



Intel® System Configuration Utility

User Guide

Syscfg Version 10.0 /11.0

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1 Introduction

The Intel® System Configuration Utility (Syscfg) is a command-line utility that can be used to save and restore BIOS and firmware settings to a file or to set and display individual settings. This User Guide provides a command reference for version 10.0 and 11.0 of the Syscfg. It provides an overview of the features of the module and instructions for configuring the BIOS and management firmware on the following Intel® Server Boards:

- Intel® S1200BT Series Server Boards (S1200BT-LC and S1200BT-SE)
- Intel® Server Board S1400
- Intel® Server Board S1600
- Intel® Server Board S2400
- Intel® Server Board S2600
- Intel® Server Board S4600

Note: Not all BIOS or management firmware settings can be set using this utility. Refer to the Product Guide for your server board for a complete list of BIOS settings. Refer to *IPMI--Intelligent Platform Management Interface Specification, Second Generation, v2.0* for information on the standard management firmware settings.

1.1 Operating Systems Supported

This version of the utility supports the Operating System versions listed in the following table. Refer to the Tested Hardware and Operating System List for your server board to determine which operating systems are supported on your server board:

Table 1. Operating Systems Supported

Platforms	System Configuration Utility Version	Operating Systems/Preboot environment supported
Intel® S1200BT Series Server Boards (S1200BT-LC and S1200BT-SE)	10.0	Windows* Server 2008 Enterprise (IA32) Windows* Server 2008 R2 Enterprise (EM64T) Windows PE* 3.0 (IA32 & EM64T) RHEL6 (IA32 & EM64T) SLES11 SP1 (IA32 & EM64T)
Intel® Server Board S1200BT Intel® Server Board S1400 Intel® Server Board S1600 Intel® Server Board S2400 Intel® Server Board S2600	11.0	Windows Server 2008 Enterprise (IA32)* Windows* Server 2008 R2 Enterprise (EM64T) Windows* 7 (ia32 AND EM64T) FOR Work station Server Platform's.

Platforms	System Configuration Utility Version	Operating Systems/Preboot environment supported
Intel® Server Board S4600		Windows PE 3.0* (IA32 & EM64T) RHEL6* Update 1 (IA32 & EM64T) RHEL6* Update 2 (IA32 & EM64T) SLES11* SP1 (IA32 & EM64T) SLES11* SP2 (IA32 & EM64T)

Note: SysCfg version or build may be different across different platforms. Please download the supported SysCfg version and build under your platform from support web site. Also please refer release notes for known issues on installation and usage.

1.2 Target Audience

This User Guide is intended for Original Equipment Manufacturers and those who are responsible for configuring the BIOS and Management Firmware on the Intel® Server Boards.

1.3 Related Documents

Following are the related documents:

- *IPMI--Intelligent Platform Management Interface Specification, Second Generation, v2.0* (available at support.intel.com)
- *Server Product Guides for BIOS Setup Options*
- *Intel® Server Configuration Utilities Deployment Procedure for Windows PE 2005**

1.4 Terminology

The following table lists the terminology used in this document and the description:

Table 2. Terminology

Term	Definition
ACPI	Advanced Configuration and Power Interface
AES	Advanced Encryption Standard
AMB	Advanced Memory Buffer (there is an AMB on each FBDIMM)
APIC	Advanced Programmable Interrupt Controller
ARP	Address Resolution Protocol
ASF	Alert Standards Forum
ASIC	Application specific integrated circuit

Term	Definition
BIST	Built-in self-test
BMC	Baseboard management controller
Bridge	Circuitry connecting one computer bus to another, allowing an agent on one to access the other.
BSP	Bootstrap processor
CBC	Chassis bridge controller. A microcontroller connected to one or more other CBCs. Together they bridge the IPMB buses of multiple chassis.
CLI	Command-line interface
CLTT	Closed-loop thermal throttling (memory throttling mode)
CMOS	In terms of this specification, this describes the PC-AT compatible region of battery-backed 128 bytes of memory on the server board.
CSR	Control and status register
D-cache	Data cache. Processor-local cache dedicated for memory locations explicitly loaded and stored by running code.
DHCP	Dynamic Host Configuration Protocol
DIB	Device Information Block
DPC	Direct Platform Control
EEPROM	Electrically erasable programmable read-only memory
EMP	Emergency management port
FML	Fast management link
FNI	Fast management link network interface
FRB	Fault resilient booting
FRU	Field replaceable unit
FSB	Front side bus
FTM	Firmware transfer mode
GPIO	General-purpose input/output
HSBP	Hot-swap backplane
HSC	Hot-swap controller
I-cache	Instruction cache. Processor-local cache dedicated for memory locations retrieved through instruction fetch operations.
I2C	Inter-integrated circuit bus
IA	Intel® architecture
IBF	Input buffer
ICH	I/O controller hub
IERR	Internal error
INIT	Initialization signal
IPMB	Intelligent Platform Management Bus
IPMI	Intelligent Platform Management Interface
ITP	In-target probe
KCS	Keyboard controller style

Term	Definition
KT	Keyboard text
KVM	Keyboard, video, mouse
LAN	Local area network
LCD	Liquid crystal display
LPC	Low pin count
LUN	Logical unit number
MAC	Media Access Control
MD5	Message Digest 5. A hashing algorithm that provides higher security than MD2.
MIB	Modular information block. A descriptive text translation of a PET event, contained in a MIB file for use by an SNMP agent when decoding SEL entries.
ms	Millisecond
MUX	Multiplexer
NIC	Network interface card
NMI	Non-maskable interrupt
OBF	Output buffer
OEM	Original equipment manufacturer
OLTT	Open-loop thermal throttling (memory throttling mode)
PCI	Peripheral Component Interconnect
PECI	Platform Environmental Control Interface
PEF	Platform event filtering
PET	Platform event trap
PIA	Platform information area
PLD	Programmable logic device
POST	Power-on self-test
PROM	Programmable read-only memory
PSMI	Power Supply Management Interface
PWM	Pulse Width Modulation. The mechanism used to control the speed of system fans.
RAM	Random Access Memory
RAS	Reliability, availability, and serviceability
RC4	Rivest Cipher 4. A stream cipher designed by Rivest for RSA data security, now RSA security. It is a variable key-size stream cipher with byte-oriented operations. The algorithm is based on a random permutation.
RMCP+	Remote Management Control Protocol
ROM	Read-only memory
RTC	Real-time clock
SCI	System Control Interrupt. A system interrupt used by hardware to notify the operating system of ACPI events.
SDR	Sensor data record
SDRAM	Synchronous dynamic random access memory

Term	Definition
SEL	System event log
SHA1	Secure Hash Algorithm 1
SMBus	A two-wire interface based on the I ² C protocol. The SMBus is a low-speed bus that provides positive addressing for devices and bus arbitration.
SMI	Server Management Interrupt. SMI is the highest priority non-maskable interrupt.
SMM	Server management mode
SMS	Server management software
SNMP	Simple Network Management Protocol
SOL	Serial-over-LAN
SPT	Straight pass-through
SRAM	Static random access memory
UART	Universal asynchronous receiver and transmitter
UDP	User Datagram Protocol
UHCI	Universal Host Controller Interface
VLAN	Virtual local area network

1.5 Support Information

World Wide Web

<http://support.intel.com/support/>

For an updated support contact list, see <http://www.intel.com/support/9089.htm/>.

2 Using the Intel® System Configuration Utility

Syscfg is a command-line scriptable utility that can be used to save and restore BIOS and firmware settings to a file, or to set and display individual BIOS settings. Syscfg may be used in a script to automate the process of configuring multiple servers. Few commands may not be supported on all platforms due to limitations in the platform firmware /BIOS. The description of each command will describe any limitations.

The general syntax is:

```
syscfg [{/|-}command [arguments]] [...next_command [arguments]]
```

Multiple commands may be specified on a single line unless otherwise noted in the Command Reference description. The maximum line length is 127 characters.

Note: This version of the utility can be run from EFI, Linux*, Windows* command prompt, and Windows* Pre-installation Environment. Some platforms may not support all the operating environments for this utility.

3 Quick Start Instructions

This section details the quick start instructions for configurations.

3.1 Installation

A. Linux

- a. Boot into Linux and unzip the syscfg utility zip file into a folder on your hard drive. After unzip, "RHEL" or "SLES" folder will be generated

The syscfg directory will have the following file.

- Syscfg.zip

- b. Unzip to get the syscfg binaries and execute the syscfg commands.

B. UEFI

- a. Unzip syscfg utility zip file to a USB pen drive, boot into EFI and change folder to \UEFI_64 which contains:

- ipmi.efi
- NShell.efi
- syscfg.efi

- b. Run 'syscfg' commands from the location where the files are copied.

- c. To uninstall SYSCFG run the following commands manually

-Delete the contents of the directory where the utility is installed.

C. Windows/WinPE

- a. Copy the syscfg utility zip file into your local directory (e.g. C:\syscfg)

- b. Unzip the zip file

- c. The following folders contain windows binaries and drivers under c:\syscfg folder.

- Win_x64
- Win_x86
- Drivers

- d. For 32 bit or EM64T Operating system, go to folder "SyscfgVxx_0_BuildXX\Drivers\win\x86" or "SyscfgVxx_0_BuildXX\Drivers\win\x64" and run install.cmd to install Intel®

Intelligent Management Bus Driver Vxx.x, Intel® 28F320C3 Flash Update Device Driver Vxx.x and Intel® Intelligent Management Utility Device Vxx.x.

- e. From the command prompt go to Win_x64 or Win_x86 folder and run the desired commands for the utility
- f. To uninstall SYSCFG run the following commands manually
 - Delete the contents of the directory where the utility is installed.
 - Manually uninstall drivers from the Device manager

3.2 Saving a Configuration

The utility supports saving BIOS and FW settings both in binary and in text mode (from a text file, known as INI file). The advantage of using INI file is that you can modify and change the values of any of the settings available in the INI file.

To save the BIOS and firmware configuration to a file, do the following:

1. Boot to one of the supported Operating Systems on the target system.
2. Change directories to the location of the syscfg executable. (This location must be writable to allow you to save the system configuration.)
3. In Windows*, Windows Pre-installation Environment*, or EFI type: `syscfg /s filename`
In Linux*, type: `./syscfg /s filename`

When saving the settings to a file, you have the option to supply the file type (*scf* or *ini*). The binary file *filename.scf* or *filename.ini* will contain the saved configuration. You can use this file to restore the configuration on this target server or other servers using the `/r` command.

In the absence of a user defined file type the default type would be 'SCF'. So if you neither provide file type nor filename, the default filename will be `syscfg.SCF`

3.3 Restoring a Configuration

If you have already saved a configuration to a file, use the following procedure to restore the system to the saved configuration, or set the configuration on identical servers to the saved configuration.

The utility supports restoring BIOS and FW settings both in binary and in text mode (from a text file, known as INI file). Unlike restoring from a binary file, the advantage of using INI file is that you can modify and change the values of any of the settings available in the INI file. In this scenario, the INI file does not clone servers but provides a mechanism of configuring the same items with different values per your requirement.

Note: For restoring un-editable fields, section name headers and key names should not be

edited or deleted from the INI file.

To restore a configuration, do the following:

1. Boot the system to one of the supported Operating Systems.
2. Change to the directory containing the syscfg executable. (The saved configuration file should also be located in this directory.)
3. To restore the saved BIOS settings in

Windows*, Windows Pre-installation Environment*, or EFI, type:

```
syscfg /r filename.scf /b
```

In Linux*, type:

```
./syscfg /r filename.scf /b
```

4. On S1400, S1600, S2400, S2600, and S4600 platform series BIOS administrator password needs to be supplied as a mandatory filed as explained below
 - a. If BIOS administrator password is set

Windows*, Windows Pre-installation Environment*, or EFI, type:

```
syscfg /r filename.scf /b /bap <BIOS administrator password>
```

In Linux*, type:

```
./syscfg /r filename.scf /b /bap <BIOS administrator password>
```

- b. If BIOS administrator password is not set

Windows*, Windows Pre-installation Environment*, or EFI, type:

```
syscfg /r filename.scf /b
```

In Linux*

```
./syscfg /r filename.scf /b
```

Note: Save and Restore of SCF file format is not supported on S1200BT and S1400/S1600/S2400/S2600/S4600 platform series

3.4 Displaying Syscfg Help

To display syscfg help, type: `syscfg /h`

3.5 Displaying Current BIOS and Firmware Versions

To display the current BIOS and firmware settings, type: `syscfg /i`

4 Using Commands

This section lists the Generic commands/switches, BIOS, and Firmware commands and their tasks.

4.1 Quick Reference to Sysconfig Commands (Generic, BIOS, and Firmware)

The following table lists all the Sysconfig commands classified --as generic, BIOS, and Firmware -- for your quick reference:

Generic Commands/Switches	BIOS Commands	Firmware Commands			
		Channel Commands	LAN Commands	PEF Commands	User Commands
/d Display /i Information /q Quiet Mode switch /r Restore /s Save	/bap BIOS Administrator Password BIOS User Password (/bup) BIOS User Password /bbosys System Boot Order /bbo System Boot Order in detail /bcs BIOS Configure Setting /bldfs BIOS Load Default Factory Settings /bvar This command	/c Channels /csel Clear SEL /eac email Alert Configuration /eae email Alert Enable /h Help	/lac LAN Alert Configuration /lae LAN Alert Enable /lc LAN Configuration /le LAN Enable /lfo LAN Failover	/pefc PEF Configure /peff PEF Filter /pefp PEF Policy /prp Power Restore Policy /rbmc Reset BMC /rfs Restore firmware settings /rnm Reset Node Manager /sbmcdl Save BMC debug	/u Users /ue User Enable /up User privilege

Generic Commands/ Switches	BIOS Commands	Firmware Commands			
		Channel Commands	LAN Commands	PEF Commands	User Commands
	creates a new UEFI variable <u>/dt</u> Date and Time			log	

4.2 Generic Commands/Switches

4.2.1 Information (/i)

syscfg /i [*filename.SCF*] or **syscfg /i** [*filename.INI*]

Filename

File name for a System Configuration File (.SCF or .INI) in the current working directory. If the filename is not specified, the command displays the BIOS and firmware versions of the current system.

Display the BIOS and firmware versions of the system or the saved BIOS and firmware settings in a System Configuration File.

Examples:

```
syscfg /i  
syscfg /i btp.ini
```

Note: Display of BIOS and Firmware versions using SCF file format is not supported on S1200BT and S1400/S1600/S2400/S2600/S4600 platform series

4.2.2 Quiet (/q)

syscfg options /q

Options

Any other valid option. The /q switch must be at the end of the command line.

/q

Quiet Mode. This option prevents all output from the command.

Suppress all messages.

Example:

```
syscfg /r /f /b /q
```

4.2.3 Restore (/r)

syscfg /r [*filename*.**SCF**] {/f | /b | /f /b} or **syscfg /r** [*filename*.**INI**] {/f | /b | /f /b}

<i>Filename</i>	Filename of the syscfg configuration file (.SCF or .INI) in the current working directory. If no filename is specified, the default filename syscfg.scf or syscfg.ini is used based on the parameter supplied explained in the example below. The filename suffix must be .SCF or .INI.
/f	Restore the firmware settings. (See Appendix B for a list of the settings that are restored.)
/b	Restore the BIOS settings. (See Appendix B for a list of the settings that are restored.)

Restore the BIOS and firmware settings from a SCF/INI file.

Examples:

```
syscfg /r /f /b (default file name is syscfg.scf)
syscfg /r scf /f /b (default file name is syscfg.scf)
syscfg /r saved.scf /f
syscfg /r myscfg.scf /b /bap kwqt821

syscfg /r ini /f /b (default file name is syscfg.ini)
syscfg /r saved.ini /f
syscfg /r myscfg.ini /b /bap kwqt128
```

Notes:

- One or both of the /r and /f options are required.
- If the BIOS Administrator password is set, you must use the /bap command to enter the password.
- The static IP Address assigned by a DHCP server, the BIOS boot order, and other dynamic BIOS settings are not saved or restored.
- Save and Restore of SCF file format is not supported on S1200BT and S1400/S1600/S2400/S2600/S4600 platform series

4.2.4 Save (/s)

syscfg /s [*filename.SCF*] {/f | /b | /f /b} or **syscfg /s** [*filename.INI*] {/f | /b | /f /b}

<i>Filename</i>	File name to be used for the syscfg configuration file (.SCF or .INI) in the current working directory. If no filename is specified, the default file name syscfg.scf or syscfg.ini is used based on the parameter supplied explained in the example below. The filename suffix must be .SCF or .INI, if omitted; syscfg will add the .SCF suffix. The filename should consist of only alphanumeric characters.
<i>/f</i>	Save the firmware settings. (See Appendix B for a list of the settings that are saved.)
<i>/b</i>	Save the BIOS settings. (See Appendix B for a list of the settings that are saved.)

Save the BIOS and firmware settings to a SCF/INI file.

Example:

```
syscfg /s /f /b (default file name is syscfg.scf)
syscfg /s scf /f /b (default file name is syscfg.scf)
syscfg /s saved.scf /f

syscfg /s ini /f /b (default file name is syscfg.ini)
syscfg /s saved.ini /b
```

Notes:

- Save/Restore process following the INI file is not a means for exact cloning between the servers; it is a means to clone a subset of BIOS/FW configurable settings and a duplicating those settings in the deployed servers.
- Save and restore of Host IP, Subnet Mask, Default Gateway IP and Backup Gateway IP is not supported on S1200BT and S1400/S1600/S2400/S2600/S4600 platform series.

4.2.5 Display (/d)

syscfg /d {**CHANNEL** *Channel_ID* | **BIOS** | **BIOSSETTINGS** {{**group** *BIOS_Group_Name* *BIOS_Setting_Name* [*BIOS_Setting_Name...*] | [**individual**] *BIOS_Setting_Name* [*BIOS_Setting_Name...*] } | **LAN** *Channel_ID* *LAN_Alert_Destination_Index* | **POWER** | **PEF** *Filter_Table_Index* [*Policy_Table_Index*] | **SOL** *Channel_ID*} | **USER** *User_ID* [*Channel_ID*] | **FWADVCFG** *Channel_ID* [*User_ID* [*SMTP_Configuration_Index*]] }

CHANNEL	Displays the BMC Channel configuration for the specified channel.
<i>Channel_ID</i>	IPMI Channel ID.
BIOS	Displays the current values of the BIOS settings that can be configured with this utility (except the Administrator and User passwords.)
BIOSSETTINGS	Displays values of a subset the BIOS settings. The arguments that follow this keyword are used to select the BIOS settings to display.
group	Selects the BIOS Settings based on the name of the group in BIOS Setup. If both group and individual keywords are omitted, the default is individual.
individual	Selects the individual BIOS Settings anywhere in BIOS Setup. If two or more settings have the same name, the first setting found in BIOS Setup is displayed.
<i>BIOS_Group_Name</i>	The name of the page in the BIOS Setup screen. Refer to the Technical Product Specification for your server board for the BIOS Setup screen names.
<i>BIOS_Setting_Name</i>	The name of the BIOS settings on the BIOS Setup screen. Refer to the Technical Product Specification for your server board for the BIOS Setup setting names.
LAN	Displays the BMC LAN channel configuration. The Operating System settings may be different.
POWER	Displays the power restore policy.
PEF	Displays the Platform Event Filters.
SOL	Displays the Serial Over LAN settings.
USER	Displays the BMC user settings.
<i>Channel_ID</i>	IPMI Channel ID.
<i>LAN_Alert_Destination_Index</i>	Enter the LAN Alert Destination Index.
<i>Filter_Table_Index</i>	Enter the Filter Table Index.

<i>Policy_Table_Index</i>	Enter the PEF Policy Table Index.
<i>User_ID</i>	Enter an integer between 1 and n , where n is the number of users supported by the platform for the BMC User ID. User ID 1 is the anonymous user (no password).
FWADVCFG	Displays the advanced firmware settings for the channel, users, and SMTP configuration.
<i>Channel_ID</i>	IPMI Channel ID.
<i>User_ID</i>	BMC User ID. When used with the FWADVCFG keyword, the configuration information is displayed for the user.
<i>SMTP_Configuration_Index</i>	Specifies the SMTP configuration in the firmware email alerting tables.

Display the specified BMC and BIOS settings.

Examples:

```
syscfg /d channel 1
syscfg /d lan 1 2
syscfg /d pef 2 1
syscfg /d BIOSSETTINGS individual "Quiet Boot"
syscfg /d BIOSSETTINGS "Set Fan Profile"
syscfg /d BIOSSETTINGS group "Main" "Quiet Boot" "POST Error Pause"
syscfg /d biosettings group "system acoustics and performance configuration" "Set
throttling mode" "Altitude" "Set fan profile"
syscfg /d FWADVCFG 3 2 1
```

4.3 BIOS Commands

This section lists the BIOS Commands.

4.3.1 BIOS Administrator Password (/bap)

syscfg /bap {*old_password* | ""} [*new_password* | ""]

old_password
new_password

The maximum length of the password is seven characters. The password cannot have characters other than alphanumeric (a-z, A-Z, 0-9) and is case insensitive. Use two double quotes (") to represent a null password.

On S1400/S1600/S2400/S2600/S4600 platform series, the password should be a minimum of 8 characters and maximum 14 characters in length. The password can have characters alphanumeric (a-z, A-Z, 0-9) and special characters mentioned below

! @ # \$ % ^ * () - _ + = ? '

which are case insensitive. Use two double quotes (") to represent a null password.

Sets or clears the BIOS Administrator password. You must enter the old password, if set, or the null string if the Administrator password is currently not set, before entering the new password. Enter a null string for the new password to clear the password. The Administrator password controls access to all BIOS Setup fields including the ability to clear the User password. If only one password (Administrator or User) is set, then this password is required to enter Setup. If you set or change the BIOS Administrator password, you cannot change any other BIOS option using syscfg except the BIOS User and Administrator passwords. However on S1400/S1600/S2400/S2600/S4600 platform series you can change any other BIOS option using syscfg by providing the Administrator password. You may combine the /bap and /bup commands to set both the BIOS Administrator and User passwords at the same time.

Refer to the *Product Guide* for your Intel® Server Board for more information on BIOS Setup options.

Examples:

```
syscfg /bap "" kwm93a3
syscfg /bap kwm93a9 lqts284
syscfg /bap "" lqts284 /bup "" kwm93a3
```

On S1400/S1600/S2400/S2600/S4600 platform series

```
syscfg /bap "" admin@123
syscfg /bap admin@123 superuser@123
```

Note: The Set BIOS User Password (/bup) option (described in the following section) can only be used if system has a valid Administrator password set. Clearing the BIOS Administrator password will also clear the User password.

4.3.2 BIOS User Password (/bup)

syscfg /bup {*old_password* | ""} [*new_password* | ""]

On S1400/S1600/S2400/S2600/S4600 platform series the command is

syscfg /bup {*admin_password* | ""} {*old_user_password* | ""} [*new_user_password* | ""]

old_password, new_password

The maximum length of the password is seven characters. The password cannot have characters other than alphanumeric (a-z, A-Z, 0-9) and is case insensitive. Use two double quotes (") to represent a null password.

On S1400/S1600/S2400/S2600/S4600 platform series, the password should be a minimum of 8 characters and maximum 14 characters in length. The password can have characters alphanumeric (a-z, A-Z, 0-9) and special characters mentioned below

! @ # \$ % ^ * () - _ + = ? ' "

which are case insensitive. Use two double quotes (") to represent a null password.

Sets or clears the BIOS User password. You must enter the old password, if set, or the null string if the User password is currently not set, before entering the new password. Enter a null string for the new password to clear the password. The User password controls access to modify the following BIOS Setup fields: time, date, language, and User password. If only one password (Administrator or User) is set, then this password is required to enter Setup. If you set or change the BIOS User password, you cannot change any other BIOS option using syscfg except the BIOS User and Administrator passwords.

However on S1400/S1600/S2400/S2600/S4600 platform series you can change the user password by providing the administrator password as explained below.

Refer to the *Product Guide* for your Intel® Server Board for more information on BIOS Setup options.

Examples:

```
syscfg /bup "" kwm93a3
syscfg /bup kwm93a9 lqts284
syscfg /bup lqts284 ""
syscfg /bap "" lqts284 /bup "" kwm93a3
```

On S1400/S1600/S2400/S2600/S4600 platform series

```
syscfg /bup superuser@123 "" user@123
syscfg /bup superuser@123 user@123 newuser@123 ""
syscfg /bup superuser@123 newuser@123
syscfg /bup "" "" user?123 in this example the admin password is "" (not set)
```

Note: The /bup option can only be used if system has a valid Administrator password set. Clearing the Administrator password will also clear the User password

Note: On S1400/S1600/S2400/S2600/S4600 platform series User password cannot be same as administrator password.

4.3.3 System Boot Order (/bbosys)

syscfg /bbosys [*device_number* [*device_number* [...]]]

device_number

The current ordinal number of the system boot device (1 is the first device, 2 is the second device, and so on.). To change the order, specify an order for the device numbers (for example, if you specify "2 1 4 3" then the second boot device will be the first boot device after the command is executed.

Refer to the *Product Guide* for your Intel® Server Board for more information on BIOS Setup options.

Display or set the system boot order.

Examples:

```
syscfg /bbosys
1: PS-SONY CD-ROM CDU5221
2: 1st floppy drive
3: PM-WDC WD400BB-23FRA0
4: EFI Boot Manager
syscfg /bbosys 2 1 3 4
```

On S1400/S1600/S2400/S2600/S4600 platform series to set the BIOS boot order administrator password should be provided as explained below

1. When BIOS administrator password is set and its value is "admin@123"

```
syscfg /bbosys admin@123 2 1 3 4
```

2. When BIOS administrator password is not set

```
syscfg /bbosys "" 2 1 3 4
```

4.3.4 System Boot Order in detail (/bbo)

The "/bbo" switch will display elaborate information of all boot devices present in the system under different groups or classifications.

Display the detailed boot device information.

Examples:

```
syscfg /bbo
Number of boot devices = 7
=====
```

```

Boot Device Priority
-----
:: Local Hard Disk Boot Devices (HDD) ::
=====
1: KingstonDataTraveler 2.01.00
2: Secondary Master Hard Disk
3: JetFlashTranscend 8GB 8.07
:: CD/DVD Boot Devices (DVD) ::
=====
1: Primary Master CD-ROM
:: Network Boot Devices (NW) ::
=====
1: IBA GE Slot 0100 v1327
2: IBA GE Slot 0101 v1327
:: EFI Boot Devices (EFI) ::
=====
1: Internal EFI Shell

```

Changing the boot order of bootable devices types.

Example:

```
syscfg /bbo EFI NW DVD HDD
```

Here, EFI is now the first system boot option and Network boot is the second option, followed by CD/DVD, Hard Disk Drive and so on.

Changing the order of bootable devices within a particular boot device class

```
syscfg /bbo NW 2 1
```

Here, IBA GE Slot 0101 v1327 has been chosen as the first bootable option and IBA GE Slot 0100 v1327 has been chosen as the second bootable option in network boot device category.

On S1400/S1600/S2400/S2600/S4600 platform series to set the detailed system boot order administrator password should be provided as explained below

```
syscfg /bbo "admin@123" EFI NW DVD HDD
syscfg /bbo "admin@123" NW 2 1
```

If Administrator password is not set use:

```
syscfg /bbo "" EFI NW DVD HDD
syscfg /bbo "" NW 2 1
```

Note:

1. Reordering boot devices using /bbo should be followed by a system reset as per IPMI spec. Otherwise an immediate display command using /bbo switch may not display the correct boot device order.

2. /bbo commands cannot be cascaded; for example,

```
syscfg /bbo HDD 3 2 1
```

or

```
syscfg /bbo NW 2 1
```

are valid

but

```
syscfg /bbo HDD 3 2 1 NW 2 1
```

is not a valid command.

4.3.5 Configure BIOS Settings (/bcs)

syscfg /bcs [BIOS_Group_Name] BIOS_Setting_Name Value [BIOS_Setting_Name Value [...]]

On S1400/S1600/S2400/S2600/S4600 platform series the command is

syscfg /bcs [BIOS administrator password] [BIOS_Group_Name] BIOS_Setting_Name Value [BIOS_Setting_Name Value [...]]

<i>BIOS_Setting_Name</i>	The name of the BIOS settings on the BIOS Setup screen. Refer to the Technical Product Specification for your server board for the BIOS Setup setting names.
<i>BIOS_Group_Name</i>	The name of the page in the BIOS Setup screen. Refer to the Technical Product Specification for your server board for the BIOS Setup screen names.
<i>Value</i>	The value for the BIOS Setting.

Set the value of individual BIOS Settings.

Refer to the *Technical Product Specification* for your Intel® Server Board for more information on BIOS Setup options.

Examples:

```
syscfg /bcs "Quiet Boot" 0
syscfg /bcs "Main" "Quiet Boot" 0 "POST Error Pause" 1
syscfg /bcs "system acoustic and performance configuration" "Set throttling mode" 2
"Altitude" 900 "Set fan profile" 2
```

On S1400/S1600/S2400/S2600/S4600 platform series.

1. When BIOS administrator password is set and its value is "admin@123"

```
syscfg /bcs "admin@123" "Quiet Boot" 0
syscfg /bcs "admin@123" "Main" "Quiet Boot" 0 "POST Error Pause" 1
syscfg /bcs "admin@123" "system acoustic and performance configuration" "Set
throttling mode" 2 "Altitude" 900 "Set fan profile" 2
```

2. When BIOS administrator is not set.

```
syscfg /bcs "" "Quiet Boot" 0
syscfg /bcs "" "Main" "Quiet Boot" 0 "POST Error Pause" 1
syscfg /bcs "" "system acoustic and performance configuration" "Set throttling
mode" 2 "Altitude" 900 "Set fan profile" 2
```

Use the `syscfg /d biossettings` command to show the possible values for the BIOS Setting. For example:

```
syscfg /d biossettings group "Main" "Quiet Boot"
```

Note:

Intel® S1200BT and S1400/S1600/S2400/S2600/S4600 Series Server Boards utility does not support configuring "BMC Configuration" under BIOS "Server Management" settings using the switches `/bcs` and `/d biossettings`.

4.3.6 BIOS Load Default Factory Settings (/bldfs)

syscfg /bldfs

On S1400/S1600/S2400/S2600/S4600 platform series the command is

syscfg /bldfs [BIOS administrator password]

Refer to the *Product Guide* for your Intel® Server Board for more information on BIOS Setup default settings.

Load the default factory BIOS settings.

If the `/bldfs` option requires a reboot to reset the default settings.

Examples:

```
syscfg /bldfs
```

On S1400/S1600/S2400/S2600/S4600 platform series.

1. When BIOS administrator password is set and its value is "admin@123"

```
syscfg /bldfs admin@123
```

2. When BIOS administrator is not set.

```
syscfg /bldfs ""
```

4.3.7 BIOS Variable (/bvar)

syscfg /bvar

On S1400/S1600/S2400/S2600/S4600 platform series the command is

syscfg /bvar [BIOS administrator password]

The utility provides BIOS switch to create, modify, or delete a new EFI variable of user choice. The command line option of each of these commands is depicted in the following

table. The command is supported for Linux*, Windows* and UEFI environment.

<i>Command</i>	<i>Description</i>
<code>/bvar create</code>	<p>This command creates a new EFI variable. The parameters that "create" command takes are as follows –</p> <ul style="list-style-type: none"> • Name: name of the EFI variable that to be created • GUID: GUID of the EFI variables • Data: Data for the variable • Attributes: Attribute is optional while creating, if not provided it will take an attribute value of 7 <p>The command will be successful when the command is executed successfully and the variable is created. However if a variable with the same name and GUID is already existing, utility will provide appropriate message.</p>
<code>/bvar overwrite</code>	<p>This command will overwrite the data value of an existing EFI variable. Following are the parameters passed to this command –</p> <p>Name: Name of the existing variable GUID: Optional, however if the name is not unique then the utility will provide message for providing GUID as an additional parameter. Data: Data that are to be overwritten</p>
<code>/bvar delete</code>	<p>This command will delete an existing EFI variable. The parameters passed are as follows –</p> <p>Name: Name of variable GUID: Optional and needed if name is not unique</p>

Note:

1. Caution should be taken before deleting any EFI variable or rewrite the data of an existing variable. If done wrongly this may lead to the system be unstable.
2. The attributes 0, 1, 2, 4, 5 and 6 are not supported with this switch.
3. The supported attributes are 3 and 7

Attributes	Description.
3	Non-Volatile(NV) + Boot Service Access(BS)
7	Non-Volatile(NV) + Boot Service Access(BS) + Real Time(RT)

Examples:

```
syscfg /bvar create testvar 33838512-0BC7-4ba4-98C0-0219C2B61BF9 testvardata
syscfg /bvar create testvar 33838512-0BC7-4ba4-98C0-0219C2B61BF9 testvardata 3
syscfg /bvar overwrite testvar testvarnewdata
syscfg /bvar delete testvar
```

On S1400/S1600/S2400/S2600/S4600 platform series.

1. When BIOS administrator password is set and it value is "admin@123"

```
syscfg /bvar "admin@123" create testvar 33838512-0BC7-4ba4-98C0-0219C2B61BF9
testvardata
syscfg /bvar "admin@123" create testvar 33838512-0BC7-4ba4-98C0-0219C2B61BF9
testvardata 3
syscfg /bvar "admin@123" overwrite testvar testvarnewdata
```

```
syscfg /bvar "admin@123" delete testvar
```

2. When BIOS administrator is not set.

```
syscfg /bvar "" create testvar 33838512-0BC7-4ba4-98C0-0219C2B61BF9 testvardata  
syscfg /bvar "" create testvar 33838512-0BC7-4ba4-98C0-0219C2B61BF9 testvardata  
3  
syscfg /bvar "" overwrite testvar testvarnewdata  
syscfg /bvar "" delete testvar
```

4.4 Firmware Commands

This section lists the Firmware commands.

4.4.1 Channels (/c)

syscfg {/c | /channel} [channel_ID { 1 {none | straight | MD5} | 2 {none | straight | MD5} | 3 {none | straight | MD5} | 4 {none | straight | MD5} | 5 {enable | disable} | 6 {enable | disable} | 7 {disabled | preboot | always | shared} | 8 {callback | user | operator | admin} | 9 {enable | disable} }]

<i>Channel_ID</i>	BMC channel ID number.
1	Selects the authentication types for callback privilege level.
2	Selects the authentication types for user privilege level.
3	Selects the authentication types for operator privilege level.
4	Selects the authentication types for Admin privilege level.
5	Selects the Per message authentication.
6	Selects User Level Authentication enable.
7	Selects the Access Mode. Values of preboot and shared are only valid for serial channels.
8	Selects the Privilege level limit for the channel.
9	Selects Enable PEF on the specified channel.
none straight MD5	Authentication method for callback, user, operator, and admin privilege levels. You can enable multiple authentication methods by separating the possible values with the plus sign.
disabled preboot always shared	Access Mode. Values of preboot and shared are only valid for serial channels.
callback user operator admin	Privilege Level.
enable disable	Enable or Disable Per Message Authentication, User Level Authentication, and PEF.

Configure the BMC channels. Use this command to change a single parameter (selected by the number 1..9)

Examples:

```
syscfg /c
syscfg /c 1 1 straight+MD5
syscfg /c 1 7 always /c 1 8 admin
```

Note: Callback privilege option is not supported for S1200BT and S1400/S1600/S2400/S2600/S4600 series of platforms.

4.4.2 Clear SEL (/csel)

syscfg {/csel | /clearSEL}

Clears the System Event Log (SEL).

```
syscfg /csel  
syscfg /clearSEL
```

4.4.3 Date and Time (/dt)

syscfg {/dt | /timeofday} *hh:mm:ss mm/dd/yyyy*

On S1400/S1600/S2400/S2600/S4600 platform series the command is

syscfg {/dt | /timeofday} [*BIOS administrator password*] *hh:mm:ss mm/dd/yyyy*

hh:mm:ss

Hours (24 hour clock), minutes, and seconds.

mm/dd/yyyy

Month, day, and year.

Sets the time of day stored in the Real Time Clock (RTC) by the BIOS.

Example:

```
syscfg /dt 18:45:00 12/20/2007
```

On S1400/S1600/S2400/S2600/S4600 platform series.

1. When BIOS administrator password is set and its value is "admin@123"

```
syscfg /dt "admin@123" 18:45:00 08/15/2011
```

2. When BIOS administrator is not set.

```
syscfg /dt "" 18:45:00 08/15/2011
```

4.4.4 email Alert Configure (/eac)

syscfg {/eac | /emailalertconf} *SMTP_Configuration_Index* {0|1 | 2 | 3 |4 |5 |6 |7} *ASCII_String*
Channel number

SMTP_Configuration_Index

1 to *n*. An index into the SMTP configuration table in firmware. The maximum number *n* depends on the firmware on your server board (refer to your server documentation for details).

{0|1 | 2 | 3 |4 |5 |6 |7}

0 = SMTP Enable/Disable

1 = From Address

2 = To Address

3 = Subject

- 4 = SMTP User Name
- 5 = User Password (Only Set, no Get)
- 6 = Server Address
- 7 = Message Content

ASCII_String

This is the value for the selected parameter. Use double quotes (") to enclose strings that include space characters.

The possible values for these parameters are Valid LAN Channel

Channel Number

Configures the SMTP Enable/Disable From, To, Subject, SMTP User Name, User Password, Server Address and Message Content lines in the firmware email alerting SMTP configuration table.

Example:

```
syscfg /eac 1 1 server2@companyx.com 1
```

4.4.5 email Alert Enable (/eae)

syscfg {/eae | /emailalertenable} *Sender_Name Channel_Number*

Sender_Name

Sender machine name. This string identifies the managed server to the SMTP server.

Channel number

Valid LAN channel number

Sets the sender machine name for SMTP email alerts from the current server.

Example:

```
syscfg /eae dupont01 3
```

4.4.6 help (/h)

syscfg {/h | /?} {lan | user | pef | sol | power | channel | system | fwadvcfg | bios}

lan | user | pef | sol | power |
channel | system | fwadvcfg | bios

Displays help in the specified area.

Note: In Linux*, to use the /? option, you must enclose it in double quotes.

Displays help on the system configuration utility.

Examples:

```
syscfg /h lan  
syscfg /? power
```

4.4.7 LAN Alert Configuration (/lac)

syscfg {/lac | /lanalertconf} Channel_Id Alert_Destination_Index Alert_Destination_IP_Address {Alert_ID_MAC_Address | "resolve"} {enable | disable} {enable | disable} {1..7} {1..255} {SNMP | SMTP}

Channel_Id	IPMI Channel number.
Alert_Destination_Index	Index into the Alert Destination table.
Alert_Destination_IP_Address	IP address of the alert destination in the dot separated decimal value format: <i>n.n.n.n</i> , where <i>n</i> is a number between 0 and 255.
Alert_ID_MAC_Address	MAC address of the alert destination in the hexadecimal format separated by hyphens: <i>hh-hh-hh-hh-hh-hh</i> , where <i>h</i> is a hexadecimal value from 0 to F., or "resolve" to automatically resolve the MAC Address
enable disable	Backup Gateway state.
enable disable	Alert Acknowledge state.
1..7	Retry count.
1..255	Retry interval in seconds.
SNMP SMTP	Alert destination type: SNMP (Simple Network Management Protocol) or SMTP (Simple Mail Transport Protocol). The default is SNMP.

Configures the LAN Alert destinations for a channel. See *IPMI 2.0 Specification* for more information.

Example:

```
syscfg /lac 1 1 10.78.211.40 03-FE-02-41-F3 disable disable 0 1 SNMP
```

4.4.8 LAN Alert Enable (/lae)

syscfg {/lae | /lanalertenable} Channel_ID Gateway_IP_Address {Gateway_MAC_Address | "resolve"} SNMP_Community_String [Backup_Gateway_IP_Address {Backup_Gateway_MAC_Address | "resolve"}]

Channel_ID	IPMI Channel ID
Gateway_IP_Address	Gateway IP Address for the specified LAN channel
Gateway_MAC_Address	Gateway MAC Address for the specified LAN channel or "resolve" to automatically resolve the MAC Address
SNMP_Community_String	Enter the SNMP community string, or the null string ("")

Backup_Gateway_IP_Address

Gateway IP Address for the specified LAN channel

Backup_Gateway_MAC_Address

Gateway MAC Address for the specified LAN channel or "resolve"

Notes:

- The Gateway_MAC_Address and Backup_Gateway_MAC_Address may optionally be set to "resolve". If set to "resolve", syscfg will attempt to resolve the MAC address before writing any values to firmware. If the MAC Address resolution fails, syscfg quits, without writing, and prints an error message.
- On S1200BT and S1400/S1600/S2400/S2600/S4600 platform series, the "Resolve" option is not supported across different subnets. Also, use of resolve command is not encouraged.

Enables LAN alerting on the specified channel. See *IPMI 2.0 Specification* for more information.

```
syscfg /lae 2 10.110.40.3 03-FE-02-41-F3 public  
syscfg /lae 2 10.110.40.3 03-fe-02-41-f3 "" 10.110.40.4 0f-7e-42-4a-33
```

4.4.9 LAN Configuration (/lc)

syscfg {/lc | /lanconf} Channel_ID {2a {none | straight | MD5} | 2b {none | straight | MD5} | 2c {none | straight | MD5} | 2d {none | straight | MD5} | 3 IP_Address | 4 {static | DHCP} | 6 IP_Address | 10 {enable | disable} | 10b {enable | disable} | 11 {0..127500} | 12 IP_Address | 13 MAC_Address | 14 IP_Address | 15 MAC_Address | 16 SNMP_Community_String }

<i>Channel_ID</i>	IPMI Channel ID (LAN channel)
<i>2a</i>	Selects authentication type for callback privilege level. Multiple privilege levels may be specified by using the plus sign (see example below).
<i>2b</i>	Selects authentication type for user privilege level. Multiple privilege levels may be specified by using the plus sign (see example below).
<i>2c</i>	Selects authentication type for operator privilege level. Multiple privilege levels may be specified by using the plus sign (see example below).
<i>2d</i>	Selects authentication type for administrator privilege level. Multiple privilege levels may be specified by using the plus sign (see example below).
<i>3</i>	Selects IP Address for the specified LAN channel. (This is not a valid option when the source is set to DHCP.)
<i>4</i>	Selects source for IP Address
<i>6</i>	Selects subnet mask. (This is not a valid option when the source is set to DHCP.)
<i>10</i>	Enables Gratuitous ARP. The BMC will generate ARP packets at regular intervals. (LAN channels 1 and 2 only.) Not supported on Intel® Server Boards X38MLST and S3200SH.
<i>10b</i>	Enables the BMC to generated ARP responses when an ARP request is received. (LAN channels 1 and 2 only.) ARP responses cannot be disabled on Intel® Server Boards X38MLST and S3200SH.
<i>11</i>	Selects Gratuitous ARP interval in milliseconds (rounded down to a value that is a multiple of 500 ms). (LAN channels 1 and 2 only.) Not supported on Intel® Server Boards X38MLST and S3200SH.
<i>12</i>	Selects Gateway IP Address. (This is not a valid option when the source is set to

	DHCP.)
13	Selects Gateway MAC Address
14	Selects Backup Gateway IP Address
15	Selects Backup Gateway MAC Address
16	Selects Community String
C7	Up to a 64 byte ASCII string (printable characters in the range 0x21 to 0x7e) DHCP Host Name String
102	IPV6 Enable, use Enable or Disable to Enable/Disable "IPV6 Enable" parameter.
103	Selects source for IPV6 IP Address. Values to be used are STATIC, DHCPV6 and AUTO
104	Selects IPV6 IP Address for the specified LAN channel. (This is not a valid option when the IPV6 IP source is set to DHCPV6 or AUTO.) format is xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx
105	Selects the IPV6 Prefix Length. (This is not a valid option when the IPV6 IP source is set to DHCPV6 or AUTO.) Prefix length should be from 0 to 128 as per IPv6 spec.
106	Selects the IPv6 Default Gateway IP. (This is not a valid option when the IPV6 IP source is set to DHCPV6 or AUTO.) format is xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx

Configures the LAN settings on a specific channel. This option is similar to /lac, but it is used to only configure one parameter at a time. Select the parameter by choosing one of the parameter number listed above (2a, 2b, ... 16) followed by a value. See *IPMI 2.0 Specification* for more information

Notes:

- The Host IP, Subnet Mask and Default Gateway IP cannot be set when DHCP is enabled for the LAN channel.
- The Host MAC address cannot be set for any LAN channel in ESB2 BMC.
- The BMC-generated ARP responses cannot be set to "disable" on S1200BT and S1400/S1600/S2400/S2600/S4600 platform series.
- The Gratuitous ARP is not supported on S1200BT and S1400/S1600/S2400/S2600/S4600 platform series.
- The Gratuitous ARP interval value cannot be set on S1200BT and S1400/S1600/S2400/S2600/S4600 platform series.
- The DHCP Host Name is common for all LAN Channels.

- The set DHCP Host name will be used on the next DHCP lease renewal or at the current lease expiration

Example:

```
syscfg /lc 1 2b none+straight+md5
syscfg /lc 1 C7 TestDHCPHostName
syscfg /lc 1 102 ENABLE
syscfg /lc 1 103 AUTO
```

4.4.10 LAN Enable (/le)

syscfg {/le | /lanenable} Channel_ID {dhcp | {static IP_Address Subnet_Mask}}

Channel_ID	BMC LAN Channel ID
static dhcp	IP Address source
IP_Address	IP Address
Subnet_Mask	Subnet mask

Configures the LAN channel used by the BMC on the specified channel. See *IPMI 2.0 Specification* for more information.

Examples:

```
syscfg /le 1 dhcp
syscfg /le 1 static 10.30.240.21 255.255.255.0
```

4.4.11 LAN Failover Mode (/lfo)

syscfg {/lfo | /lanfailover} {enable | disable}

ENABLE | ENABLE Enable or Disable LAN Failover

On S1400/S1600/S2400/S2600/S4600 platform BMC FW provides a LAN failover capability such that the failure of the system HW associated with one LAN link will result in traffic being rerouted to an alternate link.

4.4.12 PEF Configure (/pefc)

syscfg {/pefc | /pefconfig} {enable | disable} {none | alert | pdown | reset | pcycle | diagint}

enable disable	Global PEF enable.
none alert pdown reset pcycle diagint	PEF Action. Enable multiple actions by using a plus sign to concatenate the values. none may not be combined with other options. pdown means "power down," pcycle means "power cycle," and diagint means "diagnostic interrupt."

Global enable of the Platform Event Filters used by the BMC. See *IPMI 2.0 Specification*, Chapter 17, for more information on Platform Event Filtering.

Example:

```
syscfg /pefc enable alert+pdwn+reset+pcycle
```

4.4.13 PEF Filter (/peff)

syscfg {**/peff** | **/peffilter**} *Filter_table_index* {**enable** | **disable**} {**none** | **alert** | **pdwn** | **reset** | **pcycle** | **diagint**} {1..15}

<i>Filter_table_index</i>	Index into the PEF filter table for a particular filter.
enable disable	Enable specified filter.
none alert pdwn reset pcycle	PEF Action. Enable multiple actions by using a plus sign to concatenate the values. none may not be combined with other options. pdwn means "power down." pcycle means "power cycle."
1..15	Policy number. This number maps to the Alert Policy Table. (See also /pefp option.)

Configures the Platform Event Filters used by the BMC on the specified channel. See *IPMI 2.0 Specification*, Chapter 17, for more information on Platform Event Filtering.

Example:

```
syscfg /peff 3 enable pdwn 1 /peff 4 enable pdwn 1
```

4.4.14 PEF Policy (/pefp)

syscfg {**/pefp** | **/pefpolicy**} *Policy_table_index* {**enable** | **disable**} {1..15} {**ALWAYS** | **NEXT_E** | **STOP** | **NEXT_C** | **NEXT_T**} *Channel_ID* *Destination_table_index*

<i>Policy_table_index</i>	Policy Table Index
enable disable	Enable policy
1..15	Policy number
ALWAYS NEXT_E STOP NEXT_C NEXT_T	Alert Policy: ALWAYS = always send an alert to the destination indicated in the policy table entry specified by argument 1. NEXT_E = if an alert was successfully sent to the previous destination attempted, then do not send an alert to the destination indicated in the policy table entry specified in argument 1, but go to the next policy table entry with the same policy number instead. STOP=if an alert was successfully sent to the

previous destination attempted, then do not send an alert to the destination indicated in the policy table entry specified in argument 1, and do not process any more policy table entries.

NEXT_C = if an alert was successfully sent to the previous destination attempted, do not send an alert to the destination indicated in the policy table entry specified in argument 1, but go to the next policy table entry with the same policy number but that will send an alert on a different channel.

NEXT_T = if an alert was successfully sent to the previous destination attempted, do not send an alert to the destination indicated in the policy table entry specified in argument 1, but go to the next policy table entry with the same policy number but a different destination type.

Channel_ID

IPMI Channel ID for a BMC channel

Destination_table_index

Destination Table Index

Configures the Platform Event Filter policy table used by the BMC on the specified channel. See *IPMI 2.0 Specification*, Chapter 17, for more information on Platform Event Filtering.

Example:

```
syscfg /pefp 3 enable 1 always 2 3
```

4.4.15 Power Restore Policy (/prp)

syscfg /prp {off | on | restore}

off | on | restore

Power restore policy

Sets the power restore policy. See *IPMI 2.0 Specification*, §28.8, for more information on the Set Power Restore Policy IPMI Command.

Example:

```
syscfg /prp off
```

4.4.16 Reset BMC (/rbmc)

syscfg {/rbmc | resetBMC}

Resets the Baseboard Management Controller.

Examples:

```
syscfg /rbmc
```

Note: This command should be used by itself. Do not issue Syscfg commands for a few seconds (approx 50 sec) after this command to allow the BMC to initialize.

4.4.17 Restore Firmware Settings (/rfs)

syscfg {/rfs | restorefirmwaresettings}

Restores the factory default Baseboard Management Controller settings.

Example:

```
syscfg /rfs
```

Note: This command should be used by itself. Do not issue Syscfg commands for a few seconds (approx 50 sec) after this command to allow the BMC to initialize. After a few seconds, follow this command with the Reset BMC or AC Power Cycle. Unpredictable operation may occur if you do not reset the BMC after this command.

4.4.18 Reset Node Manager (/rnm)

syscfg {/rnm | resetnodemanager}

Resets the Node Manager (NM).

Node Manager (NM) provides a mechanism for the customer to configure multiple power policies on a platform. These policies can have a defined action to “shutdown” the platform. If the customer configures a power policy that performs a “shutdown” and the power threshold is set too low, the platform will not boot to the operating system if it is ACPI aware. A utility that runs in the EFI environment (which is not ACPI aware) allows for an in-band recovery mechanism.

Example:

```
syscfg /rnm or syscfg /resetnodemanager
```

4.4.19 Serial Over LAN (/sole)

syscfg {/sole | /soleenable} *Channel_ID* {enable | disable} {user | operator | admin}
{9600 | 19200 | 38400 | 115200} {0..7} {0..2550}

<i>Channel_ID</i>	IPMI Channel ID
enable disable	SOL enable
user operator admin	Privilege Level Limit

9600 19200 38400 115200	Baud Rate
0..7	Retry count
0..2550	Retry interval in milliseconds, rounded to the nearest 10 ms

Enables Serial Over LAN (SOL) on the specified LAN channel.
See *IPMI 2.0 Specification*, Chapter 26, for more information on IPMI SOL commands.

Example:

```
syscfg /sole 1 Enable Operator 19200 6 200
```

On S1400/S1600/S2400/S2600/S4600 platform series Serial Baud Rate is not supported.

Example:

```
syscfg /sole 1 Enable Operator 6 200
```

4.4.20 Save BMC debug log

syscfg {**/sbmcdl** | **/savebmcdebuglog**} [*Public* | *Private*] [*filename*]

Public | **Private**

Regular System Diagnostics or Intel System Diagnostics

Filename

Name of the file to save the BMC diagnostics data, the extension should be .zip or .ZIP

On S1400/S1600/S2400/S2600/S4600 platform series SysCfg utility provides an option to save BMC debug log to a ZIP file for system diagnostics purpose.

4.4.21 Users (/u)

syscfg {**/u** | **/user**} *User_ID* *User_name* *Password*

User_ID

User ID. Use a decimal integer in the range [1..n], the maximum value for n is 5. That is, only five users are supported irrespective of the platforms. User ID 1 is usually the anonymous user.

User_name

BMC User name consisting of up to 16 ASCII characters in the range 0x21 to 0x7e, except "[" and "]". Use "" to leave user name as

Password

anonymous.

User BMC Password. ASCII string of up to 20 characters.

Sets the user name and password for the specified BMC user. See *IPMI 2.0 Specification* for more information on user passwords.

Note:

- The user names for User 1 (NULL) and User 2 (Root) cannot be changed on Intel® S1200BT and S1400/S1600/S2400/S2600/S4600 platform series.
- Duplicate user names are not supported on Intel® S1200BT and S1400/S1600/S2400/S2600/S4600 platform series.

Examples:

```
syscfg /u 3 BobT qofps  
syscfg /u 2 " " "
```

4.4.22 User Enable (/ue)

syscfg {/ue | /userenable} *User_ID* {enable | disable} *Channel_ID*

<i>User_ID</i>	User ID. Use a decimal integer in the range [1.. <i>n</i>] where <i>n</i> is the number of users supported by the platform BMC. User ID 1 is usually the anonymous user.
enable disable	Enable or disable the specified user
<i>Channel_ID</i>	IPMI Channel ID

Enables or disables the BMC user on the specified BMC channel. See *IPMI 2.0 Specification* for more information on user configuration settings.

Example:

```
syscfg /ue 3 enable 1
```

4.4.23 User Privilege (/up)

syscfg {/up | /userprivilege} *User_ID* *Channel_ID* {callback | user | operator | admin | none} [SOL | KVM | SOL+KVM]

<i>User_ID</i>	BMC user ID.
<i>Channel_ID</i>	BMC channel number.
callback user operator admin none	IPMI privilege level. Privilege level "none" is not supported on Intel® Server Boards X38MLST, S3200SH, S55XX and S3420GP.
SOL KVM SOL+KVM	Specifies the type of payload: Serial Over LAN, KVM, or both.

Enables or disables the BMC user on the specified BMC channel. See *IPMI 2.0 Specification* for more information on user privilege levels.

Notes:

- User 2 (Root) privileges cannot be changed on Intel® S1200BT and S1400/S1600/S2400/S2600/S4600 platform series.
- Privilege level "none" is not supported on Intel® S1200BT and S1400/S1600/S2400/S2600/S4600 platform series.
- Maximum five users will be supported by the utility irrespective of number of users support in the FW

Examples:

```
syscfg /up 1 1 admin  
syscfg /up 1 1 admin sol
```

A Appendix A: IPMI Channel Assignments

The following table lists the Intel® Server Boards and their corresponding IPMI Channel assignments:

Server Board	IPMI Channel Assignment
Intel® S1200BT platform series	Channel 1 Baseboard LAN Channel A Channel 3 Optional Intel® RMM NIC
Intel® Server Board S1400 Intel® Server Board S1600 Intel® Server Board S2400 Intel® Server Board S2600 Intel® Server Board S4600	Channel 1 Baseboard LAN Channel Channel 2 Baseboard LAN Channel Channel 3 Optional Intel® RMM4 NIC

B Appendix B: Saved Firmware Settings

This section describes firmware settings that are saved and restored with syscfg in binary and INI formats.

Binary Format

The following table lists the firmware settings that are saved and restored with syscfg in binary formats.

Table 3. Saved Firmware Settings

Component	Setting
Power Configuration Settings	Power Restore Policy
LAN Channel Settings	Alert Enable
	Per Message Authentication
	User Level Authentication Enable
	Access Mode
	Privilege Level Limit
	Community String
	Gratuitous ARP enable
	ARP interval
	Authentication Types
	DHCP enabled
	DHCP Host Name
	Subnet Mask
	Gateway IP
	Gateway MAC
	Backup Gateway IP
Backup Gateway MAC	
	BMC ARP Response Enable
Note:	
<i>On S1200BT and S1400/S1600/S2400/S2600/S4600 Platform series Save and Restore of Host IP, Subnet Mask, Default Gateway IP and Backup Gateway IP is not supported</i>	
LAN Alert Settings [†]	Alert Acknowledge Enabled
	Alert IP
	Alert MAC
	Gateway Selector

Component	Setting
	Retry Count
	Retry Interval
User Settings	User Name
	User Password
	Privilege Level Limit
	Callback Status
	Link Authentication Enable
	IPMI messaging enabled
	User Payload
Platform Event Filter Settings [†]	PEF Enable
	Event Message for PEF Action
	Startup Delay
	Alert Startup Delay
	Global Control Actions
	Event Filters
	Alert Policies
Serial Over LAN Settings	SOL Enable
	SOL Privilege Level
	SOL Retry Count
	SOL Retry Interval
	SOL Baud Rate*
	SOL Authentication Enable
SMTP Alert Settings	Enable/Disable SMTP
	Sender Machine Name
	From Address
	To Address
	Subject Line
	User Name
	User Password
	Server Address
	Message Content
	LAN Alert Destination/SNMP Alert Index Mapping

Note: On S1400, S1600, S2400, S2600 and S4600 platform series SOL Baud Rate is not supported.

Example of INI File

Instructions for using INI file:

- Section Header – must not be edited – could lead unpredictable behavior.
- Un-editable fields have specific instructions
- Options for the fields are clearly called out – no other options allowed
- Not all IPMI/BIOS settings under a section will be available – only those that are required for the user to configure
- The section headers are generated automatically depending on the platform and few sections and fields may not be available depending on the platform firmware and BIOS

```
; Warning!!! Warning!!! Warning!!!  
; -----  
; This file has been generated in a system with the BIOS/Firmware  
; specifications as mentioned under [SYSTEM] section. Please do not  
; modify or edit any information in this section. Attempt to restore  
; these information in incompatible systems could cause serious  
; problems to the systems and could lead the system non-functional.  
; Note: The file is best seen using wordpad.
```

```
[SYSTEM]  
BIOSVersion=SE5C600.86B.99.99.x032.072520111118      ; This field should not  
be edited  
FWBootVersion=4      ; This field should not  
be edited  
FWOpcodeVersion=21      ; This field should not  
be edited  
PIAVersion=6      ; This field should not  
be edited
```

```
[POWER]  
PowerRestorePolicy=ON      ; Options: On, Off or  
Restore
```

```
[USERS]  
NumberOfUsers=5      ; This field should not  
be edited
```

```
[USERS::USER1]  
UserName=      ; This field should not  
be edited  
GlobalUserStatus=DISABLE      ; Options: Enable or  
Disable
```

```

PrivilegeCh1=ADMIN ; Options: User,
Operator, Admin, NoAccess
UserAccessCh1=DISABLE ; Options: Enable or
Disable
SOLEnableCh1=ENABLE ; Options: Enable or
Disable
PrivilegeCh2=ADMIN ; Options: User,
Operator, Admin, NoAccess
UserAccessCh2=DISABLE ; Options: Enable or
Disable
SOLEnableCh2=ENABLE ; Options: Enable or
Disable
PrivilegeCh3=ADMIN ; Options: User,
Operator, Admin, NoAccess
UserAccessCh3=DISABLE ; Options: Enable or
Disable
SOLEnableCh3=ENABLE ; Options: Enable or
Disable

[USERS::USER2]
UserName=root ; This field should not
be edited
GlobalUserStatus=DISABLE ; Options: Enable or
Disable
PrivilegeCh1=ADMIN ; This field should not
be edited
UserAccessCh1=ENABLE ; This field should not
be edited
SOLEnableCh1=ENABLE ; This field should not
be edited
PrivilegeCh2=ADMIN ; This field should not
be edited
UserAccessCh2=ENABLE ; This field should not
be edited
SOLEnableCh2=ENABLE ; This field should not
be edited
PrivilegeCh3=ADMIN ; This field should not
be edited
UserAccessCh3=ENABLE ; This field should not
be edited
SOLEnableCh3=ENABLE ; This field should not
be edited

[USERS::USER3]
UserName=test1 ; ASCII printable
characters in the range of 0x21 to 0x7E. Max length 16 bytes
GlobalUserStatus=DISABLE ; Options: Enable or
Disable
PrivilegeCh1=ADMIN ; Options: User,
Operator, Admin, NoAccess

```

```

UserAccessCh1=DISABLE ; Options: Enable or
Disable
SOLEnableCh1=ENABLE ; Options: Enable or
Disable
PrivilegeCh12=ADMIN ; Options: User,
Operator, Admin, NoAccess
UserAccessCh2=DISABLE ; Options: Enable or
Disable
SOLEnableCh2=ENABLE ; Options: Enable or
Disable
PrivilegeCh13=ADMIN ; Options: User,
Operator, Admin, NoAccess
UserAccessCh3=DISABLE ; Options: Enable or
Disable
SOLEnableCh3=ENABLE ; Options: Enable or
Disable

```

[USERS::USER4]

```

UserName=test2 ; ASCII printable
characters in the range of 0x21 to 0x7E. Max length 16 bytes
GlobalUserStatus=DISABLE ; Options: Enable or
Disable
PrivilegeCh11=ADMIN ; Options: User,
Operator, Admin, NoAccess
UserAccessCh1=DISABLE ; Options: Enable or
Disable
SOLEnableCh1=ENABLE ; Options: Enable or
Disable
PrivilegeCh12=ADMIN ; Options: User,
Operator, Admin, NoAccess
UserAccessCh2=DISABLE ; Options: Enable or
Disable
SOLEnableCh2=ENABLE ; Options: Enable or
Disable
PrivilegeCh13=ADMIN ; Options: User,
Operator, Admin, NoAccess
UserAccessCh3=DISABLE ; Options: Enable or
Disable
SOLEnableCh3=ENABLE ; Options: Enable or
Disable

```

[USERS::USER5]

```

UserName=test3 ; ASCII printable
characters in the range of 0x21 to 0x7E. Max length 16 bytes
GlobalUserStatus=DISABLE ; Options: Enable or
Disable
PrivilegeCh11=ADMIN ; Options: User,
Operator, Admin, NoAccess
UserAccessCh1=DISABLE ; Options: Enable or
Disable

```

```

SOLEnableCh1=ENABLE ; Options: Enable or
Disable
PrivilegeCh12=ADMIN ; Options: User,
Operator, Admin, NoAccess
UserAccessCh2=DISABLE ; Options: Enable or
Disable
SOLEnableCh2=ENABLE ; Options: Enable or
Disable
PrivilegeCh13=ADMIN ; Options: User,
Operator, Admin, NoAccess
UserAccessCh3=DISABLE ; Options: Enable or
Disable
SOLEnableCh3=ENABLE ; Options: Enable or
Disable

[PEF]
PEFEnable=ENABLE ; Options: Enable,
Disable

[PEF::FILTERS]
Filter1=DISABLE ; Options: Enable,
Disable
Filter2=DISABLE ; Options: Enable,
Disable
Filter3=DISABLE ; Options: Enable,
Disable
Filter4=DISABLE ; Options: Enable,
Disable
Filter5=DISABLE ; Options: Enable,
Disable
Filter6=DISABLE ; Options: Enable,
Disable
Filter7=DISABLE ; Options: Enable,
Disable
Filter8=DISABLE ; Options: Enable,
Disable
Filter9=DISABLE ; Options: Enable,
Disable
Filter10=DISABLE ; Options: Enable,
Disable
Filter11=DISABLE ; Options: Enable,
Disable
Filter12=DISABLE ; Options: Enable,
Disable

[LANCHANNELS]
NumberOfLANChannels=3 ; This field should not
be edited
DHCPHostName=DCMI001E670DD158 ; ASCII printable
characters in the range of 0x21 to 0x7E. Max length 64 bytes

```

```

LANFailOver=DISABLE ; Options: Enable or
Disable

[CHANNEL::LAN1]
AlertEnable=ENABLE ; Options: Enable,
Disable
PerMessageAuthentication=ENABLE ; Options: Enable,
Disable
UserLevelAuthentication=ENABLE ; Options: Enable,
Disable
AccessMode=ALWAYS ; Options:Disable,
Always, shared
PrivilegeLevelLimit=ADMIN ; Options: User,
Operator, Admin
CommunityString=public ; Upto 16 bytes, no
space allowed
ARPEnable=DISABLE ; Options: Enable,
Disable
ARPResponse=ENABLE ; Options: Enable,
Disable
ARPInterval=0 ; Decimal value between
0 & 255. This values is in milliseconds. Input value rounded down to the
nearest 500ms value
DHCPEnable=DISABLE ; Options: Enable or
Disable. If 'Disable' static IP will be used
HostIP=0.0.0.0 ; This field should not
be edited
SubnetMask=0.0.0.0 ; This field should not
be edited
GatewayIP=0.0.0.0 ; This field should not
be edited
GatewayMAC=00-00-00-00-00-00 ; This field should not
be edited
BackupGatewayIP=0.0.0.0 ; This field should not
be edited
BackupGatewayMAC=00-00-00-00-00-00 ; This field should not
be edited
IPV6Status=DISABLE ; Options: Enable or
Disable
AlertIP0=0.0.0.0 ; In xxx.xxx.xxx.xxx
form
AlertMAC0=00-00-00-00-00-00 ; In xx-xx-xx-xx-xx-xx
form
AlertIP1=0.0.0.0 ; In xxx.xxx.xxx.xxx
form
AlertMAC1=00-00-00-00-00-00 ; In xx-xx-xx-xx-xx-xx
form

[CHANNEL::LAN2]
AlertEnable=ENABLE ; Options: Enable,

```

```

Disable
PerMessageAuthentication=ENABLE ; Options: Enable,
Disable
UserLevelAuthentication=ENABLE ; Options: Enable,
Disable
AccessMode=ALWAYS ; Options:Disable,
Always, shared
PrivilegeLevelLimit=ADMIN ; Options: User,
Operator, Admin
CommunityString=public ; Upto 16 bytes, no
space allowed
ARPEnable=DISABLE ; Options: Enable,
Disable
ARPResponse=ENABLE ; Options: Enable,
Disable
ARPInterval=0 ; Decimal value between
0 & 255. This values is in milliseconds. Input value rounded down to the
nearest 500ms value
DHCPEnable=DISABLE ; Options: Enable or
Disable. If 'Disable' static IP will be used
HostIP=0.0.0.0 ; This field should not
be edited
SubnetMask=0.0.0.0 ; This field should not
be edited
GatewayIP=0.0.0.0 ; This field should not
be edited
GatewayMAC=00-00-00-00-00-00 ; This field should not
be edited
BackupGatewayIP=0.0.0.0 ; This field should not
be edited
BackupGatewayMAC=00-00-00-00-00-00 ; This field should not
be edited
IPV6Status=DISABLE ; Options: Enable or
Disable
AlertIP0=0.0.0.0 ; In xxx.xxx.xxx.xxx
form
AlertMAC0=00-00-00-00-00-00 ; In xx-xx-xx-xx-xx-xx
form
AlertIP1=0.0.0.0 ; In xxx.xxx.xxx.xxx
form
AlertMAC1=00-00-00-00-00-00 ; In xx-xx-xx-xx-xx-xx
form

[CHANNEL::LAN3]
AlertEnable=ENABLE ; Options: Enable,
Disable
PerMessageAuthentication=ENABLE ; Options: Enable,
Disable
UserLevelAuthentication=ENABLE ; Options: Enable,
Disable

```

```

AccessMode=ALWAYS ; Options:Disable,
Always, shared
PrivilegeLevelLimit=ADMIN ; Options: User,
Operator, Admin
CommunityString=public ; Upto 16 bytes, no
space allowed
ARPEnable=DISABLE ; Options: Enable,
Disable
ARPResponse=ENABLE ; Options: Enable,
Disable
ARPInterval=0 ; Decimal value between
0 & 255. This values is in milliseconds. Input value rounded down to the
nearest 500ms value
DHCPEnable=DISABLE ; Options: Enable or
Disable. If 'Disable' static IP will be used
HostIP=0.0.0.0 ; This field should not
be edited
SubnetMask=0.0.0.0 ; This field should not
be edited
GatewayIP=0.0.0.0 ; This field should not
be edited
GatewayMAC=00-00-00-00-00-00 ; This field should not
be edited
BackupGatewayIP=0.0.0.0 ; This field should not
be edited
BackupGatewayMAC=00-00-00-00-00-00 ; This field should not
be edited
IPV6Status=DISABLE ; Options: Enable or
Disable
AlertIP0=0.0.0.0 ; In xxx.xxx.xxx.xxx
form
AlertMAC0=00-00-00-00-00-00 ; In xx-xx-xx-xx-xx-xx
form
AlertIP1=0.0.0.0 ; In xxx.xxx.xxx.xxx
form
AlertMAC1=00-00-00-00-00-00 ; In xx-xx-xx-xx-xx-xx
form

[CHANNEL::LAN1::SOL]
SOLEnable=ENABLE ; Options: Enable,
Disable
PrivilegeLevelLimit=USER ; Options: Admin, User,
Operator
SolNumberOfRetries=7 ; Decimal value in the
range 0-7
SolRetryInterval=500 ; Decimal value in the
range of 0-2559 rounded down to the nearest unit of 10. In milliseconds
SolBaudRate=38400 ; Options: 9600, 19200,
38400, 57600, 115200. Refer respective platform FW specifications for the
supported Baudrates

```



```
[CHANNEL::LAN2::SOL]
SOLEnable=ENABLE ; Options: Enable,
Disable
PrivilegeLevelLimit=USER ; Options: Admin, User,
Operator
SolNumberOfRetries=7 ; Decimal value in the
range 0-7
SolRetryInterval=500 ; Decimal value in the
range of 0-2559 rounded down to the nearest unit of 10. In milliseconds
SolBaudRate=38400 ; Options: 9600, 19200,
38400, 57600, 115200. Refer respective platform FW specifications for the
supported Baudrates
```

```
[CHANNEL::LAN3::SOL]
SOLEnable=ENABLE ; Options: Enable,
Disable
PrivilegeLevelLimit=USER ; Options: Admin, User,
Operator
SolNumberOfRetries=7 ; Decimal value in the
range 0-7
SolRetryInterval=500 ; Decimal value in the
range of 0-2559 rounded down to the nearest unit of 10. In milliseconds
SolBaudRate=38400 ; Options: 9600, 19200,
38400, 57600, 115200. Refer respective platform FW specifications for the
supported Baudrates
```

```
[EMAILCONFIG]
NumberOfEmailConfig=45 ; This field should not
be edited
```

```
[EMAILCONFIG::CHANNEL1::INFO]
SenderName= ; ASCII printable
character max upto 32 bytes
FromAddress= ; ASCII printable
character max upto 32 bytes
ToAddress= ; ASCII printable
character max upto 64 bytes
Subject= ; ASCII printable
character max upto 32 bytes
SMTPUserName= ; ASCII printable
character max upto 16 bytes
Message= ; ASCII printable
character max upto 64 bytes
ServerAddress=0.0.0.0 ; In xxx.xxx.xxx.xxx
form
```

```
[EMAILCONFIG::CHANNEL2::INFO]
SenderName= ; ASCII printable
```

```

character max upto 32 bytes
FromAddress=                                ; ASCII printable
character max upto 32 bytes
ToAddress=                                  ; ASCII printable
character max upto 64 bytes
Subject=                                    ; ASCII printable
character max upto 32 bytes
SMTPUserName=                               ; ASCII printable
character max upto 16 bytes
Message=                                    ; ASCII printable
character max upto 64 bytes
ServerAddress=0.0.0.0                       ; In xxx.xxx.xxx.xxx
form

```

[EMAILCONFIG::CHANNEL3::INFO]

```

SenderName=                                 ; ASCII printable
character max upto 32 bytes
FromAddress=                               ; ASCII printable
character max upto 32 bytes
ToAddress=                                  ; ASCII printable
character max upto 64 bytes
Subject=                                    ; ASCII printable
character max upto 32 bytes
SMTPUserName=                               ; ASCII printable
character max upto 16 bytes
Message=                                    ; ASCII printable
character max upto 64 bytes
ServerAddress=0.0.0.0                       ; In xxx.xxx.xxx.xxx
form

```

[BIOS]

[BIOS::Main]

```

Quiet Boot=1                               ;Options: 0=Disabled:
1=Enabled
POST Error Pause=0                         ;Options: 0=Disabled:
1=Enabled

```

[BIOS::Processor Configuration]

```

Intel(R) Turbo Boost Technology=1          ;Options: 0=Disabled:
1=Enabled
Enhanced Intel SpeedStep(R) Tech=1        ;Options: 0=Disabled:
1=Enabled
Processor C3=0                             ;Options: 0=Disabled:
1=Enabled
Processor C6=1                             ;Options: 0=Disabled:
1=Enabled
Intel(R) Hyper-Threading Tech=1           ;Options: 0=Disabled:
1=Enabled

```

```

Active Processor Cores[1]=0           ;Options: 1=1: 2=2: 3=3:
4=4: 5=5: 6=6: 7=7: 0=All
Execute Disable Bit=1                 ;Options: 0=Disabled:
1=Enabled
Intel(R) Virtualization Technology=0  ;Options: 0=Disabled:
1=Enabled
Intel(R) VT for Directed I/O=0       ;Options: 0=Disabled:
1=Enabled
MLC Streamer=0                       ;Options: 1=Disabled:
0=Enabled
MLC Spatial Prefetcher=0             ;Options: 1=Disabled:
0=Enabled
DCU Data Prefetcher=0               ;Options: 1=Disabled:
0=Enabled
DCU Instruction Prefetcher=0         ;Options: 1=Disabled:
0=Enabled
Direct Cache Access (DCA)=1          ;Options: 0=Disabled:
1=Enabled
Software Error Recover=0            ;Options: 0=Disabled:
1=Enabled

[BIOS::Memory Configuration]
Memory Operating Speed Selection=0    ;Options: 2=1067: 3=1333:
1=800: 0=Auto
Phase Shedding=1                    ;Options: 1=Auto:
0=Disabled: 1=Enabled
Multi-Threaded MRC=1                ;Options: 0=Disabled:
1=Enabled
Memory Type=2                       ;Options: 0=RDIMMs only:
2=UDIMMs and RDIMMs: 1=UDIMMs only
MPST Support=0                      ;Options: 0=Disabled:
1=Enabled
PCCT Support=0                      ;Options: 0=Disabled:
1=Enabled
ECC Support=1                       ;Options: 0=Disabled:
1=Enabled
Rank Multiplication=0               ;Options: 0=Auto: 1=Enabled
LRDIMM Module Delay=1               ;Options: 0=Auto:
1=Disabled
MemTest=1                           ;Options: 0=Disabled:
1=Enabled
SW MemTest=0                        ;Options: 0=Disabled:
1=Enabled
MemTest On Fast Boot=0              ;Options: 0=Disabled:
1=Enabled
Attempt Fast Boot=0                 ;Options: 0=Disabled:
1=Enabled
Scrambling Seed High=54165          ;Options: 65535=Max: 0=Min:
0=Step
Battery Back Ch 2=0                 ;Options: 0=Disabled:

```

1=Enabled
 Battery Back Ch 3=1 ;Options: 0=Disabled:
 1=Enabled
 Check PCH_PM_STS=0 ;Options: 0=Disabled:
 1=Enabled
 Check PlatformDetectADR=1 ;Options: 0=Disabled:
 1=Enabled
 Patrol Scrub=1 ;Options: 0=Disabled:
 1=Enabled
 Demand Scrub=1 ;Options: 0=Disabled:
 1=Enabled
 Correctable Error Threshold[1]=10 ;Options: 10=10: 20=20: 5=5
 Correctable Error Threshold[2]=10 ;Options: 10=10: 20=20:
 5=5: 1=ALL: 0=None

[BIOS::Memory RAS and Performance Configuration]

[BIOS::Mass Storage Controller Configuration]

[BIOS::PCI Configuration]

Maximize Memory below 4GB=0 ;Options: 0=Disabled:
 1=Enabled
 Memory Mapped I/O above 4GB=0 ;Options: 0=Disabled:
 1=Enabled
 Onboard Video=1 ;Options: 0=Disabled:
 1=Enabled
 Dual Monitor Video=0 ;Options: 0=Disabled:
 1=Enabled
 Primary Display=1 ;Options: 3=Auto: 0=IGFX:
 2=PCI Bus: 1=PEG

[BIOS::Serial Port Configuration]

Serial A Enable=1 ;Options: 0=Disabled:
 1=Enabled
 Address=1 ;Options: 4=2E8h: 2=2F8h:
 3=3E8h: 1=3F8h
 IRQ=0 ;Options: 4=3: 0=4
 Serial B Enable=1 ;Options: 0=Disabled:
 1=Enabled
 Address=2 ;Options: 4=2E8h: 2=2F8h:
 3=3E8h: 1=3F8h
 IRQ=4 ;Options: 4=3: 0=4

[BIOS::USB Configuration]

USB Controller=1 ;Options: 0=Disabled:
 1=Enabled
 Legacy USB Support=0 ;Options: 2=Auto:
 1=Disabled: 0=Enabled

Port 60/64 Emulation=1 ;Options: 0=Disabled:
 1=Enabled
 Make USB Devices Non-Bootable=0 ;Options: 0=Disabled:
 1=Enabled
 Device Reset timeout=1 ;Options: 0=10 sec: 1=20
 sec: 2=30 sec: 3=40 sec
 HP v190w 3000=0 ;Options: 0=Auto: 4=CD-ROM:
 1=Floppy: 2=Forced FDD: 3=Hard Disk

[BIOS::System Acoustic and Performance Configuration]

Set Throttling Mode=0 ;Options: 0=Auto: 6=DCLTT:
 2=OLTT: 3=SCLTT
 Altitude=900 ;Options: 300=300m or less:
 900=301m - 900m: 1500=901m - 1500m: 3000=Higher than 1500m
 Set Fan Profile=1 ;Options: 2=Acoustic:
 1=Performance
 Fan PWM Offset=0 ;Options: 100=Max: 0=Min:
 0=Step

[BIOS::Serial Port Console Redirection]

Console Redirection[2]=1 ;Options: 0=Disabled:
 1=Enabled
 Console Redirection[4]=0 ;Options: 0=Disabled:
 1=Enabled
 Out-of-Band Mgmt Port=1 ;Options: 1=COM0: 2=COM1:
 3=COM2 (Disabled): 4=COM3 (Disabled)

[BIOS::Security]

Front Panel Lockout=0 ;Options: 0=Disabled:
 1=Enabled

[BIOS::Server Management]

Assert NMI on SERR=1 ;Options: 0=Disabled:
 1=Enabled
 Assert NMI on PERR=1 ;Options: 0=Disabled:
 1=Enabled
 Reset on CATERR=1 ;Options: 0=Disabled:
 1=Enabled
 Reset on ERR2=1 ;Options: 0=Disabled:
 1=Enabled
 Resume on AC Power Loss=2 ;Options: 1=Last State:
 2=Power On: 0=Stay Off
 Clear System Event Log=0 ;Options: 0=Disabled:
 1=Enabled
 FRB-2 Enable=1 ;Options: 0=Disabled:
 1=Enabled
 OS Boot Watchdog Timer=0 ;Options: 0=Disabled:
 1=Enabled
 Plug & Play BMC Detection=0 ;Options: 0=Disabled:

```
1=Enabled
EuP LOT6 Off-Mode=0 ;Options: 0=Disabled:
1=Enabled

[BIOS::Console Redirection]
Console Redirection[1]=0 ;Options: 0=Disabled:
1=Serial Port A: 2=Serial Port B
Console Redirection[3]=0 ;Options: 0=Disabled:
1=Serial Port A
Console Redirection[4]=0 ;Options: 0=Disabled:
1=Serial Port A
Console Redirection[5]=0 ;Options: 0=Disabled:
2=Serial Port B

[BIOS::BootOrder]
Hard Drive=1
Network Card=2
Internal EFI Shell=3
```