Intel® System Configuration Utility

User Guide

Reference for using the Intel® System Configuration Utility (Syscfg).

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Document Revision History

Date	Revision	Description
Jul 2016	1.00	First version
Nov 2016	1.01	Removed version 13.1, update to version 14.0 Modified Linux installation note Added new feature 'Save BMC SOL log'
August 2017	1.02	Removed utility version Added new supported platform Added new options for the command of "/lc"
July 2019	1.03	Added new supported platform

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1. Introduction

The Intel® System Configuration Utility (Syscfg) is a command-line utility that can be used to display and/or set a variety of system BIOS and management firmware settings. In addition, the utility can be used to save system settings to or restore them from a file.

The Syscfg utility's features and instructions on the use of all supported commands are described in this User Guide.

The Intel® System Configuration Utility is only supported on the following Intel® Server Products:

- Intel® Server Board based on Intel® Xeon® Scalable Processor family
- Intel® Server Board based on 2nd Generation Intel® Xeon® Scalable Processor family
- Intel® Server Board based on Intel® Xeon® Platinum 9200 Processor Family

The Intel® System Configuration Utility is not intended for and should not be used on any non-Intel server products.

Note: Not all BIOS or management firmware settings can be set using this utility. Refer to the Product Guide for the Intel® 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 Syscfg utility supports the Operating System versions listed in Table 1. Use Table 1 to determine which operating systems are supported for a specific Intel® Server Board.

Table 1. Operating systems supported

Platforms	Operating systems / Preboot Environment Supported
• Intel® Server Board based on Intel® Xeon® Scalable Processor family • Intel® Server Board based on 2nd Generation Intel® Xeon® Scalable Processor family • Intel® Server Board based on Intel® Xeon® Platinum 9200 Processor Family	• • UEFI Shell • WinPE* 4.0 (x64) • Windows* Server 2019 • Windows* Server 2016 • Windows* Server 2012 R2 • Windows* 10 • RHEL* 6.8 (x64) • RHEL* 7.3 • RHEL* 7.5 • RHEL* 7.6 • SLES* 11.4 (x64) • SLES* 12.2 • SLES* 15 • CentOS* 7.3 (x64) • Debian* 8.10

1.2 Target Audience

This User Guide is intended for Original Equipment Manufacturers and those responsible for configuring the system BIOS and Management Firmware settings on an Intel® Server System.

1.3 Reference Documents

The following documents should be referenced for additional support and usage information.

- *IPMI--Intelligent Platform Management Interface Specification, Second Generation, v2.*
- *Server Product Guides for BIOS Setup Options*
- *Intel® Server Configuration Utilities Deployment Procedure for Windows PE 2005**

1.4 Support Information

For more information, visit Intel's support site at 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)

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. A few commands may not be supported on all platforms due to limitations in the platform firmware/BIOS. The description of each command lists 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*, the Windows* command prompt, and Windows* Preinstallation Environment (Windows* PE). Some platforms may not support all the operating environments for this utility.

3. Quick Start

This section contains Quick Start instructions for supported operating systems.

3.1 Syscfg Installation

Syscfg requires Windows* administrative or Linux* root permissions.

A. Linux*
   - Regular Installation:
     i. Boot into Linux and unzip the Syscfg utility `.zip` file into a folder on a hard drive. After unzipping the file, the `RHEL*` or `SLES*` folder is generated.
     ii. The Syscfg directory contains the file: `Syscfg.zip`
     iii. Unzip the file to get the Syscfg binaries and execute the Syscfg commands.
     iv. To uninstall the Syscfg utility, remove the Syscfg folder structure.
   - RPM Installation:
     i. Boot into Linux and unzip the Syscfg utility `.zip` file into a folder on a hard drive. Copy `Syscfg` rpm from `Linux_x64` (for RHEL* or SLES*) to a local folder.
     ii. If there is another version already has been installed previously, uninstall that version first before installing the new version.
     iii. Install the Syscfg utility by using `rpm -ivh syscfg-Vxx.x-Bxx.xxx.rpm`. This installs the utility in `/usr/bin/syscfg/`.
     iv. In RHEL/SLES after installing the rpm, close the terminal from which rpm was installed and then execute the utility from a new terminal (for example, `# syscfg -i`).
     v. To uninstall `Syscfg`, execute the following command: `rpm –e syscfg`

B. UEFI
   I. Unzip the Syscfg utility `.zip` file to a USB pen drive. Boot into EFI and go to the `UEFI_x64` folder.
   II. Run the Syscfg commands from the location where the files are copied.
   III. To uninstall the Syscfg utility, delete the contents of the directory where the utility is installed.

C. Windows*/Windows* Preinstallation Environment (Windows* PE):
   I. Copy the Syscfg utility `.zip` file into a local directory (for example, `C:\syscfg`).
   II. Unzip the `.zip` file.
   III. The following folders contain Windows* binaries and drivers in `C:\syscfg folder`.
      - Win_x64
      - Win_x86Drivers
   I. For 32-bit Windows or 64-bit Windows and WinPE operating system, go to folders: `SyscfgVxx_x_BuildXX\Drivers\win\x86` or `SyscfgVxx_x_BuildXX\Drivers\win\x64 and run install.cmd` to install the Intel® Intelligent Management Bus Driver Vxx.x, Intel® 28F320C3 Flash Update Device Driver Vxx.x, and Intel® Intelligent Management Utility Device Vxx.x.
   II. From the command prompt go to the `Win_x64` or `Win_x86` folder and run the desired commands for the utility.
   III. To uninstall the Syscfg utility, do the following:
      i. Delete the contents of the directory where the utility is installed.
      ii. Manually uninstall the drivers from the Device Manager.

3.2 Saving a Configuration

The utility uses a text-based `.INI` file to save and restore BIOS and Management firmware settings in both binary and text formats. Being a text-based file, the available BIOS and Management firmware settings can be easily modified and saved using any text editing tool.

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 file. (This location must be writable to allow the system configuration to be saved)
   - In Windows, Windows PE, or EFI, type:

     ```
     syscfg /s <filename>.ini
     ```

   - In Linux, type:

     ```
     ./syscfg /s <filename>.ini
     ```

Use this saved `INI` file to restore the configuration on this target server or other servers using the `/r` command.

3.3 Restoring a Configuration

The Syscfg utility supports restoring BIOS and Management firmware settings in both binary and text mode using a text-based `.INI` file. In the following scenario, the `.INI` file does not clone servers, but instead provides a mechanism of configuring the same items with different values as needed.

To restore or install a system configuration from a saved `.INI` file, use the following procedure.

Note: For restoring uneditable fields, the section name headers and key names should not be edited or deleted from the `.INI` file.

---

1. Boot the system to one of the supported operating systems.
2. Change to the directory containing the `Syscfg` executable. (The saved `.INI` configuration file should also be located in this directory.)
3. To restore the saved BIOS settings:
   - In Windows, Windows PE, or EFI, type:

     ```
     syscfg /r <filename>.ini /b
     ```

   - In Linux, type:

     ```
     ./syscfg /r <filename>.ini /b
     ```

4. On an Intel® Server Platform, the BIOS administrator password must be supplied.
   - If the BIOS administrator password is set
     In Windows, Windows PE, or EFI, type:

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

     In Linux, type:

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

   - If the BIOS administrator password is not set

     In Windows, Windows PE, or EFI, type:

```
syscfg /r filename.ini /b
```

     In Linux, type:

```
./syscfg /r filename.ini /b
```

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 and switches, BIOS commands, and Firmware commands and all of their tasks.

4.1 Syscfg Commands - Quick Reference (Generic, BIOS, and Firmware)

Table 2 lists all the Syscfg commands that are classified as generic, BIOS, and Firmware.

Table 2. Syscfg commands - quick reference

Generic Commands/Switches		BIOS Commands	
/d	Display	/bap	BIOS Administrator Password
/i	Information	/bup	BIOS User Password
/q	Quiet Mode switch	/bbosys	System Boot Order
/r	Restore	/bbo	System Boot Order in detail
/s	Save	/bcs	BIOS Configure Setting
		/bldfs	BIOS Load Default Factory Settings
		/bvar	This command creates a new UEFI variable
		/secureboot	Set EFI Secure Boot status
		/securebootkey	Set EFI Secure Boot key

Firmware Commands

Channel Commands		LAN Commands		PEF Commands		User Commands	
/c	Channels	/lac	LAN Alert Configuration	/pefc	PEF Configure	/u	Users
/csel	Clear SEL			/peff	PEF Filter	/ue	User Enable
/dt	Date and Time	/lae	LAN Alert Enable	/pefp	PEF Policy	/up	User privilege
/eac	Email Alert Configuration	/lc	LAN Configuration	/prp	Power Restore Policy		
		/le	LAN Enable	/rbmc	Reset BMC		
/eae	Email Alert Enable	/lfo	LAN Failover	/rfs	Restore firmware settings		
/h	Help			/rnm	Reset Intel® Node Manager		
				/sbmcdl	Save BMC debug log		
				/sdp	Set shutdown policy		

4.2 Generic Commands/Switches

4.2.1 Information (/i)

Usage

```
syscfg /i [filename.INI]
```

Description

Displays the BIOS and firmware versions of the system or the saved BIOS and firmware settings in a System Configuration File. See Table 3.

Table 3. Information (/i) option

Option	Description
Filename	Filename for a System Configuration File in the current working directory. If the filename is not specified, the command displays the BIOS and firmware versions of the current system.

Examples

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

4.2.2 Quiet (/q)

Usage

```
syscfg options /q
```

Description

Suppresses all messages. See Table 4.

Table 4. Quiet (/q) options

Option	Description
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.

Example

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

4.2.3 Restore (/r)

Usage

```
syscfg /r [filename.INI] {/f | /b | /f /b}
```

Description

Restores the BIOS and firmware settings from an INI file. See Table 5.

Table 5. Restore (/r) options

Option	Description
Filename	Filename of the syscfg configuration file in the current working directory. If no filename is specified, the default filename syscfg.ini is used based on the parameter supplied, as explained in the Example below. The filename suffix must be .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.
/nobo	This option is used in conjunction with /r to skip restoring boot order.

Example

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

syscfg /r ini /f /b (default file name is syscfg.ini)
syscfg /r ini /f /b /nobo (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, 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.

4.2.4 Save (/s)

Usage

```
syscfg /s [filename.INI] {/f | /b | /f /b
```

Description

Saves the BIOS and firmware settings to an .INI file. See Table 6.

Table 6. Save (/s) options

Option	Description
Filename	Filename to be used for the Syscfg configuration file in the current working directory. If no filename is specified, the default filename syscfg.ini is used based on the parameter supplied explained in the example below. The filename suffix must be .INI; if omitted, syscfg adds the .INI suffix. The filename should consist of only alphanumeric characters.
/f	Save the firmware settings. See Appendix B for a list of the settings that are saved.
/b	Save the BIOS settings. See Appendix B for a list of the settings that are saved.

Examples

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

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

Notes:

- The 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/firmware configurable settings and duplicate 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 the Intel® Server Platform.

4.2.5 Display (/d)

Usage

```
syscfg /d {CHANNEL Channel_ID | BIOS | BIOSSETTINGS { | 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] ] | SDP |
   SECUREBOOT }
```

Description

Displays the specified Baseboard Management Controller (BMC) and BIOS settings. See Table 7.

Table 7. Display (/d) options

Option	Description
CHANNEL	Displays the BMC Channel configuration for the specified channel.
Channel_ID	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 of the BIOS settings. The arguments that follow this keyword are used to select which BIOS settings to display.
BIOS_Setting_Name	The name of the BIOS settings on the BIOS Setup screen. Refer to the Technical Product Specification for the BIOS Setup for setting names for a specific board.
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.
Channel_ID	IPMI Channel ID.
LAN_Alert_Destination_Index	Enter the LAN Alert Destination Index.
Filter_Table_Index	Enter the Filter Table Index.
Policy_Table_Index	Enter the PEF Policy Table Index.
User_ID	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.
Channel_ID	IPMI Channel ID.
User_ID	BMC User ID. When used with the FWADVCFG keyword, the configuration information is displayed for the user.
SMTP_Configuration_Index	Specifies the SMTP configuration in the firmware email alert tables.
SDP	Displays the current shutdown policy in the system.
SECUREBOOT	Displays the current EFI secure boot status.
FAN	Displays the fan settings, including fan PWM offset, fan UCC, air flow limit and exit air temp.

Examples

```
syscfg /d channel 1
syscfg /d lan 1 2
syscfg /d pef 2 1
syscfg /d BIOSSETTINGS “Set Fan Profile”
```

```
syscfg /d FWADVCFG 3 2 1
syscfg /d sdp
syscfg /d secureboot
syscfg /d fan
```

4.3 BIOS Commands

This section lists the BIOS Commands.

4.3.1 BIOS Administrator Password (/bap)

Usage

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

Description

Sets or clears the BIOS Administrator password.

Table 8. BIOS administrator password (/bap) options

Option	Description
old_password **new_password**	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 the following special characters: ! @ # $ % ^ * ( ) - _ + = ? ' Use two double quotes ("") to represent a null password.

- To set or clear the BIOS Administrator password, enter the old password, if set.
- If the Administrator password is currently not set, 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 enter `Setup` for the password.
- Change any other BIOS option using Syscfg by providing the Administrator password. Combining the `/bap` and `/bup` commands sets both the BIOS Administrator and User passwords at the same time.
- Refer to the product guide for the Intel® Server Board for more information on BIOS Setup options.

Examples

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

Notes:

- The Set BIOS User Password (`/bup`) option (see section 4.3.2) can only be used if a valid system Administrator password is set.
- Clearing the BIOS Administrator password also clears the User password.

4.3.2 BIOS User Password (/bup)

Usage

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

Description

Sets or clears the BIOS User password. See Table 9.

Table 9. BIOS user password (/bup) options

Option	Description
admin_password	• Enter the BIOS admin password if the password is set. or • Enter the Null string if the password is currently not set.
old_user_password, new_user_password	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 the following special characters: ! @ # $ % ^ * ( ) - _ + = ? ' Use two double quotes ("") to represent a null password.

- To set or clear the BIOS Administrator password, enter the old password (if it has been set).
- If the Administrator password is currently not set, enter a null string (for the new password) to clear the password.
- If only one password (Administrator or User) is set, then enter Setup for the password.
- Change the user password by providing the administrator password as explained in the note below. The User password controls access to allow the modification of the following BIOS Setup fields: time, date, language, and User password.
- Refer to the product guide for the Intel® Server Board for more information on BIOS Setup options.

Examples

```
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)
```

Notes:

- The /bup option can only be used if system has a valid Administrator password set. Clearing the Administrator password also clears the User password.
- User password cannot be the same as administrator password.

4.3.3 System Boot Order (/bbosys)

Usage

```
syscfg /bbosys [device_number [device_number  […] ] ]
```

Description

Changes the boot order of system devices. See Table 10.

Table 10. System boot order (/bbosys) options

Option	Description
device_number	The current ordinal number of the system boot device. (1 is the first device, 2 is the second device, etc.) To change the order, specify an order for the device numbers (for example, 2 1 4 3 is specified then the second boot device is the first boot device after the command is executed.

Refer to the product guide for the Intel® Server Board for more information on BIOS Setup options.

Examples

```
syscfg /bbosys
```

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

- How to set the BIOS boot order:

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

- If the BIOS administrator password is not set, use:

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

4.3.4 System Boot Order in Detail (/bbo)

Description

Displays complete information for all boot devices present in the system under different groups or classifications.

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
```

Examples

- How to set the detailed system boot order:

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

- If the Administrator password is not set, use:

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

Notes:

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

The /bbo command cannot be cascaded.

- For example, the following commands are valid:
  ```
  syscfg /bbo HDD 3 2 1
  syscfg /bbo NW 2 1
  ```
- The following command is not valid:
  ```
  syscfg /bbo HDD 3 2 1 NW 2 1
  ```

4.3.5 Configure BIOS Settings (/bcs)

Usage

```
syscfg /bcs [admin_password] BIOS_Setting_Name Value [BIOS_Setting_Name
   Value […] ]
```

Description

Sets the values of individual BIOS Settings. See Table 11.

Table 11. Configure BIOS settings (/bcs) options

Option	Description
admin_password	• Enter the BIOS admin password if the password is set. or • Enter the Null string if the password is currently not set.
BIOS_Setting_Name	The name of the BIOS settings on the BIOS Setup screen. Refer to the Technical Product Specification for the Intel® Server Board how to use the BIOS Setup for setting names.
Value	The value for the BIOS Setting.

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

Examples

- Configure BIOS settings:

```
syscfg /bcs "admin@123" "Quiet Boot" 0
syscfg /bcs "admin@123" "Quiet Boot" 0 "POST Error Pause" 1
syscfg /bcs "admin@123" "Set throttling mode" 2 "Altitude" 900 "Set fan
   profile" 2
```

- When the BIOS administrator is not set, use:

```
syscfg /bcs "" "Quiet Boot" 0
syscfg /bcs "" "Quiet Boot" 0 "POST Error Pause" 1
syscfg /bcs ""  "Set throttling mode" 2 "Altitude" 900 "Set fan profile" 2
```

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

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

Note: The Syscfg utility does not support configuring **BMC Configuration** under the BIOS **Server Management** settings using the switches `/bcs` or `/d biossettings`.

4.3.6 BIOS Load Default Factory Settings (`/bldfs`)

Usage

```
syscfg /bldfs [admin_password ]
```

Description

Loads the default factory BIOS settings. See Table 12.

Table 12. BIOS load default factory settings (`/bldfs`) options

Option	Description
`admin_password`	• Enter the BIOS admin password if the password is set. or • Enter the Null string if the password is currently not set.

- The `/bldfs` option requires a reboot to reset the default settings.
- Refer to the product guide for the Intel® Server Board for more information on BIOS Setup default settings.

Examples

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

- When the BIOS administrator is not set, use:

```
syscfg /bldfs ""
```

4.3.7 BIOS Variable (/bvar)

Usage

```
syscfg /bvar [Option][admin_password]
```

Description

Creates, modifies, or deletes a new EFI variable. This switch is supported in Linux*, Windows*, and UEFI platforms. See Table 13.

Table 13. BIOS variable (/bvar) options

Option	Description
admin_password	Enter the BIOS admin password, if set, or the null string if the password is not set.
/bvar create	This command creates a new EFI variable. The following parameters create this command: • 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 takes an attribute value of 7. The command is successful when the command is executed successfully and the variable is created. However, if a variable with the same name and GUID already exists, the utility provides an appropriate message.
/bvar overwrite	This command overwrites the data value of an existing EFI variable. The following parameters are passed to this command: • Name: Name of the existing variable • GUID: Optional. However, if the name is not unique, the utility provides a message for providing GUID as an additional parameter. • Data: Data to be overwritten
/bvar delete	This command deletes an existing EFI variable. The following parameters are passed to this command: • Name: Name of the variable • GUID: Optional and needed if name is not unique

Notes:

- Take caution before deleting any EFI variable or rewriting the data of an existing variable. Otherwise, this may lead to the system unstable.
- The supported attributes are 3 and 7, while the attributes 0, 1, 2, 4, 5, and 6 are not supported with this switch.

Table 14. BIOS variable (/bvar) supported attributes

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

Examples

```
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
```

- When the 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
```

4.3.8 BIOS EFI Secure Boot Settings (`/secureboot`)

Usage

```
syscfg /secureboot [admin_password] [enable/disable]
```

Description

Sets the EFI secure boot status.

Examples

- To set EFI Secure Boot status to "disable":

```
syscfg /secureboot "admin@123" disable
```

- To set EFI Secure Boot status to "enable":

```
syscfg /secureboot "admin@123" enable
```

4.3.9 BIOS EFI Secure Boot Key Settings (`/securebootkey`)

Usage

```
syscfg /securebootkey [admin_password] overwrite [key_name] [key_data_file]
```

Description

Overwrites or appends the EFI Secure Boot key settings. The following parameters are passed to this command:

- `Key_name`: name of the key user to be updated, such as "`PK`", "`KEK`", "`db`" and "`dbx`".
- `Key_data_file`: file path of key data file.

Examples

- Use this command if the BIOS administrator password is not set.

```
syscfg /securebootkey "" overwrite PK key_data_file
```

4.4 Firmware Commands

Firmware commands are described in this section.

4.4.1 Channels (/c)

Usage

```
syscfg {/c | /channel} [channel_ID { 1 {straight | MD5} | 2 {straight | MD5
   } | 3 {straight | MD5 } | 4 {straight | MD5 } | 5 {enable | disable} | 6
   {enable | disable} | 7 {disabled | preboot | always | shared} | 8 {user |
   operator | admin} | 9 {enable | disable} } ]
```

Description

Configures the BMC channels. Use this command to change a single parameter (select number 1-9 as shown in Table 15).

Table 15. Channels (/c) options

Option	Description
Channel_ID	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.
straight | MD5	Authentication method for callback, user, operator, and admin privilege levels. 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.
user | operator | admin	Privilege Level.
enable | disable	Enable or Disable Per Message Authentication, User Level Authentication, and PEF.

Examples

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

4.4.2 Clear SEL (/csel)

Usage

```
syscfg {/csel | /clearSEL}
```

Description

Clears the System Event Log (SEL).

Examples

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

4.4.3 Date and Time (/dt)

Usage

```
syscfg {/dt | /timeofday}  [admin_password ] hh:mm:ss mm/dd/yyyy
```

Description

Sets the time of day stored in the Real Time Clock (RTC) using the BIOS. See Table 16.

Table 16. Date and time (/dt) options

Option	Description
admin_password	Enter the BIOS admin password, if set, or the null string if the password is currently not set.
hh:mm:ss	Hours (24 hour clock), minutes, and seconds.
mm/dd/yyyy	Month, day, and year.

Examples

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

- When BIOS administrator is not set:

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

4.4.4 Email Alert Configure (/eac)

Usage

```
syscfg {/eac | /emailalertconf}  SMTP_Configurtion_Index {0|1|2|
   3|4|5|6|7|8|9} ASCII_String Channel number
```

Description

Configures email alert settings. See Table 17.

Table 17. Email alert configure (/eac) options

Option	Description
SMTP_Configuration_Index	1-n. An index into the SMTP configuration table in firmware. The maximum number n depends on the firmware on the Intel® Server Board (refer to the server documentation for details).
{0|1 | 2 | 3|4|5|6|7|8|9}	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 8 = Port Number 9 = Authentication and Encryption Method
ASCII_String	This is the value for the selected parameter. Use double quotes (") to enclose strings that include space characters.
Channel number	Valid LAN Channel Number.

Example

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

4.4.5 Email Alert Enable (/eae)

Usage

```
syscfg {/eae | /emailalertenable}  Sender_Name Channel _Number
```

Description

Sets the sender machine name for SMTP email alerts from the current server. See Table 18.

Table 18. Email alert enable (/eae) options

Option	Description
Sender_Name	Sender machine name. This string identifies the managed server to the SMTP server.
Channel_Number	Valid LAN channel number.

Example

```
syscfg /eae dupont01 3
```

4.4.6 Help (/h)

Usage

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

Description

Displays help on the system configuration utility.

Examples

- Displays help in the specified area. See Table 19.

Table 19. Help (/h) example options

Option	Description
lan | user | pef | sol | power | channel | system | fwadvcfg | bios	Displays help in the specified area.

- Displays help for the LAN and POWER configurations:

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

- In Linux, to use the /? option, enclose it in double quotes.

4.4.7 LAN Alert Configuration (/lac)

Usage

```
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}
```

Description

Configures the LAN Alert destinations for a channel. See Table 20.

Table 20. LAN alert configuration (/lac) options

Option	Description
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: n.n.n.n, where n is a number between 0 and 255.
Alert_ID_MAC_Address	MAC address of the alert destination in the hexadecimal format separated by hyphens: hh-hh-hh-hh-hh-hh, where h 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.

See the *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)

Usage

```
syscfg {/lae | /lanalertenable} Channel_ID Gateway_IP_Address
   {Gateway_MAC_Address | "resolve"} SNMP_Community_String
   [Backup_Gateway_IP_ Address {Backup_Gateway_MAC_Address | "resolve"}
```

Description

Enables LAN alerting on the specified channel. See Table 21.

Table 21. LAN alert enable (/lae) options

Option	Description
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 attempts 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.
- The resolve option is not supported across different subnets. Use of the resolve command is not encouraged.

See the *IPMI 2.0 Specification* for more information.

Examples

```
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)

Usage

```
syscfg {/lc | /lanconf} Channel_ID {2a {straight | MD5} | 2b {straight |
   MD5} | 2c {straight | MD5} | 2d {straight | MD5} | 3 IP_Address | 4
   {static | DHCP} | 6 IP_Address | 12 IP_Address | 13 MAC_Address | 14
   IP_Address | 15 MAC_Address | 16 SNMP_Community_String | C5 IP_Address |
   C7 IP_Address | 102 {Enable | Disable} | 103 {STATIC | DHCPV6 | AUTO} |
   104 IPv6_Address | 105 0…128 | 106 IP_Address }
```

Description

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 numbers listed in Table 22 (2a, 2b, …, 16) followed by a value.

Table 22. Channel ID options

Option	Description
Channel_ID	IPMI Channel ID (LAN channel).
2a	Selects authentication type for callback privilege level. Multiple privilege levels may be specified by using the plus sign (see examples below).
2b	Selects authentication type for user privilege level. Multiple privilege levels may be specified by using the plus sign (see examples below).
2c	Selects authentication type for operator privilege level. Multiple privilege levels may be specified by using the plus sign (see examples below).
2d	Selects authentication type for administrator privilege level. Multiple privilege levels may be specified by using the plus sign (see examples below).
3	Selects IP Address for the specified LAN channel. (This is not a valid option when the source is set to DHCP.)
4	Selects source for IP Address
6	Selects subnet mask. (This is not a valid option when the source is set to DHCP.)
12	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.
C5	Selects IPv4 or Ipv6 IP address for DNS primary server. Format can be xxx.xxx.xxx.xxx (IPv4) or xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx (IPv6).
C6	Selects IPv4 or Ipv6 IP address for DNS secondary server. Format can be xxx.xxx.xxx.xxx (IPv4) or xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx (IPv6).
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.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.xxxx

See the *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 DHCP Host Name is common for all LAN Channels.
- The set DHCP Host name is used on the next DHCP lease renewal or at the current lease expiration.

Examples

```
syscfg /lc 1 2b straight+md5
syscfg /lc 1 C7 TestDHCPHostName
syscfg /lc 1 102 ENABLE
syscfg /lc 1 103 AUTO
```

4.4.10 LAN Enable (/le)

Usage

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

Description

Configures the LAN channel used by the BMC on the specified channel.

Table 23. LAN enable (/le) options

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

See the *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)

Usage

```
syscfg {/lfo | /lanfailover} {enable | disable} {enable | disable} {enable |
   disable} {enable | disable} {1..3}
```

Description

BMC firmware provides a LAN failover capability so that the failure of the system hardware associated with one LAN link results in traffic being rerouted to an alternate link.

LAN failover mode (/lfo) options

Option	Description
ENABLE | DISABLE	Enables or Disables LAN Failover
ENABLE | DISABLE	If NIC1 is bonded for LAN Failover Optional, needs BMC supports LAN Failover on specific NIC
ENABLE | DISABLE	If NIC2 is bonded for LAN Failover Optional, needs BMC supports LAN Failover on specific NIC
ENABLE | DISABLE	If NIC3 is bonded for LAN Failover Optional, needs BMC supports LAN Failover on specific NIC
1..3	Primary NIC Optional, needs BMC supports LAN Failover on specific NIC

4.4.12 PEF Configure (/pefc)

Usage

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

Description

Globally enables or disables the Platform Event Filters used by the BMC. See Table 24.

Table 24. PEF configure (/pefc) options

Option	Description
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. • `diagint` means diagnostic interrupt.

See the *IPMI 2.0 Specification*, Chapter 17, for more information on Platform Event Filtering.

Example

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

4.4.13 PEF Filter (/peff)

Usage

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

Description

Configures the Platform Event Filters used by the BMC on the specified channel. See Table 25.

Table 25. PEF filter (/peff) options

Option	Description
Filter_table_index	Index for particular filters in the PEF filter table.
enable | disable	Enables specified filter.

Option	Description
none | alert | pdown | reset | pcycle	PEF Action. Enables 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.
1..15	Policy number. This number maps to the Alert Policy Table. (Also see the `/pefp` option.)

See the *IPMI 2.0 Specification*, Chapter 17, for more information on Platform Event Filtering.

Example

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

4.4.14 PEF Policy (/pefp)

Usage

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

Description

Configures the Platform Event Filter policy table used by the BMC on the specified channel. See Table 26.

Table 26. PEF policy (/pefp) options

Option	Description
Policy_table_index	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, 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, 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 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 with a different destination type.
Channel_ID	IPMI Channel ID for a BMC channel
Destination_table_index	Destination Table Index

See the *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)

Usage

```
syscfg /prp {off | on | restore}
```

Description

Sets the power restore policy. See Table 27.

Table 27. Power restore policy (/prp) options

Option	Description
off | on | restore	Power restore policy

See the *IPMI 2.0 Specification*, Section 28.8, for more information on the Set Power Restore Policy IPMI Command.

Example

```
syscfg /prp off
```

4.4.16 Configure Power Supply Cold Redundancy Setting (/cr)

Usage

```
syscfg {/cr | /coldredundancy} {<Argument 1> <Argument 2>}
```

Description

Configures Cold Redundancy settings in the server management firmware.

Arguments for this command are described in Table 28.

Table 28. Cold redundancy configuration command-line arguments

Argument #	Possible Values	Description
1	Enable | Disable	Enables/Disables Cold Redundancy feature; refer to Example 1 below.
1 **2**	Rotation Enable | Disable	Enables/Disables Cold Redundancy Rotation; refer to Example 2 below.
1 **2**	Timeout Timeout value in number of days	Sets the timeout value for Cold Redundancy Rotation feature; refer to Example 3 below. Valid values are between 1-180 days (6months).
1 **2**	Rank Rank Value	Sets the Rank Order of Power supplies; refer to Example 4 below. When the user sets the rank order of power supplies, utility internally sets the rank type to USER_SPECIFIC. The rank order should be only for max number of power supplies supported by the system.

Examples

1. Enables the Cold Redundancy feature.

   ```
   syscfg /cr enable
   ```

2. Enables the Cold Redundancy Rotation feature

   ```
   syscfg /cr rotation enable
   ```

3. Sets the rotation timeout to 10 days

   ```
   syscfg /cr timeout 10
   ```

4. Sets the rank order to 2, 1.

   ```
   syscfg /cr rank "2 1"
   ```

4.4.17 Reset BMC (/rbmc)

Usage

```
syscfg {/rbmc | resetBMC}
```

Description

Resets the Baseboard Management Controller.

Examples

```
syscfg /rbmc
```

Note: Do not issue any `Syscfg` commands until the BMC initializes (approximately 50 seconds).

4.4.18 Restore Firmware Settings (`/rfs`)

Usage

```
syscfg {/rfs | restorefirmwaresettings}
```

Description

Restores the factory default Baseboard Management Controller settings.

Examples

```
syscfg /rfs
```

Note: This command should be followed only by `Reset BMC` or `AC Power Cycle`. However, do not issue either of the commands until the BMC initializes (approximately 50 s). Unpredictable operations may occur if the BMC is not reset after this command.

4.4.19 Reset Node Manager (`/rnm`)

Usage

```
syscfg {/rnm | resetnodemanager}
```

Description

Resets the Intel® Node Manager (Intel® NM).

Intel® NM provides a mechanism for the customer to configure multiple power policies on a platform. These policies can have a defined action to “shut down” the platform. If the customer configures a power policy that performs a *shutdown* and the power threshold is set too low, the platform does 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.

Examples

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

4.4.20 Serial Over LAN (/sole)

Usage

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

Description

Enables Serial Over LAN (SOL) on the specified LAN channel. See Table 29.

Table 29: Serial over LAN (/sole) options

Option	Description
Channel_ID	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

See the *IPMI 2.0 Specification*, Chapter 26, for more information on IPMI SOL commands.

Serial Baud Rate is not supported.

Examples

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

4.4.21 Save BMC Debug Log

Usage

```
syscfg {/sbmcdl | /savebmcdebuglog} [ Public ] [filename]
```

Description

Saves the BMC debug log to a .zip file for system diagnostics purposes. See Table 30.

Table 30. Save BMC debug log options

Option	Description
Public	Regular System Diagnostics
Filename	Name of the file to save the BMC diagnostics data. The extension should be. .zip or .ZIP.

4.4.22 Users (/u)

Usage

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

Description

Sets the user name and password for the specified BMC user. See Table 31.

Table 31. Users (/u) options

Option	Description
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.

Option	Description
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 anonymous.
Password	User BMC Password. ASCII string of up to 20 characters.

See the *IPMI 2.0 Specification* for more information on user passwords.

Notes:

- The user names for User 1 (NULL) and User 2 (Root) cannot be changed.
- Duplicate user names are not supported.

Examples

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

4.4.23 User Enable (/ue)

Usage

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

Description

Enables or disables the BMC user on the specified BMC channel. See Table 32.

Table 32. User enable (/ue) options

Option	Description
User_ID	User ID. Use a decimal integer in the range [1..n], where n 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
Channel_ID	IPMI Channel ID

See the *IPMI 2.0 Specification* for more information on user configuration settings.

Example

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

4.4.24 User Privilege (/up)

Usage

```
syscfg {/up | /userprivilege} User_ID Channel_ID {callback | user | operator
   | admin | none} [SOL | Disable]
```

Description

Enables or disables the BMC user on the specified BMC channel. See Table 33.

Table 33: User privilege (/up) options

Options	Description
User_ID	BMC user ID.
Channel_ID	BMC channel number.
callback | user | operator | admin | none	IPMI privilege level.
SOL | Disable	Specifies the type of payload: Serial Over LAN, or Disable.

See the *IPMI 2.0 Specification* for more information on user privilege levels.

Notes:

- User 2 (Root) privileges cannot be changed.
- Privilege level none is not supported.
- Maximum five users are supported by the utility irrespective of number of users supported in the firmware.

Examples

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

4.4.25 Shutdown Policy Interface (/sdp)

Usage

```
syscfg /sdp {enable | disable}
```

Description

Use this command to configure shutdown policy in the server management firmware.

Examples

Enables shutdown policy so the server shuts down on a power supply Over Current (OC) event or a power supply Over Temperature (OT) event.

```
syscfg /sdp enable
```

4.4.26 Fan Settings (/fan)

Usage

```
syscfg /fan {1 | 2 | 3 | 4} value
```

Description

Use this command to change fan PWM offset, fan UCC, air flow limit and exit air temp, see Table 35.

Table 35. Fan settings (/fan) options

Options	Description
1	Fan PWM Offset：Valid Offset 0-100. This number is added to the calculated PWM value to increase Fan Speed.
2	Fan UCC：Max domain PWM. BIOS valid range 70-100. This set the absolute maximum fan PWM for the domain.
3	Air Flow Limit：System CFM Limit. BIOS valid range 60-100. This set the maximum allowable system CFM under normal operating conditions. This value will be ignored during error conditions such as a fan failure or a critical temperature event. The value in this item is percentage of max CFM. The resolution is 1%.
4	Exit Air Temp：Exit Air temperature. BIOS valid range 50-70. This is to give MAX exit air temperature to BMC.
Value	The value to be set for the fan setting options selected

Examples

Change fan PWM offset to 20.

```
syscfg /fan 1 20
```

4.4.27 Graceful Power Cycle (/gpc)

Usage

```
syscfg /gpc
```

Description

Use this command to do graceful power cycle.

Examples

```
syscfg /gpc
```

Appendix A. IPMI Channel Assignments

Table 36 lists the IPMI Channel assignments.

Table 36. IPMI channel assignments

IPMI Channel ID	Assignments
Channel 1	Baseboard LAN Channel
Channel 2	Baseboard LAN Channel
Channel 3	Optional Intel® RMM4 NIC

Appendix B. Saved Firmware Settings

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

A.1. Binary Format

Table 37 lists the firmware settings that are saved and restored with Syscfg in binary formats.

Table37. Saved firmware settings

Component	Setting
Power Configuration Setting	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: Save and Restore of Host IP, Subnet Mask, Default Gateway IP, and Backup Gateway IP are not supported.	
LAN Alert Settings	Alert Acknowledge Enabled
	Alert IP
	Alert MAC
	Gateway Selector
	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

Component	Setting
	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: SOL Baud Rate is not supported.

A.2. Sample <filename> . INI File

The following information is for reference purposes only. The content and settings of the .INI file for different server systems may differ from those shown below.

Instructions for editing the 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 are available – only those that are required for the user to configure.
- The section headers are generated automatically depending on the platform and a 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 sytems 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
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::USER2]
UserName=root                                        ; This field should not be edited
GlobalUserStatus=DISABLE                             ; Options: Enable or Disable
PrivilegeCh11=ADMIN                                  ; This field should not be edited
UserAccessCh1=ENABLE                                 ; This field should not be edited
SOLEnableCh1=ENABLE                                  ; This field should not be edited
PrivilegeCh12=ADMIN                                  ; This field should not be edited
UserAccessCh2=ENABLE                                 ; This field should not be edited
SOLEnableCh2=ENABLE                                  ; This field should not be edited
PrivilegeCh13=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
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::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=Disable
d: 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
```

Appendix C. Glossary

Term	Definition
ACPI	Advanced Configuration and Power Interface
ARP	Address Resolution Protocol
BMC	Baseboard management controller
CLTT	Closed-loop thermal throttling (memory throttling mode)
DHCP	Dynamic Host Configuration Protocol
FRB	Fault resilient booting
FRU	Field replaceable unit
I2C	Inter-integrated circuit bus
IPMI	Intelligent Platform Management Interface
LAN	Local area network
MD5	Message Digest 5. A hashing algorithm that provides higher security than MD2.
NIC	Network interface card
NMI	Non-maskable interrupt
OC	Over Current
OLTT	Open-loop thermal throttling (memory throttling mode)
OT	Over Temperature
PCI	Peripheral Component Interconnect
PEF	Platform event filtering
PIA	Platform information area
POST	Power-on self-test
PWM	Pulse Width Modulation. The mechanism used to control the speed of system fans.
RAM	Random Access Memory
RAS	Reliability, availability, and serviceability
ROM	Read-only memory
RTC	Real-time clock
SEL	System event log
SNMP	Simple Network Management Protocol
SOL	Serial-over-LAN