Sun N1 Advanced Architecture for SAP Solutions 5.2.1 Installation Guide

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

Part No: 819–5457–10
May 2006

060505@14986

Contents

Preface

The *Sun N1™ Advanced Architecture for SAP Solutions 5.2.1 Installation Guide* contains information about installing and configuring the Sun N1 Advanced Architecture for SAP Solutionssoftware.

Who Should Use This Book

The main audience for the Sun N1 Advanced Architecture for SAP Solutions 5.2.1 Installation Guide includes system administrators and operators of N1 Advanced Architecture software. These users are expected to be familiar with the following:

- Technical understanding of the N1 AA Solution
- Sun Solaris OS
- Technical understanding of PostgreSQL databases
- Technical understanding of Web Application Servers, especially Tomcat

Before You Read This Book

If you are not already familiar with using the N1 Advanced Architecture software, read the following books:

- *Sun N1 Advanced Architecture for SAP Solutions 5.2.1 User's Guide*
- *Sun N1 Service Provisioning System User's Guide for SAP Plug-In 1.0*

How This Book Is Organized

Chapter 1 provides an overview of the Sun N1 Advanced Architecture for SAP Solutions software.

Chapter 2 explains how to install the N1 AA Manager.

Chapter 3 explains how to install the N1 AA Analyzer.

Chapter 4 explains how to install the N1 AA Builder.

Chapter 5 explains how to install the N1 AA Deployer.

Appendix A explains how to install Sun N1 Service Provisioning System (N1 SPS) Components.

Related Third-Party Web Site References

Third-party URLs are referenced in this document and provide additional, related information.

Note – Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused or alleged to be caused by or in connection with use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

Documentation, Support, and Training

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

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

Typographic Conventions

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

TABLE P–1 Typographic Conventions

Typeface	Meaning	Example
`AaBbCc123`	The names of commands, files, and directories, and onscreen computer output	Edit your `.login` file. Use `ls -a` to list all files. `machine_name% you have mail.`
`AaBbCc123`	What you type, contrasted with onscreen computer output	`machine_name%` **`su`** `Password:`
aabbcc123	Placeholder: replace with a real name or value	The command to remove a file is `rm` *filename.*

TABLE P–1 Typographic Conventions *(Continued)*

Typeface	Meaning	Example
AaBbCc123	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the *User's Guide*. A *cache* is a copy that is stored locally. Do *not* save the file. **Note:** Some emphasized items appear bold online.

Shell Prompts in Command Examples

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

TABLE P–2 Shell Prompts

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

◆ ◆ ◆ CHAPTER 1

N1 AA Overview

With the Sun N1 Advanced Architecture for SAP Solutions, IT operators can deploy, provision, manage, and change pools of resources and application services, and analyze the environment, all from a single Web browser interface. Sun N1 Advanced Architecture for SAP Solutions delivers more business flexibility through virtualization, application and resource provisioning, monitoring, and central management.

Sun N1 Advanced Architecture for SAP Solutions consists of the central core module, N1 AA Manager, and three functional modules:

- N1 AA Analyzer
- N1 AA Builder
- N1 AA Deployer
- N1 AA Manager

  Provides the central GUI, a Java technology-based Web browser interface. This includes the base components for customization, maintenance, and administration that are not directly associated with one of the functional modules.
- N1 AA Command Line Interface

  Gives you the ability to control all actions from command line instead of using the GUI.
- N1 AA Analyzer

  In a systems environment, information on the current utilization of resources is the starting point for making smarter decisions. The N1 Advanced Architecture Analyzer continually monitors, collects, and displays CPU and memory utilization data on all of the servers and applications in the environment. This includes applications other than SAP. Once data is collected, the Analyzer provides reports on capacity planing and graphical illustration of resource consumption.
- N1 AA Builder

  The N1 AA Builder is designed for OS provisioning to quickly provision servers into an SAP environment from a bare metal state. The pre-built models within the Builder enable IT operators to build, configure, and update multi-tier application service models for many data

center applications. This includes models for the operating systems, patches, and client software, all from a single GUI. The models are stored and centrally administered. The models can be configured for different environments.

- N1 AA Deployer

  The Deployer is the controller for your application services. The Deployer enables you to start, stop, and relocate applications in a virtualized environment. This includes applications that are driven in a Sun Cluster or SAP Adaptive Computing environment. For SAP systems, it enables you to install new SAP Application Instances or remove existing ones.

Preferred Installation Order

If the Sun N1 Service Provisioning System 5.2.1 environment is needed for the Builder or Deployer modules, the preferred installation order is:

1. Sun N1 Service Provisioning System 5.2.1

   See "Sun N1 Service Provisioning System Environment" on page 10.

2. Sun N1 Service Provisioning System plug-ins

   See `http://docs.sun.com/app/docs/coll/1502.1`.

3. Sun N1 Service Provisioning System Command Line Interface (CLI)

   See Chapter 4, "Installing the Sun N1 Service Provisioning System 5.2 on Linux and UNIX Systems," in *Sun N1 Service Provisioning System 5.2 Installation Guide*

4. Sun N1 Advanced Architecture for SAP Solutions

Sun N1 Service Provisioning System Environment

The N1 Advanced Architecture software requires Sun N1 Service Provisioning System 5.2.1 for the Builder and Deployer modules. It is not necessary if you are only going to run the Analyzer. To install the Sun N1 Service Provisioning System 5.2.1 software, perform the following steps:

1. Install Sun N1 Service Provisioning System 5.2.

   For more information, see the *Sun N1 Service Provisioning System 5.2 Installation Guide*.

2. Add the following patches.
   - Solaris SPARC
     - 122989-01 Master Server

- 122991-01 CLUI

To obtain the patches, go to `http://sunsolve.sun.com`.

For more information about SPS components, see "Installation of N1 SPS Components" on page 33.

Note – Install the Sun N1 Service Provisioning System and the N1 AA Manager on the same server. Using different servers is not supported.

Platforms and Versions

The following summary lists the platform support for the N1 AA components.

N1 AA Manager / N1 AA CLI :

- N1 AA Server on Solaris 9 (SPARC) or Solaris 10 (SPARC)
- Sun Java Web Console 2.2.5
- PostgreSQL 8.1.3

N1 AA Analyzer:

N1 AA Clients (limited by support of `aasap`/`aasapd` and `perfcol`):

- Solaris 9 (SPARC)
- Solaris 10 (SPARC)

N1 AA Builder:

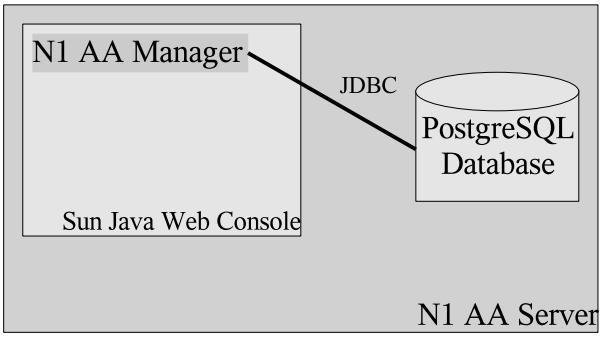
- Sun N1 Service Provisioning System 5.2.1
- Limitations for N1 AA Clients: See the support matrix of N1 SPS 5.2.1 and corresponding plug-ins. Especially the mandatory OS Provisioning plug-in.

N1 AA Deployer:

- Sun N1 Service Provisioning System 5.2.1
- Limitations for N1 AA Clients: See support matrix of Sun N1 SPS 5.2.1 and SAP Plug-in.

N1 AA Manager

This chapter describes the software components needed for the N1 AA Manager.



- N1 AA Server

  The central administration server that hosts the N1 AA software. This is usually a dedicated server outside of the productive landscape of the customer.

- Sun Java Web Console

  The Sun Java Web Console provides a common point for Sun web-based system management applications. It is a complete web-based console infrastructure, including all necessary software.

- N1 AA Manager

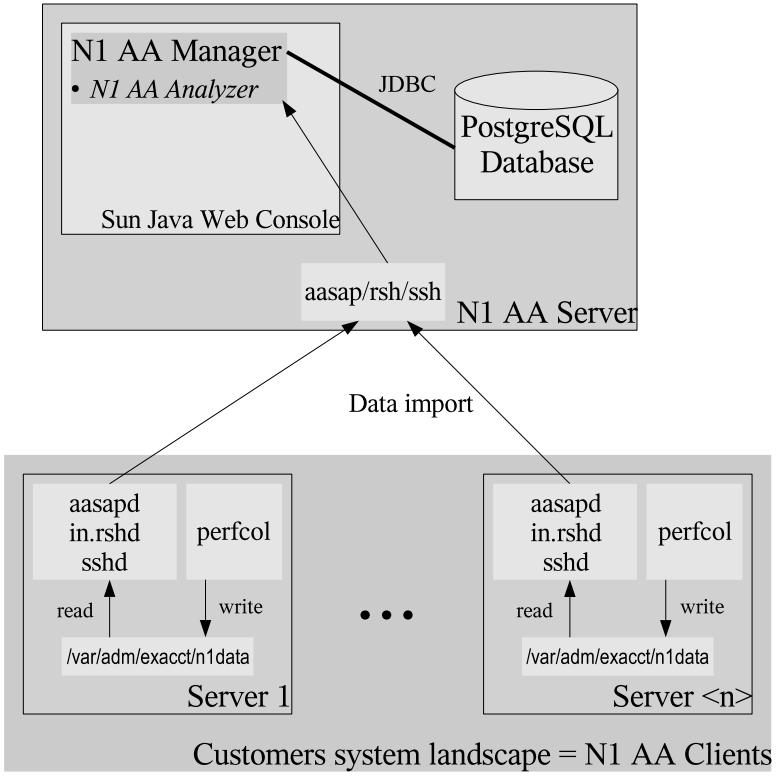
  The N1 AA Manager is a web-based Java application, that is registered with the Sun Java Web Console.

- PostgreSQL Database

  The PostgreSQL database stores all data within N1 AA. PostgreSQL is a powerful, relational database system. For more information, see `http://www.postgresql.org/`.

N1 AA Analyzer

Based on the infrastructure of the N1 AA Manager, there are additional components needed for the N1 AA Analyzer.



- N1 AA Analyzer Web Application

  From the technical point of view, this is not an additional component. It is included in the N1 AA Manager which is already registered with the Sun Java Web Console. The N1 AA Analyzer can be shown or hidden during N1 AA Manager customization. For more information, see the *Sun N1 Advanced Architecture for SAP Solutions 5.2.1 User's Guide*.

- Performance Collector

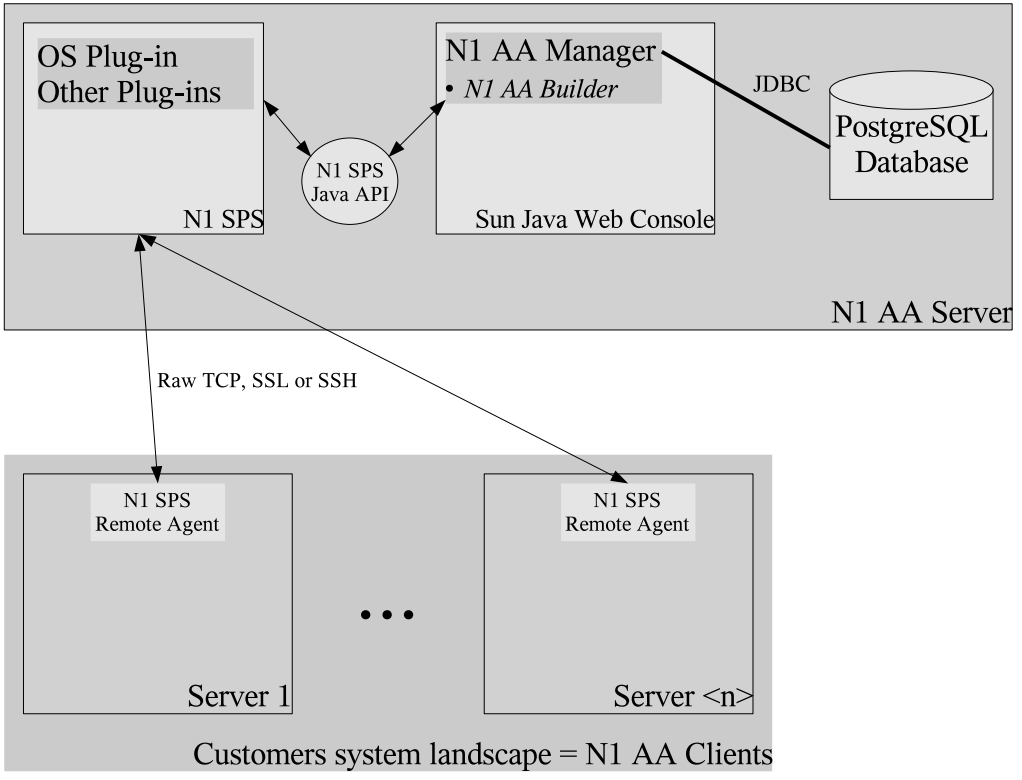
  The Performance Collector (`perfcol`) is a daemon running on every N1 AA client. It measures the resource consumption, CPU, and memory of every running Solaris project. The data is logged in the `/var/opt/SUNWn1aa/n1data` file.

- N1 AA Analyzer Client/Server Communication (`aasap`, `rsh`, or `ssh`)

  This is used by the N1 AA Analyzer to read the `perfcol` data in `/var/opt/SUNWn1aa/n1dataon` every server and import the data to the PostgreSQL database. You can choose to have this communication based on `aasap`, `rsh` or `ssh`. While `rsh` and `ssh` are standards in the Solaris OS, `aasap` comes with the N1 AA software and has to be installed separately.

N1 AA Builder

Based on the infrastructure of the N1 AA Manager, there are additional components needed for the N1 AA Builder.



- N1 AA Builder Web Application

  From the technical point of view, this is not an additional component. It is included in the N1 AA Manager which is already registered with the Sun Java Web Console. The N1 AA Builder can be shown or hidden during N1 AA Manager customization. For more information, see the *Sun N1 Advanced Architecture for SAP Solutions 5.2.1 User's Guide*.

- Sun N1 Service Provisioning System

  The Sun N1 Service Provisioning System (N1 SPS) has to be located on the same server as the N1 AA Server.

- N1 SPS Remote Agents

  The remote agents are located on every N1 AA client. It is a standard component of N1 SPS used for the communication with the clients.

- N1 SPS Java API

  The communication between the N1 AA Builder and N1 SPS is done by the Java API.

- N1 SPS OS Provisioning Plug-In

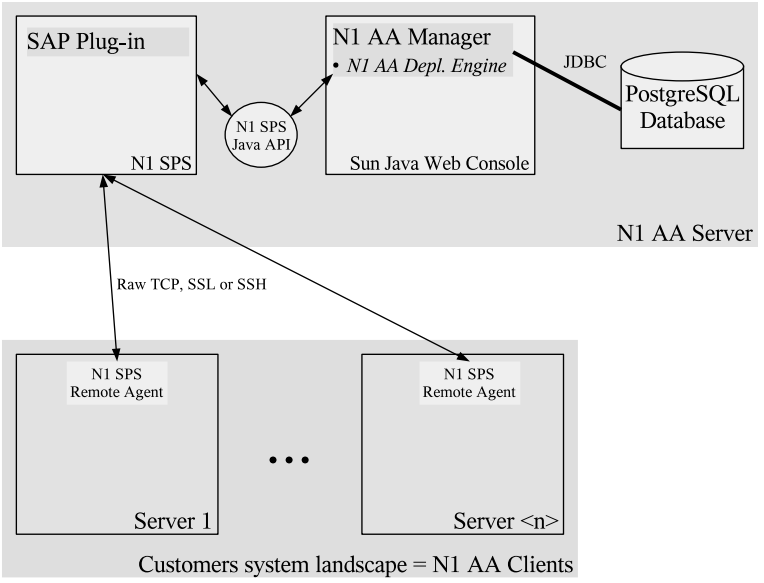
  The OS Provisioning plug-in is mandatory for the N1 AA Builder. The Builder function, OS Provisioning, is based on OS profiles provided by the SPS OS Provisioning Plug-in.

- Other N1 SPS Plug-Ins

  Additional SPS plug-ins are optional. It depends on the software you want to provision on the servers of your landscape using the N1 AA Builder. For example, if you want to provision Solaris OS patches, you need to install the N1 SPS Solaris Plug-In.

N1 AA Deployer

Based on the infrastructure of the N1 AA Manager, there are additional components needed for the N1 AA Deployer.



Components:

- N1 AA Deployer Web Application

  From the technical point of view, this is not an additional component. It is included in the N1 AA Manager which is already registered with the Sun Java Web Console. The N1 AA Deployer can be shown or hidden during N1 AA Manager customization. For more information, see *Sun N1 Advanced Architecture for SAP Solutions 5.2.1 User's Guide*.

- Sun N1 Service Provisioning System

  The Sun N1 Service Provisioning System (N1 SPS) has to be located on the same server as the N1 AA Server.

- N1 SPS Remote Agents

  The Remote Agents are located on every N1 AA client. It is a standard component of N1 SPS used for the communication with the clients.

- N1 SPS Java API

  The communication between the N1 AA Deployer and the N1 SPS is done by the Java API of Sun N1 SPS.

- Sun N1 SPS SAP Plug-in

  The SAP Plug-in is mandatory for the N1 AA Deployer. It provides the functionality to manage the services, for example start, stop, and relocate, on the N1 AA clients.

◆ ◆ ◆ CHAPTER 2

Installation of the N1 AA Manager

This chapter describes the installation of the N1 AA base components. The components rely on each of the N1 AA modules.

Note – All installation steps described in this chapter can only be executed on the N1 AA Server.

PostgreSQL Database

The following is a requirement of the PostgreSQL database. If the file is missing or the settings are incorrect, database startup errors.

Requirements for Solaris 9

The following file and settings need to be present:

- `/etc/system`
- set semsys:seminfo_semmns=16384
- set semsys:seminfo_semmni=1024

Create OS User and Group

N1 AA packages are dependent on this user and group. The creation of both is only necessary if the user and group are not in LDAP.

1. Create OS group n1aa.

   ```
   # /usr/sbin/groupadd n1aa
   ```

2. Create OS user n1aa (assigned to group n1aa).

   ```
   #  /usr/sbin/useradd -d /opt/SUNWn1aa -g n1aa n1aa
   ```

3. Assign password to user n1aa

   ```
   # passwd n1aa
   ```

Install Database Software

1. If the `/opt/SUNWn1aa/pgsql` directory already exists, move it to a backup location by using the following command:

   ```
   # mv /opt/SUNWn1aa/pgsql /opt/SUNWn1aa/pgsql_backup
   ```

2. Copy the package `SUNWn1aapgsql.pkg` from the installation media to a temporary installation directory. Navigate to that directory.
3. Install the package `SUNWn1aapgsql.pkg` as superuser:

   ```
   # pkgadd -d SUNWn1aapgsql.pkg
   ```

   This following are installed:

   - PostgresSQL
   - Database n1aa
   - Start and stop scripts on Solaris 9 or system management facility (smf) manifest on Solaris 10

     The `pkgadd` command prompts for the port of the N1 AA PostgreSQL on which the database listens. The standard port is 5433.

4. Start the database on Solaris 9.

   ```
   # /etc/init.d/n1aapgsql start
   ```

Test login

1. Login to the database to verify a successful installation. As user n1aa:

   ```
   # /opt/SUNWn1aa/pgsql/bin/psql -p 5433 n1aa
   ```

   You should now be connected to the PostgreSQL database n1aa.

2. List the table count.

   ```
   # n1aa=# \dt
   ```

   A list of 32 rows should be displayed.

3. Exit the sql-Editor.

   ```
   # n1aa=#\q
   ```

Sun Web Console

Extract the Sun™ Web Console Software

1. Create a temporary installation directory on the N1 AA server and copy `image-ext.tar` and `l10n.tar` into it.
2. Extract the software.

```
# tar -xf image-ext.tar

# tar -xf l10n.tar
```

Install Sun Web Console Software

- J2SE Version 1.4.2_06 or higher is required and is included in the tar file. J2SE is installed if the version on your system is less than 1.4.2_06 and you do not specify 1.4.2_06 or greater by way of the `JAVA_HOME` environment variable.
- Tomcat 4.0.5 or greater is required and is included in the tar file.
- JATO 2.1.2 or greater is required and is included in the tar file.
- JavaHelp 2.0 is required and is included in the tar file.

As superuser:

```
# ./setup
```

Note – On Solaris 10, or if you have the Sun Web Console already installed, you should answer the following question with a `y` to upgrade the Sun Web Console to the latest release.

```
The Sun Java(TM) Web Console software is about to be upgraded.
    Do you want to continue? [n]? [y,n,?]
```

N1 AA Manager

Note – Installation of the N1 AA PostgreSQL must have completed successfully.

Install N1 AA Manager

1. Copy the `SUNWn1aamngr.pkg` package from the installation media to a temporary installation directory. Navigate to the installation directory.
2. Install the package `SUNWn1aamngr.pkg` as superuser.

```
# pkgadd -d SUNWn1aamngr.pkg
```

   This performs the following functions:

- Create directory `/usr/share/webconsole/n1aa`
- Install N1AA manager into this directory

The `pkgadd` command prompts for the port of the N1 AA PostgresSQL on which the database listens. The standard port is 5433.

Register N1 AA Manager

As superuser:

```
# /usr/sbin/smreg add -a /usr/share/webconsole/n1aa
```

Change Session Timeout Parameter of N1 AA Manager

As superuser:

```
# /usr/sbin/smreg add -p session.timeout.value=60
```

Change Memory Parameter of N1 AA Manager

As superuser:

```
# /usr/sbin/smreg add -p java.options="-server -Xms256m -Xmx512m"
```

Restart N1 AA Manager

For more information, see "Starting and Stopping the N1 AA Manager" on page 35.

Test login

1. Login to the Sun Web Console to verify a successful installation.
2. Go to https://*N1 AA Server Name*:6789/
3. Use OS user n1aa and corresponding password to log on.

   You should now be in the entry page of the Java Web Console. In the section Desktop Applications, the application N1 Advanced Architecture is available.

Note – Delete the parameter `none.general.auth.cli` from the general customizing settings of N1 AA. For additional instructions on how to do this, see "Customizing" in *Sun N1 Advanced Architecture for SAP Solutions 5.2.1 User's Guide*.

N1 AA Command Line Interface

Note – Installation of the N1 AA Manager must have completed successfully.

Install N1 AA CLI

1. Copy the package `SUNWn1aacli.pkg` from the installation media to a temporary installation directory and change into this installation directory.
2. Install the package `SUNWn1aacli.pkg` as superuser.

   ```
   # pkgadd -d SUNWn1aacli.pkg
   ```

   The following actions occur:

   - Directory /opt/SUNWn1aa/cli is created
   - Installs the Command Line Interface into this directory

◆ ◆ ◆ CHAPTER 3

Installation of the N1 AA Analyzer

This chapter describes the installation of the N1 AA Analyzer module.

Note – Ensure that the installation of the N1 AA Manager has finished successfully.

Time Server

It is highly recommended to have a time server in place. If the clock skew is greater than 15 seconds per interval (an interval is 15 minutes) the `perfcol` daemon is restarted and you loose 2 complete intervals.

Communication

This is used by the N1 AA Server to communicate with every N1 AA Client. The technical characteristics of this communication are:

- Client = N1 AA Server
- Server = N1 AA Analyzer clients
- OS User = noaccess
- Commands: `cat`, `tail` and `logadm` on remote file `/var/opt/SUNWn1aa/n1data`

You can choose to have this communication based on `aasap`, `rsh`, or `ssh`. To do this, perform the following steps:

1. Establish the communication (based on `aasap`, `rsh`, or `ssh`) at the OS level.
2. Specify your choice (`aasap`, `rsh`, or `ssh`) within the general N1 AA customization. For more information, see *Sun N1 Advanced Architecture for SAP Solutions 5.2.1 User's Guide*.

`rsh` and `ssh` are standards in the Solaris OS. For more information, see `rsh`(1M) and `ssh`(1).

`aasap` is included with the N1 AA software and has to be installed separately. This is described in the following section.

Implementation Based on aasap/aasapd

This allows the client, aasap, to execute remote commands on the servers.

- aasap is the client component. It is installed on the N1 AA Server.
- aasapd is the server component. This daemon, under control of inetd or smf, runs on every N1 AA Client.

aasapd allows access to be restricted on host names, os users, and commands. See the following for details.

Install aasap/aasapd

1. Copy the SUNWn1aad.pkg package file from the installation media to a temporary installation directory and navigate to this directory.
2. Install the SUNWn1aad.pkg package file as superuser.

   # **pkgadd -d SUNWn1aad.pkg**

   The following functions are performed:

   - Installs /opt/SUNWn1aa/aasap/bin/aasap
   - Installs /opt/SUNWn1aa/aasap/sbin/aasapd
   - Install /etc/aasap.allow
   - Create service entry in /etc/inet/inetd.conf or manifest for smf
   - Create, if necessary, port entry in /etc/inet/services
   - Restart inetd to activate service if not under control of smf

The pkgadd command requires the name of the N1 AA Master Server and the TCP port for the communication between client and server. If you already have a valid service entry for aasap in /etc/services or you are using another naming server, for example LDAP, you can enter 0.

Deactivate aasapd on the N1 AA Server

- On an N1 AA server running Solaris 9:
  1. Remove the aasapd entry from the /etc/inet/inetd.conf file.
  2. Restart inetd.

     # **pkill -HUP -x -u 0 inetd**
- On an N1 AA server running Solaris 10:

  # /usr/bin/svcadm disable svc:/network/aasap:default

Restrict Access

Restrict aasap access on all N1 AA Clients:

- Only commands from the N1 AA Server will be accepted
- Only commands from the noaccess user are accepted
- Only commands cat, tail, and logadm are accepted

On all N1 AA clients:

The package creates the `/etc/aasap.allow` file with owner `root:sys` and permissions 600. The package also creates one entry, `noaccess@hostname: cat,tail,logadm`

Example:

```
# cat /etc/aasap.allow

noaccess@n1aaserv : cat,tail,logadm
```

Test the Communication

Log in to the N1 AA Server as superuser.

```
# su - noaccess
```

```
# /opt/SUNWn1aa/aasap/bin/aasap Hostname_of_an_N1_AA_Client cat /etc/release
```

The output should display the contents of the `/etc/release` file of the N1 AA Client.

Check the `/var/opt/SUNWn1aa/aasap.log` file for messages.

Performance Collector

Note – Installation has to be done on all N1 AA Clients.

Installation of perfcol

1. Copy the `SUNWn1aaperf.pkg` package from installation media to a temporary installation directory and navigate to the directory.
2. Install the `SUNWn1aaperf.pkg` package as superuser.

   ```
   # pkgadd -d SUNWn1aaperf.pkg
   ```

   This following occurs:

   - Installs `/opt/SUNWn1aa/perfcol/sbin/perfcol`
   - Activates extended accounting
   - Creates necessary service entry in `/etc/inittab` or installs a manifest on Solaris 10
   - Starts `perfcol` by initiating "init Q." This command wakes init to re-examine `/etc/inittab` immediately. On Solaris 10, it enables perfcol by using svcadm.

SRM projects

The Performance Collector measures the resource consumption, CPU and memory, of every running SRM project:

- Memory: Snapshot of consumption at 15-minute intervals
- CPU: Real consumed CPU-seconds within a 15-minute interval

The operating concept is to start every application component, for example an SAP Application Sever, within a landscape-wide unique SRM project. In this way, the N1 AA Analyzer will interpret the resource consumption of an SRM project as consumption of an application component. For more information, see the *Sun N1 Advanced Architecture for SAP Solutions 5.2.1 User's Guide*.

Create a landscape-wide unique SRM project for the application component you would like to measure.

Give a meaningful name to the SRM project. For example, `D01_lhost17_17` for the SAP Application Instance #17 on host lhost17 of the D01 system . See *Sun Management Center 3.5 System Reliability Manager User's Guide* on how to create and manage SRM projects.

There is no need, but also no limitation, to apply resource controls, like CPU shares, with the SRM project. The concept of the N1 AA Analyzer is independent of this.

Always start the application component within its dedicated SRM project using the `newtask` command. For example to start the SAP Application Instance #17:

```
# newtask -p D01_lhost17_17 startsap R3 DVEBGMS17
```

Note – Define the SRM projects within a central LDAP server and configure the N1 AA clients to point to this LDAP server. This makes every SRM project available on every N1 AA client. This is required in a virtualized landscape, for example if you relocate the application-components from one server (N1 AA client) to another server (N1 AA client.)

Check for a Successful Installation

1. Check to see if the `perfcol` daemon is running:

   # **ps -ef | grep perfcol**

   The output should show the running `perfcol` process. For example:

   ```
   root 26816 1 53 Dec 28 ? 46:15 /opt/SUNWn1aa/perfcol/sbin/perfcol -f
   ```

2. Check to see if the `perfcol` daemon reports local data.

   At least 30 minutes after the `perfcol` daemon has been started, it should write resource consumption to the `/var/opt/SUNWn1aa/n1data` file. This includes the default SRM projects (default, system, user.root), the additional created SRM projects, and the total-load entries (= server load) for CPU and Memory. For example:

   ```
   # cat /var/opt/SUNWn1aa/n1data
   system,netra1,MEM,200512291000,105635840,31.48
   user.root,netra1,MEM,200512291000,15253504,4.55
   default,netra1,MEM,200512291000,3383296,1.01
   D01_lhost01_01,netra1,MEM,200512291000,703209472,209.57
   ```

```
D01_lhost01_DB,netra1,MEM,200512291000,177610752,52.93
system,netra1,CPU,200512291000,0.70,0.08
user.root,netra1,CPU,200512291000,8.43,0.94
D01_lhost01_01,netra1,CPU,200512291000,21.94,2.44
D01_lhost01_DB,netra1,CPU,200512291000,4.62,0.51
total,netra1,CPU,200512291000,69,7.67,1,UltraSPARC-IIi,360
total,netra1,MEM,200512291000,1009573888,300.88,335544320
```

Note –

- The projects load will only be reported if a load exists. Otherwise, you do not find any entry for that project in that time interval.
- The timestamps within the file are in the UTC time zone and independent of the configuration of the N1 AA client.
- Check the `/var/opt/SUNWn1aa/percol.log` file for error messages.

Note – Once `perfcol` is installed and extended process accounting is activated, the following files are used for data management:

`/var/adm/exacct/proc`	This file contains raw extended–process accounting data and therefore grows quickly. The `perfcol` daemon extracts necessary data and reorganizes this file. In this way `perfcol` keeps the file size below 100 MB.
`/var/opt/SUNWn1aa/n1data`	This file contains the aggregated accounting information that is written by the `perfcol` daemon. It grows slowly. After N1 AA has imported the data successfully, log file rotation takes place if the file size has exceeded 5 MB. The OS administrator should manage the outdated files, `n1data.`*n*. For example, backup and remove.

If you have stopped the `perfcol` daemon for any reason, you have to manage the file size growth of `/var/adm/exacct/proc` yourself. You can either:

- enable `perfcol` again
- reorganize `/var/adm/exacct/proc` on your own
- disable extended–process accounting (`acctadm -x` process) and disable activation at boot time (`/etc/rc2.d/S92acctadm`).

◆ ◆ ◆ CHAPTER 4

Installation of the N1 AA Builder

This chapter describes the installation of the N1 AA Builder module.

Note – Installation of N1 AA Manager must have finished successfully.

Installation of SPS components

You have to install some standard components of Sun N1 Service Provisioning System 5.2.1. This is the same basic requirement for the N1 AA Builder and the N1 AA Deployer.

Refer to "Installation of N1 SPS Components" on page 33 to see what and where to install.

N1 AA Configuration

See the *Sun N1 Advanced Architecture for SAP Solutions 5.2.1 User's Guide* for the following tasks:

- How to configure the connection between the N1 AA Builder and N1 SPS. These are general customizing settings in the N1 AA Manager.
- How to provide content in N1 SPS for the N1 AA Builder: OS Provisioning and SW Provisioning.

◆ ◆ ◆ CHAPTER 5

Installation of the N1 AA Deployer

This chapter describes the setup and usage of the N1 AA Deployer module.

Note – Installation of the N1 AA Manager must have finished successfully.

Installation of SPS Components

You have to install some standard components of the Sun N1 Service Provisioning System 5.2.1 release. This requirement is the same for the N1 AA Builder and the N1 AA Deployer.

For more information, see "Installation of N1 SPS Components" on page 33.

N1 AA Configuration

For more information, see the *Sun N1 Advanced Architecture for SAP Solutions 5.2.1 User's Guide*.

- How to configure the connection between the N1 AA Deployer and N1 SPS. These are general customization settings in the N1 AA Manager.

For more information about the Sun N1 SPS SAP Plug-In, see *Sun N1 Service Provisioning System User's Guide for SAP Plug-In 1.0*.

- How to define your SAP system landscape within N1 SPS, so that it can be managed by the N1 AA Deployer.

◆ ◆ ◆ APPENDIX A

SPS Components

This appendix contains information critical to N1 SPS components.

Installation of N1 SPS Components

These components are used for the N1 AA Builder and N1 AA Deployer.

Installation of N1 SPS

Install the following N1 SPS components on the N1 AA Server:

- Sun N1 Service Provisioning System (N1 SPS)
- N1 SPS Command-Line Interface (CLI)
- N1 AA Builder only: N1 SPS OS Provisioning Plug-in and optionally any additional N1 SPS plug-ins
- N1 AA Deployer only: N1 SPS SAP Plug-in

For more information about installation and configuration, see the following documentation:

- *Sun N1 Service Provisioning System 5.2 Installation Guide*
- *Sun N1 Service Provisioning System 5.2 System Administration Guide*

Installation of N1 SPS Remote Agents

Install the N1 SPS Remote Agent on every N1 AA Client.

For more information about installation and configuration, see the following documentation:

- *Sun N1 Service Provisioning System 5.2 Installation Guide*
- *Sun N1 Service Provisioning System 5.2 System Administration Guide*

SPS Java Library

The SPS Java Library has to be registered at the Sun Web Console. Execute the following commands as superuser on the N1 AA Server:

1. Create a link to the SPS Java Library.

   # **cd /usr/share/webconsole/n1aa/WEB-INF/lib**

   # **ln -s /opt/SUNWn1sps/N1_Service_Provisioning_System_5.2/cli/lib/sps-api.jar**

2. De-register and re–register n1aa.

   # **/usr/sbin/smreg remove -a com.sun.web.admin.n1aa_2.2.4**

   # **/usr/sbin/smreg add -a /usr/share/webconsole/n1aa**

3. Restart Web Console.

   # **/usr/sbin/smcwebserver stop**

   # **/usr/sbin/smcwebserver start**

◆ ◆ ◆ APPENDIX B

N1 AA Tasks

This appendix contains tasks related to the following:

Starting and Stopping the N1 AA Manager

Starting the N1 AA Manager

1. Start PostgreSQL database as superuser.

   # **/etc/init.d/n1aapgsql start**

   Note – On Solaris 10, use the following command:

   # /usr/sbin/svcadm enable svc:/application/n1aapgsql:default

   ---

2. Start Sun Web Console as superuser.

   # **/usr/sbin/smcwebserver start**

Stopping the N1 AA Manager

1. Stop the Sun Web Console as superuser.

   # **/usr/sbin/smcwebserver stop**

2. Stop PostgreSQL database as superuser.

   # **/etc/init.d/n1aapgsql stop**

Note – On Solaris 10:

```
# /usr/sbin/svcadm disable svc:/application/n1aapgsql:default
```

Starting and Stopping the Performance Collector

The Performance Collector is managed different in the Solaris 9 and Solaris 10 environment.

- "Managing the Performance Collector on Solaris 9" on page 36
- "Managing the Performance Collector on Solaris 10" on page 36

Managing the Performance Collector on Solaris 9

The `perfcol` daemon runs under the control of the `init` process. Therefore, it is completely managed by the `init` process.

Starting the Performance Collector

Automatically started at system start by the `init` process. If the service is new to `init`, for example, no reboot has taken place since the `perfcol` installation, execute the `init Q` command as superuser. The `init Q` command triggers `init` to re-examine `/etc/inittab`.

Restarting the Performance Collector

Use the `/opt/SUNWn1aa/perfcol/sbin/perfcol -k` command to kill the `perfcol` process. The `Performance Collector` is automatically restarted by the `init` process.

Stopping the Performance Collector Permanently

1. Remove the `perfcol` entry from the `/etc/inittab` file.
2. Kill the `perfcol` process.

```
# /opt/SUNWn1aa/perfcol/sbin/perfcol -k
```

Managing the Performance Collector on Solaris 10

The `perfcol` daemon runs under the control of the smf. Use svcadm to manage perfcol.

For more information, see the `svcadm`(1M) man page.

N1 AA User Management

The user accounts for the Sun Web Console have to be created at the OS level of the N1 AA Server. Create the appropriate Solaris users by using standard Solaris commands. Every user added will be allowed to login to the Sun Web Console and therefore to N1 AA.

How to disable access on the OS-level, but still allow login to Sun Web Console.

There are many different ways for OS hardening. One option is to create OS users without a valid shell.

For example in the `/etc/passwd` file:

`smithj:x:123456:1:Account for John Smith:/export/smithj:/bin/false`.

N1 AA Uninstallation

Perform the following steps to uninstall N1 AA.

▼ To Uninstall N1 AA

1 Remove PostgresSQL.

`pkgrm SUNWn1aapgsql`

This command removes:

- PostgreSQL
- Database n1aa
- Start and Stop scripts and manifest on Solaris 10

This does not remove all database log files in `/opt/SUNWn1aa/pgsql/data`.

2 Remove the Command Line Interface.

`pkgrm SUNWn1aacli`

3 Remove N1 AA Manager.

`/usr/sbin/smcwebserver stop`

`/usr/sbin/smreg remove -a com.sun.web.admin.n1aa_2.2.4`

Note – If you have N1 AA Builder or N1 AA Deployer installed, remove the link to SPS.

`# rm /usr/share/webconsole/n1aa/WEB-INF/lib/sps-api.jar`

`pkgrm SUNWn1aamngr`

This removes the `/usr/share/webconsole/n1aa` file. This does not remove the log file previously configured in N1 AA Manager.

4 Remove all Tomcat generated files.

```
# rm -rf /var/opt/webconsole/work/com_sun_web_console/localhost/n1aa
```

5 Remove aasap and aasapd.

```
# pkgrm SUNWn1aad
```

This does the following:

- Removes `/opt/SUNWn1aa/aasap/bin/aasap`
- Removes `/opt/SUNWn1aa/aasap/sbin/aasapd`
- Removes entry in `/etc/inet/services` if it exists
- Removes entry in `/etc/inet/inetd.conf` if it exists
- Removes manifest for aasap if it exists
- Removes `/etc/aasap.allow`
- Restarts `inetd` to deactivate service or disable aasap in smf

This does not remove the `/var/opt/SUNWn1aa/aasap.log` log file.

6 Remove `perfcol`.

```
# pkgrm SUNWn1aaperf
```

This does the following:

- Stops `perfcol`
- Removes `/opt/SUNWn1aa/perfcol/sbin/perfcol`
- Removes entry in `/etc/initab` or removes manifest on Solaris 10
- Removes link from `/etc/init.d/acctadm` to `/etc/rc2.d/S92acctadm`

Removing `perfcol` does not do the following:

- Deactivate extended accounting
- Remove any extended accounting records `/var/opt/SUNWn1aa/proc` and `/var/adm/exacct/proc_*`
- Remove log file in the `/var/opt/SUNWn1aa` directory