

StorageTek ACSLS SNMP Agent for Solaris

Installation Guide

Version 2.0

First Edition

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Chapter 1. Before you install the ACSLS SNMP Agent

Recommended System Requirements

To obtain the best StorageTek ACSLS SNMP Agent performance and operating conditions, we recommend the following minimum configuration:

- Sparc 5 with at least 64 MB of RAM.

Before you install the ACSLS SNMP Agent, you need to:

- Install a patch for Solaris 8, as required. See *To Install a Solaris Patch*.

Caution: The ACSLS SNMP agent only supports the SNMP V1 protocol.

Make Sure the Relevant Solaris Packages Are Installed

1. **Log in at the console prompt as root and issue the following command:**

```
pkginfo -l SUNWsacom
```

Make sure the output indicates **version 1.0.3** or higher, as follows:
Solstice Enterprise Agents 1.0.3 files for root file system

2. **Issue the following command:**

```
pkginfo -l SUNWsasnm
```

Make sure the output indicates **version 1.0.3** or above, as follows:
Solstice Enterprise Agents 1.0.3 Simple Network Management Protocol

3. **Issue the following command:**

```
pkginfo -l SUNWmibii
```

Make sure the output indicates **version 1.0.3** or above, as follows:
Solstice Enterprise Agents 1.0.3 SNMP daemon

4. **If the version numbers of the above Solaris packages are below 1.0.3, issue the following commands to remove them from your machine:**

```
pkgrm SUNWsacom
```

```
pkgrm SUNWsasnm
```

```
pkgrm SUNWmibii
```

5. **Download the relevant Solaris package versions. To do that, use the search facility at the following web site and look for Enterprise Agents:**

<http://sunsolve.sun.com>

6. Follow the instructions provided for installation

Installing the Agent on Solaris 8

If you are using Solaris 8, you must install the Solaris 8 patch number **108869-xx** before installing the agent.

To download the patch, see [To Install a Solaris Patch](#).

ACSLs Server Installation

The following ACSLS Server version is supported:

- ACSLS Server 7.0 on Solaris 8 or 9.

Note: *For best results, it is highly recommended to have ACSLS Server 7.0 on Solaris 8 or 9 installed and running, ready for processing before installing the StorageTek ACSLS SNMP Agent.*

The installation of the Agent will connect to the ACSLS Server and retrieve all the libraries declared on it and provide the means to monitor your network.

For details on ACSLS Server installation, refer to the ACSLS Installation, Configuration and Administration Guide.

Chapter 2. Installation

Caution: You MUST remove any master agent other than the Sun Solstice Enterprise Master Agent, **version 1.0.3** or higher.

To Install the Agent

Note: *In this document, the StorageTek ACSLS SNMP Agent is referred to as the Agent.*

Caution: The agent needs to be installed in the host that is running the ACSLS 7.0 software.

1. **Log in as root.**
You must have system administration privileges to install the package.
2. **Go to the root directory on the CD-ROM.**
3. **Issue the following command:**
`pkgadd -d .`

The output is as follows:

```
1 STKacsnmp StorageTek ACSLS SNMP Agent for Solaris (sparc) version
```

4. **In the list, choose the STKacsnmp package and press Enter.**
5. **At the prompt,**
The default installation directory for ACSLS SNMP Agent is /export/home. Do you wish to install in the default directory [y,n,?,q]
you can enter n and change the default directory to an installation directory of your own but you must use an existing folder. Enter y to create the package base directory for the Agent.
6. **Enter y at the following prompt:**

Do you want to continue with the installation of <STKacsnmp> [y, n,?]

- If the installation succeeded, the following message is displayed:
Installation of <STKacsnmp> was successful
- If the installation was not completed successfully, the following message is displayed instead:
Installation of <STKacsnmp> failed

Note: *If you need to modify the list of trap target addresses, follow the instructions given in [To Modify the Trap Destination List](#). During Agent installation, the MIB file is also installed in the Agent directory for easy access. This is particularly handy for users who need to compile it and use it in their management applications (e.g. management framework).*

To Install a Solaris Patch

1. Download the appropriate Solaris patch

- Solaris 8: patch number **108869-xx**

You can find the patch by using the search engine at the following web site:

<http://sunsolve.sun.com>

2. Check whether the Master Agent is running:

```
/usr/bin/ps -e | /usr/bin/grep snmpdx
```

3. Stop the Master Agent if it is running:

```
/etc/rc3.d/S76snmpdx stop
```

If the Master Agent has been stopped successfully, there should be no response from the system.

4. Follow the instructions provided with the patch for installation on the system.

Note: *To check whether a SUN patch is already installed on your machine, issue the following command:*

```
patchadd -p | grep PatchNumber
```

To Start the Agent for the First Time

You must re-start the Master Agent if you are starting the Agent for the first time. This is due to a modification in the Master Agent's startup script while the Agent was being installed.

1. Log in as root.

2. Check whether the Master Agent is running:

```
/usr/bin/ps -e | /usr/bin/grep snmpdx
```

3. Stop the Master Agent if it is running:

```
/etc/rc3.d/S76snmpdx stop
```

If the Master Agent has been stopped successfully, there should be no response from the system.

4. Restart the Master Agent:

```
/etc/rc3.d/S76snmpdx start
```

5. Issue the following command to start the Agent:

```
/etc/rc3.d/S86AcslsAgt start
```

To Start and Stop the Agent

The Agent is started automatically at boot time.

You must stop and restart the Agent every time you set or change the trap destination. If you do not, the returned information will be inaccurate.

To Start the Agent

Log in as root and issue the following command:

```
/etc/rc3.d/S86AcslsAgt start
```

Note: *The Agent will not start until the ACSLS Server is running.*

To Stop the Agent

Log in as root and issue the following command:

```
/etc/rc3.d/S86AcslsAgt stop
```


Chapter 3. Configuration

StorageTek ACSLS SNMP Agent Configuration

Note: *To modify the Agent configuration, you must log in as root.*

New or Modified Configuration

Whenever you create a new or update a configuration, you must stop the ACSLS server (refer to the *ACSLs Installation, Configuration and Administration Guide* for details about the **acsss_config** command). The ACSLS Agent should automatically stop and then restart taking into account the modifications. While the ACSLS server is not running, the Agent will return temporary values and display no Acs, Lsm, Cap, or drive.

Note: *Stopping the ACSL Server is not required when adding, removing, or changing a drive (refer to the ACSLS Installation, Configuration and Administration Guide for details about the **config drives** command).*

To Modify the Agent URL

The default URL associated with the agent is a blank URL.

Perform an SNMP SET request on the agent URL OID with the URL to be set as parameter.

A check is performed to make sure that the URL length does not exceed 1000 characters. If the URL is valid:

- the agent is updated and the change is also recorded in the `Acs1sAgt.d.url` file stored on disk, from which it is loaded every time the agent starts.

Note: *If for some reason this file cannot be read, the default URL will be a blank URL.*

To Modify the Trap Destination List

To add or remove addresses in the trap destination list, you must make sure the StorageTek ACSLS SNMP Agent is not running.

You should proceed in the following order:

- Stop the StorageTek ACSLS SNMP Agent.
- Add or remove trap destinations
- Restart the StorageTek ACSLS SNMP Agent

- To stop the Agent
1. **Issue the following command to check whether it is running:**
`/usr/bin/ps -e | /usr/bin/grep AcslsAgt`
 2. **If it is running, issue the following command to stop it:**
`/etc/rc3.d/S86AcslsAgt stop`
- To add or remove trap destinations
1. **Issue the following command to go to the directory where the Agent is installed:**
`cd /InstallationDirectory/ACSNMP`
- Note:** *The default installation directory is /export/home/ACSNMP*
2. **Issue the following command to list trap destinations:**
`./AcslsAgtTrapDest -l`
- You see the list of trap destinations after this text:
Trap destination(s):
3. **Issue the following command as many times as necessary to add trap destinations to the list:**
`./AcslsAgtTrapDest -a host_name`
- Caution:** Make sure you specify a host name only and that the host name is declared in NIS on /etc/hosts file.
Do not specify an IP address or a long name (e.g. *machine.domain*).
4. **Issue the following command as many times as necessary to remove trap destinations from the list:**
`./AcslsAgtTrapDest -r host_name`
- To restart the Agent
1. **Issue the following command:**
`/etc/rc3.d/S86AcslsAgt start`
 2. **Check whether the Agent is running:**
`/usr/bin/ps -e | /usr/bin/grep AcslsAgt`
- To Set the Internal Polling Rate**
1. **Open a MIB browser connected to the agent host.**
 2. **Open an SNMP set request and enter the OID:**
1.3.6.1.4.1.1211.1.11.2.2
 3. **Set the MIB instance 0 to the desired value in seconds. If you need the SNMP type to be provided, use the type Integer or Integer32.**
- Note:** *The current polling rate figure must be higher than that of the minimum polling rate (OID: 1.3.6.1.4.1.1211.1.11.2.1).*
- To Modify SNMP Configuration**
- To modify the SNMP configuration, you must make sure the StorageTek ACSLS SNMP Agent and the Master Agent are not running.

You should proceed in the following order:

- a. Stop the StorageTek ACSLS SNMP Agent.
- b. Stop the Master Agent.
- c. Modify SNMP ports and the SNMP community.
- d. Restart the Master Agent.
- e. Restart the StorageTek ACSLS SNMP Agent.

Note: *Modifying SNMP configuration (i.e. Agent community and SNMP trap/request ports) addresses security issues (e.g. hacker attacks).*

To stop the Agent

1. **To stop the Agent, issue the following command:**
`/etc/rc3.d/S86Acs1sAgt stop`

To stop the Master agent

1. **Issue the following command to check whether the Master agent is running:**
`/usr/bin/ps -e | /usr/bin/grep snmpdx`
2. **If it is running, issue the following command to stop it:**
`/etc/rc3.d/S76snmpdx stop`

Note: *If the Master agent has been stopped successfully, there is no response from the system.*

To modify the Agent's community

1. **Issue the following command to go to the directory where the Agent is installed:**
`cd /InstallationDirectory/ACSNMP`

Note: *The default installation directory is /export/home/ACSNMP*

2. **Issue the following command to edit the community name, the port to use for SNMP requests, and the port to use for SNMP traps:**
`./Acs1sAgtSnpConf -d`
3. **Issue the following command to use the community name with the ACSLS SNMP Agent:**
`./Acs1sAgtSnpConf -c community`

Caution: The Agent configuration and the Master Agent configuration must match.

- a. Make sure the requested community is defined in the `/etc/snmp/conf/snmpd.conf` file.

You should have a line reading:
`read-community community`

- b. Make sure your community is in the `/etc/snmp/conf/snmpdx.ac1` file.

4. **Issue the following command to restart the Master Agent:**

```
/etc/rc3.d/S76snmpdx start
```

5. Issue the following command to restart the Agent:

```
/etc/rc3.d/S86Acs1sAgt start
```

To modify the Agent's
SNMP trap and
request ports

1. Issue the following command to go to the directory where the Agent is installed:

```
cd /InstallationDirectory/ACSNMP
```

Note: The default installation directory is /export/home/ACSNMP

2. Issue the following command to edit the community name, the port to use for SNMP requests and the port to use for SNMP traps:

```
./Acs1sAgtSnmpConf -d
```

3. Issue the following command to use the port as port number for SNMP requests:

```
./Acs1sAgtSnmpConf -p portnumber
```

Caution: The Agent's configuration and the Master Agent's configuration must match. The Master Agent file /etc/rc3.d/S76snmpdx must include the port to be used. The following line must be verified and, if necessary, updated in the /etc/rc3.d/S76snmpdx file:

```
/usr/lib/snmp/snmpdx -f 0 -y -c /etc/snmp/conf -p portnumber
```

The default line is:

```
/usr/lib/snmp/snmpdx -f 0 -y -c /etc/snmp/conf -p 161
```

4. Issue the following command to use the trap port as port number for SNMP traps:

```
./Acs1sAgtSnmpConf -t trapportnumber
```

5. Issue the following command to restart the Master agent:

```
/etc/rc3.d/S76snmpdx start
```

6. Issue the following command to restart the Agent:

```
/etc/rc3.d/S86Acs1sAgt start
```

To Set the Log Trace Level

The Agent logs internal events—such as entering a function or returning a null pointer—in Acs1sAgt.d.log log files located in the Agent home installation directory.

The Agent generates the first log file called Acs1sAgt.d.log. When the log file reaches 300 KB, it is rolled over to a backup file called Acs1sAgt.d.log.0. The Acs1sAgt.d.log log file is then flushed to leave room for a new 300 KB worth of information. The size of the two log files put together never exceeds 600 KB.

Four trace levels are available:

- SILENT produces no trace information
- ERROR traces errors only

- WARNING provides both error and warning information
- DEBUG traces errors, warnings and all of the Agent's operations (all messages are recorded)

The trace level is set with the environment variable ACS_TRACE that is set using the following values:

DEBUG, WARNING, ERROR or SILENT

Caution: Setting the log trace level to DEBUG accelerates log file roll over.

To change the log
trace level

1. **Log in as root**
2. **Stop the Agent with the following command:**
`/etc/rc3.d/S86AcslsAgt stop`
3. **From the Bourne shell, enter the value corresponding to the desired log trace level, for example:**
`ACS_TRACE=DEBUG`
4. **To keep this environment variable value outside this shell, enter:**
`export ACS_TRACE`
5. **Check the results of your choice by typing echo \$ACS_TRACE**
6. **Restart the Agent with the following command:**
`/etc/rc3.d/S86AcslsAgt start`

Note: *The default trace level is WARNING*

Chapter 4. Troubleshooting

General Issues

Lost your Files? If you have forgotten the location of the directory where the Agent was installed, or if you do not know where any StorageTek package has been installed, or if you need to modify trap destinations but you do not remember where to go, you will need to identify the packages installed on your machine.

Action Required: List the Agent packages installed on your machine.

1. **At the prompt, issue the following command:**

```
/usr/bin/pkginfo | /usr/bin/grep Acs
```

2. **Press ENTER**

The names of all the packages beginning with Acs will be listed.

Action Required: Locate the directory containing the trap destination list.

1. **At the prompt, issue the following command:**

```
/usr/bin/pkginfo -r STKacsnmp
```

2. **Press ENTER**

The name of the directory where the Acs1s Agent package is installed will be given.

Execution Issues

External Data Has Changed

Action Required:

1. **Reconfigure the ACSLS server (refer to the *ACSLS Installation, Configuration and Administration Guide*).**
2. **Restart the ACSLS server.**

The agent should automatically detect changes, then stop and restart when the ACSLS server is running with the latest configuration.

Note: *Stopping the ACSLS Server is not required when adding, removing or changing drives. Refer to the ACSLS Installation, Configuration and Administration Guide for details on the **config drives** command.*

No ACSLS Library Server Running

Explanation: The ACSLS Library Server is not running.

Action Required: Refer to the *ACSLs Installation, Configuration and Administration Guide* for details on how to start the ACSLS Library Server.

Master Agent Does Not Start

Explanation: One reason that may cause the Master Agent not to start is if a trap destination host is identified with an IP address or a full hostname including domain and/or subdomain.

Action Required: To avoid this problem, trap destination hostnames must only refer to the machine name without the domain or subdomain. This implies that any subdomains must be directly accessible to the Agent host.

Having Trouble Removing the Agent?

Explanation: If you have attempted to uninstall the Agent although it has not completed a given task and is currently running, you will be informed as follows:

```
ERROR, the agent is running.
pkgm: ERROR: preremove script did not complete successfully
Removal of <STKacsnmp> failed.
```

Action Required: Stop the SNMP Agent and remove the Agent.

1. **At the prompt, issue the following command:**
`/etc/rc3.d/S86AcslsAgt stop`
2. **Repeat the removal procedure as described in [Uninstallation](#).**

Agent Does Not Start When Master Agent Is Continuously Receiving SNMP Requests

Explanation: When the master agent is receiving bunches of SNMP requests, you cannot start the agent, its connection to the master agent will be unauthorized.

Action Required: Stop ACSLS agent and Master agent in the following order:

```
/etc/rc3.d/S86AcslsAgt stop
/etc/rc3.d/S76snmpdx stop
```

and restart both in the following order:

```
/etc/rc3.d/S76snmpdx start
/etc/rc3.d/S86AcslsAgt start
```

SNMP Issues**SNMP Traps Are Not Received**

Explanation: The Agent is running and SNMP requests can be performed but the traps cannot be received.

Action Required: Before contacting the StorageTek support services, proceed as indicated below.

1. **Ensure the SNMP Manager has been added to the trap destination list. Issue the following command to obtain the list:**

InstallationDirectory/ACSNMP/Acs1sAgentTrapDest -l

Note: *The default value for InstallationDirectory is /export/home.*

Note: *See [To Modify the Trap Destination List](#) for further details on trap destination configuration.*

2. **Be sure you stopped the Agent before adding the trap destination.**
3. **Check whether the SNMP Manager host name is declared on the NIS /etc/hosts file and can be reached from the agent host (e.g. the command ping managerhostname should reply correctly).**
4. **Check whether the SNMP trap port configuration of the SNMP Manager and of the Agent match.**

Note: *See [To Modify SNMP Configuration](#) for further details and contact ACSLS Agent support for other cases.*

Note: *When restarting the Agent, the SNMP start trap (enterprise specific number 11) is sent with the boot date. See the ACSLS Agent MIB for further information.*

The default SNMP trap port is 162.

SNMP get Returns an Empty Result

Explanation: Whenever you issue an **SNMP get** command on the private, enterprises, storagetek and products MIB nodes you get an empty result.

Action Required: Issue the **SNMP get** command on the acsTapeMonitor MIB node and subnodes only.

SNMP Requests Generate SNMP Timeouts

Explanation: The Agent is running but there is no sign of activity.

1. **Check whether the SNMP community configuration of the SNMP Manager, of the SNMP Master Agent, and of the ACSLS Agent match.**
2. **Ensure the SNMP community is set to read-write (to allow the current polling rate and URL setting changes) for the SNMP Manager, for the SNMP Master Agent /opt/snmp/conf/snmpdx.ac1 file, and for the ACSLS Agent /opt/snmp/conf/Acs1sAgt.ac1 file.**

Note: *The default SNMP community is public.*

SNMP Requests Generate “Connection refused” Errors

Explanation: The SNMP Manager is trying to retrieve information on an unauthorized port. This is usually due to a difference between the SNMP port used by the SNMP Manager and the port used by the SNMP Agent.

Action Required: Check whether the Master Agent and the ACSLS Agent are waiting for SNMP requests on the same port as the SNMP Manager.

Note: *The default SNMP request port is 161.*

StorageTek ACSLS SNMP Agent Starts but Stops after One Minute

Explanation: The log file mentions failed to connect to Master agent. An error occurred when trying to connect to the Master Agent. The Agent cannot determine whether the Master Agent is active or not. This may be because:

- The Master Agent is not running
- The Master Agent and the Agent do not use the same SNMP request port

Action Required: Ensure the Master Agent is running and that it uses the same SNMP request port as the Agent. For details, refer to [To Modify SNMP Configuration](#).

You Can Perform SNMP Requests Using a Community Not Allowed by the Master Agent

Explanation: The SNMP Manager queries succeed although the request community is not authorized by the Master Agent.

Action Required: You can either add the Agent's community name into the Master Agent `/opt/snmp/conf/snmpdx.ac1` file or change it to an authorized community.

Essential Commands

The following table provides the most commonly used command lines:

<code>/etc/rc2.d/K76snmpdx</code>	<i>Stops the Master Agent at shutdown.</i>
<code>/etc/rc2.d/K86Acs1sAgt</code>	<i>Stops the Agent at shutdown.</i>
<code>/etc/rc3.d/S76snmpdx</code>	<i>Automates the Master Agent at startup.</i>
<code>/etc/rc3.d/S86Acs1sAgt</code>	<i>Automates the Agent at startup.</i>
<code>InstallationDirectory/ACSNMP/Acs1sAgtTrapDest</code>	<i>Adds or removes trap target addresses.</i>
<code>InstallationDirectory/ACSNMP/Acs1sAgtSnmpConf</code>	<i>Configures agent community and ports.</i>

Note: *The default value for InstallationDirectory is /export/home.*

Appendix A. Uninstallation

To Remove the Agent

Note: *You must stop the Agent before you proceed.*

1. **Login in as root**
2. **At the prompt, issue the following command to check whether the Agent is currently in use:**

```
/usr/bin/ps -e | /usr/bin/grep Acs1sAgt
```

For example, if the Agent is running, the output could be:

```
2512 ?          0:05 Acs1sAgtsnmp
```

3. **If the Agent is running, issue the following command to stop it:**

```
/etc/rc3.d/S86Acs1sAgt stop
```

4. **Issue the following command to remove the Agent:**

```
pkgrm STKacsnmp
```

The description of the currently installed Agent follows:

```
STKacsnmp      StorageTek ACSLS SNMP Agent for Solaris (sparc) 2.0
```

5. **Enter y at the prompt** Do you want to remove this package?
6. **Enter y at the prompt** Do you want to continue with the removal of this package [y,n,?,q]

You will see information on the current removal procedures and the message Removal of <STKacsnmp> was successful will indicate the end of the uninstallation procedure.

Note: *If the Agent is executing a task during this procedure, the package will not be removed and the following message will be displayed:*

```
ERROR, the agent is running
Stop it with the '/etc/rc3.d/S86Acs1sAgt stop' command and redo
deinstallation
pkgrm: ERROR: preremove script did not complete successfully
Removal of <STKacsnmp> failed
```


Appendix B. Before you Contact StorageTek Support

How do I know which version of the StorageTek ACSLS SNMP Agent I have?

Before contacting StorageTek for support services, make sure you know what version of this product is installed on your machine.

If you do not know, proceed as follows:

From the shell command line type `pkginfo -l STKacsnmp`

The Agent name and version number is displayed:

```
# pkginfo -l STKacsnmp
  PKGINST:  STKacsnmp
    NAME:   Acsls Snmp Agent for Solaris
CATEGORY:  system
  ARCH:    sparc
VERSION:   2.0
BASEDIR:   /export/home
  VENDOR:  StorageTek
  PSTAMP:  carracas20030724160837
INSTDATE:  Jul 30 2003 15:24
HOTLINE:   Please contact StorageTek
STATUS:    completely installed
  FILES:   18 installed pathnames
           2 directories
           16 executables
           5063 blocks used (approx)
```

