



**Supermicro Update Manager
(SUM)
User's Guide**

Revision 1.4a

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Version History

Date	Rev	Description
July-02-2013	1.0	1. Created this document.
July-30-2013	1.0a	1. Revised the software description of SUM and SMCIPMITool.jar in 1.2.1 Remote Management Server Requirements .
September-12-2013	1.1	1. Added in-band Usage related sections. 2. Changed the command LoadFactoryDefault to LoadDefaultBiosCfg.
October-02-2013	1.2	1. Added Get/Change DMI information capability. 2. Added multi-system usage for OOB channel. 3. Eliminated --me_type option for the in-band UpdateBios command. 4. In-band UpdateBios command supports X10 MB.
January-06-2014	1.2a	1. Required BMC firmware and IPMI driver to be installed for all in-band commands except the UpdateBios command. 2. Required product key to be activated for all in-band commands except the UpdateBios command. 3. Added the summary of running multiple systems. 4. Added exit code 80. Description: Product key is not activated.
June-09-2014	1.3	Major revision with new management command groups 1. Added BMC Management commands: GetBmcInfo, UpdateBmc, GetBmcCfg, ChangeBmcCfg 2. Added System Check commands: CheckAssetInfo, CheckSensorData, CheckSystemUtilization 3. Added System Event Log commands: GetEventLog and ClearEventLog 4. Added in-band usage for ActivateProductKey command 5. Added exit code 68. Description: Invalid BMC configuration text file

		6. Added exit code 69. Description: Invalid asset information
July-31-2014	1.4	<p>1. Added Application commands: TpmProvision, MountIsoImage, UnmountIsoImage</p> <p>2. For X10 Grantley platform, in-band update bios requires --reboot option.</p> <p>3. Revised CheckSystemUtilization output message for HDD/Network</p> <p>4. Revise output message for CheckAssetInfo: units format matches dmidecode outoput</p> <p>5. Added exit code 36. Required device does not exist</p> <p>6. Added exit code 37. Required device does not work</p> <p>7. Added notices for exit code when using in-band command with --reboot option through ssh connection.</p>
Nov-27-2014	1.4a	<p>1. Added notice for in-band UpdateBios command for jumper-less solution: should use default OS when multi-boot is installed.</p> <p>2. In TpmProvision command --cleartpm option should be used with --image_url option</p> <p>3. Support SFT-SUM and SFT-DCMS-Single node product key check</p> <p>4. In-band UpdateBios will disable some functions in OS</p> <p>5. Added notice for in-band UpdateBios using ssh connection: adjust timeout for both ssh client and server site to be two times longer than typical execution time.</p> <p>6. Change wording from "Product Key" to "Node Product Key"</p> <p>7. Added exit code 11. Invalid command line data</p> <p>8. Added notice for CheckSensorData command output</p> <p>9. Updated CheckAssetInfo command output: added CPU version field, change wording from "Network Interface" to "Add-on Network Interface"</p> <p>10. Added Appendix C for Platform Feature Support Matrix reference</p> <p>11. CheckSystemUtilization command message output added OS architecture</p>

		information in OS Version field
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1 Overview

The Supermicro Update Manager (SUM) can be used to manage the BIOS and BMC firmware image update and configuration update for select Supermicro systems. In addition, system checks as well as event log management are also supported. Moreover, special applications are also provided to facilitate system management. To update configurations, users can edit system BIOS settings, DMI information and BMC configurations from readable text files, as well as use this update manager to apply these configurations.

Two channels are possible for management: the OOB (Out-Of-Band) channel, i.e. communication through the BMC IPMI interface, and the in-band channel, i.e. communication through the local system interfaces. By the OOB channel, most management commands (except CheckSystemUtilization) can be executed independently of the OS on the managed system and even before the system OS is installed.

1.1 Features

- Command-line interfaced (CLI) and scriptable
- Independent from operating system on managed systems (for OOB usage)
- Operates through OOB (Out-Of-Band) and in-band methods
- Supports concurrent execution of OOB commands on multiple systems through a system list file
- System Check
 - Checks asset device information remotely
 - Checks asset device health remotely
 - Checks system utilization remotely
- BIOS Management
 - Pre-checks system board ID to prevent flashing the wrong BIOS image
 - Supports readable BIOS settings text files
 - Supports readable DMI information text file to be edited
 - Updates basic input/output system (BIOS) ROM remotely and locally
 - Jumperless update of ME Flash Descriptor (FDT) region when locally update BIOS ROM
 - Updates BIOS configurations (settings) remotely and locally
 - Updates DMI information remotely and locally

- BMC Management
 - Supports readable BMC settings text files in xml format
 - Updates BMC firmware remotely
 - Updates BMC configuration remotely
- System Event Log
 - Retrieves and clears BMC and BIOS event logs remotely
- Applications
 - Enable/disable trusted execution technology (TXT) features from trusted platform module (TPM)
 - Mount/Unmount ISO image file from SAMBA-shared folder

1.2 Operations Requirements

1.2.1 OOB Usage Requirements (Remote Management Server)

To run remote update operations, you must meet the following requirements:

System Requirements:

Environment	Requirements
Hardware	50 MB free disk space
	128 MB available RAM
	Ethernet network interface card
Operating System	Linux: Red Hat Enterprise Linux Server 5 Update 0 (x86_64) or later Windows: Windows Server 2008 (x86_64) or later
JAVA Runtime Environment	OPEN JDK / Oracle JRE 1.6.0 or later

For easier installation of JAVA environment in Linux environment, Red Hat 5 Update 3 or later is suggested

The software you should have in advance:

Program/Script	Description
SUM	The main program for SUM
SMCIPMITool.jar	Sends/Receives IPMI packets to the BMC.
SMCIPMITool.d.jar	Sends/Receives IPMI packets to the BMC for the concurrent

	execution of OOB commands.
actool	Check SFT-SUM-LIC or SFT-DCMS-Single lincese

1.2.2 OOB Usage Requirements (Managed Systems)

SUM can remotely manage the selected Supermicro motherboards/systems. Before use, you must activate the node product key for the managed systems. For details, see [3. Licensing Managed Systems](#).

In addition, both the BMC firmware and BIOS ROM must meet the following requirements.

Firmware	Requirements
BMC Version	X9 ATEN platform (SMT_X9) : 3.14 or later X10 ATEN platform (SMT_X10) : 1.52 or later X9 AMI platform (SMM_X9) : 2.32 or later
BIOS Version	Version 2.0 or later for select X9 Romley and X10 Denlow systems Version 1.0 or later for select X10 Grantley systems

The CheckSystemUtilization command requires additional packages to be installed on the managed system.

Program/Script	Description	Privilege Requirement
TAS_X.X.X	A Thin Agent Service (TAS) program to be installed on the managed systems Collect utilization information on managed system and update information to BMC	To install and execute, TAS needs the root privilege of the operating system running on the managed system.

Below OS and tools are pre-requisite for TAS to be installed successfully on the managed system.

OS	Supported OS list	Program/Script
Windows	Windows 2k8 R2 SP1 Windows 2012 R2	.Net framework 3.5 smartmontools 6.2
Linux	RHEL 6.5 RHEL 7.0 SLES 11 SP3 Ubuntu 14.04 LTS CentOS 6.5	ethtool package 2.6.33 openlpmi driver smartmontools 5.42 glibc 2.12

Below firmware is pre-requisite for TAS to run successfully on the managed system.

Firmware	Requirements
BMC Version	X10 ATEN platform (SMT_X10) : 1.58 or later

1.2.3 In-Band Usage Requirements

With the use of in-band, SUM can perform BIOS Management functions for selected Supermicro motherboards/systems. The managed system must meet the following requirements.

System Requirements:

Environment	Requirements
Hardware	50 MB free disk space
	128 MB available RAM
Firmware	The BIOS Version 3.0 or later for X9 Romley and X10 Denlow select systems.
	The BIOS Version 1.0 or later for X10 Grantley select systems.
Operating System	Red Hat Enterprise Linux Server 5 updates 0 (x86_64) or later.
	Windows: Windows Server 2008 (x86_64) or later



Notes:

- Though SUM can be run on Red Hat Enterprise Linux Server 5 updates 0 or later, several OS might not be supported by hardware. Please check below link for OS support list. [OS compatibility support list.](#)

Execution Privilege Requirements:

Privilege	Description
SUM Execution Privilege	To execute in-band functions, SUM needs the root/Administrator privilege of the operating system running on the managed system.

The software you should get in advance:

OS	Program/Script	Description
Linux/Windows	SUM	Gets/Sets BIOS settings of the managed system. Gets/Sets DMI information of the managed system. Updates BIOS image of the managed system.

The drivers you should get in advance:

OS	Program/Script	Description
Red Hat. Enterprise Linux Server 5.x (x86_64)	RHL5_x86_64/su m_bios.ko	Sends/Receives software SMI data to/from BIOS
Red Hat. Enterprise Linux Server 6.x (x86_64)	RHL6_x86_64/su m_bios.ko	Sends/Receives software SMI data to/from BIOS
Red Hat. Enterprise Linux Server 7.x (x86_64)	RHL7_x86_64/su m_bios.ko	Sends/Receives software SMI data to/from BIOS
Windows (x86_64)	driver/pmdll32.dll driver/phymem6 4.sys	Sends/Receives data to/from BIOS/BMC

1.2.4 Additional In-Band Usage Requirements

Most in-band commands require node product key to be activated (see [Appendix B. Management Interface and License Requirements](#)). For those commands, the managed system must have BMC firmware and a Linux built-in IPMI driver installed. The BMC firmware should meet the following requirements.

Firmware	Requirement
BMC Version	X9 ATEN platform (SMT_X9): 3.14 or later X10 ATEN platform (SMT_X10): 1.19 or later X9 AMI platform (SMM_X9): 2.32 or later

If the Linux OS does not have the built-in IPMI driver, you should install the following software:

Program/Script	Description
OpenIPMI.x86_64	IPMI driver for accessing BMC through its KCS interface

1.3 Typographical Conventions

This manual uses the following typographical conventions.

Courier-New font size 10 represents Command Line Interface (CLI) instructions in Linux terminal mode.

Bold is used for keywords needing attention.

Italics is used for variables and section names.

<> encloses the parameters in the syntax description.

[shell]# represents the input prompt in Linux terminal mode.

| A vertical bar separates the items in a list.

2 Installation and Setup

2.1 Installing SUM

To install SUM in Linux OS, follow these steps. Windows installation and usage is similar.

1. Extract the `sum_x.x.x_Linux_x86_64_YYYYMMDD.tar.gz` archive file.
2. Go to the extracted `sum_x.x.x_Linux_x86_64` directory. Name this directory as “SUM_HOME”.
3. Run SUM in the SUM_HOME directory.

Linux Example:

```
<shell#> tar xzf sum_x.x.x_Linux_x64_YYYYMMDD.tar.gz
```

```
<shell#> cd sum_x.x.x_Linux_x86_64
```

```
<SUM_HOME#> ./sum
```

2.2 Setting Up OOB Managed Systems

To set up OOB managed systems, follow these steps:

1. Connect the BMC to the LAN.
2. Update the BMC firmware in the managed systems to support OOB functions (if the current version does not support it). Note that you can use the SUM `UpdateBmc` command through the OOB channel to flash BMC firmware even when BMC does not support OOB functions.
3. Flash the BIOS ROM to the managed systems to support OOB functions (if the current version does not support it). Note that you can use the SUM `UpdateBios` command (either in-band or OOB) to flash BIOS even when BIOS does not support OOB functions. However, when using an OOB channel, if the onboard BIOS or the BIOS image file does not support OOB functions, the DMI information (such as the MB serial number) might be lost after system reboot.
4. Install the TAS package on the OS of the managed system (for `CheckSystemUtilization` command only).

2.2.1 Installing TAS package

TAS package accompanies the SUM package. Both Windows and Linux platforms are supported. To install TAS, follow below steps.

1. Copy the TAS_x.x.x_YYYYMMDD.zip package to the operation system (OS) of managed system
2. Extract the TAS_x.x.x_YYYYMMDD.zip archive file. Two archive files will be created. One, e.g., win.zip, for Windows systems; the other, e.g., linux.tar.gz, for Linux systems. One additional readme file will be created. You can check the INSTALLATION section in the readme file or follow below steps.
3. Install TAS pre-requisite tools listed in [1.2.2 OOB Usage Requirements \(Managed Systems\)](#)
4. For Windows systems,
 - a. Extract the file win.zip
 - b. Select correct system architecture. For x86_64/x86_32 system, select folder 64/32.
 - c. Run setup.exe
4. For Linux systems,
 - a. Extract the file linux.tar.gz
 - b. Select correct system architecture
 - c. Run install.sh

Example: for x86_64 Linux system

```
<shell#> tar xzf linux.tar.gz
```

```
<shell#> cd 64
```

```
<shell#> ./install.sh
```

2.3 Setting Up In-Band Managed Systems

For Windows OS, there is no action to be taken. To set up the Linux in-band managed systems, simply copy and paste the OS specific driver file "sum_bios.ko", under the SUM_HOME/driver directory, to the SUM_HOME directory.

3 Licensing Managed Systems

Node product key activation is presumed to execute most SUM functions, e.g., [Appendix B. Management Interface and License Requirements](#). For each managed system, users only need to activate once. Its activation certification is saved in the BMC firmware and the node product key is binding in the MAC address of the BMC LAN port.

The following sections describe the steps for activation (SFT-OOB-LIC only. The activation of other node product keys is not included in this document at this release moment.). First, you can receive the node product keys from Supermicro as in [3.1 Receiving Node Product Keys from Supermicro](#). With these node product keys, you can then activate these systems as described in [3.2 Activating Managed Systems](#).

3.1 Receiving Node Product Keys from Supermicro

SMCIPMITool.jar is a jar file included in the SUM_HOME directory. You must use Java to execute this file. To receive node product keys from Supermicro, follow these steps:

1. Use SMCIPMITool to collect BMC MAC and IP address pairs and list them in one file

Syntax:

```
java -jar SMCIPMITool.jar <Valid server BMC IP> <username> <password> bios getMACs <BMC  
IP start> <BMC IP end> <netMask> <file>
```

Example:

```
<SUM_HOME#> java -jar SMCIPMITool.jar 192.168.34.56 ADMIN XXXXXX bios getMACs  
192.168.34.1 192.168.34.100 255.255.255.0 mymacs.txt
```

In this example, “ADMIN” is the BMC access ID and “XXXXXX” is the password. The BMC IP address (“192.168.34.56” in this example) should be valid and is a dummy item. All BMC devices within the range of start IP and end IP should be accessed with the provided username and password. The output file (“mymacs.txt”) is created upon successful collection and includes the MAC address, and IP address.

Example:

```
003048001012;192.168.34.1
```

```
003048001013;192.168.34.2
```

```
003048001014;192.168.34.3
```

2. Send this file (mymacs.txt) to Supermicro to obtain a file of node product keys (mymacs.txt.key). The node product key file includes the MAC address, IP address and node product key.

Example:

```
003048001012;192.168.34.1;1111-1111-1111-1111-1111-1111-1111
```

```
003048001013;192.168.34.2;2222-2222-2222-2222-2222-2222-2222
```

```
003048001014;192.168.34.3;3333-3333-3333-3333-3333-3333-3333
```

3.2 Activating Managed Systems

To activate a single system, see [5.1.1 Activating a Single Managed System](#). To simultaneously activate multiple systems see [6.2.1 Activating Multiple Managed Systems](#).

Here, we provide an alternative way to simultaneously activate multiple systems by SMCIPMITool.

Syntax:

```
java -jar SMCIPMITool.jar <BMC IP> <username> <password> bios setKeys <key file>
```

Example:

```
<SUM_HOME#> java -jar SMCIPMITool.jar 192.168.34.56 ADMIN XXXXXX bios setKeys  
mymacs.txt.key
```

In this example, “ADMIN” is the BMC access ID and “XXXXXX” is the password. The key file “mymacs.txt.key” is the input file which can be obtained as in [3.1 Receiving Node Product Keys from Supermicro](#). The output file (“mymacs.txt.key.act”) is created upon successful activation. The content is composed of the MAC address, IP address and returned status. The returned status could be “Done”, or “Error: error description”

Example:

```
003048001012;192.168.34.1;Done
```

```
003048001013;192.168.34.2;Error: Cannot connect to IP
```

4 Basic User Interface

SUM is a binary executable file, which is written in C++ language. Windows usage is similar to Linux. In this document, we provide Linux examples only. To display the usage information, use this command:

```
<SUM_HOME#> ./sum
```

To display the usage information for each SUM command, use this syntax:

```
sum -h -c <command name>
```

Example:

```
<SUM_HOME#> ./sum -h -c UpdateBios
```

Usage Information

Options	Description
-h	Shows help information
-v	Displays the verbose output on the screen
-i	<BMC IP address or BMC host name>
-l	<BMC system list file name>
-u	<BMC user ID>
-p	<BMC user password>
-c	<command name> (case insensitive)

System Check (OOB only)	
Commands	Long options
CheckOOBSupport	None
CheckAssetInfo	None
CheckSensorData	None
CheckSystemUtilization (Thin agent required)	None
Key Management (In-Band and OOB) (SFT-OOB-LIC only)	
Commands	Long options

ActivateProductKey	--key <node product key value> Uses the node product key to activate the managed system.
BIOS Management (In-Band and OOB)	
Commands	Long options
UpdateBios	--file <file name> Updates with the given BIOS image file. --reboot Forces the managed system BIOS to reboot. (Required) For in-band usage in X10 Grantley platform (Optional) For other usages. --flash_smbios (Optional) Overwrites SMBIOS data. This option is used only for specific purposes. Unless you are familiar with SMBIOS data, do not use this option. --preserve_mer (Optional) Preserves ME firmware region. This option is used only for specific purposes. Unless you are familiar with ME firmware, do not use this option. --preserve_nv (Optional) Preserves NVRAM. This option is used only for specific purposes. Unless you are familiar with BIOS NVRAM, do not use this option.
GetBiosInfo	--file <file name> (Optional) Shows the information of the given BIOS image file.
GetDefaultBiosCfgTextFile	--file <file name> Saves the default BIOS configurations to a file. --overwrite (Optional) Overwrites the output file.
GetCurrentBiosCfgTextFile	--file <file name> Saves the current BIOS configurations to a file. --overwrite (Optional) Overwrites the output file.
ChangeBiosCfg	--file <file name> Updates with the given BIOS configuration file. --reboot (Optional) Forces the managed system to reboot or power up.
LoadDefaultBiosCfg	--reboot (Optional) Forces the managed system to reboot or power up.
GetDmiInfo	--file <file name> Saves the current DMI information to a file. --overwrite (Optional) Overwrites the output file.
ChangeDmiInfo	--file <file name> Updates from the given DMI information file. --reboot (Optional) Forces the managed system to reboot or power up.

BMC Management (OOB Only)	
Commands	Long options
UpdateBmc	--file <file name> Updates with the given BMC image file.
GetBmcInfo	--file <file name> (Optional) Shows the information of the given BMC image file.
GetBmcCfg	--file <file name> Saves the current BMC configuration to a file. --overwrite (Optional) Overwrites the output file.
ChangeBmcCfg	--file <file name> Updates from the given BMC configuration file.
System Event Log (OOB Only)	
Commands	Long options
GetEventLog	--file <file name> (optional) Saves the system event log to a file. If this option is not used, the log will be shown on the screen output.
ClearEventLog	--reboot (Optional) Forces the managed system to reboot or power up.
Applications (OOB Only)	
Commands	Long options
TpmProvision	--reboot --image_url <URL> The SAMBA URL to access the shared image file URL format 'smb://<host name or ip>/<shared point>/<file path>' UNC format '\\<host name or ip>\<shared point>\<file path>' --id <ID> (optional) The specified ID to access the shared file --pw <Password> (optional) The specified password to access the shared file --cleartpm (optional)
MountIsoImage	--image_url <URL> The SAMBA URL to access the shared image file URL format 'smb://<host name or ip>/<shared point>/<file path>' UNC format '\\<host name or ip>\<shared point>\<file path>' --id <ID> (optional) The specified ID to access the shared file --pw <Password> (optional) The specified password to access the shared file
UnmountIsoImage	None



Notes:

- During execution, DO NOT remove the AC power on the managed system.
 - DO NOT flash IPMI firmware and BIOS at the same time.
 - To execute SUM, use either the relative path method, e.g. ./sum or absolute path method, e.g. /opt/sum_x.x.x_Linux_x64/sum in script file or shell command line.
 - DO NOT update BIOS image and configuration to the same managed system concurrently by in-band and OOB method.
 - For in-band usage, simply ignore the -i, -u and -p options.
 - For concurrent execution of OOB commands for managing multiple systems, use the -l option. For details on how to manage multiple systems, see [6 Managing Multiple Systems \(OOB Only\)](#).
-

4.1 Format of BIOS Settings Text File

BIOS setting file is designed to display the BIOS setup menu in text format for easier configurations. An example below shows how this file demonstrates BIOS setup items. Each setup item consists of a variable, a value, options and dependency.

```
[Advanced|CPU Configuration|CPU Power Management Configuration]
```

```
Power Technology=01    // 00 (Disabled), *01 (Energy Efficient), 02 (Custom)
```

```
EIST=01                // 00 (Disabled), *01 (Enabled)          Power Technology =  
"Custom"
```

```
Turbo Mode=01          // 00 (Disabled), *01 (Enabled)          Power Technology =  
"Custom" and EIST = "Enabled"
```

```
C1E Support=01         // 00 (Disabled), *01 (Enabled)          Power Technology =  
"Custom"
```

- A setup submenu is quoted by brackets. Setup items are next to the setup submenu.
- A variable (of one setup item) always stays at the left side of the "=" character.
- A value (of one variable) always stays at the right side of the "=" character.

- Options (of one variable) shown after "//". "*" indicates the default option.
- A dependency (if available) will be separated from an option command by eight spaces. It indicates that the variable is visible and configurable when other variable(s) are set to a designated value.

In this example, the *Power Technology* configuration item is in the *CPU Power Management* configuration submenu. It is currently set to 01 for Energy Efficient (the default) and can be set to 00 and 02 as well. The *EIST* variable is equal to 01 for Enabled (the default) and can be set to 00 when the *Power Technology* variable is set to Custom (02).

If the desired changes are limited to the *Power Technology* configuration, delete all except the two lines shown as below:

```
[Advanced|CPU Configuration|CPU Power Management Configuration]
```

```
Power Technology=01      // 00 (Disable), *01 (Energy Efficient), 02 (Custom)
```



Notes:

- You can remove unnecessary menu items (or variables) so that its value will not be changed after an update.
- If all menu items are removed (or the file becomes empty), no configurations are changed.
- The Setup submenu is required in order to setup following items.

4.2 Format of DMI Information Text File

DMI.txt is designed to display the supported editable DMI items in text format for easier update. An example below shows how this file demonstrates the DMI information items. Each item consists of an item name, a short name, a value, and comments.

```
[System]
```

```
Version           {SYVS}      = "A Version"           // string value
Serial Number     {SYSN}      = $DEFAULT$             // string value
UUID              {SYUU}      = 00112233-4455-6677-8899-AABBCCDDEEFF // 4-2-
2-2-6 formatted 16-byte hex values
```

```
// Bytes[ 0-3 ]: The low field of the timestamp
// Bytes[ 4-5 ]: The middle field of the timestamp
// Bytes[ 6-7 ]: The high field of the timestamp (multiplexed with
//               the version number)
// Bytes[ 8-9 ]: The clock sequence (multiplexed with the variant)
// Bytes[10-15]: The spatially unique node identifier
// Byte Order   :
//               UUID {00112233-4455-6677-8899-AABBCCDDEEFF} is stored as
//               33 22 11 00 55 44 77 66 88 99 AA BB CC DD EE FF
```

- A DMI type is quoted by brackets. DMI information items are next to the DMI type.
- The name of a DMI information item is always followed by its short name.
- The item name and its short name stays at the left side of the "=" character.
- A short name is always enclosed by brackets.
- A value (of one information item) always stays at the right side of the "=" character.
- String values are enclosed by double quotation marks "".
- \$DEFAULT\$ signature without double quotation marks is used to load default value for a string-valued item.
- There is no default value for non-string-valued items.
- Do not use quotation marks for non-string-valued items.
- The value type is always shown after a value and begins with "/".
- The value meanings for a non-string-valued item are listed next to the item.

In this example, the *“Version”* DMI item belongs to the *“System”* DMI type with short name SYVS. It is string-valued by *“A Version”* and can be changed to any other string value. For the *“Serial Number”* item, its value is set as \$DEFAULT\$. After updating the DMI information, the item value of the *“Serial Number”* will be reset to factory default. The *UUID* item is a specially formatted hex-valued item. Its value meanings are explained next to it.

**Notes:**

- You can remove unnecessary DMI items so that its value will not be changed after an update.
 - The DMI type is required for DMI items.
 - Each item can be identified either by its short name or by the combination of its item type and item name.
 - Any line begins with "/" will be ignored.
 - A version number is included at the beginning of every DMI.txt file. This version number should not be modified because it is generated by SUM according to the BIOS of the managed system for DMI version control.
-

4.3 Format of the BMC Configuration Text File

The BMCCfg.xml file is designed to display the supported editable BMC configuration elements in xml text format for easier update. An example below shows how this file demonstrates the BMC configurable elements.

```
<?xml version="1.0"?>
<BmcCfg>
  <!--You can remove unnecessary elements so that-->
  <!--their values will not be changed after update-->
  <StdCfg Action="None">
    <!--Supported Action:None/Change-->
    <!--Standard BMC configuration tables-->
    <FRU Action="Change">
      <!--Supported Action:None/Change-->
      <Configuration>
        <!--Configuration for FRU data-->
        <BoardMfgName>Supermicro</BoardMfgName>
        <!--string value, 0~16 characters-->
      </Configuration>
    </FRU>
  </StdCfg>
  <OemCfg Action="Change">
    <!--Supported Action:None/Change-->
    <!--OEM BMC configuration tables-->
    <ServiceEnabling Action="Change">
      <!--Supported Action:None/Change-->
      <Configuration>
        <!--Configuration for ServiceEnabling-->
        <HTTP>Enable</HTTP>
        <!--Enable/Disable-->
      </Configuration>
    </ServiceEnabling>
  </OemCfg>
</BmcCfg>
```

-
- The xml version is shown in the first line.
 - The root table name is "*BmcCfg*". Its name tag pair is *<BmcCfg>* and *</BmcCfg>*. All information belongs to the root table is enclosed in-between this name tag pair.
 - There could be two children for the root table: "*StdCfg*" and "*OemCfg*".
 - "*StdCfg*" and "*OemCfg*" could have child tables.
 - Configurable elements are listed in the "*Configuration*" part of each child table.
 - Each configurable element has a name tag pair. The element value is enclosed by its name tag pair.
 - Comments could be given following any element or table name tag. Each comment is enclosed by "*<!--*" and "*-->*" tags. The supported usage of each element and table are shown in its following comments.
 - Configuration tables could have "*Action*" attribute. Supported actions are shown in the comments. If action is "*None*", all the configuration and children of this table will be skipped.
 - Configuration tables could contain more table specific attributes in case needed.

In this example, the *Action* is *None* for the *StdCfg* table. As such, SUM will skip updating the element *BoardMfgName* of the table *FRU*. On the other hand, SUM will try to update the value as *Enable* for the *HTTP* element of the *ServiceEnabling* table in the *OemCfg* table.



Notes:

- Child tables or configurable elements can be deleted to skip update for these tables or configuration elements.
 - Child tables or configurable elements cannot be left alone without parents.
 - XML version line and the root table should not be deleted.
-

5 Managing a Single System

In this chapter, we describe basic user operations for managing a single system, either through the OOB channel or, if applicable, through the in-band channel. In-band channel usage is similar to OOB usage except for several differences:

1. For in-band usage, do not use the -i, -u, -p options.
2. For in-band usage, supported commands and their node product key requirement could be different (see [Appendix B. Management Interface and License Requirements](#)).
3. For in-band usage, if you are executing SUM in this server for the first time, you have to copy and paste the OS specific driver file "sum_bios.ko" under the SUM_HOME/driver directory to the SUM_HOME directory. For example, if the OS is RHEL 5.x. execute

```
<SUM_HOME#> cp ./driver/RHL5_x86_64/sum_bios.ko ./
```

5.1 Key Management for a Single System (In-Band and OOB) (SFT-OOB-LIC Only)

5.1.1 Activating a Single Managed System

To activate systems individually, follow these steps by using the command "ActivateProductKey".

1. Obtain a node product key from Supermicro; See [3.1 Receiving Product Keys from Supermicro](#).
2. Enter the node product key to activate the OOB BIOS related functions via IPMI web interface (Maintenance | BIOS Update) or using the following SUM command.

Syntax:

```
sum [-i <IP or host name> -u <username> -p <password>] -c ActivateProductKey --  
key <nodeproductkey>
```

Example:

OOB:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c ActivateProductKey --  
key 1111-1111-1111-1111-1111-1111
```

In-Band:

```
<SUM_HOME#> ./sum -c ActivateProductKey --key 1111-1111-1111-1111-1111-1111
```

5.2 System Checks for a Single System (OOB Only)

5.2.1 Checking OOB Support

Use the command “CheckOOBSupport” to check if both BIOS and BMC firmware support OOB functions.



Notes:

- If your BMC does not support OOB functions, you can OOB update the BMC firmware using the SUM UpdateBmc command.
 - To update the BIOS in the managed system to support OOB functions, you can use the SUM UpdateBios command (either in-band or OOB) to flash BIOS even when BIOS does not support OOB functions. For details, see [5.3.2 Updating the BIOS Image](#). However, when using OOB channel, if the onboard BIOS or the BIOS image file does not support OOB functions, the DMI information, such as MB serial number, might get lost after system reboot.
-

Known Limitations:

- If we roll back BIOS from OOB-supported version to non-supported version, the information for “BIOS build date” and “OOB support in BIOS” fields will not be changed accordingly.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c CheckOOBSupport
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c CheckOOBSupport
```

The console output contains the following information.

[KEY]

```
Node Product Key Activated.....OOB
```

```
[BMC]
```

```
BMC FW Version.....02.41
```

```
BMC Supports OOB BIOS Config.....Yes
```

```
BMC Supports OOB DMI Edit.....Yes
```

```
[BIOS]
```

```
BIOS Board ID.....0660
```

```
BIOS Build Date.....2013/9/18
```

```
BIOS Supports OOB BIOS Config....Yes
```

```
BIOS Supports OOB DMI Edit.....Yes
```

5.2.2 Checking Asset Information (X10 Grantley and Select Systems only)

Use the command “CheckAssetInfo” to check the asset information for the managed system.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c CheckAssetInfo
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c CheckAssetInfo
```

The console output contains the following information.

```
System
```

```
=====
```

```
Product Name: SuperPN
```

```
Version: 0123456789
```

```
Serial Number: SuperSN
```

```
UUID: 00000000-0000-0000-0000-002590FB9E40
```

```
Baseboard
```

=====

Product Name: SuperBPN

Version: 1.00

Serial Number: OM144S013179

CPU

===

[CPU(1)]

Family: Intel(R) Xeon(R) processor

Manufacturer: Intel

Version: Intel(R) Xeon(R) CPU E5-2650L v3 @ 1.80GHz

Current Speed: 2200 MHz

Enabled Cores: 12

Total Cores: 12

Memory

=====

[MEM(1)]

Locator: DIMMA1

Manufacturer: Hynix Semiconductor

Manufacturing Date (YY/WW): 14/05

Part Number: HMA41GR7MFR4N-TFT1

Serial Number: 101E199C

Size: 8192 MB

Speed: 2133 MHz

[MEM(2)] N/A

[MEM(3)] N/A

[MEM(4)] N/A

[MEM(5)] N/A

[MEM(6)] N/A

[MEM(7)] N/A

[MEM(8)] N/A

Add-on Network Interface

=====

[NIC(1)]

Product Name: Supermicro Network Adapter

Serial Number: 0123456789ABCDEFGH

Part Number: 0123456

MAC Address1: 002590E5AE3E

MAC Address2: 002590E5AE3F

Slot Number: 2

Slot Type: General Slot

5.2.3 Checking Sensor Data

Use the command “CheckSensorData” to check the sensor data for the managed system.



Notes:

- Supported sensors vary from motherboard to motherboard and firmware to firmware.
- For select X10 systems, network add-on card temperature can be retrieved.
- For PS and Chassis Intru sensors, “Reading” field is for debug usage only. Users only need to check if “Status” field is reported as “OK”.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c CheckSensorData
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c CheckSensorData
```

For CPU temperature sensor, the console output contains the following information.

Status	(#) Sensor	Reading	Low Limit	High Limit
-----	-----	-----	-----	-----
OK	(4) CPU Temp	48C/118F	N/A	97C/207F

5.2.4 Checking System Utilization (X10 and Select Systems Only)

Use the command “CheckSystemUtilization” to check the device utilization status for the managed system.



Notes:

- This command requires a TAS agent to be installed on the OS of the managed system.
- The OS of the managed system must be booted for the TAS agent to collect the real-time device utilization.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c CheckSystemUtilization
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c CheckSystemUtilization
```

The console output contains the following information.

Time

====

Last Sample Time: 2014-05-16_17:16:02

OS

==

OS Name: RedHatEnterpriseServer

OS Version: 6.4 x86_64

CPU

===

CPU Utilization: 2.74 %

Memory

=====

Memory Utilization: 8 %

HDD(1)

=====

```
HDD name: /dev/sda
SMART Status: Ok
Total Partitions: 2
[Partition(1)]
    Partition Name: /dev/sda1
    Utilization: N/A
    Used Space: N/A
    Total Space: 17.58 GB
[Partition(2)]
    Partition Name: /dev/sda2
    Utilization: 22.01 %
    Used Space: 3.62 GB
    Total Space: 17.30 GB

Network
=====
Total Devices: 2
[NIC(1)]
    Device Name: eth0
    Utilization: <1 %
    Status: up
[NIC(2)]
    Device Name: eth1
    Utilization: 0 %
    Status: down
```

5.3 BIOS Management for a Single System (In-Band and OOB)

5.3.1 Getting BIOS Image Information

Use the command “GetBiosInfo” to receive the BIOS image information from the managed system as well as the BIOS image file.

Syntax:

```
sum [-i <IP or host name> -u <username> -p <password>] -c GetBiosInfo [--file  
<filename>]
```

Example:

OOB:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c GetBiosInfo --file  
SMCI_BIOS.ROM
```

In-Band:

```
<SUM_HOME#> ./sum -c GetBiosInfo --file SMCI_BIOS.ROM
```

The console output contains the following information.

```
Managed system.....192.168.34.56  
    Board ID.....0660  
    BIOS build date.....2012/10/17  
Local BIOS image file....SMCI_BIOS.ROM  
    Board ID.....0660  
    BIOS build date.....2012/10/17
```

5.3.2 Updating the BIOS Image

Use the command UpdateBios with BIOS image file SMCI_BIOS.rom to run SUM to update the managed system.

Syntax:

```
sum [-i <IP or host name> -u <username> -p <password>] -c UpdateBios --file  
<filename> [options...]
```

Option Commands	Descriptions
--reboot	Forces the managed system to reboot.
--flash_smbios	Overwrites SMBIOS data.
--preserve_mer	Preserves ME Firmware Region.
--preserve_nv	Preserves NVRAM .

**Notes:**

- When doing in-band UpdateBios command, SUM will disable watchdog and unload me/mei driver from the OS if exists.
- When using ssh connection to do in-band UpdateBios command, ssh timeout on both client and server side should be adjusted to avoid broken pipe during command execution. Typical execution time is within 30 minutes. Timeout value should be longer than 30 minutes.
- --reboot option is required for in-band usage in X10 Grantley platform. System might reboot once or twice depending on whether the Flash Descriptor (FDT) is identical between managed system and the updating image file. Different message will be shown on the screen in these two cases. If rebooted twice, a log file will be created as well in the directory /var/log/supermicro/. In Windows OS, the log will be created in SUM_HOME/log/ directory. The file name will be accompanied with a timestamp, e.g., sum_jumperless_update_YYYYMMDDhhmmss.log
- When multiple boot is installed, we should use default boot OS to run this command so that when FDT is different, the jumper-less solution can continue updating BIOS after the first reboot.

Example:

OOB :

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c UpdateBios --file  
SMCI_BIOS.rom --reboot
```

In-Band :

```
<SUM_HOME#> ./sum -c UpdateBios --file SMCI_BIOS.rom --reboot
```

**Notes:**

- The OOB usage of this function is available when the BMC node product key is activated.
 - The in-band usage of this function does not require node product key activation.
 - The image can be successfully updated only when the board ID of the image file and the managed system are the same.
 - You have to reboot or power up the managed system for the changes to take effect.
-

-
- When using an OOB channel, if the onboard BIOS or the BIOS image file does not support OOB functions, the DMI information, such as the motherboard serial number, might get lost after a system reboot.
 - DO NOT flash BIOS and IPMI firmware at the same time.
 - --preserve_nv and --flash_smbios cannot be used at the same time.
 - --flash_smbios option is used to erase and restore SMBIOS information as factory default values. Unless you are familiar with SMBIOS data, do not use this option.
 - --preserve_nv option is used to preserve BIOS NVRAM data. Unless you are familiar with BIOS NVRAM, do not use this option.
 - --preserve_mer option is used to preserve ME firmware. Unless you are familiar with ME firmware, do not use this option.
-

5.3.3 Receiving Current BIOS Settings

Use the command GetCurrentBiosCfgTextFile to execute SUM to get the current BIOS settings from the managed system and save it in the USER_SETUP.txt file.



Notes:

- This BIOS configuration file is synchronized to BMC/IPMI from BIOS when the system reboots or powers up.
 - If the customer has flashed IPMI firmware, this function will not work until the managed system is first rebooted or powered up.
-

Syntax:

```
sum [-i <IP or host name> -u <username> -p <password>] -c  
GetCurrentBiosCfgTextFile --file <USER_SETUP.txt> [--overwrite]
```

Example:

OOB:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c  
GetCurrentBiosCfgTextFile --file USER_SETUP.txt --overwrite
```

In-Band:

```
<SUM_HOME#> ./sum -c GetCurrentBiosCfgTextFile --file USER_SETUP.txt --overwrite
```

5.3.4 Updating BIOS Settings Based on the Current BIOS Settings

1. Follow the steps in [5.3.3 Receiving Current BIOS Settings](#).
2. Edit the item/variable values in the user setup text file USER_SETUP.txt to the desired values as illustrated in [4.1 Format of BIOS Settings Text File](#).
3. Remove any unchanged items/variables in the text file. Note that this step is optional.
4. Use the command ChangeBiosCfg with the updated USER_SETUP.txt file to run SUM to update the BIOS configuration.



Notes:

- The editable BIOS configuration items may be changed for different BIOS versions. Please make sure the BIOS configurations are consistent with the BIOS version.
- The uploaded configuration will only take effect after a system reboot or power up.

Syntax:

```
sum [-i <IP or host name> -u <username> -p <password>] -c ChangeBiosCfg --file  
<USER_SETUP.txt> [--reboot]
```

Example:

OOB:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c ChangeBiosCfg --file  
USER_SETUP.txt --reboot
```

In-Band:

```
<SUM_HOME#> ./sum -c ChangeBiosCfg --file USER_SETUP.txt --reboot
```

5.3.5 Receiving Factory BIOS Settings

Use the command GetDefaultBiosCfgTextFile to execute SUM to get the default factory BIOS settings from the managed system and save it in the USER_SETUP.txt file.

Syntax:

```
sum [-i <IP or host name> -u <username> -p <password>] -c  
GetDefaultBiosCfgTextFile --file <USER_SETUP.txt> [--overwrite]
```

Example:

OOB:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c  
GetDefaultBiosCfgTextFile --file USER_SETUP.txt --overwrite
```

In-Band:

```
<SUM_HOME#> ./sum -c GetDefaultBiosCfgTextFile --file USER_SETUP.txt --overwrite
```

5.3.6 Updating BIOS Settings Based on the Factory Settings

1. Follow the steps in [5.3.5 Receiving Factory BIOS Settings](#).
2. Follow steps 2 to 4 in [5.3.4 Updating BIOS Settings Based on the Current BIOS Settings](#).

5.3.7 Loading Factory BIOS Settings

Use the command LoadDefaultBiosCfg to execute SUM to reset the BIOS settings of the managed system to the factory default settings.



Note: The uploaded configuration will take effect only after a reboot or power up.

Syntax:

```
sum [-i <IP or host name> -u <username> -p <password>] -c LoadDefaultBiosCfg [--  
reboot]
```

Example:

OOB:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c LoadDefaultBiosCfg --  
reboot
```

In-Band:

```
<SUM_HOME#> ./sum -c LoadDefaultBiosCfg --reboot
```

5.3.8 Receiving DMI Information

Use the command GetDmiInfo to execute SUM to get the current supported editable DMI information from the managed system and save it in the DMI.txt file.



Notes:

- This DMI file is synchronized to BMC/IPMI from BIOS when the system reboots or powers up.
- If the customer has flashed IPMI firmware, this function will not work until the managed system is first rebooted or powered up.

Syntax:

```
sum [-i <IP or host name> -u <username> -p <password>] -c GetDmiInfo --file  
<DMI.txt> [--overwrite]
```

Example:

OOB :

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c GetDmiInfo --file  
DMI.txt --overwrite
```

In-Band :

```
<SUM_HOME#> ./sum -c GetDmiInfo --file DMI.txt --overwrite
```

5.3.9 Updating DMI Information

1. Follow the steps in [5.3.8 Receiving DMI Information](#) to receive the DMI information text file DMI.txt.
2. Edit the item values in the DMI.txt file to the desired values as illustrated in [4.2 Format of DMI Information Text File](#)
3. Remove unchanged items in the text file. Note that this step is optional.
4. Use the command ChangeDmiInfo with the edited DMI.txt file to run SUM to update the DMI information.



Notes:

- The supported editable DMI items may be changed for different BIOS versions. The version variable of the DMI.txt file must be the same as that from the managed system and should not be edited.

-
- The uploaded information will only take effect after a system reboots or powers up.
-

Syntax:

```
sum [-i <IP or host name> -u <username> -p <password>] -c ChangeDmiInfo --file  
<DMI.txt> [--reboot]
```

Example:

OoB:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c ChangeDmiInfo --file  
DMI.txt --reboot
```

In-Band:

```
<SUM_HOME#> ./sum -c ChangeDmiInfo --file DMI.txt --reboot
```

5.4 BMC Management for a Single System (OOB only)

5.4.1 Getting BMC Image Information

Use the command “GetBmcInfo” to receive the BMC image information from the managed system as well as the BMC image file.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c GetBmcInfo [--file  
<filename>]
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c GetBmcInfo --file  
SMCI_BMC.ROM
```

The console output contains the following information.

```
Managed system.....192.168.34.56
```

```
BMC type.....X10_ATEN
BMC version.....01.30
Local BMC image file.....SMCI_BMC.ROM
BMC type.....X10_ATEN
BMC version.....01.33
```

5.4.2 Updating the BMC Image

Use the command `UpdateBmc` with BMC image file `SMCI_BMC.rom` to run SUM to update the managed system.



Notes:

- BMC will be reset after updating.
- BMC configurations will be preserved after updating.
- DO NOT flash BIOS and IPMI firmware at the same time.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c UpdateBmc --file
<filename>
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c UpdateBmc --file
SMCI_BMC.rom
```

5.4.3 Receiving BMC settings

Use the command `GetBmcCfg` to execute SUM to get the current BMC settings from the managed system and save it in the `BMCCfg.xml` file.



Note: Received tables/elements might not be identical between two managed systems. Only supported tables/elements for that system will be received.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c GetBmcCfg --file
<BMCCfg.xml> [--overwrite]
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c GetBmcCfg --file  
BMCCfg.xml --overwrite
```

5.4.4 Updating BMC Settings

1. Follow the steps in [5.4.3 Receiving BMC settings](#).
2. Edit the configurable element values in the BMC configuration text file BMCCfg.xml to the desired values as illustrated in [4.3 Format of BMC Configuration Text File](#).
3. Skip unchanged tables in the text file by setting the Action attribute as “None”. Note that this step is optional.
4. Remove unchanged tables/elements in the text file. Note that this step is optional.
5. Use the command ChangeBmcCfg with the updated BMCCfg.xml file to run SUM to update the BMC configuration.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c ChangeBmcCfg --file  
<BMCCfg.xml>
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c ChangeBmcCfg --file  
BMCCfg.xml
```



Note: The connection could drop if the LAN configuration is changed.

5.5 Event Log Management for a Single System (OOB only)

5.5.1 Getting System Event Log

Use the command `GetEventLog` to execute SUM to show the current system event log (including both BIOS and BMC event log) from the managed system. With the `--file` option, you can choose to save it in the `EventLog.txt` file.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c GetEventLog [--file  
<EventLog.txt>] [--overwrite]
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c GetEventLog --file  
EventLog.txt --overwrite
```

5.5.2 Clearing System Event Log

Use the command `ClearEventLog` to execute SUM to clear the event log (both BMC and BIOS event log) in the managed system.



Notes:

- BIOS event log in BMC will be cleared immediately.
- BIOS event log in BIOS will be cleared only after system BIOS reboot.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c ClearEventLog [--reboot]
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p XXXXXX -c ClearEventLog --reboot
```

5.6 Applications for a Single System (X10 and Select Systems Only)

5.6.1 Providing TPM Module Capabilities (X10 Grantley and Select Systems Only)

Use the command TpmProvision to execute SUM to enable TPM module capabilities for the managed system. Before executing the command, the TPM module should be installed on the managed system.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c TpmProvision --image_url  
<URL> --reboot [--id <id for URL> --pw <password for URL>]
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p ADMIN -c TpmProvision --image_url  
'smb://192.168.35.1/MySharedPoint/MyFolder/TPM.iso' --id smbaid --pw smbpasswd --  
reboot
```

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p ADMIN -c TpmProvision --image_url  
'\\192.168.35.1\MySharedPoint\MyFolder\TPM.iso' --id smbaid --pw smbpasswd --  
reboot
```



Notes:

- The TPM ISO images are not included in the SUM package. You need to acquire this image by contacting Supermicro separately. Each SUM release could require different ISO images as noted in its packaged release notes. With this ISO image, TPM capabilities can be enabled/cleared. TPM.iso will not lock TPM while TPM_Lock.iso will lock TPM.
 - The BIOS will be rebooted several times during provisioning.
 - To clear TPM capability, see [5.6.2 Clearing TPM Module Capabilities](#).
 - Space character is prohibited for SAMBA password
 - SUM will check if TPM module status on the managed system. If not installed/not functioning, exit code 36/37 will be returned respectively. If the TPM is locked, exit code 37 will be returned.
-

5.6.2 Clearing TPM Module Capabilities (X10 Grantley and Select Systems Only)

Use the command TpmProvision with options --cleartpm and --reboot to execute SUM to clear TPM module capabilities from the managed system. For usage of the --image_url option, refer to the Notes in [5.6.1 Providing TPM Module Capabilities \(X10 DP Only\)](#).

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c TpmProvision --image_url  
<URL> [--id <id for URL> --pw <password for URL>] --cleartpm --reboot
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p ADMIN -c TpmProvision --image_url  
'smb://192.168.35.1/MySharedPoint/MyFolder/TPM.iso' --id smbuid --pw smbpasswd --  
cleartpm --reboot
```

5.6.3 Providing an ISO Image as a Virtual Media through BMC and SAMBA Server

Use the command MountIsoImage to execute SUM to provide ISO image as a virtual media to the managed system through SAMBA server.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c MountIsoImage --  
image_url <URL> [--id <id for URL> --pw <password for URL>]
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p ADMIN -c MountIsoImage --  
image_url 'smb://192.168.35.1/MySharedPoint/MyFolder/Image.iso' --id smbuid --pw  
smbpasswd  
  
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p ADMIN -c MountIsoImage --  
image_url '\\192.168.35.1\MySharedPoint\MyFolder\Image.iso' --id smbuid --pw  
smbpasswd
```

**Notes:**

- Space character is prohibited for SAMBA password
-

5.6.4 Removing ISO Image as a Virtual Media

Use the command `UnmountIsoImage` to execute SUM to remove ISO image as a virtual media from the managed system.

Syntax:

```
sum -i <IP or host name> -u <username> -p <password> -c UnmountIsoImage
```

Example:

```
<SUM_HOME#> ./sum -i 192.168.34.56 -u ADMIN -p ADMIN -c UnmountIsoImage
```

6 Managing Multiple Systems (OOB Only)

For managing multiple systems, SUM provides the `-l` option to concurrently execute any OOB command on multiple systems through a system list file.

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c <OOB command>
[command options]
```

The systems to be managed should be listed row-by-row in the system list file. Two formats are supported for general commands as follows. (For the `ActivateProductKey` command, different formats are used. See [6.2.1 Activating Multiple Managed Systems](#).)

Format 1: BMC_IP_or_HostName

Format 2: BMC_IP_or_HostName Username Password

If Format 1 is used, the user has to specify `-u` and `-p` options in the command line. If Format 2 is used, the user can remove `-u` and `-p` options from the command line. If Format 2 is used but `-u` and `-p` options are not removed from the command line, the Username/Password in the system list file is adopted.

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c GetDmiInfo --file DMI.txt
--overwrite
```

SList.txt:

```
192.168.34.56
192.168.34.57 ADMIN1 PASSWORD1
```

In this example, for the first system, SUM will use (192.168.34.56, ADMIN, PASSWORD) as the (IP, Username, Password) to execute the `GetDmiInfo` command. For the second system, SUM will use (192.168.34.57, ADMIN1, PASSWORD1) as the (IP, Username, Password) to execute the `GetDmiInfo`

command. SUM will run these two executions concurrently. To see the execution status and results, see [6.1.2 File Output](#), [6.1.3 Screen Output](#) and [6.1.4 Log Output](#).

For the usage of commands that take input file as argument, such as the UpdateBios command, see [6.1.1 File Input](#) for its usage.



Note: SUM does not accept repeated system names in the system list file.

6.1 Input Output Controls for Multiple Systems

6.1.1 File Input

SUM uses the input file specified in the command line (through --file option) to manage multiple systems.

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c UpdateBios --file  
SMCI_BIOS.rom
```

SList.txt:

```
192.168.34.56
```

```
192.168.34.57
```

In this example, SUM uses the input file SMCI_BIOS.rom specified in the command line to concurrently update BIOS for both systems 192.168.34.56 and 192.168.34.57 listed in the SList.txt file.



Note: SUM DOES NOT support using different input file for each individual system at one command.

6.1.2 File Output

When SUM outputs files for multiple systems, each managed system has one corresponding output file.

The file name is the file name specified in the command line (through --file option) appended by "." and the "BMC_IP_or_Hostname", which is obtained from the system list file.

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c GetDmiInfo --file DMI.txt
```

SList.txt:

```
192.168.34.56
```

```
192.168.34.57
```

In this example, SUM gets the DMI information from system 192.168.34.56 and outputs to file "DMI.txt.192.168.34.56". For system 192.168.34.57, the DMI information is stored in the file "DMI.txt.192.168.34.57".

6.1.3 Screen Output

When SUM begins the execution for the managed systems, an IPMI TCP server is created by SMCIPMITool.jar. The listening port number will be shown on the screen. Progress output will be continuously updated to a log file created when SUM is invoked. The log file name (shown on the screen), is the system list file name appended by ".log.", "yyyy-mm-dd_hh:mm:ss" and "_PID" strings.

When the SUM finishes execution, the final execution status for each system will be shown on the screen output row-by-row. Each row consists of "System Name", "Elapsed", "Status" and "Exit Code". "System name" is the "BMC_IP_or_Hostname" from the system list file. "Elapsed" is the time elapsed when the command is executed. Four types of "Status" are provided as indicators: "WAITING", "RUNNING", "SUCCESS", or "FAILED." The status summary will be shown before and after the status list. After listing the final status, SUM will shut down the TCP server created by SMCIPMITool.jar at the beginning. Then SUM will exit and return the exit code of the concurrent executions.

Users can also press the "ENTER" key to see the current execution status before the program is finished.

The format of the current status is the same as the final status.

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c GetDmiInfo --file DMI.txt
--overwrite
```

SList.txt:

```
192.168.34.56
192.168.34.57
```

Screen Output:

```
Supermicro Update Manager (for UEFI BIOS) 1.2.0 (2013/10/02) Copyright (C) 2013
Super Micro Computer, Inc. All rights reserved
```

```
Starting IPMI server
```

```
IPMI server started for port: 38927
```

```
Start to do GetDmiInfo for machines listed in SList.txt
```

```
Log file created:
```

```
SList.txt.log_2013-10-02_15:57:40_7370
```

```
Press ENTER to see the current execution status:
```

```
-----Current Status-----
```

```
Executed Command:
```

```
./sum -l SList.txt -u ADMIN -p ***** -c GetDmiInfo --file DMI.txt --overwrite
```

```
Summary:
```

```
2 EXECUTIONS ( WAITING: 0 RUNNING: 1 SUCCESS: 1 FAILED: 0 )
```

```
Status List:
```

System Name		Elapsed		Status		Exit Code
192.168.34.56		00:00:02		SUCCESS		0
192.168.34.57		00:00:03		RUNNING		

```
Summary:
```

```
2 EXECUTIONS ( WAITING: 0 RUNNING: 1 SUCCESS: 1 FAILED: 0 )
```

```
-----Final Results-----
```

```
Executed Command:
```

```
./sum -l SList.txt -u ADMIN -p ***** -c GetDmiInfo --file DMI.txt --overwrite
```

Summary:

```
2 EXECUTIONS ( WAITING: 0  RUNNING: 0  SUCCESS: 2  FAILED: 0  )
```

Status List:

System Name	Elapsed	Status	Exit Code
192.168.34.56	00:00:02	SUCCESS	0
192.168.34.57	00:00:07	SUCCESS	0

Summary:

```
2 EXECUTIONS ( WAITING: 0  RUNNING: 0  SUCCESS: 2  FAILED: 0  )
```

Shutting down IPMI server

IPMI server closed.

6.1.4 Log Output

When SUM is invoked for the managed systems, a log file will be created. This log file will be continuously updated with the execution message for every system. The log file name, which will be shown on the screen, is the system list file name appended by “.log.”, “yyyy-mm-dd_hh:mm:ss” and “_PID” strings. The log file consists of one “Last Update Time” section, one “Execution parameters” section, one “Summary” section, one “Status List” section and, for each system, one “Execution Message” section. The following example shows the log file SList.txt.log_2013-10-02_15:57:40_7370 which was created from the example in [6.1.3 Screen Output](#).

Example:

```
-----Last Update Time-----
2013-10-02_15:57:47
Process finished.
-----Execution parameters-----
IPMI server port: 38927
Executed Command:
./sum -l SList.txt -u ADMIN -p ***** -c GetDmiInfo --file DMI.txt --overwrite
```

```

-----Summary-----
      2 EXECUTIONS (  WAITING: 0  RUNNING: 0  SUCCESS: 2  FAILED: 0  )

-----Status List-----
System Name      |Start Time      |End Time        |Elapsed |Status   |Exit Code
192.168.34.56    |10-02_15:57:40 |10-02_15:57:42 |00:00:02|SUCCESS  |0
192.168.34.57    |10-02_15:57:40 |10-02_15:57:47 |00:00:07|SUCCESS  |0

-----Execution Message-----
System Name
      192.168.34.56
Message
Supermicro Update Manager (for UEFI BIOS) 1.2.0 (2013/10/02) Copyright (C) 2013
Super Micro Computer, Inc. All rights reserved

File "DMI.txt.192.168.34.56" is created.

-----Execution Message-----
System Name
      192.168.34.57
Message
Supermicro Update Manager (for UEFI BIOS) 1.2.0 (2013/10/02) Copyright (C) 2013
Super Micro Computer, Inc. All rights reserved

File "DMI.txt.192.168.34.57" is created.

```

6.2 Key Management for Multiple Systems (SFT-OOB-LIC Only)

6.2.1 Activating Multiple Managed Systems

Users can activate multiple systems concurrently using SUM through the `-l` option and the command `ActivateProductKey`. (You should first obtain the node product keys for the managed systems. See [3.1 Receiving Node Product Keys from Supermicro](#).)

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c ActivateProductKey
```

The systems to be managed should be listed row-by-row in the system list file. For the ActivateProductKey command, two formats are supported.

Format 1: BMC_IP_or_HostName Node_Product_Key

Format 2: BMC_IP_or_HostName Username Password Node_Product_Key

If Format 1 is used, the user has to specify -u and -p options in the command line. If Format 2 is used, the user can remove -u and -p options from the command line. If Format 2 is used but -u and -p options are not removed from the command line, the Username/Password in the system list file is adopted. The --key option, if specified in the command line, will be ignored.

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c ActivateProductKey
```

SList.txt:

```
192.168.34.56 1111-1111-1111-1111-1111-1111
192.168.34.57 ADMIN1 PASSWORD1 2222-2222-2222-2222-2222-2222
```

In this example, for the first system SUM will use (192.168.34.56, ADMIN, PASSWORD, 1111-1111-1111-1111-1111-1111) as the (IP, Username, Password, NodeProductKey) to execute the command ActivateProductKey. For the second system SUM will use (192.168.34.57, ADMIN1, PASSWORD1, 2222-2222-2222-2222-2222-2222) as the (IP, Username, Password, NodeProductKey) to execute the command ActivateProductKey. SUM will activate these two systems concurrently. The presentation of execution status and results will be similar to [6.1.3 Screen Output](#) and [6.1.4 Log Output](#).

6.3 System Checks for Multiple System

6.3.1 Checking OOB Support

Use the command “CheckOOBSupport” to check if both BIOS and BMC firmware support OOB functions for multiple systems. The received information will be the same as that in [5.2.1 Checking OOB Support](#).

Syntax:

```
sum -l < system list file > [-u <username> -p <password>] -c CheckOOBSupport
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c CheckOOBSupport
SList.txt:
    192.168.34.56
    192.168.34.57
```

If the execution status for a system is SUCCESS, the BIOS and BMC capabilities of that system will be shown in the “Execution Message” section in the created log file.

6.3.2 Checking Asset Information (X10 Grantley and Select Systems Only)

Use the command “CheckAssetInfo” to check the asset information in the managed systems. The received information will be the same as that in [5.2.2 Checking Asset Information \(X10 Grantley and Select Systems only\)](#)

Syntax:

```
sum -l < system list file > [-u <username> -p <password>] -c CheckAssetInfo
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c CheckAssetInfo
SList.txt:
    192.168.34.56
    192.168.34.57
```

If the execution status for a system is SUCCESS, the asset configuration of that system will be shown in the “Execution Message” section in the created log file.

6.3.3 Checking Sensor Data

Use the command “CheckSensorData” to check the sensor data in the managed systems. The message output will be the same as that in [5.2.3 Checking Sensor Data](#).

Syntax:

```
sum -l < system list file > [-u <username> -p <password>] -c CheckSensorData
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c CheckSensorData
SList.txt:
    192.168.34.56
    192.168.34.57
```

If the execution status for a system is SUCCESS, the sensor data of that system will be shown in the “Execution Message” section in the created log file.

6.3.3 Checking System Utilization (X10 Only)

Use the command “CheckSystemUtilization” to check the utilization status in the managed systems. The message output will be the same as that in [5.2.4 Checking System Utilization \(X10 Only\)](#).

Syntax:

```
sum -l < system list file > [-u <username> -p <password>] -c
CheckSystemUtilization
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c CheckSystemUtilization
SList.txt:
    192.168.34.56
    192.168.34.57
```

If the execution status for a system is SUCCESS, the utilization status of that system will be shown in the “Execution Message” section in the created log file.

6.4 BIOS Management for Multiple Systems

6.4.1 Getting BIOS Image Information

Use the command “GetBiosInfo” to receive the BIOS image information from the multiple managed systems as well as the input BIOS image file. The message output will be the same as that in [5.3.1 Getting BIOS Image Information](#).

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c GetBiosInfo [--file  
<filename>]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c GetBiosInfo --file  
SMCI_BIOS.ROM
```

SList.txt:

```
192.168.34.56
```

```
192.168.34.57
```



Note: If the execution status for a system is SUCCESS, the BIOS information of that system will be shown in the “Execution Message” section of that system in the created log file.

6.4.2 Updating the BIOS Image

Use the command UpdateBios with the BIOS image file SMCI_BIOS.rom to run SUM to update multiple systems. For detailed usage notes of the UpdateBios command, see the usage notes in [5.3.2 Updating the BIOS Image](#).

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c UpdateBios --file  
<filename> [options...]
```

Option Commands	
--reboot	Forces the managed systems to reboot
--flash_smbios	Overwrites SMBIOS data
--preserve_mer	Preserves ME Firmware Region
--preserve_nv	Preserves NVRAM

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c UpdateBios --file  
SMCI_BIOS.rom
```

SList.txt:

192.168.34.56

192.168.34.57

The execution progress for that system will be continuously updated to the “Execution Message” section of that system in the created log file.

6.4.3 Receiving Current BIOS Settings

Use the command GetCurrentBiosCfgTextFile to execute SUM to get the current BIOS settings from the multiple managed systems and save it in the output files individually for each system listed in the system list file.

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c  
GetCurrentBiosCfgTextFile --file <USER_SETUP.txt> [--overwrite]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c GetCurrentBiosCfgTextFile  
--file USER_SETUP.txt --overwrite
```

SList.txt:

192.168.34.56

192.168.34.57

If the execution status for a system (e.g. 192.168.34.56) is SUCCESS, its current settings will be stored in its output file, e.g. USER_SETUP.txt.192.168.34.56. --overwrite is the option to force overwrite its output file, e.g. USER_SETUP.txt.192.168.34.56, if the output file already exist.

6.4.4 Updating BIOS Settings Based on a Current Sample Settings

1. Select one managed system as the golden sample for current BIOS settings.
2. Follow the steps in [5.3.3 Receiving Current BIOS Settings](#) for that system.
3. Edit the item/variable values in the user setup text file USER_SETUP.txt to the desired values as illustrated in [4.1 Format of BIOS Settings Text File](#).
4. Remove unchanged items/variables in the text file. Note that this step is optional.

-
5. Use the command `ChangeBiosCfg` with the updated `USER_SETUP.txt` file to run SUM to update the BIOS configurations for multiple systems.



Note: The uploaded configurations will only take effect after the managed systems reboot or power up.

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c ChangeBiosCfg --file  
<USER_SETUP.txt> [--reboot]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c ChangeBiosCfg --file  
USER_SETUP.txt --reboot
```

SList.txt:

```
192.168.34.56  
192.168.34.57
```

6.4.5 Receiving Factory BIOS Settings

Use the command `GetDefaultBiosCfgTextFile` to execute SUM to get the default factory BIOS settings from the managed systems and save it in the output files individually for each system listed in the system list file.

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c  
GetDefaultBiosCfgTextFile --file <USER_SETUP.txt> [--overwrite]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c GetDefaultBiosCfgTextFile  
--file USER_SETUP.txt
```

SList.txt:

```
192.168.34.56  
192.168.34.57
```

If the execution Status for a system (e.g. 192.168.34.56) is SUCCESS, its default settings will be stored in its output file, e.g. USER_SETUP.txt.192.168.34.56. --overwrite is the option to force overwrite its output file, e.g. USER_SETUP.txt.192.168.34.56, if the output file already exist.

6.4.6 Updating BIOS Settings Based on Factory Sample Settings

1. Select one managed system as the golden sample for factory default BIOS settings.
2. Follow the steps in [5.3.5 Receiving Factory BIOS Settings](#) for that system.
3. Follow steps 3 to 5 in [6.4.4 Updating BIOS Settings Based on a Current Sample Settings](#).

6.4.7 Loading Factory BIOS Settings

Use the command LoadDefaultBiosCfg to execute SUM to reset the BIOS settings of the managed systems to the factory default settings.



Note: The uploaded configurations will only take effect after the managed systems reboot or power up.

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c LoadDefaultBiosCfg [-reboot]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c LoadDefaultBiosCfg --reboot
```

SList.txt:

```
192.168.34.56
```

```
192.168.34.57
```

6.4.8 Receiving DMI Information

Use the command GetDmiInfo to execute SUM to get the current supported editable DMI information from the managed systems and save it in the output files individually for each system listed in the system list file. For detailed usage notes of the command GetDmiInfo, see [5.3.8 Receiving DMI Information](#)

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c GetDmiInfo --file  
<DMI.txt> [--overwrite]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c GetDmiInfo --file DMI.txt  
--overwrite  
SList.txt:  
192.168.34.56  
192.168.34.57
```

If the execution Status for a system (e.g. 192.168.34.56) is SUCCESS, its DMI settings will be stored in its output file, e.g. DMI.txt.192.168.34.56. --overwrite is the option to force overwrite its output file, e.g.DMI.txt.192.168.34.56, if the output file already exist.

6.4.9 Updating DMI Information Based on a Sample DMI Information

1. Select one managed system as the golden sample for DMI information.
2. Follow the steps in [5.3.8 Receiving DMI Information](#) for that system.
3. Edit the item values in the DMI.txt file to the desired values as illustrated in [4.2 Format of DMI Information Text File](#)
4. Remove unchanged items in the text file. Note that this step is optional.
5. Use the command ChangeDmiInfo with the edited DMI.txt file to run SUM to update the DMI information for multiple systems



Notes:

- The uploaded information will only take effect after the managed systems reboot or power up.
- For detailed usage notes of the command ChangeDmiInfo, see [5.3.9 Updating DMI Information](#)

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c ChangeDmiInfo --file  
<DMI.txt> [--reboot]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c ChangeDmiInfo --file  
DMI.txt --reboot
```

SList.txt:

192.168.34.56

192.168.34.57

6.5 BMC Management for Multiple Systems

6.5.1 Getting BMC Image Information

Use the command “GetBmcInfo” to receive the BMC image information from the multiple managed systems as well as the input BMC image file. The information will be the same as that in [5.4.1 Getting BMC Image Information](#).

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c GetBmcInfo [--file  
<filename>]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c GetBmcInfo --file  
SMCI_BMC.ROM
```

SList.txt:

192.168.34.56

192.168.34.57

If the execution status for a system is SUCCESS, the BMC information of that system will be shown in the “Execution Message” section of that system in the created log file.

6.5.2 Updating the BMC Image

Use the command UpdateBmc with BMC image file SMCI_BMC.rom to run SUM to update multiple systems. For detailed usage notes of the UpdateBmc command, see the usage notes in [5.4.2 Updating the BMC Image](#).

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c UpdateBmc --file  
<filename>
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c UpdateBmc --file  
SMCI_BMC.rom
```

SList.txt:

```
192.168.34.56  
192.168.34.57
```

The execution progress for that system will be continuously updated to the “Execution Message” section of that system in the created log file.

6.5.3 Receiving BMC Settings

Use the command GetBmcCfg to execute SUM to get the current BMC settings from the multiple managed systems and save it in the output files individually for each system listed in the system list file. For detailed usage notes of the GetBmcCfg command, see the usage notes in [5.4.3 Receiving BMC settings](#).

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c GetBmcCfg --file <  
BMCCfg.xml > [--overwrite]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c GetBmcCfg --file  
BMCCfg.xml --overwrite
```

SList.txt:

```
192.168.34.56  
192.168.34.57
```

If the execution status for a system (e.g. 192.168.34.56) is SUCCESS, its current settings will be stored in its output file, e.g. BMCCfg.xml.192.168.34.56. --overwrite is the option to force overwrite its output file, e.g. BMCCfg.xml.192.168.34.56, if the output file already exists.

6.5.4 Updating BMC Settings

1. Select one managed system as the golden sample for current BMC settings.
2. Follow the steps in [5.4.3 Receiving BMC settings](#) for that system.
3. Edit the configurable element values in the BMC configuration text file BMCCfg.xml to the desired values as illustrated in [4.3 Format of BMC Configuration Text File](#).
4. Skip unchanged tables in the text file by setting Action attribute as “None”. Note that this step is optional.
5. Remove unchanged tables/elements in the text file. Note that this step is optional.
6. Use the command ChangeBmcCfg with the updated BMCCfg.xml file to run SUM to update the BMC configurations for multiple systems.



Notes:

- Some table settings cannot be applied to each managed system uniformly, e.g., FRU and LAN configurations. You might need to change its table action to “None” in step 4 or remove tables/elements in step 5.
- LAN IPAddress field will be skipped in multiple system usage.
- For detailed usage notes of the ChangeBmcCfg command, see the usage notes in [5.4.4 Updating BMC Settings](#).

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c ChangeBmcCfg --file  
<BMCCfg.xml>
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c ChangeBmcCfg --file  
BMCCfg.xml
```

SList.txt:

```
192.168.34.56  
192.168.34.57
```

If the execution status for a managed system is SUCCESS, its BMC settings will be updated.

6.6 Event Log Management for Multiple Systems

6.6.1 Getting System Event Log

Use the command `GetEventLog` to execute SUM to show the current system event log (including both BIOS and BMC event log) from the multiple managed systems and save them in the output files individually for each system listed in the system list file with the `--file` option. Without `--file` option, you can choose to show the event log in the execution log file instead. For detailed execution notes, see [5.5.1 Getting System Event Log](#).

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c GetEventLog [--file  
<EventLog.txt>] [--overwrite]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c GetEventLog --file  
EventLog.txt
```

SList.txt:

```
192.168.34.56  
192.168.34.57
```

If the execution status for a system (e.g. 192.168.34.56) is SUCCESS, its event log will be stored in its output file, e.g. `EventLog.txt.192.168.34.56`. `--overwrite` is the option to force overwrite its output file, e.g. `EventLog.txt.192.168.34.56`, if the output file already exists. If `--file` options is not used, the event log for each managed system will be shown in the “Execution Message” section of that system in the created execution log file.

6.6.2 Clearing System Event Log

Use the command `ClearEventLog` to execute SUM to clear the event log (both BMC and BIOS event log) for each managed systems. For detailed execution notes, see [5.5.2 Clearing System Event Log](#).

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c ClearEventLog [--reboot]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p PASSWORD -c ClearEventLog --reboot
```

SList.txt:

```
192.168.34.56
```

```
192.168.34.57
```

If the execution status for a system is SUCCESS, its event log will be cleared.

6.7 Applications for Multiple Systems (X10 Only)

6.7.1 Providing TPM Module Capabilities (X10 Grantley and Select Systems Only)

Use the command TpmProvision to execute SUM to enable TPM module capabilities for the managed systems. Before executing the command, the TPM modules should be installed on the managed systems.

For detailed notes of the TpmProvision command, see [5.6.1 Providing TPM Module Capabilities \(X10 Grantley and Select Systems Only\)](#).

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c TpmProvision --image_url <URL> --reboot [--id <id for URL> --pw <password for URL>]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p ADMIN -c TpmProvision --image_url 'smb://192.168.35.1/MySharedPoint/MyFolder/TPM.iso' --id smbaid --pw smbpasswd --reboot
```

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p ADMIN -c TpmProvision --image_url '\\192.168.35.1\MySharedPoint\MyFolder\TPM.iso' --id smbaid --pw smbpasswd --reboot
```

SList.txt:

192.168.34.56

192.168.34.57

If the execution status for a system is SUCCESS, its TPM capabilities will be enabled.

6.7.2 Clearing TPM Module Capabilities (X10 Grantley and Select Systems Only)

Use the command TpmProvision with options --cleartpm and --reboot to execute SUM to clear TPM module capabilities from the managed systems. For detailed notes of the --cleartpm option usage, see [5.6.2 Clearing TPM Module Capabilities \(X10 Grantley and Select Systems Only\)](#).

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c TpmProvision --  
image_url <URL> [--id <id for URL> --pw <password for URL>] --cleartpm --reboot
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p ADMIN -c TpmProvision --image_url  
'\\192.168.35.1\MySharedPoint\MyFolder\TPM.iso' --id smbaid --pw smbpasswd --  
cleartpm --reboot
```

SList.txt:

192.168.34.56

192.168.34.57

If the execution status for a system is SUCCESS, its TPM capabilities will be cleared.

6.7.3 Providing an ISO Image as a Virtual Media through BMC and SAMBA Server

Use the command MountIsoImage to execute SUM to provide ISO image as a virtual media to the managed systems through SAMBA server. For detailed MountIsoImage command notes, see [5.6.3 Providing an ISO Image as a Virtual Media through BMC and SAMBA Server](#).

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c MountIsoImage --  
image_url <URL> --reboot [--id <id for URL> --pw <password for URL>]
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p ADMIN -c MountIsoImage --image_url  
'smb://192.168.35.1/MySharedPoint/MyFolder/Image.iso' --id smbuid --pw smbpasswd
```

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p ADMIN -c MountIsoImage --image_url  
'\\192.168.35.1\MySharedPoint\MyFolder\Image.iso' --id smbuid --pw smbpasswd
```

SList.txt:

```
192.168.34.56
```

```
192.168.34.57
```

If the execution status for a system is SUCCESS, the Image.iso file will be provided as a virtual media to the managed system.

6.7.4 Removing ISO Image as a Virtual Media

Use the command UnmountIsoImage to execute SUM to remove ISO image as a virtual media from the managed system.

Syntax:

```
sum -l <system list file> [-u <username> -p <password>] -c UnmountIsoImage
```

Example:

```
<SUM_HOME#> ./sum -l SList.txt -u ADMIN -p ADMIN -c UnmountIsoImage
```

SList.txt:

```
192.168.34.56
```

```
192.168.34.57
```

If the execution status for a system is SUCCESS, the provided virtual media will be removed from the managed system.

Appendix A. SUM Exit Codes

Exit Code Number	Description
0	Successful
Others	Failed
GROUP1 (1~30) Command line parsing check failed	
1	GetOpt unexpected option code
2	Unknown option
3	Missing argument
4 <preserved>	
5	Missing option
6	Unknown command
7	Option conflict
8	File does not exist
9	File already exists
10	Host is unknown
11	Invalid command line data
GROUP2 (31~59) Resource management error	
31	File management error
32	Thread management error
33	TCP connection error
34	UDP connection error
35	Program interrupted and terminated
36	Required device does not exist
37	Required device does not work

GROUP2 (60~79) File parsing errors	
60	Invalid BIOS configuration text file
61	Utility internal error
62	Invalid firmware image file
63	Invalid firmware flash ROM
64	Invalid DMI information from BIOS
65	Invalid DMI information text file
66<preserved>	
67	Invalid system list file
68	Invalid BMC configuration text file
69	Invalid asset information
GROUP3 (80~99) IPMI operation errors	
80	Node Product key is not activated
81	Internal communication error
82	Board information mismatch
83	Does not support OOB
84	Does not support get file
85	File is not available for download
86	Required tool does not exist
87	IPMI standard error
GROUP4 (100~119) InBand operation errors	
100	Cannot open driver
101	Driver input/output control failed
102	Driver report: ****execution of command failed****

103	BIOS does not support this in-band command
104	Driver report: ****file size out of range****
105	Cannot load driver
GROUP5 (120~) IPMI communication errors	
144	IPMI undefined error
145	IPMI connect failed
146	IPMI login failed
147	IPMI execution parameter validation failed
148	IPMI execution exception occurred
149	IPMI execution failed
153	IPMI execution on non-supported device
180	IPMI command not found
181	IPMI command IP format error
182	IPMI command parameter length invalid



Notes:

- When using in-band commands with --reboot option through ssh connection to the managed OS, ssh connection would be closed by the managed OS when system starts to reboot. The exit code for the ssh connection could be 255 instead of 0 (Success).
-

Appendix B. Management Interface and License Requirements

[Group] Command	SFT-OOB-LIC, SFT-SUM-LIC, or SFT-DCMS-Single Node Product Key Required	Management Interface	
		OOB (Remote)	In-Band (Local)
[System Check]			
CheckOOBSupport	No	Yes	No
CheckAssetInfo	Yes	Yes	No
CheckSystemUtilization	Yes	Yes	No
CheckSensorData	No	Yes	No
[Key Management]			
ActivateProductKey	No	Yes	Yes
[BIOS Management]			
UpdateBios	Yes for OOB; No for In-Band	Yes	Yes
GetBiosInfo	No	Yes	Yes
GetDefaultBiosCfgTextFile	Yes	Yes	Yes
GetCurrentBiosCfgTextFile	Yes	Yes	Yes
ChangeBiosCfg	Yes	Yes	Yes
LoadDefaultBiosCfg	Yes	Yes	Yes
GetDmiInfo	Yes	Yes	Yes
ChangeDmiInfo	Yes	Yes	Yes
[BMC Management]			
UpdateBmc	No	Yes	No
GetBmcInfo	No	Yes	No
GetBmcCfg	Yes	Yes	No
ChangeBmcCfg	Yes	Yes	No
[System Event Log]			
GetEventLog	Yes	Yes	No
ClearEventLog	Yes	Yes	No
[Applications]			
TpmProvision	Yes	Yes	No
MountIsoImage	Yes	Yes	No
UnmountIsoImage	Yes	Yes	No

Appendix C. Platform Feature Support Matrix

SUM (OOB & In-Band) Solution Feature [Group] Command	HW & FW Compatibility			
	Without BMC	With BMC		
	C7 X9 / B9 Romley A1/B1 series X10 Denlow X10/B10 Grantley	X9 Romley	B9 Romley	A1/B1 series X10 Denlow
[Key Management]				
ActivateProductKey	No	Yes	Yes	Yes
Support SFT-OOB-LIC	No	Yes	Yes	Yes
Support SFT-SUM-LIC	No	No	No	Yes
Support SFT-DCMS-Single	No	No	No	Yes
[BIOS Management]				
UpdateBios	Yes for Local	Yes	Yes	Yes
GetBiosInfo	Yes for Local	Yes	Yes	Yes
GetDefaultBiosCfgTextFile	No	Yes	Yes	Yes
GetCurrentBiosCfgTextFile	No	Yes	Yes	Yes
ChangeBiosCfg	No	Yes	Yes	Yes
LoadDefaultBiosCfg	No	Yes	Yes	Yes
GetDmiInfo	No	Yes	Yes	Yes
ChangeDmiInfo	No	Yes	Yes	Yes
[BMC Management]				
UpdateBmc	No	Yes	Yes	Yes
GetBmcInfo	No	Yes	Yes	Yes
GetBmcCfg	No	No	No	No
ChangeBmcCfg	No	No	No	No
[System Check]				
CheckOOBSupport	No	Yes	Yes	Yes
CheckAssetInfo	No	No	No	No
CheckSystemUtilization	No	No	No	No
CheckSensorData	No	Yes	Yes	Yes
[System Event Log]				
GetEventLog	No	No	No	No
ClearEventLog	No	No	No	No
[Application]				
TpmProvision	No	No	No	No
MountIsoImage	No	Yes	No	Yes
UnMountIsoImage	No	Yes	No	Yes

SUM (OOB & In-Band) Solution Feature	HW & FW Compatibility	
	With BMC	
	X10/B10/MicroBlade Grantley	C7
[Key Management]		
ActivateProductKey	Yes	Yes
Support SFT-OOB-LIC	Yes	Yes
Support SFT-SUM-LIC	Yes	Yes
Support SFT-DCMS-Single	Yes	Yes
[BIOS Management]		
UpdateBios	Yes	Yes
GetBiosInfo	Yes	Yes
GetDefaultBiosCfgTextFile	Yes	Yes
GetCurrentBiosCfgTextFile	Yes	Yes
ChangeBiosCfg	Yes	Yes
LoadDefaultBiosCfg	Yes	Yes
GetDmiInfo	Yes	Yes
ChangeDmiInfo	Yes	Yes
[BMC Management]		
UpdateBmc	Yes	Yes
GetBmcInfo	Yes	Yes
GetBmcCfg	Yes	Yes
ChangeBmcCfg	Yes	Yes
[System Check]		
CheckOOBSupport	Yes	Yes
CheckAssetInfo	Yes	Yes
CheckSystemUtilization	Yes	Yes
CheckSensorData	Yes	Yes
[System Event Log]		
GetEventLog	Yes	No
ClearEventLog	Yes	No
[Application]		
TpmProvision	Yes	No
MountIsoImage	Yes	Yes
UnMountIsoImage	Yes	Yes

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
Email: support@supermicro.com.tw (Technical Support)