

HPM-621

Software User's Manual

Nov 2021

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Part No. XXXXXXXXXXXXX

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1 Firmware update





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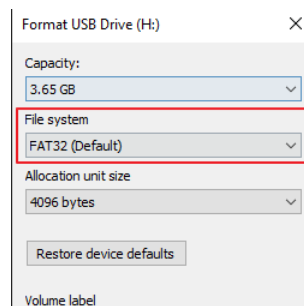
If necessary, the system firmware can be updated at local machine or remote console. Please refer the following instructions.

1.1 BIOS + SPS

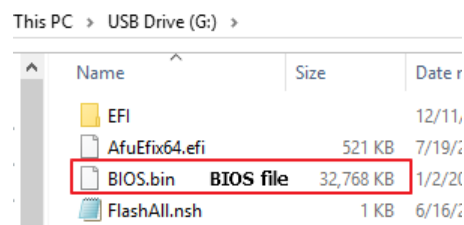
Update Method	OS	Tool and Jumper settings
Local Update	UEFI environment	AfuEfix64.efi Need to disable SPS by JME1 jumper.
	Windows PE environment	AFUWINx64.EXE Need to disable SPS by JME1 jumper.
Remote update	IPMI command	Yafuflash.exe No need to disable SPS.
	IPMI Web UI	No tool required No need to disable SPS.

1.1.1 BIOS + SPS update in UEFI environment

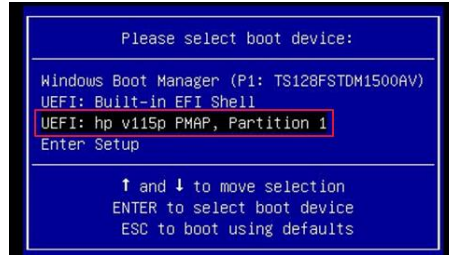
1. Format a USB flash drive to FAT32.



2. Download the update tool and BIOS file(xxx.bin), then save at the **root** directory of the USB drive.



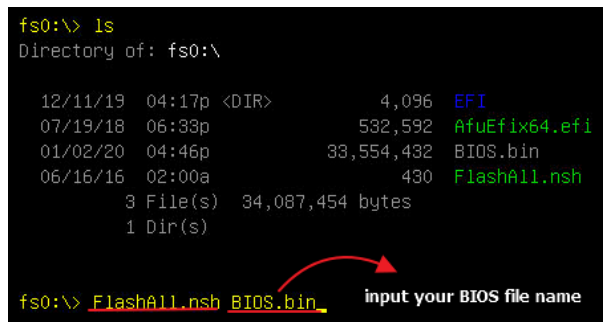
3. Plug the USB drive to the Server and close pin 2-3 of JME1.
4. Power on system. When you hear BIOS ready beep, perss **F11** to enter boot menu and select the USB drive to boot.



5. Type **fs***: to enter the USB drive, for example **fs0**:



6. Type **FlashAll.nsh** [**BIOS file name**] to update BIOS.



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- When the process ends, make sure all regions are done successfully without any error.

```
Reading flash ..... done
- ME Data Size checking . ok
- FFS checksums ..... ok
- Check RomLayout ..... ok.
Erasing Boot Block ..... done
Updating Boot Block ..... done
Verifying Boot Block ..... done
Erasing Main Block ..... done
Updating Main Block ..... done
Verifying Main Block ..... done
Erasing NVRAM Block ..... done
Updating NVRAM Block ..... done
Verifying NVRAM Block ..... done
- Update success for FDR
- Update success for PTT.. -
- Successful Update Recovery Loader to OPRx!!
- Successful Update MFSB. -
- Successful Update FTFR!!-
- Successful Update MFS, IVB1 and IVB2!!
- Successful Update FLOG and UTOK!!
- ME Entire Image update success !!
WARNING : System must power-off to have the changes take effect!

Process completed.
ESQ:\>
```

- Remove AC power and move **JME1** jumper back to pin 1-2.
- Power on, then boot to BIOS to check if BIOS version and SPS version are correct.
BIOS version:

```
Aptio Setup Utility - Copyright (C) 2020 American
Main Advanced Server Mgmt Security Boot Save & Exit

BIOS Information
BIOS Vendor                American Megatrends
Core Version                5.14
Compliance                 UEFI 2.7; PI 1.6
Project Version            OACLA 0.45 x64
Build Date and Time        09/09/2020 14:30:17
Access Level               Administrator
BIOS Name                  HPM6210B
BIOS Version                0.0B
System Language            [English]
Intel RC Version
```

SPS version:

```
1 Aptio Setup Utility - Cop
Main Advanced Server Mgmt Security

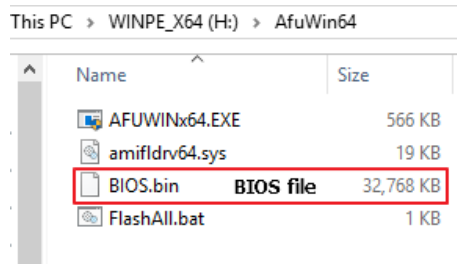
2 Processor Configuration
  UPI Configuration
  Memory Configuration
  IIO Configuration
  PCI Express Configuration
  sSATA Configuration
  Miscellaneous Configuration
  Server ME Configuration

3 Aptio Setup Utility - Copyright (C) 20
Advanced

General ME Configuration
Oper. Firmware Version 3 0A:4.1.4.256
Backup Firmware Version N/A
Recovery Firmware Version 0A:4.1.4.256
ME Firmware Status #1 0x000F0245
ME Firmware Status #2 0x88118026
Current State Operational
Error Code No Error
```

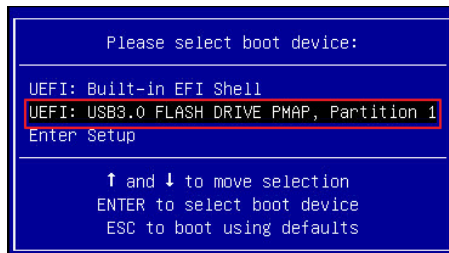

1.1.2 BIOS + SPS update in Windows PE environment

1. Copy update tool and BIOS file(xxx.bin) to WinPE disk.



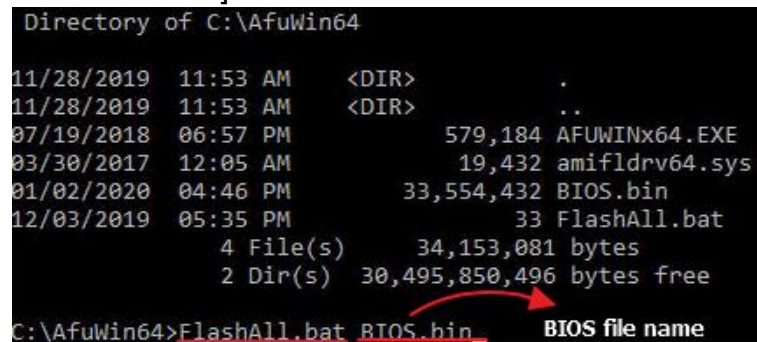
2. Plug the WinPE disk to server and close pin 2-3 of **JME1**.

3. Power on system. When you hear BIOS ready beep, press **F11** to enter boot menu and select the WinPE disk.



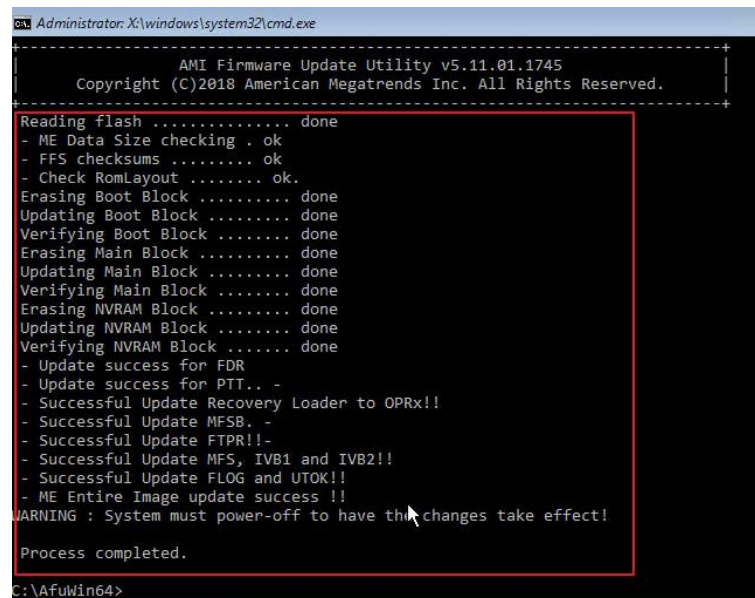
4. Switch to BIOS folder and run the command.

FlashAll.bat [BIOS file name]



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5. When the process ends, make sure all regions are done successfully without any error.



```
Administrator: X:\windows\system32\cmd.exe
-----
          AMI Firmware Update Utility v5.11.01.1745
    Copyright (C)2018 American Megatrends Inc. All Rights Reserved.
-----
Reading flash ..... done
- ME Data Size checking . ok
- FFS checksums ..... ok
- Check RomLayout ..... ok.
Erasing Boot Block ..... done
Updating Boot Block ..... done
Verifying Boot Block ..... done
Erasing Main Block ..... done
Updating Main Block ..... done
Verifying Main Block ..... done
Erasing NVRAM Block ..... done
Updating NVRAM Block ..... done
Verifying NVRAM Block ..... done
- Update success for FDR
- Update success for PTT.. -
- Successful Update Recovery Loader to OPRx!!
- Successful Update MFSB. -
- Successful Update FTPR!!-
- Successful Update MFS, IVB1 and IVB2!!
- Successful Update FLOG and UTOK!!
- ME Entire Image update success !!
WARNING : System must power-off to have the changes take effect!

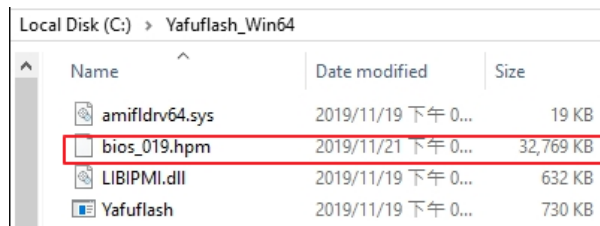
Process completed.
C:\AfuWin64>
```

6. Remove AC power and move **JME1** jumper back to pin 1-2.

7. Refer 1.1.1 step9 to check the BIOS and SPS version.

1.1.3 BIOS + SPS update using IPMI command

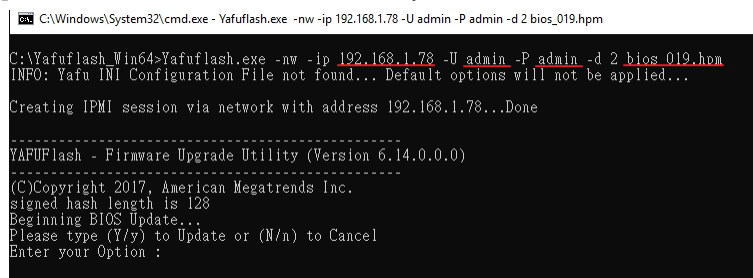
1. Copy BIOS file(xxx.hpm) to Yafuflash tool folder



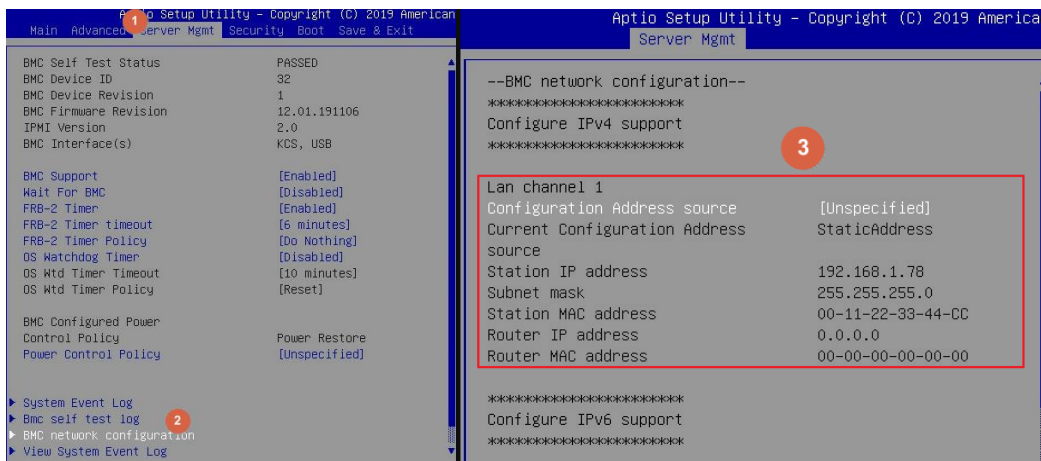
2. Open Command Prompt (admin) and change directory to Yafuflash tool folder.

3. Input the command:

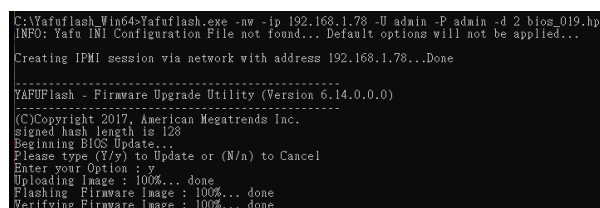
Yafuflash.exe -nw -ip [BMC IP address] -U [user name] -P [user password] -d 2 [BIOS file name]. The default username and password are admin/admin.



Note: BMC IP address can be configured at BIOS menu.



4. When the process ends, turn off AC power for 10 seconds.



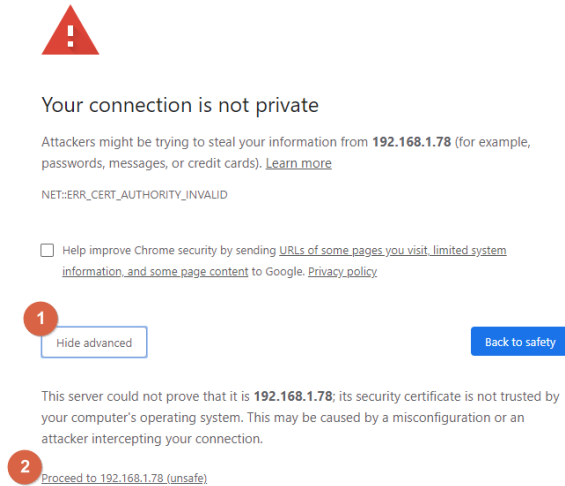
5. Refer 1.1.1 step9 to check the BIOS and SPS version.

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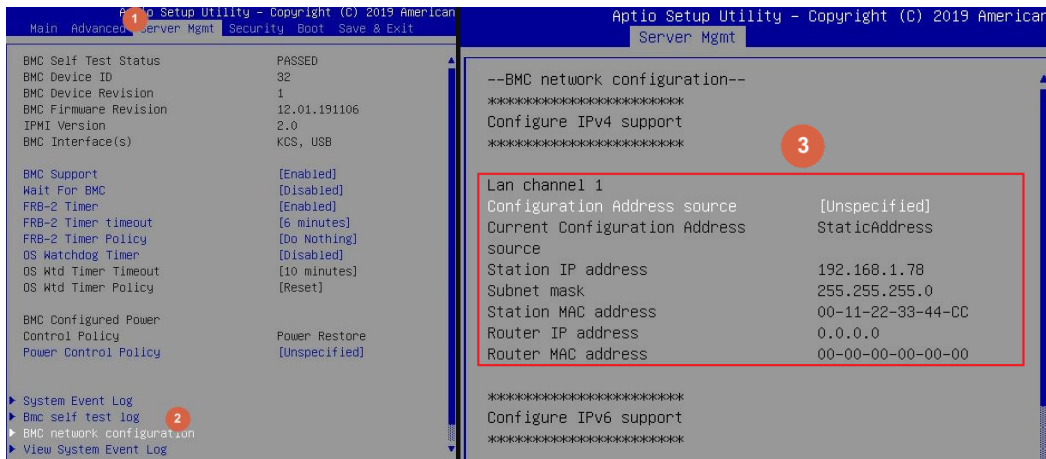
1.1.4 BIOS + SPS update using IPMI Web UI

1. Open web browser. Enter BMC IP address and log in. The default username and password are admin/admin.

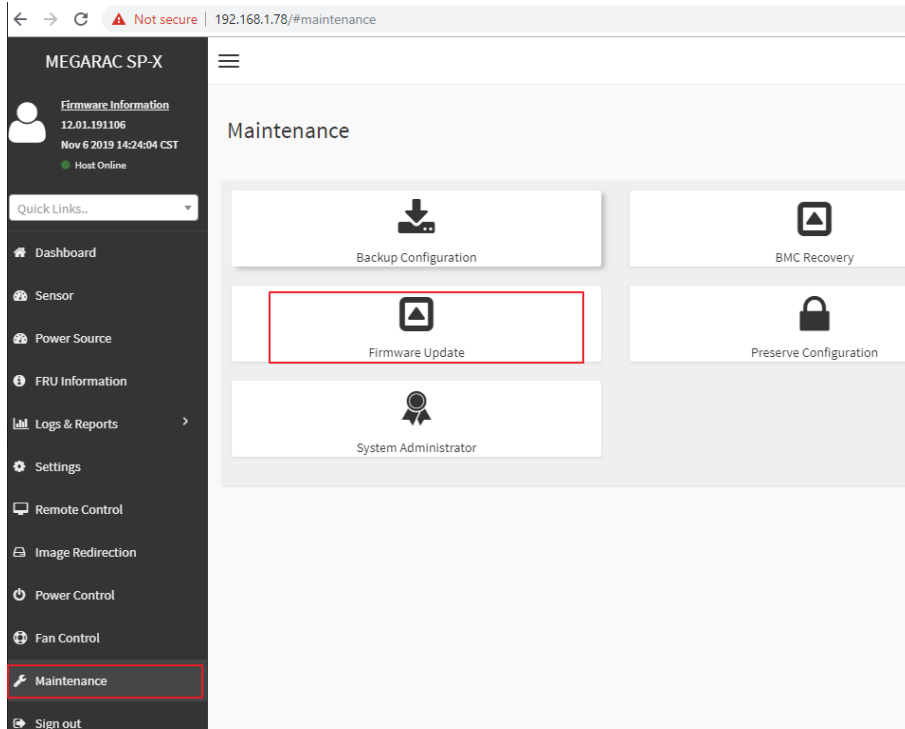
If you get a message that says “Your connection is not private”, just skip it.



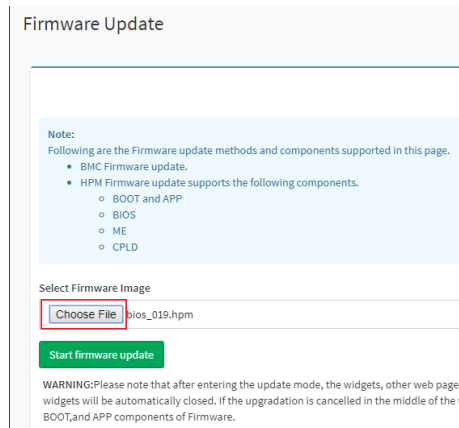
Note: BMC IP address can be configured at BIOS menu.



2. Click the **Maintenance** tab, then **Firmware Update**.

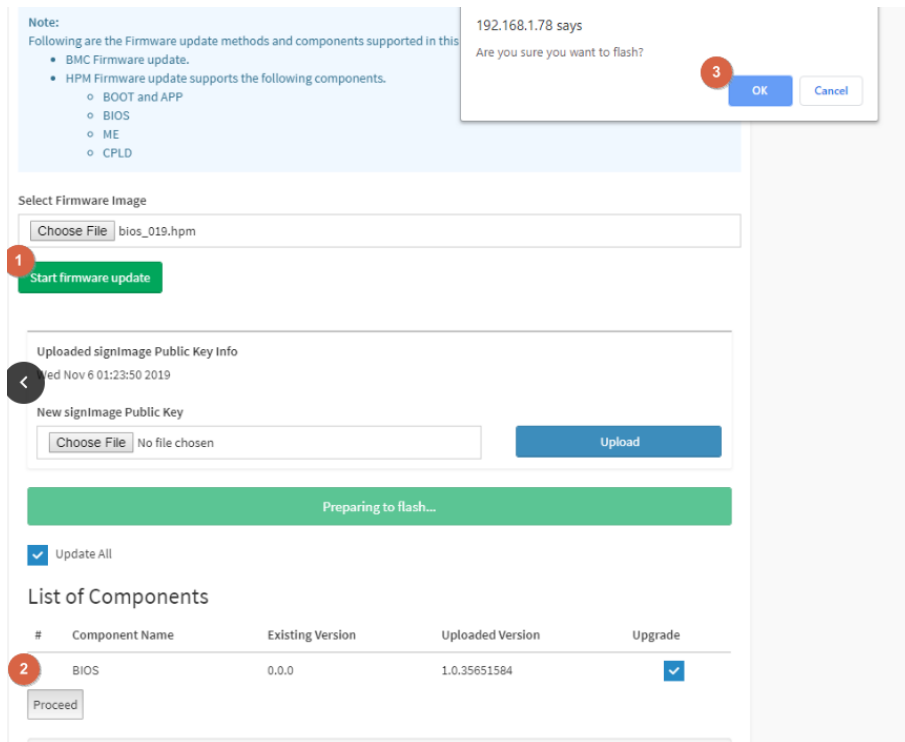


3. **Choose File** to select BIOS file(xxx.hpm).

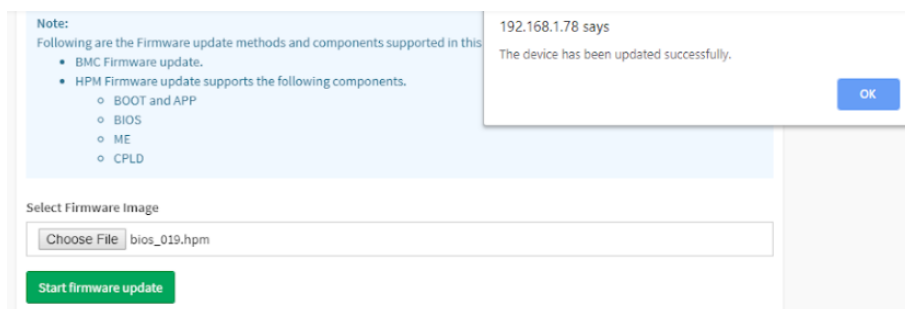


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4. Click the **Start firmware update** button, then **Proceed**. The message appears, “Are you sure you want to flash?”. Click **OK**.



5. The message appears, “The device has been updated successfully.”. Click **OK**.



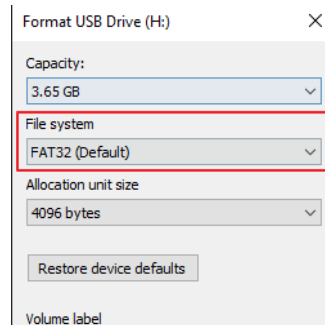
6. Server will reset after few seconds, refer 1.1.1 step9 to check the BIOS and SPS version.

1.2 BIOS

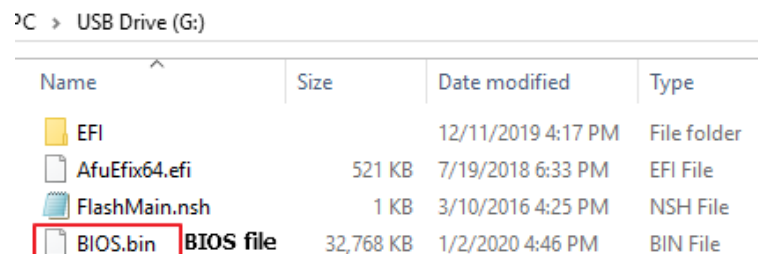
Update Method	OS	Tool
Local Update	UEFI environment	AfuEfix64.efi
	Windows PE environment	AFUWINx64.EXE

1.2.1 BIOS update in UEFI environment

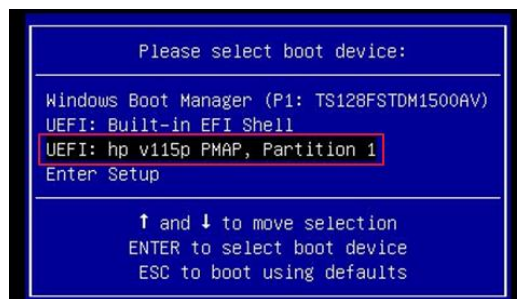
1. Format a USB flash drive to FAT32.



2. Download the tool and BIOS file(xxx.bin) and save at the **root** directory of the USB drive.



3. Power on system. When you hear BIOS ready beep, perss **F11** to enter boot menu and select the USB drive to boot.



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4. Type **fs***: to enter the USB drive, for example **fs0**:

```
EDK II
UEFI v2.70 (American Megatrends, 0x0005000E)
Mapping table
  FS0: Alias(s):HD0h0b:;BLK1:
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x7,0x0)/HD(1,MBR,0x1011BD8C,0x800,0x75
0040)
  BLK0: Alias(s):
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x7,0x0)
  BLK2: Alias(s):
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0xA,0x0)/USB(0x0,0x0)
  BLK3: Alias(s):
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0xA,0x0)/USB(0x1,0x0)
  BLK4: Alias(s):
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0xA,0x0)/USB(0x1,0x0)/Unit(0x1)
Press ESC in 1 seconds to skip startup.nsh or any other key to continue.
Shell> fs0:
```

5. Type **FlashMain.nsh [BIOS file name]** to update BIOS.

```
Shell> fs0:
fs0:\> FlashMain.nsh BIOS.bin_ Input your BIOS name
```

6. When the process ends, make sure all regions are done successfully without any error.

```
WARNING!!
DO NOT turn off the system power,
if the BIOS update process has not been finished yet.
<null string>
-----+-----
|               AMI Firmware Update Utility v5.11.01.1744               |
|               Copyright (C)2018 American Megatrends Inc. All Rights Reserved.               |
|-----+-----|
Reading flash ..... done
- ME Data Size checking . ok
- FFS checksums ..... ok
- Check RomLayout ..... ok.
Erasing Boot Block ..... done
Updating Boot Block ..... done
Verifying Boot Block ..... done
Erasing Main Block ..... done
Updating Main Block ..... done
Verifying Main Block ..... done
Erasing NVRAM Block ..... done
Updating NVRAM Block ..... done
Verifying NVRAM Block ..... done

Process completed.
FS0:\> _
```

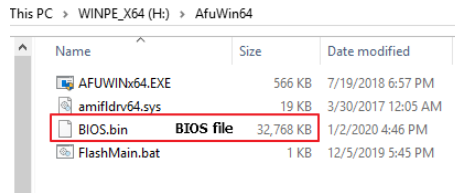
7. Reboot to BIOS to check if BIOS version is correct.

```
Aptio Setup Utility - Copyright (C) 2020 American
Main Advanced Server Mgmt Security Boot Save & Exit

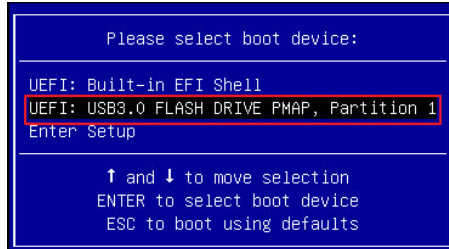
BIOS Information
BIOS Vendor          American Megatrends
Core Version         5.14
Compliancy           UEFI 2.7; PI 1.6
Project Version      0ACLA 0.45 x64
Build Date and Time  09/09/2020 14:30:17
Access Level         Administrator
BIOS Name            HPM6210B
BIOS Version         0.0B
System Language      [English]
Intel RC Version
```


4.1.61.2.2 BIOS update in Windows PE environment

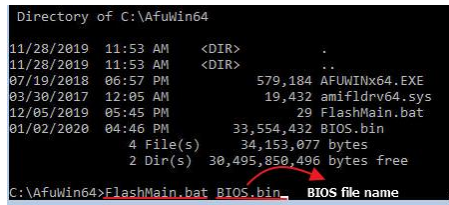
1. Copy update tool and BIOS file(xxx.bin) to WinPE disk.



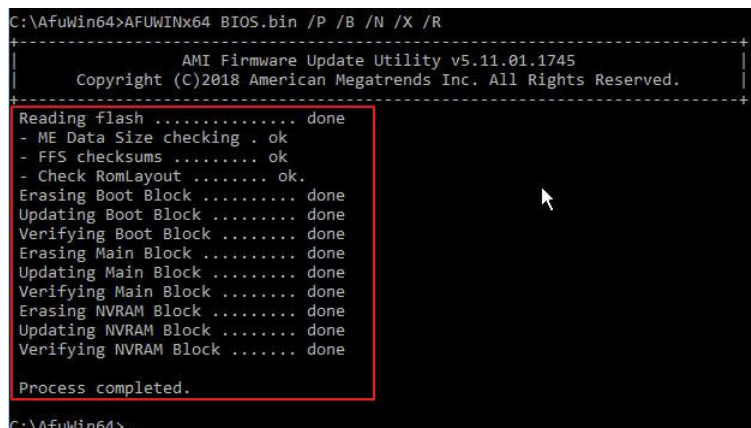
2. Power on Server. When you hear BIOS ready beep, press **F11** to enter boot menu and select the WinPE disk.



3. Switch to BIOS folder and run the command.
FlashMain.bat [BIOS file name]

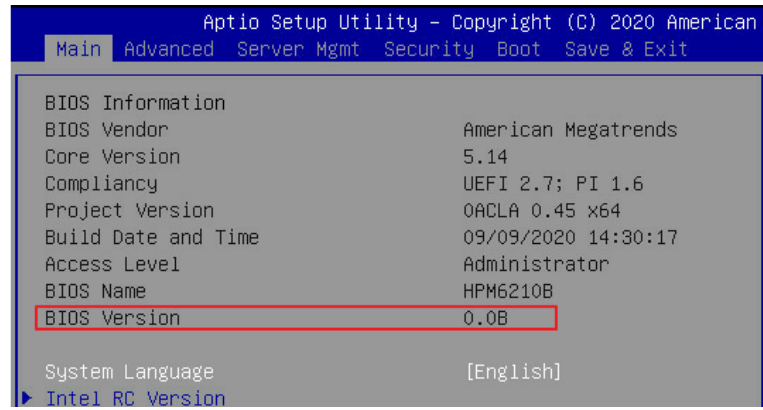


4. When the process ends, make sure all regions are done successfully without any error.



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5. Reboot to BIOS to check if BIOS version is correct.



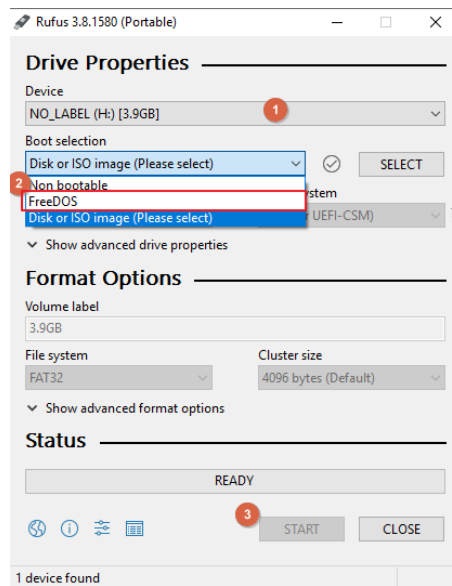
1.3 BMC

Update Method	OS	Tool
Local Update	DOS environment	Yafuflash.exe.
	WinPE environment	Yafuflash.exe
Remote update	IPMI Web UI	No tool required
	IPMI command	Yafuflash.exe

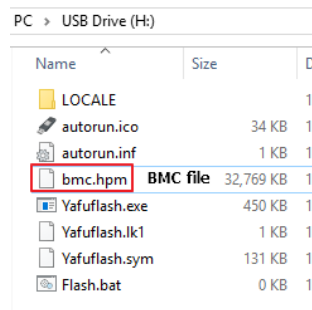
Please refer readme for tool detail information.

4.1.7.1.3.1 BMC update in DOS environment

1. Download **Rufus** to create a DOS USB drive, <https://rufus.ie/>.

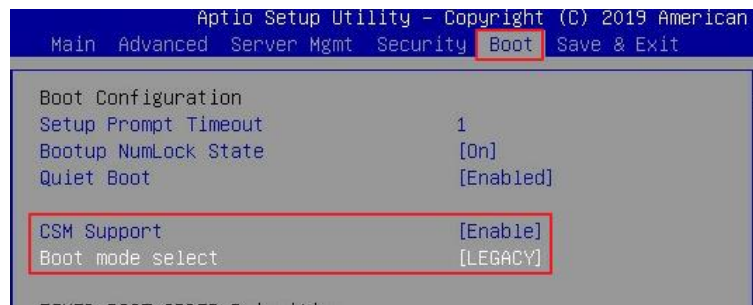


2. Save BMC file to **root** dictory of the DOS USB drive.



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3. Plug the USB drive to the Server and boot to BIOS setup. Switch to **Boot** tab and change **CSM Support** to [Enable], **Boot mode select** to [LEGACY].



Switch to **Save & Exit** tab and then **Save changes and Reset**.



4. When you hear BIOS ready beep, press **F11**, and select the DOS USB drive to boot.

5. Input **flash.bat** [BMC file name] and press enter. Please wait. This process may take 40 minutes.

```
Directory of C:\
LOCALE                <DIR>    11-28-19  3:08p
AUTOEXEC.BAT          96      11-28-19  3:08p
AUTORUN.INF           206     11-28-19  3:08p
AUTORUN.ICO          34,494  11-28-19  3:08p
BMC.HPM              33,554,991 11-25-19  3:03p
YAFU.EXE             460,378 11-19-19  5:52p
YAFU.LK1             160     11-19-19  5:52p
YAFU.SYM            133,488 11-19-19  5:52p
FLASH.BAT            25      11-29-19 11:55a
8 file(s)             34,183,838 bytes
1 dir(s)              3,702 Mega bytes free
C:\>flash.bat bmc.hpm
```

6. When the update process finishes, BMC will reset.

```

PLEASE DO NOT USE THIS FLASH TOOL FROM THE REDIRECTION CONSOLE.
*****
Uploading Firmware Image : 100%... done
Skipping [boot] Module ...
Skipping [conf] Module ...
Flashing [bkupconf] Module ...
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Flashing [root] Module ...
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Flashing [osimage] Module ...
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Flashing [uueul] Module ...
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Flashing [lmedial] Module ...
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Flashing [ast2500e] Module ...
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Resetting the firmware.....
C:\>_
    
```

7. After BMC reset, run **chkver.bat** to check BMC firmware version.

```

C:\>chkver.bat
C:\>Yafu.exe -kcs -mi
INFO: Yafu INI Configuration File not found... Default option
ed...

-----
YAFUFlash - Firmware Upgrade Utility (Version 6.14.0.0)
-----
(C)Copyright 2017, American Megatrends Inc.
=====
          Firmware Details
=====
          Image Version
ModuleName  Description  Version
-----
1.ast2500e  12.1.191112
C:\>
    
```

8. Reboot to BIOS and restore the **CSM support** and **Boot mode select** settings.

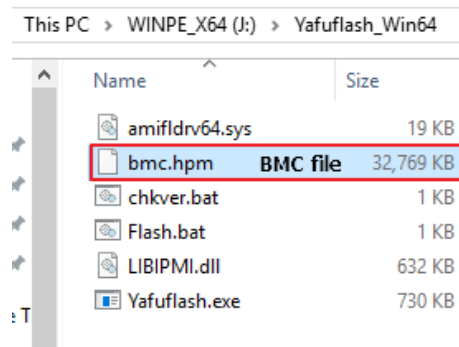


Save changes and exit.

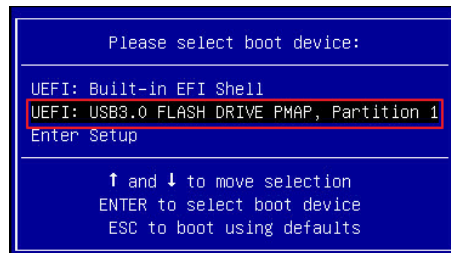
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4.1.81.3.2 BMC update in WinPE environment

1. Copy update tool and BMC file to WinPE disk.



2. Plug the WinPE disk to the Server and power on. When you hear BIOS ready beep, press **F11** to enter boot menu and select the WinPE disk to boot.



3. Switch to the ipmi tool folder and run the command.

Flash.bat [BMC file]

```
12/06/2019 11:51 AM <DIR> .
12/06/2019 11:51 AM <DIR> ..
11/19/2019 05:52 PM 19,432 amifldr64.sys
12/06/2019 11:50 AM 22 chkver.bat
12/06/2019 11:50 AM 30 Flash.bat
11/19/2019 05:52 PM 647,168 LIBIPMI.dll
11/19/2019 05:52 PM 747,520 Yafuflash.exe
11/25/2019 03:03 PM 33,554,991 bmc.hpm
6 File(s) 34,969,163 bytes
2 Dir(s) 30,669,848,576 bytes free

C:\Yafuflash_Win64>Flash.bat bmc.hpm
```

BMC file name

Please wait. This may take few minutes.

4. When the update process finishes, BMC will reset.

```

*****
WARNING!
FIRMWARE UPGRADE MUST NOT BE INTERRUPTED ONCE IT IS STARTED.
PLEASE DO NOT USE THIS FLASH TOOL FROM THE REDIRECTION CONSOLE.
*****
Uploading Firmware Image : 100%... done
Skipping [boot] Module ...
Skipping [conf] Module ...
Flashing [bkupconf] Module ...
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Flashing [root] Module ...
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Flashing [osimage] Module ...
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Flashing [www] Module ...
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Flashing [lmedia] Module ...
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Flashing [ast2500e] Module ...
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Resetting the firmware.....
C:\YafuFlash_Win64>

```

5. After BMC reset, run **chkver.bat** to check BMC firmware version.

```

C:\YafuFlash_Win64>chkver.bat
C:\YafuFlash_Win64>YafuFlash.exe -kcs -mi
INFO: Yafu INI Configuration File not found... Default optio
-----
YAFUFlash - Firmware Upgrade Utility (Version 6.14.0.0)
-----
(C)Copyright 2017, American Megatrends Inc.
=====
Firmware Details
=====
Image Version
ModuleName Description Version
1.ast2500e 12.1.191112
C:\YafuFlash_Win64>

```

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4.1.91.3.3 BMC update using Web UI

1. Open web browser. Enter BMC IP address and log in. The default user name and password are admin/admin.

If you get a message that says “Your connection is not private”, just skip it.



Your connection is not private

Attackers might be trying to steal your information from 192.168.1.78 (for example, passwords, messages, or credit cards). [Learn more](#)

NET:ERR_CERT_AUTHORITY_INVALID

Help improve Chrome security by sending URIs of some pages you visit, limited system information, and some page content to Google. [Privacy policy](#)

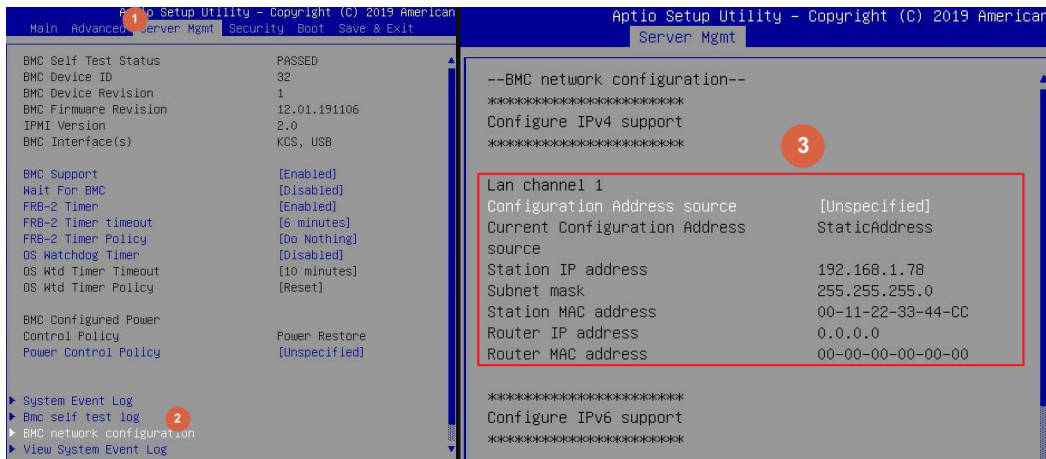
1 Hide advanced

Back to safety

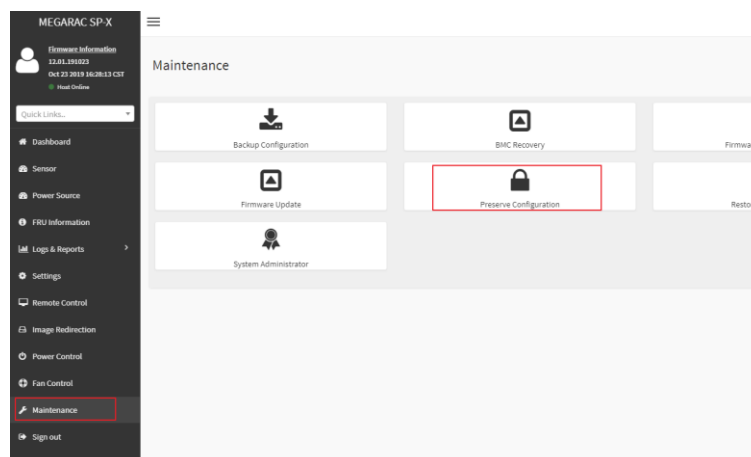
This server could not prove that it is 192.168.1.78; its security certificate is not trusted by your computer's operating system. This may be caused by a misconfiguration or an attacker intercepting your connection.

2 Proceed to 192.168.1.78 (unsafe)

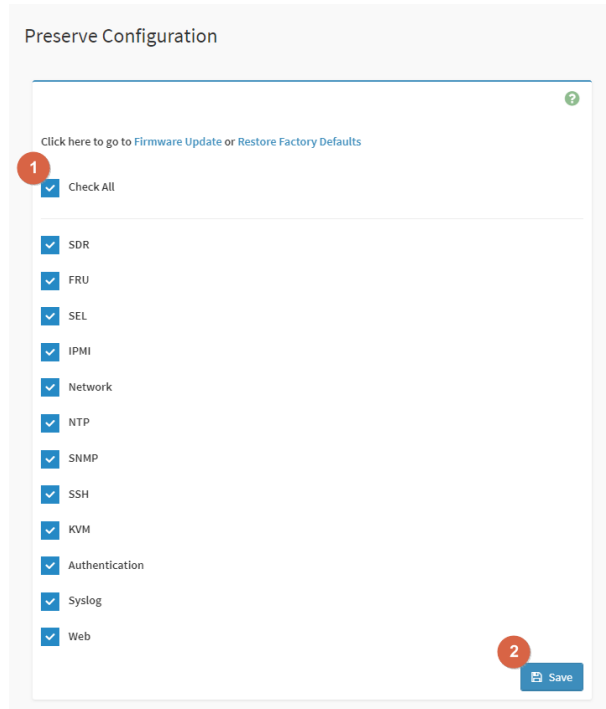
Note: BMC IP address can be configured at BIOS menu.



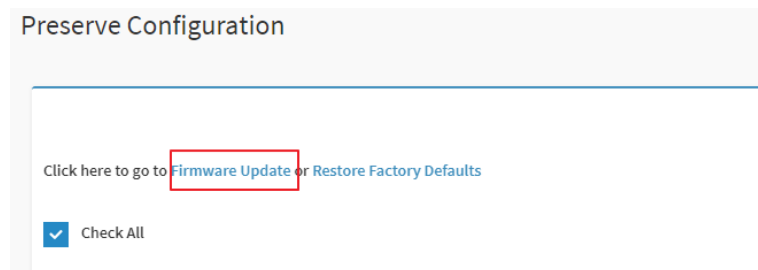
2. Click the **Maintenance** tab, then **Preserve Configuration**.



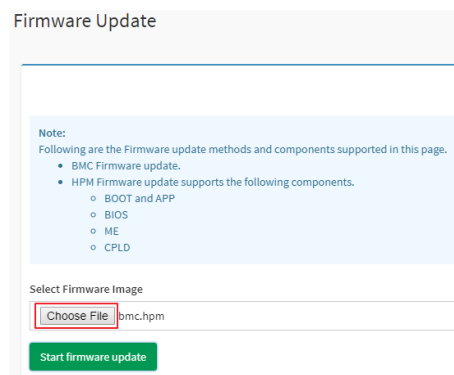
Check all and Save.



3. Click the link to go to Firmware Update.

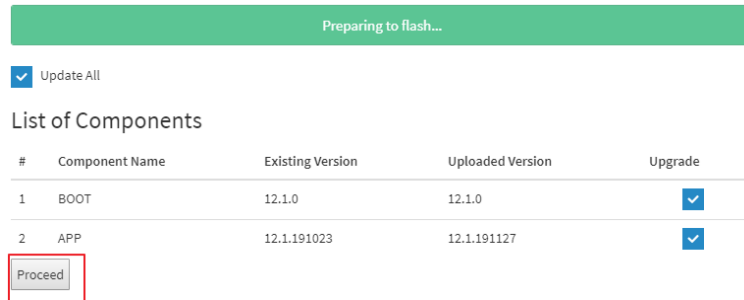


4. Choose File to select BMC file.

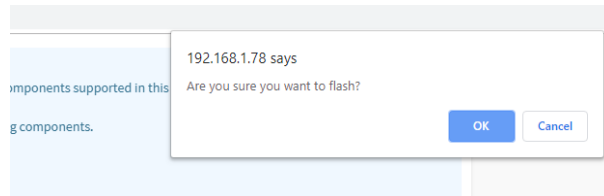


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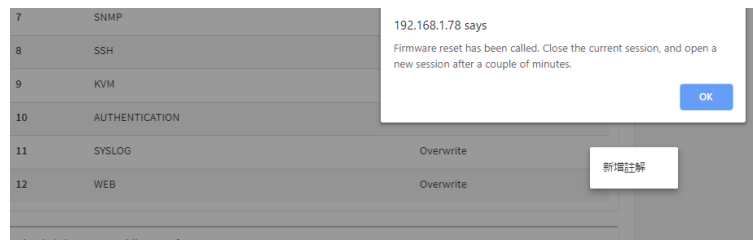
5. Click the **Start firmware update** button, then scroll down and click **Proceed**.



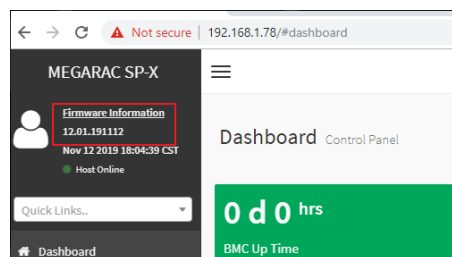
The message appears, “Are you sure you want to flash?”. Click **OK**.



6. The message appears, “Firmware reset has been called. Close this current session, and open a new session after a couple of minutes.”. Click **OK**.

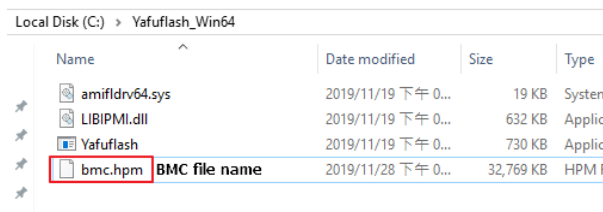


7. Reboot the server and then login to check the BMC firmware version.



4.1.101.3.4 BMC update using IPMI tool

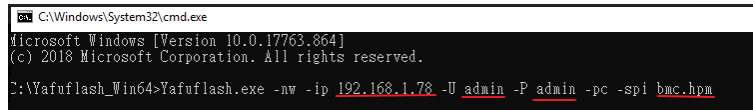
1. Save **BMC** file to **Yafuflash** folder.



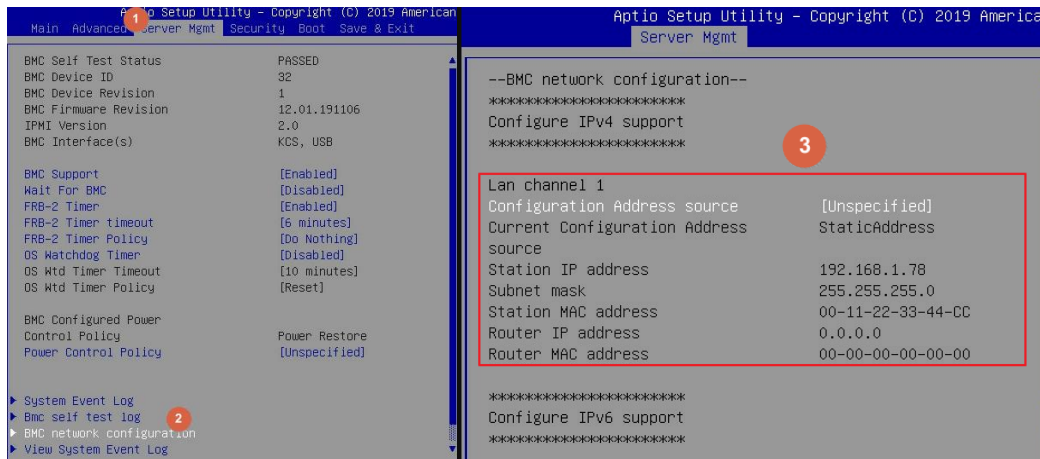
2. Open Command Prompt (admin) and change directory to Yafuflash tool folder.

3. Input the command:

Yafuflash.exe -nw -ip [BMC IP address] -U [user name] -P [user password] -pc -spi [BMC file name]. The default username and password are admin/admin.

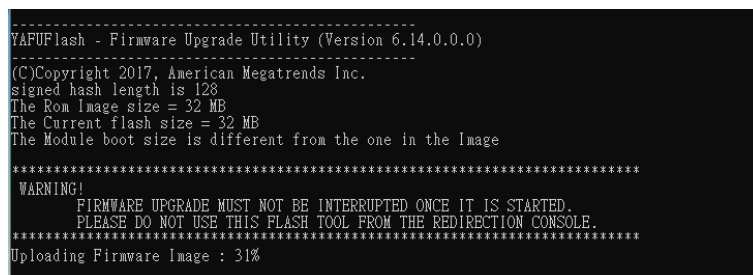


Note: BMC IP address can be configured at BIOS menu.



4. When the following screen shows, please wait few seconds.

The update process will start.



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5. When the update process finishes, BMC will reset.

```
C:\Windows\System32\cmd.exe
*****
WARNING!
FIRMWARE UPGRADE MUST NOT BE INTERRUPTED ONCE IT IS STARTED.
PLEASE DO NOT USE THIS FLASH TOOL FROM THE REDIRECTION CONSOLE.
*****
Uploading Firmware Image : 100%.. done
Skipping [boot] Module ....
Skipping [conf] Module ....
Flashing [bkupconf] Module ....
Flashing Firmware Image : 100%.. done
Verifying Firmware Image : 100%.. done
Flashing [root] Module ....
Flashing Firmware Image : 100%.. done
Verifying Firmware Image : 100%.. done
Flashing [osimage] Module ....
Flashing Firmware Image : 100%.. done
Verifying Firmware Image : 100%.. done
Flashing [www] Module ....
Flashing Firmware Image : 100%.. done
Verifying Firmware Image : 100%.. done
Flashing [lmedia] Module ....
Flashing Firmware Image : 100%.. done
Verifying Firmware Image : 100%.. done
Flashing [ast2500e] Module ....
Flashing Firmware Image : 100%.. done
Verifying Firmware Image : 100%.. done
Resetting the firmware.....
```

6. Reboot the server. Check BMC firmware version by following fommand.

Yafuflash.exe -nw -ip [BMC IP address] -U [user name] -P [user password] -mi

```
C:\Yafuflash_Win64>Yafuflash.exe -nw -ip 192.168.1.78 -U admin -P admin -mi
INFO: Yafu INI Configuration File not found... Default options will not be applied...

Creating IPMI session via network with address 192.168.1.78...Done

-----
YAFUFlash - Firmware Upgrade Utility (Version 6.14.0.0)
-----
(C)Copyright 2017, American Megatrends Inc.
-----
Firmware Details
-----
ModuleName      Image Version      Version
-----
1.ast2500e      12.1.191112
```

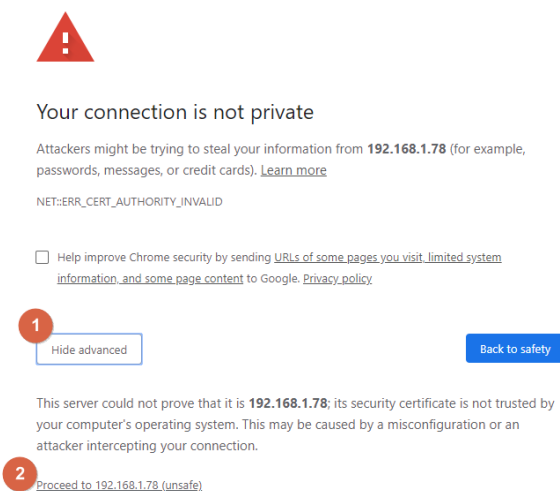
4.21.4 CPLD

Update Method	OS	Tool
Remote update	IPMI Web UI	No tool required
	IPMI command	Yafuflash.exe

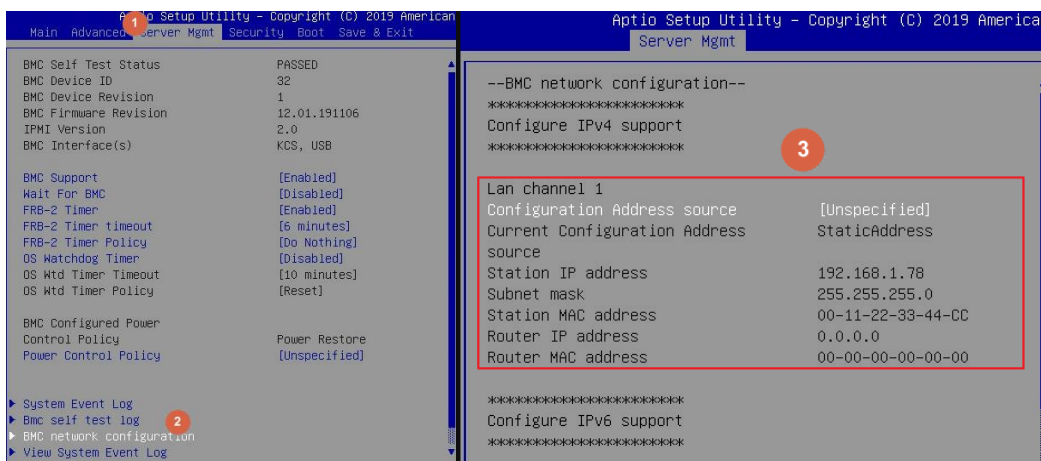
4.21.4.1 CPLD update using Web UI

1. Open browser. Enter BMC IP address and log in. The default user name and password are admin/admin.

If you get a message that says “Your connection is not private”, just skip it.

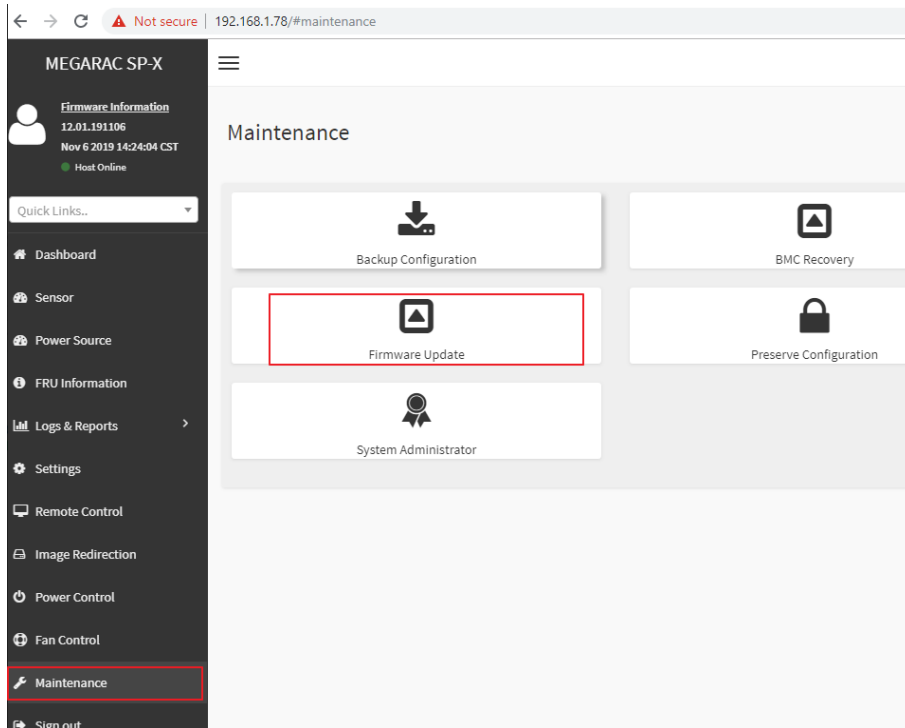


Note: BMC IP address can be configured at BIOS menu.

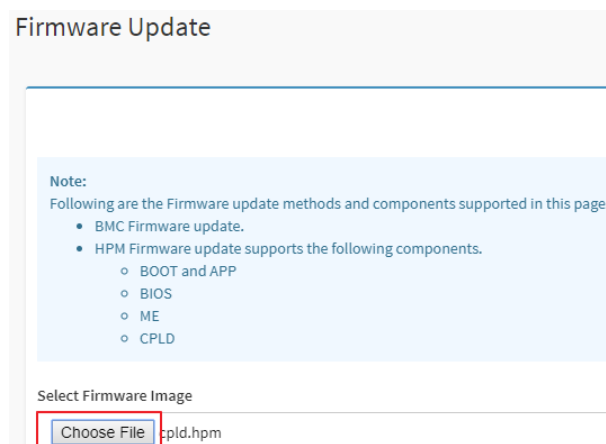


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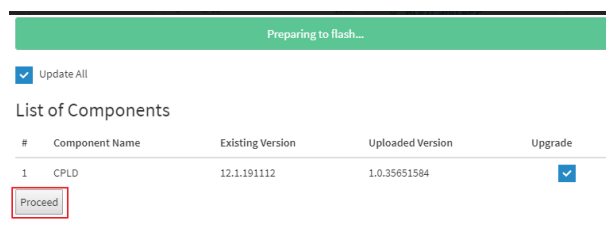
2. Click the **Maintenance** tab, then **Firmware Update**.



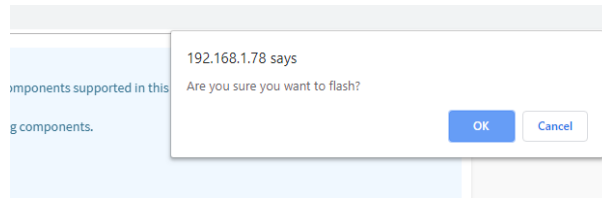
3. Choose **File** to select CPLD file.



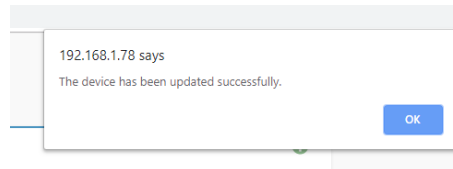
4. Click the **Start firmware update** button, then scroll down and click **Proceed**.



The message appears, "Are you sure you want to flash?". Click **OK**.



5. The message appears, "The device has been updated successfully". Click **OK**.

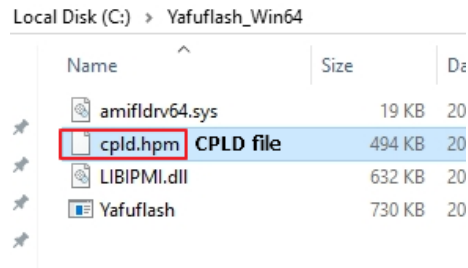


6. Shutdown the server and turn off AC power for 10 seconds.

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4.2.21.4.2 CPLD update using IPMI tool

1. Save **CPLD** file to **Yafuflash** folder.



2. Open Command Prompt (admin) and change directory to Yafuflash tool folder.

3. Input the command: `Yafuflash.exe -nw -ip [BMC IP address] -U [user name] -P [user password] -d 4 [CPLD file name]`. The default username and password are admin/admin.

```
C:\Yafuflash_Win64>Yafuflash.exe -nw -ip 192.168.1.78 -U admin -P admin -d 4 cpld.hpm
INFO: Yafu INI Configuration File not found... Default options will not be applied...
Creating IPMI session via network with address 192.168.1.78...Done
-----
YAFUFlash - Firmware Upgrade Utility (Version 6.14.0.0.0)
-----
(C)Copyright 2017, American Megatrends Inc.
signed hash length is 128
Beginning CPLD Update...
Please type (Y/y) to Update or (N/n) to Cancel
Enter your Option : Y
Uploading Image : 100%... done
Flashing Firmware Image : 100%... done
```

4. After the process finishing, shutdown the server and turn off AC power for 10 seconds.

```
C:\Yafuflash_Win64>Yafuflash.exe -nw -ip 192.168.1.78 -U admin -P admin -d 4 cpld.hpm
INFO: Yafu INI Configuration File not found... Default options will not be applied...
Creating IPMI session via network with address 192.168.1.78...Done
-----
YAFUFlash - Firmware Upgrade Utility (Version 6.14.0.0.0)
-----
(C)Copyright 2017, American Megatrends Inc.
signed hash length is 128
Beginning CPLD Update...
Please type (Y/y) to Update or (N/n) to Cancel
Enter your Option : Y
Uploading Image : 100%... done
Flashing Firmware Image : 100%... done
C:\Yafuflash_Win64>
```


2 Smart Fan Configuration

2.1 OEM Message Format

The OEM command bytes are organized according to the following format specification:

Byte 1	Byte 2	Byte 3:N
Function code	Cmd	Data

Where:

- Function code** **0x30** is the OEM function code, and default Privilege Level is User. **If you use “ipmiutil” tool in Windows OS, replace “0x30” with “00 20 C0”.**
- Cmd** Command code. This message byte specifies the operation that it to be executed.
- Data** Zero or more bytes of data, as required by given command.

2.2 OEM Command Table

Description	Function code	Cmd	Data/Response data
Set fan mode	0x30	0x01	[Mode] 0 = standard mode 1 = full mode 2 = optimal mode 3 = manual mode
Get fan mode	0x30	0x30	The response data is the fan mode. 0 = standard mode 1 = full mode 2 = optimal mode 3 = manual mode
Set fan PWM	0x30	0x35	[Fan] [PWM] Fan: 0 = CPU1_FAN1 1 = CPU2_FAN1 2 = SYS_FAN1 3 = SYS_FAN2 4 = SYS_FAN3 5 = HDD_FAN1 6 = SYS_FAN4 (HPM-621UA) PWM: The PWM duty cycle range should be 0x1E to 0x64(30%~100%).

Get fan PWM	0x30	0x36	The response data represent each fan PWM.
-------------	------	------	---

The OEM commands can be run at local or remote console. Please refer next section.

2.3 Example

2.3.1 Locally set PWM of SYS_FAN3 to 0x20 by "ipmiutil" in Windows OS.

Step 1. Run Command Prompt as Administrator.

Step 2. Get fan mode

```
C:\ipmiutil-3.1.5-win32>ipmiutil cmd 00 20 c0 30
ipmiutil cmd ver 3.15
This is a test tool to compose IPMI commands.
Do not use without knowledge of the IPMI specification.
-- BMC version 0.6, IPMI version 2.0
respData[len=1]: 00
send_icmd ret = 0
ipmiutil cmd, completed successfully
```

Step 3. Set fan mode to manual mode

```
C:\ipmiutil-3.1.5-win32>ipmiutil cmd 00 20 c0 1 3
ipmiutil cmd ver 3.15
This is a test tool to compose IPMI commands.
Do not use without knowledge of the IPMI specification.
-- BMC version 0.6, IPMI version 2.0
respData[len=1]: 03
send_icmd ret = 0
ipmiutil cmd, completed successfully
```

Step 4. Set fan PWM

```
C:\ipmiutil-3.1.5-win32>ipmiutil cmd 00 20 c0 35 4 20
ipmiutil cmd ver 3.15
This is a test tool to compose IPMI commands.
Do not use without knowledge of the IPMI specification.
-- BMC version 0.6, IPMI version 2.0
respData[len=1]: 00
send_icmd ret = 0
ipmiutil cmd, completed successfully
```

Step 5. Get fan PWM

```
C:\ipmiutil-3.1.5-win32>ipmiutil cmd 00 20 c0 36
ipmiutil cmd ver 3.15
This is a test tool to compose IPMI commands.
Do not use without knowledge of the IPMI specification.
-- BMC version 0.6, IPMI version 2.0
respData[len=8]: 64 64 28 28 20 10 10 10
send_icmd ret = 0
ipmiutil cmd, completed successfully
```

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2.3.2 Remotely set PWM of CPU1_FAN1 to 0x10 by “ipmiutil” in Windows OS.

Step 1. Run Command Prompt as Administrator.

Step 2. Get fan mode

```
ipmiutil.exe cmd -N [BMC IP] -U [user name] -P [user password] 00 20 c0 30 30
```

```
C:\ipmiutil-3.1.5-win32>ipmiutil.exe cmd -N 192.168.1.78 -U admin -P admin 00 20 c0 30
ipmiutil cmd ver 3.15
This is a test tool to compose IPMI commands.
Do not use without knowledge of the IPMI specification.
Connecting to node 192.168.1.78
-- BMC version 0.6, IPMI version 2.0
respData[len=1]: 01
send_icmd ret = 0
ipmiutil cmd, completed successfully
```

Step 3. Set fan mode to manual mode

```
ipmiutil.exe cmd -N [BMC IP] -U [user name] -P [user password] 00 20 c0 1 3 1 3
```

```
C:\ipmiutil-3.1.5-win32>ipmiutil.exe cmd -N 192.168.1.78 -U admin -P admin 00 20 c0 1 3
ipmiutil cmd ver 3.15
This is a test tool to compose IPMI commands.
Do not use without knowledge of the IPMI specification.
Connecting to node 192.168.1.78
-- BMC version 0.6, IPMI version 2.0
respData[len=1]: 03
send_icmd ret = 0
ipmiutil cmd, completed successfully
```

Step 4. Set fan PWM

```
ipmiutil.exe cmd -N [BMC IP] -U [user name] -P [user password] 00 20 c0 35 0 10 35 0 10
```

```
C:\ipmiutil-3.1.5-win32>ipmiutil.exe cmd -N 192.168.1.78 -U admin -P admin 00 20 c0 35 0 10
ipmiutil cmd ver 3.15
This is a test tool to compose IPMI commands.
Do not use without knowledge of the IPMI specification.
Connecting to node 192.168.1.78
-- BMC version 0.6, IPMI version 2.0
send_icmd ret = 0
ipmiutil cmd, completed successfully
```

Step 5. Get fan PWM

```
ipmiutil.exe cmd -N [BMC IP] -U [user name] -P [user password] 00 20 c0 36 36
```

```
C:\ipmiutil-3.1.5-win32>ipmiutil.exe cmd -N 192.168.1.78 -U admin -P admin 00 20 c0 36
ipmiutil cmd ver 3.15
This is a test tool to compose IPMI commands.
Do not use without knowledge of the IPMI specification.
Connecting to node 192.168.1.78
-- BMC version 0.6, IPMI version 2.0
respData[len=8]: 10 64 64 64 64 64 64 64
send_icmd ret = 0
ipmiutil cmd, completed successfully
```

3 SEL Troubleshooting

3.1 Memory Correctable and Uncorrectable ECC Error

ECC errors are divided into Uncorrectable ECC Errors and Correctable ECC Errors.

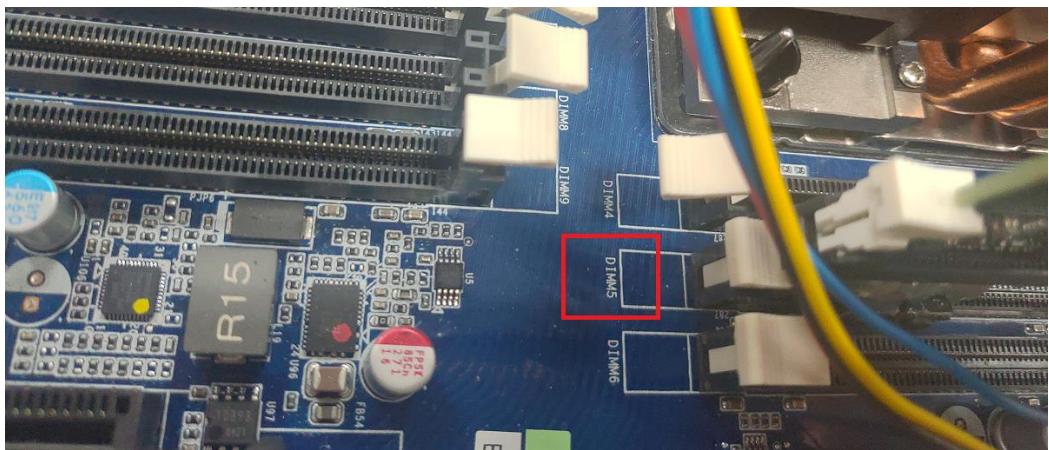
Correctable ECC errors can be detected and corrected if the chipset and DIMM support this functionality. This event in itself does not pose any direct problems because the ECC errors are still being corrected. Even though this event doesn't immediately lead to problems, it can indicate on the DIMM modules is slowly failing. If this error occurs multiple times, consider replacing the DIMM as a preventative measure.

An uncorrectable ECC error is a fatal issue. While correctable errors do not affect the normal operation of the system, uncorrectable memory errors will immediately result in a system crash or shutdown of the system. If an uncorrectable ECC error has occurred, consider replacing the DIMM as a preventative measure.

DIMM location from SEL:

1. Issue the command
`ipmitool -I lanplus -H [BMC IP address] -U [user name] -P [user password] sel elist`
2. The SEL log will indicate which DIMM happens error

```
root@klash-VirtualBox:/home/klash/igt621/avalue_rr12# ipmitool -I lanplus -H 192.168.0.114 -U admin -P admin sel elist
1 06/08/2020 22:50:13 Fan SYS FAN1 Lower Critical going low Asserted Reading 0 < Threshold 800 RPM
2 06/08/2020 22:50:13 Fan SYS FAN2 Lower Critical going low Asserted Reading 0 < Threshold 800 RPM
3 06/08/2020 22:50:13 Fan SYS FAN3 Lower Critical going low Asserted Reading 0 < Threshold 500 RPM
4 06/08/2020 22:50:14 Physical Security ChassisIntrusion General Chassis intrusion Asserted
5 06/08/2020 22:54:14 Memory DIMM5 Correctable ECC Logging limit reached Asserted
6 06/08/2020 22:56:00
```



Logs & Reports >>IPMI Event Log

i ID: 11 DIMM5 sensor of type memory logged a correctable ecc logging limit reached 🕒 in 8 hours

3.2 PCIe Errors

PCIe error events are either correctable (informational event) or fatal. In both cases information is logged to help identify the source of the PCIe error and the location.

Correctable errors include those error conditions where hardware can recover without any loss of information. Correctable errors are acceptable and normal at a low rate of occurrence. If the error continues, identify the card from SEL and check the following steps.

- a. Verify the card is inserted properly.
- b. Install the card in another slot and check if the error follows the card or stays with the slot.
- c. Update all firmware and driver.

Fatal errors are uncorrectable error conditions which render the particular Link and related hardware unreliable. For Fatal errors, a reset of the components on the Link may be required to return to reliable operation. When a fatal error is reported, identify the card from SEL and check the following steps.

- a. Verify the card is inserted properly.
- b. Install the card in another slot and check if the error follows the card or stays with the slot.
- c. Update all firmware and driver.

PCIe location from SEL:

1. Issue the command

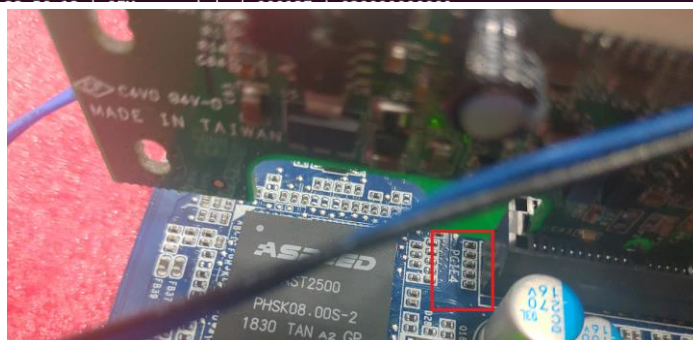
```
ipmitool -I lanplus -H [BMC IP address] -U [user name] -P [user password] sel elist
```

2. The SEL log will indicate which PCIe happens error

```

1 | 06/08/2020 | 22:50:13 | Fan SYS FAN1 | Lower Critical going low | Asserted | Reading 0 < Threshold 800 RPM
2 | 06/08/2020 | 22:50:13 | Fan SYS FAN2 | Lower Critical going low | Asserted | Reading 0 < Threshold 800 RPM
3 | 06/08/2020 | 22:50:13 | Fan SYS FAN3 | Lower Critical going low | Asserted | Reading 0 < Threshold 500 RPM
4 | 06/08/2020 | 22:50:14 | Physical Security ChassisIntrusion | General Chassis intrusion | Asserted
5 | 06/08/2020 | 22:54:14 | Memory DIMMS | Correctable ECC logging limit reached | Asserted
6 | 06/08/2020 | 22:56:09 | Critical Interrupt PCIE SLOT4 | Bus Fatal Error | Asserted
7 | 06/08/2020 | 22:56:11 | OS Stop/Shutdown | Run-time critical stop | Asserted
8 | 06/08/2020 | 22:56:12 | OEM record de | 000137 | 012401000001
9 | 06/08/2020 | 22:56:12 | OEM record de | 000137 | 020000000001

```



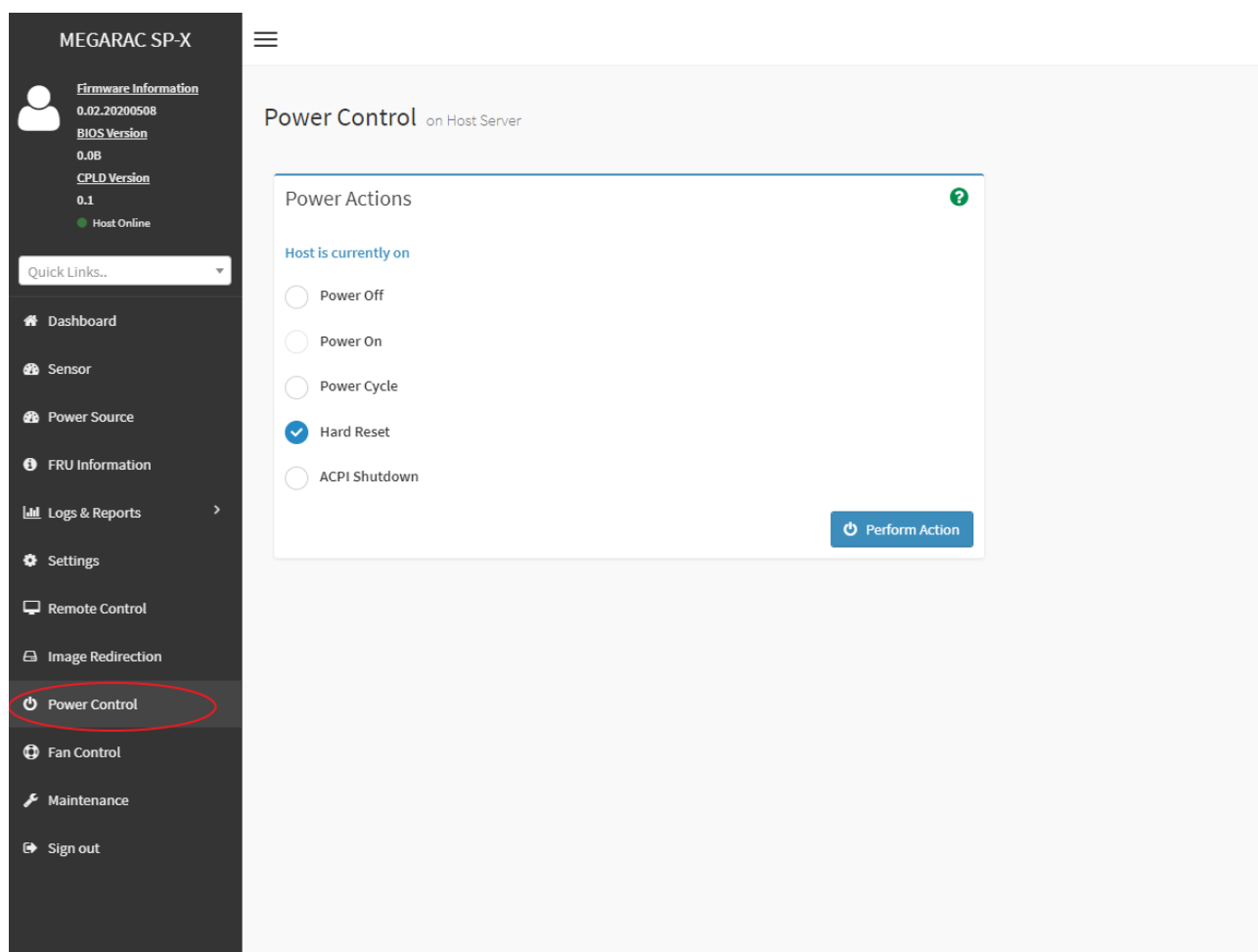
Logs & Reports >>IPMI Event Log

✕
ID: 69 PCIE_SLOT4 sensor of type critical_interrupt logged a bus fatal error 🕒 in 8 hours

4 Web UI futures

4.1 Remote Power Control

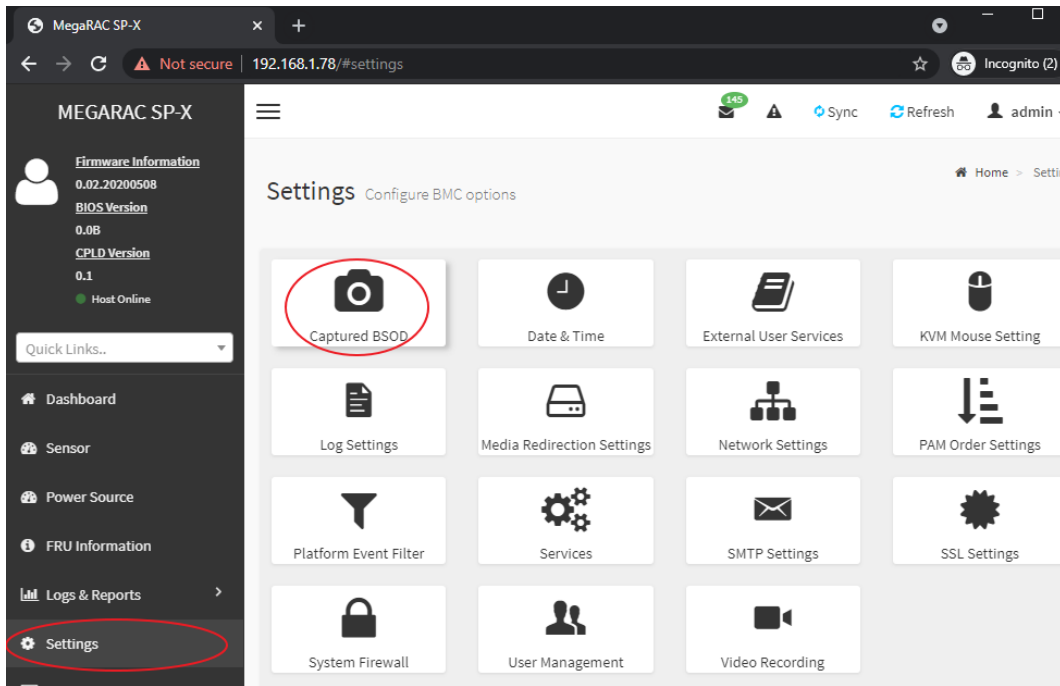
- 1 Click the **Power Control** tab, and then select the option and press **Perform Action** button.



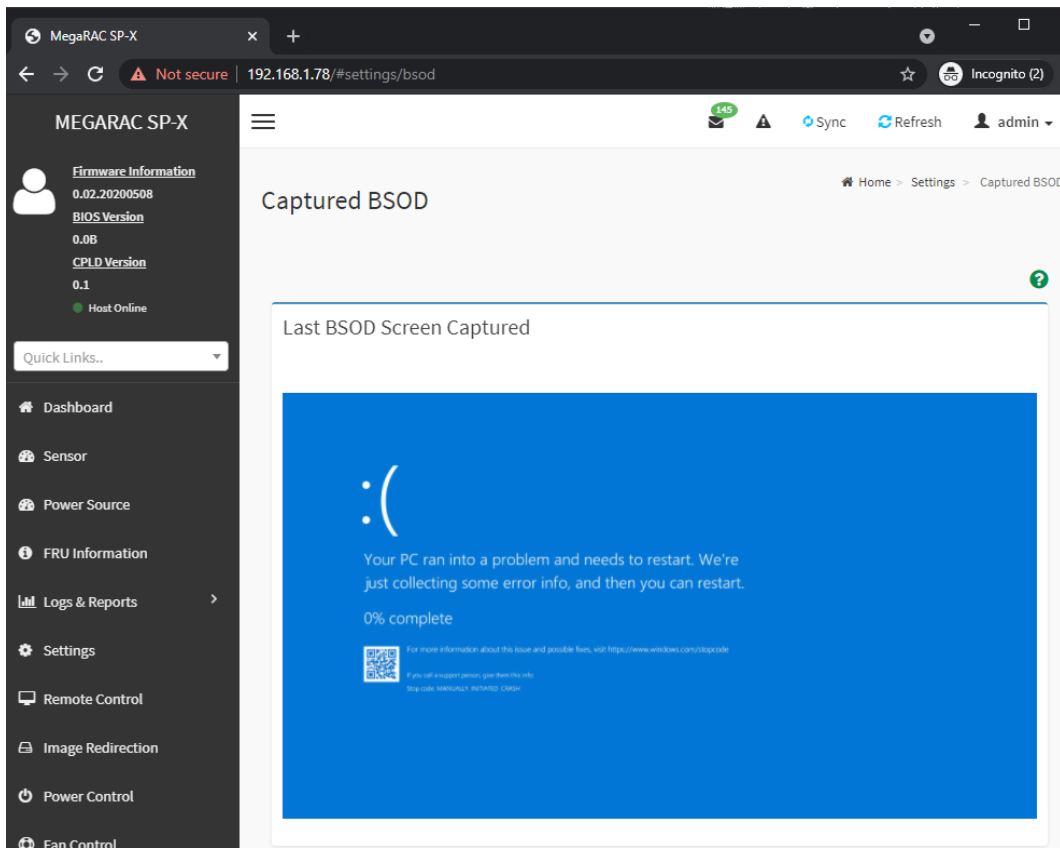
- **Power Off**
Immediately power off the server
- **Power On**
Power on the server
- **Power Cycle**
Reboot the system without powering off (warm boot)
- **Hard Reset**
Select this option to reboot the system without powering off (warm boot)
- **ACPI Shutdown**
Initiate operating system shutdown prior to the shutdown

4.2 Capture and save BSOD information

- 1 Click the **Settings** tab, and then click **Capture BSOD** option.

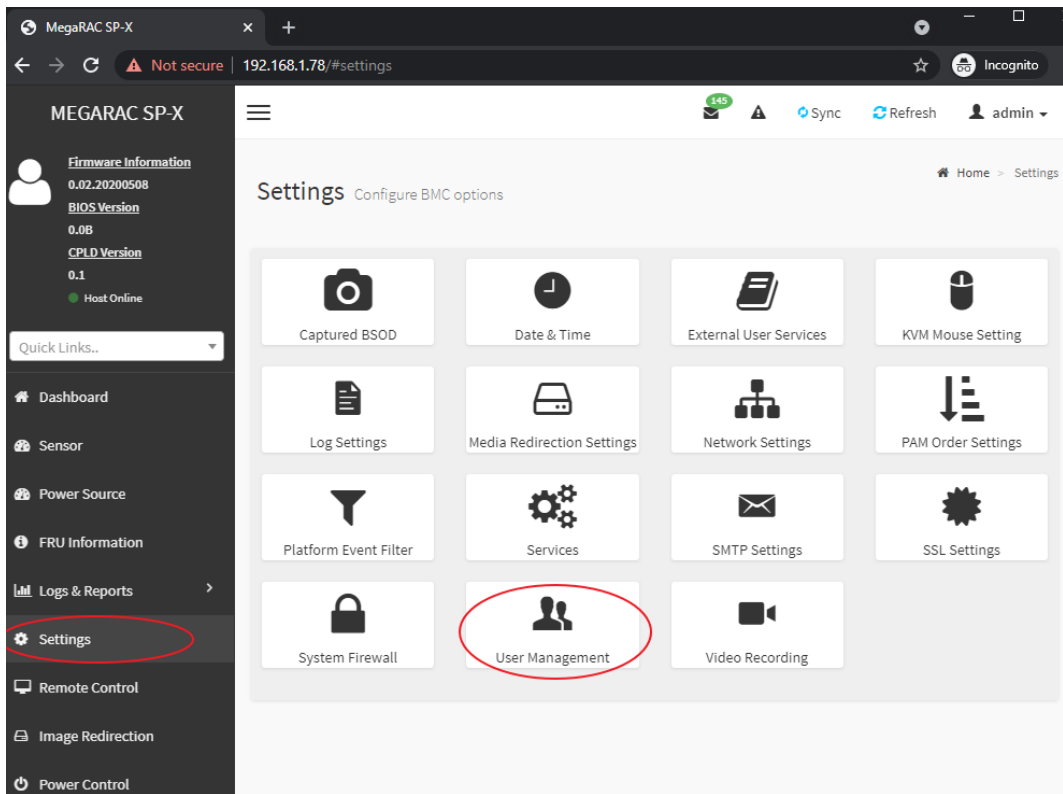


- 2 This page displays a snapshot of the blue screen captured if the host system crashed since the last reboot.

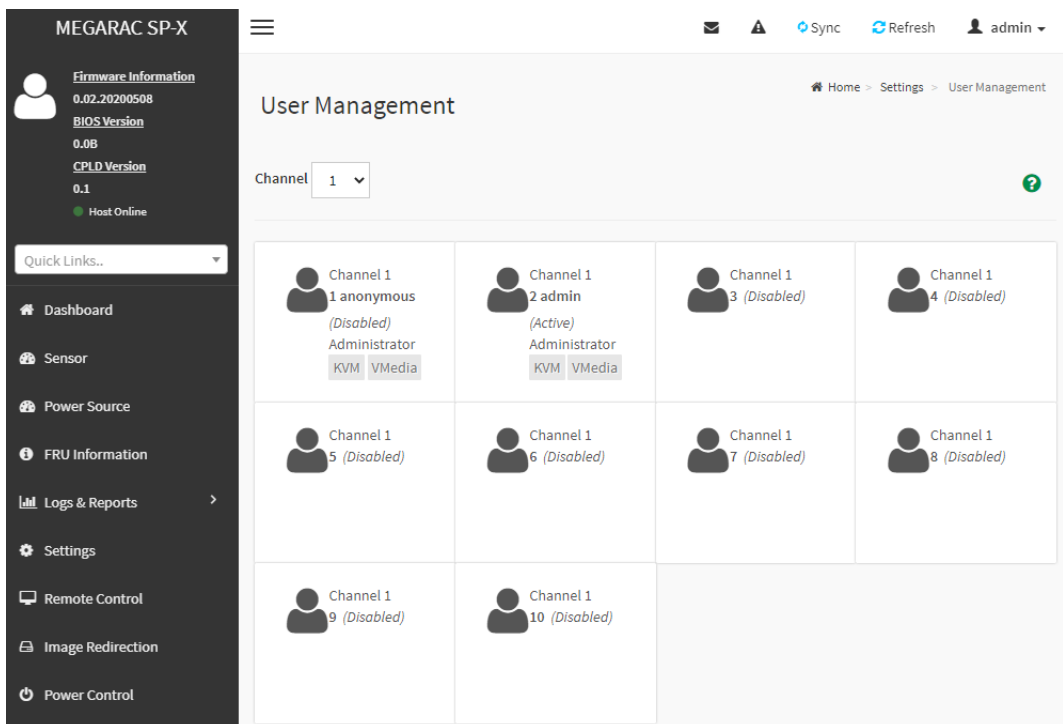


4.3 User Management

1 Click the **Settings** tab, and then click the **User Management** option.



2 Select the user to edit.



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You can change user password or modify user privilege at the Configuration page.

