Intel® Command Line Interface

User Guide

Intel® Command Line Interface Version 2.5.1

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Introduction

The Intel® Command Line Interface tool has two modes: Platform Control mode and Serial Over LAN (SOL) Console Redirection mode. When Intel® Command Line Interface is in Platform Control mode, you can issue commands to the remote system. When Intel® Command Line Interface is in SOL Console Redirection mode, you can perform, over a LAN connection, any activity you could at the remote system's console, including viewing the remote system's console output (SOL allows data from the server serial port to be redirected over the LAN).

The Intel® Command Line Interface uses a network proxy (dpcproxy) that runs on the managing client system or on a central network proxy. The network proxy is installed by the Intel® System Management Software installation program provided with your Intel server.

There are two basic ways to issue Intel® Command Line Interface commands through the network proxy to a remote server: by using the console interface, called *dpccli*; or by using telnet. Both methods are described in detail later in this section.

NOTES

In order to switch Intel® Command Line Interface to SOL mode, you must be using a telnet connection to the remote server. You cannot switch to SOL mode (or use Intel® Command Line Interface commands or options that start the remote server in SOL mode) if you are simply running dpccli to issue Intel® Command Line Interface commands to the remote server.

The Windows operating system application Hyperterminal is no longer supported for Intel® Command Line Interface or SOL.*

The Intel® Command Line Interface console, called *dpccli*, runs on the management console and enables communication between the management console and the network proxy, which in turn communicates to the managed server. (See page 17 for details on dpccli.)

When using telnet to connect to the remote server (to issue Intel® Command Line Interface commands and to operate in SOL mode), you must connect the telnet session to the dpcproxy by specifying (in the telnet command line) the port on which dpcproxy is listening (see page 13 for required telnet syntax).

An Intel® Command Line Interface session over dpccli requires a server name (or address) and login (user and password), which can be supplied as arguments to the dpccli command.

Once the Intel® Command Line Interface session over dpccli is running and the connection to the intended server is established, you can begin issuing Intel® Command Line Interface commands to that server at the dpccli prompt. If connecting via telnet, the same dpccli prompt is displayed when in Platform Control mode (default), and you can issue Intel® Command Line Interface commands at the dpccli prompt over telnet.

Authentication and Encryption Support

Intel® Command Line Interface supports IPMI 1.0/1.5 and IPMI 2.0, depending on which version of IPMI is on the target server. When communicating by IPMI 1.0/1.5, Intel® Command Line Interface uses the MD5 algorithm to authenticate packets. When using IPMI 2.0, Intel® Command Line Interface uses the HMAC-SHA1 algorithm to authenticate packets. You cannot control which packets are authenticated.

Intel® Command Line Interface supports different encryption algorithms depending on whether it is communicating in IPMI 1.0/1.5 or IPMI 2.0. In IPMI 1.5, the only packets that are ever encrypted are SOL packets. By default, all SOL packets are encrypted. In IPMI 2.0, all packets can be encrypted. The AES-CBC algorithm is used to encrypt packets.

By default, the only packets that are encrypted are the ones that are authenticated. You can, however, set Intel® Command Line Interface to encrypt all commands, or none. See page 51 for dpccli command syntax, including details on setting encryption.

Intel® Command Line Interface Features and Benefits

The Intel® Command Line Interface lets you control a server from the command line rather than from a graphical user interface. You can enter Intel® Command Line Interface commands at a command prompt or from a script file to do the following (note that this is not an exhaustive list; see page 21 for a complete list of Intel® Command Line Interface commands):

- Remotely power on or off a server
- Remotely reset the server
- Request machine identifiers
- Read sensor values
- Display the network configuration of the BMC
- IPMI 1.0, 1.5 and 2.0 authentication support
- Packet encryption based on IPMI version

You can also execute Perl scripts to issue commands to multiple remote servers. You can use any of the following consoles to launch dpccli or telnet and issue Intel® Command Line Interface commands:

- Windows* command-line environment (command prompt)
- Linux* command shell

Serial Over LAN (SOL) Mode

The Serial over LAN Console Redirection mode[1] of Intel® Command Line Interface lets servers transparently redirect the serial character stream from the baseboard UART to and from the managing client system over the LAN. Serial over LAN has the following benefits compared to a serial interface:

- Eliminates the need for a serial concentrator
- Reduces the amount of cabling
- Allows remote management of servers without video, mouse, or keyboard (headless servers)

NOTE

The dpccli interface does not support formatted output. When using Intel® Command Line Interface in SOL Console Redirection mode, special characters may not appear properly formatted as they would at the server console. In order to view SOL data, a connection via telnet must be established.

Getting the Latest Information

For the latest Intel® Command Line Interface information, including system requirements and supported Operating Systems, refer to the *Release Notes* provided with your Intel® System Management Software or Intel® Server Management Software CD/DVD or go to Intel support site.

[1] The Serial Over LAN mode is not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs

Using Intel® Command Line Interface

Installation Instructions

Intel® Command Line Interface (Intel® CLI) Proxy server can be installed from either Intel® Server Management Software CD/DVD or can be downloaded from Intel support site (http://www.intel.com/go/servermanagement). The command line utility is installed on any Administrative Server or Client machine. You can use Intel® CLI to manage any Intel server board with a Baseboard Management Controller or National Semiconductor* mini-BMC.

On Microsoft Windows*

From CD/DVD

1. Insert System Management Software CD/DVD containing the Intel® Command Line Interface utility.
2. Select and install the Intel® CLI from Utilities section in the autorun screen.

Stand-alone Installation

1. Select appropriate installer based on your processor type (Intel Command Line Interface-x86.exe or Intel Command Line Interface-x86_64.exe)
2. Run the installer and follow the instructions

On Linux*

1. Open a command shell window.
2. Run the installation script listed in DPC-CLI folder that corresponds to your OS and software component you wish to install.

Installation Notes

a. Intel® CLI proxy server is normally installed on one management console (not a managed server) and is accessed either from the local console or remotely using telnet.

b. Use the System Configuration Utility (syscfg), Server Configuration Wizard (SCW) utility, or Intel® Deployment Assistant to enable BMC users, set BMC user passwords, enable KVM, enable SOL, and set IP Addresses. See the Intel support web site (http://support.intel.com) to download these tools.

c. For running Intel® CLI using telnet, you may need a Microsoft* patch to correct a line feed problem on Windows* XP Professional and Windows* Server 2003. See http://support.microsoft.com/?kbid=824810 for the hot fix (also available in Windows* XP SP2).

Uninstalling the Software

An uninstall script will be installed in the default installation directory.

Microsoft Windows*

To uninstall the Intel® CLI under Microsoft Windows*, use the Add/Remove Software applet in the Control Panel.

Linux*

To uninstall the software under Linux, run the uninstall script in DPC-CLI folder

Running the Software

To run Intel® CLI, telnet to the Intel® CLI proxy server using port 623.

Supported Intel® Server Platforms

This version of the Intel® CLI utility supports the Intel® Server Boards listed below. (Intel® Server Systems based on the Intel® Server Boards listed below are also supported unless otherwise noted in the product documentation for the Intel® Server System.)

Multi-Core Intel® Xeon® Processor 3000 Sequence-based Servers:

- Intel® Server Board S3200SH
- Intel® Server Board S3420GP
- Intel® Server Board X38ML

Multi-Core Intel® Xeon® Processor 5000 Sequence-based Servers:

- Intel® Server Board S5520UR
- Intel® Server Board S5500BC
- Intel® Server Board S5520HC
- Intel® Server Board S5500HCV
- Intel® Server Board S5500WB
- Intel® Workstation Board S5520SC
- Intel® Server Board S5000PAL
- Intel® Server Board S5000PSL
- Intel® Sever Board S5000VCL
- Intel® Server Board S5000VXN
- Intel® Server Board S5000VSA
- Intel® Server Board S5000XAL
- Intel® Server Board S5000XSL
- Intel® Server Board S5400SF
- Intel® Server Board S5400RA
- Intel® Server Board S5500HV
- Intel® Server System SR1670HV
- Intel® Server System SR1680MV

Multi-Core Intel® Xeon® Processor MP 7000 Sequence-based Servers:

- Intel® Server Board S7000FC4UR
- Intel® Server Platform SR4850HW4/M
- Intel® Server Platform SR6850HW4/M

Intel® Xeon® Processor-based Servers:

- Intel® Server Board SE7520JR2
- Intel® Server Board SE7520BD2
- Intel® Server Board SE7320SP2†
- Intel® Server Board SE7320VP2†
- Intel® Server Board SE7520AF2†
- Intel® Server Board SE7525GP2†

† This product has been discontinued. Contact your Intel Sales representative for information about product support for discontinued products.

Supported Server Operating Systems

The Intel® CLI is supported on the following operating systems:

- Windows Server® 2003 Standard or Enterprise Edition*, with SP1 or later x86 & EM64T
- Windows Server® 2003* R2 x86 & EM64T
- Windows 2008* 32 BIT
- Windows 2008* 64 bit
- SUSE* 11 32 BIT
- SUSE* 11 64 BIT
- Red Hat* Enterprise Linux* 4.0, U4
- Red Hat* Enterprise Linux* 5.0 32-bit & 64-bit
- SuSE* Linux Server 9 Enterprise Server SP4 – 32-bit
- SuSE* Linux Server 9 Enterprise Server SP4 – 64-bit
- SuSE* Linux Server 10 Enterprise Server SP2 – 32-bit
- SuSE* Linux Server 10 Enterprise Server SP2 – 64-bit

There are two basic methods for issuing Intel Command Line Interface commands to a remote server: through dpccli, or through telnet. Both methods are described below.

If you want to use Intel® Command Line Interface in SOL mode, you must connect to the remote server through telnet (SOL mode is not supported through dpccli). However, the dpccli command line options, which affect the behavior of the connection, cannot be used when connecting through telnet (because you are not using the dpccli command if you use telnet). So, you will need to decide which method to use, depending on what you want to do on the server. See page 17 for details on the dpccli command and its options.

NOTES

- *When using the Intel® Command Line Interface with Serial over LAN Console Redirection from a management console running a supported version of Linux*, the backspace key [Backspace] does not work. You must use [Control]-[Backspace] instead when using Intel® Command Line Interface with Serial over LAN Console Redirection from a management console running a supported version of Linux*.*
- *Both Platform Control mode and SOL mode[2] use the network proxy to communicate to the remote managed server. This is because the telnet command described in this manual (see page 13) specifies using port 623 for telnet, which is the port on which the network proxy, dpcproxy, listens.*
- *Using dpccli or telnet, **only four concurrent connections can be made to one server**. This is because the dpcproxy connects directly to the BMC of the remote server, and the BMC only supports four concurrent connections. Upon attempting the fifth connection, the following message is displayed approximately 15-20 seconds after entering the password:*

  Invalid Password
  Connection Failed

  This message is followed by the operating system prompt. Note that any Out-of-Band connections to that server from other applications (such as System Management) count toward the total of four connections to that server's BMC.

Platform Control Mode (dpccli)

NOTE

To start an Intel® Command Line Interface session with dpccli, the network proxy dpcproxy must be running, either on the managing console or a central network proxy system. However, by default you should not have to do anything for the network proxy to be running, because the installation program installs the network proxy and sets it up for automatic start upon reboot. See page 49 for details on the network proxy.

Using Windows* Operating System Command Prompt

To connect to the server in Platform Control Mode and use Intel® Command Line Interface commands:

1. Enter the dpccli command and provide any command-line options (see page 17).
2. At the "Server:" prompt provide the IP Address or DNS Name of the server to which you want to connect.
3. Provide the BMC username and password for the target system.

---

[2] The Serial Over LAN mode is not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs

4. After authentication is performed, you will see a "login successful" message and the `dpccli>` prompt. You can now enter Intel® Command Line Interface commands.

Using Linux* Shells

To connect to the server in Platform Control Mode and use Intel® Command Line Interface commands from your Linux* command line shell:

- Enter the following command and provide any command-line options (see page 17).
  `/usr/local/cli/dpccli`
- At the "Server:" prompt provide the IP Address or DNS Name of the server to which you want to connect.
- Provide the BMC username and password for the target system.
- After authentication is performed, you will see a login successful message and the `dpccli>` prompt. You can now enter Intel® Command Line Interface commands. If you want to use the "console" command to switch to SOL Console Redirection mode, you must first open a telnet session to the managed server, as described in Using telnet for both Platform Control and SOL Modes below.

Using telnet for both Platform Control and SOL Modes

NOTE

When using the Serial Over LAN Console Redirection mode of Intel® Command Line Interface from a management console running a supported version of Linux, the backspace key [Backspace] does not work. You must use [Control]-[Backspace] instead when using Intel® Command Line Interface with Serial over LAN Console Redirection from a management console running a supported version of Linux*.*

Serial over LAN mode[3] requires a telnet session from the managing console to the Network Proxy server, regardless of which operating system (Windows* or Linux*) you are running on either system. Start the telnet session to the remote server as described below.

1. At the operating system command prompt, type "telnet xxx.xxx.xxx.xxx 623 <Enter>". The xxx represent the IP address of the system running the Network Proxy. This may be a central network server with the Proxy installed. If you are connecting to the local system, use "localhost" instead of the system's IP Address. The 623 represents the default Port address required for Intel® Command Line Interface connections. If this port address has been changed while executing the dpcproxy command, use that port address (see page 51 for dpcproxy syntax).
   For example:
   ```
   telnet 10.7.162.58 623
   ```
   or
   ```
   telnet localhost 623
   ```

[3] The Serial Over LAN mode is not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs

2. At the “Server:” prompt provide the IP Address or DNS Name of the server to which you want to connect.
3. Provide the BMC username and password for the target system.

After authentication is performed, you will see a login successful message and the `dpccli>` prompt (even over telnet, Intel® Command Line Interface starts in Platform Control mode by default). You can now enter Intel® Command Line Interface commands (see page 19 for list of commands) or switch to SOL Console Redirection mode, as described below.

NOTE

When using the BIOS setup utility on a remote server through an SOL connection, be aware that upon exiting the BIOS setup utility (by pressing F10), the SOL connection to the remote server will be lost and you will need to re-establish the SOL connection to the server.

Switching Between Platform Control Mode and SOL Console Redirection Mode

When you use telnet (as described above) to connect to the remote server through the network proxy, the Intel® Command Line Interface session starts in Platform Control Mode, in which Intel® Command Line Interface commands can be executed on the remote system. To switch to SOL Console Redirection mode, issue the Intel® Command Line Interface command “console” (see page 24). To exit SOL Console Redirection mode and return to Platform Control Mode, enter the tilde-period key sequence (~.). This switches the console back to Platform Control Mode. You can change the character sequence to switch modes by using the `redirectexit` option of the `dpcproxy` command (see page 51 for complete dpcproxy command syntax).

Console Interface

For a command prompt console, you must start dpccli before you can access the Intel® Command Line Interface commands. The dpccli executable file acts as an interface between the console and the network proxy. Once the interface is started, you can then connect to a server and enter commands.

The console interface is particularly useful in scripting environments that use standard console input and output. It is also useful as a simple interactive interface when formatted output is not required.

dpccli Return Codes

When it exits, dpccli will return a status code to the environment. Normal exits are performed by using the Intel® Command Line Interface commands “exit” or “quit” (see page 25) during a dpccli session. However, if the -e option is used when invoking the network proxy (dpcproxy), dpccli will exit abnormally whenever an error condition is encountered. If the -e option is not used, only the very last return code can be viewed (that is, if multiple errors occurred during the session, and you exit normally, you will only see the return code of the last error).

If you would like to set the -e option for the network proxy, see page 49 for information on setting persistent arguments (arguments that will be read whenever the network proxy is restarted upon reboot).

To view the return code upon exiting dpccli (either by using the exit or quit command, or because of an error), type one of the following commands at the command prompt, depending on your operating system:

- Linux* Operating System: `echo $?`
- Windows* Operating System: `echo %errorlevel%`

The following are the status codes dpccli will return (non-zero values for the return code indicate an error condition was encountered):

Code	Meaning	Suggested Action
0	Success	No action necessary.
1	Connection lost to proxy	Restart dpccli session or telnet session, depending on which you were using.
2	Login failed	Retry login.
3	Unrecognized command	Retype command (this error will be displayed if command is mistyped).
4	Command failed	Retype command. May need to restart the network proxy and try the command again.
5	Invalid Arguments	Retype command and arguments (this error will be displayed if argument is mistyped).
6	Unknown error	Contact system administrator.

The dpccli Configuration File

In situations where you regularly start the dpccli console interface, you can set up a configuration file of common command-line options (note that this is not the same as the "input file" described for the -i option on page 17). Thus you avoid having to enter the options each time at the command line. For example, you could put in this file the network address of a centralized network proxy using the `-P` option. Each time you start dpccli it reads the configuration file, and it would get the network proxy from the file.

NOTES

- *The ".dpcclirc" configuration file is only referenced when the dpccli command is launched from an operating system command prompt. If you use telnet to connect to the managed server, as described on page 13, the .dpcclirc file will not be referenced.*

  By default dpccli looks for a file named .dpcclirc, first in the directory specified in the HOME environment variable (see below) and then in the current working directory. You can explicitly specify the file name and its path on the command line with the `-r` option.

- *Options specified on the dpccli command line (see page 17) always take precedence over options specified in the configuration file. Not all dpccli options are supported from .dpcclirc. The supported options are:*
  `a, c`[4]`, I, v, i, o, p, P, s, and u.`

  Command text is not processed through the configuration file. Any option not understood or supported is silently ignored. Thus, you can insert blank lines or comments that start with a non-option letter, for example, # in the file.
  When creating the configuration file, enter each option on a separate line. Each line must begin with an option letter optionally preceded by the hyphen character. Follow the option with any argument that applies (note that there must be a space between the option and its argument; for example, `-s server_name`). See the options listed on page 17.

Setting the HOME Environment Variable

NOTE

The HOME environment variable may already be in use by other applications. Verify that HOME is not being used before changing this setting.

[4] This command option not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs

In Linux* Operating System

As stated above, by default dpccli looks for a file named *.dpcclirc*, first in the directory specified in the **HOME** environment variable and then in the current working directory.

To set the HOME environment variable, do one of the following:

- To temporarily set the HOME variable (until next reboot), type the following command:
  `export HOME=<path>`
- To permanently set the HOME variable, edit the `/etc/profile` script and add the line `export HOME=<path>`.

In Windows* Operating System

Access the System Properties dialog by right-clicking the My Computer icon on the desktop and selecting Properties. Click the Advanced tab, then select Environment Variables. From there add the variable HOME, and define the path as desired.

The dpccli Command Syntax

The dpccli command line syntax is as follows:

```
dpccli {[-?] | [-h]} | {[-s server] [-u user] [-p password]
        [-i inputFile] [-o outputFile] [-c] [-I] [-v] [-P networkProxy]
        [-a alternatePort] [-r rcFile] [text]...}
```

NOTES

- *The first text encountered on the command line that is not associated with a command-line option (i.e., the [text] option referenced above) is interpreted as the start of text to be sent to the network proxy. Therefore you must place this text last on the command line.*
- *It is recommended that the [-o outputFile] option be used with the [-i inputFile] option. If you do not use[-i] when using [-o], Intel® Command Line Interface may appear to hang (even though it is working properly) because all output is being directed to the file specified in the -o option instead of to the console.*

dpccli Command Line Options

Option	Description
-? or -h	Displays command usage. Any other options specified with this option are ignored.
-s *server*	Specifies the IP Address or DNS hostname associated with the Network Interface Card (NIC) used by the Baseboard Management Controller (BMC). For *server*, specify either an IP Address or DNS hostname. If you do not specify this option, you will be prompted for the information.
-u *user*	Specifies the Intelligent Platform Management Interface (IPMI) username associated with this session. For *user*, specify a valid username associated with the managed server. If you do not specify this option, you will be prompted for the information.

Option	Description
	Note that if you are using a null user and password, supply “” for the user name (e.g., dpccli -s server_name -u “” -p “”).
-p *password*	Specifies the IPMI password associated with this session and user. For *password*, specify the password associated with the username. If you do not use this option, you will be prompted for the information. Note that if you are using a null user and password, supply “” for the password (e.g., dpccli -s server_name -u “” -p “”).
-i *inputFile*	Specifies an input file to be read as standard input. For *inputFile*, specify any text file. When the end of file is reached, the dpccli session ends unless you have also used the –I command-line option. If you do not use the -i option, you must interactively supply input from the command line. Note that the input file described here is not the configuration (.dpcclirc) file described on page 16. Note that you may not supply dpccli command line options specified in this table (-u, -s, -p, etc.) in the contents of the input file. However, those options may be specified in the same command string in which the [-i inputFile] option is used. For example, dpccli -u user_name -p password -s server_name -i input_file_name
-o *outputFile*	Specifies an output file in which to capture standard output. For *outputFile*, specify any text file. If you do not use this option, all standard output arrives at the console. It is recommended that the [-o outputFile] option be used with the [-i inputFile] option. If you do not use[-i] when using [-o], Intel® Command Line Interface may appear to hang (even though it is working properly) because all output is being directed to the file specified in the -o option instead of to the console.
-c	Forces the BMC session into Serial over LAN mode. In Serial over LAN mode, data is passed unaltered from the managed server to the console. If you do not use this command-line option, Platform Control Mode is the default mode. **Note:** This command option not supported on systems that use National Semiconductor’s PC87431x family of “mini” BMCs
-I	Causes the dpccli session to continue as an interactive session after all characters in the input file (specified with the –i command-line option) have been processed. The interactive mode continues after processing all characters read from an input file and/or any text specified at the command line. This is the default mode if an input file and/or text is not specified on the command line.
-v	Causes session progress messages to be sent to standard error (*i.e.* verbose output). Additionally, any non-zero exit condition prints an associated error message. This behavior is also the default behavior during any interactive

Option	Description
	session.
-P *networkProxy*	Specifies the IP Address or DNS hostname of the system running the network proxy (dpcproxy). The system whose IP Address or hostname you supply for *networkProxy* is the system that the client (your console system) will contact to look for the network proxy service. By default, the IP Address is the local host (127.0.0.1). Note that unless the -a flag is also used (to specify a particular port to use), the console system will attempt to communicate to the remote proxy through the default dpcproxy port of 623.
-a *alternatePort*	Specifies an alternate network proxy port number. By default, the port number is 623. If you have changed the port on which dpcproxy is listening (by using the dpcproxy command with the -p option; see page 51), you must supply the -a option with the new port number in your dpccli command.
-r *rcFile*	Specifies an alternate dpccli configuration file. By default, dpccli first looks for a file named *.dpcclirc* in the directory specified by the environment variable **HOME** (see page 16) and then in the current working directory. This option specifies the path including filename, which can be different than *.dpcclirc*. For information on dpccli configuration files, see page 16.

Running dpccli Commands from a Script

In order to scan multiple servers for information or to monitor their health, dpccli can be executed as part of a user created script. The following is an example of how input and output files could be used to query a server and save the information to a file which could then be parsed for data.

Sample input file:

```
111.112.113.20
     (null user name. carriage return only, no spaces or tabs)
     (null password. carriage return only, no spaces or tabs)
sensors –v
get –T BMC/network/1
```

Script command to execute

```
./dpccli –i inputfilename –o outputfilename
```

Output file created based on the sample input file above

```
Server: 111.112.113.20
user name:
Password:
Login successful
dpccli> sensors -v
04/08/02 | 06:56:18 | Baseboard 1.25V    | ok   |    1.24 | Volts
04/08/02 | 06:56:18 | Baseboard 2.5V     | ok   |    2.47 | Volts
04/08/02 | 06:56:18 | Baseboard 3.3V     | ok   |    3.29 | Volts
04/08/02 | 06:56:18 | Baseboard 3.3VSB   | ok   |    3.28 | Volts
04/08/02 | 06:56:18 | Baseboard 5.0V     | ok   |    4.97 | Volts
04/08/02 | 06:56:18 | Baseboard 12V      | ok   |   11.97 | Volts
04/08/02 | 06:56:18 | Baseboard -12V     | ok   |  -11.97 | Volts
04/08/02 | 06:56:19 | Baseboard VBAT     | ok   |    3.07 | Volts
04/08/02 | 06:56:19 | Processor VRM      | ok   |    1.45 | Volts
04/08/02 | 06:56:19 | Baseboard Temp     | ok   |   30.00 | Celsius
04/08/02 | 06:56:19 | FntPnl Amb Temp    | ok   |   28.00 | Celsius
04/08/02 | 06:56:19 | Processor1 Temp    | ok   |   37.00 | Celsius
04/08/02 | 06:56:19 | Processor2 Temp    | ok   |   36.00 | Celsius
04/08/02 | 06:56:19 | PwrDstBd Temp      | ok   |   27.00 | Celsius
04/08/02 | 06:56:19 | PwrDstBrd Fan      | ok   | 7320.00 | RPM
04/08/02 | 06:56:19 | System Fan 3       | ok   | 3872.00 | RPM
04/08/02 | 06:56:19 | System Fan 1       | ok   | 5852.00 | RPM
dpccli> get –T BMC/network/1
IP Address:         111.112.113.20
IP Address Source: static
MAC Address:        00:03:47:A4:FC:7D
Subnet Mask:        255.255.255.0
Gateway:            111.112.113.20
dpccli> exit
```

Command Reference

General Commands

The following Intel® Command Line Interface commands are for general use, except where noted. The following section, Firmware Configuration Commands, follows this section, and describes commands specific to configuring the target system's firmware. Refer to the documentation provided with your server to determine if a command is supported.

alarm -s

This command is available only on servers configured specifically with hardware for telephone company (telco) alarm capabilities.

NOTE

This command is only supported on Intel Carrier Grade Servers that have a baseboard management controller. This command not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs. Issuing this command to unsupported servers causes an "error COMMAND IS INVALID" message to be returned.

Syntax:

`alarm -s -a` *`id`* `-l` *`severity`*

Description:

The –s option designates this command as the "set alarm" command. This command adds a single Telco alarm record to the Telco alarm database. The generator ID for Intel® Command Line Interface will always be 41h. The following is an example of an alarm command to add a new alarm:

```
alarm –s –a 25 –l MJR
```

Options (all required):

-s	Specifies "set alarm" command.
-a	Sets alarm ID.
-l	Sets alarm severity. Possible severities are MJR (major), MNR (minor), and CRT (critical).

After every set alarm command, you should see one of the following five messages.

```
New alarm added to BMC TAM alarm database.
Request alarm matches existing BMC TAM alarm database record.
Request alarm updated an existing BMC TAM alarm database record.
BMC TAM alarm database is full.  Request alarm record bumped
because of lower priority.
```

```
BMC TAM alarm database is full.  Request alarm record bumped
existing record.
```

alarm -q

This command is available only on servers configured specifically with hardware for telephone company (telco) alarm capabilities.

NOTE

This command is only supported on Intel Carrier Grade Servers that have a baseboard management controller. This command not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs. Issuing this command to unsupported platforms causes the error message "There are no records in the BMC TAM alarm database" to appear.

Syntax:

`alarm -q [-g id [ -o id ] [-a id ]] | [-p] | [ -l severity]`

Description:

The –q option designates this command as the "query alarm" command. This command queries Telco alarm records in the alarm database based on the options entered by the user. Other than –q, no options are required and all of the other options can be specified.

Options:

[-q] Specifies "query alarm" command.

[-g] Query against the generator ID specified.

[-o] Query against the software originator ID specified.

[-a] Query against the alarm ID specified.

[-p] Query only alarms that are related to power.

[-l] Query against the severity specified. Severities are MJR (major), MNR (minor), and CRT (critical).

This command will display all records that match the query criteria. The following is an example of an input and output sequence.

```
alarm –q –l MJR

AlarmGenID=4  AlarmSW=Y  AlarmSWID=5  AlarmID=1  AlarmSev=MJR  AlarmPWR=N
AlarmGenID=3  AlarmSW=N AlarmSWID=NA  AlarmID=2  AlarmSev=MJR  AlarmPWR=N
AlarmGenID=2  AlarmSW=N  AlarmSWID=NA  AlarmID=3  AlarmSev=MJR AlarmPWR=Y
```

alarm -c

This command is available only on servers configured specifically with hardware for telephone company (telco) alarm capabilities.

NOTE

This command is only supported on Intel Carrier Grade Servers that have a baseboard management controller. This command not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs. Issuing this command to an unsupported platform causes the error message "There are no records in the BMC TAM alarm database" to appear.

Syntax:

`alarm -c [-g id [-o id] [-a id ]] | [-l severity] | all`

Description:

The –c option designates this command as the "clear alarm" command. This command clears all Telco records in the Telco alarm database based on the options entered by the user. Other than –c, no options are required. If the –a option is specified, then the –g and –o options must also be specified.

Options:

[-c] Specifies "clear alarm" command.

[-g] Clears alarm for the generator ID specified.

[-o] Clears alarm for the software originator ID specified.

[-a] Clears alarm for the alarm ID specified. If the –a option is specified, then the –g and –o options must also be specified.

[-l] Clears alarm for the severity specified. Severities are MJR (major), MNR (minor), and CRT (critical).

This command will display the alarm id of every record it removes. The following is an example input and output sequence.

```
alarm –c –g 4 –o 5 –a 1
Alarm ID 1 cleared (Generator ID 4)
```

boot

Syntax:

```
boot -s normal | service [-f] [-console]
```

Description:

Sets the IPMI boot options and then resets the system. By default, the boot command attempts a graceful shutdown of the operating system before executing the IPMI reset command. If the specified boot option is unavailable, the server will boot using the boot order set in its BIOS.

Note: This command option not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs.

Options:

`normal`	Boots the server from the hard drive.
`service`	Boots the server from the Service Partition.
[-f]	Forces a boot without a graceful shutdown.
[-console]	**This command-option combination can only be used over a telnet session to the remote server** (see page 13). Switches the session to Serial over LAN mode after successfully executing the IPMI reset command. You will see the BIOS output and other boot messages as if sitting at the managed server. If you specify a `service` option along with the -c option, the Intel® Command Line Interface opens a connection with the Remote Service Agent (RSA) running on the service partition instead of establishing a Serial over LAN session. Then you can interact with RSA using the Service command (see page 30).

clearlog

Syntax:

```
clearlog
```

Description:

Clears the System Event Log.

console

Syntax:

```
console
```

Description:

This command-option combination can only be used over a telnet session to the remote server (see page 13). Switches Intel® Command Line Interface from Platform Control mode to Serial over LAN Console Redirection mode.

In Serial over LAN Console Redirection mode, the character stream is passed unaltered allowing you to view directly the output of the console serial port of the server. Switching into this mode causes any output data that was received and buffered while Intel® Command Line Interface was in command mode to be displayed.

You can switch from Serial over LAN Console Redirection mode back to Intel® Command Line Interface command mode by typing a tilde followed by a period (~.) To escape the tilde and send it to the console, type a second tilde.

NOTE

This command not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs.

displaylog

Syntax:
`displaylog [-F format] [-O filename] [-n number]`

Description:
Displays System Event Log (SEL) records. Each record displays on a single line and uses the following format:

```
Record # | Date Time | Sensor | Event description
```

Options:

[-F *format*] When csv is specified for format, displays the record using a comma-separated format.

Fields are separated by a single comma, as in the following example:

```
09/13/01,10:08:55,Voltage,#02,ok,5.2,Volts
```

```
09/13/01,10:08:55,Temperature,#12,critical,102,Degrees Celsius
```

Values for format:

- csv: specifies comma separated values
- dsv: specifies delimiter separated values (default); see default example above
- hex: specifies hexadecimal values

[-O *filename*] Saves data to specified filename.

[-n *number*] Specifies the most recent number of events to display. If you do not use this option, all SEL records are displayed.

NOTE

When saving SEL files using the -O filename option, the file will be saved to the system where the dpcproxy is running. Example: If connected to a remote dpcproxy server, the saved SEL files will be placed on the remote system (where the dpcproxy is running) rather than the local system.

Any path specified must exist on the system on which the proxy is running.

exit or quit

Syntax:
`exit`
`quit`

Description:
Terminates the Intel® Command Line Interface session. Either command closes all IPMI sessions associated with the user of the network proxy as well as closing the network proxy socket.

help

Syntax:
`help [-C CLIcommand]`

Description:
Displays how to use the specified Intel® Command Line Interface command. If you do not specify a Intel® Command Line Interface command, abbreviated usage information is displayed for all Intel® Command Line Interface commands.

Options:

`[-C CLIcommand]`	Any valid Intel® Command Line Interface command.

id

Syntax:
`id`

Description:
Displays the 16-byte system Globally Unique Identifier (GUID) of the managed server in the conventional GUID format; for example, `422e7704-23f5-4706-a943-a7859c073aed`.

Identify

NOTE

This command not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs.

Syntax:
`identify [-on [seconds]] [-off] [-s]`

Description:
Causes the server to signal its physical location with a blinking LED or beep. Use this command to locate a server in a rack of servers.

Options:

[-on [*seconds*]]	Specifies the number of seconds to blink the LED or sound the beep. If you do not provide a value for *seconds*, the default is 15 seconds. If you provide the value 0 for *seconds*, the server will identify itself indefinitely. The maximum value for seconds is 255. Not all servers support specifying the number of seconds.
[-off]	Turns off the blinking LED or beep. This option has no effect if the specified server is not currently identifying itself.
[-s]	Displays the current LED state as either ON (Application), ON (Button), or OFF.

interrupt

Syntax:

```
interrupt -i nonmask [-console]
```

Description:

Forces the Baseboard Management Controller (BMC) to generate an IPMI diagnostic interrupt.

Options:

[-console]	**This command-option combination can only be used over a telnet session to the remote server** (see page 13). Switches the session to Serial over LAN mode after successfully executing the IPMI diagnostic interrupt command. **Note:** This command option not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs.

power

Syntax:

```
power {-on [-console]} | -off | -state
```

Description:

Initiates a power up or power down sequence on the managed server. To perform a graceful shutdown[5], the Platform Instrumentation (PI) software must be installed on the server.

Options:

[-console] **This command-option combination can only be used over a telnet session to the remote server** (see page 13). Switches the session to Serial over LAN mode after successfully executing the IPMI power-on command.

Note: This command option is not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs.

-state Displays the current power state of the managed server.

reset

Syntax:

```
reset [-console]
```

Description:

Performs a platform reset. To perform a graceful shutdown, the Platform Instrumentation (PI) software must be installed on the server.

Options:

[-console] This command-option combination can only be used over a telnet session to the remote server (see page 13). Switches the session to Serial over LAN mode after successfully executing the IPMI reset command.

Note: This command option is not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs.

sensors

Syntax:

```
sensors [-v] [-F format] [-f threshold] [T sensor]
```

Description:

Displays the current status of platform sensors using the following default delimiter-separated format (see -F format below):

```
Date | Time | Sensor Type | Sensor # | Status [ | Value | Units ]
```

[5] Graceful shutdown not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs.

Options:

[-v] Displays all information fields (date, time, sensor type, etc.) if they are available, as in the following example:

09/13/01 | 10:08:55 | Voltage | #02 | ok | 5.2 | Volts

09/13/01 | 10:08:55 | Power Supply 1 | ok | PS Detected

09/13/01 | 10:08:55 | Temperature | #12 | critical | 102 | Degrees Celsius

[-F *format*] When csv is specified for format, displays the record using a comma-separated format.

Fields are separated by a single comma, as in the following example:

09/13/01,10:08:55,Voltage,#02,ok,5.2,Volts

09/13/01,10:08:55,Power Supply 1,ok,PS Detected

09/13/01,10:08:55,Temperature,#12,critical,102,Degrees Celsius

Values for format:

- csv: specifies comma separated values
- dsv: specifies delimiter separated values (default); see example in command description above

[-f *threshold*] Filters the display based on *threshold*. All sensors that are at the specified threshold and above will be displayed. For example, OK includes all levels while Cr displays both critical (cr) and Non-recoverable (nr). Specify one of the following for *threshold:*

`ok` Operating in normal ranges.

`nc` Non-critical condition caused by a sensor outside of its normal ranges.

`cr` Critical condition that is potentially fatal to the system caused by a sensor exceeding its specified ratings.

`nr` Non-recoverable condition that has potential to damage hardware.

`us` Unspecified status indicating a fault whose severity is unknown.

[-T *sensor*] Specifies the sensor group to display. If you do not specify a sensor group, the command displays all groups for which there is information. Specify one of the following for *sensor:*

```
volt
temp
power
fan
```

NOTE

This command will display the following power management information for systems with redundant power supplies that include the power gauge sensors: power consumption of each power supply (in Watts); number of power supply units present; functional status and redundancy status for each power supply.

service

Syntax:

```
service {-console | -exit | -ftp {start | stop}}
```

Description:

This command-option combination can only be used over a telnet session to the remote server (see page 13). After booting from the Service Partition (see the `boot` command with the `service` option), this command lets you interact with the Remote Service Agent (RSA) that is running from the managed server's Service Partition.

NOTE

This command is only supported server platforms that have a service partition. Refer to your platform documentation to determine whether or not your server platform has a service partition.

Options:

`-console`	Switches the Intel® Command Line Interface session to RSA console mode. In this mode the RSA starts and redirects a DOS command window through the Command Line Interpreter parser. In this mode, the character stream is passed unaltered to and from the RSA. You can switch out of RSA console mode and return to command mode by typing a tilde followed by a period (~.) To escape the tilde and have it sent to the console, supply a second tilde. Switching out of RSA console mode does not close the RSA-DOS console connection, which can be established again by issuing another service console command. **Note:** This command option not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs.
`-exit`	Closes the RSA-DOS console connection and returns the Intel® Command Line Interface session to dpccli command mode.
`-ftp start`	Instructs the RSA to start the FTP server. Once the FTP server is started, standard operating system FTP clients can be used to directly transfer files to and from the Service Partition. An FTP client is not built into the Intel® Command Line Interface command parser. The FTP server cannot be started while an RSA console session is active. Attempting to do so generates an error message from the Intel® Command Line Interface parser. The default FTP user name is "ftpuser" and the default ftp password is "ftp1234".
`-ftp stop`	Instructs the RSA to stop the FTP server.

set –T session {Prompt | Prefix}

Syntax:
`set -T session {Prompt=`*`text`* `| Prefix=`*`text`*`}`

Description:
Defines the Intel® Command Line Interface command-line prompt and the prefix that is applied to Intel® Command Line Interface command responses. By default, the command-line prompt is "dpccli", and the default response prefix is an empty string.

Options:

prompt=*text*	Changes the Intel® Command Line Interface prompt to *text*.
prefix=*text*	Changes the response prefix to *text*.
text	The prompt or prefix text. You can supply any literal text characters plus the system variable $system, $time, and $date. These variables resolve to the hostname or IP Address, the system time, and date, respectively. The time and date reflect current time for the system that is hosting the network proxy.

Example:

```
set -T session Prompt=$system>
```

shutdown

Syntax:
`shutdown [-f] [-r]`

Description:
Shuts down or resets the managed system, depending on which option is selected. By default, the software will attempt a graceful shutdown.[6] Performing a graceful operating system shutdown requires a proprietary operating system agent be present. If this agent is not present or unable to respond after seven seconds, an error message will be displayed for the user and the command will terminate (no reset or power off performed). Graceful shutdown commands will not perform hard resets or power off if operating system shutdown does not complete. (This model varies from previous implementations of graceful shutdown requests.)

Options:

`[-f]`	Forces a power off without performing a graceful shutdown. A graceful shutdown requires Intel® System Management Software to be installed on the server.
`[-r]`	Causes the software to attempt a graceful shutdown and then execute the IPMI reset command.

[6] Graceful shutdown not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs.

version

Syntax:
`version`

Description:
Displays the version of the active network proxy (dpcproxy).

Firmware Configuration Commands

This section describes Intel® Command Line Interface commands that are used to configure the target system's firmware. These commands allow you to update and display BMC configuration data. The set command could potentially cause the BMC to be configured incorrectly and in some cases could cause a lost connection of the current session. It could also cause another user currently connected to this system to lose their connection. For this reason, this command only temporarily sets the arguments. You will see a warning after every set command. You must issue the *commit* command to force the entries into the BMC. You may also issue the *clear* command at any time to clear the temporary values.

Channel ID Mapping by Platform

Some Intel® Command Line Interface firmware configuration commands require you to supply a BMC Channel ID number. You can use the *get -T BMC/channelInfo* command to obtain Channel ID information for the system to which you are connected. See page 36 for information on *get -T BMC/channelInfo*.

NOTE

The Channel ID Mapping has changed for the Dual-Core Intel® Xeon® Processor-based servers from Intel. Note that the channel mappings for the serial port may need to be changed in script files.

get –T BMC/network

Syntax:
`get -T BMC/network/<channel id> [Address=mac+ip+subnet+gateway]`

Description:

The *get –T BMC/network* command displays the network configuration of the BMC. This includes the MAC address, IP address and source (static, DHCP, BIOS, other), subnet mask, and gateway IP address. Without arguments, all network information is displayed. Optionally, the user can specify which network configuration information is of interest. If you do not specify a channel id, the current channel is used. See page 36 for information on *get -T BMC/channelInfo* command or see page 32 for channel ID mapping information in this guide.

get –T BMC/channel

Syntax:

```
get –T BMC/channel/<channel ID>
```

Description:

The *get –T BMC/channel* command displays the BMC channel settings. If you do not specify a channel id, the current channel is used. See page 36 for information on *get -T BMC/channelInfo* command or see page 32 for channel ID mapping information in this guide.

get –T BMC/lanAlert

Syntax:

```
get –T BMC/lanAlert/<channel ID> [AlertIndex=<value>]
```

Description:

The *get –T BMC/lanAlert* command displays the BMC LAN alert settings. If you do not specify a channel id, the current channel is used. See page 36 for information on *get -T BMC/channelInfo* command or see page 32 for channel ID mapping information in this guide. For AlertIndex, the default value is zero (0).

get –T BMC/lan

Syntax:

```
get –T BMC/lan/<channel ID>
```

Description:

The *get –T BMC/lan* command displays the BMC LAN settings. If you do not specify a channel id, the current channel is used. See page 36 for information on *get -T BMC/channelInfo* command or see page 32 for channel ID mapping information in this guide.

get –T BMC/modem

Syntax:

```
get –T BMC/modem/<channel ID>
```

Description:

The *get –T BMC/modem* command displays the BMC modem settings.

get –T BMC/terminal

Syntax:

```
get –T BMC/terminal/<channel ID>
```

Description:

The *get –T BMC/terminal* command displays the BMC terminal settings.

get –T BMC/serialPage

Syntax:

```
get –T BMC/serialPage/<channel ID> [PageSelector=<value>]
```

Description:

The *get –T BMC/serialPage* command displays the BMC serial paging settings on the specified channel.

get –T BMC/serialDialString

Syntax:

```
get –T BMC/serialDialString/<channel ID> DialStringIndex=<value>
```

Description:

The *get –T BMC/serialDialString* command displays the dial strings that are to be destinations for alerts sent as dial pages on the specified channel. Note that the argument DialStringIndex is required.

get –T BMC/serial

Syntax:

```
get –T BMC/serial/<channel ID>
```

Description:

The *get –T BMC/serial* command displays the BMC serial settings.

get –T BMC/pefFilter

Syntax:

```
get –T BMC/pefFilter
```

Description:

The *get –T BMC/pefFilter* command displays the BMC PEF settings. If you do not specify a channel id, the current channel is used. See page 36 for information on *get -T BMC/channelInfo* command or see page 32 for channel ID mapping information in this guide.

get –T BMC/pefPolicy

Syntax:

```
get –T BMC/pefPolicy
```

Description:

The *get –T BMC/pefPolicy* command displays the PEF policy table settings. If you do not specify a channel id, the current channel is used. See page 36 for information on *get -T BMC/channelInfo* command or see page 32 for channel ID mapping information in this guide.

get –T BMC/sol

Syntax:

```
get –T BMC/sol
```

Description:

The *get –T BMC/sol* command displays the BMC SOL settings.

get –T BMC/user/<user id>

Syntax:

```
get –T BMC/user/<user id> [ChannelID=<value>]
```

Description:

The *get –T BMC/user* command displays the BMC user settings for the specified user. If you do not specify a user id, the user that is connected to the current session is displayed. See page 36 for information on *get -T BMC/channelInfo* command or see page 32 for channel ID mapping information in this guide.

get –T BMC/prp

Syntax:

```
get –T BMC/prp
```

Description:

The *get –T BMC/prp* command displays the BMC power settings.

get –T BMC/channelInfo

Syntax:

get –T BMC/channelInfo

Description:

The *get -T BMC/channelInfo* command lists the supported channels and their medium type. It displays channels that are LAN, serial, system interface (KCS), or PCI SMBus. It also displays which LAN is NIC1, NIC2, advanced card NIC, or if it is the only supported NIC on a PC87431x system. Finally, it lists which LAN channel you are currently connected to. This command is helpful in determining which channel id to display or configure when executing a firmware configuration display or firmware configuration command. The following is an example output from an IPMI 1.5 system.

```
Channel #      Medium Type
------------------------------
1              Serial
3              PCI SMBus
4              System Interface
6              LAN [NIC 2]
7              LAN [NIC 1]   * current channel
```

set –T BMC/channel

Syntax:

```
set –T BMC/channel/<channel ID> [<options>]
```

where <options> can be:

```
[AuthCallback=<value>]
[AuthUser=<value>]
[AuthOperator=<value>]
[AuthAdmin=<value>]
[MsgAuth=Enable|Disable]
[UserLevelAuth=Enable|Disable]
[AccessMode=Disabled|PreBoot|Always|Shared]
[PrivilegeLevel=Callback|User|Operator|Admin]
```

Description:

The *set –T BMC/channel* command allows the user to configure IPMI channel settings. You can modify any of the following options on the channel. If you do not specify a channel id, the current channel will be used.

Description	Name	Values
Authentication types for callback	AuthCallback	None, Straight, MD5
Authentication types for user	AuthUser	None, Straight, MD5
Authentication types for operator	AuthOperator	None, Straight, MD5
Authentication types for administrator	AuthAdmin	None, Straight, MD5
Per message authentication	MsgAuth	Enable, Disable
User Level Authentication	UserLevelAuth	Enable, Disable
Access Mode	AccessMode	Disabled, PreBoot, Always, Shared
Privilege level	PrivilegeLevel	Callback, User, Operator, Admin

set –T BMC/lanAlertEnable

Syntax:

```
set –T BMC/lanAlertEnable/<channel ID>  GatewayIP=<ip address>
GatewayMAC=<mac address> CommunityString=<value>
BackupGatewayIP=<ip address> BackupGatewayMAC=<mac address>
```

Description:

The *set –T BMC/lanAlertEnable* command is used to enable LAN alerts on a channel. The following arguments are all required. If you do not specify a Channel ID, the current channel will be used.

Description	Name	Values
Gateway IP address	GatewayIP	Valid IP address
Gateway Mac address	GatewayMAC	Valid MAC address
Community string	CommunityString	ASCII string of up to 18 bytes
Backup gateway ip	BackupGatewayIP	Valid IP address
Backup gateway mac	BackupGatewayMAC	Valid MAC address

set –T BMC/lanAlert

Syntax:

```
set –T BMC/lanAlert/<channel ID> AlertIndex=<value> AlertIP=<ip
address> AlertMAC=<mac address> UseBackupGateway=Enable|Disable
AlertAck=Enable|Disable RetryCount=<value> RetryInterval=<value>
```

Description:

The *set –T BMC/lanAlert* command is used to configure LAN alert destinations for a channel. The following arguments are required. If you do not specify a Channel ID, the current channel will be used.

Description	Name	Values
Alert Destination index	AlertIndex	Decimal value; for BMC, must be in the range 0-0xF
Alert destination ip address	AlertIP	Valid IP address
Alert MAC address	AlertMAC	Valid MAC address, Resolve, Broadcast
Use backup gateway (enable, disable)	UseBackupGateway	Enable, Disable
Alert acknowledge	AlertAck	Enable, Disable
Retry count	RetryCount	Decimal value between 0 and 7
Retry interval	RetryInterval	Decimal value between 1 and 255

set –T BMC/lan

Syntax:

```
set –T BMC/lan/<channel ID> [<options>]
```

where <options> can be:

```
[AuthCallback=<value>]
[AuthUser=<value>]
[AuthOperator=<value>]
[AuthAdmin=<value>]
[IP=<ip addres>]
[IPSource=Static|DHCP|BIOS|BMC|Other]
[Subnet=<ip address>]
[Arp=Enable|Disable]
[ArpInterval=<value>]
[GatewayIP=<ip address>]
[GatewayMAC=<mac address>]
[BackupGatewayIP=<ip address>]
[BackupGatewayMAC=<mac address>]
[CommunityString=<value>
```

Description:

The *set –T BMC/lan* command provides another way to configure most of the settings previously discussed. The following arguments are all optional. If you do not specify a Channel ID, the current channel will be used.

Description	Name	Values
Authentication type for callback	AuthCallback	None, Straight, MD5
Authentication type for user	AuthUser	None, Straight, MD5
Authentication type for operator	AuthOperator	None, Straight, MD5
Authentication type for administrator	AuthAdmin	None, Straight, MD5
Ip address	IP	Valid IP address
IP address source	IPSource	Static, DHCP, BIOS, BMC_Other
Subnet address	Subnet	Valid IP address
Gratuitous arp enable	Arp	Enable, Disable
Gratuitous arp interval	ArpInterval	Number of seconds
Gateway ip address	GatewayIP	Valid IP address
Gateway mac address	GatewayMAC	Valid MAC Address
Backup gateway ip	BackupGatewayIP	Valid IP address
Backup gateway mac	BackupGatewayMAC	Valid MAC Address
Community string	CommunityString	Up to a 18 byte ASCII string

set –T BMC/serialEnable

Syntax:

```
set -T BMC/serialEnable/<channel ID>
PrivilegeLevel=Callback|User|Operator|Admin
ConnectionMode=Modem|Direct BaudRate=9600|19200|38400|57600|115200
```

Description:

The *set –T BMC/serialEnable* command is used to enable a serial/modem channel. The following arguments are required.

Description	Name	Values
Privilege level limit	PrivilegeLevel	Callback, User, Operator, Admin
Connection mode	ConnectionMode	Modem, Direct
BAUD rate	BaudRate	9600, 19200, 38400, 57600, 115200

set –T BMC/modem

Syntax:

```
set -T BMC/modem/<channel ID>  InitString=<value>
EscapeCommand=<value> HangupCommand=<value> DialCommand=<value>
RingDeadTime=<value> RingDuration=<value> PhoneNumber=<value>
```

Description:

The *set –T BMC/modem* command is used to configure the modem settings on a channel. The following arguments are required.

Description	Name	Values
Init string	InitString	Init String
Escape command	EscapeCommand	Escape Command
Hang-up command	HangupCommand	Hang-up Command
Dial command	DialCommand	Dial Command
Ring dead time	RingDeadTime	Decimal value between 0 and 7999 in 500 ms increments (the user value will be divided by 500)
Ring duration	RingDuration	Decimal value between 0 and 31000 in 500 ms increments (the user value will be divided by 500)
System phone number	PhoneNumber	System Phone Number

set –T BMC/terminalEnable

Syntax:

```
set -T BMC/terminalEnable/<channel ID> LineEdit=Enable|Disable
DeleteControl=BSB|DEL Echo=Enable|Disable Handshake=Enable|Disable
OutputSeq=CRLF|NULL|CR|LFCR|LF InputSeq=CR|NULL
```

Description:

The *set –T BMC/terminalEnable* command is used to enable terminal mode on a serial channel. The following arguments are required.

Description	Name	Values
Line Edit Enable	LineEdit	Enable, Disable
Delete Control	DeleteControl	BSB, DEL
Echo Enable	Echo	Enable, Disable
Handshake Enable	Handshake	Enable, Disable
Output Newline Sequence	OutputSeq	CRLF, NULL, CR, LFCR, LF
Input Newline Sequence	InputSeq	CR, NULL

set –T BMC/serialPageEnable

Syntax:

```
set -T BMC/serialPageEnable/<channel ID> PageBlackout=<value>
CommunityString=<value>
```

Description:

The *set –T BMC/serialPageEnable* command is used to enable serial paging on a serial channel. The following arguments are required.

Description	Name	Values
Page blackout	PageBlackout	Decimal value in the range 0-255
Community String	CommunityString	ASCII string up to 18 bytes

set –T BMC/serialDialString

Syntax:

```
set –T BMC/serialDialString/<channel ID> DialStringIndex=<value>
DialString=<value>
```

Description:

The *set –T BMC/serialDialString* command is used to define dial strings that are to be destinations for alerts sent as dial pages. The following arguments are required.

Description	Name	Values
Dial String index	DialStringIndex	Decimal value for the dial string index
Dial string	DialString	ASCII string of variable length

set –T BMC/serialPageConf

Syntax:

```
set –T BMC/serialPageConf/<channel ID> PageSelector=<value>
DialStringSelector=<value> StopBits=1|2 DataBits=7|8
Parity=None|Odd|Even BaudRate=9600|19200|38400|57600|115200
```

Description:

The *set –T BMC/serialPageConf* command is used to configure serial pages on a channel. The following arguments are required.

Description	Name	Values
Page Destination Selector	PageSelector	Decimal value
Dial String Selector	DialStringSelector	Decimal value
Stop Bits	StopBits	1, 2
Data Bits	DataBits	7, 8
Parity	Parity	None, Odd, Even
Baud Rate	BaudRate	9600, 19200, 38400, 57600, 115200

set –T BMC/serial

Syntax:

```
set –T BMC/serial/<Channel ID> [<options>]
```

where <options> can be:

```
[AuthCallback=<value>]
[AuthUser=<value>]
[AuthOperator=<value>]
[AuthAdmin=<value>]
[TerminalMode=Enable|Disable]
[ConnectionMode=Modem|Direct]
[InactivityTimeout=<value>]
[ModemCallback=Enable|Disable]
[CloseDCDLoss=Enable|Disable]
[InactivityTimeoutEnabled=Enable|Disable]
[BaudRate=9600|19200|38400|57600|115200]
[DTRHangup=Enable|Disable]
[FlowControl=None|RTSCTS|XONXOFF]
[MUXDCDLoss=Enable|Disable]
[MUXBaseboardBMC=Enable|Disable]
[MUXBMCBaseboard=Enable|Disable]
[PingMUX=Enable|Disable]
[PingEnabled=Enable|Disable]
[PingCallback=Enable|Disable]
[ConnectionModeSharing=Enable|Disable]
[RingDeadTime=<value>]
[RingDurationTime=<value>]
[InitString=<value>]
[EscapeCommand=<value>]
[HangupCommand=<value>]
[DialCommand=<value>]
[PageBlackoutInterval=<value>]
[CommunityString=<value>]
[RetryInterval=<value>]
[LineEdit=Enable|Disable]
[DeleteControl=BSB|DEL]
[Echo=Enable|Disable]
[Handshake=Enable|Disable]
[OutputSeq=CRLF|NULL|CR|LFCR|LF]
[InputSeq=CR|NULL]
[PhoneNumber=<value>]
```

Description:

The *set –T BMC/serial* command can be used to configure many of the settings mentioned above individually. The following arguments are all optional.

Description	Name	Values
Authentication Type for callback	AuthCallback	None, Straight, MD5
Authentication Type for user	AuthUser	None, Straight, MD5
Authentication Type for operator	AuthOperator	None, Straight, MD5
Authentication Type for Administrator	AuthAdmin	None, Straight , MD5
Terminal Mode enable or disable	TerminalMode	Enable, Disable
Connection Mode	ConnectionMode	Modem, Direct
Inactivity Timeout	InactivityTimeout	Decimal value in the range 0-450
Modem Enabled Callback	ModemCallback	Enable, Disable
Close on DCD Loss	CloseDCDLoss	Enable, Disable
Inactivty Timeout Enabled	InactivityTimeoutEnabled	Enable, Disable
Baud Rate	BaudRate	9600, 19200, 38400, 57600, 115200
DTR Hang-up enable	DTRHangup	Enable, Disable
Flwo Control	FlowControl	None, RTSCTS, XONXOFF
MUX switch on DCD Loss	MUXDCDLoss	Enable, Disable
MUX Baseboard to BMC Switch	MUXBaseboardBMC	Enable, Disable
MUX BMC to Baseboard Switch	MUXBMCBaseboard	Enable, Disable
Ping Before MUX Switch	PingMUX	Enable, Disable
Ping Enabled	PingEnabled	Enable, Disable
Ping During Callback	PingCallback	Enable, Disable
Connection Mode String	ConnectionModeSharing	Enable, Disable
Ring Dead Time	RingDeadTime	Decimal value between 0 and 7999 in 500 ms increments (the user value will be divided by 500)
Ring Duration Time	RingDurationTime	Decimal value between 0 and

Description	Name	Values
		31000 in 500 ms increments (the user value will be divided by 500)
Modem Init String	InitString	ASCII string of variable length
Modem Escape Command	EscapeCommand	ASCII string of variable length
Modem Hang-up Command	HangupCommand	ASCII string of variable length
Modem Dial Command	DialCommand	ASCII string of variable length
Page Blackout Interval	PageBlackoutInterval	Decimal value in the range 0-255
Community String	CommunityString	ASCII string up to 18 bytes
Call Retry Interval	RetryInterval	Decimal value in the range 0-255
Terminal Line Edit Enable	LineEdit	Enable, Disable
Terminal Delete Control	DeleteControl	BSB, DEL
Terminal Echo Enable	Echo	Enable, Disable
Terminal Handshake Enable	Handshake	Enable, Disable
Terminal Output Newline Sequence	OutputSeq	CRLF, NULL, CR, LFCR, LF
Terminal Input Newline Sequence	InputSeq	CR, NULL
System Phone Number	PhoneNumber	Numeric string up to 32 bytes, also allows '(', ')', '-', and ' '

set –T BMC/pefFilter

Syntax:

```
set -T BMC/pefFilter/<FilterTableIndex>
Actions=DIAGINT|PCYCLE|RESET|PDDOWN|ALERT|NONE
PolicyNumber=<value>
```

Description:

The *set –T BMC/pefFilter* command is used to configure the PEF filters. The following arguments are required.

Description	Name	Values
Actions	Actions	DIAGINT | PCYCLE | RESET | PDOWN | ALERT | NONE
Policy Number	PolicyNumber	Decimal value

set –T BMC/pefPolicy

Syntax:

```
set -T BMC/pefPolicy/<PolicyTableIndex >
PolicyEnabled=Enable|Disable PolicyNumber=<value>
Policy=ALWAYS|NEXT_E|STOP|NEXT_C|NEXT_T ChannelID=<value>
DestinationTable=<value>
```

Description:

The *set –T BMC/pefPolicy* command is used to configure the PEF policy table entries, which govern actions taken when events defined by the event filters occur. The following arguments are required.

Description	Name	Values
Policy Enabled	PolicyEnabled	Enable | Disable
Policy Number	PolicyNumber	Decimal value
Policy	Policy	ALWAYS, NEXT_E, STOP, NEXT_C, NEXT_T
Channel #	ChannelID	Decimal value
Destination Table Index	DestinationTable	Decimal value

set –T BMC/solEnable

Syntax:

```
set -T BMC/solEnable SOL=Enable|Disable
PrivilegeLevel=User|Operator|Admin
BaudRate=9600|19200|38400|57600|115200 RetryCount=<value>
RetryInterval=<value>
```

Description:

The *set –T BMC/solEnable* command is used to configure the Serial Over LAN (SOL) settings. Note that SOL is not supported on mBMC systems, so entering this command on a mBMC system will result in a message stating the specified command is not supported. The following arguments are required.

Description	Name	Values
Enable or Disable	SOL	Enable, Disable
Privilege Level	PrivilegeLevel	User, Operator, Admin
BAUD rate	BaudRate	9600, 19200, 38400, 57600, 115200
Retry Count	RetryCount	Decimal value
Retry Interval	RetryInterval	Decimal value in the range 1-255

set –T BMC/user

Syntax:

```
set –T BMC/user/<user id> UserName=<value> Password=<value>
```

Description:

The *set –T BMC/user* command is used to configure the user settings. The following arguments are required. If the user id is not specified, the user connected to the current session is used.

Description	Name	Values
User name	UserName	ASCII string
Password	Password	ASCII string

set –T BMC/userPrivilege

Syntax:

```
set –T BMC/userPrivilege/<user id> ChannelID=<value>
PrivilegeLevel=Callback|User|Operator|Admin|None
```

Description:

The *set –T BMC/userPrivilege* command is used to configure the user access settings per channel. Note that the channel privilege level overrides user privilege levels. The following arguments are required. If the user id is not specified, the user connected to the current session is used.

Description	Name	Values
Channel ID	ChannelID	Decimal value
Privilege Level Limit	PrivilegeLevel	Callback, User, Operator, Admin, None

set –T BMC/userEnable

Syntax:

```
set –T BMC/userEnable/<user id> UserStatus=Enable|Disable
```

The *set –T BMC/userEnable* command is used to enable or disable a user. The following argument is required. If the user id is not specified, the user connected to the current session is used.

Description	Name	Values
User status	UserStatus	Enable | Disable

set –T BMC/prp

Syntax:

```
set –T BMC/prp PowerRestorePolicy=Off|On|Restore
```

Description:

The *set –T BMC/prp* command is used to configure power settings in the server management firmware The following argument is required.

Description	Name	Values
Power restore policy	PowerRestorePolicy	Off, On, Restore

commit

Syntax:

```
commit
```

Description:

The *commit* command permanently sets all temporary values set by the above commands. If for any reason, the set fails to set one of the values, it will continue on and attempt to set as many as possible. If the setting of a value causes the connection to be lost, an attempt will be made to reestablish the session and the remaining values will be set. If that attempt fails, the values will not be set and the remaining temporary values will be lost.

clear

Syntax:

```
clear
```

Description:

The *clear* command clears all temporary values set by the above commands.

About Network Proxy (dpcproxy)

The installation program automatically installs and starts the network proxy that enables Intel® Command Line Interface and Serial over LAN[7]. The proxy is named *dpcproxy*. Ordinarily it starts running automatically on reboot and you do not need to do anything to start it. By default, the network proxy starts with no command line arguments supplied. However, you can change the persistent arguments that are read whenever dpcproxy automatically starts (see page 51 for details on dpcproxy's command line arguments). You can also manually start and stop the installed network proxy and check to see if it is running.

These actions are all described in the following sections, depending on your operating system.

NOTE

The network proxy installs as a single executable file (dpcproxy.exe on Windows operating system and dpcproxy on Linux* operating system) and it can be run from any directory. The default client port of 623 is a privileged port. Unless you change the port by using the* `-p` *command-line option (see table on page 51), the proxy will require root/administrative privileges to start. You can install the network proxy locally on each managed server or on a central proxy server.*

Changing the Persistent Arguments for the Network Proxy

By default, the network proxy starts with no command line arguments (see page 51 for details on dpcproxy's command line arguments). However, you can add arguments to the automatic start process for the network proxy, which will be read whenever the system is rebooted (i.e., persist across system boots). For the changes to take effect, you must restart the network proxy. If you do not choose to reboot the server, manually restart the network proxy.

On Windows* Operating System

To view the current persistent arguments, issue the following command at the command prompt:

```
dpcproxy -viewarg
```

To change the persistent arguments for the network proxy, issue the following command at the command prompt:

```
dpcproxy -argchg arguments
```

For example,

```
dpcproxy -argchg -p 623
```

See page 51 for information on dpcproxy command line syntax and its valid arguments.

[7] Serial Over LAN mode not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs.

On Linux* Operating System

Edit the file `/etc/rc.d/init.d/cliservice` to supply command line arguments to the dpcproxy command in this file. Arguments supplied in the `cliservice` file will be used whenever the network proxy is restarted upon reboot. For the changes to take effect, you must restart the network proxy. If you do not choose to reboot the server, manually restart the network proxy..

To add command line arguments, edit the following line `/usr/local/cli/dpcproxy` in the `/etc/rc.d/init.d/cliservice` file, adding options as desired from the syntax table on page 51 . The following is an example of an edited cliservice command file (see page 51 for details on dpcproxy's command line arguments):

```
/usr/local/cli/dpcproxy -p 623 -e
```

Manually Starting the Installed Network Proxy

If the installed dpcproxy service/daemon is currently stopped (either intentionally or because of a problem), and you want to restart it without rebooting the system, use one of the following methods:

On Windows* Operating System

From Windows* operating system, you can start, stop, and check on the network proxy using any of the following methods:

- Use the Service Control Manager to view the status, start, or stop the proxy.
- Use the Control Panel to access the Administrative Tools window. From that window double-click on Services. From the Services window you can stop, start, and change properties of the service.
- From a command prompt you can use the net start command with no argument to list the services currently running. To start and stop the service use the following commands (note that you cannot supply dpcproxy command line arguments as part of the net start commands below):

```
net start dpcproxy
net stop dpcproxy
```

On Linux* Operating System

From a Linux* console you can start, stop and check on the network proxy as follows:

- Check that the proxy is running with the command
  `/etc/rc.d/init.d/cliservice status`
- If the proxy is not running, you can start it with the command
  `/etc/rc.d/init.d/cliservice start`
- If the proxy is running, you can stop it with the command
  `/etc/rc.d/init.d/cliservice stop`
- If the proxy is currently running, you can restart it with the command
  `/etc/rc.d/init.d/cliservice restart`

The dpcproxy Command Syntax

dpcproxy is used to install, uninstall, or change the arguments of the proxy service. The dpccli command connects the user to the proxy service and launches the command window. See The dpccli Command Syntax, page 17, for more information on the dpccli command.

Ordinarily you won't need to enter a dpcproxy command, because the installation process starts the proxy as an automatic service or daemon. However, if you need to restart or reinstall the service, or supply persistent arguments to the automatic service/daemon (see page 49), use the command syntax described here.

Command line syntax is as follows, and each option is described in the table below.

```
dpcproxy  { { -? | -h } | { -f [-p port] [-L] [-l language] [-d logfiledir] [–u]
[-nv] [-e] [-la attempts] } | { -argchg arguments | -viewarg } |
{ -redirectexit exit characters } | { -encrypt [ALL | NONE] } | -a | -g | -s |
{ -install [arguments] | -uninstall } }
```

Examples:

`dpcproxy –install –encrypt ALL` (installs proxy in Windows* operating system)

`dpcproxy –f –p 9001`

`dpcproxy –argchg –d C:/dpccli.log`

NOTE

The -install and -uninstall options are only applicable to Windows operating system (they install or uninstall the network proxy as a Windows* operating system service). In addition, the -argchg and -viewarg options are also only applicable in Windows* operating system (see table below).*

The dpcproxy Command-line Options

Option	Description
-? or -h	Displays a usage message and exits. If you specify either of these options, all other options and input text are ignored.
-f	Runs the network proxy in the foreground. **Required at the command prompt**, unless using only the -?, -h, -argchg, -viewarg, -install, or -uninstall options. For example, dpcproxy -f -p 623. Note that when supplying options in the Windows* operating system Service Control Manager or the Linux* script cliservice, the -f option **cannot** be used.
-p *port*	Specifies an alternate port at which the network proxy listens for incoming client connections. By default, the network proxy listens on port 623, which is a privileged port in most operating systems.
-L	Forces the network proxy to accept connections only from the local host address (127.0.0.1). This option prevents this instance of the network proxy from providing services to systems other than the local system.
-l *language*	Localizes (displays in a specific language) messages and dates sent to a network proxy client. If you do not use this option, the network proxy detects the language from the Operating System. If a language is not specified on the command line, and the detected language is not a language supported by Intel® Command Line Interface, then the network proxy defaults to English. Use the following codes to set the language (the first value is for Linux*, the second for Windows* operating system): **Linux* OS** — **Windows* OS** — **Language** en_US — enu — English de_DE — deu — German es_ES — esp — Spanish zh_CN — chs — Simplified Chinese fr_FR — fra — French pt_BR — ptb — Portuguese (Brazilian) zh_TW — cht — Traditional Chinese it_IT — ita — Italian ru_RU — rus — Russian ko_KR — kor — Korean ja_JP — jpn — Japanese
-d *logfiledir*	Keeps a debug log file in the directory *logfiledir*. If you do not use this option,

Option	Description
	debug information is not logged.
-u	Turns off Serial over LAN data encryption for this instance of dpcproxy. With encryption off, all serial data transferred over the LAN is sent without encryption. **Note:** This command option not supported on systems that use National Semiconductor's PC87431x family of "mini" BMCs.
-nv	Sets non-verbose mode. No messages will be returned to the client. Only data from the commands will be returned.
-e	Sets "exit after error." If an error is encountered, close the client session.
-la *attempts*	Sets the number of login attempts to allow. If -e is specified as well, the -la argument is ignored and the session is closed on the first failure. <*attempts*> is the number of attempts before failing.
-argchg *arguments*	**Windows* operating system only.** Persistently changes the startup arguments for the dpcproxy service (i.e., the command line options that will be used with the dpcproxy command when it is started upon reboot). Note that you must either stop and restart the network proxy or reboot the server on which the proxy is running for the changes to take effect. Valid *arguments* are -p, -L, -l, -d, -u, -nv, -e, -la from this table. Note that only the argument specified at the command line is stored. All previously stored arguments are cleared. For example, if -p and -u options are currently stored, and you enter -argchg -d, the -p and -u arguments are cleared and only the -d argument is stored. To clear all stored arguments, enter the -argchg option with no arguments.
-viewarg	**Windows* operating system only.** Lists the current persistent arguments to be used with the dpcproxy command when the service is started upon reboot.
-redirectexit *exit characters*	Changes the character sequence that exits out of SOL mode. By default the two characters are tilde-period (~.). See page 14 for more information about switching modes. The *exit characters* argument must be exactly two characters in length.
-encrypt [ALL | NONE]	Sets which IPMI packets are encrypted. If encrypt is set to ALL, every IPMI packet will be encrypted. If encrypt is set to NONE, every IPMI packet will be unencrypted. If this option is not set, only packets that are authenticated will be encrypted. This option will not affect the –u option which sets encryption for SOL packets.
-a	**Linux* operating system only.** Keeps the entries in local Linux* ARP table active for current connections to the BMC. If the BMC is unable to respond to the ARP request (usually due to increasing the gratuitous ARP interval on the BMC), the proxy will prevent the Linux* OS from making this entry become stale. This argument will only work if the proxy is on the same subnet as the BMC.
-g	**Linux* operating system only.** Causes the proxy to respond on behalf of the BMC for any ARP request from an OS or a switch. This does not need to be the proxy that is currently handling connections to the BMC. This argument will only work if the proxy is on the same subnet as the BMC. It is acceptable though for the proxy handling the connections to these BMC's be on a different

Option	Description
	subnet.
-s	Changes the prompt from dpccli> to the server name or IP Address that was entered while trying to connect.
-install [*arguments*]	**Windows* operating system only.** Installs the proxy as a Windows* operating system service. You can use this option only in a Windows* operating system environment. You can also specify the other options to be used each time the proxy starts. Enter other options after the –install option, if desired. Valid *arguments* are -p, -L, -l, -d, -u, -nv, -e, -la from this table. Once it is installed, the service will be started automatically (with specified options) every time the system starts up. **NOTE:** When using the -install option, the current working directory MUST be the directory in which the dpcproxy.exe file is located (that is, you must run the dpcproxy -install command from the directory where the dpcproxy.exe file is located). The proxy service is installed with an executable path specifying the current working directory. So, if you are in c:\mypath, and the dpcproxy.exe file is c:\different_path, the service will look for the dpcproxy.exe file in c:\mypath, and will not find it.
-uninstall	**Windows* operating system only.** Removes the proxy from the Windows* operating system service control manager database. You can use this option only in a Windows* operating system environment. After removal, the proxy is no longer an installed service. Make sure to stop the service before you uninstall it. **Note:** Depending on the version of operating system you are running, you may need to reboot the system in order to fully delete the service.