HP MicroServer Remote Access Card

User Manual

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Intended audience

This document is for the person who installs, administers, and troubleshoots servers and storage systems. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

Contents

Operational Overview

Guide Overview

The Remote Access Card provides multiple ways to configure, update, and operate servers remotely. This Remote Access Card User Guide describes these features and how to use them with the browser-based interface and RBSU.

The SMASH CLP is designed for users who prefer a non-graphical interface. The SMASH CLP chapter describes the syntax and the ways to remote control server.

BMC Overview

BMC can remotely perform most functions that otherwise require a visit to servers at the data center, computer room, or remote location. The following are just a few examples of using BMC features.

- BMC Remote Console and virtual power enables you to view a stalled remote server with blue screen conditions and restart the server without onsite assistance.
- BMC Virtual KVM technology provides a high-performance remote console that enables you to remotely administer operating systems and applications in everyday situations.
- BMC virtual CD/DVD-ROM or floppy enables you to install an operating system or flash system firmware over the network from images on your workstations or on centralized web servers.
- BMC actively participates in monitoring and maintaining server health, referred to as embedded health BMC monitors temperatures in the server and sends corrective signals to the fans to maintain proper server cooling. In addition to temperature monitoring, BMC provides fan status monitoring.

Server management through IPMI version 2.0 compliant applications

Server management through the IPMI is a standardized method for controlling and monitoring the server. BMC provides server management based on the IPMI version 2.0 specification. The IPMI specification defines a standardized interface for platform management. The IPMI specification defines the following types of platform management:

- Monitoring of system information, such as fans, temperatures
- Recovery capabilities, such as system resets and power on/off operations
- Logging capabilities, for abnormal events such as over temperature readings or fan failures
- Inventory capabilities, such as identifying failed hardware components.

IPMI Messaging Interfaces

IPMI messaging interfaces will comply with IPMI v2.0, and supported interfaces include IPMI Messaging interfaces, Keyboard Controller Style (KCS) interface and IPMI LAN interface. The KCS interface provides a set of I/O mapped communications registers. The default system base address for the I/O mapped KCS Interface is 0xCA2 and is byte aligned at this system address. The KCS interface is accessible to SMS software that is running on the local system. Examples of compatible SMS software applications are as follows:

- IPMI version 2.0 Command Test Tool is a low-level MS-DOS command line tool that enables hex formatted IPMI commands to be sent to an IPMI BMC that implements the KCS interface. You can locate this tool on the Intel® website (http://www.intel.com/design/servers/ipmi/tools.htm).
- IPMI tool is a utility for managing and configuring devices that support the IPMI version 1.5 and version 2.0 specifications and can be used in a Linux environment. You can locate this tool on the IPMI tool website (http://ipmitool.sourceforge.net/index.html). Before using linux ipmitool via system interface, please make sure installing Linux ipmi driver (Use the shell command "service ipmi start").

Sensors

The BMC provide environmental monitoring through IPMI sensors. Sensors will be described in the SDR repository (IPMI v2.0, Chapter 33 SDR Repository) and can be accessed through the IPMI sensor device commands (IPMI v2.0, Chapter 35 Sensor Device Commands).

System configuration can be discovered through exploration of the SDR repository. IPMI provides a sixteen byte string identifier in each SDR. This ASCII based string will need to be interpreted by system management software. These tokens will be used in the SDR string identifier field and will provide any distinction needed in addition to the other fields of the SDR.

External Event Generation

The BMC is configured to send its alerts to another event receiver in the system. See IPMIv2.0 Chapter 29 Event Commands for more information. All events commands which are mandatory for an event generator are implemented in the BMC firmware.

LAN Messaging

The BMC will use on chip NIC to provide support for IPMI messaging over LAN. IPMI messages will be sent as RMCP packets by on chip NIC, which will pass the messages to the BMC via on chip NIC where the BMC will receive and respond to the messages. See the IPMIv2.0 specification Chapter 13 IPMI LAN Interface for more information. Four simultaneous LAN sessions will be supported. There is no limitation on the number of concurrent sessions for a single user.

All mandatory IPMI LAN messaging commands are implemented in the BMC Core Firmware. Section 18.1 of this document contains the list of supported optional LAN messaging commands. RMCP+ is supported under IPMI 2.0. This protocol enhancement conforms to the overall RMCP format. Extensions allow for multiple payload types, enhanced authentication, and encryption. Details can be found in IPMIv2.0 section 13.3 RMCP+.

IPMI Firmware supported optional encryption methods as below table (ID 0~14):

Key:

S = authenticated session setup (correct role, username and password/key required to establish session)

A = authenticated payload data supported.

E = authentication and encrypted payload data supported.

ID	Characteristics	Cipher Suite	Authentication Algorithm	Integrity Algorithm(s)	Confidentiality Algorithm(s)
0	“no password"	00h, 00h, 00h	RAKP-none	None	None
1	S	01h, 00h, 00h	RAKP-HMAC-SHA1	None	None
2	S, A	01h, 01h, 00h		HMAC-SHA1-96	None
3	S, A, E	01h, 01h, 01h			AES-CBC-128
4	S, A, E	01h, 01h, 02h			xRC4-128
5	S, A, E	01h, 01h, 03h			xRC4-40
6	S	02h, 00h, 00h	RAKP-HMAC-MD5	None	None
7	S, A	02h, 02h, 00h		HMAC-MD5-128	None
8	S, A, E	02h, 02h, 01h			AES-CBC-128
9	S, A, E	02h, 02h, 02h			xRC4-128
10	S, A, E	02h, 02h, 03h			xRC4-40
11	S, A	02h, 03h, 00h		MD5-128	None
12	S, A, E	02h, 03h, 01h			AES-CBC-128
13	S, A, E	02h, 03h, 02h			xRC4-128
14	S, A, E	02h, 03h, 03h			xRC4-40

Platform Event Filtering (PEF) and Alert Policies

PEF (IPMIv2.0, Chapter 17 Platform Event Filtering) will be supported to allow alerting in response to configured system events. On the HP MicroServer platform, the following event filters and alert policies will be implemented by default. Any additional filters or alert policies desired by the user must be configured using the Set PEF Configuration Parameters command discussed in Section 30.3 of the IPMIv2.0.

Firmware Firewall

The BMC supports firmware firewall which is an IPMI v2.0 optional capability that is supported on all BMC implementations. Details can be found in the IPMI v2.0 specification Chapter 21.

Browser interface overview

The BMC browser interface groups similar tasks for easy navigation and workflow. These tasks are organized under high-level tabs across the top of the BMC interface. These tabs are always visible and include Option, Properties, Configuration, Sessions, Update, Utilities, Power control, Thermal, System event log, VKVM&VMedia. Each high-level BMC tab has a menu on the left side of the interface with various options. This menu changes every time you select a different high-level tab, displaying the options available from that tab. Each menu option displays a page title, which is a description of the information or settings available on that page. This page title might not reflect the name displayed on the menu option. Assistance for all BMC pages is available from BMC Help. Links on each BMC page provide summary information about the features of BMC and helpful information to optimize its operation. To access page specific help, click the help link (Help) on the top and right side of the browser window.

Supported browsers and client operating systems

- Microsoft® Internet Explorer 8
- Microsoft® Internet Explorer 7
- Microsoft® Internet Explorer 6
- Firefox 3.x
- Firefox 2.0

The web server support both HTTP and HTTPS protocols

Supported server operating system software

BMC is an independent microprocessor running an embedded operating system. The architecture ensures that the majority of BMC functionality is available, regardless of the host operating system.

BMC SETUP

Quick setup

To quickly setup BMC using the default settings for BMC features, follow the steps below:

1. Prepare the hardware installation — Refer to the MicroServer Remote Access Card Installation Instructions for detail
2. If you are not using dynamic IP addressing, use the BIOS RBSU to configure a static IP address ("Configuring the IP address").
3. Methods for Log in: Users can either:

   - Log into BMC from a supported browser ("Logging in to BMC Web for the first time").

     or

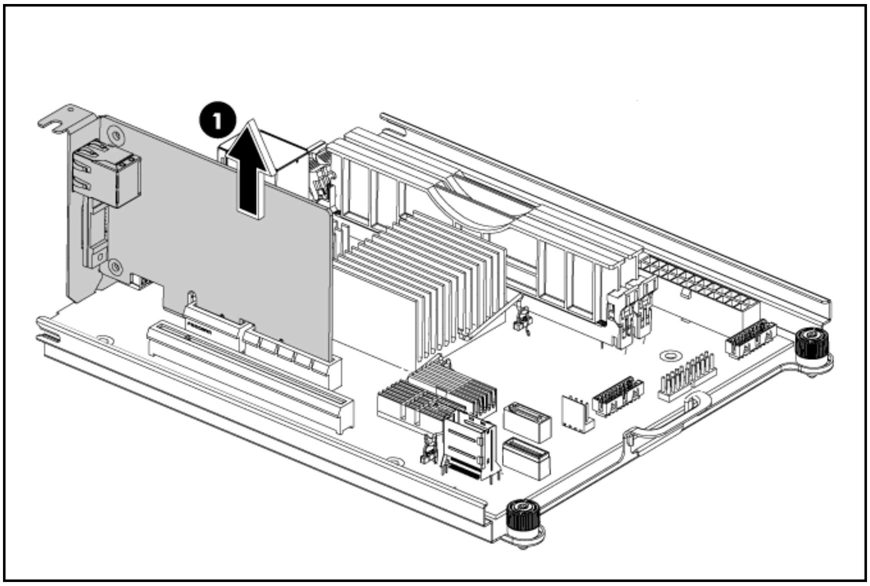
   - Log into SMCLP via a SSH client. ("Logging in to BMC SMCLP for the first time")

Preparing to setup BMC

Before setting up your BMC, you must install Remote Access Card and remove VGA cable from embedded VGA connector to VGA connector on the Remote Access Card. Since the server will export VGA signal via the VGA connector on this card automatically when the Remote Access Card is plugged (BIOS default setting).

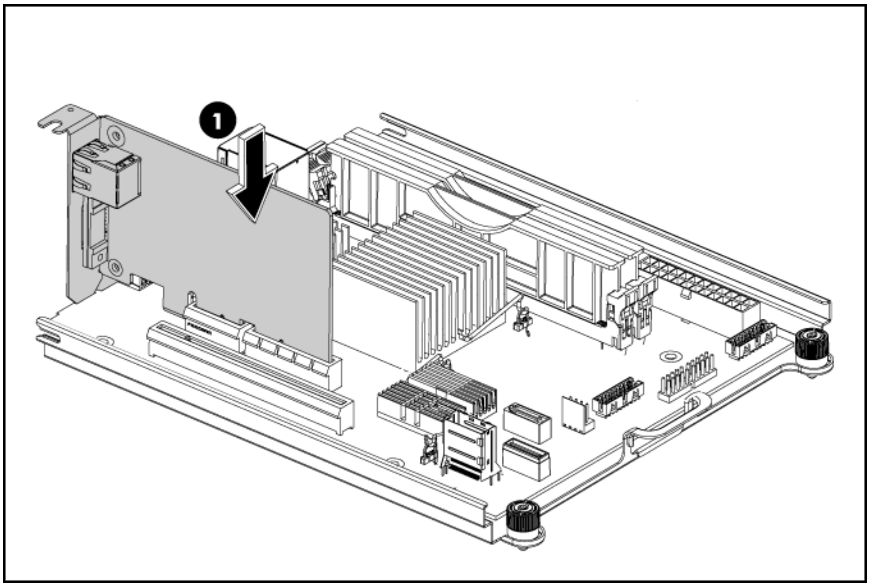
To reinstall the Remote Access Card

1. Open the chassis and remove the system tray out of the chassis.
2. Lift the Remote Access Card to release it from the connector (1).

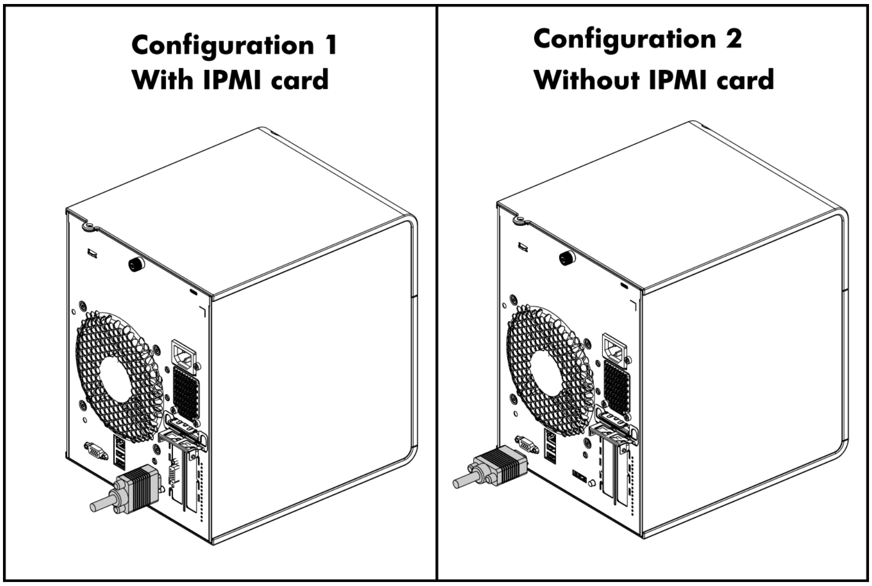


3. Put the card into an anti-statistic bag.

4. Install a new Remote Access Card:
   - Align the card with the system PCIE slot
   - Press the card down to ensure the full connection with the board.



5. Follow the steps of installing the system tray.
6. Connect the VGA cable to the VGA port on the Remote Access Card.



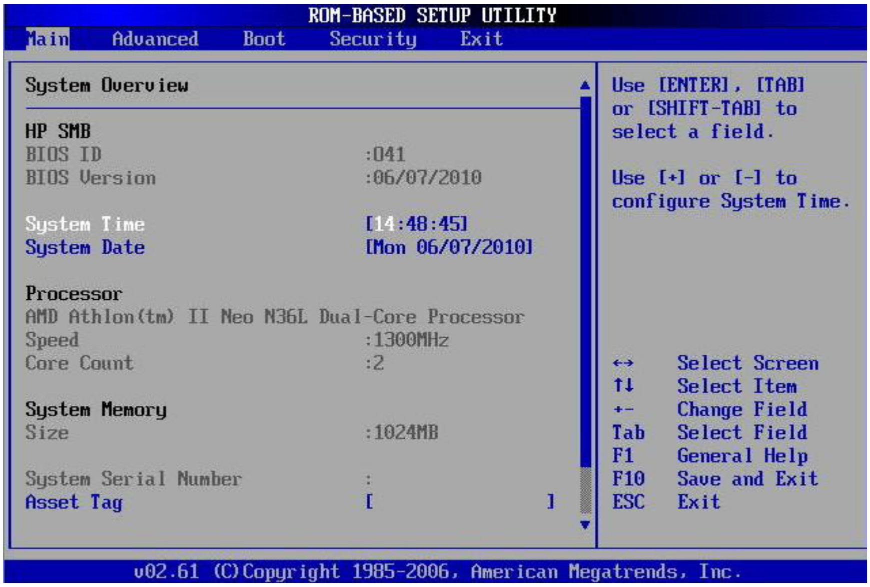
7. Power on the server, it will have BMC functions.

Configuring the IP address

The management processor acquires an IP address and subnet mask using either a dynamic or static process. When using dynamic IP address, your DHCP server will automatically assign an IP address for BMC.

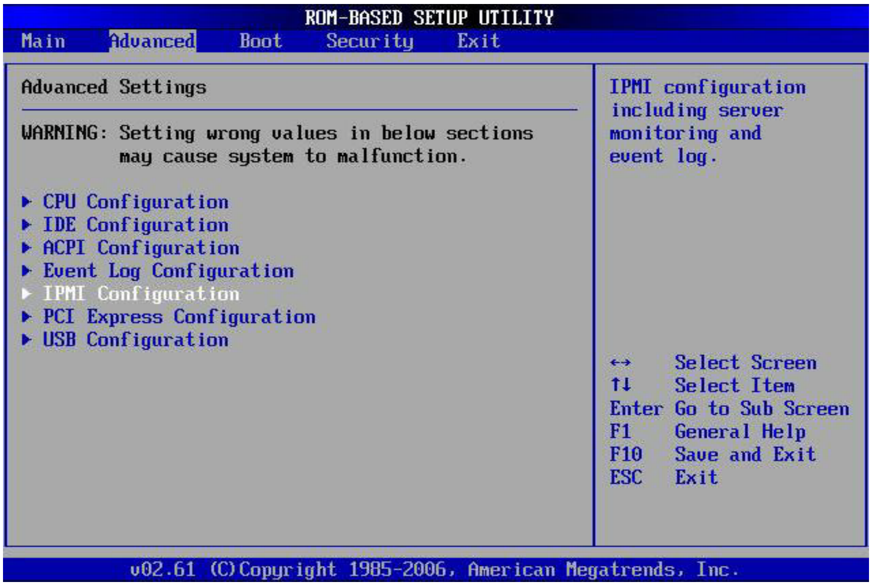
Obtain the DHCP IP address, using Rom-Based Setup Utility with the following procedures:

1. Power on the server by pressing the Power on/Off button on the front panel
2. When POST prompts the message “press F10 for Rom-based setup Utility”, press the F10 key, the main screen of the BIOS Setup Utility appears



```
System Overview

HP SMB
BIOS ID                                 :041
BIOS Version                            :06/07/2010

System Time                             [14:48:45]
System Date                             [Mon 06/07/2010]

Processor
AMD Athlon(tm) II Neo N36L Dual-Core Processor
Speed                                   :1300MHz
Core Count                              :2

System Memory
Size                                    :1024MB

System Serial Number                    :
Asset Tag                               [                ]

Use [ENTER], [TAB]
or [SHIFT-TAB] to
select a field.

Use [+] or [-] to
configure System Time.

v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.
```

3. Press the right arrow (→) key to navigate to the“Advanced” menu.
4. Press the down arrow (↓) key to scroll to“IPMI Configuration”. Press the “Enter” key.



```
Advanced Settings

WARNING: Setting wrong values in below sections
         may cause system to malfunction.

▶ CPU Configuration
▶ IDE Configuration
▶ ACPI Configuration
▶ Event Log Configuration
▶ IPMI Configuration
▶ PCI Express Configuration
▶ USB Configuration

IPMI configuration
including server
monitoring and
event log.

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```
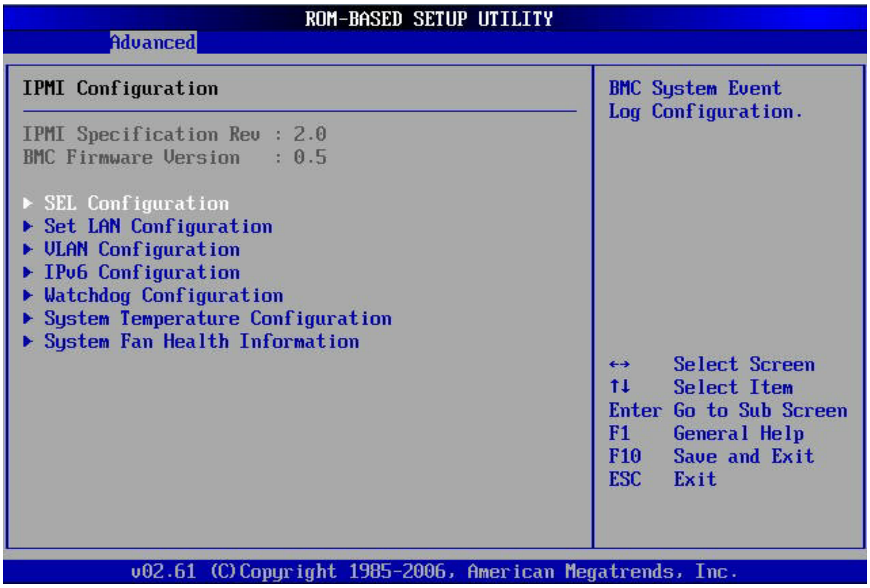
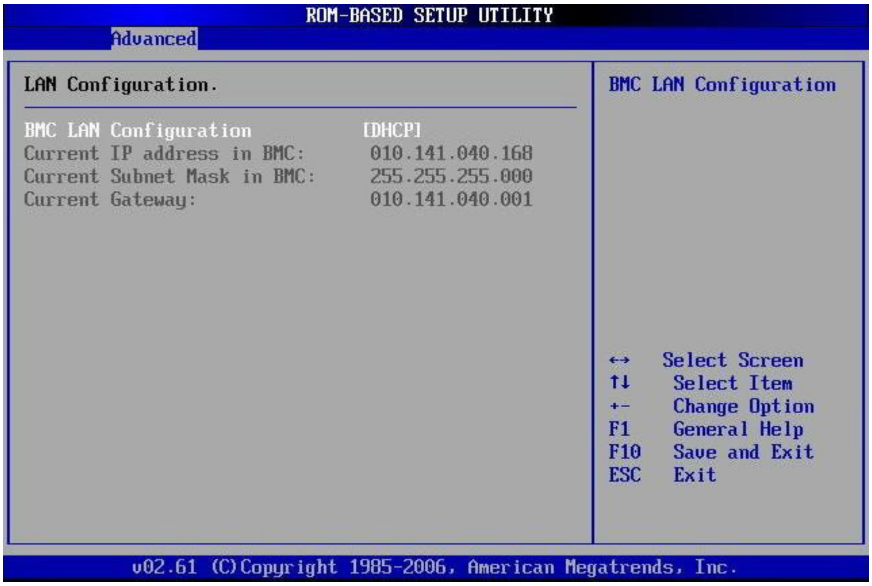

5. Press the down arrow (↓) key to scroll the“Set LAN Configuration” menu. Press the “Enter” key.



```
                    ROM-BASED SETUP UTILITY
      Advanced
 IPMI Configuration                         BMC System Event
                                            Log Configuration.
 IPMI Specification Rev : 2.0
 BMC Firmware Version   : 0.5

 ▶ SEL Configuration
 ▶ Set LAN Configuration
 ▶ VLAN Configuration
 ▶ IPv6 Configuration
 ▶ Watchdog Configuration
 ▶ System Temperature Configuration
 ▶ System Fan Health Information
                                            ↔     Select Screen
                                            ↑↓    Select Item
                                            Enter Go to Sub Screen
                                            F1    General Help
                                            F10   Save and Exit
                                            ESC   Exit

        v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.
```

6. Set the "BMC LAN Configuration" to "DHCP"

7. Press the F10 key to save and exit RBSU



```
                    ROM-BASED SETUP UTILITY
      Advanced
 LAN Configuration.                         BMC LAN Configuration

 BMC LAN Configuration        [DHCP]
 Current IP address in BMC:    010.141.040.168
 Current Subnet Mask in BMC:   255.255.255.000
 Current Gateway:              010.141.040.001



                                            ↔    Select Screen
                                            ↑↓    Select Item
                                            +-    Change Option
                                            F1    General Help
                                            F10   Save and Exit
                                            ESC   Exit

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```

To configure a static IP address, use the RBSU with the following procedure to disable DHCP and configure the IP address and the subnet mask:

1. Power on the server by pressing the Power on/Off button on the front panel

2. When POST prompts the message "press F10 for Rom-based setup Utility", press the F10 key, the main screen of the BIOS Setup Utility appears

3. Press the right arrow (→) key to navigate to the"Advanced" menu.

4. Press the down arrow (↓) key to scroll to"IPMI Configuration". Press the Enter key.

5. Press the down arrow (↓) key to scroll the"Set LAN Configuration" menu. Press the Enter key.

6. On "BMC LAN Configuration", select "static"

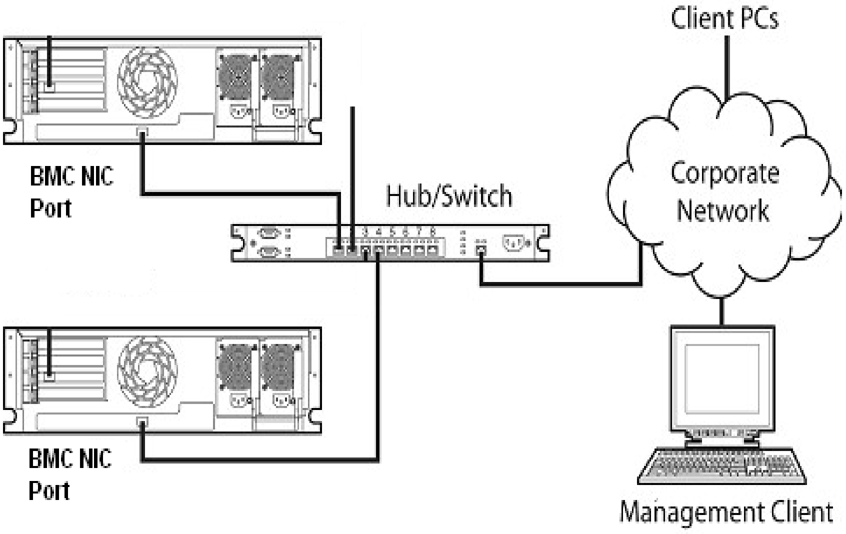
7. Press the down arrow (↓) key to scroll down and enter a valid IP address, subnet mask, and gateway address (press period (.) key to move between address fields).

8. Press the F10 key to save and exit RBSU.
9. With IP address, use SSH to log in to the remote management CLP, or use a web browser to access the HTML interface.

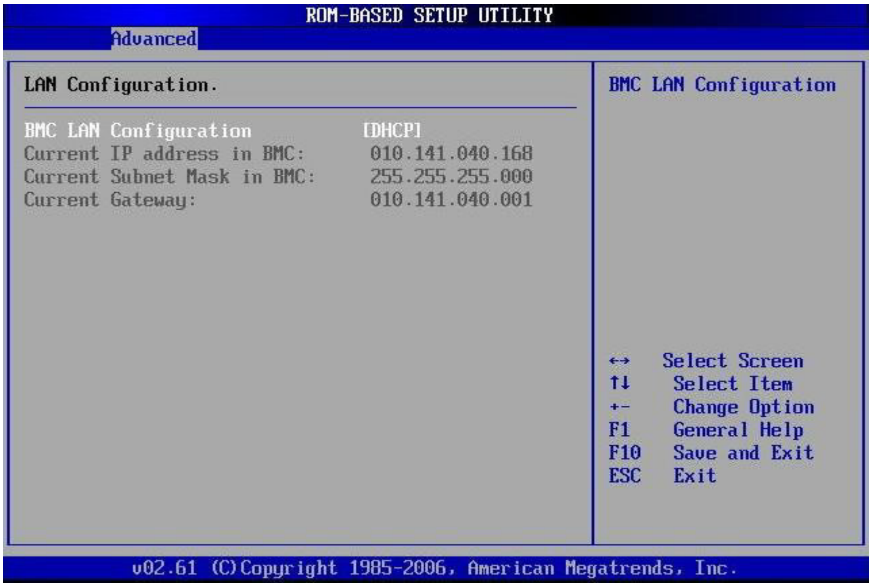
Logging in to BMC Web for the first time

BMC is configured with a default user name and password.

1. BMC is connected to the network through a NIC port (RJ45) on the Remote Access Card. If you want to access BMC via LAN, you need to connect the BMC LAN port and the switch via a network cable.

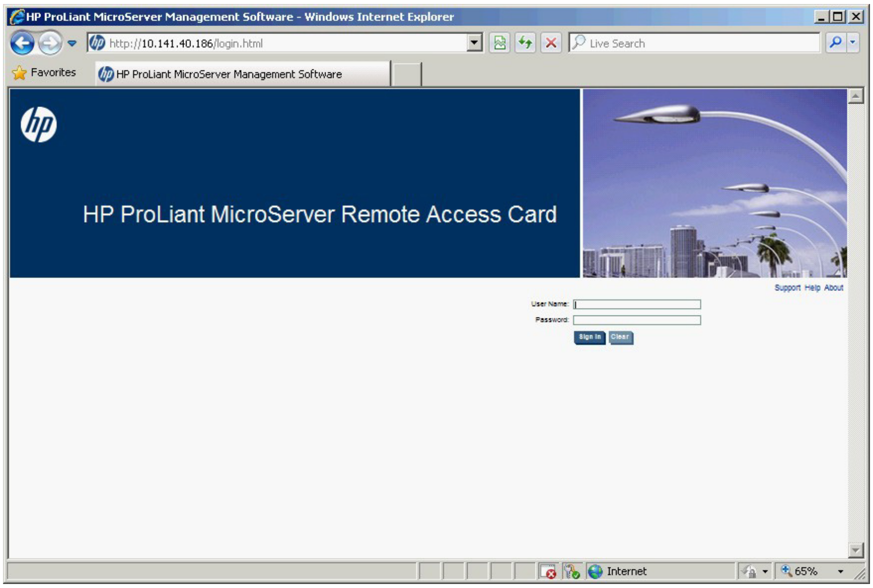


2. Get "BMC LAN configuration" from the RBSU



```
                    ROM-BASED SETUP UTILITY
        Advanced

LAN Configuration.                              BMC LAN Configuration

BMC LAN Configuration          [DHCP]
Current IP address in BMC:      010.141.040.168
Current Subnet Mask in BMC:     255.255.255.000
Current Gateway:                010.141.040.001

                                                ↔    Select Screen
                                                ↑↓    Select Item
                                                +-    Change Option
                                                F1    General Help
                                                F10   Save and Exit
                                                ESC   Exit

       v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.
```

3. Use these values to access BMC remotely from a network client using a standard Web browser via the IP address of BMC.



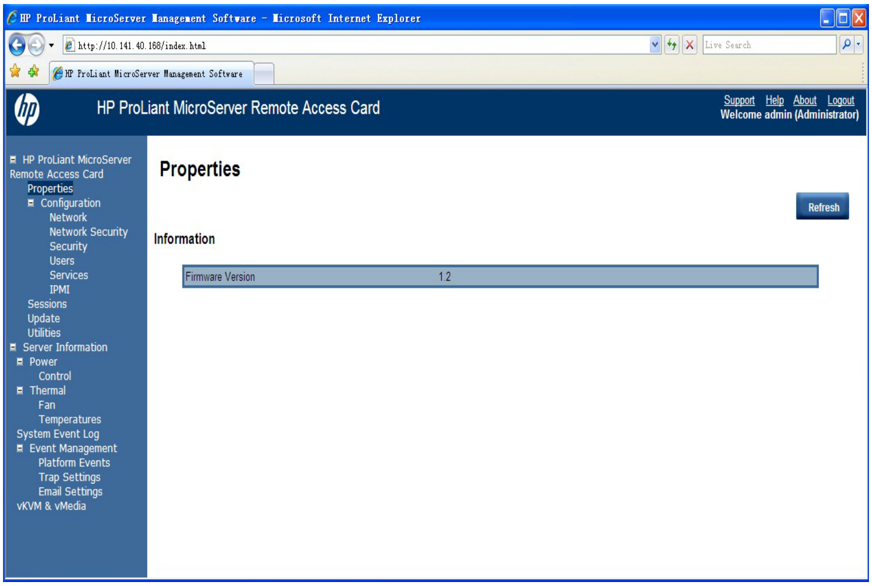
HP ProLiant MicroServer Management Software - Windows Internet Explorer
http://10.141.40.186/login.html
Live Search
Favorites
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About
User Name:
Password:
Sign In
Clear
Internet
65%

For security reasons, HP recommends changing the default settings after logging in to BMC for the first time.

The default values are:

- User name—admin
- Password—password

After input the default user name and password and click "sign in", then you will log it successfully.



HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
http://10.141.40.168/index.html
Live Search
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
HP ProLiant MicroServer Remote Access Card
Properties
Configuration
Network
Network Security
Security
Users
Services
IPMI
Sessions
Update
Utilities
Server Information
Power
Control
Thermal
Fan
Temperatures
System Event Log
Event Management
Platform Events
Trap Settings
Email Settings
vKVM & vMedia
Refresh

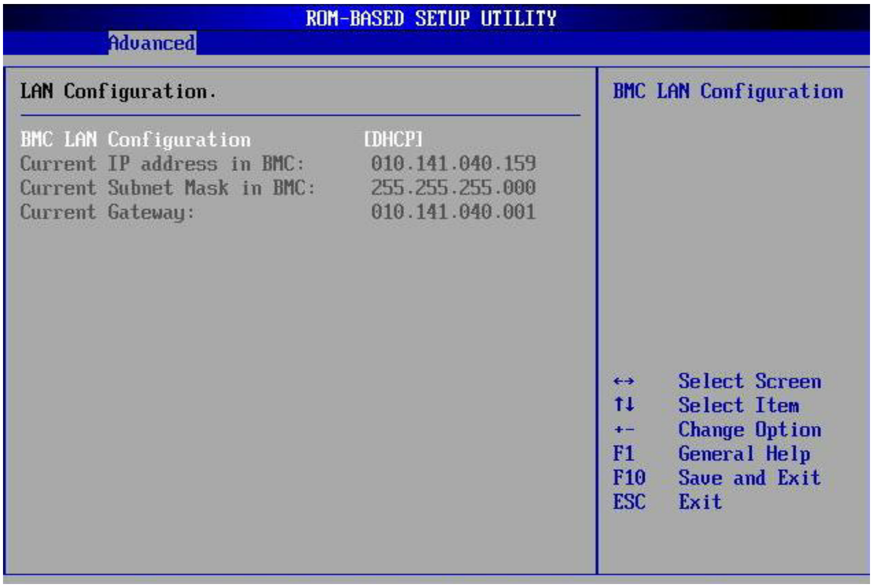
Properties

Information

Firmware Version	1.2

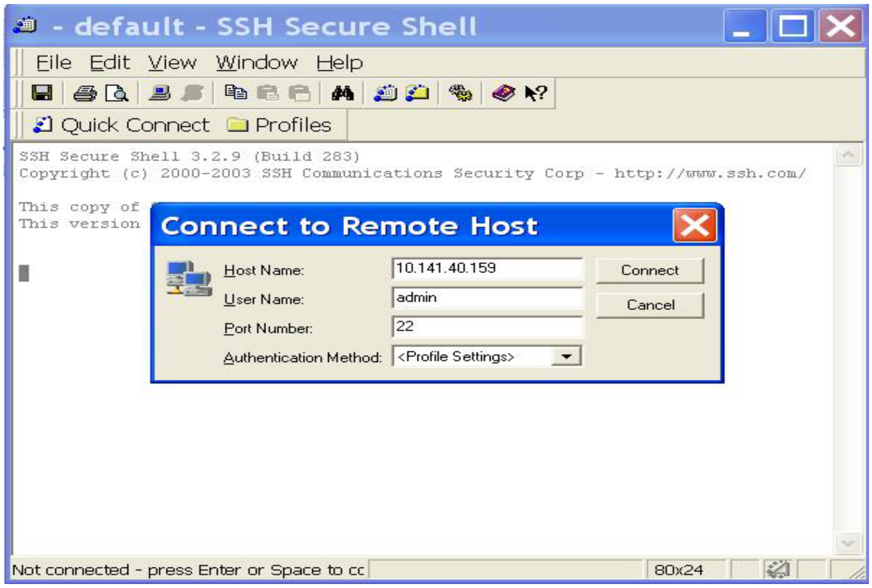
Logging in to BMC SMCLP for the first time

1. Get BMC IP address first as last section.



```
                         ROM-BASED SETUP UTILITY
         Advanced

 LAN Configuration.                               BMC LAN Configuration

 BMC LAN Configuration          [DHCP]
 Current IP address in BMC:      010.141.040.159
 Current Subnet Mask in BMC:     255.255.255.000
 Current Gateway:                010.141.040.001

                                                  ↔     Select Screen
                                                  ↑↓    Select Item
                                                  +-    Change Option
                                                  F1    General Help
                                                  F10   Save and Exit
                                                  ESC   Exit
```

2. User SSH client to connect the BMC via the IP address. Enter the "Host Name" (IP address), and the "User Name" (such as admin).Then click the "Connect" button.



- default - SSH Secure Shell
File Edit View Window Help
Quick Connect
Profiles

```
SSH Secure Shell 3.2.9 (Build 283)
Copyright (c) 2000-2003 SSH Communications Security Corp - http://www.ssh.com/

This copy of
This version
```

Connect to Remote Host

Host Name: 10.141.40.159

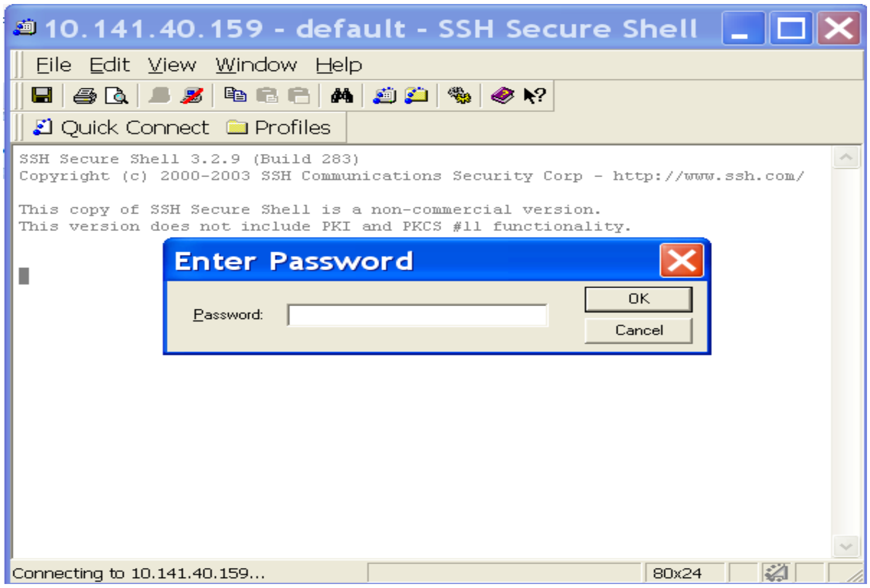
User Name: admin

Port Number: 22

Authentication Method: <Profile Settings>

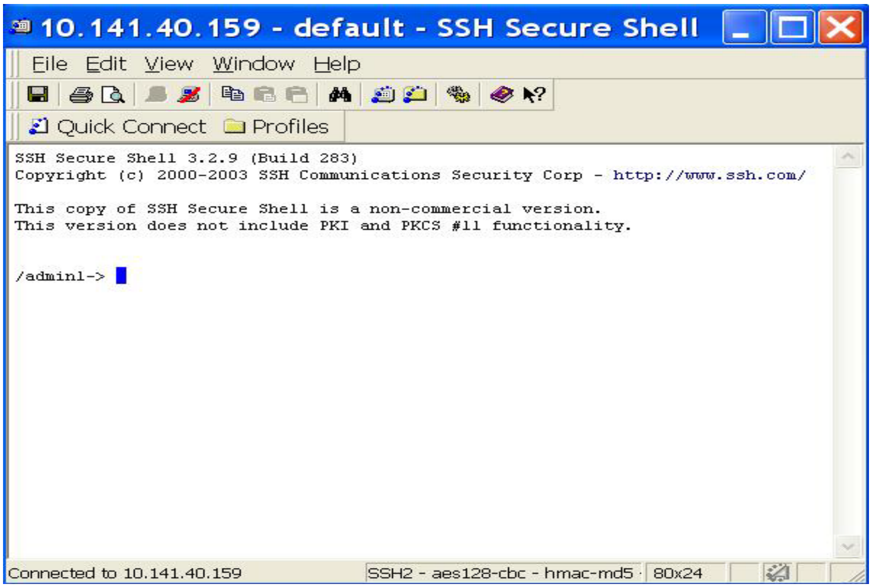
Connect
Cancel
Not connected - press Enter or Space to cc
80x24

3. If connect OK, it will prompt "Enter Password". And enter the password.


10.141.40.159 - default - SSH Secure Shell
File Edit View Window Help
Quick Connect
Profiles
Enter Password
Password:
OK
Cancel
Connecting to 10.141.40.159...
80x24

```
SSH Secure Shell 3.2.9 (Build 283)
Copyright (c) 2000-2003 SSH Communications Security Corp - http://www.ssh.com/

This copy of SSH Secure Shell is a non-commercial version.
This version does not include PKI and PKCS #11 functionality.
```

4. Then it will login the CLP console.


10.141.40.159 - default - SSH Secure Shell
File Edit View Window Help
Quick Connect
Profiles
Connected to 10.141.40.159
SSH2 - aes128-cbc - hmac-md5
80x24

```
SSH Secure Shell 3.2.9 (Build 283)
Copyright (c) 2000-2003 SSH Communications Security Corp - http://www.ssh.com/

This copy of SSH Secure Shell is a non-commercial version.
This version does not include PKI and PKCS #11 functionality.


/admin1->
```

Configuring BMC

BMC Firmware Update User Guide

There are two methods to update BMC firmware.

- Update via Web UI

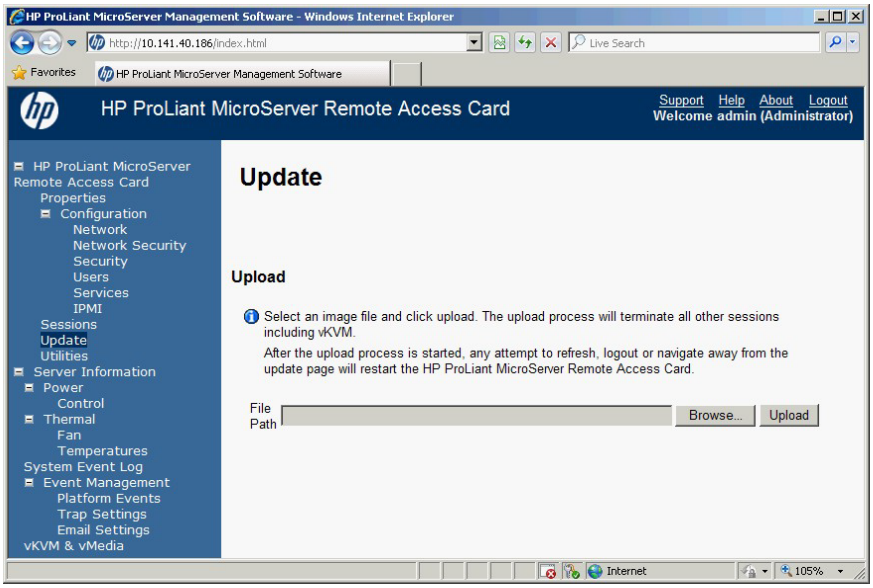
This method just can be used when old BMC firmware work normally and its Web UI can be login.

- Update under DOS mode

When BMC firmware crashes, you need to use this method to update BMC firmware.

Update BMC Firmware via Web UI

1. Log in the BMC Web, and you can update BMC firmware via "Update" web page.



HP ProLiant MicroServer Management Software - Windows Internet Explorer

http://10.141.40.186/index.html

HP ProLiant MicroServer Remote Access Card

Welcome admin (Administrator)

Update

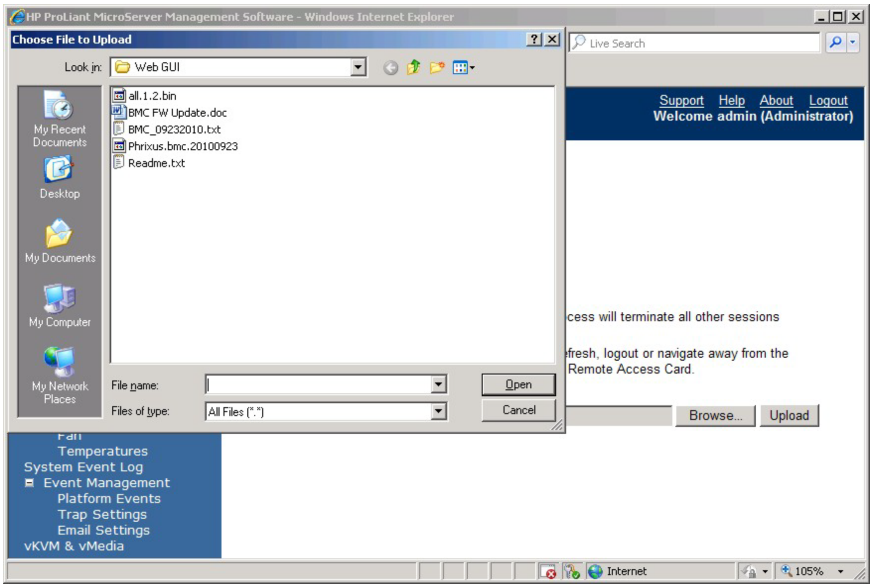
Upload

Select an image file and click upload. The upload process will terminate all other sessions including vKVM.

After the upload process is started, any attempt to refresh, logout or navigate away from the update page will restart the HP ProLiant MicroServer Remote Access Card.

File Path

2. Click "Browse" button, select BMC firmware (Phrixus.bmc.xxxxxxxx), and click "Open" button.



all.1.2.bin
BMC FW Update.doc
BMC_09232010.txt
Phrixus.bmc.20100923
Readme.txt

File name:

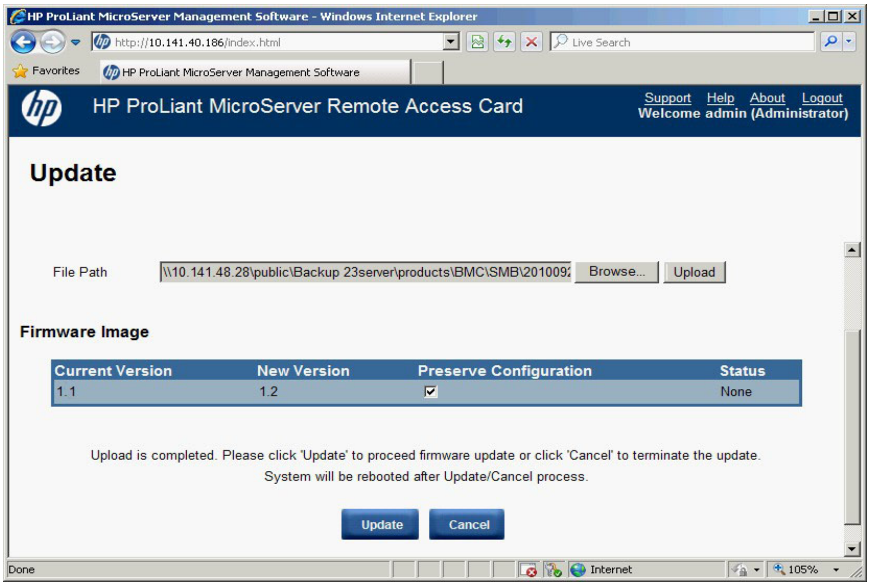
Files of type: All Files (*.*)

Welcome admin (Administrator)

cess will terminate all other sessions

fresh, logout or navigate away from the Remote Access Card.

3. Then click “Upload” button then click “OK” to upload firmware


HP ProLiant MicroServer Management Software - Windows Internet Explorer
http://10.141.40.186/index.html
Live Search
Favorites
HP ProLiant MicroServer Management Software
Support Help About Logout
Browse...
Upload
Update
Cancel
Done
Internet
105%

HP ProLiant MicroServer Remote Access Card

Welcome admin (Administrator)

Update

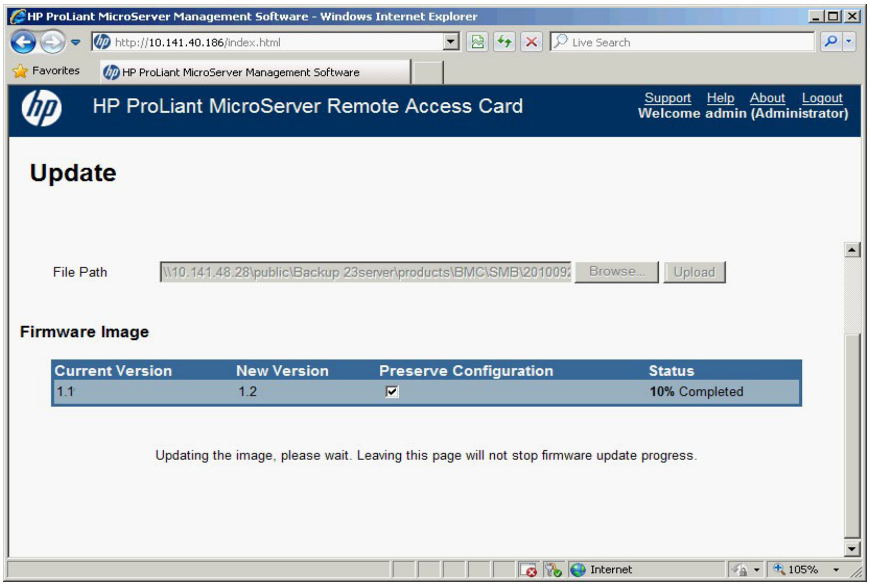
File Path \\10.141.48.28\public\Backup 23server\products\BMC\SMB\201009

Firmware Image

Current Version	New Version	Preserve Configuration	Status
1.1	1.2	☑	None

Upload is completed. Please click 'Update' to proceed firmware update or click 'Cancel' to terminate the update. System will be rebooted after Update/Cancel process.

4. Update is running.


HP ProLiant MicroServer Management Software - Windows Internet Explorer
http://10.141.40.186/index.html
Live Search
Favorites
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
Browse...
Upload
Internet
105%

Update

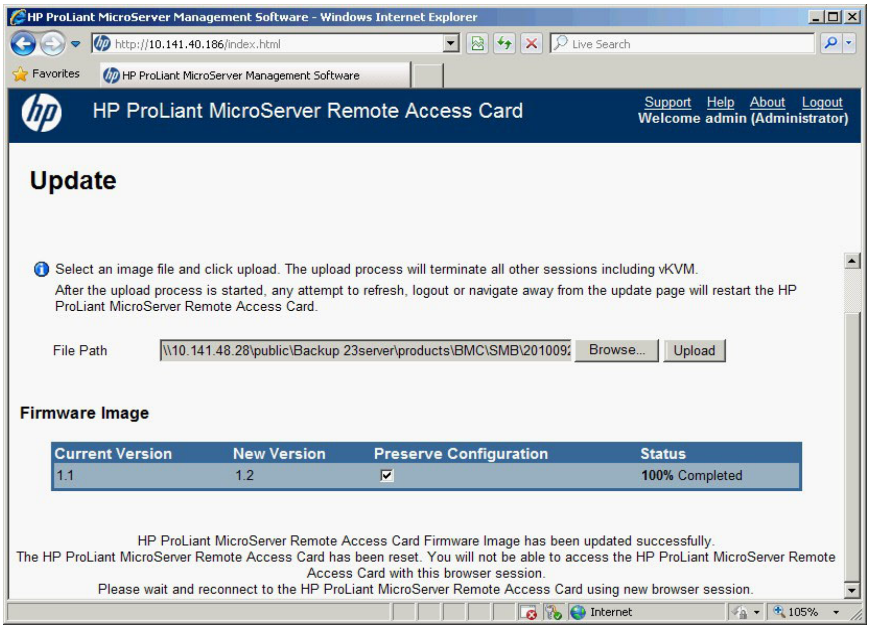
File Path \\10.141.48.28\public\Backup 23server\products\BMC\SMB\201009:

Firmware Image

Current Version	New Version	Preserve Configuration	Status
1.1	1.2	☑	**10%** Completed

Updating the image, please wait. Leaving this page will not stop firmware update progress.

5. Update is finished.


HP ProLiant MicroServer Management Software - Windows Internet Explorer
http://10.141.40.186/index.html
Live Search
Favorites
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
Browse...
Upload
Internet
105%

Update

Select an image file and click upload. The upload process will terminate all other sessions including vKVM.
After the upload process is started, any attempt to refresh, logout or navigate away from the update page will restart the HP ProLiant MicroServer Remote Access Card.

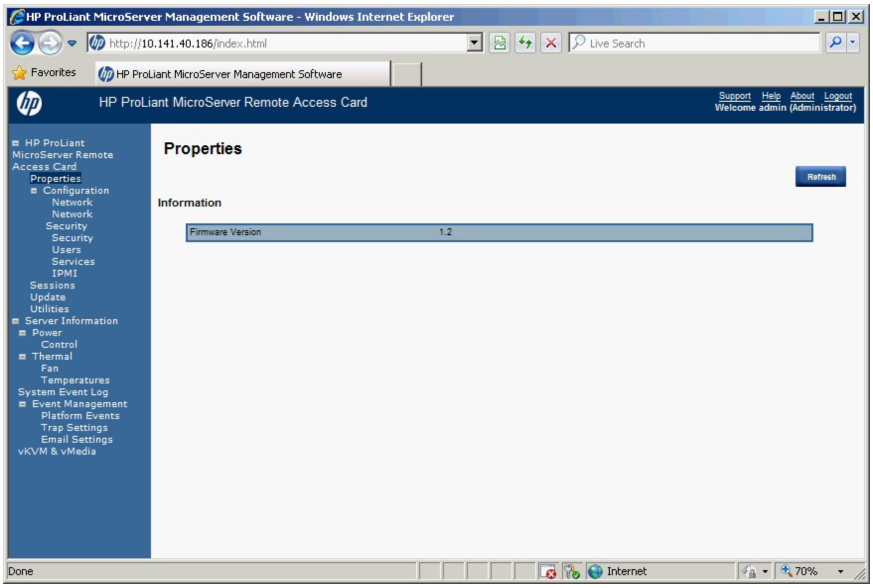
File Path \\10.141.48.28\public\Backup 23server\products\BMC\SMB\201009:

Firmware Image

Current Version	New Version	Preserve Configuration	Status
1.1	1.2	☑	**100%** Completed

HP ProLiant MicroServer Remote Access Card Firmware Image has been updated successfully.
The HP ProLiant MicroServer Remote Access Card has been reset. You will not be able to access the HP ProLiant MicroServer Remote Access Card with this browser session.
Please wait and reconnect to the HP ProLiant MicroServer Remote Access Card using new browser session.

6. Connect the Web UI again to check the current BMC firmware version.


HP ProLiant MicroServer Management Software - Windows Internet Explorer
http://10.141.40.186/index.html
Live Search
Favorites
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
HP ProLiant MicroServer Remote Access Card
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Server Information
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System Event Log
Event Management
Platform Events
Trap Settings
Email Settings
vKVM & vMedia
Refresh
Done
Internet
70%

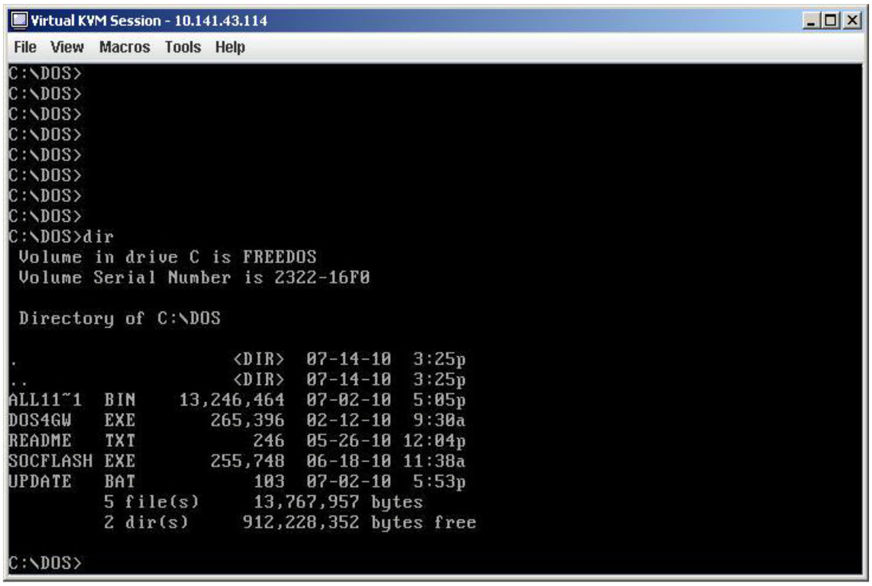
Properties

Information

Firmware Version 1.2

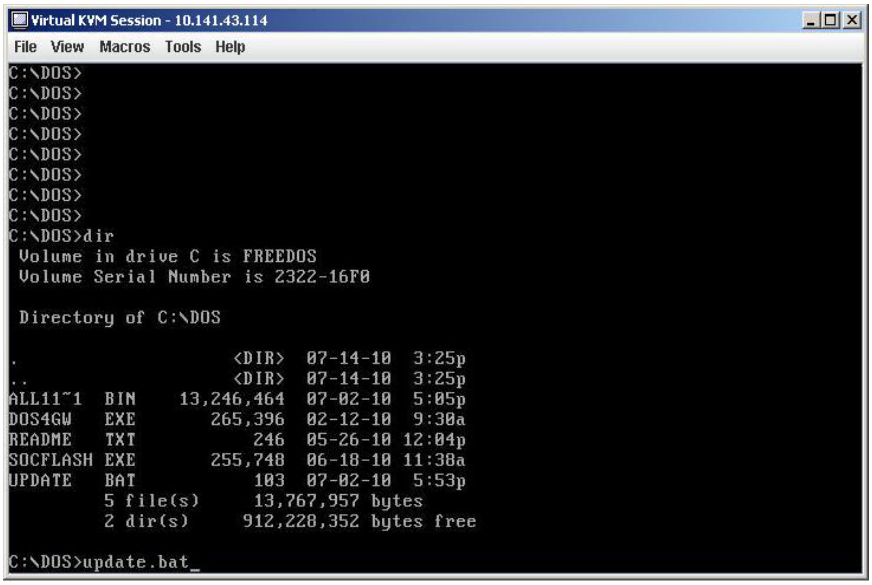
Update BMC Firmware under DOS mode

1. Prepare a bootable USB flash drive or hard drive
2. Copy the update.bat, socflash.exe, DOS4GW.EXE and the BMC firmware image (all.xxx.bin) to the USB flash drive or hard drive. Make sure they are in the same folder/directory.


Virtual KVM Session - 10.141.43.114
File View Macros Tools Help

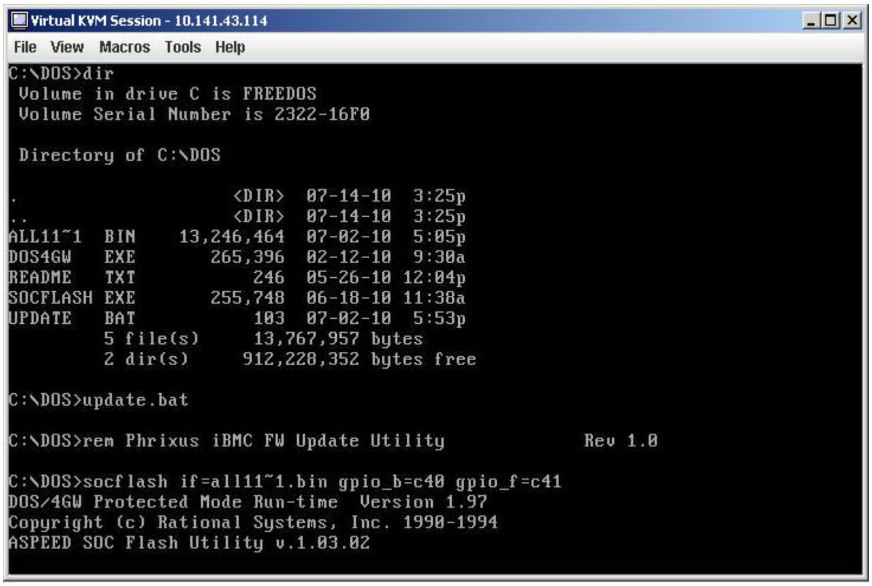
```
C:\DOS>
C:\DOS>
C:\DOS>
C:\DOS>
C:\DOS>
C:\DOS>
C:\DOS>
C:\DOS>
C:\DOS>dir
 Volume in drive C is FREEDOS
 Volume Serial Number is 2322-16F0

 Directory of C:\DOS

.                    <DIR>  07-14-10  3:25p
..                   <DIR>  07-14-10  3:25p
ALL11~1  BIN    13,246,464  07-02-10  5:05p
DOS4GW   EXE       265,396  02-12-10  9:30a
README   TXT           246  05-26-10 12:04p
SOCFLASH EXE       255,748  06-18-10 11:38a
UPDATE   BAT           103  07-02-10  5:53p
         5 file(s)      13,767,957 bytes
         2 dir(s)      912,228,352 bytes free

C:\DOS>
```

3. Boot the system to DOS, and run update.bat under DOS.


Virtual KVM Session - 10.141.43.114
File View Macros Tools Help

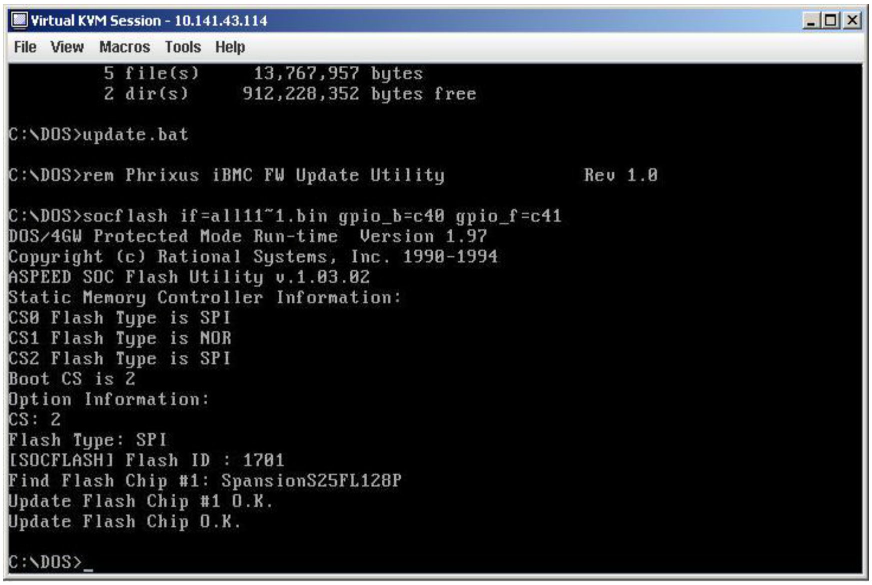
```
C:\DOS>
C:\DOS>
C:\DOS>
C:\DOS>
C:\DOS>
C:\DOS>
C:\DOS>
C:\DOS>
C:\DOS>dir
 Volume in drive C is FREEDOS
 Volume Serial Number is 2322-16F0

 Directory of C:\DOS

.                    <DIR>  07-14-10   3:25p
..                   <DIR>  07-14-10   3:25p
ALL11~1  BIN    13,246,464  07-02-10   5:05p
DOS4GW   EXE       265,396  02-12-10   9:30a
README   TXT           246  05-26-10  12:04p
SOCFLASH EXE       255,748  06-18-10  11:38a
UPDATE   BAT           103  07-02-10   5:53p
         5 file(s)      13,767,957 bytes
         2 dir(s)      912,228,352 bytes free

C:\DOS>update.bat_
```

4. Update is running….


Virtual KVM Session - 10.141.43.114
File View Macros Tools Help

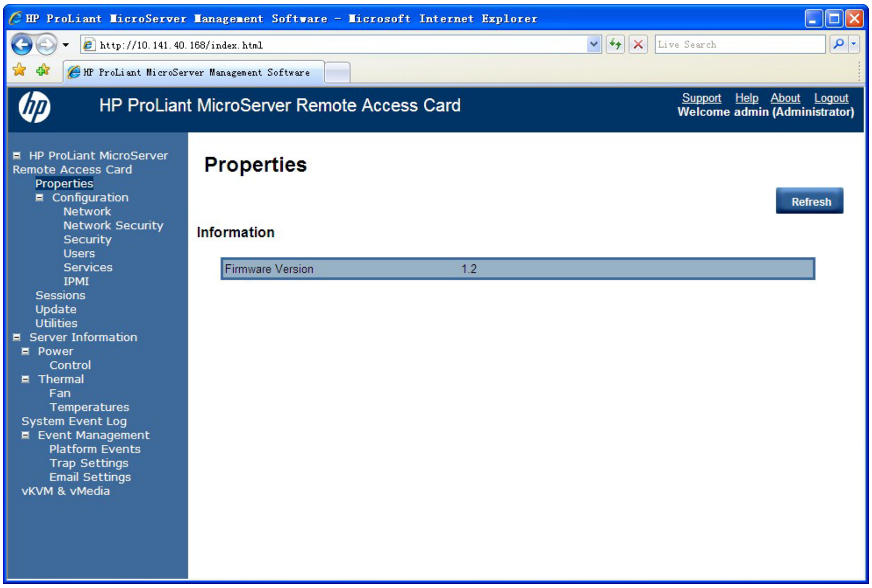
```
C:\DOS>dir
 Volume in drive C is FREEDOS
 Volume Serial Number is 2322-16F0

 Directory of C:\DOS

.                    <DIR>  07-14-10   3:25p
..                   <DIR>  07-14-10   3:25p
ALL11~1  BIN    13,246,464  07-02-10   5:05p
DOS4GW   EXE       265,396  02-12-10   9:30a
README   TXT           246  05-26-10  12:04p
SOCFLASH EXE       255,748  06-18-10  11:38a
UPDATE   BAT           103  07-02-10   5:53p
         5 file(s)      13,767,957 bytes
         2 dir(s)      912,228,352 bytes free

C:\DOS>update.bat

C:\DOS>rem Phrixus iBMC FW Update Utility             Rev 1.0

C:\DOS>socflash if=all11~1.bin gpio_b=c40 gpio_f=c41
DOS/4GW Protected Mode Run-time  Version 1.97
Copyright (c) Rational Systems, Inc. 1990-1994
ASPEED SOC Flash Utility v.1.03.02
```

5. Update is finished.


Virtual KVM Session - 10.141.43.114
File View Macros Tools Help

```
         5 file(s)      13,767,957 bytes
         2 dir(s)      912,228,352 bytes free

C:\DOS>update.bat

C:\DOS>rem Phrixus iBMC FW Update Utility              Rev 1.0

C:\DOS>socflash if=all11~1.bin gpio_b=c40 gpio_f=c41
DOS/4GW Protected Mode Run-time  Version 1.97
Copyright (c) Rational Systems, Inc. 1990-1994
ASPEED SOC Flash Utility v.1.03.02
Static Memory Controller Information:
CS0 Flash Type is SPI
CS1 Flash Type is NOR
CS2 Flash Type is SPI
Boot CS is 2
Option Information:
CS: 2
Flash Type: SPI
[SOCFLASH] Flash ID : 1701
Find Flash Chip #1: SpansionS25FL128P
Update Flash Chip #1 O.K.
Update Flash Chip O.K.

C:\DOS>_
```

6. Connect the Web UI to check the current BMC firmware version.


HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
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Support Help About Logout
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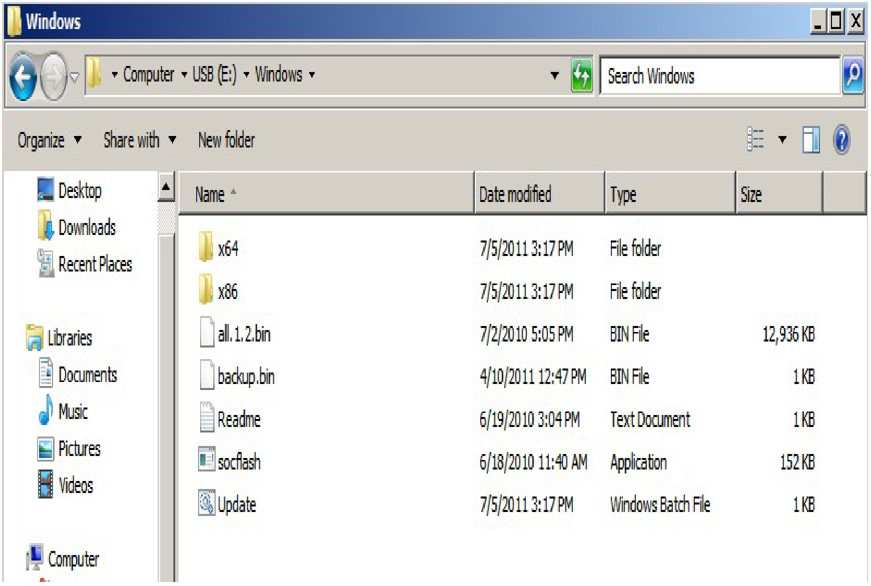
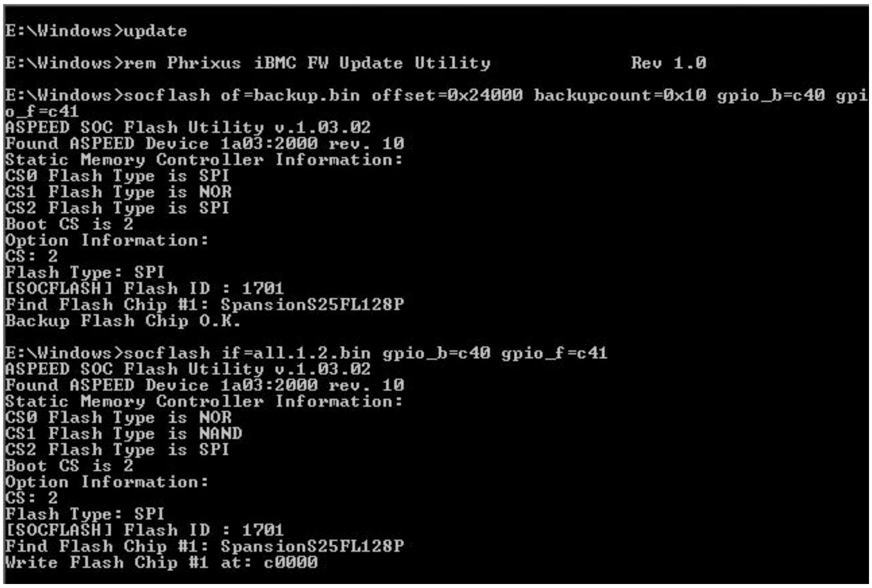
Update Firmware under Windows

1. Copy the "socflash.exe", "update.bat", the BMC firmware image (all.xxx.bin) and corresponding driver(x86 and x64) into the same directory under Windows.



Name	Date modified	Type	Size
x64	7/5/2011 3:17 PM	File folder	
x86	7/5/2011 3:17 PM	File folder	
all.1.2.bin	7/2/2010 5:05 PM	BIN File	12,936 KB
backup.bin	4/10/2011 12:47 PM	BIN File	1 KB
Readme	6/19/2010 3:04 PM	Text Document	1 KB
socflash	6/18/2010 11:40 AM	Application	152 KB
Update	7/5/2011 3:17 PM	Windows Batch File	1 KB

2. Click update.bat to update firmware.



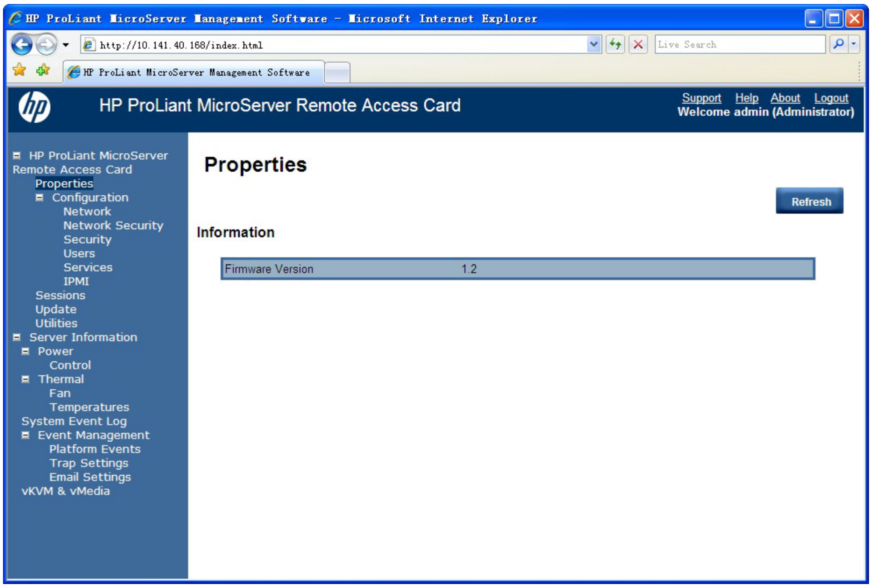
```
E:\Windows>update

E:\Windows>rem Phrixus iBMC FW Update Utility             Rev 1.0

E:\Windows>socflash of=backup.bin offset=0x24000 backupcount=0x10 gpio_b=c40 gpi
o_f=c41
ASPEED SOC Flash Utility v.1.03.02
Found ASPEED Device 1a03:2000 rev. 10
Static Memory Controller Information:
CS0 Flash Type is SPI
CS1 Flash Type is NOR
CS2 Flash Type is SPI
Boot CS is 2
Option Information:
CS: 2
Flash Type: SPI
[SOCFLASH] Flash ID : 1701
Find Flash Chip #1: SpansionS25FL128P
Backup Flash Chip O.K.

E:\Windows>socflash if=all.1.2.bin gpio_b=c40 gpio_f=c41
ASPEED SOC Flash Utility v.1.03.02
Found ASPEED Device 1a03:2000 rev. 10
Static Memory Controller Information:
CS0 Flash Type is NOR
CS1 Flash Type is NAND
CS2 Flash Type is SPI
Boot CS is 2
Option Information:
CS: 2
Flash Type: SPI
[SOCFLASH] Flash ID : 1701
Find Flash Chip #1: SpansionS25FL128P
Write Flash Chip #1 at: c0000
```

3. Connect the Web UI to check the current BMC firmware version.


HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
http://10.141.40.168/index.html
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HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
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Email Settings
vKVM & vMedia
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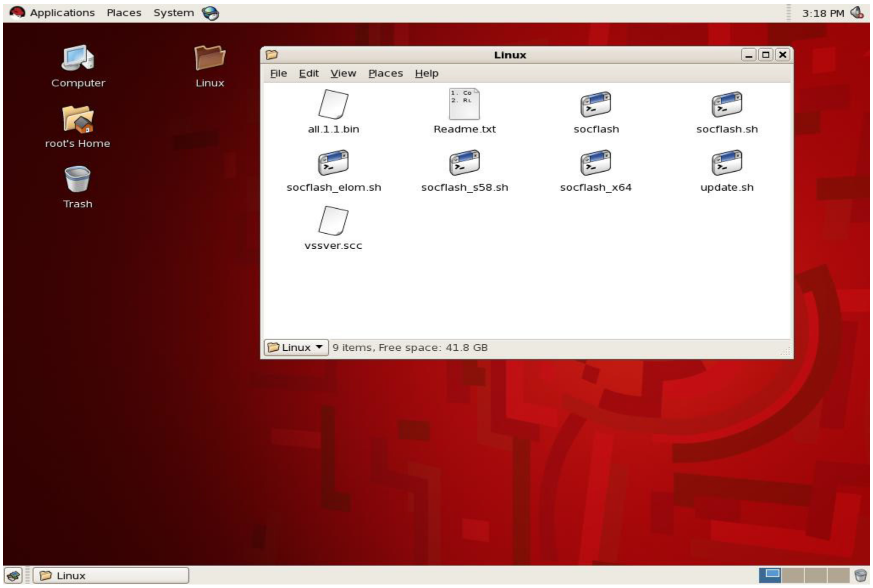
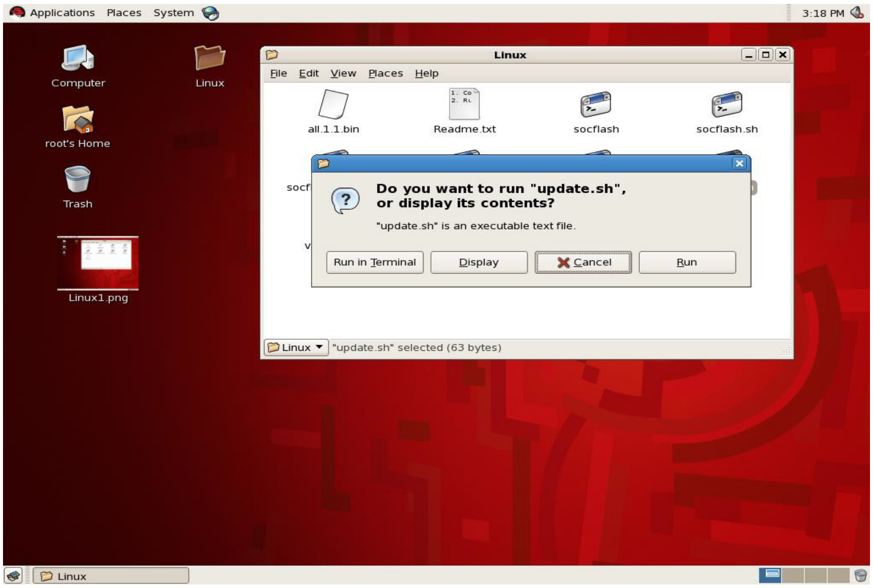
Firmware Version 1.2

Update Firmware under Linux

1. Copy the BMC firmware image (all.xxx.bin) and all files in "Linux" folder (socflash/Linux) into the same directory under Linux



2. Click "update.bat" under Linux and then click "Run in Terminal"

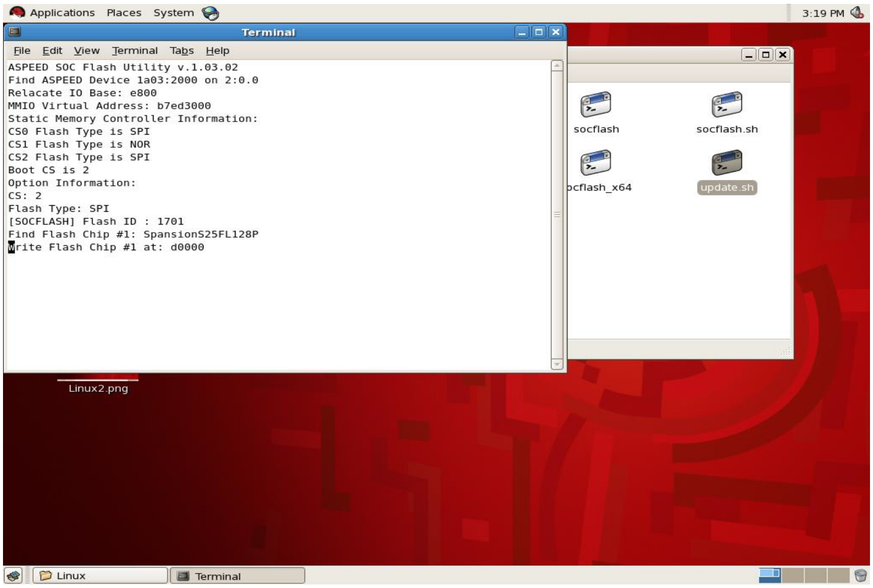


Do you want to run "update.sh", or display its contents?

"update.sh" is an executable text file.

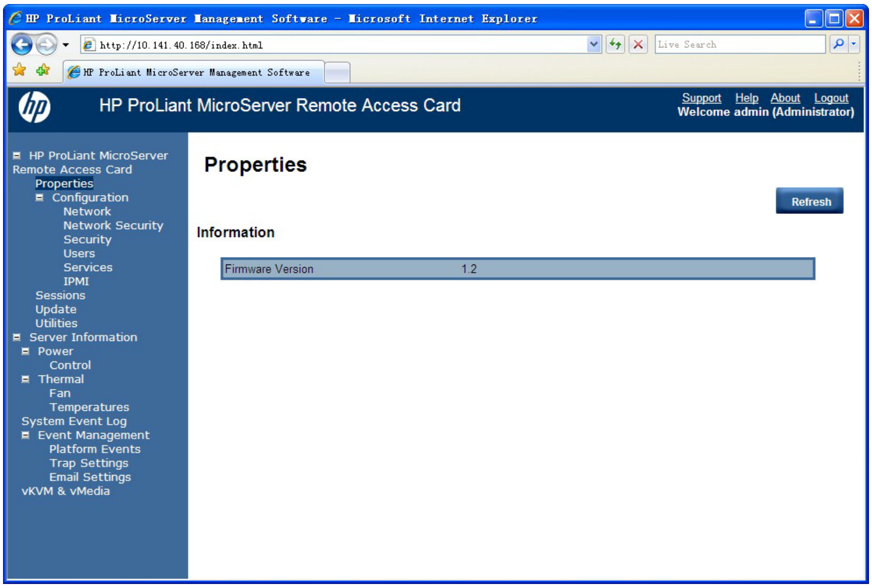
"update.sh" selected (63 bytes)

3. Update is running…..



```
ASPEED SOC Flash Utility v.1.03.02
Find ASPEED Device 1a03:2000 on 2:0.0
Relacate IO Base: e800
MMIO Virtual Address: b7ed3000
Static Memory Controller Information:
CS0 Flash Type is SPI
CS1 Flash Type is NOR
CS2 Flash Type is SPI
Boot CS is 2
Option Information:
CS: 2
Flash Type: SPI
[SOCFLASH] Flash ID : 1701
Find Flash Chip #1: SpansionS25FL128P
Write Flash Chip #1 at: d0000
```

4. Connect the Web UI to check the current BMC firmware version.


HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
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HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
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User account and access

The Server supports three accounts types: User, Administrator and Operator. Different account types have different levels of permissions to view and control features. Administrator User Account is a user privilege that allows you to add, modify, and delete local BMC user accounts. It also allows you to alter privileges for all users, including granting all permissions to yourself. Without this privilege, you can only view your own settings and changes your own password.

The default privilege of the account is administrator, so we recommend changing the default settings after logging in to BMC for the first time from security viewpoint.

The default user name and password:

- User name—admin
- Password—password

For more information on how to change a user, please refer to configuration chapter about changing user settings through a web browser.

Encryption

BMC provides enhanced security for remote management in distributed IT environments. Web browser data is protected by SSL encryption. SSL encryption of HTTP data ensures that the data is secure as it is transmitted across the network.

For more information about the BMC firmware supported optional encryption methods, please see description on chapter “BMC Overview ”.

Using Remote Access Card

Using BMC Web UI

Browser main menu options

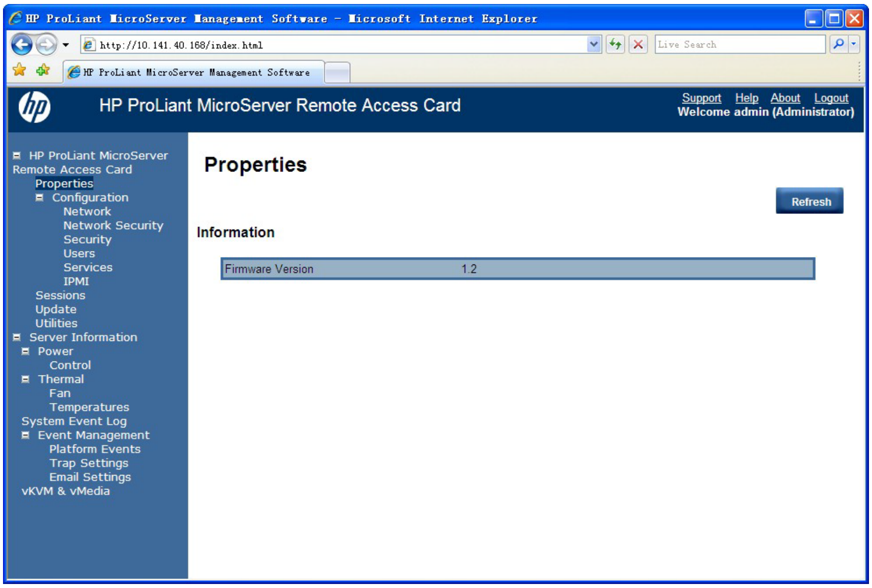
Using a web browser, you can access all of the links to do remote control

Title	Item	Options	Description
HP ProLiant MicroServer Remote Access Card	Properties	/	Get current firmware version of Remote Access Card
	Configuration	Network	Enable to view and modify network settings for BMC
		Network Security	Include four fields to allow view or set the network security values
		Security	Enable to create a certificate request and import a certificate to support SSL connections.
		Users	Displays all user information and add a new user
		Services	Web Server configuration
		IPMI	IPMI Over LAN setting
	Sessions	/	View or kill active sessions
	Update	/	Update firmware version of Remote Access Card
	Utilities	/	Provide utility on web browser to reboot Remote Access Card and load factory default value
Server Information	Power	Control	Accesses system power to perform power control operation
	Thermal	Fan	Provide the monitoring of the fan status
		Temperature	Provide the monitoring of the Temperature sensor status
	System Event Log	/	Provide the system event log
	Event Management	Platform Events	provides a mechanism for configuring the BMC to taking selected actions on event

			messages that it receives
		Trap Settings	Enables you to specify destination addresses, and enable/disable SNMP alerts
		Email Settings	Allows to enable email alert and specify email address to receive alert message
	Virtual KVM & Virtual Media	/	Accesses virtual media or the remote graphic console

Properties

This section provides current Firmware Version.



Properties

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Configuration

The drop-down list of configuration page consists of six different categories: Network, Network Security, Security, Users, Services and IPMI. You can click help link on each page to get the purpose of every field

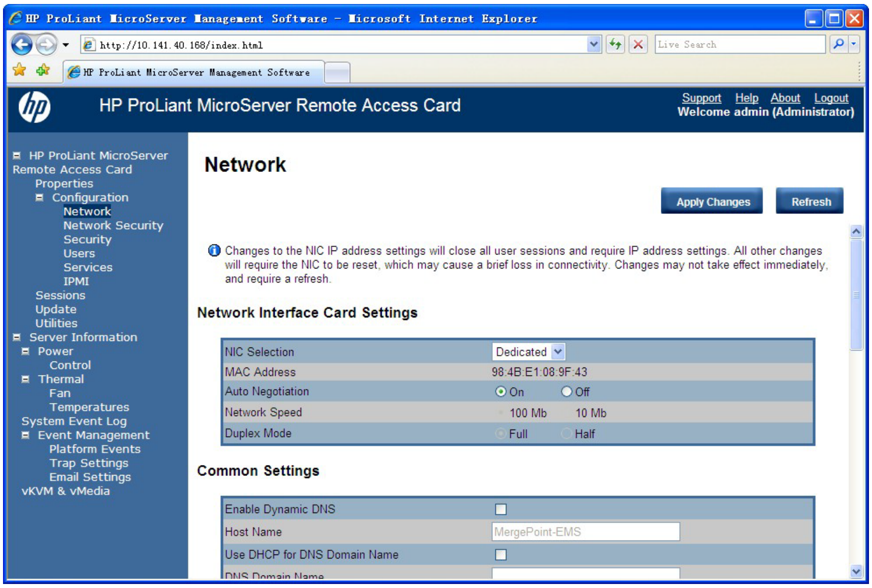
Network

The Network Settings enable you to view and modify network settings for BMC. Only users with Administrator or Operator privilege level can change these settings. Users that do not have these privileges can view the assigned settings.

Network Settings

The Network page displays the NIC setting, Common settings about DNS, IPV4/IPV6 settings and VLAN setting. From the Network screen, you can configure network environment for servers by IPV4 setting or IPV6 settings. All users can view the network settings, but only users with the settings privilege can change these settings. To access network page, click configuration->network. The network page appears with the following five tabs information and settings:

Network Interface Card Settings



Network

Changes to the NIC IP address settings will close all user sessions and require IP address settings. All other changes will require the NIC to be reset, which may cause a brief loss in connectivity. Changes may not take effect immediately, and require a refresh.

Network Interface Card Settings

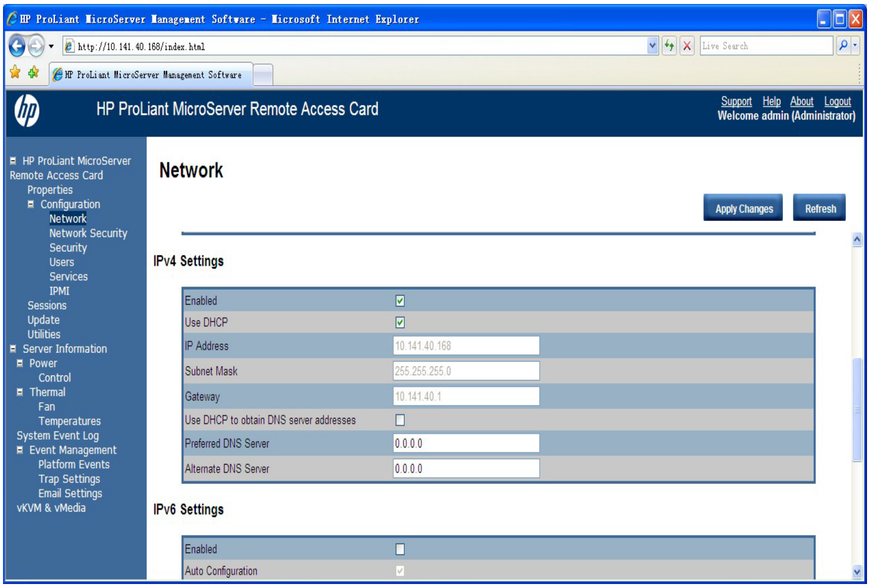
NIC Selection	Dedicated	
MAC Address	98:4B:E1:08:9F:43	
Auto Negotiation	● On	○ Off
Network Speed	100 Mb	10 Mb
Duplex Mode	○ Full	○ Half

Common Settings

Enable Dynamic DNS	□
Host Name	MergePoint-EMS
Use DHCP for DNS Domain Name	□
DNS Domain Name	

- NIC Selection enables to select which LAN port to use. The default value is "dedicated".
- MAC Address identifies this unique device on the network
- Auto Negotiation toggles on/off the auto negotiation of the connection speed and duplex mode. This is only applies if it is in dedicated NIC mode.
- Network Speed enables to set the network speed to 10Mb or 100Mb to match your network settings.
- Duplex Mode enables you to set the duplex mode to full or half to match your network settings.
- Common Settings
- Enable Dynamic DNS allows registering the ProLiant MicroServer address with the DNS when enabled.
- Host Name-- when registering the ProLiant Micro Server with the DNS. The character set is a-z, A-Z, 0~9, underscore (_) and dash (-), using between 0 and 64 characters and no white space, if unspecified, the default name is MergePoint-EMS.
- Use DHCP to obtain DNS Domain Name can be used to enable or disable the DHCP to acquire the DNS Domain name.

IPV4 Settings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vKVM & vMedia
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Network

IPv4 Settings

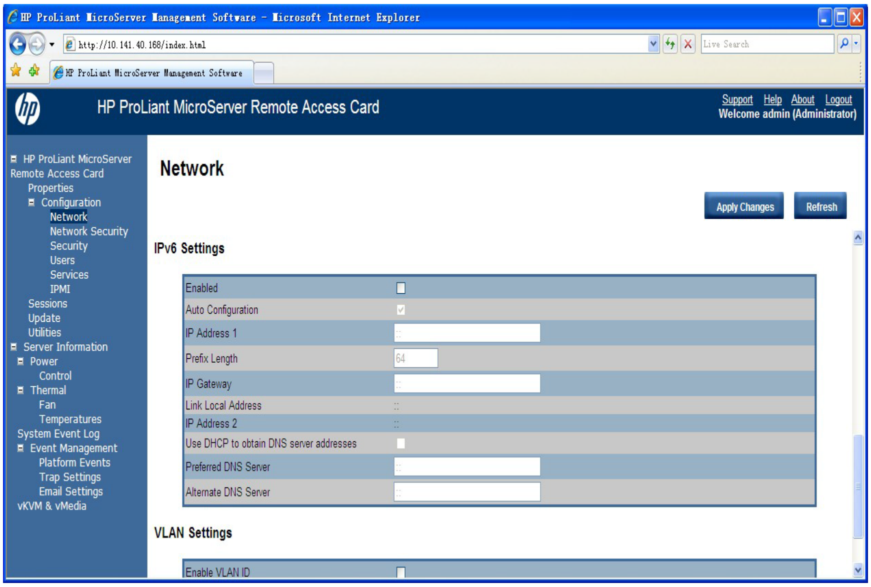
Enabled	☑
Use DHCP	☑
IP Address	10.141.40.168
Subnet Mask	255.255.255.0
Gateway	10.141.40.1
Use DHCP to obtain DNS server addresses	□
Preferred DNS Server	0.0.0.0
Alternate DNS Server	0.0.0.0

IPv6 Settings

Enabled	□
Auto Configuration	☑

- Use DHCP: DHCP Server is the IP address of the DHCP server. This field cannot be assigned. It is received from DHCP if DHCP is enabled.
- Subnet Mask: Use the subnet mask parameter to identify the subnet mask for the IPMI Port.
- IP Address is the BMC IP address. Use this parameter to assign a static IP address to BMC on your network. By default, the IP address is assigned by DHCP
- Gateway displays the IP address of the network gateway. If DHCP is in use, the Gateway s automatically supplied. If not, enter the network gateway address.

IPV6 Settings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Apply Changes
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Network

IPv6 Settings

Enabled	□
Auto Configuration	☑
IP Address 1	::
Prefix Length	64
IP Gateway	::
Link Local Address	::
IP Address 2	::
Use DHCP to obtain DNS server addresses	□
Preferred DNS Server	::
Alternate DNS Server	::

VLAN Settings

Enable VLAN ID	□

The following options are available to configure IPv6 environment

- Auto Configuration: Lets the server administrator to obtain the IPV6 address from the DHCP server

- IP Address 1: The information will be appeared if checked auto-configuration. When auto-configuration is disabled, the IP address needs to be entered by manually.
- IP Gateway: Specifies the gateway for the ProLiant MicroServer NIC. To change this setting, you must first uncheck the auto configuration checkbox.
- Link Local Address: Specifies the IPv6 address for the ProLiant MicroServer NIC
- IP Address 2: Specifies the additional IPv6 address for the ProLiant MicroServer NIC if one is available.
- Use DHCP to obtain DNS Server address: Obtain the DNS server name (such as www.hp.com) from DHCP IPV6 Sever when DHCP and DNS of the server are configured properly.
- Preferred DNS Sever: Manually configures the IP address of the preferred DNS server. To change this setting, you must first disable the option that uses DHCP to obtain DNS Sever address.
- Alternate DNS Sever: Manually configures the IP address of the alternate DNS server. To change this setting, you must first disable the option that uses DHCP to obtain DNS Sever address.

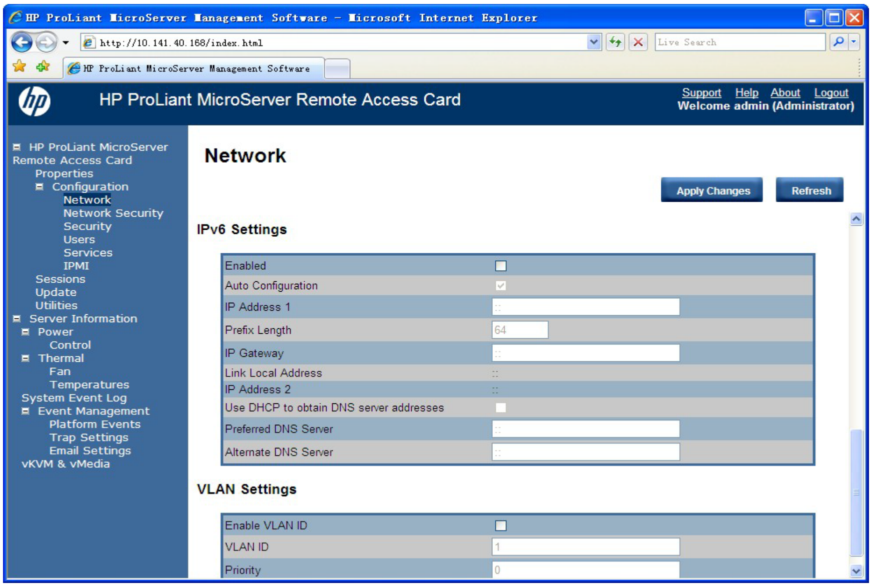
VLAN setting

Configuration options have been added to support IEEE 802.1q VLAN (virtual LAN) headers for IPMI over IP sessions on IEEE 802.3 Ethernet. VLAN works with VLAN-aware routers and switches to allow a physical network to be partitioned into 'virtual' networks where a group of devices on different physical LAN segments which can communicate with each other as if they were all on the same physical LAN segment. This can be used to isolate classes of network membership at the Ethernet Packet level rather than at the IP level, as might be done with a router. This can be used to set up a 'management VLAN' where only devices that are members of that VLAN will receive packets related to management, and, conversely, will be isolated from the need to process network traffic for other VLANs.

Enable VLAN ID: If enabled, only matched virtual LAN (VLAN) ID traffic will be accepted.

VLAN ID: VLAN ID field of 802.1g fields. Enter a valid value for VLAN ID (must be a number from 1 to 4094).

Priority: Priority field of 802.1g fields. Enter a number from 0 to 7 to set the priority of the VLAN ID.



Network

IPv6 Settings

Enabled	□
Auto Configuration	☑
IP Address 1	::
Prefix Length	64
IP Gateway	::
Link Local Address	::
IP Address 2	::
Use DHCP to obtain DNS server addresses	□
Preferred DNS Server	::
Alternate DNS Server	::

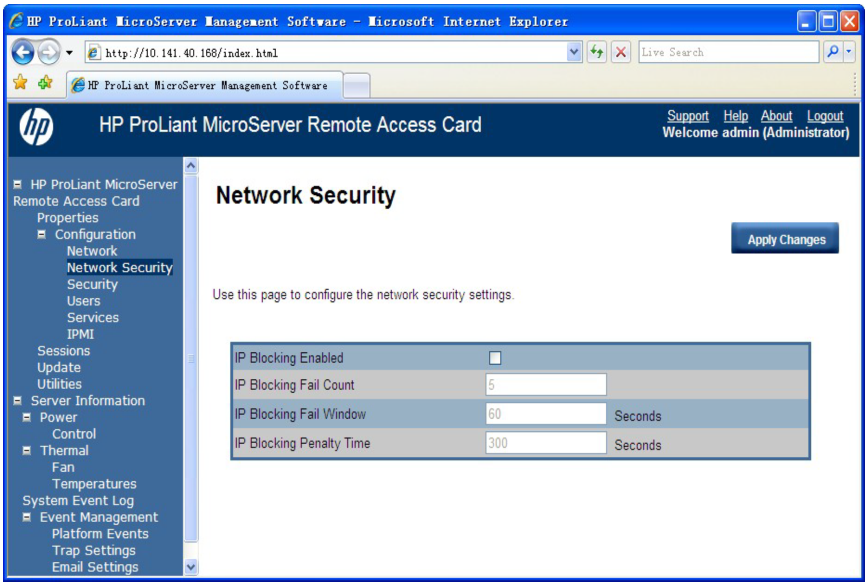
VLAN Settings

Enable VLAN ID	□
VLAN ID	1
Priority	0

Network Security

This page includes four fields for network security values. If you have the Administrator or Operator privilege level, you can modify the values and click the apply changes button to execute the change. The new values are available to the firewall immediately, but may not be utilized until the next security event occurs.

- IP Blocking enabled: Enables/disables the IP address blocking feature, which limits the number of failed login attempts from specific IP address for a pre-selected time span.
- IP Blocking Fail Count: Sets the number of login failures attempted from an IP address before the login attempts are rejected. The range is 2 to 16.
- IP Blocking Fail Window: Determines the time span (in seconds) that IP Blocking Fail Count failure must occur to trigger the IP Blocking Penalty Time. The range is 10 to 65535 seconds.
- IP Blocking Penalty Time: Set the time span (in seconds) that login attempts from an IP address with excessive failures are rejected. The range is 10 to 65535 seconds.



Network Security

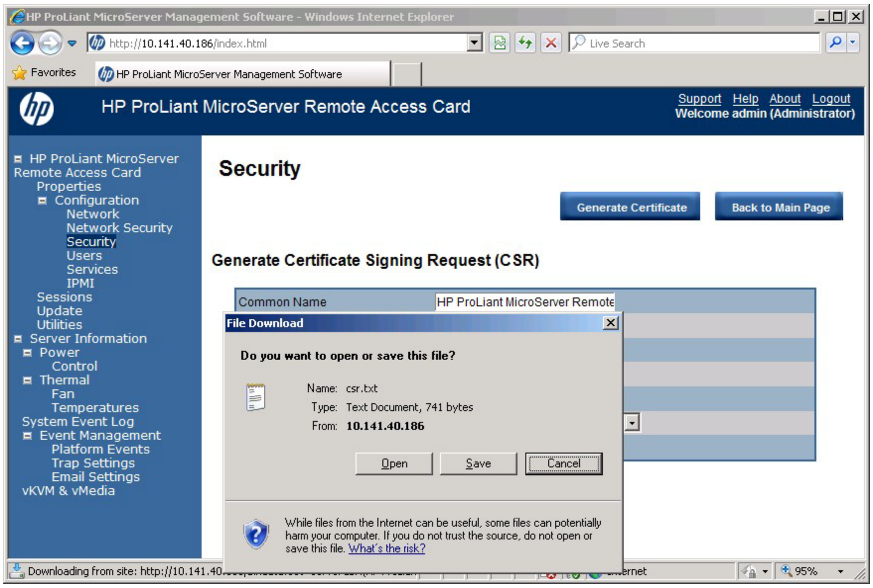
Use this page to configure the network security settings.

IP Blocking Enabled	□	
IP Blocking Fail Count	5	
IP Blocking Fail Window	60	Seconds
IP Blocking Penalty Time	300	Seconds

Security

Below is how to update certificate by WEB-GUI.

1. On the main menu navigation bar, click configuration -> Security.
2. Click “Generate Certificate” button to generate Certificate request file (CSR file).


HP ProLiant MicroServer Management Software - Windows Internet Explorer
http://10.141.40.186/index.html
Live Search
Favorites
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
HP ProLiant MicroServer Remote Access Card
Properties
Configuration
Network
Network Security
Security
Users
Services
IPMI
Sessions
Update
Utilities
Server Information
Power
Control
Thermal
Fan
Temperatures
System Event Log
Event Management
Platform Events
Trap Settings
Email Settings
vKVM & vMedia
Generate Certificate
Back to Main Page
Open
Save
Cancel
Downloading from site: http://10.141.40.
95%

Security

Generate Certificate Signing Request (CSR)

Common Name: HP ProLiant MicroServer Remote

File Download

Do you want to open or save this file?

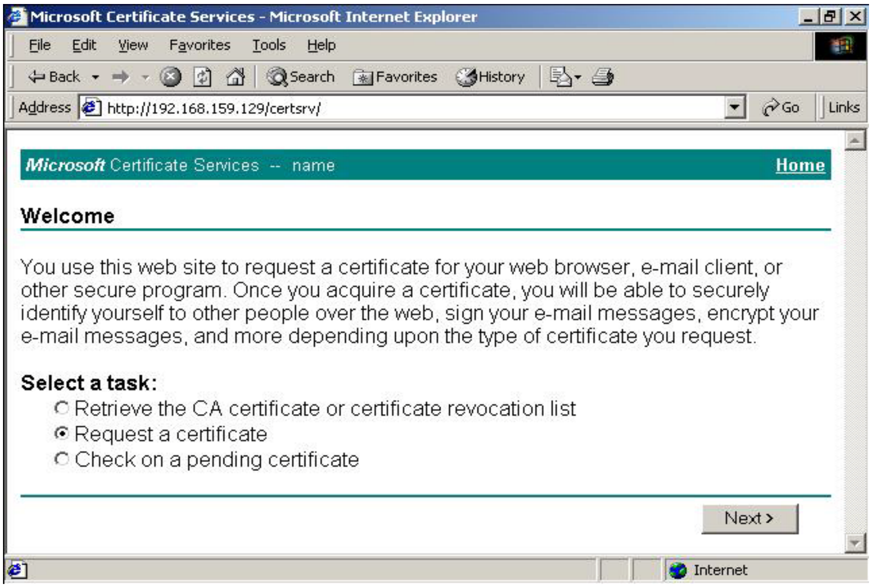
Name: csr.txt
Type: Text Document, 741 bytes
From: 10.141.40.186

While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What's the risk?

3. On the open dialog window, click “save” button to save file on your local system

4. Open the file csr.txt and copy the request number.

5. Build the CSR with Microsoft Certificate service or other OpenSSL tools to generate the certificate.


Microsoft Certificate Services - Microsoft Internet Explorer
File
Edit
View
Favorites
Tools
Help
Back
Search
Favorites
History
Address
http://192.168.159.129/certsrv/
Go
Links
Home
Next >
Internet

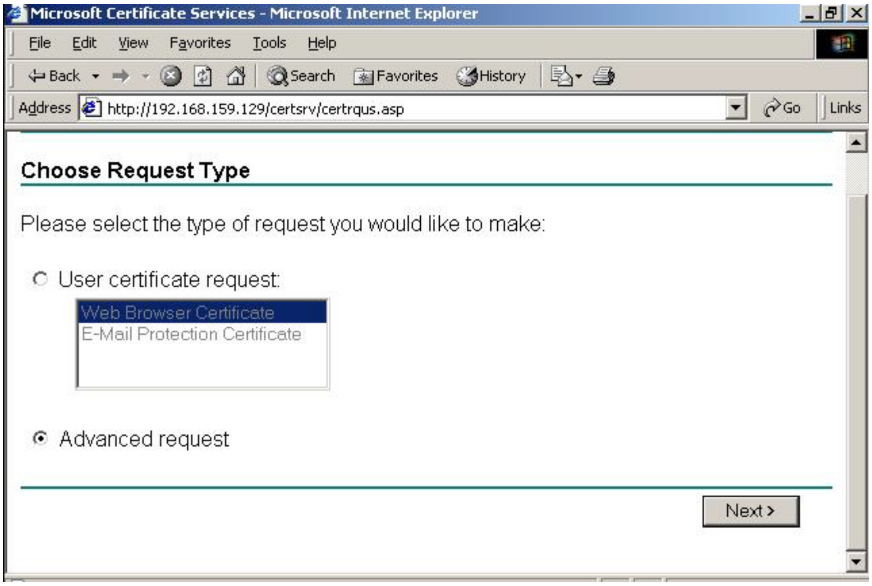
Microsoft Certificate Services -- name

Welcome

You use this web site to request a certificate for your web browser, e-mail client, or other secure program. Once you acquire a certificate, you will be able to securely identify yourself to other people over the web, sign your e-mail messages, encrypt your e-mail messages, and more depending upon the type of certificate you request.

Select a task:
- ○ Retrieve the CA certificate or certificate revocation list
- ● Request a certificate
- ○ Check on a pending certificate

6. Choose advanced certificate request.



Microsoft Certificate Services - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address http://192.168.159.129/certsrv/certrqus.asp
Go Links

Choose Request Type

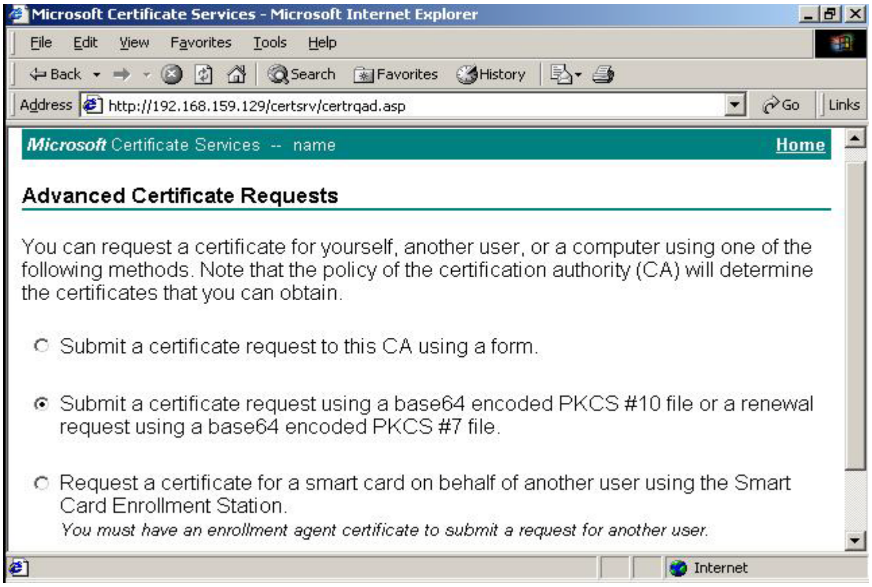
Please select the type of request you would like to make:

○ User certificate request:

Web Browser Certificate
E-Mail Protection Certificate

● Advanced request

7. Submit a certificate request by using a base-64-encoded CMC or PKCS #10 file, or submit a renewal request by using a base-64-encoded PKCS #7 file.



Microsoft Certificate Services - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address http://192.168.159.129/certsrv/certrqad.asp
Go Links
Microsoft Certificate Services -- name
Home
Internet

Advanced Certificate Requests

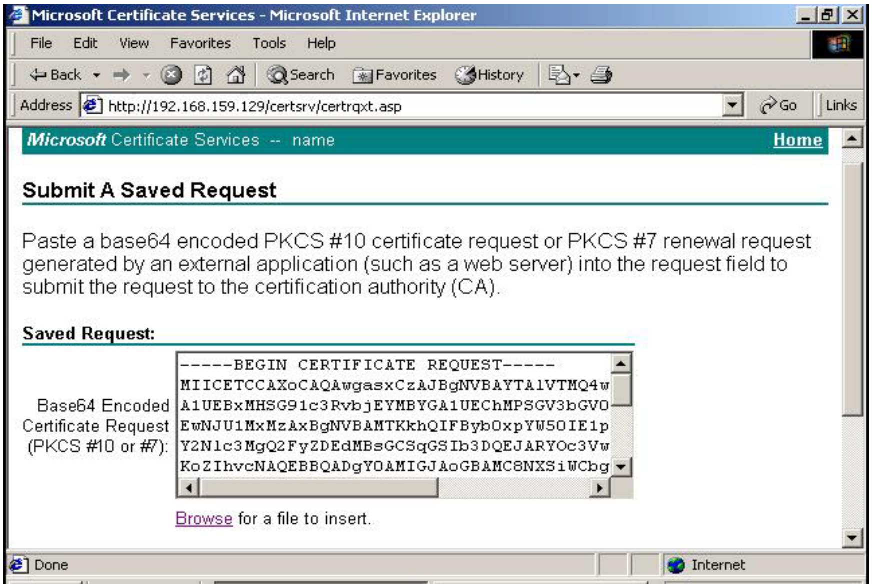
You can request a certificate for yourself, another user, or a computer using one of the following methods. Note that the policy of the certification authority (CA) will determine the certificates that you can obtain.

○ Submit a certificate request to this CA using a form.

● Submit a certificate request using a base64 encoded PKCS #10 file or a renewal request using a base64 encoded PKCS #7 file.

○ Request a certificate for a smart card on behalf of another user using the Smart Card Enrollment Station.
You must have an enrollment agent certificate to submit a request for another user.

8. Copy the text from cert.txt and paste in to the form, then click "Submit" button.


Microsoft Certificate Services - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address http://192.168.159.129/certsrv/certrqxt.asp
Go Links
Microsoft Certificate Services -- name
Home
Done
Internet

Submit A Saved Request

Paste a base64 encoded PKCS #10 certificate request or PKCS #7 renewal request generated by an external application (such as a web server) into the request field to submit the request to the certification authority (CA).

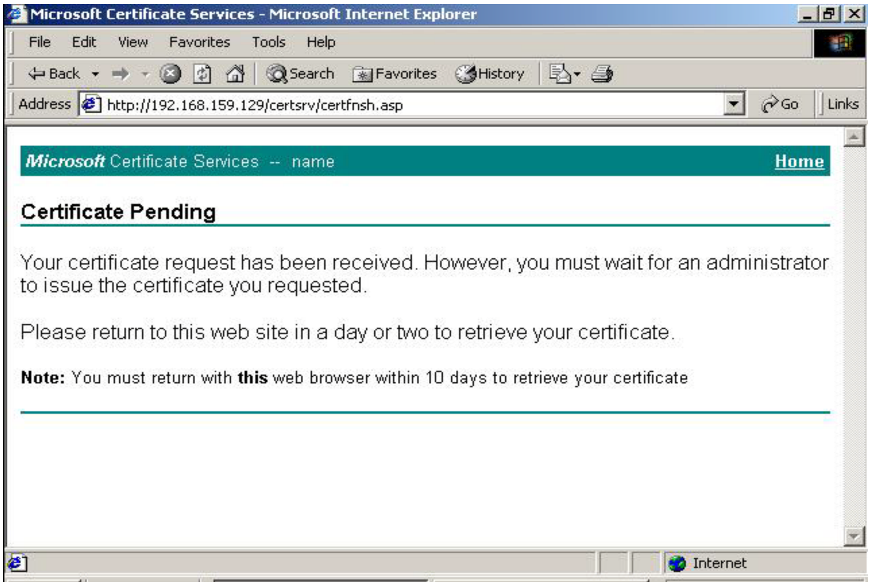
Saved Request:

Base64 Encoded Certificate Request (PKCS #10 or #7):

```
-----BEGIN CERTIFICATE REQUEST-----
MIICETCCAXoCAQAwgasxCzAJBgNVBAYTAlVTMQ4w
A1UEBxMHSG91c3RvbjEYMBYGA1UEChMPSGV3bGVO
EwNJU1MxMzAxBgNVBAMTKkhQIFByb0xpYW5OIE1p
Y2Nlc3MgQ2FyZDEdMBsGCSqGSIb3DQEJARYOc3Vw
KoZIhvcNAQEBBQADgY0AMIGJAoGBAMC8NXSiWCbg
```

Browse for a file to insert.

9. The certificate will be pending.


Microsoft Certificate Services - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address http://192.168.159.129/certsrv/certfnsh.asp
Go Links
Microsoft Certificate Services -- name
Home
Internet

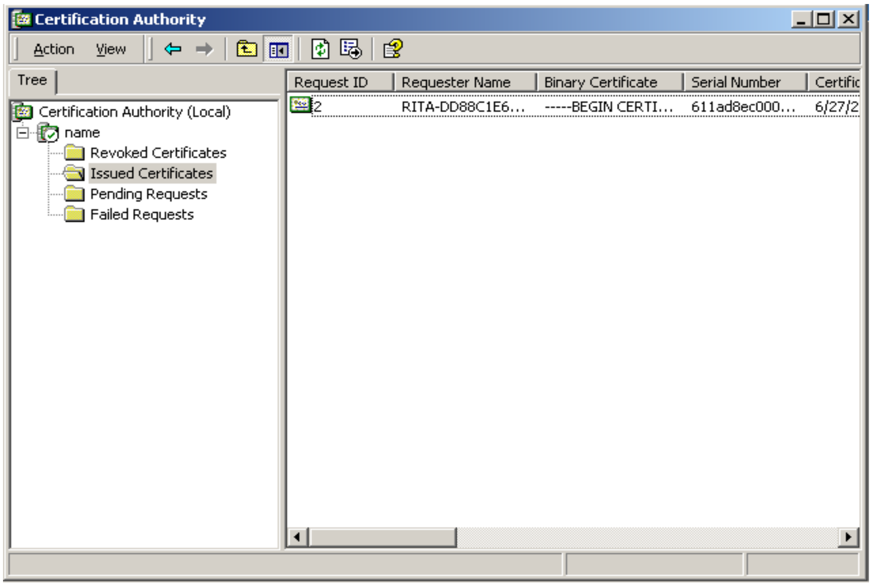
Certificate Pending

Your certificate request has been received. However, you must wait for an administrator to issue the certificate you requested.

Please return to this web site in a day or two to retrieve your certificate.

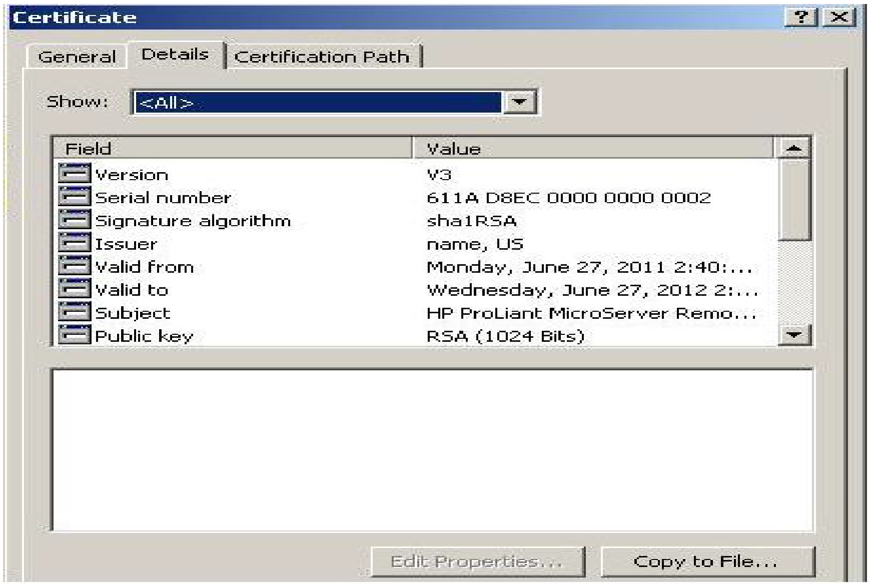
Note: You must return with **this** web browser within 10 days to retrieve your certificate

10. Open “Certification Authority” by clicking start->Programs->Administrative Tools->Certification Authority, the certificate you requested will be displayed in Issued Certificate item



Request ID	Requester Name	Binary Certificate	Serial Number	Certific
2	RITA-DD88C1E6...	-----BEGIN CERTI...	611ad8ec000...	6/27/2

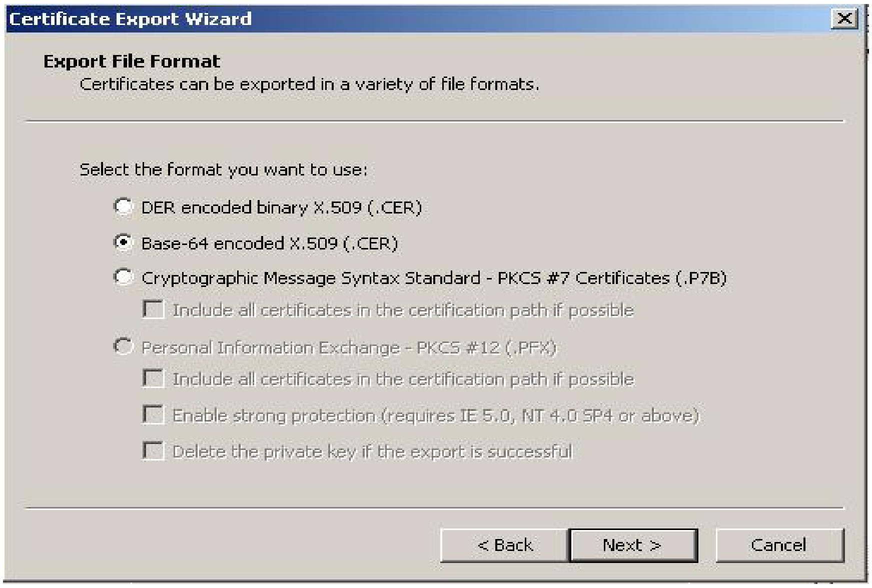
11. Open the requested certificate and select Details tab, then click “Copy to File” button.



Show: <All>

Field	Value
Version	V3
Serial number	611A D8EC 0000 0000 0002
Signature algorithm	sha1RSA
Issuer	name, US
Valid from	Monday, June 27, 2011 2:40:...
Valid to	Wednesday, June 27, 2012 2:...
Subject	HP ProLiant MicroServer Remo...
Public key	RSA (1024 Bits)

12. Select the format as “Base-64 encoded X.509(.CER)” and click next.



Certificate Export Wizard

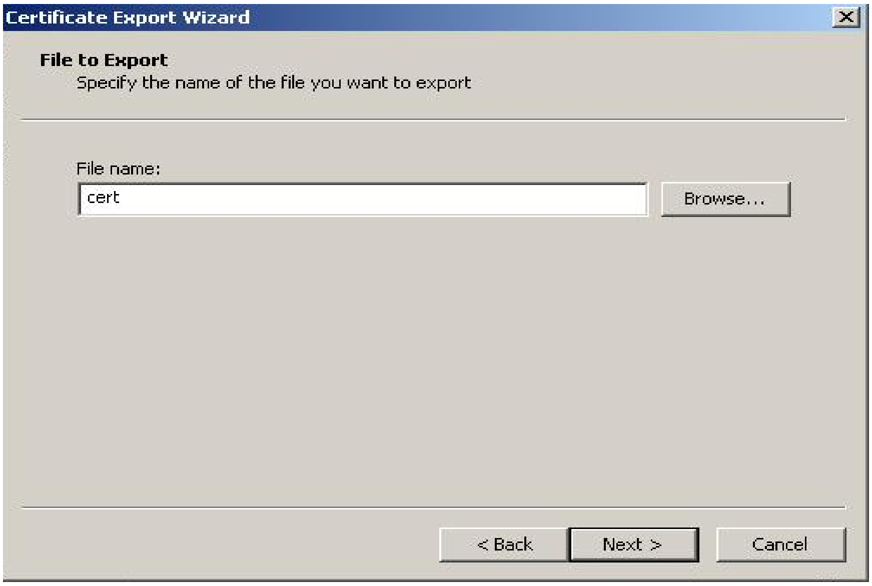
Export File Format

Certificates can be exported in a variety of file formats.

Select the format you want to use:

- ○ DER encoded binary X.509 (.CER)
- ● Base-64 encoded X.509 (.CER)
- ○ Cryptographic Message Syntax Standard - PKCS #7 Certificates (.P7B)
  - □ Include all certificates in the certification path if possible
- ○ Personal Information Exchange - PKCS #12 (.PFX)
  - □ Include all certificates in the certification path if possible
  - □ Enable strong protection (requires IE 5.0, NT 4.0 SP4 or above)
  - □ Delete the private key if the export is successful

13. Specify the path and the file name, and then click next button.



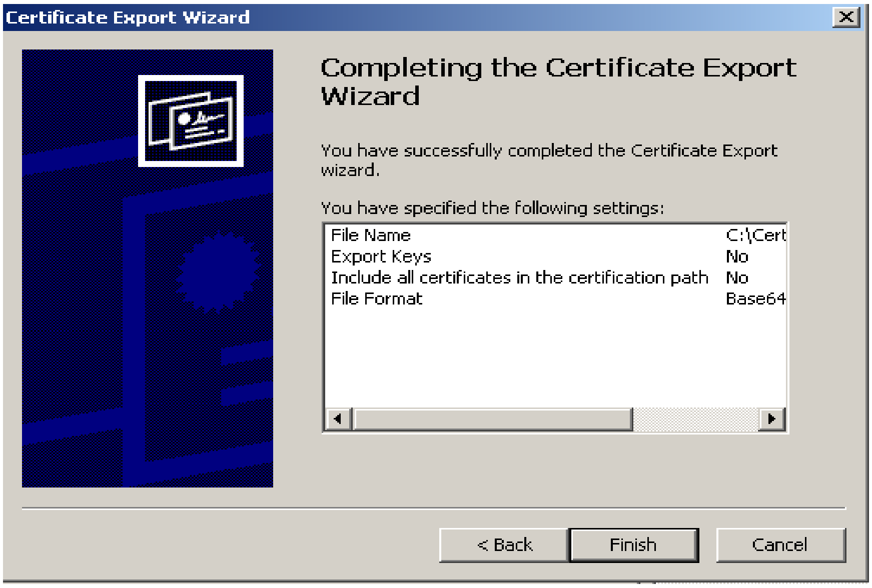
Certificate Export Wizard

File to Export

Specify the name of the file you want to export

File name: cert

14. Click “Finish” button, the certificate has been exported successfully.



Certificate Export Wizard

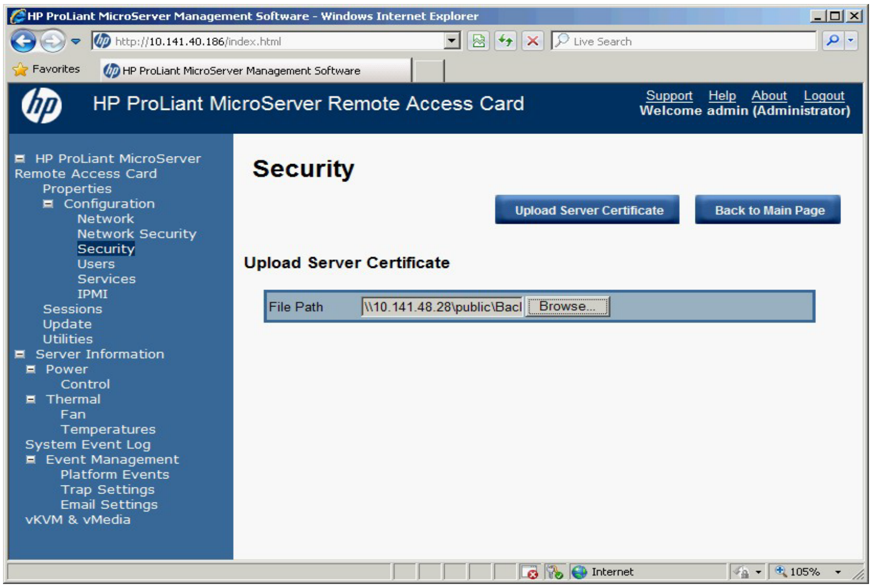
Completing the Certificate Export Wizard

You have successfully completed the Certificate Export wizard.

You have specified the following settings:

File Name	C:\Cert
Export Keys	No
Include all certificates in the certification path	No
File Format	Base64

15. Upload certificate to BMC



Security

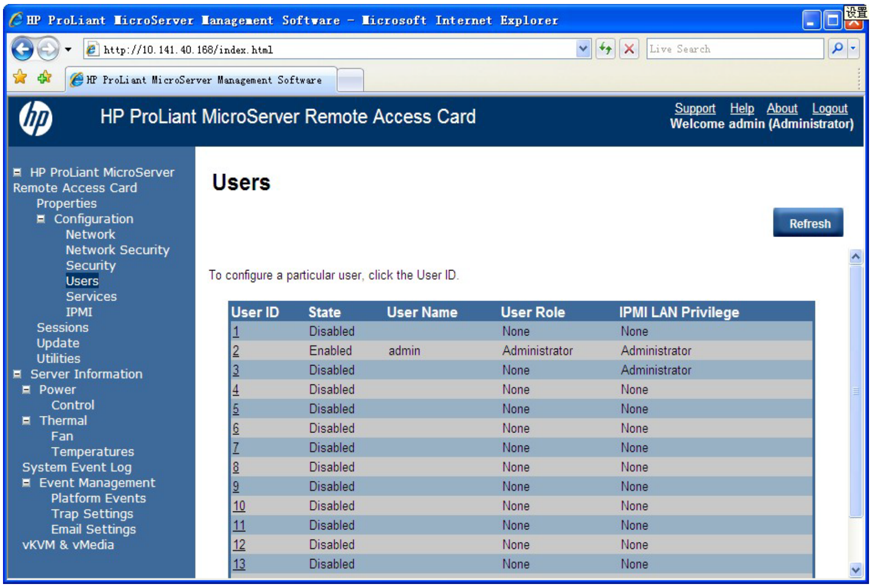
Upload Server Certificate

File Path \\10.141.48.28\public\Bacl

16. Click "Upload Server Certificate" button to upload certificate

Users

This page displays all user information and configuration. With Administrator privilege level, you can click any User ID number in the Users list to add a user or change the settings, then click Refresh button to refresh the User list


HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
http://10.141.40.168/index.html
Live Search
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
HP ProLiant MicroServer Remote Access Card
Properties
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Fan
Temperatures
System Event Log
Event Management
Platform Events
Trap Settings
Email Settings
vKVM & vMedia
Refresh

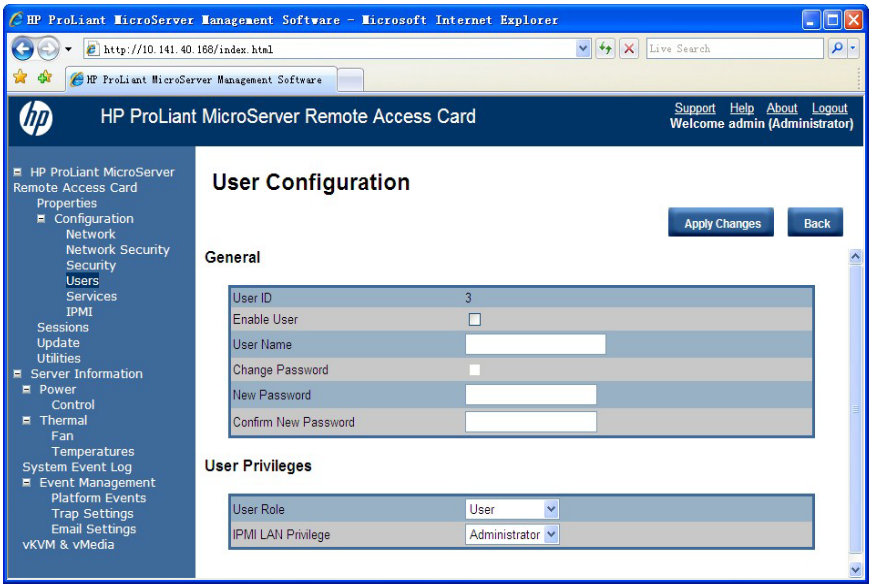
Users

To configure a particular user, click the User ID.

User ID	State	User Name	User Role	IPMI LAN Privilege
1	Disabled		None	None
2	Enabled	admin	Administrator	Administrator
3	Disabled		None	Administrator
4	Disabled		None	None
5	Disabled		None	None
6	Disabled		None	None
7	Disabled		None	None
8	Disabled		None	None
9	Disabled		None	None
10	Disabled		None	None
11	Disabled		None	None
12	Disabled		None	None
13	Disabled		None	None

To add a user:

1. On the main menu navigation bar, click configuration -> Users.
2. Click any user ID number in the user ID column,


HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
http://10.141.40.168/index.html
Live Search
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
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Power
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Thermal
Fan
Temperatures
System Event Log
Event Management
Platform Events
Trap Settings
Email Settings
vKVM & vMedia
Apply Changes
Back

User Configuration

General

User ID	3
Enable User	□
User Name	
Change Password	□
New Password	
Confirm New Password	

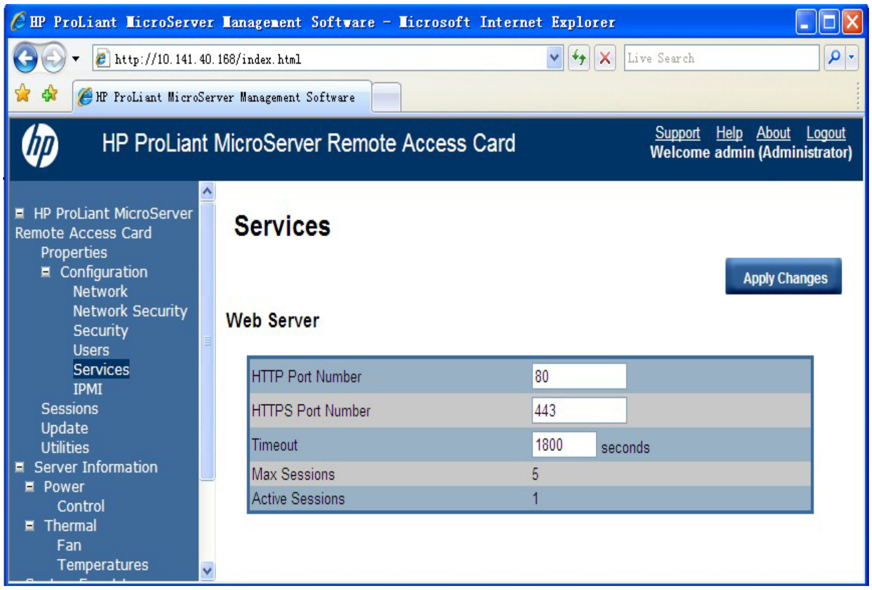
User Privileges

User Role	User
IPMI LAN Privilege	Administrator

3. Select enable user, and enter the user name in the user name field
4. Enter password in the new password and confirm new password fields
5. Select User Role and IPMI LAN Privilege from the list
6. Click Apply Changes to take effect

Services

This page allows you to view the services parameters. With Administrator or Operator privilege level, you can specify the Web GUI's attributes. Click the “Apply Changes” button to execute the changes and restart the Web GUI server.


HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
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HP ProLiant MicroServer Remote Access Card
Support Help About Logout
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Thermal
Fan
Temperatures
Apply Changes

Services

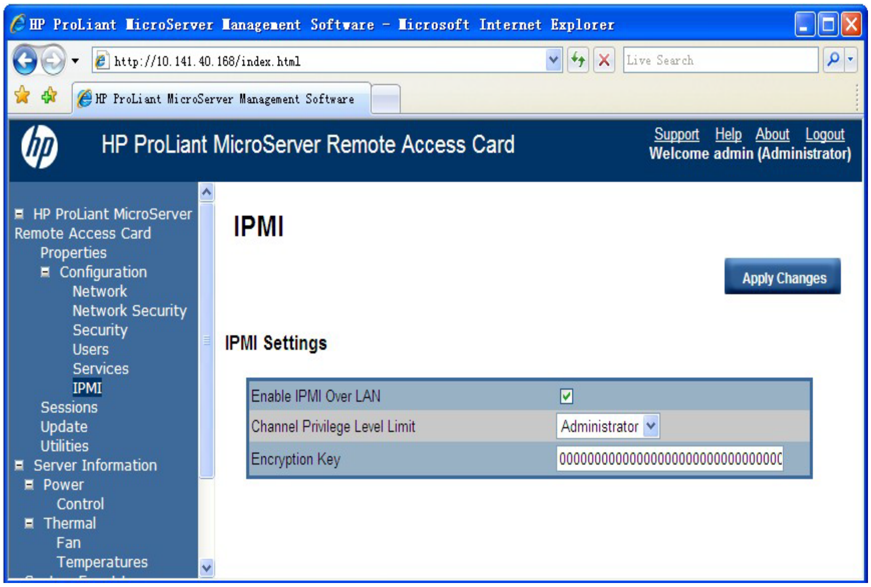
Web Server

HTTP Port Number	80
HTTPS Port Number	443
Timeout	1800 seconds
Max Sessions	5
Active Sessions	1

- HTTP Port (Decimal number only) used by the embedded software that listens for a server connection. The default value is 80.
- HTTPS Port (Decimal number only) used by the embedded software that listens for a secure server connection. The default value is 443.
- Timeout is the time that a connection is allowed to remain idle (60 to 10800 seconds). The session is canceled when the time-out is reached.
- Max Sessions is the maximum number of simultaneous sessions allowed for this system.
- Active Sessions is the number of current sessions on the system, less than or equal to the setting for Max Sessions.

IPMI

This page allows you to view the IPMI values. With Administrator or Operator privilege level, you can modify the IPMI Serial attributes and IPMI LAN Settings values and then click *Apply Changes* to execute validation against the Encryption key field and send all data to the server.


HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
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HP ProLiant MicroServer Remote Access Card
Support Help About Logout
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Temperatures
IPMI
Apply Changes

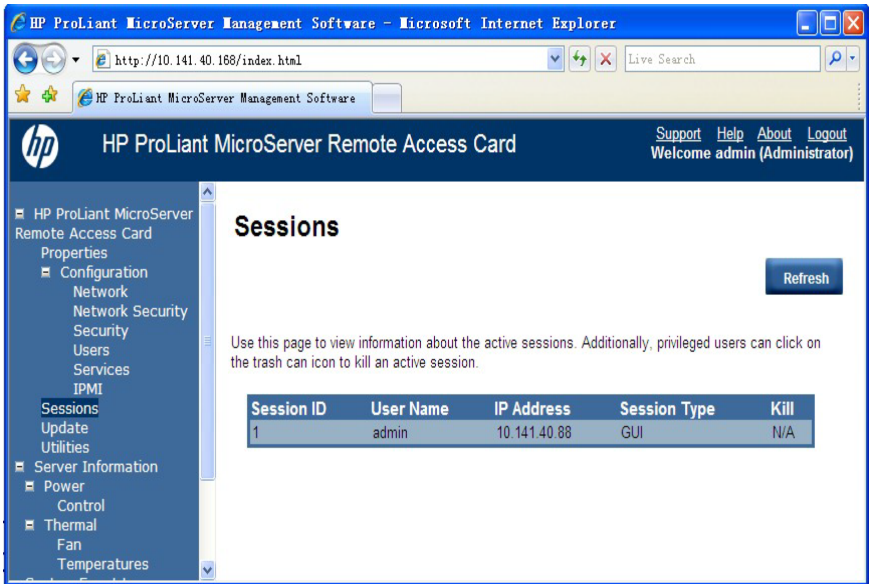
IPMI Settings

Enable IPMI Over LAN	☑
Channel Privilege Level Limit	Administrator
Encryption Key	00000000000000000000000000000000

- Enable “IPMI Over LAN” by checking the box. Disable “IPMI Over LAN” by un-checking the box.
- Channel Privilege Level Limit is the maximum privilege level that can be accepted on the LAN channel (Administrator, Operator or User).
- Encryption Key allows from 0 to 20 two-digit Hex characters and no spaces.

Sessions

Use this page to view information about the active sessions. Additionally, privileged users can click on the trash can icon to kill an active session.


HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
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HP ProLiant MicroServer Remote Access Card
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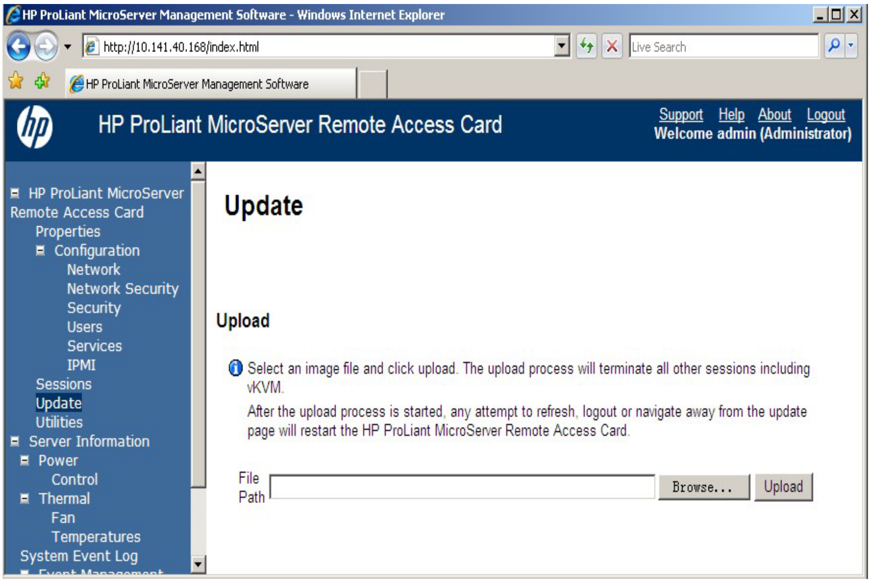
Temperatures
Refresh

Sessions

Use this page to view information about the active sessions. Additionally, privileged users can click on the trash can icon to kill an active session.

Session ID	User Name	IP Address	Session Type	Kill
1	admin	10.141.40.88	GUI	N/A

Update


HP ProLiant MicroServer Management Software - Windows Internet Explorer
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HP ProLiant MicroServer Remote Access Card
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Thermal
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Temperatures
System Event Log
Browse...
Upload

Update

Upload

Select an image file and click upload. The upload process will terminate all other sessions including vKVM.

After the upload process is started, any attempt to refresh, logout or navigate away from the update page will restart the HP ProLiant MicroServer Remote Access Card.

File Path

Preparation before online firmware flashing

1. Remote Access Card correctly installed in the connectors on the system board
2. Download the latest firmware version from website and save it on your local system.
3. The remote system needs to connect with network.

Start to update firmware of Remote Access Card

Following procedures are used to update firmware

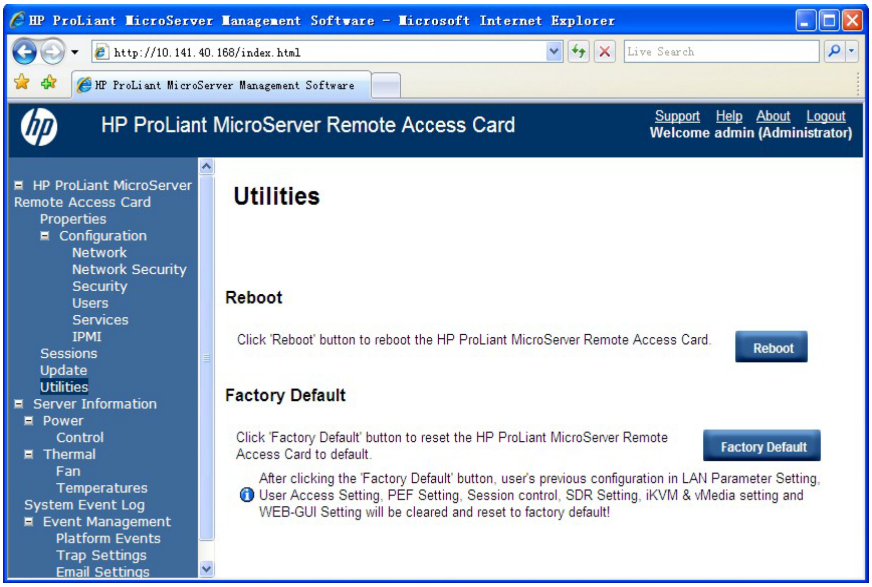
1. Accessing the firmware page from a web browser
2. On the main menu navigation bar, click Update
3. Click Browse to enter the path where the firmware image file resides.

4. Click the Upload button. If the file is valid, all other sessions will be terminated and the image upload will begin. If the upload fails, a message will notify you to upload another file. For a successful upload, the current firmware version and the version of the new file will be displayed, as well as the Preserve Configuration checkbox, Update button and Cancel button.
5. Click the Update button to begin the firmware update process and view the update status. When the update is completed, the embedded software will reboot automatically. If you click the Cancel button, the process will be terminated and the embedded software will reboot.

Utilities

Reboot: Click 'Reboot' button to reboot the System.

Factory Default: Click 'Factory Default' button to reset System to default.



Utilities

Reboot

Click 'Reboot' button to reboot the HP ProLiant MicroServer Remote Access Card.

Factory Default

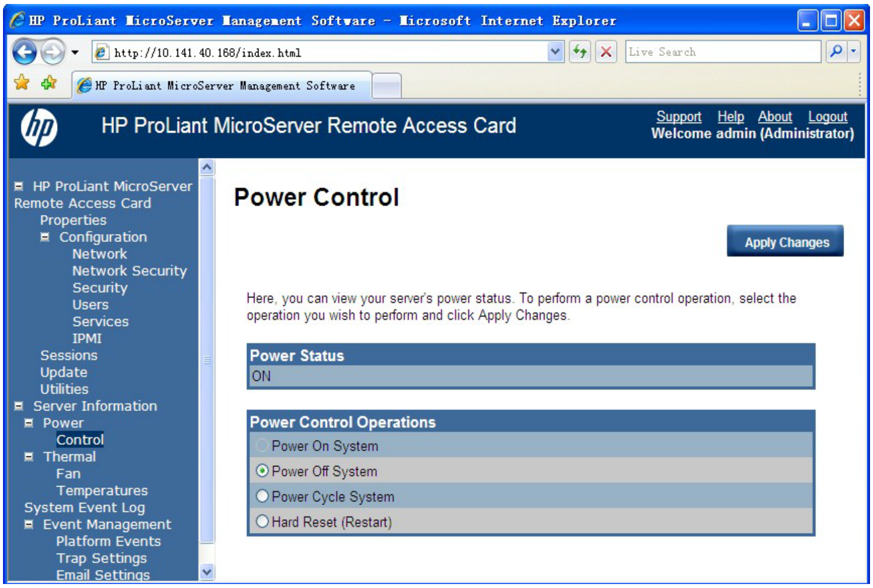
Click 'Factory Default' button to reset the HP ProLiant MicroServer Remote Access Card to default.

After clicking the 'Factory Default' button, user's previous configuration in LAN Parameter Setting, User Access Setting, PEF Setting, Session control, SDR Setting, iKVM & vMedia setting and WEB-GUI Setting will be cleared and reset to factory default!

Power/Control

On the main menu navigation bar, click power, the Power control screen displays current power status.

To modify power control, select the operation you wish and click Apply Changes.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Event Management
Platform Events
Trap Settings
Email Settings
Apply Changes

Power Control

Here, you can view your server's power status. To perform a power control operation, select the operation you wish to perform and click Apply Changes.

Power Status
ON

Power Control Operations

○ Power On System
● Power Off System
○ Power Cycle System
○ Hard Reset (Restart)

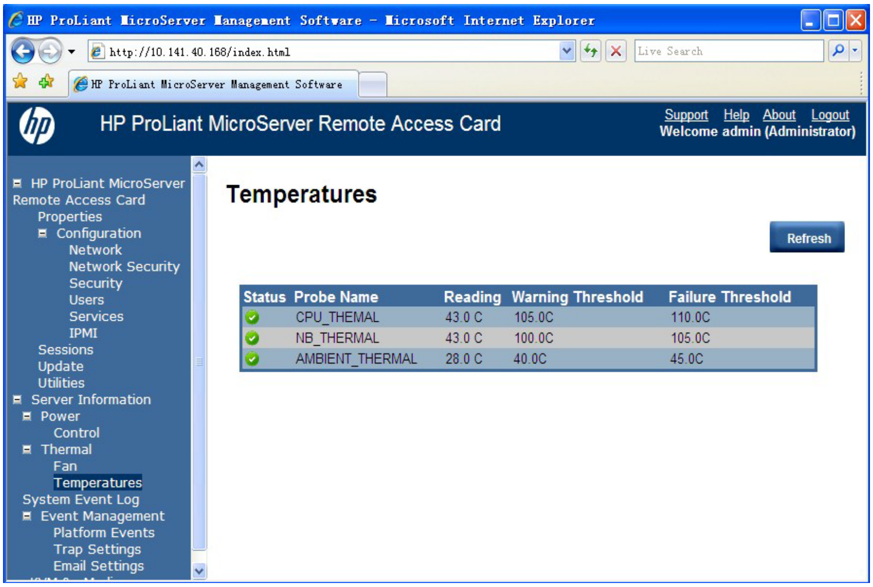
Thermal

The Server provide the monitoring of the current major sensors status, including system temperature and system fan. You can view the data for this feature on the Thermal Page through a web browser or through the BIOS Setup Utility.

Viewing sensor data from a web browser

To access this page from a web browser, on the main menu navigation bar, click Thermal.

The thermal screen displays a snapshot of the temperature, fans sensor data, including sensor reading, warning threshold, failure threshold.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Trap Settings
Email Settings
Refresh

Temperatures

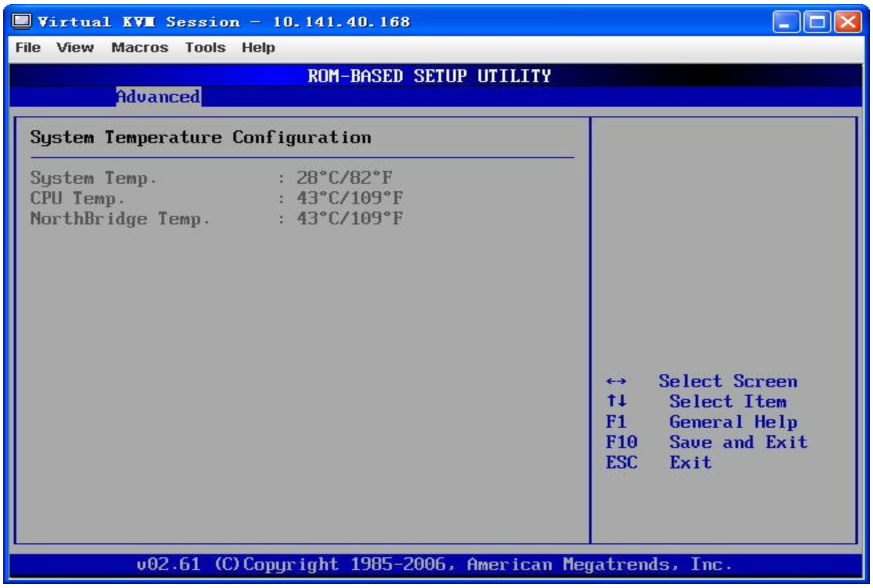
Status	Probe Name	Reading	Warning Threshold	Failure Threshold
✓	CPU_THEMAL	43.0 C	105.0C	110.0C
✓	NB_THERMAL	43.0 C	100.0C	105.0C
✓	AMBIENT_THERMAL	28.0 C	40.0C	45.0C

Viewing sensors data from Rom-Based setup utility

1. Press the F10 key during POST to enter the BIOS Setup Utility.
2. Press the right arrow (→) key to navigate to the"Advanced" menu.

3. Press the down arrow (↓) key to scroll to“IPMI Configuration”. Press the Enter key.

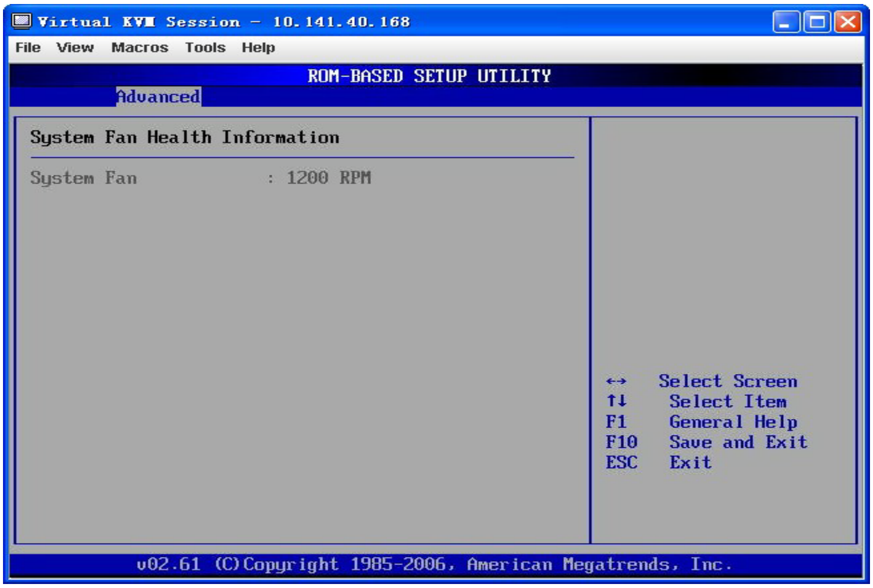
4. Press the down arrow (↓)key to scroll to “System Temperature Configuration”. Press the Enter key. The system temperature sensors will be displayed.



```
ROM-BASED SETUP UTILITY
Advanced

System Temperature Configuration

System Temp.              : 28°C/82°F
CPU Temp.                 : 43°C/109°F
NorthBridge Temp.         : 43°C/109°F
```

Virtual KVM Session - 10.141.40.168
File View Macros Tools Help
↔ Select Screen
↑↓ Select Item
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

5. Press ESC key to exit, and the down arrow (↓)key to scroll to “System Fan Health Information”.

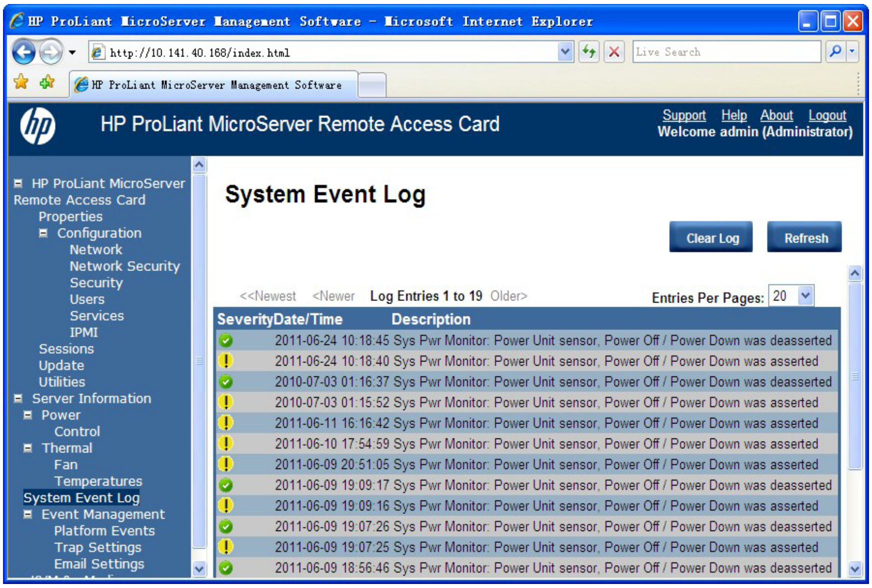


```
ROM-BASED SETUP UTILITY
Advanced

System Fan Health Information

System Fan               : 1200 RPM
```

Virtual KVM Session - 10.141.40.168
File View Macros Tools Help
↔ Select Screen
↑↓ Select Item
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

System Event Log

The BMC provides the interface to the System Event Log (SEL) for the system. And provide to capture and stores the IPMI event log for access through a browser, CLP, BIOS Setup Utility. The system event log displays a short description of each system event. Recorded events include abnormal temperature, fan events, system power loss etc.



System Event Log

Log Entries 1 to 19

Severity	Date/Time	Description
✓	2011-06-24 10:18:45	Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was deasserted
!	2011-06-24 10:18:40	Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was asserted
✓	2010-07-03 01:16:37	Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was deasserted
!	2010-07-03 01:15:52	Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was asserted
!	2011-06-11 16:16:42	Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was asserted
!	2011-06-10 17:54:59	Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was asserted
!	2011-06-09 20:51:05	Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was asserted
✓	2011-06-09 19:09:17	Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was deasserted
!	2011-06-09 19:09:16	Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was asserted
✓	2011-06-09 19:07:26	Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was deasserted
!	2011-06-09 19:07:25	Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was asserted
✓	2011-06-09 18:56:46	Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was deasserted

Accessing the system event log from a web browser

To access this page from a web browser, on the main menu navigation bar, click system event log.

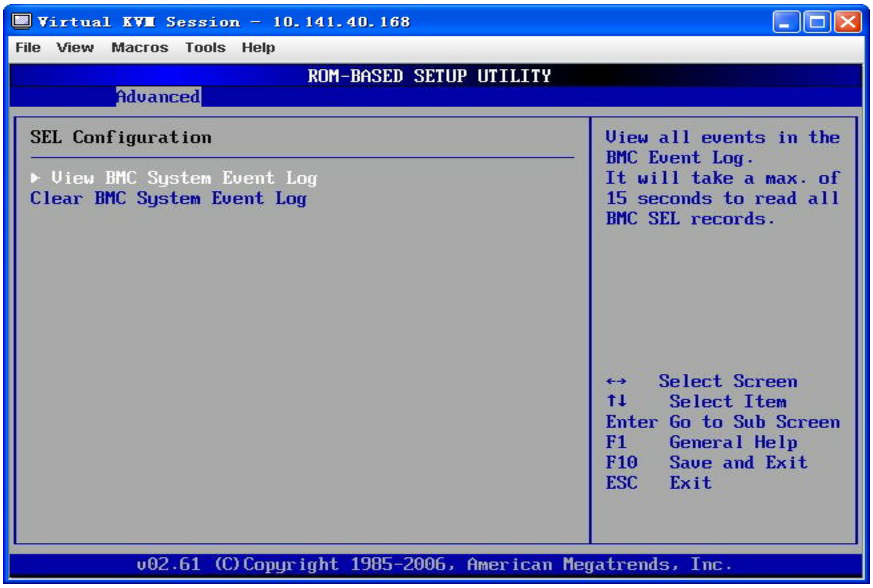
The system event log screen displays a snapshot of each system event, including the date/ time of the event occurred, severity of each event and brief description.

Accessing the SEL from BIOS SETUP UTILITY

1. Press the F10 key during POST to enter the BIOS Setup Utility.
2. Press the right arrow (→) key to navigate to the“advanced” menu.
3. Press the down arrow (↓) key to scroll to“IPMI Configuration”. Press the Enter key.
4. Press the down arrow (↓)key to scroll to “System Temperature Configuration”. Press the Enter key.
5. Press the arrow (↓)key to scroll to following available options:

    --View BMC System Event Log

    --Clear BMC System Event Log


Virtual KVM Session - 10.141.40.168
File View Macros Tools Help

ROM-BASED SETUP UTILITY

Advanced

SEL Configuration

▸ View BMC System Event Log
Clear BMC System Event Log

View all events in the BMC Event Log.
It will take a max. of 15 seconds to read all BMC SEL records.

```
↔     Select Screen
↑↓     Select Item
Enter Go to Sub Screen
F1     General Help
F10    Save and Exit
ESC    Exit
```

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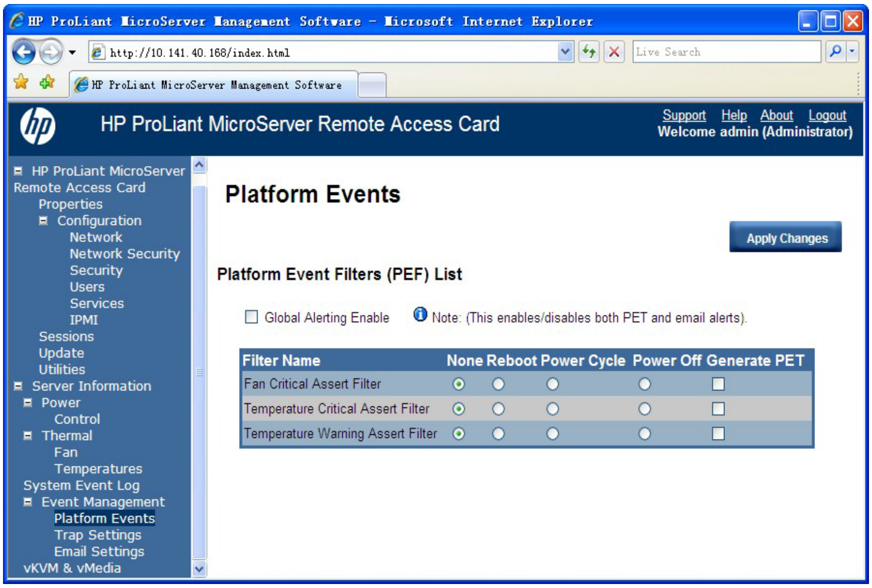
Event Management

Platform Events

Platform Event Filtering (PEF) provides a mechanism for configuring the BMC to taking selected actions on event messages that it receives. These actions include operations such as reboot, Power Cycle, Power off, as well as triggering the generation of an alert. The event messages can be selected are Fan Critical Assert, Temperature Critical assert and Temperature Warning Assert Filter.


HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
http://10.141.40.168/index.html
Live Search
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
HP ProLiant MicroServer Remote Access Card
Properties
Configuration
Network
Network Security
Security
Users
Services
IPMI
Sessions
Update
Utilities
Server Information
Power
Control
Thermal
Fan
Temperatures
System Event Log
Event Management
Platform Events
Trap Settings
Email Settings
vKVM & vMedia
Apply Changes

Platform Events

Platform Event Filters (PEF) List

□ Global Alerting Enable   Note: (This enables/disables both PET and email alerts).

Filter Name	None	Reboot	Power Cycle	Power Off	Generate PET
Fan Critical Assert Filter	●	○	○	○	□
Temperature Critical Assert Filter	●	○	○	○	□
Temperature Warning Assert Filter	●	○	○	○	□

To configure an action, select the desired action on desired event. For example:

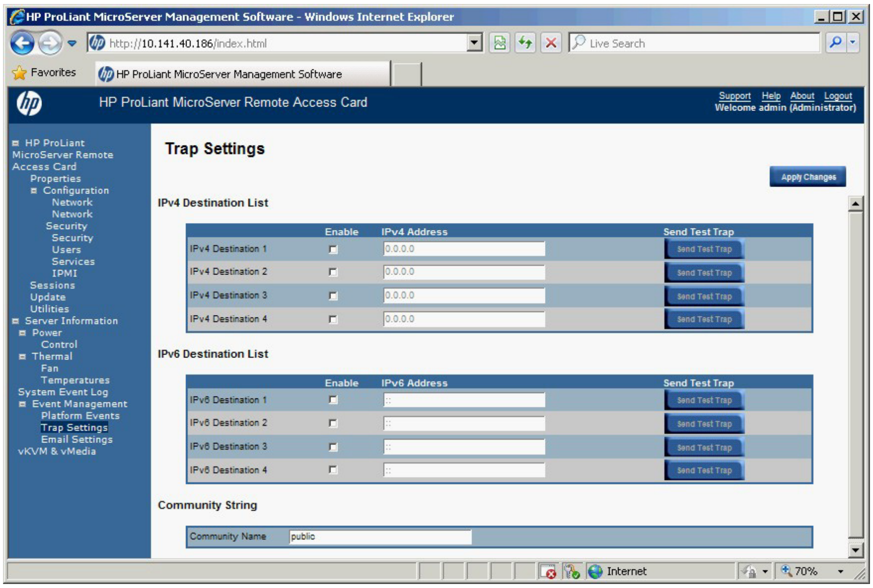
Select Power off on fan critical assert filter, and click changes.

Remove one fan from board, system will power off after waiting for 60 seconds

You can get a PEF email alerts by checking Global Alerting Enable.

Trap Settings

The trap setting configuration screen enables you to specify destination addresses, and enable/disable SNMP alerts, the event traps can issue an alert if an authentication failure occurs.


HP ProLiant MicroServer Management Software - Windows Internet Explorer
http://10.141.40.186/index.html
Live Search
Favorites
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
HP ProLiant MicroServer Remote Access Card
Properties
Configuration
Network
Network
Security
Security
Users
Services
IPMI
Sessions
Update
Utilities
Server Information
Power
Control
Thermal
Fan
Temperatures
System Event Log
Event Management
Platform Events
Trap Settings
Email Settings
vKVM & vMedia
Apply Changes
Internet
70%

Trap Settings

IPv4 Destination List

	Enable	IPv4 Address	Send Test Trap
IPv4 Destination 1	□	0.0.0.0	Send Test Trap
IPv4 Destination 2	□	0.0.0.0	Send Test Trap
IPv4 Destination 3	□	0.0.0.0	Send Test Trap
IPv4 Destination 4	□	0.0.0.0	Send Test Trap

IPv6 Destination List

	Enable	IPv6 Address	Send Test Trap
IPv6 Destination 1	□	::	Send Test Trap
IPv6 Destination 2	□	::	Send Test Trap
IPv6 Destination 3	□	::	Send Test Trap
IPv6 Destination 4	□	::	Send Test Trap

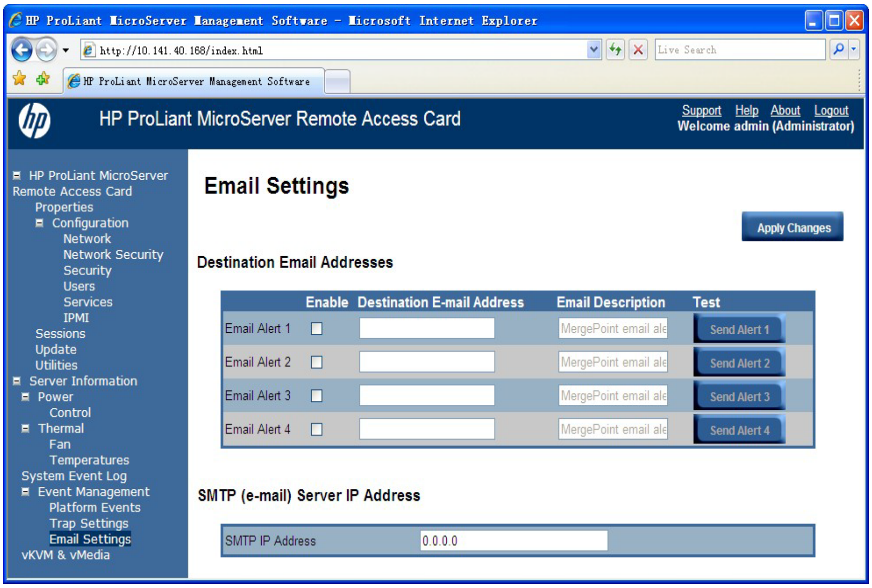
Community String

Community Name: public

- Enable-- Enables or disables IPv4/IPV6 destination addresses
- IPv4 Destination—Specifies where to send the PET trap from the destinations your defined Note IPV4 address only support numerical values between 0-255. This field is required only if its relative checkbox (IPv4 Destination 1, 2, 3 or 4) is checked.
- IPV6 Destination—following the instructions of IPv4.
- Community String –Displays the SNMP community name

Email Settings

This allows you to enable email alert and specify email address to receive alert message.


HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
http://10.141.40.186/index.html
Live Search
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
HP ProLiant MicroServer Remote Access Card
Properties
Configuration
Network
Network Security
Security
Users
Services
IPMI
Sessions
Update
Utilities
Server Information
Power
Control
Thermal
Fan
Temperatures
System Event Log
Event Management
Platform Events
Trap Settings
Email Settings
vKVM & vMedia
Apply Changes

Email Settings

Destination Email Addresses

	Enable	Destination E-mail Address	Email Description	Test
Email Alert 1	□		MergePoint email ale	Send Alert 1
Email Alert 2	□		MergePoint email ale	Send Alert 2
Email Alert 3	□		MergePoint email ale	Send Alert 3
Email Alert 4	□		MergePoint email ale	Send Alert 4

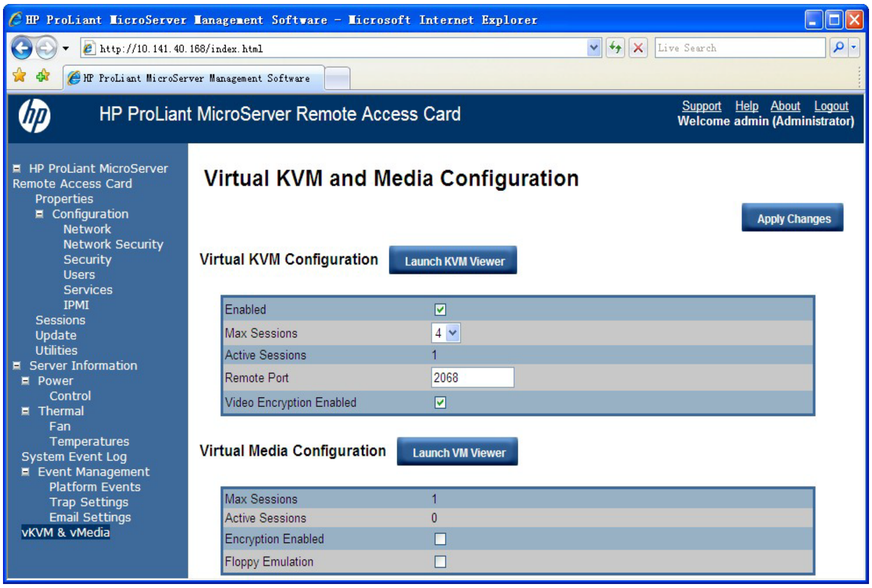
SMTP (e-mail) Server IP Address

SMTP IP Address: 0.0.0.0

- Email Alert Number-- Support to set up four email destinations to receive alerts

- Enable—Activate email address settings.
- Destination Email Address-- Specifies where receive the alert messages
- Email Description-- Configures the email alert description.
- Send alert-- Initiates the request to send a test email to the email address
- SMTP (e-mail) Server IP Address—Configures the SMTP email server IP address. Only numerical values between 0-255 are allowed.

vKVM & vMedia



Virtual KVM and Media Configuration

Virtual KVM Configuration

Enabled	☑
Max Sessions	4
Active Sessions	1
Remote Port	2068
Video Encryption Enabled	☑

Virtual Media Configuration

Max Sessions	1
Active Sessions	0
Encryption Enabled	☐
Floppy Emulation	☐

By BIOS default setting, when the Remote Access Card is plugged in, the server will export VGA signals from the VGA connector on this access card automatically. Meaning, when having the Remote Access Card installed, the embedded VGA on the mother board will not function.

Using Virtual KVM Configuration

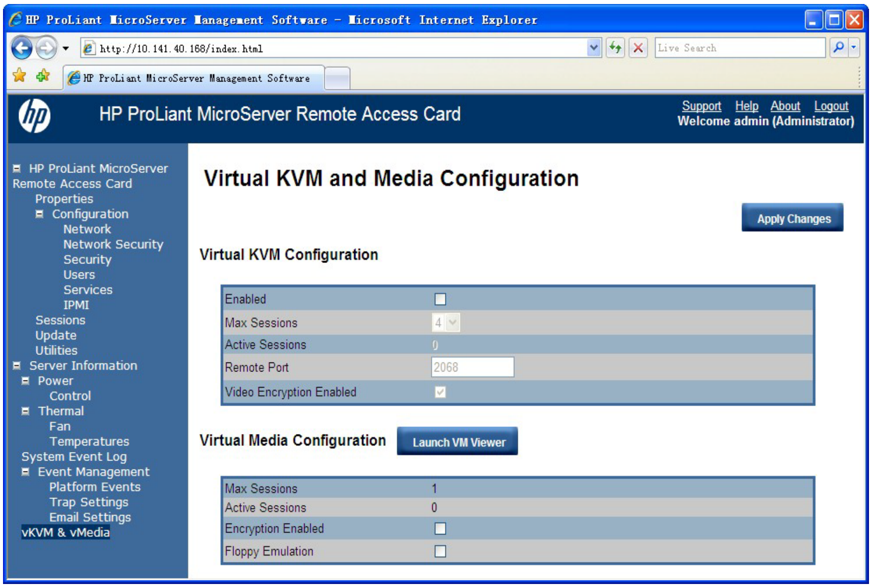
The Virtual KVM (or vKVM) feature is a remote graphic console that turns a supported browser into a virtual desktop and provides control over the display, keyboard/keyboard shortcuts, video settings, and mouse of the host server. The virtual KVM sessions that display remote host server activities, including shutdown and startup operations.

The remote virtual KVM session requires Java version 1.5.7 or later on the client system. To download the recommended Java for your system configuration, refer to this HP website.

Start a Virtual KVM Session.

To start a virtual KVM session, using a web browser:

1. Download the recommended JVM from HP website and install on the client system. Please refer to “JVM Support”.
2. The default setting of vKVM is disabled.


HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
http://10.141.40.168/index.html
Live Search
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
HP ProLiant MicroServer Remote Access Card
Properties
Configuration
Network
Network Security
Security
Users
Services
IPMI
Sessions
Update
Utilities
Server Information
Power
Control
Thermal
Fan
Temperatures
System Event Log
Event Management
Platform Events
Trap Settings
Email Settings
vKVM & vMedia
Apply Changes
Launch VM Viewer

Virtual KVM and Media Configuration

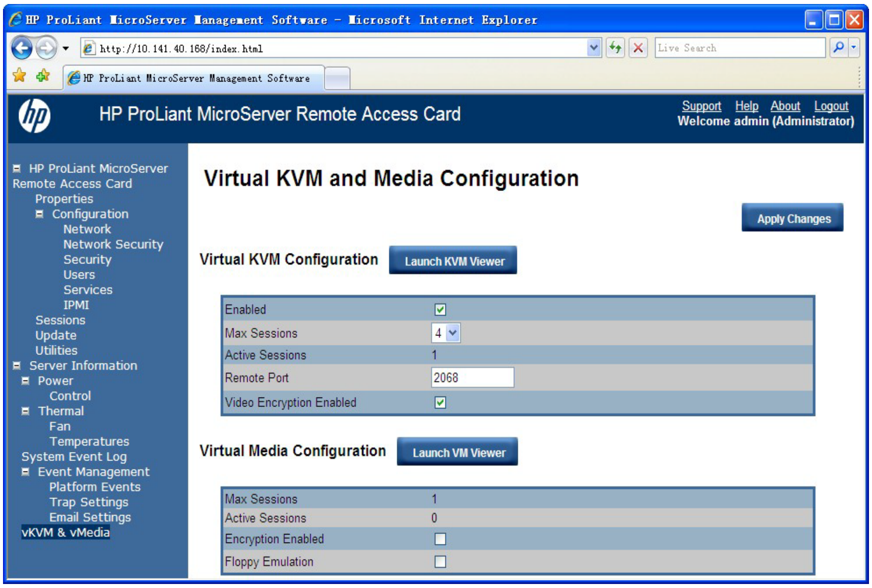
Virtual KVM Configuration

Enabled	☐
Max Sessions	4
Active Sessions	0
Remote Port	2068
Video Encryption Enabled	☑

Virtual Media Configuration

Max Sessions	1
Active Sessions	0
Encryption Enabled	☐
Floppy Emulation	☐

3. Check the “Enabled” item, and click the “Apply Changes” button.



Virtual KVM and Media Configuration

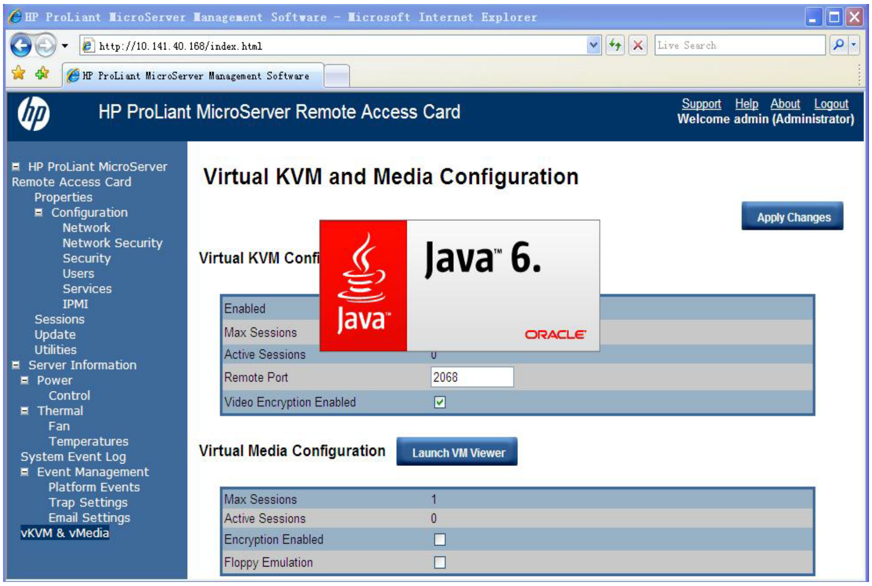
Virtual KVM Configuration

Enabled	☑
Max Sessions	4
Active Sessions	1
Remote Port	2068
Video Encryption Enabled	☑

Virtual Media Configuration

Max Sessions	1
Active Sessions	0
Encryption Enabled	☐
Floppy Emulation	☐

4. Click “Launch KVM Viewer” to start a KVM session.



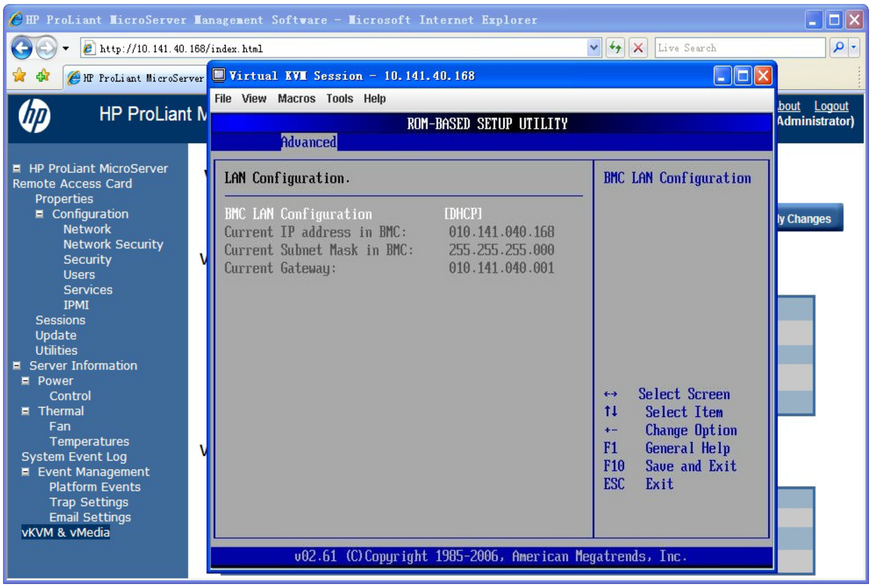
Virtual KVM and Media Configuration

Virtual KVM Confi

Enabled	
Max Sessions	
Active Sessions	0
Remote Port	2068
Video Encryption Enabled	☑

Virtual Media Configuration

Max Sessions	1
Active Sessions	0
Encryption Enabled	☐
Floppy Emulation	☐



```
                    ROM-BASED SETUP UTILITY
      Advanced
LAN Configuration.                         BMC LAN Configuration

BMC LAN Configuration       [DHCP]
Current IP address in BMC:   010.141.040.168
Current Subnet Mask in BMC:  255.255.255.000
Current Gateway:             010.141.040.001

                                           ↔   Select Screen
                                           ↑↓   Select Item
                                           +-   Change Option
                                           F1   General Help
                                           F10  Save and Exit
                                           ESC  Exit

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```

There are five different menu bars in virtual KVM session window: File, View, Macros, Tools and Help.

- File--- Including two submenus Capture/Exit.
- The capture to file is used to capture an image and allows saving the file to a specified location on client. The exit submenu is used to close virtual session window.
- View---Refresh/Full Screen/Windowed Mode
- Select Refresh to update the view of the Video Viewer. This will result in the Viewer requesting a reference video frame from the server. Select Full Screen to make the Video Viewer enter into Full Screen Mode. Select Windowed to exit out of Full Screen mode. Select fit to resize the Video Viewer window to the minimum size that is needed to display the server's video (This menu item is not available in Full Screen mode).
- Macros---- keyboard shortcuts
- These drop-down list keyboard shortcuts can be used as virtual keys and are similar to the keys the physical Keyboard of your local machine. You can select one of the drop-down list keyboard shortcuts (either the macro or the hotkey specified for the macro), to execute the macro on the

remote system. For example, when you press the Ctrl+Alt+Del keys on the physical keyboard in local system, the Task Manager of your local machine appears in addition to the task manager on the server.

- Tools--Session Options/Session user list/Stats
- The Session Options window allows you to control client configuration settings with additional general, mouse, video quality viewer control adjustments and stats.
- General-- You can control the keyboard pass-through mode and select pass all keystrokes to pass your management station's keystrokes to the remote system. Some keystrokes are intercepted by the management station OS and will not be passed on.
- Mouse Acceleration --To optimize mouse performance, click the Mouse tab and depending on the operating system, select the Mouse Acceleration option. Then click Apply and OK to close the Session Options window.
- Video Quality--The compression modes allow for a low quality (420) or high quality (444) compression configuration. The Luminance and Chrominance settings allow for picture color configuration.
- Stats--This menu option launches a dialog which displays viewer performance statistics: Frame Rate, Bandwidth, Compression and Packet Rate.
- Help--Contents and Index/About
- Contents and Index— Inform to get online help by clicking the help link on the vKVM&vMedia page
- About-- Displays an About box, which specifies KVM version

Using Virtual Media Configuration

Virtual Media (or vMedia) provides a virtual media drive, which allows a floppy image, floppy drive or CD/DVD drive on your client, to be available on the managed system's console as if the floppy image or drive were present on the local system. At most four virtual media devices may be attached at one time.

Virtual Media shall support the following client devices:

□Floppy disks

□CD-ROMs

□DVD-ROMs

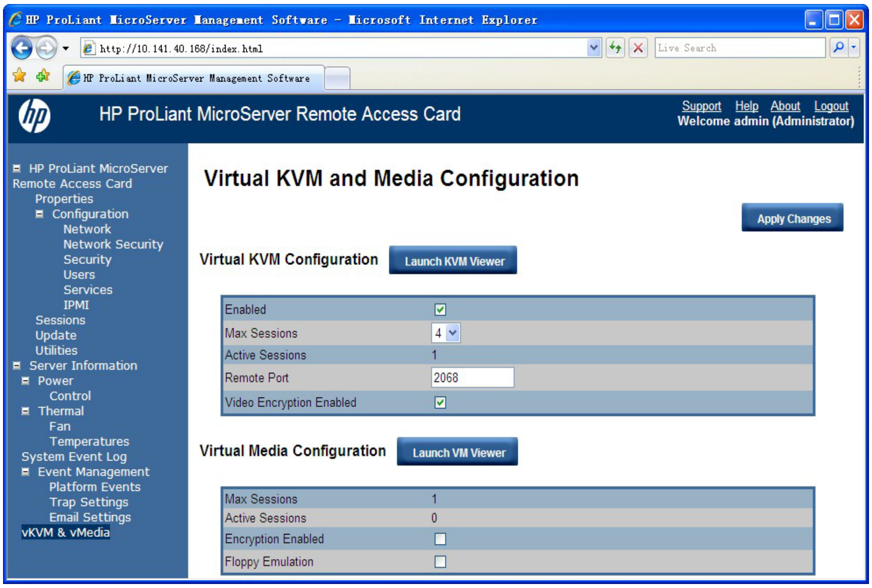
□USB mass storage devices

□ISO images

Start a Virtual Media session

To start a virtual Media session, using a web browser:

1. Download the recommended JVM from HP website and install on the client system. Please refer to "JVM Support".
2. Click "Launch VM viewer button."



Virtual KVM and Media Configuration

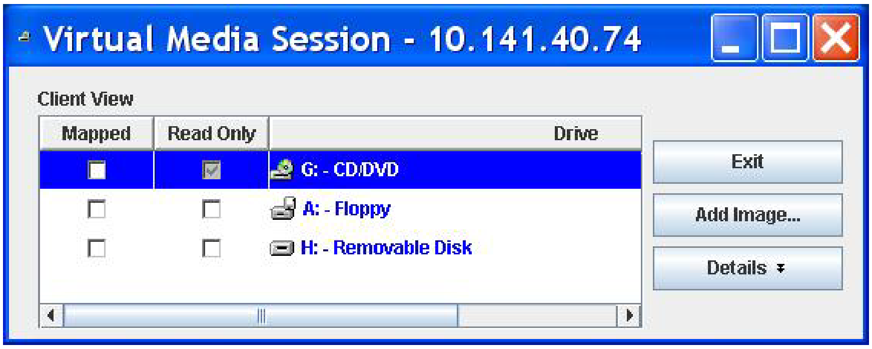
Virtual KVM Configuration

Enabled	☑
Max Sessions	4
Active Sessions	1
Remote Port	2068
Video Encryption Enabled	☑

Virtual Media Configuration

Max Sessions	1
Active Sessions	0
Encryption Enabled	☐
Floppy Emulation	☐

3. The virtual media sessions will start according the device on your client (USB key, floppy etc.).



Mapped	Read Only	Drive
☐	☑	G: - CD/DVD
☐	☐	A: - Floppy
☐	☐	H: - Removable Disk

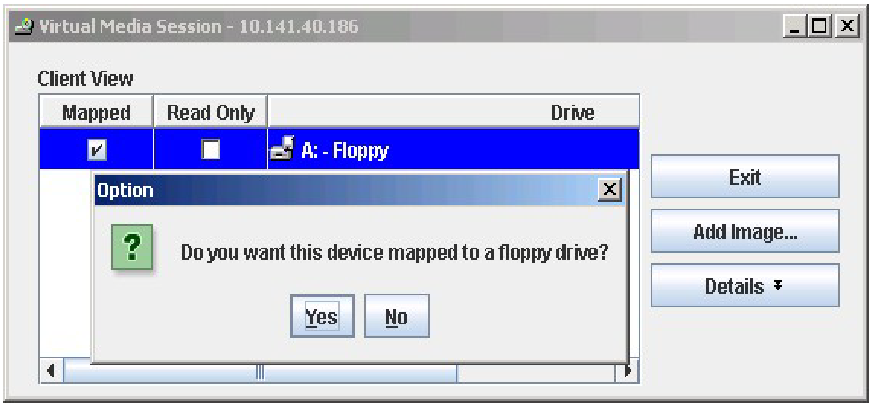
Sharing a virtual media device (Floppy)

1 Prepare the media you want to add, take floppy device as example. Insert floppy disk in your local system.

2 Start a virtual Media session, the Virtual Media will display the list of devices available for mapping in Virtual Media session

3 Select the mapped checkbox for the device (A: Floppy), the option window will be opened. Then click yes button on the prompted window.

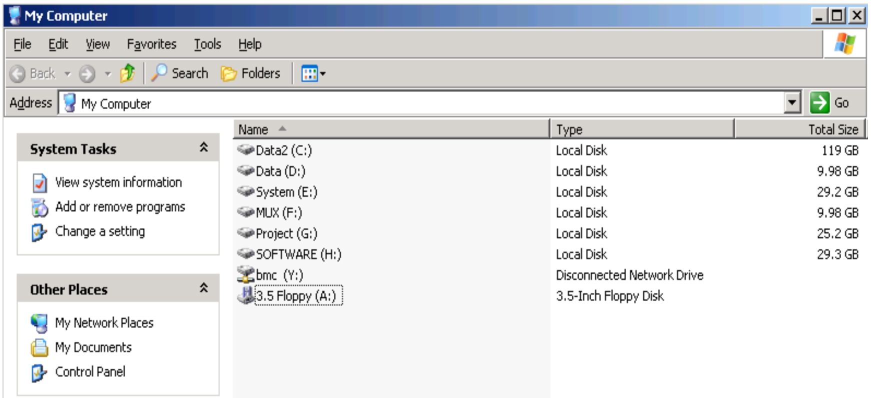
Note: If you only want to read the mapped device, please select read only checkbox before it is mapped.



Mapped	Read Only	Drive
☑	□	A: - Floppy

Do you want this device mapped to a floppy drive?

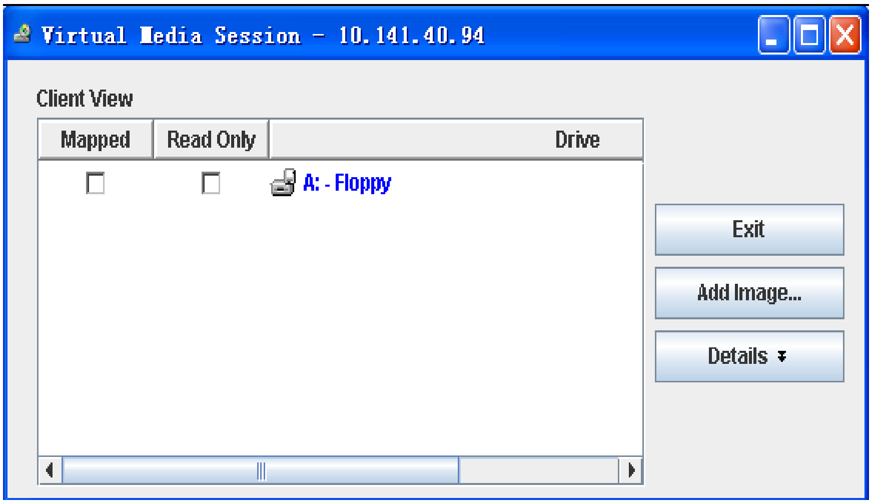
4 The virtualized drive appears in remote system as a real drive with a new drive letter.



Name	Type	Total Size
Data2 (C:)	Local Disk	119 GB
Data (D:)	Local Disk	9.98 GB
System (E:)	Local Disk	29.2 GB
MUX (F:)	Local Disk	9.98 GB
Project (G:)	Local Disk	25.2 GB
SOFTWARE (H:)	Local Disk	29.3 GB
bmc (Y:)	Disconnected Network Drive	
3.5 Floppy (A:)	3.5-Inch Floppy Disk	

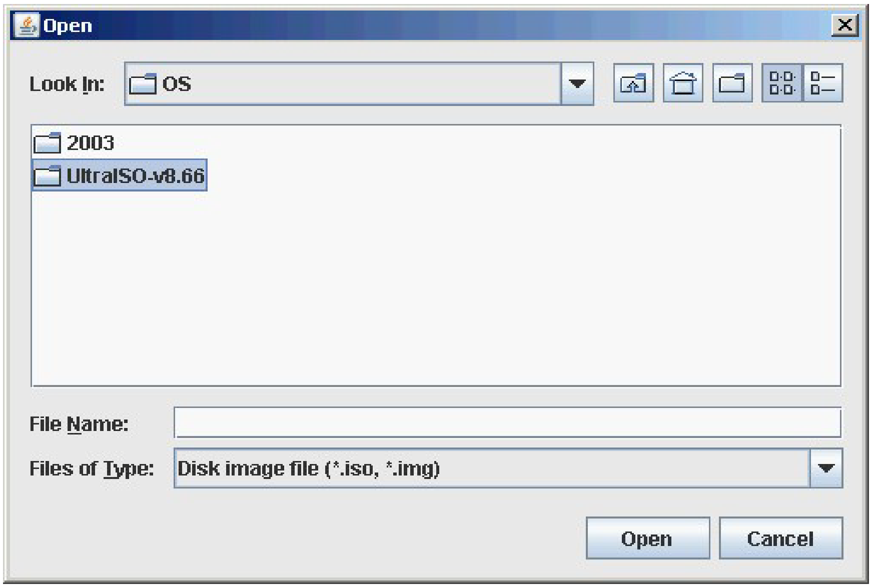
Adding the ISO image

1. Start a virtual Media session and click the Add Image button



Mapped	Read Only	Drive
□	□	A: - Floppy

2. On the open dialog window, select the ISO image file in your local system and click open button.



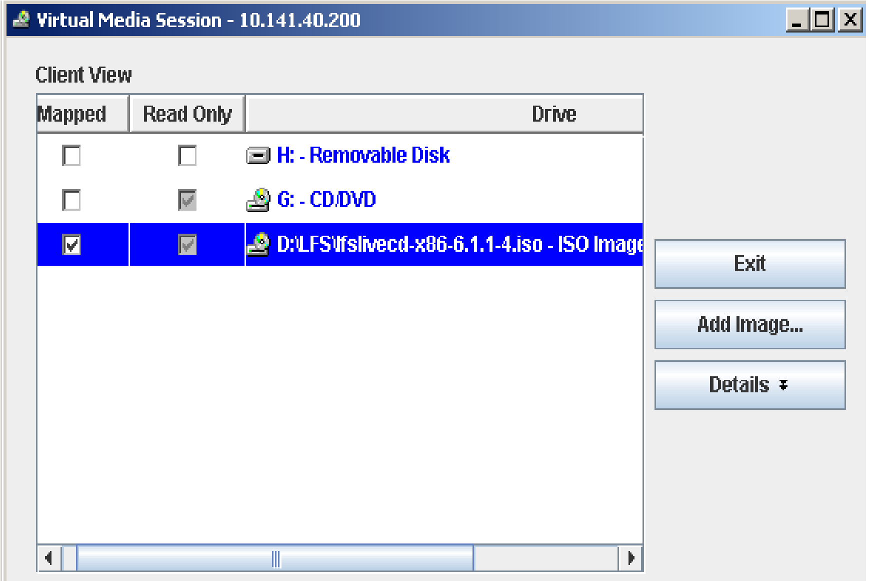
Look In: OS

2003
UltraISO-v8.66

File Name:

Files of Type: Disk image file (*.iso, *.img)

3. Select the mapped checkbox for the ISO Image
   Note: If you want to read only the ISO image, please select read only checkbox before it is mapped.



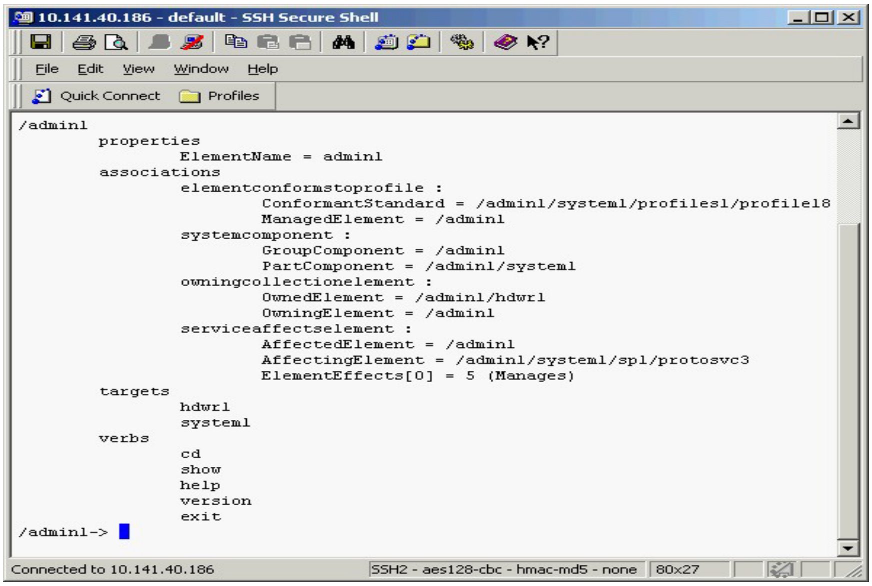
Mapped	Read Only	Drive
☐	☐	H: - Removable Disk
☐	☑	G: - CD/DVD
☑	☑	D:\LFS\lfslivecd-x86-6.1.1-4.iso - ISO Image

The ISO Image file is available in remote system

Using BMC SMCLP

The SMASH CLP is designed for users who prefer a non-graphical interface. The SMASH CLP chapter describes the syntax and the ways to remote control server.

If you want to access BMC SMCLP, you need to have a SSH client (putty or others). When BMC is working normally and having valid IP address, you can access BMC SMCLP via the SSH client. Please refer to ""Logging in to BMC SMCLP for the first time"", to get details about accessing SMCLP.



10.141.40.186 - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles

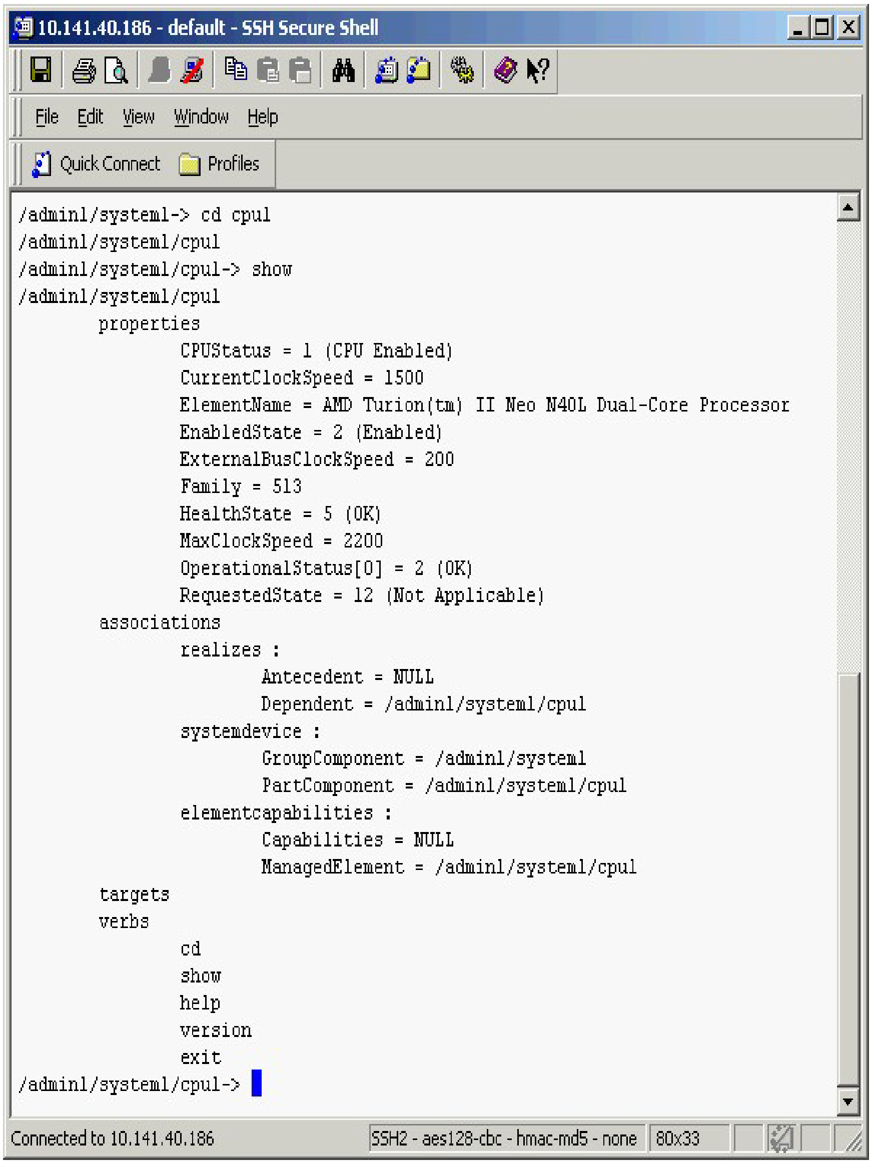
```
/admin1
        properties
                ElementName = admin1
        associations
                elementconformstoprofile :
                        ConformantStandard = /admin1/system1/profiles1/profile18
                        ManagedElement = /admin1
                systemcomponent :
                        GroupComponent = /admin1
                        PartComponent = /admin1/system1
                owningcollectionelement :
                        OwnedElement = /admin1/hdwr1
                        OwningElement = /admin1
                serviceaffectselement :
                        AffectedElement = /admin1
                        AffectingElement = /admin1/system1/sp1/protosvc3
                        ElementEffects[0] = 5 (Manages)
        targets
                hdwr1
                system1
        verbs
                cd
                show
                help
                version
                exit
/admin1->
```

Connected to 10.141.40.186
SSH2 - aes128-cbc - hmac-md5 - none
80x27

The "verbs" shows the all the supported verbs under current directory. And "targets" show all the directories under current directory. Use "cd target" command, you can enter the existent directory. Use "cd .." you can return parent directory

Get CPU/Memory Info

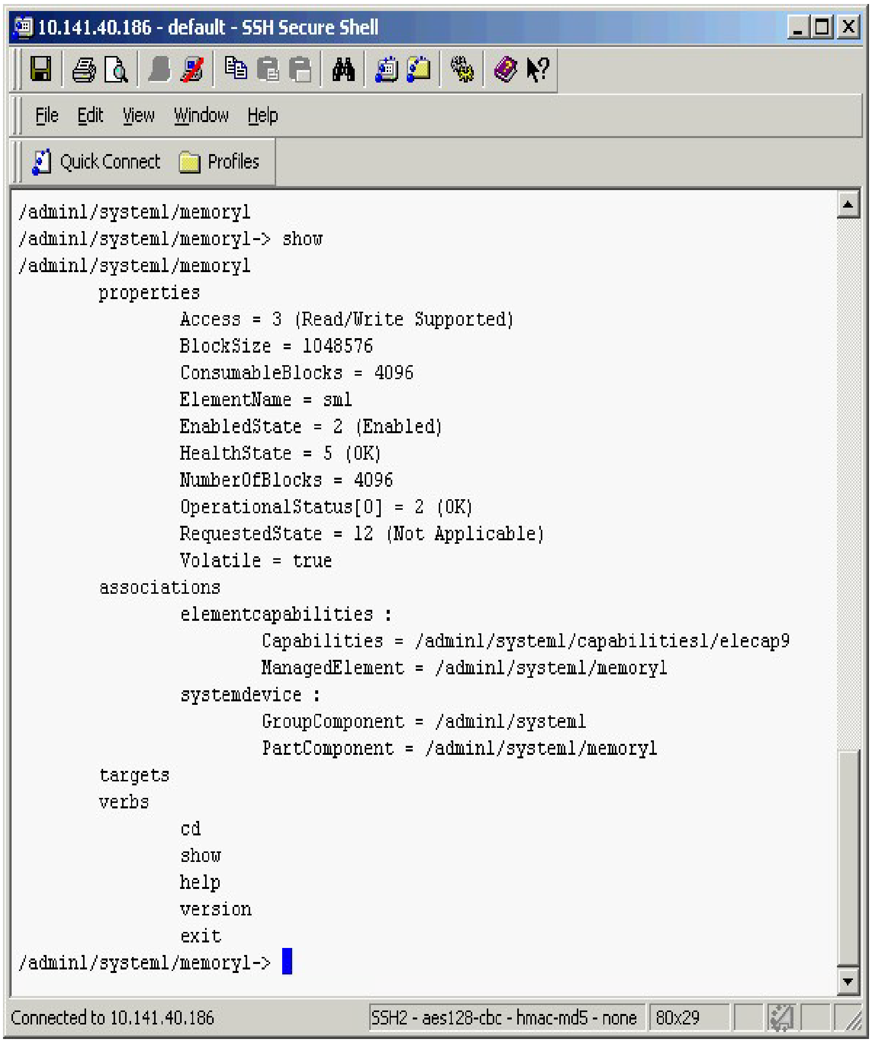
Enter /admin1/system1/cpu1, and you can get CPU info with "show "verb.


10.141.40.186 - default - SSH Secure Shell
File Edit View Window Help
Quick Connect
Profiles

```
/admin1/system1-> cd cpu1
/admin1/system1/cpu1
/admin1/system1/cpu1-> show
/admin1/system1/cpu1
        properties
                CPUStatus = 1 (CPU Enabled)
                CurrentClockSpeed = 1500
                ElementName = AMD Turion(tm) II Neo N40L Dual-Core Processor
                EnabledState = 2 (Enabled)
                ExternalBusClockSpeed = 200
                Family = 513
                HealthState = 5 (OK)
                MaxClockSpeed = 2200
                OperationalStatus[0] = 2 (OK)
                RequestedState = 12 (Not Applicable)
        associations
                realizes :
                        Antecedent = NULL
                        Dependent = /admin1/system1/cpu1
                systemdevice :
                        GroupComponent = /admin1/system1
                        PartComponent = /admin1/system1/cpu1
                elementcapabilities :
                        Capabilities = NULL
                        ManagedElement = /admin1/system1/cpu1
        targets
        verbs
                cd
                show
                help
                version
                exit
/admin1/system1/cpu1->
```

Connected to 10.141.40.186
SSH2 - aes128-cbc - hmac-md5 - none
80x33

Enter /admin1/system1/memory1, and you can get memory info with “show “verb.



10.141.40.186 - default - SSH Secure Shell
File Edit View Window Help
Quick Connect
Profiles

```
/admin1/system1/memory1
/admin1/system1/memory1-> show
/admin1/system1/memory1
        properties
                Access = 3 (Read/Write Supported)
                BlockSize = 1048576
                ConsumableBlocks = 4096
                ElementName = sm1
                EnabledState = 2 (Enabled)
                HealthState = 5 (OK)
                NumberOfBlocks = 4096
                OperationalStatus[0] = 2 (OK)
                RequestedState = 12 (Not Applicable)
                Volatile = true
        associations
                elementcapabilities :
                        Capabilities = /admin1/system1/capabilities1/elecap9
                        ManagedElement = /admin1/system1/memory1
                systemdevice :
                        GroupComponent = /admin1/system1
                        PartComponent = /admin1/system1/memory1
        targets
        verbs
                cd
                show
                help
                version
                exit
/admin1/system1/memory1->
```

Connected to 10.141.40.186 | SSH2 - aes128-cbc - hmac-md5 - none | 80x29

Get Thermal Reading/Get Fan Speed Reading

There are three thermal sensors and one fan sensors. The relations between the sensors and SMCLP target as below:

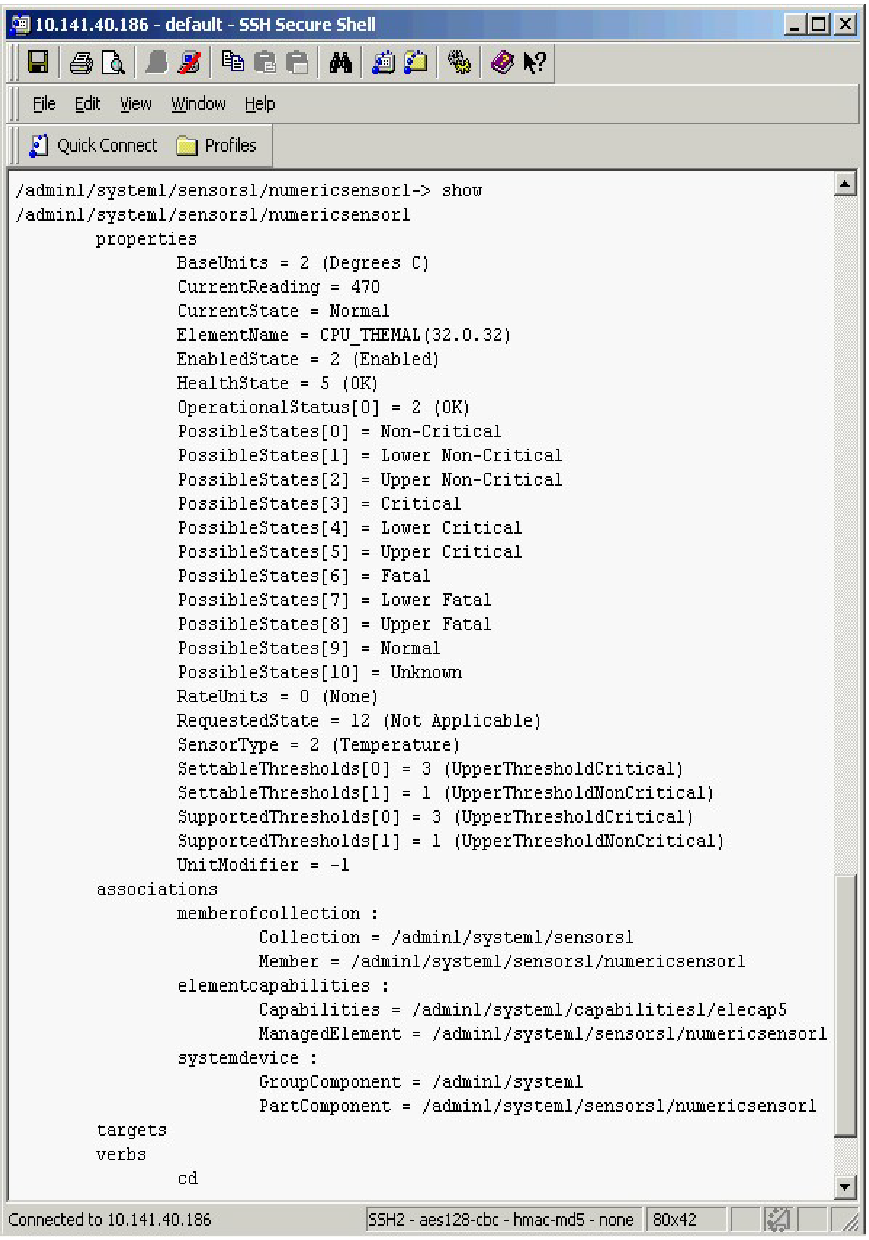
“numericsensor1” is the target of “CPU_THERMAL” sensor.

“numericsensor2” is the target of “NB_THERMAL” sensor.

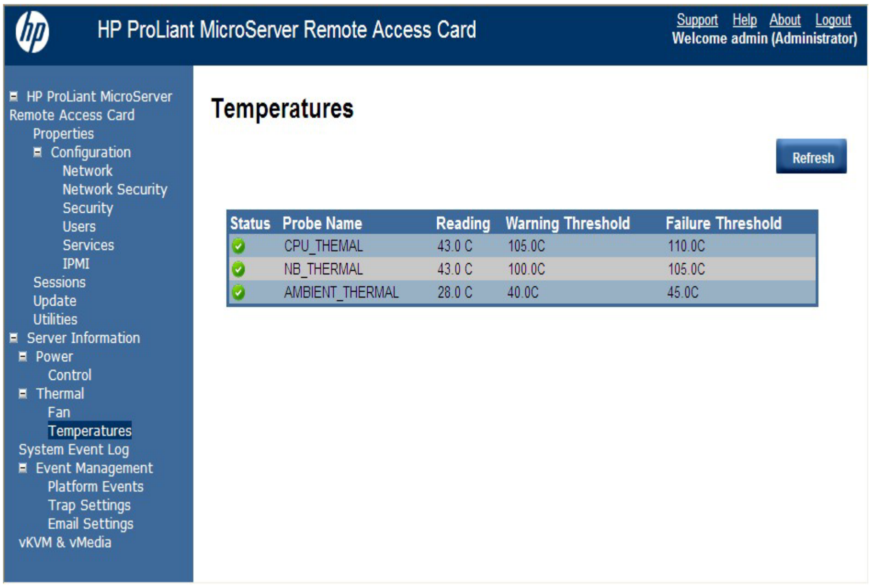
“numericsensor3” is the target of “AMBIENT_THERMAL” sensor.

“numericsensor4” is the target of “SYS_FAN” sensor.

Please notice the “unit” of reading. Below pictures show the read method and the related between SMCLP and the Web UI.

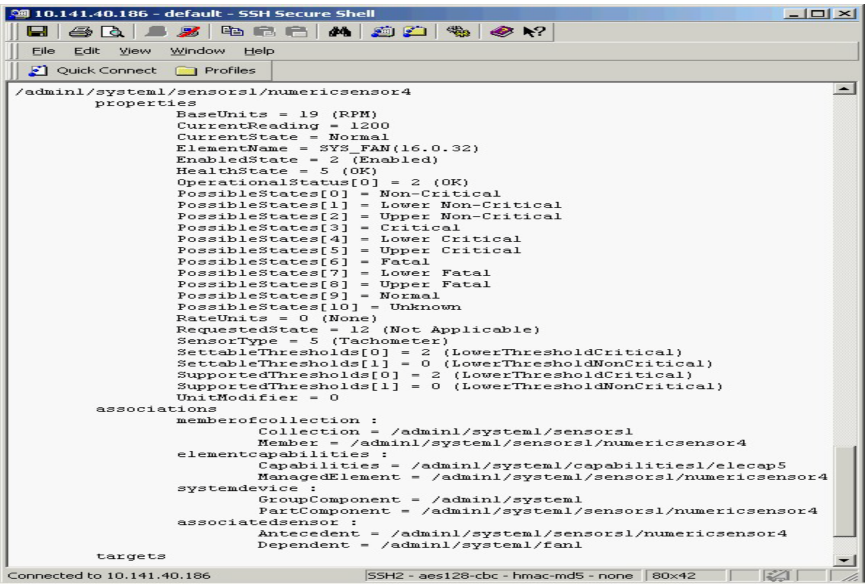

10.141.40.186 - default - SSH Secure Shell
File Edit View Window Help
Quick Connect
Profiles
Connected to 10.141.40.186
SSH2 - aes128-cbc - hmac-md5 - none
80x42

```
/admin1/system1/sensors1/numericsensor1-> show
/admin1/system1/sensors1/numericsensor1
        properties
                BaseUnits = 2 (Degrees C)
                CurrentReading = 470
                CurrentState = Normal
                ElementName = CPU_THEMAL(32.0.32)
                EnabledState = 2 (Enabled)
                HealthState = 5 (OK)
                OperationalStatus[0] = 2 (OK)
                PossibleStates[0] = Non-Critical
                PossibleStates[1] = Lower Non-Critical
                PossibleStates[2] = Upper Non-Critical
                PossibleStates[3] = Critical
                PossibleStates[4] = Lower Critical
                PossibleStates[5] = Upper Critical
                PossibleStates[6] = Fatal
                PossibleStates[7] = Lower Fatal
                PossibleStates[8] = Upper Fatal
                PossibleStates[9] = Normal
                PossibleStates[10] = Unknown
                RateUnits = 0 (None)
                RequestedState = 12 (Not Applicable)
                SensorType = 2 (Temperature)
                SettableThresholds[0] = 3 (UpperThresholdCritical)
                SettableThresholds[1] = 1 (UpperThresholdNonCritical)
                SupportedThresholds[0] = 3 (UpperThresholdCritical)
                SupportedThresholds[1] = 1 (UpperThresholdNonCritical)
                UnitModifier = -1
        associations
                memberofcollection :
                        Collection = /admin1/system1/sensors1
                        Member = /admin1/system1/sensors1/numericsensor1
                elementcapabilities :
                        Capabilities = /admin1/system1/capabilities1/elecap5
                        ManagedElement = /admin1/system1/sensors1/numericsensor1
                systemdevice :
                        GroupComponent = /admin1/system1
                        PartComponent = /admin1/system1/sensors1/numericsensor1
        targets
        verbs
                cd
```



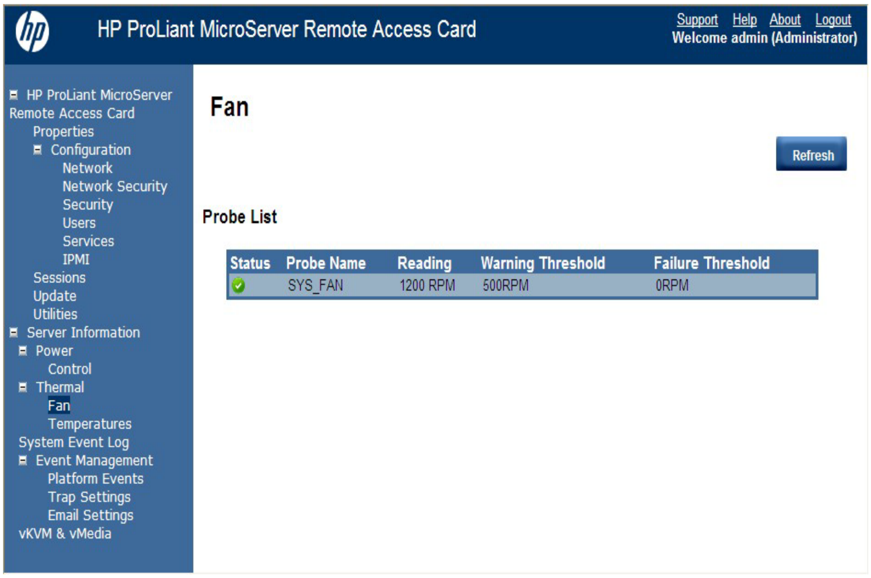
Temperatures

Status	Probe Name	Reading	Warning Threshold	Failure Threshold
✓	CPU_THEMAL	43.0 C	105.0C	110.0C
✓	NB_THERMAL	43.0 C	100.0C	105.0C
✓	AMBIENT_THERMAL	28.0 C	40.0C	45.0C


10.141.40.186 - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles

```
/admin1/system1/sensors1/numericsensor4
        properties
                BaseUnits = 19 (RPM)
                CurrentReading = 1200
                CurrentState = Normal
                ElementName = SYS_FAN(16.0.32)
                EnabledState = 2 (Enabled)
                HealthState = 5 (OK)
                OperationalStatus[0] = 2 (OK)
                PossibleStates[0] = Non-Critical
                PossibleStates[1] = Lower Non-Critical
                PossibleStates[2] = Upper Non-Critical
                PossibleStates[3] = Critical
                PossibleStates[4] = Lower Critical
                PossibleStates[5] = Upper Critical
                PossibleStates[6] = Fatal
                PossibleStates[7] = Lower Fatal
                PossibleStates[8] = Upper Fatal
                PossibleStates[9] = Normal
                PossibleStates[10] = Unknown
                RateUnits = 0 (None)
                RequestedState = 12 (Not Applicable)
                SensorType = 5 (Tachometer)
                SettableThresholds[0] = 2 (LowerThresholdCritical)
                SettableThresholds[1] = 0 (LowerThresholdNonCritical)
                SupportedThresholds[0] = 2 (LowerThresholdCritical)
                SupportedThresholds[1] = 0 (LowerThresholdNonCritical)
                UnitModifier = 0
        associations
                memberofcollection :
                        Collection = /admin1/system1/sensors1
                        Member = /admin1/system1/sensors1/numericsensor4
                elementcapabilities :
                        Capabilities = /admin1/system1/capabilities1/elecap5
                        ManagedElement = /admin1/system1/sensors1/numericsensor4
                systemdevice :
                        GroupComponent = /admin1/system1
                        PartComponent = /admin1/system1/sensors1/numericsensor4
                associatedsensor :
                        Antecedent = /admin1/system1/sensors1/numericsensor4
                        Dependent = /admin1/system1/fan1
        targets
```

Connected to 10.141.40.186 | SSH2 - aes128-cbc - hmac-md5 - none | 80x42



Fan

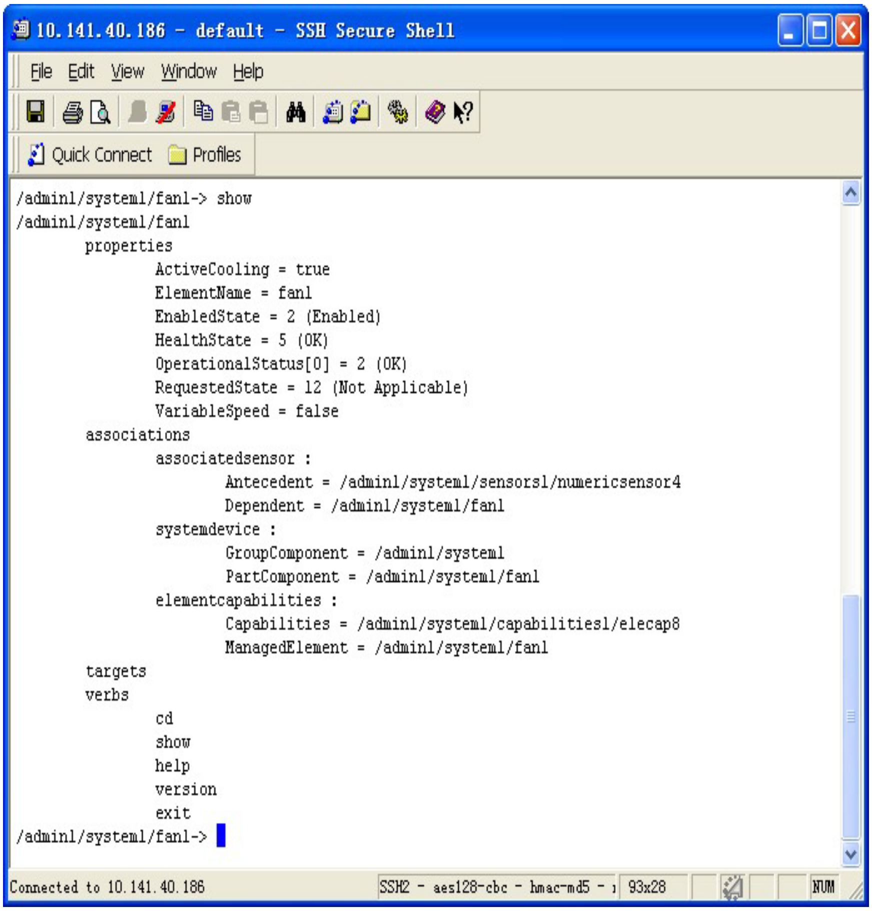
Probe List

Status	Probe Name	Reading	Warning Threshold	Failure Threshold
✓	SYS_FAN	1200 RPM	500RPM	0RPM

Get Fan Status

The target "fan1" can show fan status. When fan works OK, it will show status (OK). When fan fails, it can report the fan fail status. As below:

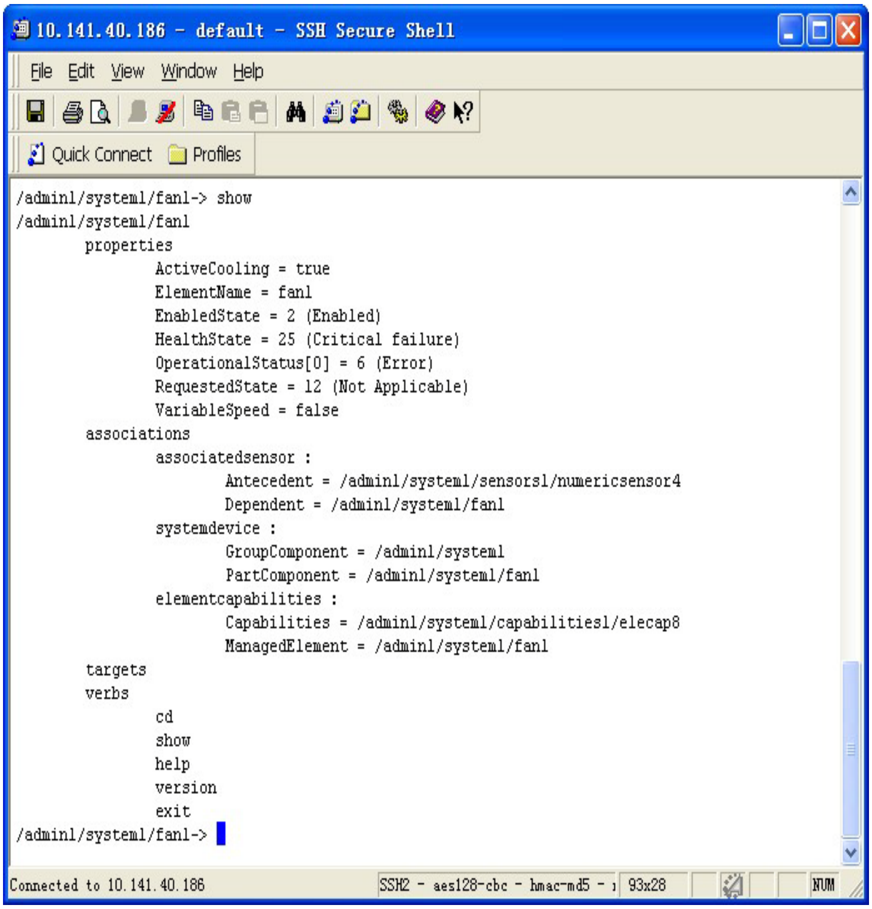
When fan status is OK,



10.141.40.186 - default - SSH Secure Shell
File Edit View Window Help
Quick Connect
Profiles
Connected to 10.141.40.186
SSH2 - aes128-cbc - hmac-md5 -
93x28
NUM

```
/admin1/system1/fan1-> show
/admin1/system1/fan1
        properties
                ActiveCooling = true
                ElementName = fan1
                EnabledState = 2 (Enabled)
                HealthState = 5 (OK)
                OperationalStatus[0] = 2 (OK)
                RequestedState = 12 (Not Applicable)
                VariableSpeed = false
        associations
                associatedsensor :
                        Antecedent = /admin1/system1/sensors1/numericsensor4
                        Dependent = /admin1/system1/fan1
                systemdevice :
                        GroupComponent = /admin1/system1
                        PartComponent = /admin1/system1/fan1
                elementcapabilities :
                        Capabilities = /admin1/system1/capabilities1/elecap8
                        ManagedElement = /admin1/system1/fan1
        targets
        verbs
                cd
                show
                help
                version
                exit
/admin1/system1/fan1->
```

When fan is failure,


10.141.40.186 - default - SSH Secure Shell
File Edit View Window Help
Quick Connect
Profiles
Connected to 10.141.40.186
SSH2 - aes128-cbc - hmac-md5 -
93x28
NUM

```
/admin1/system1/fan1-> show
/admin1/system1/fan1
        properties
                ActiveCooling = true
                ElementName = fan1
                EnabledState = 2 (Enabled)
                HealthState = 25 (Critical failure)
                OperationalStatus[0] = 6 (Error)
                RequestedState = 12 (Not Applicable)
                VariableSpeed = false
        associations
                associatedsensor :
                        Antecedent = /admin1/system1/sensors1/numericsensor4
                        Dependent = /admin1/system1/fan1
                systemdevice :
                        GroupComponent = /admin1/system1
                        PartComponent = /admin1/system1/fan1
                elementcapabilities :
                        Capabilities = /admin1/system1/capabilities1/elecap8
                        ManagedElement = /admin1/system1/fan1
        targets
        verbs
                cd
                show
                help
                version
                exit
/admin1/system1/fan1->
```

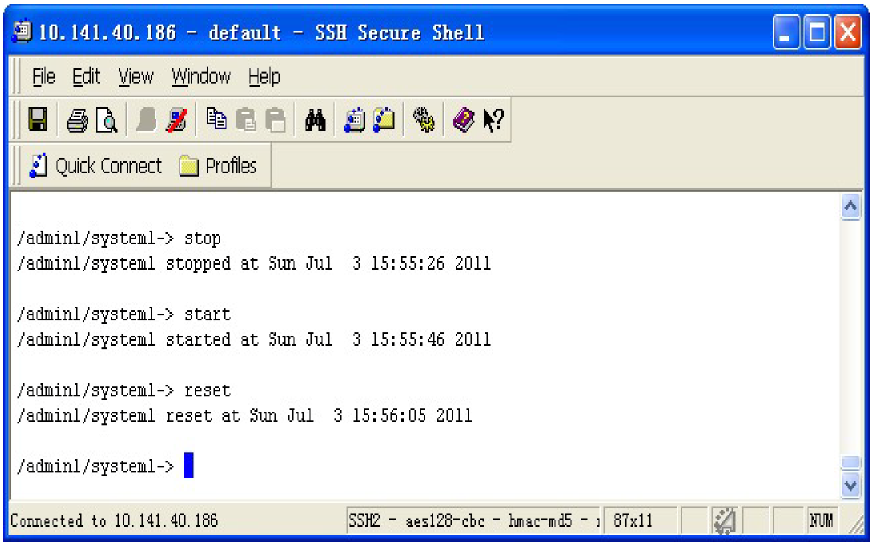
SMCLP Power Control Function

Under “system1”, it has the verbs ”start”, “stop” and “reset”.

“start” can power on the server, when the server in standby.

“stop” can power off the server, when the server in working.

“reset” can hard reset the server.


10.141.40.186 - default - SSH Secure Shell
File Edit View Window Help
Quick Connect
Profiles
Connected to 10.141.40.186
SSH2 - aes128-cbc - hmac-md5 -
87x11
NUM

```

/admin1/system1-> stop
/admin1/system1 stopped at Sun Jul  3 15:55:26 2011

/admin1/system1-> start
/admin1/system1 started at Sun Jul  3 15:55:46 2011

/admin1/system1-> reset
/admin1/system1 reset at Sun Jul  3 15:56:05 2011

/admin1/system1->
```

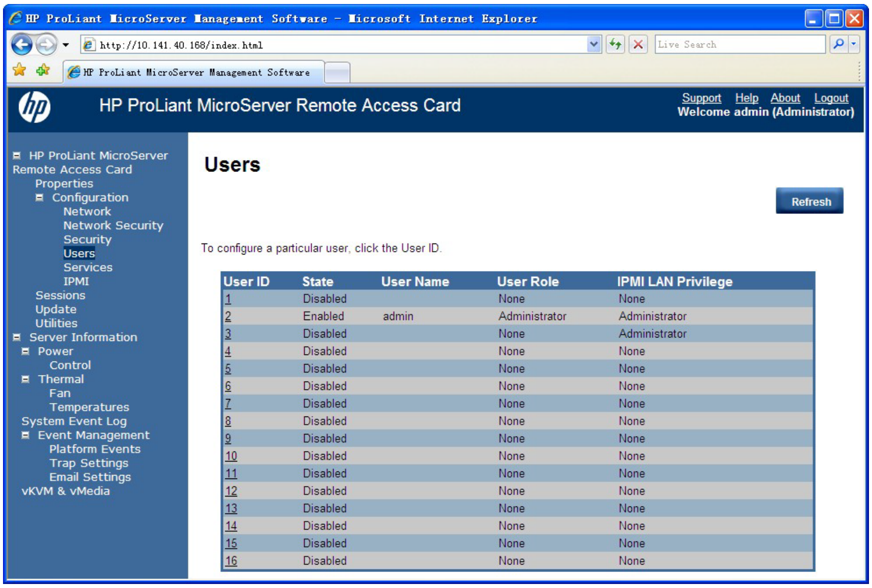
Frequently Asked Questions (FAQ)

Recovering a BMC username and password

BMC supports the IPMI command “Set User Password”. So when forgetting user name or password, you can use IPMI command to get the username and reset the user password under DOS or Linux.

Example,

There is a default user “admin” as the picture below:


HP ProLiant MicroServer Management Software - Microsoft Internet Explorer
http://10.141.40.168/index.html
Live Search
HP ProLiant MicroServer Management Software
HP ProLiant MicroServer Remote Access Card
Support Help About Logout
Welcome admin (Administrator)
HP ProLiant MicroServer Remote Access Card
Properties
Configuration
Network
Network Security
Security
Users
Services
IPMI
Sessions
Update
Utilities
Server Information
Power
Control
Thermal
Fan
Temperatures
System Event Log
Event Management
Platform Events
Trap Settings
Email Settings
vKVM & vMedia
Refresh

Users

To configure a particular user, click the User ID.

User ID	State	User Name	User Role	IPMI LAN Privilege
1	Disabled		None	None
2	Enabled	admin	Administrator	Administrator
3	Disabled		None	Administrator
4	Disabled		None	None
5	Disabled		None	None
6	Disabled		None	None
7	Disabled		None	None
8	Disabled		None	None
9	Disabled		None	None
10	Disabled		None	None
11	Disabled		None	None
12	Disabled		None	None
13	Disabled		None	None
14	Disabled		None	None
15	Disabled		None	None
16	Disabled		None	None

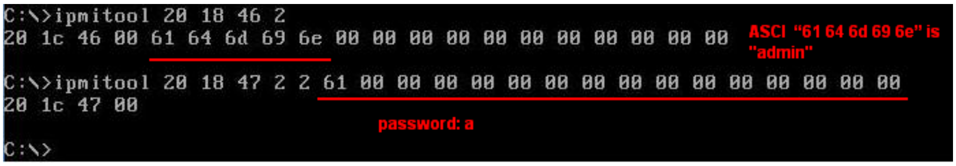
Under DOS:

Get the user name:

Ipmitool 20 18 46 2 (the value “2” is the User ID)

Set user password:

Ipmitool 20 18 47 02 02 + password. (Password is ASCI value: 16 bytes)



```
C:\>ipmitool 20 18 46 2
20 1c 46 00 61 64 6d 69 6e 00 00 00 00 00 00 00 00 00 00 00

C:\>ipmitool 20 18 47 2 2 61 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20 1c 47 00

C:\>
```

ASCI "61 64 6d 69 6e" is "admin"

password: a

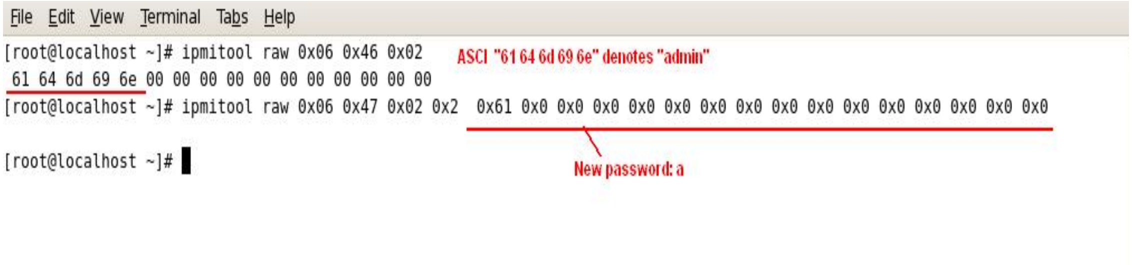
Under Linux shell:

Get the user name:

Ipmitool raw 0x6 0x46 0x02. (the value “2” is the User ID)

Set user password:

Ipmitool raw 0x6 0x47 0x02 0x02 + password (Password is ASCI value: 16 bytes)



```
[root@localhost ~]# ipmitool raw 0x06 0x46 0x02
 61 64 6d 69 6e 00 00 00 00 00 00 00 00 00 00 00
[root@localhost ~]# ipmitool raw 0x06 0x47 0x02 0x2  0x61 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0

[root@localhost ~]#
```

ASCI "61 64 6d 69 6e" denotes "admin"

New password: a

About how to get ipmitool, please review "IPMI Messaging interface".

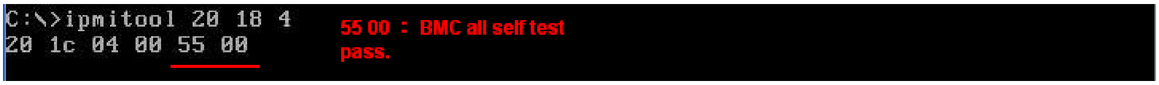
Verifying that the BMC firmware is functioning

Open the front panel of the server chassis, and check the heartbeat LED (CR1, which location is near the "Aspeed" chipset) on the Remote Access Card. Normally, it should blink with one second interval. If not, the BMC firmware should work abnormally.

Under OS, you can send IPMI command (Get Self Test Result) to BMC to check the whether the response values right or not. If not, BMC should work abnormally. Please refer to IPMI specification 2.0 to get detail info.

Under DOS:

Ipmitool 20 18 4



```
C:\>ipmitool 20 18 4
20 1c 04 00 55 00
```

55 00 : BMC all self test pass.

Under Linux (shell):

Ipmitool raw 0x6 0x4

Recovering from a BMC firmware crash

When BMC firmware crashes, and you fail to update BMC firmware via BMC WebUI. You can attempt to update BMC firmware via PCIE method. (The update BMC firmware method via PCIE can run without regard to BMC firmware ok or not). Please refer to "*Update BMC Firmware under DOS mode, Windows, Linux*"

How to configure BMC

BMC supports various interfaces for configuration and operation. This guide discusses the following

Interfaces:

1. BIOS RBSU -> Advanced -> IPMI Configuration page can be used when the system environment does not use DHCP, DNS, or WINS.
2. Browser-based setup can be used when you can connect to BMC on the network using a browser. This method can also reconfigure a previously configured BMC.
3. SMASH CLP can be used when a command line is accessible through telnet, SSH.

Troubleshooting BMC

Heartbeat LED Indicator

The Heartbeat LED (CR1, which location is near the "Aspeed" chipset) is used to indicate whether the BMC work normally or not. When BMC firmware works normally, it should blink with one second interval. Otherwise, the BMC firmware should be in ill.

When encounter this failure, you should remove the server power and reboot the server (unplug the server power cable, and then plug it again) to let BMC reboot. If the heartbeat LED still works abnormally after server power on, you can attempt to flash the latest BMC firmware via the method "*Update BMC Firmware under DOS mode, Windows, Linux*".

System Event Log Entries

Event Log Display	**Event Log explanation**
EvtLogDisabled: Event Log sensor, Log Area Reset/Cleared was asserted	When clear SEL via Web UI "clear log" or using IPMI command.
Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was asserted	When power off the server.
Sys Pwr Monitor: Power Unit sensor, Power Off / Power Down was deasserted	When power on the server.
SYS_FAN: Fan sensor, failure event was asserted	When fan unplugged or failed.
SYS_FAN: Fan sensor, failure event was deasserted	When fan recovers working normally from a failure or unplugged condition.
CPU_THEMAL: Temperature sensor, warning event was asserted	When CPU temperature upper warning threshold going high
CPU_THEMAL: Temperature sensor, warning event was deasserted	When CPU temperature return lower warning threshold
CPU_THEMAL: Temperature sensor, failure event was asserted	When CPU temperature upper failure threshold going high
NB_THERMAL: Temperature sensor, warning event was asserted	When North Bridge temperature upper warning threshold going high
NB_THERMAL: Temperature sensor, warning event was deasserted	When North Bridge temperature return lower warning threshold
NB_THERMAL: Temperature sensor,	When North Bridge temperature upper failure

failure event was asserted	threshold going high
AMBIENT_THERMAL: Temperature sensor, warning event was asserted	When ambient temperature upper warning threshold going high
AMBIENT_THERMAL: Temperature sensor, warning event was deasserted	When ambient temperature return lower warning threshold
AMBIENT_THERMAL: Temperature sensor, failure event was asserted	When ambient temperature upper failure threshold going high
SEL Rate: Other FRU sensor, Warning event was asserted	Non-critical for SEL rate: The SEL storage space is 25% in remaining.
EvtLogDisabled: Event Log sensor, SEL Almost Full was asserted	Warning for SEL space: The SEL storage space is 20% in remaining.
SEL Rate: Other FRU sensor, failure event was asserted	Critical for SEL rate: The SEL storage space is 10% in remaining.
EvtLogDisabled: Event Log sensor, SEL Full was asserted	Out of space: EventLog could not be recorded because of a lack of storage space
System Software event: Memory sensor	Uncorrectable ECC/other uncorrectable memory error

JVM Support

When you want to use the function vKVM or vMedia, please make sure that JVM is installed on your client. Please see this HP website for the download link.

Login Issues

Use the following information when attempting to resolve login issues:

- Try the default login, which is located on the network settings tag.
- If you forget your password, an administrator with the Administer User Accounts privilege can reset it.
- If an administrator forgets his username or her password, the administrator can use the IPMI command method to get username and reset password. Please review "*How to get username and password when forgetting the BMC login user name and password*".
- Check for standard problems, such as:
  - Is the password complying with password restrictions? For example, are there case sensitive characters in the password?
  - Is an unsupported browser being used?

Firewall Issues

BMC communicates through several configurable TCP/IP ports. If these ports are blocked, the administrator must configure the firewall to allow for communications on these ports. See the Administration section of the BMC user interface to view or change port configurations.

Proxy server issues

If the Web browser software is configured to use a proxy server, it will not connect to the BMC IP address. To resolve this issue, configure the browser not to use the proxy server for the IP address of BMC. For example, in Internet Explorer, select Tools-> Internet Options-> Connections-> LAN Settings-> Advanced, and then enter the BMC IP address or DNS name in the Exceptions field.

Glossary

BMC	Baseboard Management Controller
CLP	Command Line Protocol
DNS	Domain Name System
GUI	Graphical user interface.
IP	Internet Protocol
IPMI	Intelligent Platform Management Interface
KCS	Keyboard Controller Style
KVM	Keyboard, Video, and Mouse
LAN	Local Area Network
LED	Light-Emitting Diode
MAC	Media Access Control
NVRAM	Non Volatile Memory
PCIE	PCI Express
POST	Power On Self Test
RBSU	ROM Based Setup Utility
SEL	System Event Log
SMASH	System Management Architecture for Server Hardware
SSH	Secure Shell
SSL	Secure Sockets Layer
SNMP	Simple Network Management Protocol
TCP	Transmission Control Protocol
USB	Universal Serial Bus
VLAN	Virtual LAN Area Network
Web UI	BMC Web User Interface