisioning System Master Server parameter file. This section describes the structure and the content of the Sun Cluster HA for N1 Service Provisioning System Master Server parameter file, as well as the strategy to chose some of its variables.

Structure of the Sun Cluster HA for N1 Service Provisioning System Master Servers parameter file

Sun Cluster HA for N1 Service Provisioning Systemfor the master server uses a parameter file to pass parameters to the start, stop and probe command. This parameter file needs to be a valid Korn shell script which sets several variables. The structure of this file appears in [Table 4](#). For examples of the parameter file refer to “[Registering and Configuring Sun Cluster HA for N1 Service Provisioning System](#)” on page 35.

TABLE 4 Structure of the Sun Cluster HA for N1 Service Provisioning System Master Servers parameter file

Variable	Explanation
User	The owner of the N1 Grid Service Provisioning System Master Server instance.
Basepath	Basepath is the absolute pathname to the directory where the N1 Grid Service Provisioning System/server/bin directory resides. It is the directory you specified at installation time.
Host	The Host variable is the Host to test the functionality of the Apache Tomcat component of the N1 Grid Service Provisioning System Master Server. The test is done via a connection to Host:Tport.
Tport	A Port where the N1 Grid Service Provisioning Systems Apache Tomcat component is serving. This Port is used together with the Host to test the functionality of the Apache Tomcat server process of the N1 Grid Service Provisioning System Master Server.

TABLE 4 Structure of the Sun Cluster HA for N1 Service Provisioning System Master Servers parameter file *(Continued)*

Variable	Explanation
TestCmd	This variable represents the command which is passed to the N1 Grid Service Provisioning Systems Apache Tomcat server process to do a sanity check. If your N1 Grid Service Provisioning System Master Server is configured to use https, provide a webpage that can be connected by wget.
ReturnString	The variable ReturnString represents the string which must be present in the answer to the TestCmd. It can not be "Connection refused" because this string is in the answer when the N1 Grid Service Provisioning Systems Apache Tomcat server process is not running.
Startwait	This variable stands for the number of seconds to wait after the N1 Grid Service Provisioning System Master Server start command is completed. It lasts until the Apache Tomcat server process of the N1 Grid Service Provisioning System Master Server is fully operational. The absolute number of seconds depends on the speed and the load of the Hardware. A good strategy is to start with 60 seconds.
WgetPath	Provide the absolute path to a https capable wget command. The variable is needed when you configured your N1 Grid Service Provisioning System Master Server for https.

The parameters in [Table 4](#) can be changed at any time. The only difference is when changes take effect.

The following parameters of the Sun Cluster HA for N1 Service Provisioning System parameter file are used for starting and stopping the Master Server. Changes to these parameters take effect at every restart or disabling and enabling of a N1 Grid Service Provisioning System Master Server resource.

- User
- Basepath
- Startwait

The following parameters of the Sun Cluster HA for N1 Service Provisioning System Master Server parameter file are used within the fault monitor. Changes to these parameters take effect at every `Thorough_probe_interval`.

- Host
- Tport
- TestCmd
- ReturnString
- WgetPath

Strategy to Chose the TestCmd and the ReturnString Variable

The ReturnString has to be present on the page you query with the test command TestCmd.

- Take the start page of your application and set the TestCmd to get /index.jsp or `https://start_page` if you use wget to monitor the master server. Set the ReturnString to a string contained in the startpage. With this strategy, you are monitoring that the Apache Tomcat process of the N1 Grid Service Provisioning System Master Server is operational.
- If the N1 Grid Service Provisioning System Master Server is configured for SSL on the administrative port. The only request on the http port is a page containing the string SSL. In this case configure the ReturnString to SSL and the TestCmd to get /index.jsp.
- If you expect changes in the configurations, configure the test command to get /index.jsp and the ReturnString to `SSL|Service`. This expression is true if the startpage contains SSL or Service.
- If none of the above is appropriate, set the TestCmd to get /a-page-which-does-not-exists. In this case, set the ReturnString to a string contained in the Error Page. With this strategy, you are monitoring that the Apache Tomcat process of the N1 Grid Service Provisioning System Master Server is operational, because it registers that it must deliver a page that does not exist.

You can evaluate the different pages by connecting using a browser with hostname:port and specifying the different pages.

Understanding the fault monitor of the Sun Cluster HA for N1 Service Provisioning System

This section describes the Sun Cluster HA for N1 Service Provisioning System fault monitor's probing algorithm and functionality, states the conditions, messages, recovery actions, and states the conditions and messages associated with unsuccessful probing.

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

Resource Properties

The Sun Cluster HA for N1 Service Provisioning System fault monitor uses the same resource properties as the resource type SUNW.gds. Refer to the SUNW.gds(5) man page for a complete list of resource properties used.

Probing Algorithm and Functionality for the N1 Grid Service Provisioning System Master Server

The probing of the Master Server consists of two parts. One to probe the Apache Tomcat and a second part to probe the database.

The following steps are executed to monitor the sanity of the N1 Grid Service Provisioning System Master Server.

1. Sleeps for *Thorough_probe_interval*.
2. Pings the *Host*, which is configured in the Sun Cluster HA for N1 Service Provisioning System Master Server parameter file.
3. Connects to the Apache Tomcat via *Host* and *Port*. If the connection is successful it sends the *TestCmd* and tests whether the *ReturnString* comes back. If it fails, it is rescheduled after 5 seconds. If this fails again, then the probe will restart the Sun Cluster HA for N1 Service Provisioning System.



Caution – The *ReturnString* cannot be **Connection refused** because this string will be returned if no connection is possible.

4. If the Apache Tomcat is operational, the probe manipulates the database table *sc_test*. If the connection to the database or the table manipulation is unsuccessful, the N1 Grid Service Provisioning System Master server will be restarted.
5. If the Apache Tomcat process and all the database processes died, pmf will interrupt the probe to immediately restart the N1 Grid Service Provisioning System Master Server.
6. If the N1 Grid Service Provisioning System Master Server is repeatedly restarted and subsequently exhausts the *Retry_count* within the *Retry_interval*, then a failover is initiated for the resource group onto another node. This is done if the resource property *Failover_enabled* is set to TRUE.

Probing Algorithm and Functionality for the N1 Grid Service Provisioning System Remote Agent

The probing of the Remote Agent is done by pmf only.

The following steps are executed to monitor the N1 Grid Service Provisioning System Remote Agent.

1. If the process of the Remote Agent has died, pmf will immediately restart the N1 Grid Service Provisioning System Remote Agent.
2. If the N1 Grid Service Provisioning System Remote Agent is repeatedly restarted and subsequently exhausts the *Retry_count* within the *Retry_interval*, then a failover is initiated for the resource group onto another node. This is done if the resource property *Failover_enabled* is set to TRUE.

Probing Algorithm and Functionality for the N1 Grid Service Provisioning System Local Distributor

The probing of the Local Distributor is done by pmf only.

The following steps are executed to monitor the N1 Grid Service Provisioning System Local Distributor.

1. If the process of the Local Distributor has died, pmf will immediately restart the N1 Grid Service Provisioning System Local Distributor.
2. If the N1 Grid Service Provisioning System Local Distributor is repeatedly restarted and subsequently exhausts the `Retry_count` within the `Retry_interval`, then a failover is initiated for the resource group onto another node. This is done if the resource property `Failover_enabled` is set to `TRUE`.

How to debug Sun Cluster HA for N1 Service Provisioning System

Sun Cluster HA for N1 Service Provisioning System can be used by multiple N1 Grid Service Provisioning System instances. However, it is possible to turn debug on for all N1 Grid Service Provisioning System instances or a particular N1 Grid Service Provisioning System instance. This has to be done for each component (Master Server, Remote Agent, or Local Distributor) on its own.

The Sun Cluster HA for N1 Service Provisioning System component has a `DEBUG` file under `/opt/SUNWscsps/component-dir/etc`. The directories of these components are `master` for the Master Server, `remoteagent` for the Remote Agent, and `localdist` for the Local Distributor.

This file allows you to switch debug on for all instances of a N1 Grid Service Provisioning System component, or for a specific instance of a N1 Grid Service Provisioning System component on a particular node in a Sun Cluster. If you require debug to be switched on for Sun Cluster HA for N1 Service Provisioning System across the whole Sun Cluster, you will need to repeat this step on all nodes within Sun Cluster.

▼ How to turn debug on for a Sun Cluster HA for N1 Service Provisioning System component

Perform these steps for the Sun Cluster HA for N1 Service Provisioning System component that requires debug output, on each node of Sun Cluster as required.

1 Determine whether you are in a global zone or in a failover zone configuration.

If your operating system is Solaris 10 and your N1 Grid Service Provisioning System resource is dependent on a Solaris Container boot component resource, you are in a failover zone configuration. In any other case, especially on a Solaris 9 system, you are in a global zone configuration.

2 Determine whether debugging for Sun Cluster HA for N1 Service Provisioning System is active.

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

```
*.alert;kern.err;daemon.err          operator
#
```

If debugging is inactive, `daemon.notice` is set in the file `/etc/syslog.conf` of the appropriate zone.

- 3 If debugging is inactive, edit the `/etc/syslog.conf` file in the appropriate zone to change `daemon.notice` to `daemon.debug`.**

- 4 Confirm that debugging for Sun Cluster HA for N1 Service Provisioning System is active.**

If debugging is active, `daemon.debug` is set in the file `/etc/syslog.conf`.

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

- 5 Restart the `syslogd` daemon in the appropriate zone.**

- If your operating system is Solaris 9, type:

```
# pkill -1 syslogd
```

- If your operating system is Solaris 10, type:

```
# svcadm refresh svc:/system/system-log:default
```

- 6 Edit the `/opt/SUNWsczone/sczbt/etc/config` file to change the `DEBUG=` variable according to one of the examples:**

- `DEBUG=ALL`
- `DEBUG=resource name`
- `DEBUG=resource name,resource name, ...`

Edit `/opt/SUNWscsps/component-dir/etc/config` and change `DEBUG=` to `DEBUG=ALL` or `DEBUG=resource`

```
# cat /opt/SUNWscsps/component-dir/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 deactivate debugging, repeat step 1 to 6, changing `daemon.debug` to `daemon.notice` and changing the `DEBUG` variable to `DEBUG=`.

Deployment Example: Installing N1 Grid Service Provisioning System in the Global Zone

This appendix presents a complete example of how to install and configure the N1 Grid Service Provisioning System application and data service in the global zone. It presents a simple two-node cluster configuration. If you need to install the application in any other configuration, refer to the general-purpose procedures presented elsewhere in this manual. For an example of N1 Grid Service Provisioning System installation in a non-global failover zone zone, see [Appendix B](#) or for a non-global zone see [Appendix C](#) according to your zone type.

Target Cluster Configuration

This example uses a two-node cluster with the following node names:

- phys-schost-1 (a physical node, which owns the file system)
- phys-schost-2 (a physical node)

This configuration also uses the logical host name ha-host-1.

Software Configuration

This deployment example uses the following software products and versions:

- Solaris 10 6/06 software for SPARC or x86 platforms
- Sun Cluster 3.2 core software
- Sun Cluster HA for N1 Service Provisioning System
- N1 Grid Service Provisioning System 5.2.
- Your preferred text editor

This example assumes that you have already installed and established your cluster. It illustrates installation and configuration of the data service application only.

Note – The steps for installing N1 Grid Service Provisioning System in a cluster that runs on Solaris version 9 OS are identical to the steps in this example.

Assumptions

The instructions in this example were developed with the following assumptions:

- **Shell environment:** All commands and the environment setup in this example are for the Korn shell environment. If you use a different shell, replace any Korn shell-specific information or instructions with the appropriate information for your preferred shell environment.
- **User login:** Unless otherwise specified, perform all procedures as superuser or assume a role that provides `solaris.cluster.admin`, `solaris.cluster.modify`, and `solaris.cluster.read` RBAC authorization.

Installing and Configuring N1 Grid Service Provisioning System Master Server on Shared Storage in the Global Zone

The tasks you must perform to install and configure N1 Grid Service Provisioning System Master Server in the global zone are as follows:

- “Example: Preparing the Cluster for N1 Grid Service Provisioning System Master Server” on page 64
- “Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Master Server” on page 65
- “Example: Installing the N1 Grid Service Provisioning System Master Server Software on Shared Storage” on page 65
- “Example: Modifying the N1 Grid Service Provisioning System Master Server Configuration and Parameter Files” on page 67
- “Example: Enabling the N1 Grid Service Provisioning System Master Server Software to Run in the Cluster” on page 68

▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Master Server

- 1 **Install and configure the cluster as instructed in *Sun Cluster Software Installation Guide for Solaris OS*.**

Install the following cluster software components on both nodes.

- Sun Cluster core software
- Sun Cluster data service for N1 Grid Service Provisioning System

2 Beginning on the node that owns the file system, add the sps user.

```
phys-schost-1# groupadd -g 1000 sps
phys-schost-2# groupadd -g 1000 sps
phys-schost-1# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
phys-schost-2# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
```

▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Master Server**1 Register the necessary data types on one node.**

```
phys-schost-1# clresource type register SUNW.gds SUNW.HASStoragePlus
```

2 Create the N1 Grid Service Provisioning System resource group.

```
phys-schost-1# clresourcegroup create RG-SPSMA
```

3 Create the logical host.

```
phys-schost-1# clreslogicalhostname create -g RG-SPSMA ha-host-1
```

4 Create the HASStoragePlus resource in the RG-SPSMA resource group.

```
phys-schost-1# clresource create -g RG-SPSMA -t SUNW.HASStoragePlus -p AffinityOn=TRUE \
-p FilesystemMountPoints=/global/mnt3,/global/mnt4 RS-SPSMA-HAS
```

5 Enable the resource group.

```
phys-schost-1# clresourcegroup online -M RG-SPSMA
```

▼ Example: Installing the N1 Grid Service Provisioning System Master Server Software on Shared Storage

These steps illustrate how to install the N1 Grid Service Provisioning System software. As long as only one node is mentioned it needs to be the node where your resource group is online.

1 Prepare the shared memory of the default project on both nodes.

```
phys-schost-1# projmod -a -K "project.max-shm-memory=(priv,536870912,deny)" default
phys-schost-2# projmod -a -K "project.max-shm-memory=(priv,536870912,deny)" default
```

Note – This example is valid for Solaris 10 only. Use appropriate methods on Solaris 9.

2 Install the N1 Grid Service Provisioning System binaries on one node.

```
phys-schost-1# cd /installation_directory
phys-schost-1# ./cr_ms_solaris_sparc_pkg_5.2.sh
```

Answer on the following cluster relevant questions as follows:

■

What base directory ...
default: /opt/SUNWn1sps) [<directory>] **/global/mnt3/sps**

■

Which user will own the N1 SPS Master Server distribution?
(default: n1sps) [<valid username>] **sps**

■

Which group on this machine will own the
N1 SPS Master Server distribution?
(default: n1sps) [<valid groupname>] **sps**

■

What is the hostname or IP address for this Master Server?
(default: phys-schost-1) **ha-host-1**

For all the other values, you can accept the defaults, or chose appropriate values. For the simplicity of this example we assume the default values of all port values.

3 Start the master server as user sps.

```
phys-schost-1# su - sps
phys-schost-1$ cd /global/mnt3/sps/N1_Service_Provisioning_System_5.2/server/bin
phys-schost-1$ ./cr_server start
```

4 Prepare the PostgreSQL database for monitoring

```
phys-schost-1$ cd /opt/SUNWscsps/master/util
phys-schost-1$ ksh ./db_prep_postgres \
> /global/mnt3/sps/N1_Service_Provisioning_System_5.2
```

5 Stop the master server and leave the user sps.

```
phys-schost-1$ cd /global/mnt3/sps/N1_Service_Provisioning_System_5.2/server/bin
phys-schost-1$ ./cr_server stop
```

▼ Example: Modifying the N1 Grid Service Provisioning System Master Server Configuration and Parameter Files

- 1 Copy the N1 Grid Service Provisioning System configuration file from the agent directory to its deployment location.

```
phys-schost-1# cp /opt/SUNWscsps/master/util/spsma_config /global/mnt3
phys-schost-1# cp /opt/SUNWscsps/master/bin/pfile /global/mnt3
```

- 2 Add this cluster's information to the `spsma_config` configuration file.

The following listing shows the relevant file entries and the values to assign to each entry.

```
.
.
.
RS=RS-SPSMA
RG=RG-SPSMA
PORT=8080
LH=ha-host-1
PFILE=/global/mnt3/pfile
HAS_RS=RS-SPSMA-HAS
```

- 3 Save and close the file.
- 4 Add this cluster's information to the parameter file `pfile`.

The following listing shows the relevant file entries and the values to assign to each entry.

```
.
.
.
User=sps
Basepath=/global/mnt3/sps/N1_Service_Provisioning_System_5.2
Host=ha-host-1
Tport=8080
TestCmd="get /index.jsp"
ReturnString="SSL|Service"
Startwait=20
WgetPath=
```

- 5 Save and close the file.

▼ Example: Enabling the N1 Grid Service Provisioning System Master Server Software to Run in the Cluster

- 1 Run the `spsma_register` script to register the resource.

```
phys-schost-1# ksh /opt/SUNWscsps/master/util/spsma_register \  
-f /global/mnt3/spsma_config
```

- 2 Enable the resource.

```
phys-schost-1# clresource enable RS-SPSMA
```

Installing and Configuring N1 Grid Service Provisioning System Remote Agent on Shared Storage in the Global Zone

The tasks you must perform to install and configure N1 Grid Service Provisioning System Remote Agent in the global zone are as follows:

- “Example: Preparing the Cluster for N1 Grid Service Provisioning System Remote Agent” on page 68
- “Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Remote Agent” on page 69
- “Example: Installing the N1 Grid Service Provisioning System Remote Agent Software on Shared Storage” on page 69
- “Example: Modifying the N1 Grid Service Provisioning System Remote Agent Configuration File” on page 70
- “Example: Enabling the N1 Grid Service Provisioning System Remote Agent Software to Run in the Cluster” on page 70

▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Remote Agent

- 1 Install and configure the cluster as instructed in *Sun Cluster Software Installation Guide for Solaris OS*.

Install the following cluster software components on both nodes.

- Sun Cluster core software
- Sun Cluster data service for N1 Grid Service Provisioning System

- 2 Beginning on the node that owns the file system, add the `sps` user.

```
phys-schost-1# groupadd -g 1000 sps  
phys-schost-2# groupadd -g 1000 sps
```

```
phys-schost-1# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
phys-schost-2# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
```

▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Remote Agent

- 1 Register the necessary data types on one node.

```
phys-schost-1# clresourcetype register SUNW.gds SUNW.HASStoragePlus
```

- 2 Create the N1 Grid Service Provisioning System resource group.

```
phys-schost-1# clresourcegroup create RG-SPSRA
```

- 3 Create the logical host.

```
phys-schost-1# clreslogicalhostname create -g RG-SPSRA ha-host-1
```

- 4 Create the HASStoragePlus resource in the RG-SPSRA resource group.

```
phys-schost-1# clresource create -g RG-SPSRA -t SUNW.HASStoragePlus -p AffinityOn=TRUE \
> -p FilesystemMountPoints=/global/mnt3,/global/mnt4 RS-SPSRA-HAS
```

- 5 Enable the resource group.

```
phys-schost-1# clresourcegroup online -M RG-SPSRA
```

▼ Example: Installing the N1 Grid Service Provisioning System Remote Agent Software on Shared Storage

These steps illustrate how to install the N1 Grid Service Provisioning System software. As long as only one node is mentioned it needs to be the node where your resource group is online.

- 1 Install the N1 Grid Service Provisioning System binaries on one node.

```
phys-schost-1# cd /installation_directory
phys-schost-1# ./cr_ra_solaris_sparc_5.2.sh
```

Answer on the following cluster relevant questions as follows:

■

```
What base directory ...
default: /opt/SUNWn1sps) [<directory>] /global/mnt3/sps
```

■

```
Which user will own the N1 SPS Remote Agent distribution?
(default: n1sps) [<valid username>] sps
```

■

Which group on this machine will own the N1 SPS Remote Agent distribution?
(default: n1sps) [<valid groupname>] **sps**

■

What is the hostname or IP address of the interface on which the Agent will run?
(default: phys-schost-1) **ha-host-1**

For all the other values, you can accept the defaults, or chose appropriate values. For the simplicity of this example we assume the default values of all port values.

▼ Example: Modifying the N1 Grid Service Provisioning System Remote Agent Configuration File

- 1 Copy the N1 Grid Service Provisioning System configuration file from the agent directory to its deployment location.

```
phys-schost-1# cp /opt/SUNWscsps/remoteagent/util/spsra_config /global/mnt3
```

- 2 Add this cluster's information to the `spsra_config` configuration file.

The following listing shows the relevant file entries and the values to assign to each entry.

```
.
.
.
RS=RS-SPSRA
RG=RG-SPSRA
PORT=8080
LH=ha-host-1
USER=sps
BASE=/global/mnt3/sps/N1_Service_Provisioning_System
HAS_RS=RS-SPSRA-HAS
```

- 3 Save and close the file.

▼ Example: Enabling the N1 Grid Service Provisioning System Remote Agent Software to Run in the Cluster

- 1 Run the `spsra_register` script to register the resource.

```
phys-schost-1# ksh /opt/SUNWscsps/remoteagent/util/spsra_register \
> -f /global/mnt3/spsra_config
```

2 Enable the resource.

```
phys-schost-1# clresource enable RS-SPSRA
```

Installing and Configuring N1 Grid Service Provisioning System Local Distributor on Shared Storage in the Global Zone

The tasks you must perform to install and configure N1 Grid Service Provisioning System Local Distributor in the global zone are as follows:

- “Example: Preparing the Cluster for N1 Grid Service Provisioning System Local Distributor” on page 71
- “Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Local Distributor” on page 72
- “Example: Installing the N1 Grid Service Provisioning System Local Distributor Software on Shared Storage” on page 72
- “Example: Modifying the N1 Grid Service Provisioning System Local Distributor Configuration File” on page 73
- “Example: Enabling the N1 Grid Service Provisioning System Local Distributor Software to Run in the Cluster” on page 73

▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Local Distributor

1 Install and configure the cluster as instructed in *Sun Cluster Software Installation Guide for Solaris OS*.

Install the following cluster software components on both nodes.

- Sun Cluster core software
- Sun Cluster data service for N1 Grid Service Provisioning System

2 Beginning on the node that owns the file system, add the `sps` user.

```
phys-schost-1# groupadd -g 1000 sps
phys-schost-2# groupadd -g 1000 sps
phys-schost-1# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
phys-schost-2# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
```

▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Local Distributor

- 1 Register the necessary data types on one node.

```
phys-schost-1# clresourcetype register SUNW.gds SUNW.HASStoragePlus
```

- 2 Create the N1 Grid Service Provisioning System resource group.

```
phys-schost-1# clresourcegroup create RG-SPSLD
```

- 3 Create the logical host.

```
phys-schost-1# clreslogicalhostname create -g RG-SPSLD ha-host-1
```

- 4 Create the HASStoragePlus resource in the RG-SPSLD resource group.

```
phys-schost-1# clresource create -g RG-SPSLD -t SUNW.HASStoragePlus -p AffinityOn=TRUE \  
> -p FilesystemMountPoints=/global/mnt3,/global/mnt4 RS-SPSLD-HAS
```

- 5 Enable the resource group.

```
phys-schost-1# clresourcegroup online -M RG-SPSLD
```

▼ Example: Installing the N1 Grid Service Provisioning System Local Distributor Software on Shared Storage

These steps illustrate how to install the N1 Grid Service Provisioning System software. As long as only one node is mentioned it needs to be the node where your resource group is online.

- ▶ Install the N1 Grid Service Provisioning System binaries on one node.

```
phys-schost-1# cd /installation_directory  
phys-schost-1# ./cr_ld_solaris_sparc_5.2.sh
```

Answer on the following cluster relevant questions as follows:

■

```
What base directory ...  
default: /opt/SUNWn1sps) [<directory>] /global/mnt3/sps
```

■

```
Which user will own the N1 SPS Local Distributor distribution?  
(default: n1sps) [<valid username>] sps
```

■

Which group on this machine will own the
N1 SPS Local Distributor distribution?
(default: n1sps) [<valid groupname>] **sps**

■

What is the hostname or IP address of this machine?
(default: phys-schost-1) **ha-host-1**

For all the other values, you can accept the defaults, or chose appropriate values. For the simplicity of this example we assume the default values of all port values.

▼ Example: Modifying the N1 Grid Service Provisioning System Local Distributor Configuration File

- 1 Copy the N1 Grid Service Provisioning System configuration file from the agent directory to its deployment location.

```
phys-schost-1# cp /opt/SUNWscsps/localdist/util/spsld_config /global/mnt3
```

- 2 Add this cluster's information to the `spsld_config` configuration file.

The following listing shows the relevant file entries and the values to assign to each entry.

```
.
.
.
RS=RS-SPSLD
RG=RG-SPSLD
PORT=8080
LH=ha-host-1
USER=sps
BASE=/global/mnt3/sps/N1_Service_Provisioning_System
HAS_RS=RS-SPSLD-HAS
```

- 3 Save and close the file.

▼ Example: Enabling the N1 Grid Service Provisioning System Local Distributor Software to Run in the Cluster

- 1 Run the `spsra_register` script to register the resource.

```
phys-schost-1# ksh /opt/SUNWscsps/localdist/util/spsld_register \
> -f /global/mnt3/spsld_config
```

2 Enable the resource.

```
phys-schost-1# clresource enable RS-SPSLD
```

Deployment Example: Installing N1 Grid Service Provisioning System in the Failover Zone

This appendix presents a complete example of how to install and configure the N1 Grid Service Provisioning System application and data service in the failover zone. It presents a simple two-node cluster configuration. If you need to install the application in any other configuration, refer to the general-purpose procedures presented elsewhere in this manual. For an example of N1 Grid Service Provisioning System installation in a global zone, see [Appendix A](#) or for a non-global zone see [Appendix C](#) according to your zone type.

Target Cluster Configuration

This example uses a two-node cluster with the following node names:

- `phys-schost-1` (a physical node, which owns the file system)
- `phys-schost-2` (a physical node)
- `clu1` the zone to be failed over

This configuration also uses the logical host name `ha-host-1`.

Software Configuration

This deployment example uses the following software products and versions:

- Solaris 10 6/06 software for SPARC or x86 platforms
- Sun Cluster 3.2 core software
- Sun Cluster HA for Solaris Container
- Sun Cluster HA for N1 Service Provisioning System
- N1 Grid Service Provisioning System 5.2.
- Your preferred text editor

This example assumes that you have already installed and established your cluster. It illustrates installation and configuration of the data service application only.

Assumptions

The instructions in this example were developed with the following assumptions:

- **Shell environment:** All commands and the environment setup in this example are for the Korn shell environment. If you use a different shell, replace any Korn shell-specific information or instructions with the appropriate information for you preferred shell environment.
- **User login:** Unless otherwise specified, perform all procedures as superuser or assume a role that provides `solaris.cluster.admin`, `solaris.cluster.modify`, and `solaris.cluster.read` RBAC authorization.

Installing and Configuring N1 Grid Service Provisioning System Master Server on Shared Storage in the Failover Zone

The tasks you must perform to install and configure N1 Grid Service Provisioning System Master Server in the Zone are as follows:

- [“Example: Preparing the Cluster for N1 Grid Service Provisioning System Master Server” on page 76](#)
- [“Example: Configuring the Failover Zone” on page 77](#)
- [“Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Master Server” on page 77](#)
- [“Example: Installing the N1 Grid Service Provisioning System Master Server Software” on page 79](#)
- [“Example: Modifying the N1 Grid Service Provisioning System Master Server Configuration and Parameter Files” on page 80](#)
- [“Example: Enabling the N1 Grid Service Provisioning System Master Server Software to Run in the Cluster” on page 81](#)

▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Master Server

- ▶ **Install and configure the cluster as instructed in *Sun Cluster Software Installation Guide for Solaris OS*.**

Install the following cluster software components on both nodes.

- Sun Cluster core software
- Sun Cluster data service for N1 Grid Service Provisioning System
- Sun Cluster HA for Solaris Container

▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Master Server

- 1 Register the necessary data types on one node.

```
phys-schost-1# clresourcetype register SUNW.gds SUNW.HASStoragePlus
```

- 2 Create the N1 Grid Service Provisioning System resource group.

```
phys-schost-1# clresourcegroup create -n phys-host-1,phys-host-2 RG-SPSMA
```

- 3 Create the HASStoragePlus resource in the RG-SPSMA resource group.

```
phys-schost-1# clresource create -g RG-SPSMA -t SUNW.HASStoragePlus -p AffinityOn=TRUE \  
> -p FilesystemMountPoints=/global/mnt3,/global/mnt4 RS-SPSMA-HAS
```

- 4 Enable the resource group.

```
phys-schost-1# clresourcegroup online -M RG-SPSMA
```

▼ Example: Configuring the Failover Zone

- 1 On shared cluster storage, create a directory for the failover zone root path.

This example presents a sparse root zone. You can use a whole root zone if that type better suits your configuration.

```
phys-schost-1# mkdir /global/mnt3/zones
```

- 2 Create a temporary file, for example /tmp/x, and include the following entries:

```
create -b  
set zonepath=/global/mnt3/zones/clu1  
set autoboot=false  
set pool=pool_default  
add inherit-pkg-dir  
set dir=/lib  
end  
add inherit-pkg-dir  
set dir=/platform  
end  
add inherit-pkg-dir  
set dir=/sbin  
end  
add inherit-pkg-dir  
set dir=/usr  
end  
add net  
set address=ha-host-1
```

```
set physical=hme0
end
add attr
set name=comment
set type=string
set value="N1 Grid Service Provisioning System cluster zone"
end
```

Put your desired zone name between the quotes here.

3 Configure the failover zone, using the file you created.

```
phys-schost-1# zonecfg -z clu1 -f /tmp/x
```

4 Install the zone.

```
phys-schost-1# zoneadm -z clu1 install
```

5 Log in to the zone.

```
phys-schost-1# zlogin -C clu1
```

6 Open a new window to the same node and boot the zone?

```
phys-schost-1a# zoneadm -z clu1 boot
```

7 Close this terminal window and disconnect from the zone console.

```
phys-schost-1# ~~.
```

8 Copy the containers configuration file to a temporary location.

```
phys-schost-1# cp /opt/SUNWsczone/sczbt/util/sczbt_config /tmp/sczbt_config
```

9 Edit the /tmp/sczbt_config file and set variable values as shown:

```
RS=RS-SPSMA-ZONE
RG=RG-SPSMA
PARAMETERDIR=/global/mnt3/zonepar
SC_NETWORK=false
SC_LH=
FAILOVER=true
HAS_RS=RS-SPSMA-HAS
```

```
Zonename=clu1
Zonebootopt=
Milestone=multi-user-server
Mounts=
```

10 Create the zone on phys-schost-2 according to the instructions in the *Sun Cluster Data Service for Solaris Containers Guide*.

11 Register the zone resource.

```
phys-schost-1# ksh /opt/SUNWsczone/sczbt/util/sczbt_register -f /tmp/sczbt_config
```

12 Enable the zone resource.

```
phys-schost-1# clresource enable RS-SPSMA-ZONE
```

▼ Example: Installing the N1 Grid Service Provisioning System Master Server Software

These steps illustrate how to install the N1 Grid Service Provisioning System software. As long as only one node is mentioned it needs to be the node where your resource group is online.

1 Log into the zone.

```
phys-schost-1 zlogin clu1
```

2 Add the sps user.

```
zone-1# groupadd -g 1000 sps
zone-1# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
```

3 Prepare the shared memory of the default project on both nodes.

```
zone-1#projmod -a -K "project.max-shm-memory=(priv,536870912,deny)" default
```

Note – This example is valid for Solaris 10 only. Use appropriate methods on Solaris 9.

4 Install the N1 Grid Service Provisioning System binaries.

```
zone-1# cd /installation_directory
zone-1# ./cr_ms_solaris_sparc_pkg_5.2.sh
```

Answer on the following cluster relevant questions as follows:

■

```
What base directory ...
default: /opt/SUNWn1sps) [<directory>] /global/mnt3/sps
```

■

```
Which user will own the N1 SPS Master Server distribution?
(default: n1sps) [<valid username>] sps
```

■

```
Which group on this machine will own the
N1 SPS Master Server distribution?
(default: n1sps) [<valid groupname>] sps
```

■

What is the hostname or IP address for this Master Server?
(default: phys-schost-1) **ha-host-1**

For all the other values, you can accept the defaults, or chose appropriate values. For the simplicity of this example we assume the default values of all port values.

5 Start the master server as user `sps`.

```
zone-1# su - sps
zone-1$ cd /global/mnt3/sps/N1_Service_Provisioning_System_5.2/server/bin
zone-1$ ./cr_server start
```

6 Prepare the PostgreSQL database for monitoring

```
zone-1$ cd /opt/SUNWscsps/master/util
zone-1$ ksh ./db_prep_postgres /global/mnt3/sps/N1_Service_Provisioning_System_5.2
```

7 Stop the master server and leave the user `sps`.

```
zone-1$ cd /global/mnt3/sps/N1_Service_Provisioning_System_5.2/server/bin
zone-1$ ./cr_server stop
```

▼ Example: Modifying the N1 Grid Service Provisioning System Master Server Configuration and Parameter Files

1 Copy the N1 Grid Service Provisioning System parameter file from the agent directory to its deployment location.

```
zone-1# cp /opt/SUNWscsps/master/bin/pfile /global/mnt3
```

2 Add this cluster's information to the parameter file `pfile`.

The following listing shows the relevant file entries and the values to assign to each entry.

```
.
.
.
User=sps
Basepath=/global/mnt3/sps/N1_Service_Provisioning_System_5.2
Host=ha-host-1
Tport=8080
TestCmd="get /index.jsp"
ReturnString="SSL|Service"
Startwait=20
WgetPath=
```


3 Save and close the file.

4 Leave the zone.

5 Copy the N1 Grid Service Provisioning System configuration file from the agent directory to its deployment location.

```
phys-schost-1# cp /opt/SUNWscsps/master/util/spsma_config /global/mnt3
```

6 Add this cluster's information to the spsma_config configuration file.

The following listing shows the relevant file entries and the values to assign to each entry.

```
.
.
.
RS=RS-SPSMA
RG=RG-SPSMA
PORT=
LH=
PFILE=/global/mnt3/pfile
HAS_RS=RS-SPSMA-HAS.
.
.
ZONE=clu1
ZONE_BT=RS-SPSMA-ZONE
PROJECT=
```

7 Save and close the file.

▼ Example: Enabling the N1 Grid Service Provisioning System Master Server Software to Run in the Cluster

1 Run the spsma_register script to register the resource.

```
phys-schost-1# ksh /opt/SUNWscsps/master/util/spsma_register \
> -f /global/mnt3/spsma_config
```

2 Enable the resource.

```
phys-schost-1# clresource enable RS-SPSMA
```

Installing and Configuring N1 Grid Service Provisioning System Remote Agent on Shared Storage in the Failover Zone

The tasks you must perform to install and configure N1 Grid Service Provisioning System Remote Agent in the failover zone are as follows:

- “Example: Configuring the Failover Zone” on page 83
- “Example: Preparing the Cluster for N1 Grid Service Provisioning System Remote Agent” on page 82
- “Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Remote Agent” on page 82
- “Example: Installing the N1 Grid Service Provisioning System Remote Agent Software on Shared Storage” on page 85
- “Example: Modifying the N1 Grid Service Provisioning System Remote Agent Configuration File” on page 86
- “Example: Enabling the N1 Grid Service Provisioning System Remote Agent Software to Run in the Cluster” on page 86

▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Remote Agent

- ▶ Install and configure the cluster as instructed in *Sun Cluster Software Installation Guide for Solaris OS*.

Install the following cluster software components on both nodes.

- Sun Cluster core software
- Sun Cluster data service for N1 Grid Service Provisioning System
- Sun Cluster HA for Solaris Container

▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Remote Agent

- 1 Register the necessary data types on one node.

```
phys-schost-1# clresourcetype register SUNW.gds SUNW.HASStoragePlus
```

- 2 Create the N1 Grid Service Provisioning System resource group.

```
phys-schost-1# clresourcegroup create -n phys-host-1:clu1,phys-host-2:clu1 RG-SPSRA
```

- 3 Create the logical host.

```
phys-schost-1# clreslogicalhostname create -g RG-SPSRA ha-host-1
```

4 Create the HASStoragePlus resource in the RG-SPSRA resource group.

```
phys-schost-1# clresource create -g RG-SPSRA -t SUNW.HASStoragePlus -p AffinityOn=TRUE \
> -p FilesystemMountPoints=/global/mnt3,/global/mnt4 RS-SPSRA-HAS
```

5 Enable the resource group.

```
phys-schost-1# clresourcegroup online -M RG-SPSRA
```

▼ Example: Configuring the Failover Zone**1 On shared cluster storage, create a directory for the failover zone root path.**

This example presents a sparse root zone. You can use a whole root zone if that type better suits your configuration.

```
phys-schost-1# mkdir /global/mnt3/zones
```

2 Create a temporary file, for example /tmp/x, and include the following entries:

```
create -b
set zonepath=/global/mnt3/zones/clu1
set autoboot=false
set pool=pool_default
add inherit-pkg-dir
set dir=/lib
end
add inherit-pkg-dir
set dir=/platform
end
add inherit-pkg-dir
set dir=/sbin
end
add inherit-pkg-dir
set dir=/usr
end
add net
set address=ha-host-1
set physical=hme0
end
add attr
set name=comment
set type=string
set value="N1 Grid Service Provisioning System cluster zone"
```

Put your desired zone name between the quotes here.

```
end
```

3 Configure the failover zone, using the file you created.

```
phys-schost-1# zonecfg -z clu1 -f /tmp/x
```

4 Install the zone.

```
phys-schost-1# zoneadm -z clu1 install
```

5 Log in to the zone.

```
phys-schost-1# zlogin -C clu1
```

6 Open a new window to the same node and boot the zone?

```
phys-schost-1a# zoneadm -z clu1 boot
```

7 Close this terminal window and disconnect from the zone console.

```
phys-schost-1# ~.
```

8 Copy the containers configuration file to a temporary location.

```
phys-schost-1# cp /opt/SUNWsczone/sczbt/util/sczbt_config /tmp/sczbt_config
```

9 Edit the /tmp/sczbt_config file and set variable values as shown:

```
RS=RS-SPSRA-ZONE
RG=RG-SPSRA
PARAMETERDIR=/global/mnt3/zonepar
SC_NETWORK=false
SC_LH=
FAILOVER=true
HAS_RS=RS-SPSRA-HAS
```

```
Zonename=clu1
Zonebootopt=
Milestone=multi-user-server
Mounts=
```

10 Create the zone according to the instructions in the *Sun Cluster Data Service for Solaris Containers Guide*.

11 Register the zone resource.

```
phys-schost-1# ksh /opt/SUNWsczone/sczbt/util/sczbt_register -f /tmp/sczbt_config
```

12 Enable the zone resource.

```
phys-schost-1# clresource enable RS-SPSRA-ZONE
```

▼ Example: Installing the N1 Grid Service Provisioning System Remote Agent Software on Shared Storage

These steps illustrate how to install the N1 Grid Service Provisioning System software. As long as only one node is mentioned it needs to be the node where your resource group is online.

1 Log in to the zone.

```
phys-schost-1# zlogin clu1
```

2 Add the sps user.

```
zone-1# groupadd -g 1000 sps
zone-1# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
```

3 Install the N1 Grid Service Provisioning System binaries.

```
zone-1# cd /installation_directory
zone-1# ./cr_ra_solaris_sparc_5.2.sh
```

Answer on the following cluster relevant questions as follows:

- ```

 What base directory ...
 default: /opt/SUNWn1sps) [<directory>] /global/mnt3/sps

```
- ```

      Which user will own the N1 SPS Remote Agent distribution?
      (default: n1sps) [<valid username>] sps
      
```
- ```

 Which group on this machine will own the
 N1 SPS Remote Agent distribution?
 (default: n1sps) [<valid groupname>] sps

```
- ```

      What is the hostname or IP address of the interface on which the
      Agent will run?
      (default: phys-schost-1) ha-host-1
      
```

For all the other values, you can accept the defaults, or chose appropriate values. For the simplicity of this example we assume the default values of all port values.

4 Leave the zone.

▼ Example: Modifying the N1 Grid Service Provisioning System Remote Agent Configuration File

- 1 Copy the N1 Grid Service Provisioning System configuration file from the agent directory to its deployment location.

```
phys-schost-1# cp /opt/SUNWscsps/remoteagent/util/spsra_config /global/mnt3
```

- 2 Add this cluster's information to the `spsra_config` configuration file.

The following listing shows the relevant file entries and the values to assign to each entry.

```
.  
. .  
RS=RS-SPSRA  
RG=RG-SPSRA  
PORT=  
LH=  
USER=sps  
BASE=/global/mnt3/sps/N1_Service_Provisioning_System  
HAS_RS=RS-SPSRA-HAS .  
. .  
ZONE=clu1  
ZONE_BT=RS-SPSMA-ZONE  
PROJECT=
```

- 3 Save and close the file.

▼ Example: Enabling the N1 Grid Service Provisioning System Remote Agent Software to Run in the Cluster

- 1 Run the `spsra_register` script to register the resource.

```
phys-schost-1# ksh /opt/SUNWscsps/remoteagent/util/spsra_register \  
> -f /global/mnt3/spsra_config
```

- 2 Enable the resource.

```
phys-schost-1# clresource enable RS-SPSRA
```

Installing and Configuring N1 Grid Service Provisioning System Local Distributor on Shared Storage in the Failover Zone

The tasks you must perform to install and configure N1 Grid Service Provisioning System Local Distributor in the failover zone are as follows:

- “Example: Configuring the Failover Zone” on page 88
- “Example: Preparing the Cluster for N1 Grid Service Provisioning System Local Distributor” on page 87
- “Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Local Distributor” on page 87
- “Example: Installing the N1 Grid Service Provisioning System Local Distributor Software” on page 90
- “Example: Modifying the N1 Grid Service Provisioning System Local Distributor Configuration File” on page 91
- “Example: Enabling the N1 Grid Service Provisioning System Local Distributor Software to Run in the Cluster” on page 91

▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Local Distributor

- ▶ **Install and configure the cluster as instructed in *Sun Cluster Software Installation Guide for Solaris OS*.**

Install the following cluster software components on both nodes.

- Sun Cluster core software
- Sun Cluster data service for N1 Grid Service Provisioning System
- Sun Cluster HA for Solaris Container

▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Local Distributor

- 1 Register the necessary data types on one node.

```
phys-schost-1# clresourcetype register SUNW.gds SUNW.HASStoragePlus
```

- 2 Create the N1 Grid Service Provisioning System resource group.

```
phys-schost-1# clresourcegroup create -n phys-host-1:clu1,phys-host-2:clu1 RG-SPSLD
```

3 Create the logical host.

```
phys-schost-1# clreslogicalhostname create -g RG-SPSLD ha-host-1
```

4 Create the HASStoragePlus resource in the RG-SPSLD resource group.

```
phys-schost-1# clresource create -g RG-SPSLD -t SUNW.HASStoragePlus -p AffinityOn=TRUE \
> -p FilesystemMountPoints=/global/mnt3,/global/mnt4 RS-SPSLD-HAS
```

5 Enable the resource group.

```
phys-schost-1# clresourcegroup online -M RG-SPSLD
```

▼ Example: Configuring the Failover Zone**1 On shared cluster storage, create a directory for the failover zone root path.**

This example presents a sparse root zone. You can use a whole root zone if that type better suits your configuration.

```
phys-schost-1# mkdir /global/mnt3/zones
```

2 Create a temporary file, for example /tmp/x, and include the following entries:

```
create -b
set zonepath=/global/mnt3/zones/clu1
set autoboot=false
set pool=pool_default
add inherit-pkg-dir
set dir=/lib
end
add inherit-pkg-dir
set dir=/platform
end
add inherit-pkg-dir
set dir=/sbin
end
add inherit-pkg-dir
set dir=/usr
end
add net
set address=ha-host-1
set physical=hme0
end
add attr
set name=comment
set type=string
set value="N1 Grid Service Provisioning System cluster zone"
```

Put your desired zone name between the quotes here.

```
end
```


3 Configure the failover zone, using the file you created.

```
phys-schost-1# zonecfg -z clu1 -f /tmp/x
```

4 Install the zone.

```
phys-schost-1# zoneadm -z clu1 install
```

5 Log in to the zone.

```
phys-schost-1# zlogin -C clu1
```

6 Open a new window to the same node and boot the zone?

```
phys-schost-1a# zoneadm -z clu1 boot
```

7 Close this terminal window and disconnect from the zone console.

```
phys-schost-1# ~~.
```

8 Copy the containers configuration file to a temporary location.

```
phys-schost-1# cp /opt/SUNWsczone/sczbt/util/sczbt_config /tmp/sczbt_config
```

9 Edit the /tmp/sczbt_config file and set variable values as shown:

```
RS=RS-SPSLD-ZONE
RG=RG-SPSLD
PARAMETERDIR=/global/mnt3/zonepar
SC_NETWORK=false
SC_LH=
FAILOVER=true
HAS_RS=RS-SPSLD-HAS
```

```
Zonename=clu1
Zonebootopt=
Milestone=multi-user-server
Mounts=
```

10 Create the zone according to the instructions in the *Sun Cluster Data Service for Solaris Containers Guide*.**11 Register the zone resource.**

```
phys-schost-1# ksh /opt/SUNWsczone/sczbt/util/sczbt_register -f /tmp/sczbt_config
```

12 Enable the zone resource.

```
phys-schost-1# clresource enable RS-SPSLD-ZONE
```

▼ Example: Installing the N1 Grid Service Provisioning System Local Distributor Software

These steps illustrate how to install the N1 Grid Service Provisioning System software. As long as only one node is mentioned it needs to be the node where your resource group is online.

1 Log into the zones.

```
phys-schost-1# zlogin clu1
```

2 Add the sps user.

```
zone-1# groupadd -g 1000 sps
zone-1# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
```

3 Install the N1 Grid Service Provisioning System binaries on one node.

```
zone-1# cd /installation_directory
zone-1# ./cr_ld_solaris_sparc_5.2.sh
```

Answer on the following cluster relevant questions as follows:

- ```

What base directory ...
default: /opt/SUNWn1sps) [<directory>] /global/mnt3/sps
```
- ```

Which user will own the N1 SPS Local Distributor distribution?
(default: n1sps) [<valid username>] sps
```
- ```

Which group on this machine will own the
N1 SPS Local Distributor distribution?
(default: n1sps) [<valid groupname>] sps
```
- ```

What is the hostname or IP address of this machine?
(default: phys-schost-1) ha-host-1
```

For all the other values, you can accept the defaults, or chose appropriate values. For the simplicity of this example we assume the default values of all port values.

4 Leave the zone.

▼ Example: Modifying the N1 Grid Service Provisioning System Local Distributor Configuration File

- 1 Copy the N1 Grid Service Provisioning System configuration file from the agent directory to its deployment location.

```
phys-schost-1# cp /opt/SUNWscsps/localdist/util/spsld_config /global/mnt3
```

- 2 Add this cluster's information to the `spsld_config` configuration file.

The following listing shows the relevant file entries and the values to assign to each entry.

```
.
.
.
RS=RS-SPSLD
RG=RG-SPSLD
PORT=
LH=
USER=sps
BASE=/global/mnt3/sps/N1_Service_Provisioning_System
HAS_RS=RS-SPSLD-HAS
```

- 3 Save and close the file.

▼ Example: Enabling the N1 Grid Service Provisioning System Local Distributor Software to Run in the Cluster

- 1 Run the `spsld_register` script to register the resource.

```
phys-schost-1# ksh /opt/SUNWscsps/localdist/util/spsld_register \
> -f /global/mnt3/spsld_config
```

- 2 Enable the resource.

```
phys-schost-1# clresource enable RS-SPSLD
```


Deployment Example: Installing N1 Grid Service Provisioning System in the Zone

This appendix presents a complete example of how to install and configure the N1 Grid Service Provisioning System application and data service in the zone. It presents a simple two-node cluster configuration. If you need to install the application in any other configuration, refer to the general-purpose procedures presented elsewhere in this manual. For an example of N1 Grid Service Provisioning System installation in a global zone, see [Appendix A](#) or for a non-global failover zone see [Appendix B](#) according to your zone type.

Target Cluster Configuration

This example uses a two-node cluster with the following node names:

- `phys-schost-1` (a physical node, which owns the file system)
- `zone-1` (a zone defined on `phys-schost-1`, which owns the file system)
- `phys-schost-2` (a physical node)
- `zone-2` (a physical node)

This configuration also uses the logical host name `ha-host-1`.

Software Configuration

This deployment example uses the following software products and versions:

- Solaris 10 6/06 software for SPARC or x86 platforms
- Sun Cluster 3.2 core software
- Sun Cluster HA for N1 Service Provisioning System
- N1 Grid Service Provisioning System 5.2.
- Your preferred text editor

This example assumes that you have already installed and established your cluster. It illustrates installation and configuration of the data service application only.

Assumptions

The instructions in this example were developed with the following assumptions:

- **Shell environment:** All commands and the environment setup in this example are for the Korn shell environment. If you use a different shell, replace any Korn shell-specific information or instructions with the appropriate information for you preferred shell environment.
- **User login:** Unless otherwise specified, perform all procedures as superuser or assume a role that provides `solaris.cluster.admin`, `solaris.cluster.modify`, and `solaris.cluster.read` RBAC authorization.

Installing and Configuring N1 Grid Service Provisioning System Master Server on Shared Storage in the Zone

The tasks you must perform to install and configure N1 Grid Service Provisioning System Master Server in the Zone are as follows:

- [“Example: Preparing the Cluster for N1 Grid Service Provisioning System Master Server” on page 94](#)
- [“Example: Configuring the Zone” on page 95](#)
- [“Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Master Server” on page 96](#)
- [“Example: Installing the N1 Grid Service Provisioning System Master Server Software on Shared Storage” on page 96](#)
- [“Example: Modifying the N1 Grid Service Provisioning System Master Server Configuration and Parameter Files” on page 98](#)
- [“Example: Enabling the N1 Grid Service Provisioning System Master Server Software to Run in the Cluster” on page 99](#)

▼ **Example: Preparing the Cluster for N1 Grid Service Provisioning System Master Server**

- ▶ **Install and configure the cluster as instructed in *Sun Cluster Software Installation Guide for Solaris OS*.**

Install the following cluster software components on both nodes.

- Sun Cluster core software
- Sun Cluster data service for N1 Grid Service Provisioning System

▼ Example: Configuring the Zone

In this task you will install the Solaris Container on `phys-schost-1` and `phys-schost-2`. Therefore perform this procedure on both hosts.

1 On local cluster storage of , create a directory for the zone root path.

This example presents a sparse root zone. You can use a whole root zone if that type better suits your configuration.

```
phys-schost-1# mkdir /zones
```

2 Create a temporary file, for example `/tmp/x`, and include the following entries:

```
create -b
set zonepath=/zones/clu1
set autoboot=true
set pool=pool_default
add inherit-pkg-dir
set dir=/lib
end
add inherit-pkg-dir
set dir=/platform
end
add inherit-pkg-dir
set dir=/sbin
end
add inherit-pkg-dir
set dir=/usr
end
add net
set address=zone-1      Choose a different address (zone-2) on the second node.
set physical=hme0
end
add attr
set name=comment
set type=string
set value="SPS cluster zone"    Put your desired zone name between the quotes here.
end
```

3 Configure the zone, using the file you created.

```
phys-schost-1# zonecfg -z clu1 -f /tmp/x
```

4 Install the zone.

```
phys-schost-1# zoneadm -z clu1 install
```

5 Log in to the zone.

```
phys-schost-1# zlogin -C clu1
```

- 6 **Open a new window to the same node and boot the zone?**

```
phys-schost-1# zoneadm -z clu1 boot
```

- 7 **Close this terminal window and disconnect from the zone console.**

```
phys-schost-1# ~~.
```

▼ **Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Master Server**

- 1 **Register the necessary data types on one node.**

```
phys-schost-1# clresourcetype register SUNW.gds SUNW.HASStoragePlus
```

- 2 **Create the N1 Grid Service Provisioning System resource group.**

```
phys-schost-1# clresourcegroup create -n phys-host-1:clu1,phys-host-2:clu1 RG-SPSMA
```

- 3 **Create the logical host.**

```
phys-schost-1# clreslogicalhostname create -g RG-SPSMA ha-host-1
```

- 4 **Create the HASStoragePlus resource in the RG-SPSMA resource group.**

```
phys-schost-1# clresource create -g RG-SPSMA -t SUNW.HASStoragePlus -p AffinityOn=TRUE \  
> -p FilesystemMountPoints=/global/mnt3,/global/mnt4 RS-SPSMA-HAS
```

- 5 **Enable the resource group.**

```
phys-schost-1# clresourcegroup online -M RG-SPSMA
```

▼ **Example: Installing the N1 Grid Service Provisioning System Master Server Software on Shared Storage**

These steps illustrate how to install the N1 Grid Service Provisioning System software. As long as only one node is mentioned it needs to be the node where your resource group is online.

- 1 **Log into the zone on both nodes.**

```
phys-schost-1 zlogin clu1  
phys-schost-2 zlogin clu2
```

- 2 **Beginning on the node that owns the file system, add the sps user.**

```
zone-1# groupadd -g 1000 sps  
zone-2# groupadd -g 1000 sps  
zone-1# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps  
zone-2# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
```


3 Prepare the shared memory of the default project on both nodes.

```
zone-1# projmod -a -K "project.max-shm-memory=(priv,536870912,deny)" default
zone-2# projmod -a -K "project.max-shm-memory=(priv,536870912,deny)" default
```

Note – This example is valid for Solaris 10 only. Use appropriate methods on Solaris 9.

4 Install the N1 Grid Service Provisioning System binaries on one node.

```
zone-1# cd /installation_directory
zone-1# ./cr_ms_solaris_sparc_pkg_5.2.sh
```

Answer on the following cluster relevant questions as follows:

- ```

 What base directory ...
 default: /opt/SUNWn1sps) [<directory>] /global/mnt3/sps
```
- ```

      Which user will own the N1 SPS Master Server distribution?
      (default: n1sps) [<valid username>] sps
```
- ```

 Which group on this machine will own the
 N1 SPS Master Server distribution?
 (default: n1sps) [<valid groupname>] sps
```
- ```

      What is the hostname or IP address for this Master Server?
      (default: phys-schost-1) ha-host-1
```

For all the other values, you can accept the defaults, or chose appropriate values. For the simplicity of this example we assume the default values of all port values.

5 Start the master server as user sps.

```
zone-1# su - sps
zone-1$ cd /global/mnt3/sps/N1_Service_Provisioning_System_5.2/server/bin
zone-1$ ./cr_server start
```

6 Prepare the PostgreSQL database for monitoring

```
zone-1$ cd /opt/SUNWscsps/master/util
zone-1$ ksh ./db_prep_postgres /global/mnt3/sps/N1_Service_Provisioning_System_5.2
```

7 Stop the master server and leave the user sps.

```
zone-1$ cd /global/mnt3/sps/N1_Service_Provisioning_System_5.2/server/bin
zone-1$ ./cr_server stop
```

▼ Example: Modifying the N1 Grid Service Provisioning System Master Server Configuration and Parameter Files

- 1 Copy the N1 Grid Service Provisioning System parameter file from the agent directory to its deployment location.

```
zone-1# cp /opt/SUNWscsps/master/bin/pfile /global/mnt3
```

- 2 Add this cluster's information to the parameter file pfile.

The following listing shows the relevant file entries and the values to assign to each entry.

```
.
.
.
User=sps
Basepath=/global/mnt3/sps/N1_Service_Provisioning_System_5.2
Host=ha-host-1
Tport=8080
TestCmd="get /index.jsp"
ReturnString="SSL|Service"
Startwait=20
WgetPath=
```

- 3 Save and close the file.
- 4 Leave the zone.
- 5 Copy the N1 Grid Service Provisioning System configuration file from the agent directory to its deployment location.

```
phys-schost-1# cp /opt/SUNWscsps/master/util/spsma_config /global/mnt3
```

- 6 Add this cluster's information to the spsma_config configuration file.

The following listing shows the relevant file entries and the values to assign to each entry.

```
.
.
.
RS=RS-SPSMA
RG=RG-SPSMA
PORT=8080
LH=ha-host-1
PFILE=/global/mnt3/pfile
HAS_RS=RS-SPSMA-HAS
```

- 7 Save and close the file.

▼ Example: Enabling the N1 Grid Service Provisioning System Master Server Software to Run in the Cluster

- 1 Run the `spsma_register` script to register the resource.

```
phys-schost-1# ksh /opt/SUNWscsps/master/util/spsma_register \
> -f /global/mnt3/spsma_config
```

- 2 Enable the resource.

```
phys-schost-1# clresource enable RS-SPSMA
```

Installing and Configuring N1 Grid Service Provisioning System Remote Agent on Shared Storage in the Zone

The tasks you must perform to install and configure N1 Grid Service Provisioning System Remote Agent in the zone are as follows:

- “Example: Preparing the Cluster for N1 Grid Service Provisioning System Remote Agent” on page 99
- “Example: Configuring the Zone” on page 100
- “Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Remote Agent” on page 101
- “Example: Installing the N1 Grid Service Provisioning System Remote Agent Software on Shared Storage” on page 101
- “Example: Modifying the N1 Grid Service Provisioning System Remote Agent Configuration File” on page 102
- “Example: Enabling the N1 Grid Service Provisioning System Remote Agent Software to Run in the Cluster” on page 103

▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Remote Agent

- ▶ Install and configure the cluster as instructed in *Sun Cluster Software Installation Guide for Solaris OS*.

Install the following cluster software components on both nodes.

- Sun Cluster core software
- Sun Cluster data service for N1 Grid Service Provisioning System

▼ Example: Configuring the Zone

In this task you will install the Solaris Container on `phys-schost-1` and `phys-schost-2`. Therefore perform this procedure on both hosts.

1 On local cluster storage of , create a directory for the zone root path.

This example presents a sparse root zone. You can use a whole root zone if that type better suits your configuration.

```
phys-schost-1# mkdir /zones
```

2 Create a temporary file, for example `/tmp/x`, and include the following entries:

```
create -b
set zonepath=/zones/clu1
set autoboot=true
set pool=pool_default
add inherit-pkg-dir
set dir=/lib
end
add inherit-pkg-dir
set dir=/platform
end
add inherit-pkg-dir
set dir=/sbin
end
add inherit-pkg-dir
set dir=/usr
end
add net
set address=zone-1      Choose a different address (zone-2) on the second node.
set physical=hme0
end
add attr
set name=comment
set type=string
set value="SPS cluster zone"    Put your desired zone name between the quotes here.
end
```

3 Configure the failover zone, using the file you created.

```
phys-schost-1# zonecfg -z clu1 -f /tmp/x
```

4 Install the zone.

```
phys-schost-1# zoneadm -z clu1 install
```

5 Log in to the zone.

```
phys-schost-1# zlogin -C clu1
```

- 6 Open a new window to the same node and boot the zone?

```
phys-schost-1# zoneadm -z clu1 boot
```

- 7 Close this terminal window and disconnect from the zone console.

```
phys-schost-1# ~~.
```

▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Remote Agent

- 1 Register the necessary data types on one node.

```
phys-schost-1# clresourcetype register SUNW.gds SUNW.HASStoragePlus
```

- 2 Create the N1 Grid Service Provisioning System resource group.

```
phys-schost-1# clresourcegroup create -n phys-host-1:clu1,phys-host-2:clu1 RG-SPSRA
```

- 3 Create the logical host.

```
phys-schost-1# clreslogicalhostname create -g RG-SPSRA ha-host-1
```

- 4 Create the HASStoragePlus resource in the RG-SPSRA resource group.

```
phys-schost-1# clresource create -g RG-SPSRA -t SUNW.HASStoragePlus -p AffinityOn=TRUE \
-p FilesystemMountPoints=/global/mnt3,/global/mnt4 RS-SPSRA-HAS
```

- 5 Enable the resource group.

```
phys-schost-1# clresourcegroup online -M RG-SPSRA
```

▼ Example: Installing the N1 Grid Service Provisioning System Remote Agent Software on Shared Storage

These steps illustrate how to install the N1 Grid Service Provisioning System software. As long as only one node is mentioned it needs to be the node where your resource group is online.

- 1 Log in to the zone on both nodes.

```
phys-schost-1# zlogin clu1
phys-schost-2# zlogin clu1
```

- 2 Beginning on the node that owns the file system, add the sps user.

```
zone-1# groupadd -g 1000 sps
zone-2# groupadd -g 1000 sps
zone-1# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
zone-2# useradd -g 1000 -d /global/mnt3/sps -s /bin/ksh sps
```

3 Install the N1 Grid Service Provisioning System binaries on one node.

```
zone-1# cd /installation_directory
zone-1# ./cr_ra_solaris_sparc_5.2.sh
```

Answer on the following cluster relevant questions as follows:

- What base directory ...
default: /opt/SUNWn1sps) [<directory>] /global/mnt3/sps
- Which user will own the N1 SPS Remote Agent distribution?
(default: n1sps) [<valid username>] sps
- Which group on this machine will own the
N1 SPS Remote Agent distribution?
(default: n1sps) [<valid groupname>] sps
- What is the hostname or IP address of the interface on which the
Agent will run?
(default: phys-schost-1) ha-host-1

For all the other values, you can accept the defaults, or chose appropriate values. For the simplicity of this example we assume the default values of all port values.

4 Leave the zone.

▼ Example: Modifying the N1 Grid Service Provisioning System Remote Agent Configuration File

1 Copy the N1 Grid Service Provisioning System configuration file from the agent directory to its deployment location.

```
phys-schost-1# cp /opt/SUNWscsps/remoteagent/util/spsra_config /global/mnt3
```

2 Add this cluster's information to the spsra_config configuration file.

The following listing shows the relevant file entries and the values to assign to each entry.

```
.
.
.
RS=RS-SPSRA
RG=RG-SPSRA
```

```

PORT=8080
LH=ha-host-1
USER=sps
BASE=/global/mnt3/sps/N1_Service_Provisioning_System
HAS_RS=RS-SPSRA-HAS

```

- 3 Save and close the file.

▼ Example: Enabling the N1 Grid Service Provisioning System Remote Agent Software to Run in the Cluster

- 1 Run the `spsra_register` script to register the resource.

```

phys-schost-1# ksh /opt/SUNWscsps/remoteargent/util/spsra_register \
> -f /global/mnt3/spsra_config

```

- 2 Enable the resource.

```

phys-schost-1# clresource enable RS-SPSRA

```

Installing and Configuring N1 Grid Service Provisioning System Local Distributor on Shared Storage in the Zone

The tasks you must perform to install and configure N1 Grid Service Provisioning System Local Distributor in the zone are as follows:

- “Example: Preparing the Cluster for N1 Grid Service Provisioning System Local Distributor” on page 104
- “Example: Configuring the Zone” on page 104
- “Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Local Distributor” on page 105
- “Example: Installing the N1 Grid Service Provisioning System Local Distributor Software on Shared Storage” on page 106
- “Example: Modifying the N1 Grid Service Provisioning System Local Distributor Configuration File” on page 107
- “Example: Enabling the N1 Grid Service Provisioning System Local Distributor Software to Run in the Cluster” on page 107

▼ Example: Preparing the Cluster for N1 Grid Service Provisioning System Local Distributor

- ▶ **Install and configure the cluster as instructed in *Sun Cluster Software Installation Guide for Solaris OS*.**

Install the following cluster software components on both nodes.

- Sun Cluster core software
- Sun Cluster data service for N1 Grid Service Provisioning System

▼ Example: Configuring the Zone

In this task you will install the Solaris Container on `phys-schost-1` and `phys-schost-2`. Therefore perform this procedure on both hosts.

- 1 On local cluster storage of , create a directory for the zone root path.**

This example presents a sparse root zone. You can use a whole root zone if that type better suits your configuration.

```
phys-schost-1# mkdir /zones
```

- 2 Create a temporary file, for example `/tmp/x`, and include the following entries:**

```
create -b
set zonepath=/zones/clu1
set autoboot=true
set pool=pool_default
add inherit-pkg-dir
set dir=/lib
end
add inherit-pkg-dir
set dir=/platform
end
add inherit-pkg-dir
set dir=/sbin
end
add inherit-pkg-dir
set dir=/usr
end
add net
set address=zone-1      Choose a different address (zone-2) on the second node.
set physical=hme0
end
add attr
set name=comment
set type=string
```



```
set value="SPS cluster zone"    Put your desired zone name between the quotes here.
end
```

3 Configure the failover zone, using the file you created.

```
phys-schost-1# zonecfg -z clu1 -f /tmp/x
```

4 Install the zone.

```
phys-schost-1# zoneadm -z clu1 install
```

5 Log in to the zone.

```
phys-schost-1# zlogin -C clu1
```

6 Open a new window to the same node and boot the zone?

```
phys-schost-1# zoneadm -z clu1 boot
```

7 Close this terminal window and disconnect from the zone console.

```
phys-schost-1# ~.
```

▼ Example: Configuring Cluster Resources for N1 Grid Service Provisioning System Local Distributor

1 Register the necessary data types on one node.

```
phys-schost-1# clresource type register SUNW.gds SUNW.HASStoragePlus
```

2 Create the N1 Grid Service Provisioning System resource group.

```
phys-schost-1# clresourcegroup create -n phys-host-1:clu1,phys-host-2:clu1 RG-SPSLD
```

3 Create the logical host.

```
phys-schost-1# clreslogicalhostname create -g RG-SPSLD ha-host-1
```

4 Create the HASStoragePlus resource in the RG-SPSLD resource group.

```
phys-schost-1# clresource create -g RG-SPSLD -t SUNW.HASStoragePlus -p AffinityOn=TRUE \
> -p FilesystemMountPoints=/global/mnt3,/global/mnt4 RS-SPSLD-HAS
```

5 Enable the resource group.

```
phys-schost-1# clresourcegroup online -M RG-SPSLD
```

▼ Example: Installing the N1 Grid Service Provisioning System Local Distributor Software on Shared Storage

These steps illustrate how to install the N1 Grid Service Provisioning System software. As long as only one node is mentioned it needs to be the node where your resource group is online.

1 Log into the zone on both nodes.

```
phys-schost-1# zlogin clu1
phys-schost-2# zlogin clu1
```

2 Beginning on the node that owns the file system, add the `sps` user.

```
zone-1# groupadd -g 1000 sps
zone-2# groupadd -g 1000 sps
zone-1# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
zone-2# useradd -g 1000 -d /global/mnt3/sps -m -s /bin/ksh sps
```

3 Install the N1 Grid Service Provisioning System binaries on one node.

```
zone-1# cd /installation_directory
zone-1# ./cr_ld_solaris_sparc_5.2.sh
```

Answer on the following cluster relevant questions as follows:

■

```
What base directory ...
default: /opt/SUNWn1sps) [<directory>] /global/mnt3/sps
```

■

```
Which user will own the N1 SPS Local Distributor distribution?
(default: n1sps) [<valid username>] sps
```

■

```
Which group on this machine will own the
N1 SPS Local Distributor distribution?
(default: n1sps) [<valid groupname>] sps
```

■

```
What is the hostname or IP address of this machine?
(default: phys-schost-1) ha-host-1
```

For all the other values, you can accept the defaults, or chose appropriate values. For the simplicity of this example we assume the default values of all port values.

4 Leave the zone.

▼ Example: Modifying the N1 Grid Service Provisioning System Local Distributor Configuration File

- 1 Copy the N1 Grid Service Provisioning System configuration file from the agent directory to its deployment location.

```
phys-schost-1# cp /opt/SUNWscsps/localdist/util/spsld_config /global/mnt3
```

- 2 Add this cluster's information to the `spsld_config` configuration file.

The following listing shows the relevant file entries and the values to assign to each entry.

```
.
.
.
RS=RS-SPSLD
RG=RG-SPSLD
PORT=8080
LH=ha-host-1
USER=sps
BASE=/global/mnt3/sps/N1_Service_Provisioning_System
HAS_RS=RS-SPSLD-HAS
```

- 3 Save and close the file.

▼ Example: Enabling the N1 Grid Service Provisioning System Local Distributor Software to Run in the Cluster

- 1 Run the `spsld_register` script to register the resource.

```
phys-schost-1# ksh /opt/SUNWscsps/localdist/util/spsld_register \
> -f /global/mnt3/spsld_config
```

- 2 Enable the resource.

```
phys-schost-1# clresource enable RS-SPSLD
```


Index

C

clnode command, 12
commands
 clresource, 39, 42, 46, 48, 50, 52, 54
 clresourcegroup, 28
 clresourcegroup, 24, 26
 cr_agent, 30, 31
 cr_ld, 31, 32
 cr_server, 30
 node information, 12

D

database preparation, 34
deployment examples
 N1 Grid Service Provisioning System in the global
 zone, 63-74, 75-91, 93-107
 N1 Grid Service Provisioning System with Solaris 9
 OS, 63-74, 75-91, 93-107

E

enable Local Distributor resource, 52, 54
enable Master Server resource, 39, 42, 46
enable Remote Agent resource, 48, 50
enable resource group, 24, 26
enabling resource group, 28
error messages, cluster, 12
examples
 N1 Grid Service Provisioning System in the global
 zone, 63-74, 75-91, 93-107

examples (*Continued*)

N1 Grid Service Provisioning System with Solaris 9
OS, 63-74, 75-91, 93-107

F

fault monitor, 57-59

G

global zone, 32

H

help, 12

I

installing, Sun Cluster HA for N1 Service Provisioning
System, 32-34

L

local zones, *See* non-global zones

M

messages file, 12

N

non-global zones, 32

P

packages, 32-34
parameter file, 36, 39, 43, 55-56
prtconf -v command, 12
prtdiag -v command, 12
psrinfo -v command, 12

R

register, 38, 42, 46, 48, 50, 52
registration files, 18
 spsld_config, 50, 52
 spsma_config, 37, 41, 44
 spsra_config, 46, 48
registration scripts, 20
requirements, 17-22
resource group, enabling, 28
restrictions, 16-17
 zones, 32

S

show-rev subcommand, 12
showrev -p command, 12
software packages, 32-34
strategy, 57
Sun Cluster HA for N1 Service Provisioning System
 installing, 32-34
 software packages
 installing, 32-34

T

technical support, 12

V

/var/adm/messages file, 12

Z

zones, 32