

FIRMWARE UPDATE MENU

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Technical support：4008600011

Address：Inspur Electronic Information Industry Co., Ltd.

No.1036 Lang Chao Road, Jinan, China

P.C.R：250101

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Versioning

Date	Version	Drafting / Revising	Auditor	Approver	Revision note
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1 Read before update

1.1 Update Effect

Engineers should read this chapter carefully to understand the potential impact of the update on existing systems. The effect is shown in table 1-1.

Table 1-1 the effect on system

NO.	Item	Effect List	Description
1	BMC	Business	Nothing
		Operation maintenance	All the operational maintenance actions are prohibited during the update process.
2	BIOS	Business	After the BIOS update, you need to restart the server, business will be interrupted.
		Operating system	Support in-band or out-of-band updates, you should shut down the operating system when updating in the power off state, The operating system is not available.
		Operation maintenance	Do not restart the server during the update.

1.2 Caution

Caution for system version updating is shown in table 1-2.

Table 1-2 caution list

NO.	Item
1	Please read the document carefully and make sure you understand it before updating, any questions, please contact the technical support

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2	Upgrading when in low traffic scenario to reduce the impact
3	Update time： BMC FW： 5~10 minute BIOS FW： 5~10 minute

1.3 Version Requirements

Before upgrade, please read the release notes to confirm the matching relationship between the BIOS and the BMC software.

1.4 Update Principle

Both BMC and BIOS have two modes of upgrading, through the BMC WEB interface or use update tools under the operating system, it mainly supports Linux and Windows OS.

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2 Update preparation

2.1 Checking before update

Before updating, please check the items listed in table 2-1 orderly and record the inspection results.

Table 2-1 Check list before update

NO.	Item	Inspection standard
1	Check software version	1. Query and record the software versions of the BMC and BIOS in the system. Please refer to appendix 6.3 for details 2. Confirm that the target version is superior to the current version.
2	Check system status	Check the BMC log： 1. Update directly if no alarm information appears. Please refer to appendix 6.4 for details. 2. If alarm occurs, Confirm with Inspur technical support to determine the next action.

2.2 Obtain updates and document

Get the updates and related document by the following method.

1. Visit Inspur's official website（http://www.inspur.com/）.

2. Select "support > downloads>server " on the homepage of the website.

3. Select product type in the server list.

4. Click "Firmware" on the page. Enter the firmware download list.

5. Select the target version.

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6. Download the required updates to the client (local PC) and unpack it, obtained software packages are shown in table 2-2.

Table 2-2 software packages

Name	Function	Unzipped files
BMC	BMC firmware updates	product type _BMC_veision_date.bin
BIOS	BIOS firmware updates	Product type _BIOS_version_date.bin

Documents available in the same download package：

- 《Release notes》
- 《BIOS or BMC update method》
- 《BIOS and BMC related tools》

2.3 Firmware Integrity Check

Each firmware image can generate MD5 check code (Hash.exe) through the MD5 tool. Before updating the firmware, MD5 tool must be used to check the image's integrity to ensure that the firmware image file is correct.

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3 BMC Update

3.1 Update operation

3.1.1 The first method：Update the BMC FW via WEB

Operating scenarios

Introduce the operation of updating the BIOS FW via "BIOS firmware update" interface in the BMC Web.

Statement：

- Update will not change the user name and password of the BMC system ,
- Firmware update mode is optional because the BMC software has two images, if the dual image mode is selected, Double updates are automatically performed when refreshing.

Essentials

Conditions

- Target BMC file is obtained.
- Login to the BMC Web interface already, about the specific operation, please refer to appendix 6.2.
- BMC logs without mild, severe or emergency alarm.

Data

No data is required for this operation.

Operating steps

1. Login to the BMC Web Interface, select “Administration” in the left operating menu interface of the M5 platform then click the “Dual Firmware Update” as shown in figure 3-1.

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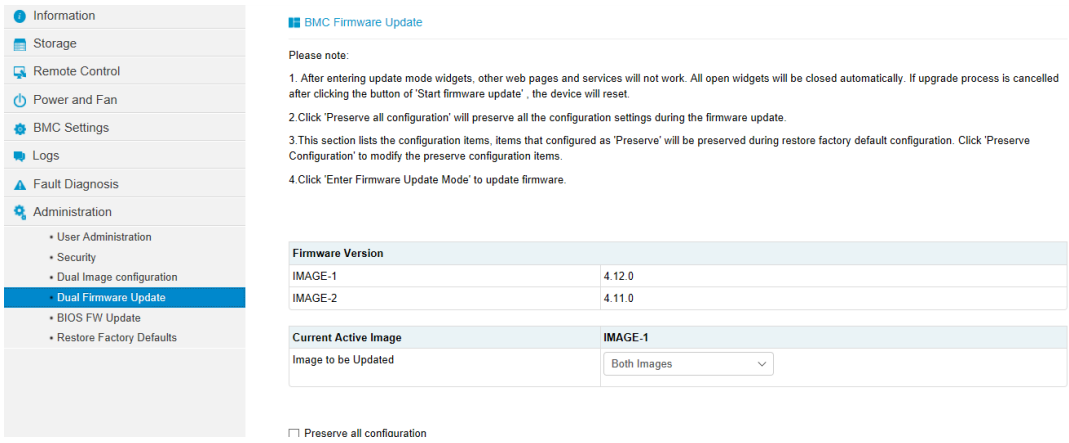


Figure 3-1

2. Select the image that needs to be updated, as shown in figure 3-2.

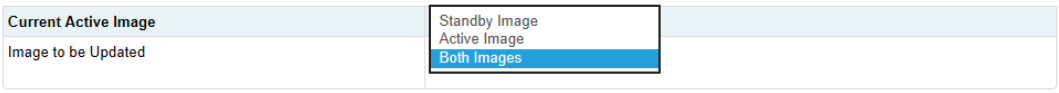


Figure 3-2

3. If the configuration should preserve, select “Enter Preserve Configuration”, otherwise select “Enter Firmware Update Mode”, as shown in figure3-3.

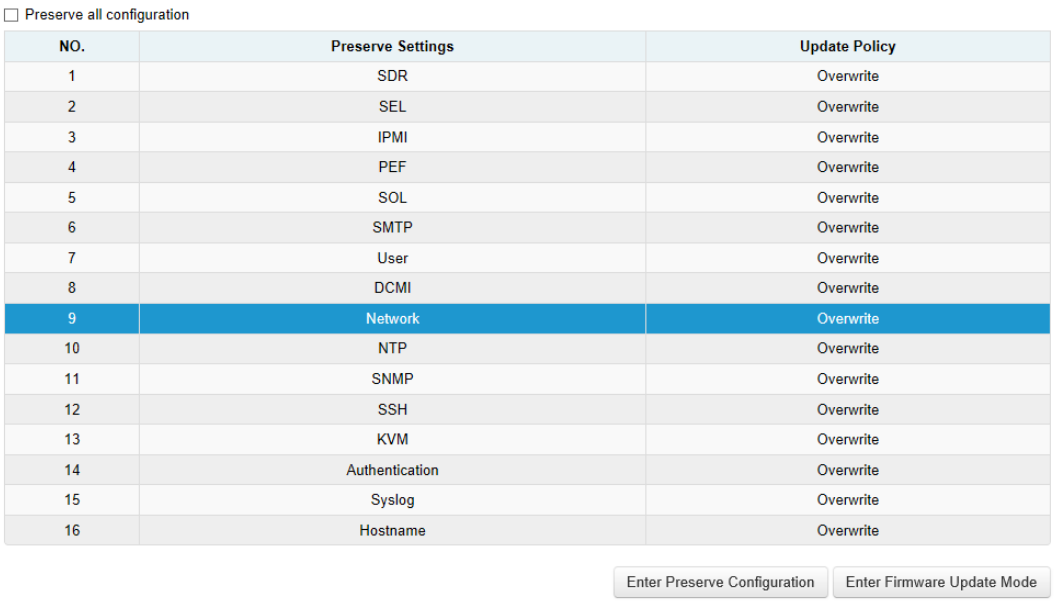


Figure 3-3

4. Enter the BMC firmware update mode, follow the steps and select the target file. Click “Start firmware update”, as shown in figure 3-4,then it prompt “The file has been uploaded and is being verified, please be patient ”

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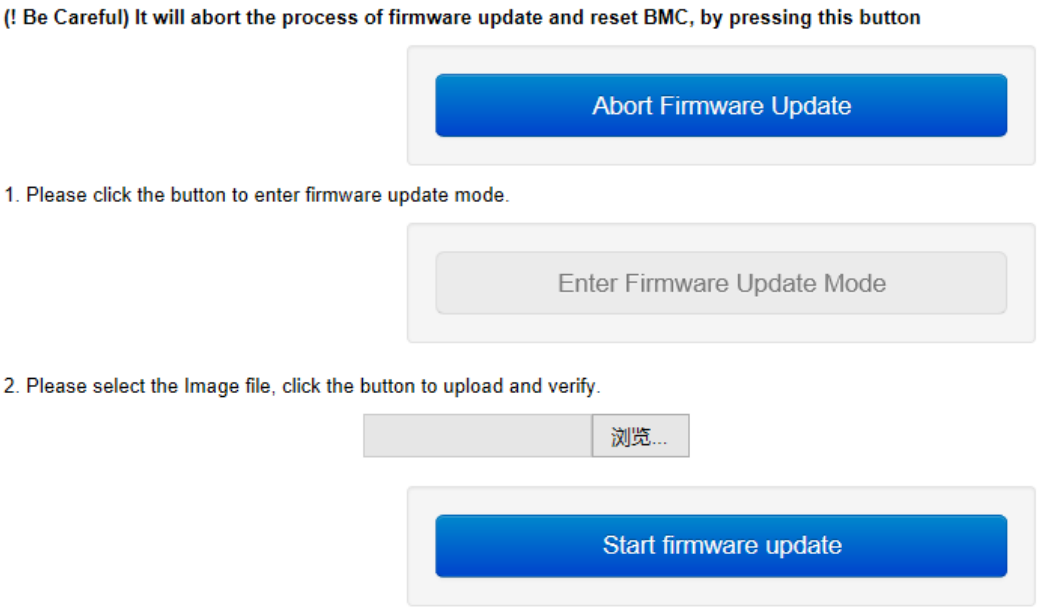


Figure 3-4

5. After uploading the file and verifying it successfully, click the "Proceed to update " to update the firmware, as shown in figure 3-5

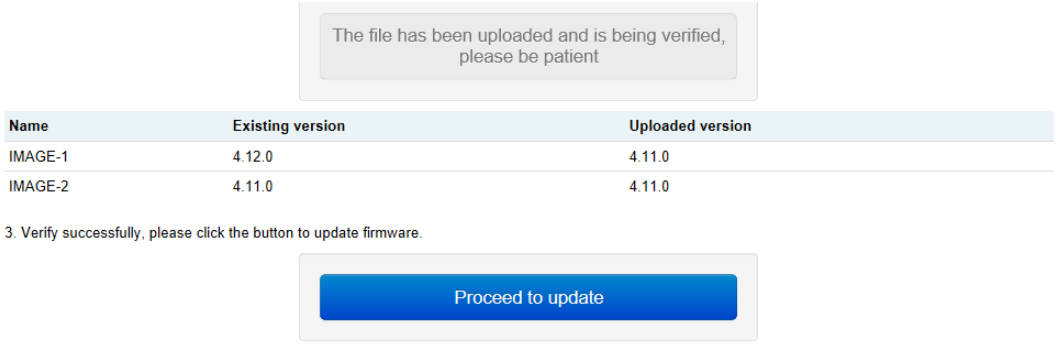


Figure 3-5

6. There is a progress bar during the update process, as shown in figure 3-6. If Dual images update mode, the update operation will be executed twice in succession before prompt “Flashing ... (100%)”.

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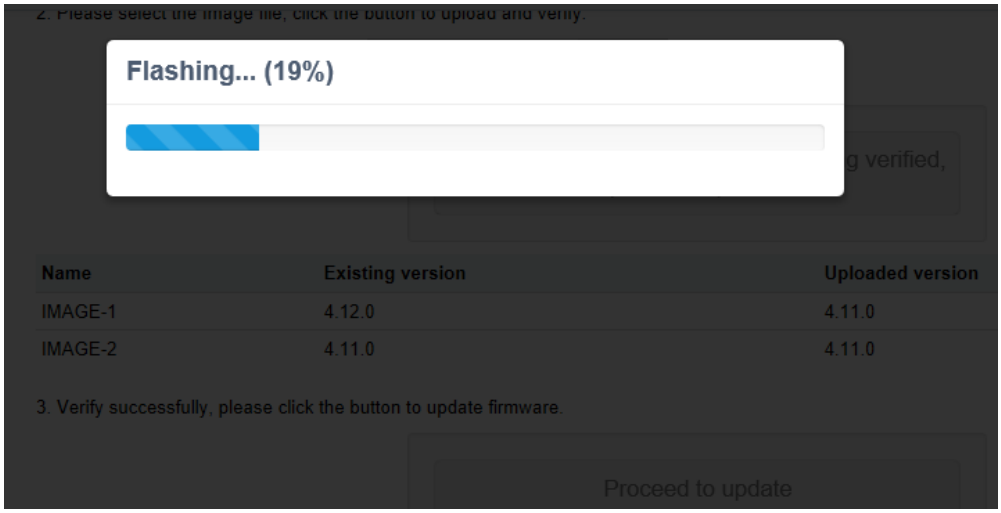


Figure 3-6

7. After the update is completed, BMC Web will be restarted automatically, as shown in figure 3-7. Please wait for about 1 minute to login again.

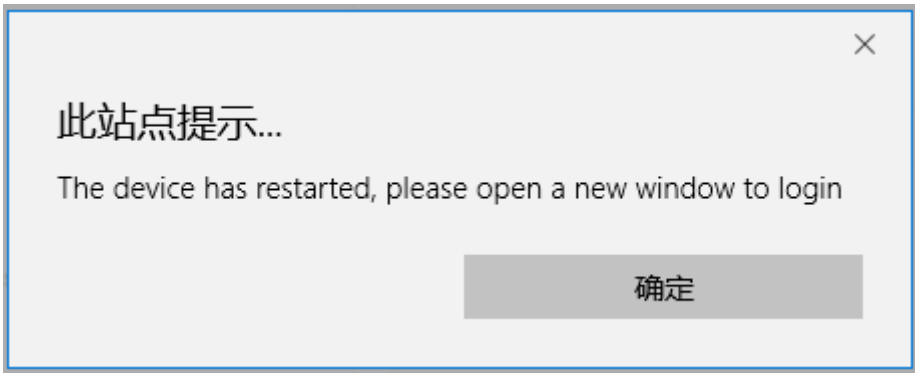


Figure 3-7

3.1.2 The second method：Update the BMC FW via SOCFlash Tool

Operating scenarios

Introduce the operation of updating the BMC FW via SOCFlash Tool in Linux\Windows system.

Statement：

8. BMC update unable to preserve the BMC configuration data.
9. BMC software has two images, it default to Update two images.

Essentials

Conditions

- Target BMC file is obtained.

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- BMC update tool packages is obtained.
- The server to be updated can be logged in.

Data

No data is required for this operation.

Operating procedures for Linux systems

1. Copy the socflash toolkit (Special for Linux environment) and the bmc_image.bin to the Linux system, such as home/socflash/ Linux /.
2. Open the terminal，Use the “cd” command to enter the socflash directory，the “chmod +x *”command to change the file permissions such as socflash, socflash_x64.

```
root@hlc-NF5180M5:/home/socflash/linux# ls
BMC_image.bin  readme.txt   socflash          socflash_elom.sh  socflash.sh
boot.bin       release.txt  socflash_dual.sh  socflash_s58.sh   socflash_x64
```

Figure 3-8

3. Execute “./socflash_dual.sh BMC_image.bin” to update BMC， the update process is shown in figure 3-9.

```
Start update BMC Image2...
ASPEED SOC Flash Utility v.1.14.00
Find ASPEED Device 1a03:2000 on 3:0.0
MMIO Virtual Address: 3ea22000
Relocate IO Base: 2000
Found ASPEED Device 1a03:2500 rev. 41
Static Memory Controller Information:
CS0 Flash Type is SPI
CS1 Flash Type is SPI
CS2 Flash Type is SPI
CS3 Flash Type is NOR
CS4 Flash Type is NOR
Boot CS is 0
Option Information:
CS: 0
Flash Type: SPI
[Warning] Don't AC OFF or Reboot System During BMC Firmware Update!!
Find Flash Chip #1: 64MB SPI Flash
Read Flash Chip #1 at: 2220000
```

Figure 3-9

4. The whole upgrade process takes about 10 minutes. As shown in figure 3-10, the BMC will be restarted automatically after the update.

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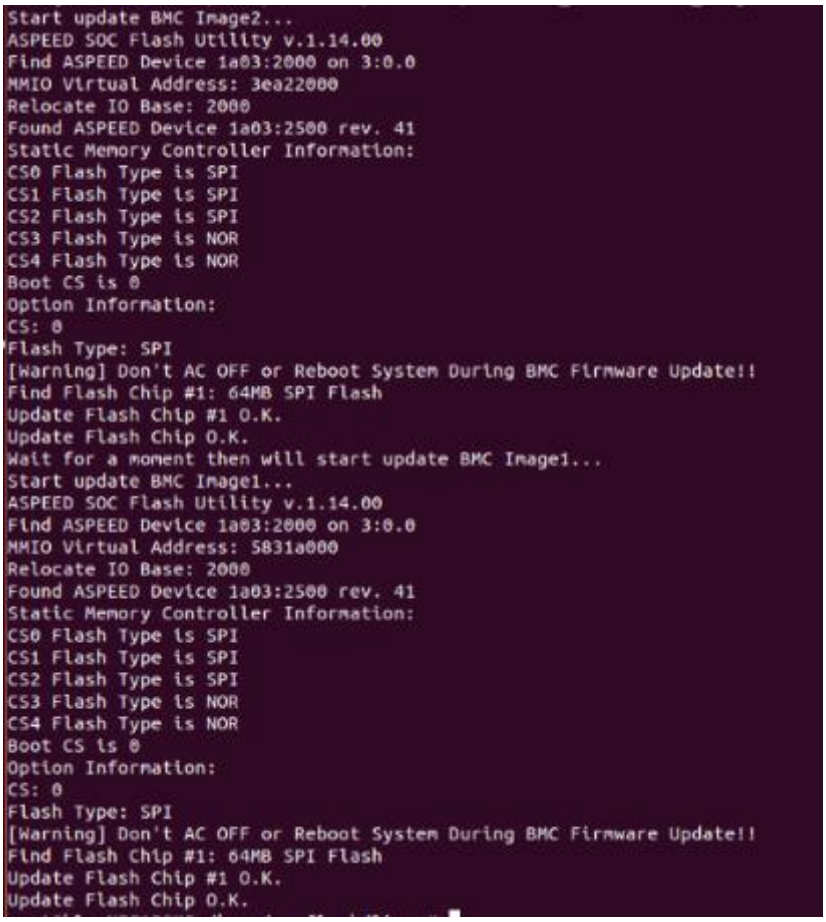


Figure 3-10

Operating procedures for Windows systems

1. Copy the socflash toolkit (Special for Windows environment) and the bmc_image.bin to the Windows system, such as C:\socflash\winflash.
2. Under Windows, select “attachment>command prompt", or enter “cmd” at the search area, enter the command prompt interface, then enter "cd C:\socflash\winflash" into the directory where the tools and update files are located, as shown in figure 3-11.

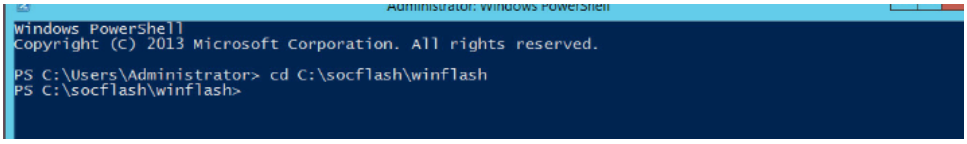


Figure 3-11

3. Execute“.\socflash_dual.bat BMC_image.bin” to update BMC，The update process is shown in figure 3-12.

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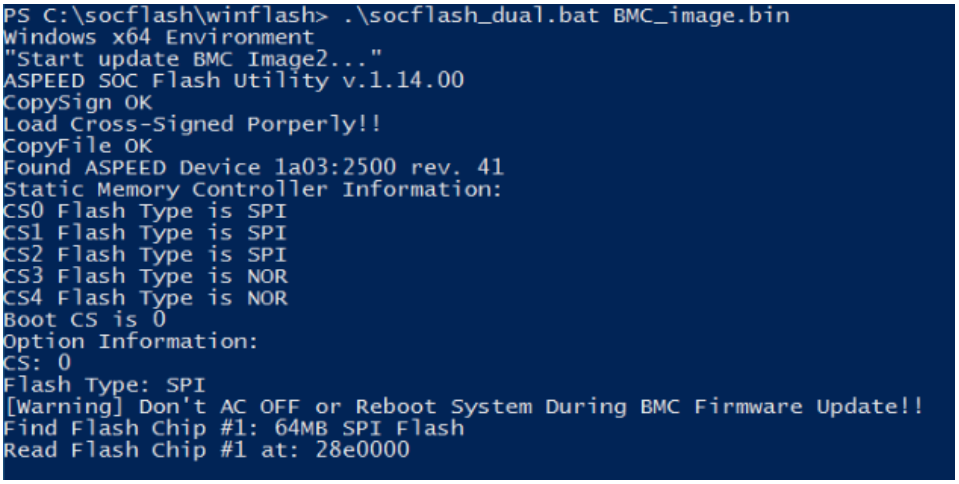


Figure 3-12

4. The whole upgrade process takes about 10 minutes. As shown in figure 3-13, the BMC will be restarted automatically after the update.

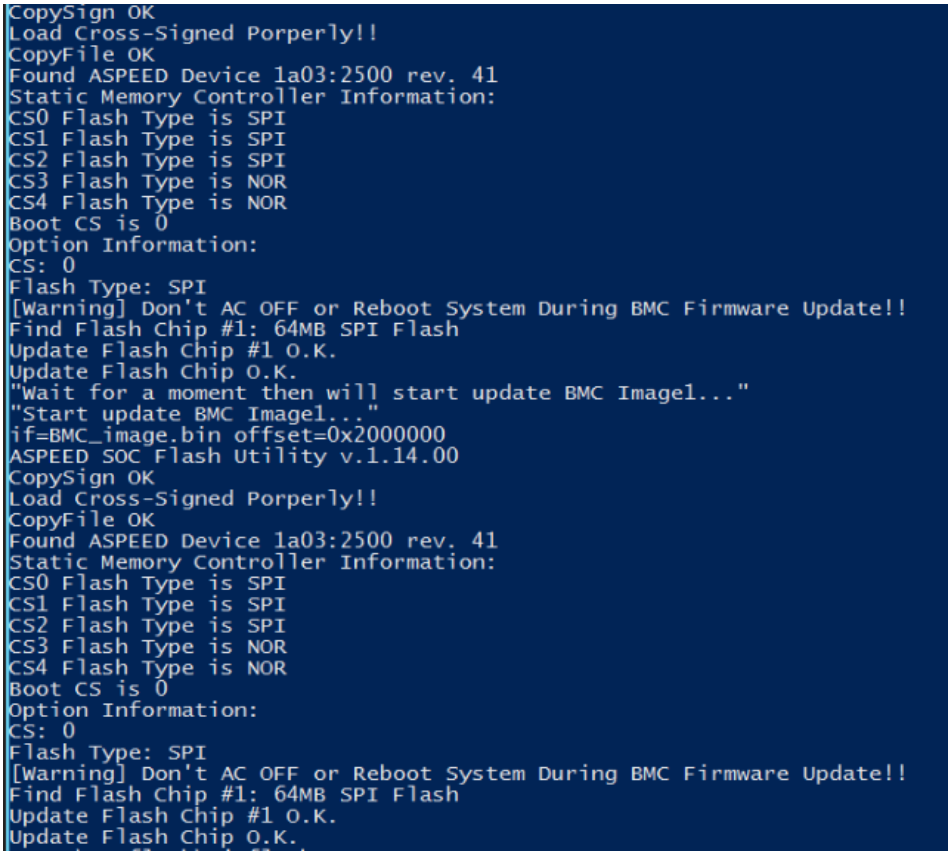


Figure 3-13

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3.2 Verification after update

Verification list

Verification items after the BMC update are shown in table 3-2.

Table 3-2 verification items

NO.	Item	Inspection standard
1	Whether the BMC Web can login	Login to the BMC interface through Internet explorer normally
2	Whether the BMC version information is updated	BMC version is the latest version

Verification task

Verification steps

After the BMC working properly, login again and check if the BMC is the latest version.

Please refer to the appendix 6.3 for details.

Exception handling

- Unable to login BMC Web interface after updating, please contact Inspur technical support to solve.
- The BMC version is inconsistent with the target version or update failure dialog box appeared, you should update the BMC again.If still fails, record the failure and operation steps, then contact Inspur technical support to solve.

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4 BIOS Update

4.1 Update operations

4.1.1 The first method：Update the BIOS FW via WEB

Operating scenarios

Introduce the operation of updating the BIOS FW via "BIOS firmware update" interface in the BMC Web.

The BIOS can be updated in both the on and off state of the operating system. Since the system must be restarted to have the update take effect, it is recommended to update in the power off state.

Please note

In the BIOS software upgrade process ：

- It is prohibited to perform power up, power down, reset, OS restart, etc.
- System no response, Cycle restart or other abnormal status occurs, the server can be restored by AC power off and on.
- Don't update the BIOS in the BIOS Setup and POST process.

Essentials

Conditions

- Shut down the business running on the server and back up the server data.
- Target BIOS file is obtained.
- Login to the BMC Web interface already, about the specific operation, please refer to appendix 6.2.
- BMC logs without mild, severe or emergency alarm.

Data

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No data is required for this operation.

Operating steps

1. Login to the Web Interface, select “Administration” in the left operating menu interface, then click the “BIOS FW update”, as shown in figure 4-1.

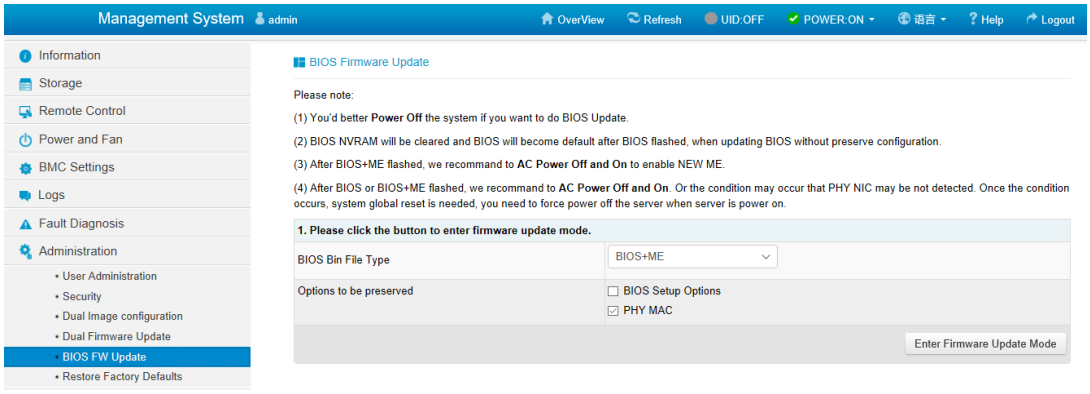


Figure 4-1

2. Enter the BIOS FW update interface, select the type of BIOS bin, If ME section is not changed, select "BIOS Only", otherwise select "BIOS+ME", as shown in figure 4-2.
3. Select the options to preserved ,then click the“Enter Firmware Update Mode”

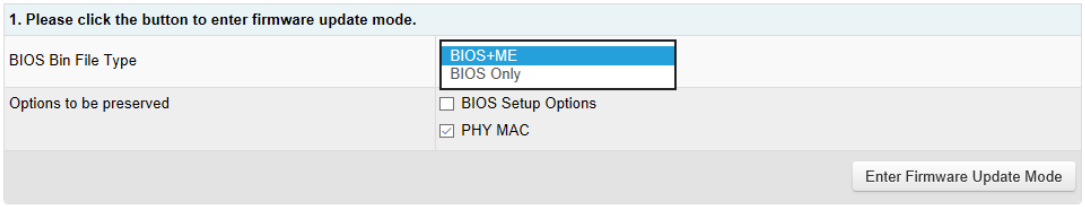


Figure 4-2

4. In the firmware update mode, select the target bios file, then click “upload”.
5. After BIOS file verification successfully, click “proceed to update” to update the bios, there is a progress bar during the update process.
6. After the update is completed, we recommended to AC power off and on as shown in figure 4-3.

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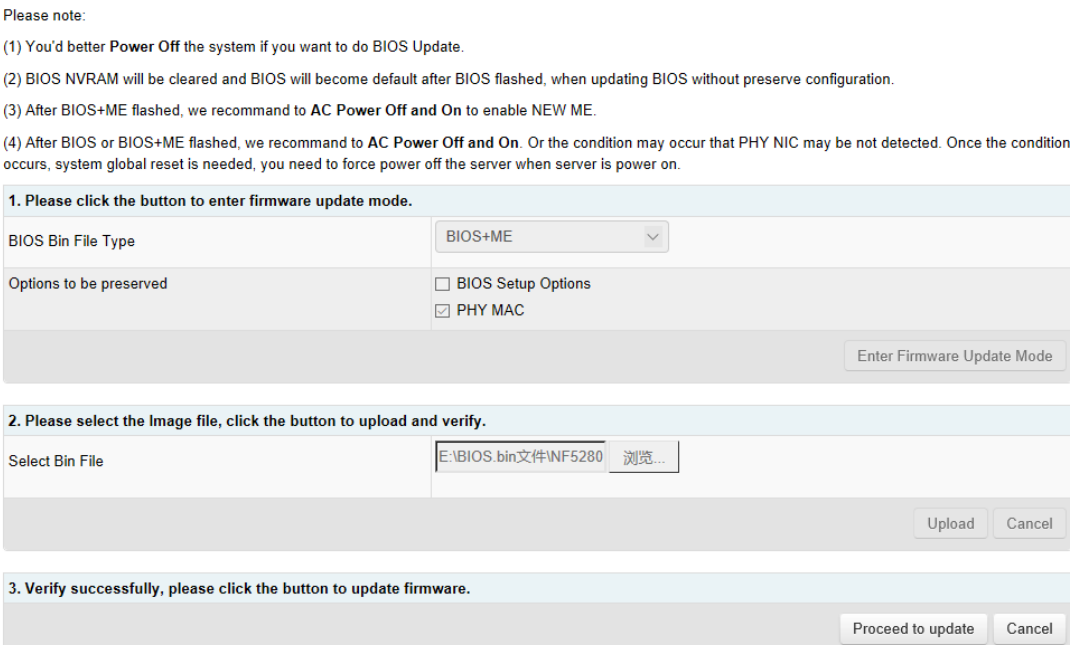


Figure 4-3

4.1.2 The second method：Update the BIOS FW via Update Tool

Operating scenarios

Introduce the operation of updating the BIOS FW via BIOS Update Tool in Linux\Windows system.

Please note

In the BIOS software upgrade process ：

- It is prohibited to perform power up, power down, reset, OS restart, etc.

Essentials

Conditions

- Shut down the business running on the server and back up the server data.
- Target BIOS file is obtained.

Data

No data is required for this operation.

Operating steps

1. The process to update the BIOS using the BIOS Update Tool in the Linux operating system is shown in figure 4-4 and 4-5.

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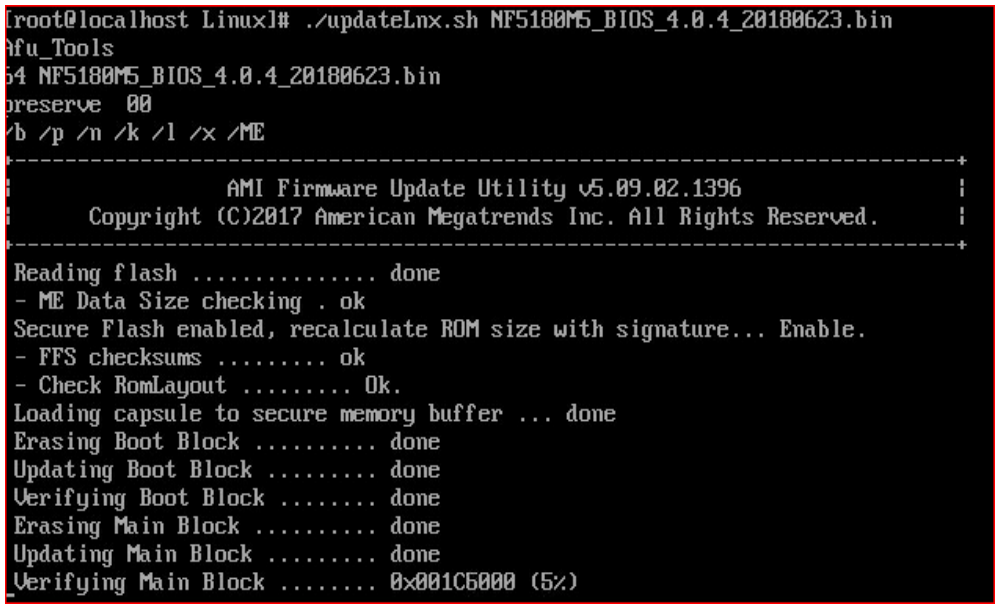


Figure 4-4

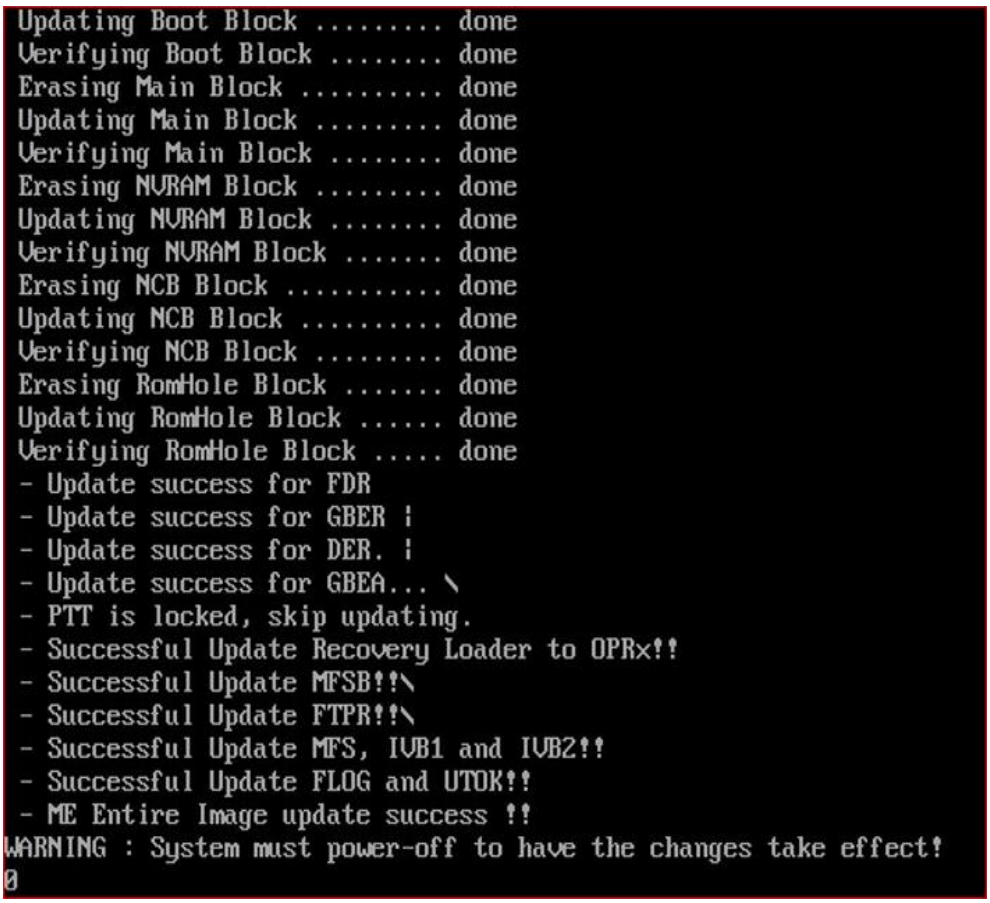


Figure 4-5

2. The process to update the BIOS using the BIOS Update Tool in the Windows operating system is shown in figure 4-6.

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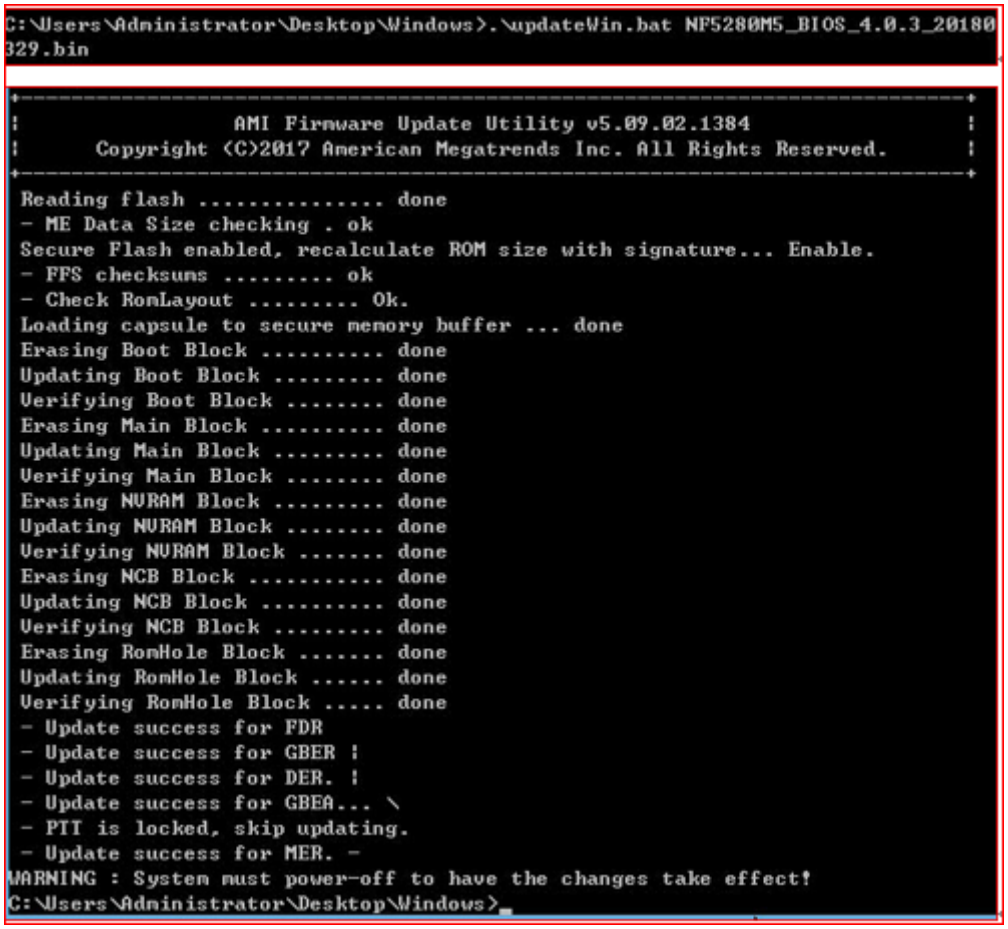


Figure 4-6

3. After the update is completed, please restart the system or power off and on to have the new BIOS and ME take effect.

4.2 Verification after update

Verification list

Verification items are shown in table 4-1.

Table **4-1** verification items

NO.	Item	Inspection standard
1	BIOS run status	BIOS of Server boot properly
2	BIOS version	Bios version is the latest version
3	ME run status	ME status is normally

Verification task

Verification steps

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After the Server working properly, check the BIOS version. Please refer to the appendix 6.3 for details.

Exception handling

- Unable to boot the BIOS after updating, please contact Inspur technical support to solve.
- The BIOS version is inconsistent with the target version or update failure dialog box appeared, you should update the BIOS again.If still fails, record the failure and operation steps, then contact Inspur technical support to solve.

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5 Terminology & Abbreviations

B		
BIOS	Basic Input Output System	基本输入输出系统
BMC	Baseboard Management Controller	基板管理控制器
M		
ME	Management Engine	管理引擎

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6 Appendix A：Operation

6.1 Query BMC Network IP Address

Operating scenarios

Introduce the operation of querying BMC network IP address in the BIOS interface

Login to the BIOS interface, querying the BMC port IP address as follows:

Romley/Grantley platform BIOS：

“Main→ Server Mgmt→ BMC network configuration”

Purley platform BIOS：

“Main→Server Mgmt→BMC Network Configuration→BMC IPv4 Network Configuration or BMC IPv6 Network Configuration”

Effect on system

The operation has no effect on the normal operation of the system.

Operating steps

1. Restart the server, press "Delete" within three seconds when the startup prompt interface appears until entering the BIOS Setup Utility interface.
2. Login to the BIOS interface，as shown in figure 6-1.

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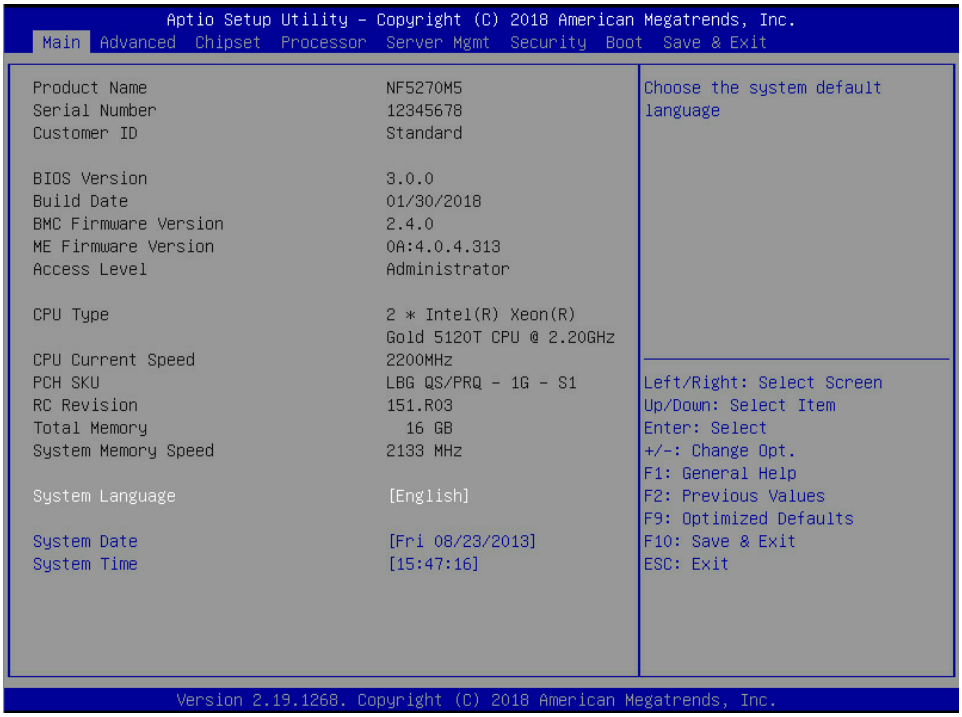


Figure 6-1

3. Select “Server Mgmt -> BMC Network Configuration -> BMC IPv4 Network Configuration/BMC IPv6 Network Configuration”. Press Enter to view the current configuration of BMC IPv4 and BMC IPv6 network, as shown in the following figures.



Figure 6-2

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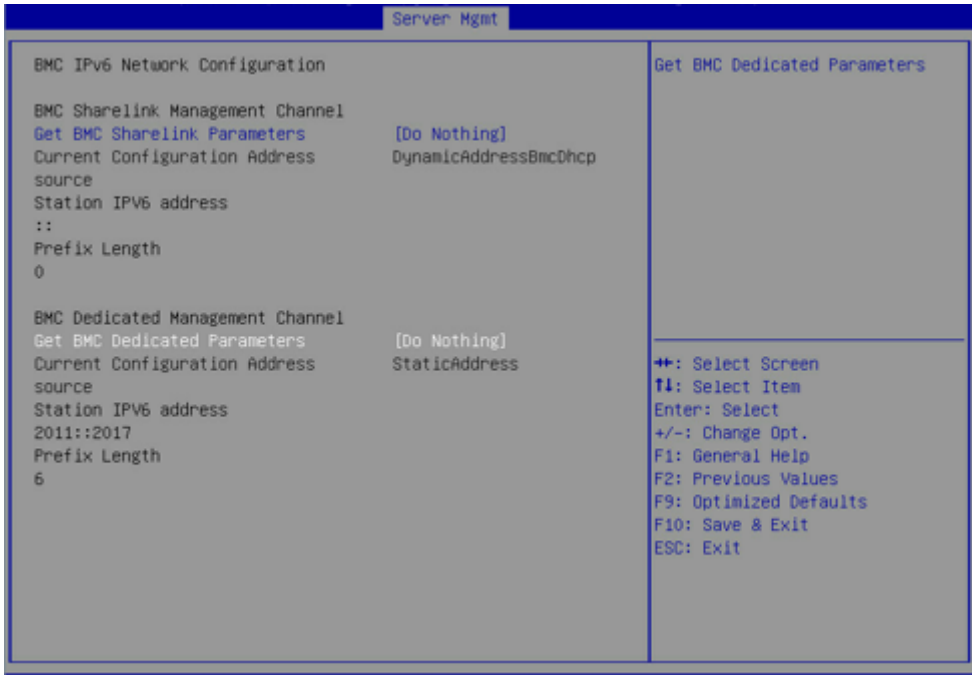


Figure 6-3

6.2 Login BMC Web interfaces

Operating scenarios

Introduce the operation to login the BMC web interface through the explorer of local PC. Take Windows 10 operating system and IE 11.0 as example to describe the operation steps.

Effect on system

The operation has no effect on the normal operation of the system.

Essentials

Conditions

The PC for remote connection should have the appropriate browser version and Java runtime environment, requirements are shown as Table 6-1.

The requirement of physical network conditions：

- The local PC and BMC management port are connected via network cable.
- The IP of the local PC and BMC management port is in the same network segment.

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Table 6-1 local PC configuration requirements

OS	Environment		Version
Windows 7 32-bit/ 64-bit	Explorer	Internet Explorer	IE 8.0
		Mozilla Firefox	Mozilla Firefox 9.0/23.0
		Google Chrome	Chrome 13.0/31.0
	Java operating environment		JRE 1.6.0 U25/1.7.0 U40
Windows 8 32-bit/ 64-bit	Explorer	Internet Explorer	IE 10.0/11.0
		Mozilla Firefox	Mozilla Firefox 9.0/23.0
		Google Chrome	Chrome 13.0/31.0
	Java operating environment		JRE 1.6.0 U25/1.7.0 U40
Windows 2008 R2 64-bit	Explorer	Internet Explorer	IE 8.0/10.0/11.0
		Mozilla Firefox	Mozilla Firefox 9.0/23.0
		Google Chrome	Chrome 13.0/31.0
	Java operating environment		JRE 1.6.0 U25/1.7.0 U40
Windows 2012 64-bit	Explorer	Internet Explorer	IE 10.0/11.0
		Mozilla Firefox	Mozilla Firefox 9.0/23.0
		Google Chrome	Chrome 13.0/31.0
	Java operating environment		JRE 1.6.0 U25/1.7.0 U40
Redhat 6.X 64-bit	Explorer	Mozilla Firefox	Mozilla Firefox 9.0/23.0
	Java operating environment		JRE 1.6.0 U25/1.7.0 U40
MAC X v10.7	Explorer	Safari	Safari 5.1
		Mozilla Firefox	Mozilla Firefox 9.0/23.0
	Java operating environment		JRE 1.6.0 U25/1.7.0 U40

Note: If the Java operating environment does not meet the requirements, you can download it at the following URL:

http://www.oracle.com/technetwork/java/javase/downloads/index.html

Data

The data required for this performance is shown in table 6-2.

Table 6-2 data requirement

Type	Parameter	Instruction	E.g.
User login information	User name	The name of user to login BMC	admin
	Password	The password of user to login BMC Note： The system provides a default user “admin” in administer	admin

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		user group, and the default password is “admin”	

Operating steps

1. Use network cable (cross network cable or twisted cable) to connect local PC and BMC management ports.
2. Open the browser on the local PC.
3. Enter “https://ipaddress” in the address bar， such as https://*100.2.74.26*.
4. Press “Enter”, the login interface appears as shown in figure 6-4.

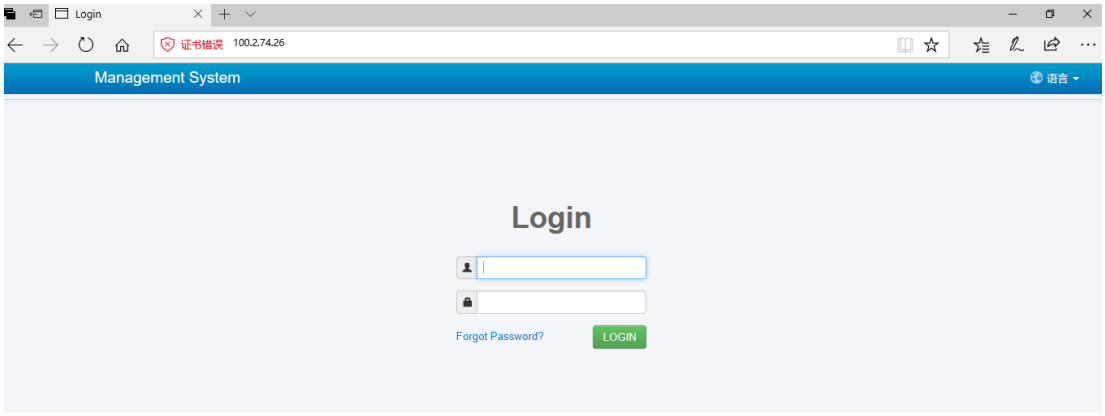


Figure 6-4

5. Enter the user name and password in the BMC login interface.
6. Click “LOGIN”, to enter the management interface.

6.3 Check the server software version

Operating scenarios

Introduces the operation steps to check the BIOS/BMC/ME version.

Effect on system

The operation has no effect on the normal operation of the system.

Essentials

Conditions

Login to the BMC Web interface already, about the specific operation, please refer to appendix 6.2.

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Operating steps

1. Click on “Overview” on top of the interface.
2. View “FW version information” on right of the interface.

FW Version Information	
BMC	4.11.0 (2018-08-26 22:18:55)
BIOS	4.1.0
ME	0A:4.1.2.161

Figure 6-5

6.4 View the server alarm information

Operating scenarios

Introduces the operation steps to view the server alarm information

Effect on system

The operation has no effect on the normal operation of the system.

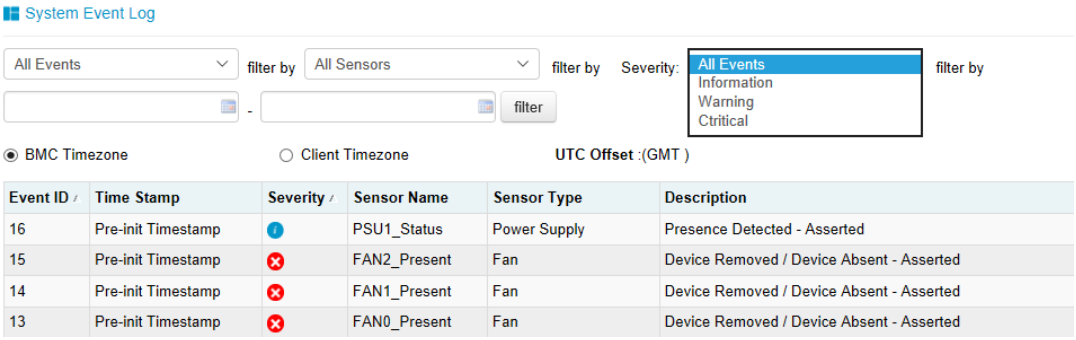
Essentials

Conditions

Login to the BMC Web interface already, about the specific operation, please refer to appendix 6.2.

Operating steps

1. Select “Logs” on the navigation tree to open the related log interface.
2. Select “System event log” to view various event logs generated by the server as shown in figure 6-6.



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Figure 6-6

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7 Support Files

NO.	File Name	File Encoding

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