



Thin-Agent Service (TAS) User's Guide

Revision 1.7.0

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Revision History

Date	Revision	Description
2022/01/18	1.7.0	<ol style="list-style-type: none"> Expanded the LAN information to include bytes received, error packets received, bytes sent and error packets sent. Added Intel RSTe/VROC switch mechanism. Removed the alert in SEL triggered by IP addresses being changed. Added support for AOC-SAS3-9361-8i RAID/HDD SEL. Improved the numbering of NIC SEL index to start from 1. Improved the NIC SEL index to sort by MAC addresses. Added the temperature field to the HDD item. Added a switch to enable and disable the NIC status SEL. Renamed Intel RSTe to Intel VROC.
2021/08/11	1.6.1	<ol style="list-style-type: none"> Changed the minimum update frequency from 5 to 1. Added <i>Appendix F Open Source Software Components</i>.
2020/05/14	1.6.0	<ol style="list-style-type: none"> Supported LSI 3008-IT HDD SEL. Supported NIC SEL whether the connection was up or down. Added the function that multiple IP addresses could be assigned to one physical NIC. Added the partition information on the running OS. <ol style="list-style-type: none"> Volume ID on Windows. UUID on Linux. Partition utilization (partition usage). Added the OEM watchdog timer function.
2018/06/22	1.5.2	<ol style="list-style-type: none"> Supported Intel RSTe physical drive sensor type ODh OEM SEL. Modified HDD event to IPMI platform message.
2018/02/02	1.5.1	<ol style="list-style-type: none"> Added the uninstall script for Linux and FreeBSD.

		<ol style="list-style-type: none"> Added status in TAS service. Fixed the issue that TAS didn't send an SEL about network being down when system rebooted. Fixed the problem of incorrect LSI slot number. Fixed the issue that TAS crashed on an NVMe system. Removed BMC TAS data after TAS was uninstalled. Fixed the issue that N/A appeared between the colons in an IPv6 address in LAN information.
2017/10/05	1.5.0	<ol style="list-style-type: none"> Added controller name, model, size, cylinder, sector, track, head and interface type for physical disk. Removed file lan.temp created from the lan command run on Linux. Fixed Linux duplicate controller name issue. Fixed the issue that HDD slot ID was incorrect in SEL report.
2017/05/17	1.4.0	<ol style="list-style-type: none"> Added description and link state in LAN on Windows and Linux. Added device number and firmware version in HDD information on Windows and Linux. Added LSI 3108 SMART in Linux and Intel RSTe information on Windows and Linux. Added that an SEL was sent when an HDD failed or the LAN status changed on Windows and Linux. Fixed the problem that "remove" function failed on RHEL 6.8/7.2. Provided mass deployment script for TAS installation (Linux). Fixed the issue that an SEL timestamp was not written to BMC in Windows OS. Changed HDD format for backward compatibility. Added the TAS 1.4.0 Linux feature in FreeBSD.

		<ol style="list-style-type: none"> Fixed the problem that an HDD did not recognize file system type in partition. Added disk type, RPM and block size in HDD information. Fixed the issue that LAN SEL logs were created when no events occurred. Fixed the issue that TAS failed to detect OS name "Windows 2016". Changed the descriptions of Intel RSTe installed on TAS windows and Intel RAID was disabled by default.
2016/07/15	1.3.0	<ol style="list-style-type: none"> Enhanced LAN information for FreeBSD. Merged with FreeBSD version. Fixed the issue of failing to display failed hard disks. Added NVMe support for up to 48 devices for Linux/Windows.
2016/03/22	1.2.1	<ol style="list-style-type: none"> Enhanced LAN information for Linux/Windows.
2016/01/05	1.2.0	<ol style="list-style-type: none"> Added NVMe support for up to 24 devices on Linux/Windows. Fixed the TAS issue that the TAS exec command failed to work on Windows.
2015/09/23	1.1.1	<ol style="list-style-type: none"> Added the function of checking NVMe support.
2015/08/20	1.1.0	<ol style="list-style-type: none"> Added commands to make requests and receive responses. Added NVMe SMART information. Added the function of making user requests related to NVMe. Added NVMe SMART information supported for Windows. Added the function of making user requests related to NVMe on Windows.

		6. Fixed a TAS issue.
2015/06/05	1.0.1	<ol style="list-style-type: none">1. Updated new protocol for KCS byte limitation.2. Added TAS information, including version, build data, protocol, status and start time.3. Fixed a TAS issue.4. Added arch in OS version.
2014/08/05	1.0.0	<ol style="list-style-type: none">1. Initial document.

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1 Overview

The **Thin-Agent Service (TAS)** collects the system hardware and OS-specific data that can be monitored through the BMC/IPMI. The following are the types of OS data collected:

- OS name and version
- IPv4, netmask, gateway, IPv6, FQDN, DNS, speed, MAC, LAN interface, manufacturer, model name and number, link state, and so on.
- Average loading of all CPUs
- Average loading of all memory
- Physical HDD partition loading, logical HDD information, SMART test results and temperature
- Network device loading
- NVMe partition loading
- NVMe SMART information

2 Prerequisites and Installation

This section provides information on prerequisites and installation:

2.1 Supported Operation Systems

The following are the supported operation systems:

- Windows
 - Windows Server 2k8 R2 SP1
 - Windows Server 2012 R2
 - Windows Server 2016
- Linux
 - RHEL 6.5/6.6/6.10/7.0/7.1/7.5
 - SLES 11 SP4
 - Ubuntu 14.04 LTS
 - CentOS 6.5/6.9/6.10/7.5
- FreeBSD x86_64
 - 10.3 release
 - 11.1 release

2.2 System Requirements

- Windows
 - .Net framework 3.5
 - [smartmontools](#) 6.5-1
 - NVMe vendor specific driver (only required for NVMe functions)
 - Windows patch “[KB3033929](#)” (only required for Windows Server 2k8 R2 SP1)
 - Intel RSTe/VROC CLI tool and driver (the tool version must match the RSTe/VROC driver version)
 - [sas3ircu](#) 17.00.00.00
- Linux
 - ethtool package 2.6.33
 - openlpmi driver
 - smartmontools 6.5
 - glibc 2.12
 - [storcli](#) 1.20.15 (for Linux LSI 3108)
 - mdadm 4.0 (for RAID)
 - nmcli 0.8.1
 - net-tools 1.60-110.el6-2
 - lsscsi 0.23-2.el6
 - lsblk 2.17.2
 - [sas3ircu](#) 17.00.00.00
- FreeBSD x86_64
 - smartmontools 6.5.x
 - Libc7
 - [storcli](#) 1.20.15 (for LSI 3108)
 - [graid](#) (starting with FreeBSD 9.1 for RAID) and geom_raid.ko
 - pciutils 3.5.2
 - [mfip.ko](#) (for LSI MegaRAID SMART)
 - [sas3ircu](#) 17.00.00.00
 - libconfig 1.7.2

2.3 Installing TAS

This section provides information on installation of TAS on different systems:

2.3.1 Installing TAS on Windows

To install TAS on Window, perform the following steps:

1. Log in as an Administrator.
2. The system must have ThinAgentServiceSetup.msi and setup.bat installed.
3. Run setup.bat to start installation.
4. Install smartmontools.
5. To use the NVMe function, install the NVMe vendor driver. For Windows 2008, install patch KB-3033929.
6. Install the Intel RSTe/VROC tool and driver to support Intel RSTe/VROC, change the RAID settings to “True” and rename the Intel RSTe/VROC tool in [Install folder]/tas.ini to enable Intel RSTe/VROC.
7. Reboot the system.

2.3.2 Installing TAS on Linux

To install TAS on Linux, perform the following steps:

1. Log in as a root user.
2. Ensure you have permission to run TAS, then install.sh and IPMITAS.
3. Run the command `install.sh` to install TAS.
4. Install smartmontools.

2.3.3 Installing TAS on FreeBSD x86_64

To install TAS on FreeBSD x86_64, perform the following steps:

1. Log in as a root user.
2. Ensure you have permission to run TAS, including TAS, watchtas, watchtas_exe, install, and IPMITAS.
3. Run the command `install` to install TAS.
4. Install smartmontools.

3 Starting TAS

TAS starts automatically after installation and system reboot. If you want to start TAS at any other time, perform the following steps:

3.1 Starting TAS on Windows

1. Find “ThinAgentService” in Windows service.
2. Right-click **ThinAgentService** and start the service.

3.2 Starting TAS on Linux

Run the command `/etc/init.d/tas start` or `service tas start`.

3.3 Starting TAS on FreeBSD x86_64

Run the command `/etc/rc.d/tas start` or `service tas start`.

4 Uninstalling TAS

This section provides information on uninstalling TAS.

4.1 Uninstalling TAS on Windows

To uninstall TAS on windows, perform the following steps:

1. Log in as an administrator.
2. Go to the Control Panel and click **Uninstall a program**.
3. Locate **ThinAgentService**, click **Uninstall** and click **OK**.

4.2 Uninstalling TAS on Linux

To uninstall TAS on linux, perform the following steps:

1. Log in as a root user.
2. Find **uninstall.sh** in the installation package and execute the script.

4.3 Uninstalling TAS on FreeBSD x86_64

To uninstall TAS on FreeBSD x86_64, perform the following steps:

1. Log in as a root user.
2. Find **uninstall.sh** in the installation package and execute the script.

5 Configuring TAS

5.1 TAS Time Settings

- The system's default update frequency is 10 seconds. Note that you can use the command `updateFreq` to modify the update frequency to suit your needs. The update frequency range is from 1 to 60 seconds.
- System listens to command requests every 5 seconds.
- System listens to BMC restart status every 1 minute.
- A timestamp is available from SEL timestamp.

5.2 Creating an .INI File

1. Put the config value into an ini file, the file path is:

- Windows: Installed folder
- Linux and FreeBSD: `/opt/supermicro/`
- **Windows**

```
installedPath=C:\Program Files\SUPERMICRO\ThinAgentService\  
logPath=C:\Program Files\SUPERMICRO\ThinAgentService\tas.log  
errLogPath=C:\Program Files\SUPERMICRO\ThinAgentService\tas.err.log  
smartPath=C:\Program Files\smartmontools\bin\smartctl.exe (Modify the value to  
match the smartctl installed path when installed on Windows. Note that this is only necessary on Windows.)  
rstcliPath=C:\Program Files\SUPERMICRO\ThinAgentService\rstcli.exe (Note that  
this is only necessary on Windows.)  
sas3Path=C:\Program Files\SUPERMICRO\ThinAgentService\sas3ircu.exe (Note that  
this is only necessary on Windows.)  
commandPath=C:\Program Files\SUPERMICRO\ThinAgentService\tas.com.log  
[config]  
updateFreq=10000  
raid=false (Note that this is only necessary for Intel RSTe on Windows.)  
[Customize]  
nicStatusSel=True  
intelRsteVroc=False  
raidCard3rdParty=false  
raidCards=
```

- **Linux and FreeBSD**

Path:

```
{  
  
installedPath = "/opt/supermicro";  
  
logPath = "/opt/supermicro/tas.log";  
  
errlogPath = "/opt/supermicro/tas.err.log"  
  
commandlogPath = "/opt/supermicro/tas.com.log";  
  
};
```

Config:

```
{  
  
updateFreq = 10;  
  
};
```

Customize:

```
{  
  
nicStatusSel = true;  
  
intelRsteVroc = true;  
  
raidCard3rdParty = false;  
  
raidCards = "";  
  
};
```

2. TAS will automatically detect Linux and FreeBSD systems if the Intel RAID is run by the RAID command in FreeBSD and if cat /proc/mdstat is active in Linux.

6 Monitoring System Data

TAS provides the following OS information for BMC:

- OS name
- OS version
- LAN information
 - Mac
 - Network interface
 - IPv4
 - IPv6
 - Gateway
 - Netmask
 - FQDN
 - DNS
 - Speed
 - Network adapter description
 - Link state
- CPU average loading
- Memory average loading
- HDD partial free space, SMART test results and temperature
- Intel RSTe and SMART test results (exclusive with LSI and hard drive information)
- LSI 3108 SMART test results (Linux and FreeBSD only)
- LSI 3008-IR RAID level consisting of device, volume health, and capacity
- LSI 3008-IT consisting of device, health, and capacity
- Network loading
- User requests (deprecated)
- TAS information
- NVMe partition loading
- NVMe SMART information
- Command requests
- Command responses

7 Combined Usage

The Supermicro software products such as SUM and SMCIPMITool can be used together with TAS.

SUM provides a view of how a system is utilized. You can execute NVMe functions by using TAS with SMCIPMITool.

7.1 SUM

Usage: `./sum -i <IP> -u <user name> -p <password> -c CheckSystemUtilization`

Example Output:

```
Supermicro Update Manager (for UEFI BIOS) 1.6.0 (2015/07/30) (x86_64)
Copyright©2015 Super Micro Computer, Inc. All rights reserved
```

Time

====

Last Sample Time: 2015-08-26_01:10:29

OS

==

OS Name: RedHat Enterprise Server

OS Version: 6.6 x86_64

CPU

===

CPU Utilization: 0.97 %

Memory

=====

Memory Utilization: 12 %

HDD(1)

=====

HDD name: /dev/sdb

SMART Status: Ok

Total Partitions: 2

[Partition(1)]

```
Partition Name:
/dev/mapper/ddf1_4c534920202020201000005b15d9069047114711ee7a8353p1
Utilization: N/A
Used Space: N/A
Total Space: 38.31 GB
[Partition(2)]
Partition Name:
/dev/mapper/ddf1_4c53492020202020201000005b15d9069047114711ee7a8353p2
Utilization: N/A
Used Space: N/A
Total Space: 64.47 GB
HDD(2)
=====
HDD name: /dev/sda
SMART Status: Ok
Total Partitions: 5
[Partition(1)]
Partition Name: /dev/sda1
Utilization: 11.62 %
Used Space: 52.55 MB
Total Space: 476.22 MB
[Partition(2)]
Partition Name: /dev/sda2
Utilization: N/A
Used Space: N/A
Total Space: 465.27 GB
[Partition(3)]
Partition Name: /dev/mapper/VolGroup-lv_root
Utilization: 45.92 %
Used Space: 21.42 GB
Total Space: 49.09 GB
[Partition(4)]
Partition Name: /dev/mapper/VolGroup-lv_swap
Utilization: 0.00 %
Used Space: 0.00 MB
Total Space: 1.37 GB
[Partition(5)]
Partition Name: /dev/mapper/VolGroup-lv_home
```

Utilization: 0.02 %
Used Space: 70.65 MB
Total Space: 395.19 GB

Network

=====

Total Devices: 4

[NIC(1)]

Device Name: eth0
Utilization: <1 %
Status: up

[NIC(2)]

Device Name: eth1
Utilization: 0 %
Status: down

[NIC(3)]

Device Name: eth2
Utilization: 0 %
Status: down

[NIC(4)]

Device Name: eth3
Utilization: 0 %
Status: down

7.2 SMCIPMITool

Usage: SMCIPMITool.exe <IP> <user name> <password> tas info

Example Output:

Item		Value
----		-----
Version		1.1.0
Build data		150820
Protocol version		0x01
Status		Running
TAS start time		08/26/2015 07:52:27
Last Update Time		08/26/2015 08:19:59

7.2.1 Other Command Usages

With the combined use of TAS and SMCIPMITool, you can also run these commands to achieve your needs. For details, refer to the *SMCIPMITool User's Guide*.

- SMCIPMITool.exe <IP> <user name> <password> nvme list
- SMCIPMITool.exe <IP> <user name> <password> nvme smardata [nvme name]
- SMCIPMITool.exe <IP> <user name> <password> nvme locate <nvme name>
- SMCIPMITool.exe <IP> <user name> <password> nvme stoplocate <nvme name>

Appendices

A. Installing Smartmontools

A.1 Installing Smartmontools on Windows

1. Go to <http://sourceforge.net/projects/smartmontools/files/smartmontools/>, click the folder **6.5** and then click **smartmontools-6.5-1.win32-setup.exe** to download.
2. Double-click the .exe file and install it in the directory .ini smart path.

A.2 Installing Smartmontools on Linux

Run these commands to install Smartmontools on Linux.

1. `sudo -s`
2. `yum install smartmontools -y` or `apt-get install smartmontools* -y`
3. `service smartd start`
4. `chkconfig smartd on`

A.3 Installing Smartmontools on FreeBSD x86_64

Run these commands to install Smartmontools on FreeBSD x86_64.

1. `su`
2. `pkg install smartmontools`
3. `edit /etc/rc.conf` and put `smartd_enable="YES"`
4. `service smartd start`

B. Installing the nvme-cli Tools

B.1 Registration Process

1. Goto <https://github.com/linux-nvme/nvme-cli> and click the **Code** button to expand the drop-down menu and click the **Download ZIP** button.
2. Unzip the file, open the terminal, and switch catalog to nvme-cli-master
3. Run the command `./make && make install`
4. Run the command `nvme smart-log deviceID` (ex: `/dev/nvme0n1`)

C. Installing Specific NVMe Vendor Drivers

C.1 On Windows

Download the specific driver from your NVMe device vendor. Example., Intel or Samsung.

Follow the vendor driver's instructions to install the driver.

D. Installing KB-3033929

Windows Server 2K8 R2 SP1

1. Go to <https://www.microsoft.com/en-us/download/details.aspx?id=46083&wa=wsignin1.0> and click the **Download** button.
2. Install the downloaded patch file Windows6.1-KB3033929-x64.msu.

E. Installing Intel RST/VROC Drivers

E.1 RSTe for Windows Servers

1. Goto <https://www.intel.com/content/www/us/en/download/19472/intel-rapid-storage-technology-enterprise-intel-rste-software-raid-driver-for-the-intel-server-board-m10jnp2sb.html> and select the desired version of the RST RAID driver and tool.
2. Follow the instructions to install the RSTe driver and tool.

E.2 VROC for Windows Servers

1. Goto <https://www.intel.com/content/www/us/en/download/19472/intel-rapid-storage-technology-enterprise-intel-rste-software-raid-driver-for-the-intel-server-board-m10jnp2sb.html> and select the desired version of the VROC RAID driver and tool.
2. Follow the instructions to install the VROC driver and tool.

F. Open Source Software Components

The redistributable open source software components included in the Supermicro Thin-Agent Service (TAS) are listed here. Information on components versions may vary depending on actual implementation.

Name	License	Component Source URL	Note
Libconfig	LGPL	http://hyperrealm.github.io/libconfig/	

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