Supermicro Redfish Plug-in for Nagios Core

User's Guide

Revision 1.1

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Revision History

Date	Rev	Description
2018/10/31	1.0	Initial document.
2020/09/26	1.1	Added support for updating BMC/BIOS on X12/H12 platforms. Added get log service command.

Contents

1. Overview

The Supermicro Redfish Plug-in provides a command line interface for remote management and monitoring of a Supermicro server via Redfish. The plug-in can integrate with Nagios Core to monitor server health.

Via this plug-in, health information on the following components is available:

- System Health
- Memory
- Fan Sensors
- Temperature Sensors
- Voltage Sensors
- Power Supply
- Storage

The management features include:

- Updating BIOS and BMC firmware
- Updating BIOS configurations
- Hardware and firmware inventory
- Managing event subscriptions

1.1 Prerequisites

1.1.1 System Requirements

Environment	Requirements
Operating System	CentOS 7.0 (x86_64) Ubuntu 16.04 (x86_64)

1.1.2 Firmware Requirements

Firmware Image	Requirements
BMC	X10 ATEN platform (REDFISH_X10): 3.77 or later. X11 ATEN platform (SMT_X11): 1.55 or later. X12 ATEN platform (SMT_X12): 1.00 or later H12 ATEN platform (SMT_H12): 1.00 or later

1.1.3 License Requirements

SFT-DCMS-Single per-node license is required.

Note: The latest BMC firmware can be downloaded from the Supermicro website at https://www.supermicro.com/support/resources/bios_ipmi.php.

1.1.4 Additional Package Requirements for Remote Servers

Features	Requirements
• PCH SATA information • Intel RSTe information • Ethernet interface information	TAS_1.6.0_build.200601 or later

2. Installation

2.1 Installing on a Standalone

1. Extract **nagios_supermicro_redfish_x.x.x_build.xxxxxx.tar.gz**.
2. Execute **nagios_supermicro_redfish** in the **bin** directory.

2.2 Installing the Plug-in for Nagios Core

1. Copy the executable file **nagios_supermicro_redfish** in the **bin** directory to the Nagios plug-in directory, e.g., /usr/local/nagios/libexec.
2. Add the command definition to the Nagios configuration file, e.g., etc/objects/commands.cfg.

Command Definition:

```
 $USER1$/nagios_supermicro_redfish -i $_HOSTIPMI_IP$ -u $_HOSTIPMI_USER$ -p
$_HOSTIPMI_PWD$ $ARG1$
```

Example:

```
define command{
       command_name    check_supermicro_redfish
       command_line    $USER1$/nagios_supermicro_redfish -i $_HOSTIPMI_IP$ -u
$_HOSTIPMI_USER$ -p $_HOSTIPMI_PWD$ $ARG1$
       }
```

3. Add the host definition.

The following attributes should be provided in the host definition.

Attribute	Description
_ipmi_ip	IPMI address of remote server
_ipmi_user	IPMI login username of remote server
_ipmi_pwd	IPMI login password of remote server

Example:

```
define host {
       use                     linux-server
       host_name               x11
       alias                   x11
       _ipmi_ip                10.136.160.176
       _ipmi_user              ADMIN
       _ipmi_pwd               ADMIN
       }
```

4. Add the service definition.

   For the **check_command** definition, see *4.1 Health Information Command*.

Example:

```
define service {
       use                     generic-service
       host_name               x11
       service_description     supermicro redfish for system
       check_command           check_supermicro_redfish!'check'
       }
```

5. Restart the Nagios service

3. Commands and Usage

3.1 Basic Usage

Usage:

```
nagios_supermicro_redfish [-h] [-d] [--version]
                          -i <ip> -u <username> -p <password>
                         [<command>] [<command option>]
```

Common Options:

Option	Description
-i <ip>	Remote server IP address.
-u <username>	Remote server username.
-p <password>	Remote server password.
-h, --help	Shows help message.
--version	Shows version.
-d, --debug	Shows the debug message.

3.2 List of Commands

Health Information		
Command	**Option**	**Description**
check	--skip_storage (Optional) Skip to check the storage components. --show_all (Optional) Show all components	Gets the health information of systems and storage systems. It shows the failure components if the system is in abnormal status by default.
	-t, --type <type> (Optional) Show specific type of components <type> fan fan sensors temp temperature sensors volt voltage sensors ps power supplies storage storage components perf fan, temp sensors and power consumption	

	-s, --filter_severity <severity> (Optional) Filter components by specific severity <severity> ok component with ok status warning component with warning status critical component with critical status	
Hardware Information		
Command	**Option**	**Description**
hwinfo	-f <file>, --file <file> (Optional) Export to file.	Gets the hardware information.
BIOS Management		
Command	**Option**	**Description**
bios config list		Lists all BIOS configurations.
bios config export	-f <file>, --file <file> File location.	Exports the current BIOS configurations to an assigned file.
bios config update	-f <file>, --file <file> File location.	Updates the BIOS configurations with the given configuration file.
bios fw info		Gets the BIOS firmware information.
bios fw update	-f <file>, --file <file> File location. --preserve_nv (Optional) Preserve NVRAM data. --preserve_mer (Optional) Preserve the ME firmware region.	Updates the BIOS firmware with the given image file.
BMC Management		
Command	**Option**	**Description**
bmc fw info		Gets the BMC firmware information.
bmc fw update	-f <file>, --file <file> File location. --overwrite_cfg (Optional) restore the BMC's factory default setting. --overwrite_sdr (Optional) restore the SDR defaults --overwrite_sslcert (Optional) restore the default SSL certificate	Updates the BMC firmware with the given image file.
bmc reset		BMC cold reboot
Event Service		
Command	**Option**	**Description**
event-service list		Lists all subscriptions.

event-service add	dest URL of destination --type [EVENT_TYPE] (Optional) event type: StatusChange, ResourceUpdated, ResourceAdded, ResourceRemoved and Alert (default:StatusChange, Alert) --context [CONTEXT] (Optional) Context string (Default: "public") --id <id> The --id value ranges from 1 to 16. Note the option is only available on X12 and later platforms. --status [STATUS_TYPE] status type: enabled, disabled (default: enabled) Note the option is only available on X12 and later platforms.	Adds a subscription.
event-service del	id Subscription ID	Deletes a subscription ID.
Log Service		
Command	**Option**	**Description**
log info	-t, --type <type> (Optional) Show specific type of components <type> health (default) health event log syslog maintenance event log	Gets log information.
log list	-t, --type <type> (Optional) Show specific type of components <type> Health (default) health event log syslog maintenance event log	Shows the health (by default) or maintenance event log by the specific type.
	-l, --last <count> (Optional) Show count number of logs <count> get the last count log entries	

3.3 BIOS Configuration File in JSON Format

The BIOS configuration file contains the BIOS attributes updated by users and each attribute is formatted as a JSON object.

The key definition in the JSON object:

Key	Description
Name	Attribute name
Description	Attribute description
Value	Current value of attribute
ValueType	Value type of attribute
AllowableValue	The allowable value

If the **ValueType** is Boolean, the acceptable values are **false** and **true**. If the **ValueType** is Enumeration, the acceptable values are listed in **AllowableValue**.

Example:

```
{
    "Name": "QuietBoot",
    "Description": "Enables or disables Quiet Boot option",
    "Value": true,
    "ValueType": "Boolean",
    "AllowableValue": null
},
{
    "Name": "PowerButtonFunction",
    "Description": "Select the power button function.",
    "Value": "4 Seconds Override",
    "ValueType": "Enumeration",
    "AllowableValue": [
        {
            "ValueDisplayName": "Instant Off"
        },
        {
            "ValueDisplayName": "4 Seconds Override"
        }
    ]
}
```

4. Managing Server

4.1 Health Information

The health information of each type of components or sensors is summarized in the table below.

Component	Attributes
Computer system	• health • state • model • serial number
Memory	• health • state • manufacturer • part number • serial number
Temperature sensor	• health • state • name • reading (C) • upper threshold critical (C) • lower threshold critical (C)
Fan sensor	• health • state • name • reading (RPM) • upper threshold critical (RPM) • lower threshold critical (RPM)
Voltage sensor	• health • state • name • reading (Volts) • upper threshold critical (Volts) • lower threshold critical (Volts)
Power supply	• health • state • name • model

Component	Attributes
Storage	**Storage System** • health • state **Controller** • health • state • controller ID • controller name • manufacturer • model • enclosures **Drive** • health • state • chassis ID • drive name • manufacturer • model • serial number **Volume** • health • state • controller ID • volume name • type • capacity • drives

Six types of health status are defined by Nagios: **`OK, WARNING, CRITICAL, UNKNOWN, ACTIVE, and ACTIVE SYNC.`** The ACTIVE and ACTIVE SYNC is the health status for RAID system.
The **state** is defined in Redfish which indicates the known state of the resource.

State	Description
Enabled	This function or resource has been enabled.
Disabled	This function or resource has been disabled.
StandbyOffline	This function or resource is enabled, but awaiting an external action to activate it.
StandbySpare	This function or resource is part of a redundancy set and is awaiting a failover or other external action to activate it.
InTest	This function or resource is undergoing testing.
Starting	This function or resource is starting.
Absent	This function or resource is not present or not detected.
UnavailableOffline	This function or resource is present but cannot be used.
Deferring	The element will not process any commands but will queue new requests.
Quiesced	The element is enabled but only processes a restricted set of commands.
Updating	The element is updating and may be unavailable or degraded.

4.1.1 Getting Health Information on the Entire System

Use the `check` command to get the overall status of the computer system and storage systems. The statuses of storages systems are not associated with computer system.

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password>
                          check [--skip_storage][--show_all]
```

Example:

```
$./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN check
```

Console Output:

```
CRITICAL - System, State=Enabled, Model=X11DGQ, S/N=
CRITICAL - Power Supply Bay 1, State=Enabled
OK - SATAEmbedded:Embedded SATA Storage System, State=Enabled
```

Example: Showing All Components

```
$./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN check --show_all
```

Console Output:

```
CRITICAL - System, State=Enabled, Model=X11DGQ, S/N=
OK - P1-DIMMA1, State=Enabled, Manufacturer=Micron, P/N=16ATF1G64AZ-2G1A1,
S/N=0E400B6B, Capacity=8 GB
N/A - FAN1, State=Absent
N/A - FAN2, State=Absent
N/A - FAN3, State=Absent
N/A - FAN4, State=Absent
N/A - FAN5, State=Absent
N/A - FAN6, State=Absent
N/A - FAN7, State=Absent
OK - FAN8, State=Enabled, Reading=700RPM, LowLimit=500, HighLimit=25400
OK - FAN9, State=Enabled, Reading=1400RPM, LowLimit=500, HighLimit=25400
OK - CPU1 Temp, State=Enabled, Reading=49C, LowLimit=0, HighLimit=102
N/A - CPU2 Temp, State=Absent
OK - PCH Temp, State=Enabled, Reading=35C, LowLimit=0, HighLimit=85
N/A - Inlet Temp, State=Absent
OK - System Temp, State=Enabled, Reading=27C, LowLimit=0, HighLimit=85
OK - Peripheral Temp, State=Enabled, Reading=33C, LowLimit=0, HighLimit=85
OK - MB_10G Temp, State=Enabled, Reading=34C, LowLimit=0, HighLimit=100
OK - VRMCpu1IN Temp, State=Enabled, Reading=36C, LowLimit=0, HighLimit=100
OK - VRMCpu1IO Temp, State=Enabled, Reading=38C, LowLimit=0, HighLimit=100
OK - VRMCpu2IN Temp, State=Enabled, Reading=29C, LowLimit=0, HighLimit=100
OK - VRMCpu2IO Temp, State=Enabled, Reading=28C, LowLimit=0, HighLimit=100
OK - VRMP1AB Temp, State=Enabled, Reading=35C, LowLimit=0, HighLimit=100
OK - VRMP1DE Temp, State=Enabled, Reading=34C, LowLimit=0, HighLimit=100
OK - VRMP2AB Temp, State=Enabled, Reading=32C, LowLimit=0, HighLimit=100
OK - VRMP2DE Temp, State=Enabled, Reading=29C, LowLimit=0, HighLimit=100
```

```
OK - P1-DIMMA1 Temp, State=Enabled, Reading=33C, LowLimit=0, HighLimit=85
N/A - P1-DIMMB1 Temp, State=Absent
N/A - P1-DIMMC1 Temp, State=Absent
N/A - P1-DIMMD1 Temp, State=Absent
N/A - P1-DIMME1 Temp, State=Absent
N/A - P1-DIMMF1 Temp, State=Absent
N/A - P2-DIMMA1 Temp, State=Absent
N/A - P2-DIMMB1 Temp, State=Absent
N/A - P2-DIMMC1 Temp, State=Absent
N/A - P2-DIMMD1 Temp, State=Absent
N/A - P2-DIMME1 Temp, State=Absent
N/A - P2-DIMMF1 Temp, State=Absent
N/A - M.2-H Temp, State=Absent
OK - 12V, State=Enabled, Reading=12.096, LowLimit=10.296, HighLimit=13.236
OK - 5VCC, State=Enabled, Reading=4.978, LowLimit=4.282, HighLimit=5.529
OK - 3.3VCC, State=Enabled, Reading=3.384, LowLimit=2.823, HighLimit=3.656
OK - Vcpu1, State=Enabled, Reading=1.771, LowLimit=1.258, HighLimit=2.086
OK - Vcpu2, State=Absent, Reading=0, LowLimit=0, HighLimit=0
OK - VDimmP1AB, State=Enabled, Reading=1.223, LowLimit=1.062, HighLimit=1.587
OK - VDimmP1DE, State=Enabled, Reading=1.216, LowLimit=1.062, HighLimit=1.587
OK - VDimmP2AB, State=Absent, Reading=0, LowLimit=0, HighLimit=0
OK - VDimmP2DE, State=Absent, Reading=0, LowLimit=0, HighLimit=0
OK - 5VSB, State=Enabled, Reading=5.05, LowLimit=4.27, HighLimit=5.53
OK - 3.3VSB, State=Enabled, Reading=3.35, LowLimit=2.823, HighLimit=3.656
OK - 1.8V PCH, State=Enabled, Reading=1.779, LowLimit=1.608, HighLimit=1.995
OK - PVNN PCH, State=Enabled, Reading=1, LowLimit=0.778, HighLimit=1.108
OK - 1.05V PCH, State=Enabled, Reading=1.062, LowLimit=0.894, HighLimit=1.342
OK - 12VSB, State=Enabled, Reading=11.976, LowLimit=10.296, HighLimit=13.236
CRITICAL - Power Supply Bay 1, State=Enabled
OK - Power Supply Bay 2, State=Enabled, Model=PWS-1K02A-1R
N/A - Power Supply Bay 3, State=Absent
N/A - Power Supply Bay 4, State=Absent
OK - Intrusion Sensor, State=Normal
OK - SATAEmbedded:Embedded SATA Storage System, State=Enabled
OK - SATAEmbedded.0:System SATA, State=Enabled, Manufacturer=None, Model=None,
Enclosures=StorageBackplane
OK - SATAEmbedded#Volume0:SATA Bay 3, State=Enabled, Type=RawDevice, Capacity=500
MB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - SATAEmbedded#Volume1:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=115.71 GB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - SATAEmbedded#Volume2:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=1014 MB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - SATAEmbedded#Volume3:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=115.69 GB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - SATAEmbedded#Volume4:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=115.69 GB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - SATAEmbedded#Volume5:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=49.98 GB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - SATAEmbedded#Volume6:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=7.69 GB,
    Drives=[StorageBackplane#Disk.Bay.3]
```

```
OK - SATAEmbedded#Volume7:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=57.96 GB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - StorageBackplane#Disk.Bay.3, State=Unknown, S/N=9XE0HT8W
```

4.1.2 Getting Health Information on the Fan Sensors

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> check -t fan
```

Example:

```
$ ./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN check -t fan
```

Console Output:

```
N/A - FAN1, State=Absent
N/A - FAN2, State=Absent
N/A - FAN3, State=Absent
N/A - FAN4, State=Absent
N/A - FAN5, State=Absent
N/A - FAN6, State=Absent
N/A - FAN7, State=Absent
OK - FAN8, State=Enabled, Reading=800RPM, LowLimit=500, HighLimit=25400
OK - FAN9, State=Enabled, Reading=1600RPM, LowLimit=500, HighLimit=25400
```

4.1.3 Getting Health Information on the Temperature Sensors

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> check -t temp
```

Example:

```
$ ./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN check -t temp
```

Console Output:

```
OK - CPU1 Temp, State=Enabled, Reading=55C, LowLimit=0, HighLimit=102
N/A - CPU2 Temp, State=Absent
OK - PCH Temp, State=Enabled, Reading=36C, LowLimit=0, HighLimit=85
N/A - Inlet Temp, State=Absent
OK - System Temp, State=Enabled, Reading=28C, LowLimit=0, HighLimit=85
OK - Peripheral Temp, State=Enabled, Reading=33C, LowLimit=0, HighLimit=85
OK - MB_10G Temp, State=Enabled, Reading=34C, LowLimit=0, HighLimit=100
OK - VRMCpu1IN Temp, State=Enabled, Reading=37C, LowLimit=0, HighLimit=100
OK - VRMCpu1IO Temp, State=Enabled, Reading=39C, LowLimit=0, HighLimit=100
OK - VRMCpu2IN Temp, State=Enabled, Reading=29C, LowLimit=0, HighLimit=100
OK - VRMCpu2IO Temp, State=Enabled, Reading=28C, LowLimit=0, HighLimit=100
OK - VRMP1AB Temp, State=Enabled, Reading=36C, LowLimit=0, HighLimit=100
OK - VRMP1DE Temp, State=Enabled, Reading=34C, LowLimit=0, HighLimit=100
OK - VRMP2AB Temp, State=Enabled, Reading=32C, LowLimit=0, HighLimit=100
OK - VRMP2DE Temp, State=Enabled, Reading=29C, LowLimit=0, HighLimit=100
OK - P1-DIMMA1 Temp, State=Enabled, Reading=33C, LowLimit=0, HighLimit=85
N/A - P1-DIMMB1 Temp, State=Absent
N/A - P1-DIMMC1 Temp, State=Absent
N/A - P1-DIMMD1 Temp, State=Absent
N/A - P1-DIMME1 Temp, State=Absent
N/A - P1-DIMMF1 Temp, State=Absent
N/A - P2-DIMMA1 Temp, State=Absent
N/A - P2-DIMMB1 Temp, State=Absent
N/A - P2-DIMMC1 Temp, State=Absent
N/A - P2-DIMMD1 Temp, State=Absent
N/A - P2-DIMME1 Temp, State=Absent
N/A - P2-DIMMF1 Temp, State=Absent
N/A - M.2-H Temp, State=Absent
```

4.1.4 Getting Health Information on the Voltage Sensors

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> check -t volt
```

Example:

```
$ ./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN check -t volt
```

Console Output:

```
OK - 12V, State=Enabled, Reading=11.916, LowLimit=10.296, HighLimit=13.236
OK - 5VCC, State=Enabled, Reading=4.862, LowLimit=4.282, HighLimit=5.529
OK - 3.3VCC, State=Enabled, Reading=3.316, LowLimit=2.823, HighLimit=3.656
OK - Vcpu1, State=Enabled, Reading=1.726, LowLimit=1.258, HighLimit=2.086
OK - Vcpu2, State=Absent, Reading=0, LowLimit=0, HighLimit=0
OK - VDimmP1AB, State=Enabled, Reading=1.195, LowLimit=1.062, HighLimit=1.587
OK - VDimmP1DE, State=Enabled, Reading=1.188, LowLimit=1.062, HighLimit=1.587
OK - VDimmP2AB, State=Absent, Reading=0, LowLimit=0, HighLimit=0
OK - VDimmP2DE, State=Absent, Reading=0, LowLimit=0, HighLimit=0
OK - 5VSB, State=Enabled, Reading=4.93, LowLimit=4.27, HighLimit=5.53
OK - 3.3VSB, State=Enabled, Reading=3.282, LowLimit=2.823, HighLimit=3.656
OK - 1.8V PCH, State=Enabled, Reading=1.743, LowLimit=1.608, HighLimit=1.995
OK - PVNN PCH, State=Enabled, Reading=0.976, LowLimit=0.778, HighLimit=1.108
OK - 1.05V PCH, State=Enabled, Reading=1.034, LowLimit=0.894, HighLimit=1.342
OK - 12VSB, State=Enabled, Reading=11.856, LowLimit=10.296, HighLimit=13.236
```

4.1.5 Getting Health Information on the Power Supplies

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> check -t ps
```

Example

```
$ ./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN check -t ps
```

Console Output:

```
OK - Power Supply Bay 1, State=Enabled, Model=PWS-1K62A-1R
CRITICAL - Power Supply Bay 2, State=Enabled
N/A - Power Supply Bay 3, State=Absent
N/A - Power Supply Bay 4, State=Absent
```

4.1.6 Getting Health Information on the Storage Component

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> check -t storage
```

Example:

```
$ ./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN check -t storage
```

Console Output:

```
OK - SATAEmbedded:Embedded SATA Storage System, State=Enabled
OK - SATAEmbedded.0:System SATA, State=Enabled, Manufacturer=None, Model=None,
Enclosures=StorageBackplane
OK - SATAEmbedded#Volume0:SATA Bay 3, State=Enabled, Type=RawDevice, Capacity=500
MB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - SATAEmbedded#Volume1:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=115.71 GB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - SATAEmbedded#Volume2:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=1014 MB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - SATAEmbedded#Volume3:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=115.69 GB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - SATAEmbedded#Volume4:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=115.69 GB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - SATAEmbedded#Volume5:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=49.98 GB,
    Drives=[StorageBackplane#Disk.Bay.3]e
OK - SATAEmbedded#Volume6:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=7.69 GB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - SATAEmbedded#Volume7:SATA Bay 3, State=Enabled, Type=RawDevice,
Capacity=57.96 GB,
    Drives=[StorageBackplane#Disk.Bay.3]
OK - StorageBackplane#Disk.Bay.3, State=Unknown, S/N=9XE0HT8W
```

4.1.7 Getting Performance Data

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> check -t perf
```

Example:

```
$ ./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN check -t perf
```

Console Output:

```
Power Consumption=78
OK - FAN8, State=Enabled, Reading=900RPM, LowLimit=500, HighLimit=25400
OK - FAN9, State=Enabled, Reading=1700RPM, LowLimit=500, HighLimit=25400
OK - CPU1 Temp, State=Enabled, Reading=53C, LowLimit=0, HighLimit=102
```

```
OK - PCH Temp, State=Enabled, Reading=36C, LowLimit=0, HighLimit=85
OK - System Temp, State=Enabled, Reading=28C, LowLimit=0, HighLimit=85
OK - Peripheral Temp, State=Enabled, Reading=33C, LowLimit=0, HighLimit=85
OK - MB_10G Temp, State=Enabled, Reading=34C, LowLimit=0, HighLimit=100
OK - VRMCpu1IN Temp, State=Enabled, Reading=37C, LowLimit=0, HighLimit=100
OK - VRMCpu1IO Temp, State=Enabled, Reading=39C, LowLimit=0, HighLimit=100
OK - VRMCpu2IN Temp, State=Enabled, Reading=29C, LowLimit=0, HighLimit=100
OK - VRMCpu2IO Temp, State=Enabled, Reading=28C, LowLimit=0, HighLimit=100
OK - VRMP1AB Temp, State=Enabled, Reading=36C, LowLimit=0, HighLimit=100
OK - VRMP1DE Temp, State=Enabled, Reading=34C, LowLimit=0, HighLimit=100
OK - VRMP2AB Temp, State=Enabled, Reading=31C, LowLimit=0, HighLimit=100
OK - VRMP2DE Temp, State=Enabled, Reading=29C, LowLimit=0, HighLimit=100
OK - P1-DIMMA1 Temp, State=Enabled, Reading=33C, LowLimit=0, HighLimit=85
```

4.1.8 Filter Health Information by Severity

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> check --show_all
--filter_severity <severity>
```

Example:

```
$ ./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN --show_all –
-filter_severity ok
```

Console Output:

```
OK - DIMMA1, State=Enabled, Manufacturer=SK Hynix, P/N=HMA82GR7CJR8N-WM,
S/N=42F574BA, Capacity=16 GiB
OK - DIMMD1, State=Enabled, Manufacturer=SK Hynix, P/N=HMA82GR7CJR8N-WM,
S/N=42F573E8, Capacity=16 GiB
OK - FAN, State=Enabled, Reading=1900RPM, LowLimit=500, HighLimit=25400
OK - PCH Temp, State=Enabled, Reading=55C, LowLimit=5, HighLimit=90
OK - System Temp, State=Enabled, Reading=35C, LowLimit=5, HighLimit=85
OK - Peripheral Temp, State=Enabled, Reading=41C, LowLimit=5, HighLimit=85
OK - VRMCpu Temp, State=Enabled, Reading=44C, LowLimit=5, HighLimit=100
OK - VRMAB Temp, State=Enabled, Reading=55C, LowLimit=5, HighLimit=100
OK - VRMDE Temp, State=Enabled, Reading=55C, LowLimit=5, HighLimit=100
OK - DIMMA1 Temp, State=Enabled, Reading=44C, LowLimit=5, HighLimit=85
OK - DIMMD1 Temp, State=Enabled, Reading=42C, LowLimit=5, HighLimit=85
OK - 12V, State=Enabled, Reading=12.064, LowLimit=10.272, HighLimit=13.28
OK - 5VCC, State=Enabled, Reading=5.15, LowLimit=4.28, HighLimit=5.72
OK - 3.3VCC, State=Enabled, Reading=3.265, LowLimit=2.823, HighLimit=3.775
OK - Vcpu, State=Enabled, Reading=1.808, LowLimit=1.259, HighLimit=2.087
OK - VDimmAB, State=Enabled, Reading=1.176, LowLimit=1.026, HighLimit=1.374
OK - VDimmDE, State=Enabled, Reading=1.212, LowLimit=1.026, HighLimit=1.374
OK - 5VSB, State=Enabled, Reading=5.093, LowLimit=4.343, HighLimit=5.603
OK - 3.3VSB, State=Enabled, Reading=3.235, LowLimit=2.819, HighLimit=3.763
OK - P1V8_PCH, State=Enabled, Reading=1.841, LowLimit=1.535, HighLimit=2.057
OK - PVNN_PCH, State=Enabled, Reading=1.023, LowLimit=0.897, HighLimit=1.219
OK - P1V05_PCH, State=Enabled, Reading=1.066, LowLimit=0.898, HighLimit=1.22
OK - Power Supply Bay 2, State=Enabled, Model=PWS-2K04A-1R
OK - Intrusion Sensor, State=Normal
```

4.2 Hardware Information

The hardware information command is used to get the hardware and firmware information. The detailed information of each type of component or sensor is summarized in the table below.

Component	Attributes
Computer System	• Model • Total Cores • Total Memory (GB) • UUID • Serial Number • SKU • BIOS Version
Processor	• Manufacturer • Model • Socket • Total Cores • Total Threads • Max Speed (MHz)
Memory	• Manufacturer • Part Number • Serial Number • Capacity • Type • Speed (MHz) • Location

Network	• Name
	• Description
	• MAC Address
	• IPv4
	  ○ Address
	  ○ Subnet Mask
	• IPv6
	  ○ Address

Storage	• Controllers
	  ○ Name
	  ○ Description
	  ○ Manufacturer
	  ○ Serial Number
	  ○ Firmware Version
	• Drives
	  ○ Name
	  ○ Manufacturer
	  ○ Model
	  ○ Serial Number
	• Volumes
	  ○ Type

	○ Capacity
Chassis	• Manufacturer • Serial Number • Asset Tag • Type
Power Supply	• Name • State • Type • Model • Serial Number • Firmware Version • Input Voltage • Power Output
Manager (BMC)	• Model • Firmware Version • MAC Address • IPv4 Address • IPv6 Address
BIOS	• Firmware Version

4.2.1 Getting Hardware Information

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> hwinfo [-f <file>]

optional arguments:
-f <file>, --file <file>   file location for exporting hardware information (JSON)
```

Example:

```
$ ./nagios_supermicro_redfish -i10.136.33.151 -uADMIN –pADMIN hwinfo
```

Console Output:

```
get system information...done
get processor information...done
get memory information...done
get network information...done
get chassis information...done
get power supply information...done
get storage information...done
get ipmi information...done
get bios information...done

Hardware Information
----------
{
    "Computer System": {
        "Model": "Super Server",
        "Total Cores": 20,
        "Total Memory (GB)": 64,
        "UUID": "00000000-0000-0000-0000-0CC47AFBAD66",
        "Serial Number": "          ",
        "SKU": "To be filled by O.E.M.",
        "BIOS version": "2.1"
    },
    "Processor": [
        {
            "Manufacturer": "Intel(R) Corporation",
            "Model": "Intel(R) Xeon(R) Silver 4114 CPU @ 2.20GHz",
            "Socket": "CPU1",
            "Total Cores": 10,
            "Total Threads": 20,
            "Max Speed (MHz)": 4500
        },
        {
            "Manufacturer": "Intel(R) Corporation",
            "Model": "Intel(R) Xeon(R) Silver 4114 CPU @ 2.20GHz",
            "Socket": "CPU2",
            "Total Cores": 10,
            "Total Threads": 20,
            "Max Speed (MHz)": 4500
        }
    ],
    "Memory": [
        {
            "Manufacturer": "Micron Technology",
            "Part Number": "36ASF2G72PZ-2G1A2",
            "Serial Number": "0CC33709",
            "Capacity": "16 GB",
            "Type": null,
            "Speed (MHz)": [
                2133
            ],
            "Location": "P2-DIMMA2"
        },
        {
            "Manufacturer": "Micron Technology",
            "Part Number": "36ASF2G72PZ-2G1A2",
```

```
            "Serial Number": "0CC33720",
            "Capacity": "16 GB",
            "Type": null,
            "Speed (MHz)": [
                2133
            ],
            "Location": "P2-DIMMA1"
        },
        {
            "Manufacturer": "Micron Technology",
            "Part Number": "36ASF2G72PZ-2G1A2",
            "Serial Number": "0CC23D33",
            "Capacity": "16 GB",
            "Type": null,
            "Speed (MHz)": [
                2133
            ],
            "Location": "P1-DIMMA2"
        },
        {
            "Manufacturer": "Micron Technology",
            "Part Number": "36ASF2G72PZ-2G1A2",
            "Serial Number": "0CC23D2A",
            "Capacity": "16 GB",
            "Type": null,
            "Speed (MHz)": [
                2133
            ],
            "Location": "P1-DIMMA1"
        }
    ],
    "Network": [
        {
            "Name": "enp94s0f0",
            "Description": "Intel Corporation I350 Gigabit Network Connection",
            "MAC Address": "0c:c4:7a:fb:ad:66",
            "IPv4": [
                {
                    "Address": "N/A",
                    "Subnet Mask": "N/A"
                }
            ],
            "IPv6": [
                {
                    "Address": "N/A"
                }
            ]
        },
        {
            "Name": "enp94s0f1",
            "Description": "Intel Corporation I350 Gigabit Network Connection",
            "MAC Address": "0c:c4:7a:fb:ad:67",
            "IPv4": [
                {
                    "Address": "10.163.55.62",
                    "Subnet Mask": "255.255.240.0"
                }
```

```
            ],
            "IPv6": [
                {
                    "Address": "fe80::522e:59bc:b0c9:3ba5"
                }
            ]
        },
        {
            "Name": "enp94s0f0",
            "Description": "Intel Corporation I350 Gigabit Network Connection",
            "MAC Address": "0c:c4:7a:fb:ad:66",
            "IPv4": [
                {
                    "Address": "N/A",
                    "Subnet Mask": "N/A"
                }
            ],
            "IPv6": [
                {
                    "Address": "N/A"
                }
            ]
        },
        {
            "Name": "enp94s0f1",
            "Description": "Intel Corporation I350 Gigabit Network Connection",
            "MAC Address": "0c:c4:7a:fb:ad:67",
            "IPv4": [
                {
                    "Address": "10.163.55.62",
                    "Subnet Mask": "255.255.240.0"
                }
            ],
            "IPv6": [
                {
                    "Address": "fe80::522e:59bc:b0c9:3ba5"
                }
            ]
        },
        {
            "Name": "virbr0",
            "Description": "N/A",
            "MAC Address": "52:54:00:0a:3d:db",
            "IPv4": [
                {
                    "Address": "192.168.122.1",
                    "Subnet Mask": "255.255.255.0"
                }
            ],
            "IPv6": [
                {
                    "Address": "N/A"
                }
            ]
        }
    ],
    "Chassis": {
```

```
        "Manufacturer": "Supermicro",
        "Serial Number": "",
        "Asset Tag": "",
        "Type": "RackMount"
    },
    "Power Supply": [
        {
            "Name": "Power Supply Bay 1",
            "State": "Enabled",
            "Type": "AC",
            "Model": "PWS-1K23A-1R",
            "Serial Number": "P1K2BCYWWA00001",
            "Firmware Version": "REV1.0",
            "ACLowLine Input Voltage (V)": 116,
            "Power Output (W)": 52
        },
        {
            "Name": "Power Supply Bay 2",
            "State": "Enabled",
            "Type": "AC",
            "Model": "PWS-1K23A-1R",
            "Serial Number": "P1K2ACF19GB0138",
            "Firmware Version": "REV1.0",
            "ACLowLine Input Voltage (V)": 117,
            "Power Output (W)": 73
        },
        {
            "Name": "Power Supply Bay 3",
            "State": "Absent"
        },
        {
            "Name": "Power Supply Bay 4",
            "State": "Absent"
        }
    ],
    "Storage": [
        {
            "Id": "HA-RAID",
            "Controllers": [
                {
                    "Id": "0",
                    "Name": "External RAID",
                    "Description": "External RAID (PCIE card: Onboard, slot: 3)",
                    "Manufacturer": "AVAGO",
                    "Model": "3108",
                    "Serial Number": "FW-AL85PGVAARBWA",
                    "Firmware Version": "4.680.00-8290"
                }
            ],
            "Volumes": [
                {
                    "Id": "0",
                    "Name": "BCM RAID Controller 0 Virtual Disk 0",
                    "Volume Type": "Mirrored",
                    "Block Size": 512,
                    "Capacity": "744.69 GB",
                    "Encrypted": false,
```

```
                "Drives": [
                    {
                        "Drive": "Disk.Bay.0",
                        "Enclosure": "HA-RAID.0.StorageEnclosure.0"
                    },
                    {
                        "Drive": "Disk.Bay.1",
                        "Enclosure": "HA-RAID.0.StorageEnclosure.0"
                    }
                ]
            }
        ],
        "Enclosures": [
            {
                "Id": "HA-RAID.0.StorageEnclosure.0",
                "Drives": [
                    {
                        "Name": "Disk.Bay.0",
                        "Manufacturer": "SEAGATE",
                        "Model": "ST800FM0053",
                        "Serial Number": "Z3G01KD8"
                    },
                    {
                        "Name": "Disk.Bay.1",
                        "Manufacturer": "SEAGATE",
                        "Model": "ST800FM0053",
                        "Serial Number": "Z3G01KGM"
                    }
                ]
            }
        ]
    },
    {
        "Id": "SATAEmbedded",
        "Controllers": [
            {
                "Id": "0",
                "Name": "System SATA",
                "Description": "System SATA",
                "Manufacturer": null,
                "Model": null,
                "Serial Number": null,
                "Firmware Version": null
            }
        ],
        "Volumes": [
            {
                "Id": "0",
                "Name": "SATA Bay 2",
                "Volume Type": "RawDevice",
                "Block Size": null,
                "Capacity": "1014 MB",
                "Encrypted": false,
                "Drives": [
                    {
                        "Drive": "Disk.Bay.2",
                        "Enclosure": "StorageBackplane"
```

```
                    }
                ]
            },
            {
                "Id": "1",
                "Name": "SATA Bay 2",
                "Volume Type": "RawDevice",
                "Block Size": null,
                "Capacity": "2.98 GB",
                "Encrypted": false,
                "Drives": [
                    {
                        "Drive": "Disk.Bay.2",
                        "Enclosure": "StorageBackplane"
                    }
                ]
            },
            {
                "Id": "2",
                "Name": "SATA Bay 2",
                "Volume Type": "RawDevice",
                "Block Size": null,
                "Capacity": "25.82 GB",
                "Encrypted": false,
                "Drives": [
                    {
                        "Drive": "Disk.Bay.2",
                        "Enclosure": "StorageBackplane"
                    }
                ]
            }
        ],
        "Enclosures": [
            {
                "Id": "StorageBackplane",
                "Drives": [
                    {
                        "Name": "Disk.Bay.2",
                        "Manufacturer": null,
                        "Model": null,
                        "Serial Number": "B45007570424001036 41"
                    }
                ]
            }
        ]
    }
],
"BMC": {
    "Model": "ASPEED",
    "Firmware Version": "1.55",
    "MAC Address": "0C:C4:7A:88:21:27",
    "IPv4 Address": [
        "10.163.55.148"
    ],
    "IPv6 Address": [
        "fe80::ec4:7aff:fe88:2127"
    ]
```

```
    },
    "BIOS": {
        "Firmware Version": "BIOS Date:  07/06/2018 Rev 2.1"
    }
}
```

Example: Exporting to a File in JSON Format

```
$ ./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN hwinfo -f
hwinfo.json
```

4.3 BIOS Firmware Management

The BIOS firmware management commands are used to manage BIOS configurations and firmware.

The BIOS configuration management only supports the Purley and the platforms of later versions support Human Interface Infrastructure (HII).

4.3.1 Listing BIOS Configurations

Use the command to list the current BIOS configurations.

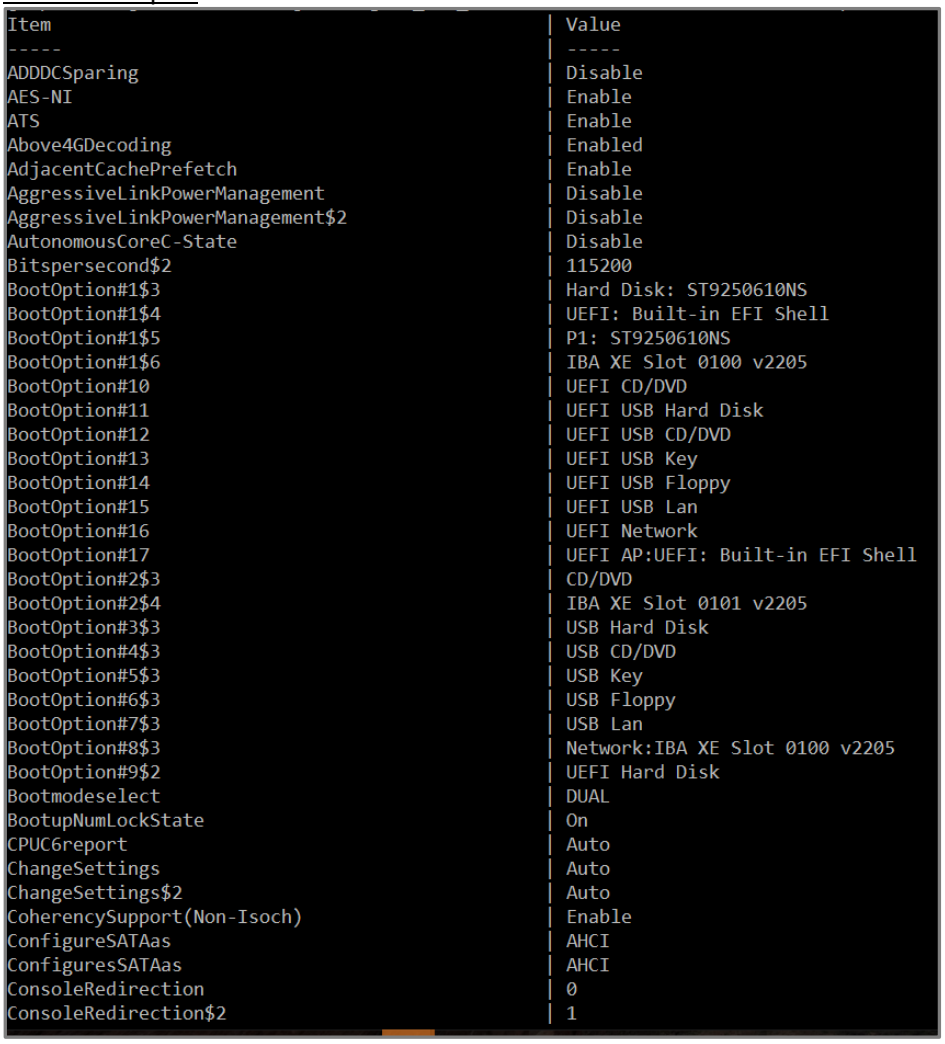
Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> bios config list
```

Example:

```
$ ./nagios_supermicro_redfish -i10.136.160.176 -uADMIN -pADMIN bios config list
```

Console Output:



Item	Value
-----	-----
ADDDCSparing	Disable
AES-NI	Enable
ATS	Enable
Above4GDecoding	Enabled
AdjacentCachePrefetch	Enable
AggressiveLinkPowerManagement	Disable
AggressiveLinkPowerManagement$2	Disable
AutonomousCoreC-State	Disable
Bitspersecond$2	115200
BootOption#1$3	Hard Disk: ST9250610NS
BootOption#1$4	UEFI: Built-in EFI Shell
BootOption#1$5	P1: ST9250610NS
BootOption#1$6	IBA XE Slot 0100 v2205
BootOption#10	UEFI CD/DVD
BootOption#11	UEFI USB Hard Disk
BootOption#12	UEFI USB CD/DVD
BootOption#13	UEFI USB Key
BootOption#14	UEFI USB Floppy
BootOption#15	UEFI USB Lan
BootOption#16	UEFI Network
BootOption#17	UEFI AP:UEFI: Built-in EFI Shell
BootOption#2$3	CD/DVD
BootOption#2$4	IBA XE Slot 0101 v2205
BootOption#3$3	USB Hard Disk
BootOption#4$3	USB CD/DVD
BootOption#5$3	USB Key
BootOption#6$3	USB Floppy
BootOption#7$3	USB Lan
BootOption#8$3	Network:IBA XE Slot 0100 v2205
BootOption#9$2	UEFI Hard Disk
Bootmodeselect	DUAL
BootupNumLockState	On
CPUC6report	Auto
ChangeSettings	Auto
ChangeSettings$2	Auto
CoherencySupport(Non-Isoch)	Enable
ConfigureSATAas	AHCI
ConfiguresSATAas	AHCI
ConsoleRedirection	0
ConsoleRedirection$2	1

4.3.2 Exporting BIOS Configurations

Use the command to export a BIOS configuration file in JSON format. You can modify the value of the current configuration directly and update the BIOS configuration via the steps in *4.3.3 Update BIOS Configuration*. For the file format, see *3.2 Format of BIOS configuration JSON File*.

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> bios config export
-f <file>

optional arguments:
  -f <file>, --file <file>    file location for exporting configuration (JSON)
```

Example:

```
$ ./nagios_supermicro_redfish -i10.136.160.176 -uADMIN -pADMIN bios config export
-f bios_config.json
```

4.3.3 Updating BIOS Configurations

The step for updating BIOS configuration:

1. Get the BIOS configuration file by running the command mentioned in *4.3.2 Export BIOS Configuration*.
2. Edit the **Value** in the attribute that needs to be updated. The values are listed in the key, **AllowableValue**.
3. Run the command **`bios config update`** to update the configurations.
4. Reboot the system for the new configuration to be applied.

Usage:

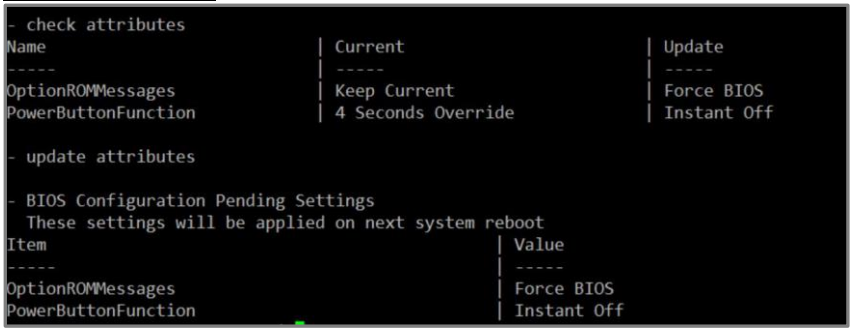
```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> bios update -f
<file>

optional arguments:
  -f <file>, --file <file>    configuration file (JSON)
```

Example:

```
./nagios_supermicro_redfish -i10.136.160.176 -uADMIN -pADMIN bios config update
-f bios_config.json
```

Console Output:



4.3.4 Listing BIOS Firmware Information

Use this command to get information on the BIOS firmware.

The information contains:

Field	Description
Name	The name of the firmware type
Version	Firmware version

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> bios fw info
```

Example:

```
./nagios_supermicro_redfish -i10.136.33.92 -uADMIN -pADMIN bios fw info
```

Console Output:

```
Name         | SUPERMICRO BMC BIOS
Version      | BIOS Date:  07/05/2018 Rev 2.1
```

4.3.5 Updating BIOS Firmware

To update the BIOS firmware, run the command `bios fw update -f <file>`. After the update is finished, the system must be rebooted for the update to take effect.

Notes:

- If an error occurs during the update process, the firmware update will be cancelled and exit the update mode.
- If the firmware is already in the update mode, it might be due to a previously unfinished update. The command will cause an error and exit the firmware update mode. You need to run the command again to update the firmware.
- **--preserve_nv** option is used to preserve the BIOS NVRAM data. Unless you are familiar with BIOS NVRAM, do not use this option.
- **--preserve_mer** option is used to preserve the ME firmware region. Unless you are familiar with ME firmware region, do not use this option.
- **--overwrite_smbios** option is used to overwrite SMBIOS region. Unless you are familiar with smbios data, do not use this option.

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password>
                          bios fw update -f <file>
                         [--preserve_nv][--preserve_mer][--overwrite_smbios]

optional arguments:
```

```
  -f <file>, --file <file>   firmware image
  --preserve_nv              reserve NVRAM data
  --preserve_mer             reserve ME firmware region
  --overwrite_smbios         overwrite SMBIOS region
```

Example:

```
./nagios_supermicro_redfish -i10.136.33.92 -uADMIN -pADMIN bios fw update -f
~/firmware/x10sled5.C17
```

Console Output:

Updating BIOS Firmware on X10/X11

```
1. Check if an image exists.
2. It is now entering the update mode.
3. Uploading image... Please wait, this will take a while!
[>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>] 100.0%
4. Start updating, please do not power off the system.
............................................................
.............................................................
.....................
Update is successful. Please reboot your system.
```

Updating BIOS Firmware on X12

```
1. Check if an image exists.
2. Uploading  image and update firmware... Please wait, this will take a while!
[>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>] 100.0%
Update is successful. Please reboot your system.
```

4.4 BMC Firmware Management

4.4.1 Listing BMC Firmware Information

Use this command to get the information on the BMC firmware.

The information contains:

Field	Description
Name	The name of the firmware type
Version	Firmware version

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> bmc fw info
```

Example:

```
./nagios_supermicro_redfish -i10.136.33.92 -uADMIN -pADMIN bmc fw info
```

Console Output:

```
Name         | SUPERMICRO BMC Firmware
Version      | 01.55
```

4.4.2 Updating BMC Firmware

To update BMC firmware, run the command `bmc fw update -f <file>`. After the update is finished, it will take a few minutes for the BMC to reset.

Notes:

- If an error occurs during the update process, the firmware update will be cancelled and exit the update mode.
- If the firmware is already in the update mode, it might be due to a previously unfinished update. The command will cause an error and exit the firmware update mode. You need to run the command again to update the firmware.
- You have to reboot or power up the managed system for getting BIOS information correctly after finishing BMC firmware update.

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password>
                          bmc fw update -f <file>
                          [--overwrite_cfg]
                          [--overwrite_sdr]
                          [--overwrite_sslcert]

optional arguments:
  -f <file>, --file <file>       firmware image
```

```
  --overwrite_cfg      restore the BMC's factory default setting
  --overwrite_sdr      restore the SDR defaults
  --overwrite_sslcert  restore the default SSL certificate
```

<u>Example:</u>

```
./nagios_supermicro_redfish -i10.136.33.92 -uADMIN -pADMIN bmc fw update -f
~/firmware/REDFISH_X10_369.bin
```

<u>Console Output:</u>

Updating BMC Firmware on X10/X11

```
1. Check if an image exists.
2. It is now entering the update mode.
3. Uploading image... Please wait, this will take a while!
[>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>] 100.0%
4. Start updating, please do not power off the system.
[>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>] 100.0%
Update is successful.
Please wait for BMC to complete system reboot.
```

Updating BMC Firmware on X12

```
1. Check if an image exists.
2. Uploading  image and update firmware... Please wait, this will take a while!
[>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>] 100.0%
Update is successful.
Please wait for BMC to complete system reboot.
```

4.4.3 BMC Cold Reboot

<u>Usage:</u>

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> bmc reset
```

4.5 Event Service

The Redfish event service provides a mechanism for users to create subscriptions to receive events. The user needs to provide the URI of the event receiver and the event types to be sent. If the event is triggered, the event will be sent to the event receiver. The event-service command set provides the interface to manage the subscription. For more information about the event receiver, *see* *5. Event Receiver*.

The event types include **`StatusChange`**, **`ResourceUpdated`**, **`ResourceAdded`**, **`ResourceRemoved`** and **`Alert`**.

4.5.1 Listing Subscriptions

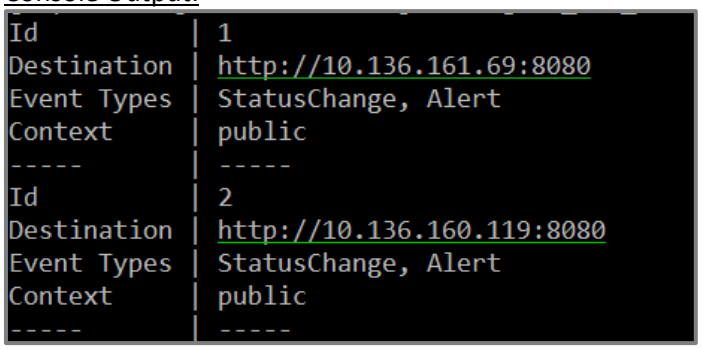
Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> event-service list
```

Example:

```
$ ./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN event-service
list
```

Console Output:



4.5.2 Adding a Subscription

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password>
                          event-service add <dest>
                          [--type [EVENT_TYPE]]
                          [--context [CONTEXT]]
                          [--id <id>]
                          [--status [STATUS_TYPE]]

positional arguments:
  <dest>                URL of destination of destination(<ip>:<port>)

optional arguments:
  --type [EVENT_TYPE]   event type: StatusChange, ResourceUpdated,
                        ResourceAdded, ResourceRemoved and Alert (default:
```

```
                        StatusChange, Alert)
  --context [CONTEXT]   context (default: public)
  --id <id>             Subscription id (The --id value ranges from 1 to 16.  Note
                        the option is only available on X12 and later platforms.)
  --status [STATUS_TYPE] status type: enabled, disabled (Note the option is only
                        available on X12 and later platforms.)
```

Example:

```
./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN event-service add
10.136.161.69:8080 --type StatusChange ResourceUpdated ResourceAdded
ResourceRemoved Alert --context private


Adding a subscription on X12 and later platforms.
./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN event-service add
10.136.161.69:8080 --type StatusChange ResourceUpdated ResourceAdded
ResourceRemoved Alert --context private --id 5


Adding a disabled subscription on X12 and later platforms.
./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN event-service add
10.136.161.69:8080 --type StatusChange ResourceUpdated ResourceAdded
ResourceRemoved Alert --context private --id 5 --status disabled
```

4.5.3 Deleting a Subscription

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> event-service del
<id>

positional arguments:
  <id>          subscription id
```

Example:

```
$ ./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN event-service del
3
```

4.6 Log Service

The log service is used to get the information of health event log or `maintenance` event log.

4.6.1 Getting Health Event Log Information

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> log info
```

Example:

```
$./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN log info
```

Console Output:

```
Name        | Health Event Log Service
DateTime    | 2020-09-15 09:11:57
Enabled     | True
Log count   | 1/512
```

4.6.2 Getting Information of Maintenance Event Log

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> log info –t syslog
```

Example:

```
$./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN log info –t syslog
```

Console Output:

```
Name        | Maintenance Event Log Service
DateTime    | 2020-09-15 09:12:54
Enabled     | True
Log count   | 13/512
```

4.6.3 Getting Health Event Logs

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> log list
```

Example:

```
$./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN log list
```

Console Output:

```
#1   Critical, 2020-09-02 02:14:57, Physical security, [ Chassis Intru ] General
Chassis Intrusion
#2   Critical, 2020-09-02 02:15:00, Power supply, [ PS2 Status ] Power Supply
Failure detected
#3   Warning, 2020-09-02 02:31:13, None, [ OEM ] First AC Power on
#4   Critical, 2020-09-02 02:32:40, Physical security, [ Chassis Intru ] General
Chassis Intrusion
#5   Critical, 2020-09-02 02:32:44, Power supply, [ PS2 Status ] Power Supply
Failure detected
#6   Critical, 2020-09-02 06:29:22, Physical security, [ Chassis Intru ] General
Chassis Intrusion
#7   Critical, 2020-09-02 06:29:25, Power supply, [ PS2 Status ] Power Supply
Failure detected
```

4.6.4 Getting Maintenance Event Logs

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> log list –t syslog
```

Example:

```
$./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN log list –t syslog
```

Console Output:

```
#1   2020-09-02 02:05:35, Redfish, ADMIN(ADMIN)[None] - IPMI configuration was
restored to default successfully.
#2   2020-09-02 02:05:35, Redfish, ADMIN(ADMIN)[None] - SSL certificate was
cleared successfully.
#3   2020-09-02 02:05:35, Redfish, ADMIN(ADMIN)[None] - BMC was reset
successfully.
#4   2020-09-02 02:13:19, DRTM, ADMIN(ADMIN)[None] - ID 0x00 - TEE FW Start
(0000.00.14)
#5   2020-09-02 02:13:19, DRTM, ADMIN(ADMIN)[None] - ID 0x01 - SMCI_TEE_SERVICE
(STS) Start
#6   2020-09-02 02:14:56, DRTM, ADMIN(ADMIN)[None] - ID 0x00 - TEE FW Start
(0000.00.14)
#7   2020-09-02 02:14:57, DRTM, ADMIN(ADMIN)[None] - ID 0x01 - SMCI_TEE_SERVICE
(STS) Start
#8   2020-09-02 02:14:58, DRTM, ADMIN(ADMIN)[None] - ID 0x02 - Security Functions
Start (TAS)
#9   2020-09-02 02:14:59, DRTM, ADMIN(ADMIN)[None] - ID 0x02 - Security Functions
Start (TA0)
```

```
#10  2020-09-02 02:15:00, DRTM, ADMIN(ADMIN)[None] - ID 0x02 - Security Functions
Start (TA3)
#11  2020-09-02 02:15:28, RMCP, ADMIN(ADMIN)[None] - Event subscription #2's
destintation was configured to 10.147.33.41 successfully.
#12  2020-09-02 02:15:41, DRTM, ADMIN(ADMIN)[None] - ID 0x02 - Security Functions
Start (TA1)
#13  2020-09-02 02:15:42, DRTM, ADMIN(ADMIN)[None] - ID 0x02 - Security Functions
Start (TA2)
```

4.6.5 Limiting the Number of Output Event Logs

If there are too many logs, you can use the command `log list` with the parameter "-l" to limit the number of output health/maintenance event logs.

Usage:

```
nagios_supermicro_redfish –i <ip> -u <username> -p <password> log list –l <count>
```

Example:

```
$./nagios_supermicro_redfish -i10.132.160.141 -uADMIN -pADMIN log list –l 5
```

Console Output:

```
#9   Critical, 2020-09-02 08:43:55, Power supply, [ PS2 Status ] Power Supply
Failure detected
#10  Critical, 2020-09-03 03:36:53, Physical security, [ Chassis Intru ] General
Chassis Intrusion
#11  Critical, 2020-09-03 03:36:56, Power supply, [ PS2 Status ] Power Supply
Failure detected
#12  OK     , 2020-09-04 02:49:24, Physical security, [ Chassis Intru ] General
Chassis Intrusion
#13  Critical, 2020-09-04 03:20:05, Power supply, [ PS2 Status ] Power Supply
Failure detected
```

5. Event Receiver

The Redfish server will send the event to the event receiver that has subscribed to event service. The Supermicro event receiver is a simple web server, and it receives and writes events to a log file by a remote IP.

5.1 Supermicro Event Receiver

Usage:

```
supermicro_event_receiver [-h] -i <ip> [-p <port>] [--log_dir <log directory>]

optional arguments:
  -h, --help                show this help message and exit
  -i <ip>                   event receiver IP
  -p <port>                 event receiver port
  --log_dir <log directory>  event log directory
```

Example:

```
$ ./supermicro_event_receiver -i 10.136.160.119 -p 8080
```

Console Output:

```
[supermicro@localhost bin]$ ./supermicro_event_receiver -i10.136.161.101 -p8081
smc_event_receiver 1.0.0 build 180503
Log directory: /home/supermicro/py-workspace/test/nagios_supermicro_redfish/bin/log
 * Running on http://10.136.161.101:8081/ (Press CTRL+C to quit)
```

5.2 Event Log

An event is written to a log file. The filename format is `event_<remote ip>.log`

The format of an event log:

```
<severity> - <remote ip>, #<event id> <event type>, Message[<message
id>]=<message>
```

Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc. 980 Rock Ave. San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information) support@supermicro.com (Technical Support)
Web Site:	www.supermicro.com

Europe

Address:	Super Micro Computer B.V. Het Sterrenbeeld 28, 5215 ML 's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information) support@supermicro.nl (Technical Support) rma@supermicro.nl (Customer Support)

Asia-Pacific

Address:	Super Micro Computer, Inc. 3F, No. 150, Jian 1st Rd. Zhonghe Dist., New Taipei City 235 Taiwan (R.O.C)
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3992
Web Site:	www.supermicro.com.tw

Technical Support:

Email:	support@supermicro.com.tw
Tel:	+886-(2)-8226-3990