Accelerate your AI workloads with UCS-C885-M8

Initial setup, best practices, and basic troubleshooting

Jason Smith
HCI / AI – Escalation Engineer

CISCO Live !

Agenda

Features and use cases

CISCO Live !

Other sessions for more information on AI

- BRKCOM-1047 - Check-M8! Changing the AI Game with the latest UCS Innovations

- IBONWT-2501 - From Bottlenecks to Breakthroughs: AIOps for AI Workloads

- CISCOU-2062 - Accelerating AI with Cisco Infrastructure and NVIDIA Blueprints

- CENDEV-1997 - Operational AI: Practical Application of GenAI in the Stack

- TECDCN-2401 - Designing AI-Ready Infrastructure in your Data Center

- CIUG-1106 - Empowering Your AI Journey: Unveiling the Future of Cisco Compute Platforms
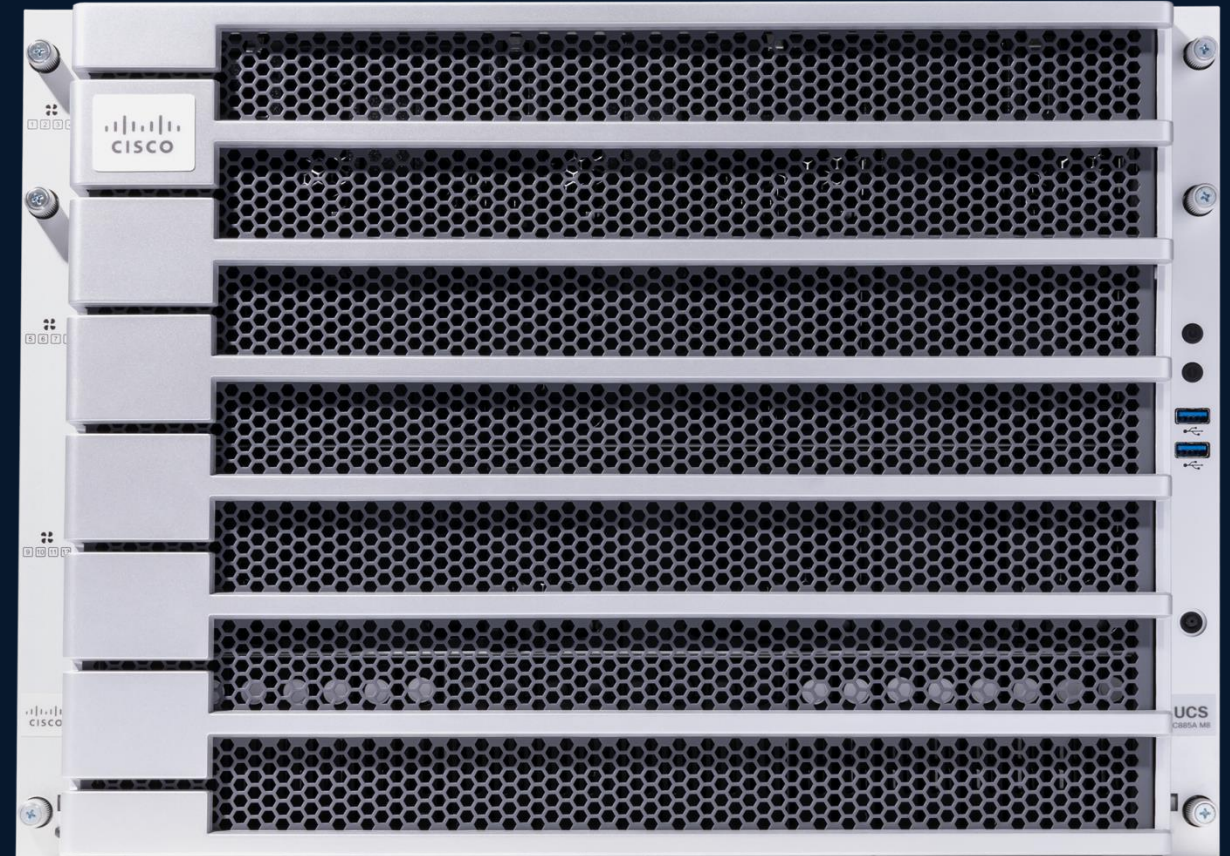
C885-M8 features

Training and Fine-tuning with clusters (up to 32 servers)

Inferencing and Retrieval-Augmented Generation with standalone servers
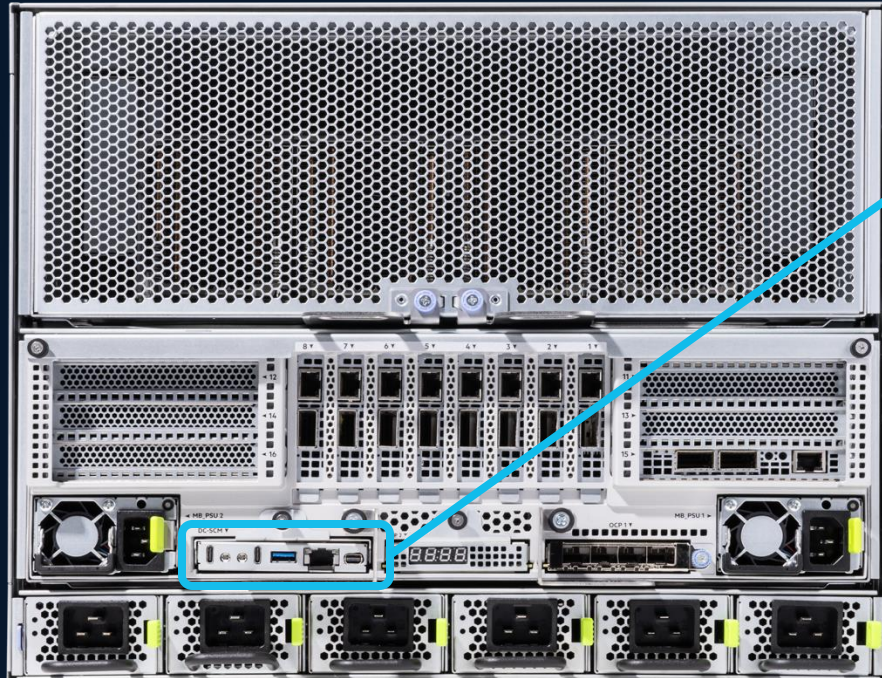
InfiniBand or Ethernet networks

8x AMD or 8x Nvidia GPUs

Cisco Intersight

Initial CIMC Configuration

CISCO Live!

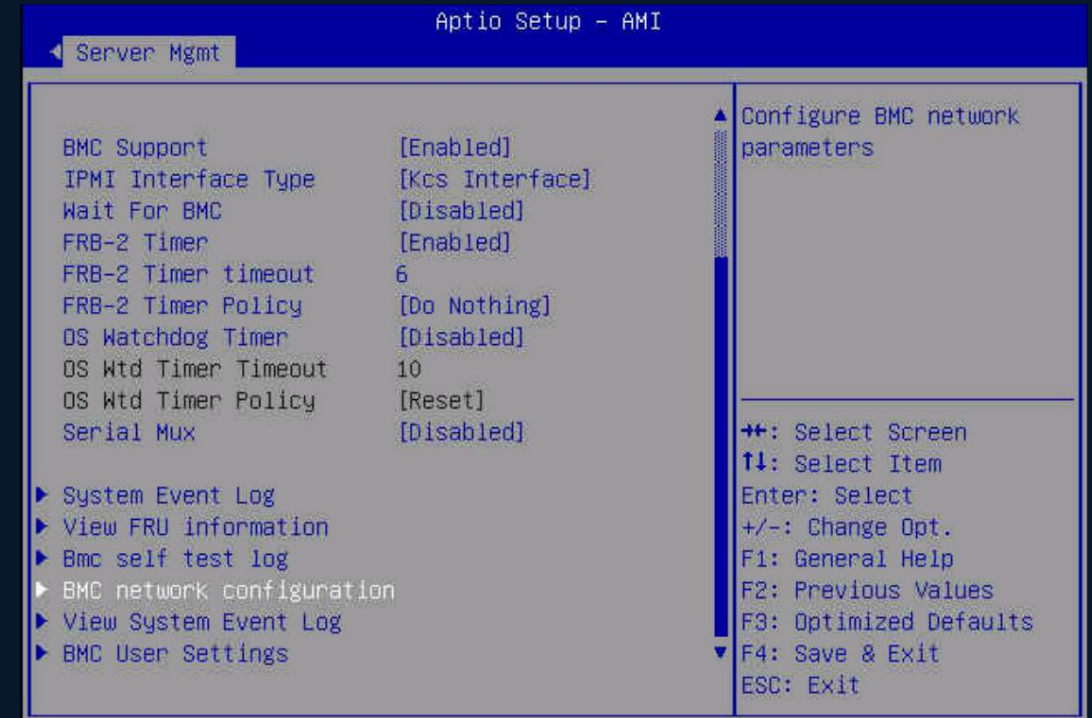# Connecting for first boot

- Crash cart
  - Monitor
  - USB keyboard (2 or 3)
  - Mini-DisplayPort cable for monitor (5)
- RJ-45 cable connected to DC-SCM (4)
- Upstream port information
  - GW IP
  - GW MAC address
- USB Debug port, unused (1)

CIMC Configuration via BIOS setup screen


```
        ·¦|·¦|·
        CISCO

Version 2.22.1285. Copyright (C) 2025 AMI
BIOS Date: 04/18/2025 11:12:32 Ver: v1.0.32
Press <DEL> or <ESC> to enter setup, Press <F7> to enter Boot Menu.
BMC IP: 10.10.200.1
Entering Setup...
```



```
                        Aptio Setup - AMI
◄ Server Mgmt

                                             ▲  Configure BMC network
   BMC Support              [Enabled]           parameters
   IPMI Interface Type      [Kcs Interface]
   Wait For BMC             [Disabled]
   FRB-2 Timer              [Enabled]
   FRB-2 Timer timeout      6
   FRB-2 Timer Policy       [Do Nothing]
   OS Watchdog Timer        [Disabled]
   OS Wtd Timer Timeout     10
   OS Wtd Timer Policy      [Reset]
   Serial Mux               [Disabled]
                                                →←: Select Screen
                                                ↑↓: Select Item
 ▶ System Event Log                             Enter: Select
 ▶ View FRU information                         +/-: Change Opt.
 ▶ Bmc self test log                            F1: General Help
 ▶ BMC network configuration                    F2: Previous Values
 ▶ View System Event Log                        F3: Optimized Defaults
 ▶ BMC User Settings                         ▼  F4: Save & Exit
                                                ESC: Exit
```

Viewing the bootup through the crash cart will give the screen above. To set the BMC IP so it can be remotely accessed, entering setup is needed. After hitting the delete or escape key, the server will boot into the bios setup screen.

On the right we see the tab (Server Mgmt) and selection (BMC network configuration) required for configuring the BMC IP.

CIMC Configuration via BIOS setup screen

The information gathered prior to the initial boot will be added here.

IP and subnetmask is added here

Default GW IP and MAC addresses

CIMC Highlights

CISCO Live !

Overview

- Tech-support logs will be generated and downloaded automatically with the hostname as the filename.

- Current health of the server will show on the overview screen with a quick health status at the top persistent across all CIMC screens

Device claimed

Servers

Servers Screen

- Intersight shows the same information as CIMC

- Quick glance for all alarms and health overlay

- Many actions are available without having to access the CIMC directly

- More details can be found here

OS Requirements and Basics

OS and Drivers

Supported OS

Ubuntu Server 22.04

Ubuntu Core 24.04

Red Hat 9.4

Red Hat CoreOS 4.16

Rocky 9.5

Drivers

The webpage here will step you through which drivers are required for your OS

The required commands for each set of drivers are also provided on the NVIDIA webpage.

During the driver install/upgrade, choose the proprietary drivers for best performance

Ubuntu port mapping

```
cisco-tac@c885-m8-h11:~$ ip address show
1: ens21f0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether f0:b2:b9:1a:4a:94 brd ff:ff:ff:ff:ff:ff
    altname enp210s0f0
    inet 10.10.200.2/27 brd 10.10.200.31 scope global ens21f0
        valid_lft forever preferred_lft forever
2: ens21f1: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc mq state DOWN group default qlen 1000
    link/ether f0:b2:b9:1a:4a:95 brd ff:ff:ff:ff:ff:ff
    altname enp210s0f1
3: ens202f0np0: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN group default qlen 1000
    link/ether 5c:25:73:d6:e7:02 brd ff:ff:ff:ff:ff:ff
    altname enp105s0f0np0
```

Open Compute Project, used for OOB access to OS. Labeled ens2XfX. X's are physical port #s on card starting at 0

OOB IP used to access OS

Slot 2 port 1. Notice 'ens2XXfYnpY'. 'XX' is physical NIC and the 'Y' are for port on NIC

Ubuntu port mapping

Ports are numbered right to left.

Far right is ens201f0np0 or ibs201f0
Far left is ens208f0np0 or ibs208f0

Odd numbered NICs 11, 13, and 15
Top would be ens211f0np0

Even numbered NICs 12, 14, and 16 (unused).
Top would be ens212f0np0
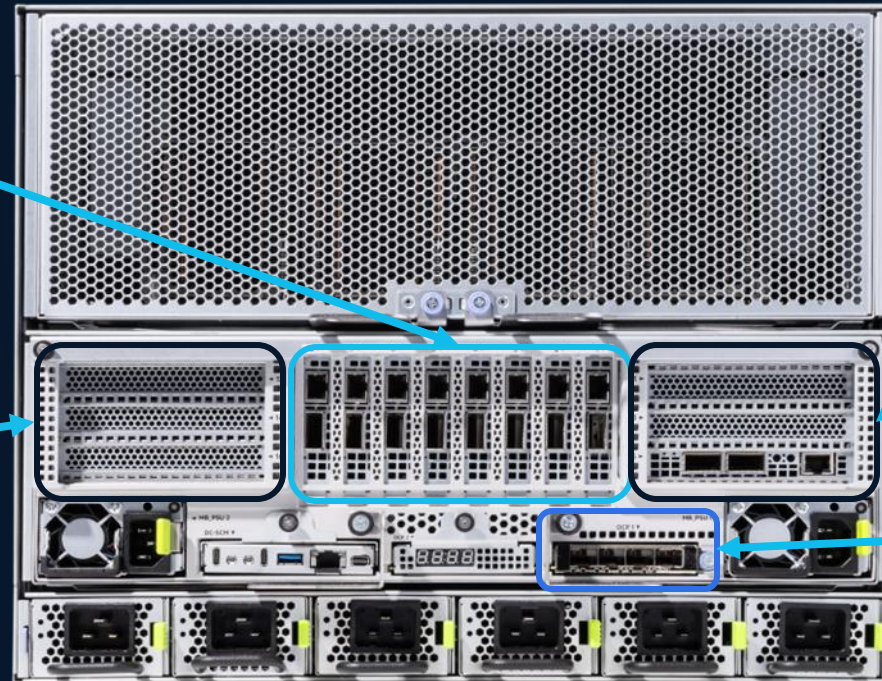
OCP ports
Far left is ens21f0
Far right is ens21f3

Port channels

```
cisco-tac@            :~$ sudo cat /etc/netplan/51-lacp-config.yaml
network:
  ethernets:
    ens211f0np0:
      mtu: 9000
    ens211f1np1:
      mtu: 9000
  bonds:
    bond0:
      mtu: 9000
      dhcp4: false
      dhcp6: false
      interfaces:
        - ens211f0np0
        - ens211f1np1
      parameters:
        mode: 802.3ad
        mii-monitor-interval: 100
  vlans:
    bond0.2001:
      id: 2001
      link: bond0
      addresses: [10.10.200.33/27]
      routes:
        - to: 10.10.200.32/27
          via: 10.10.200.62
          metric: 100
      nameservers:
        search: []
        addresses: [10.10.0.29]
      mtu: 9000

  version: 2
```

Make sure that largest desired MTU is at the top. Each vlan sub-interface can contain its own MTU as long as it doesn't go above the MTU set in the bond and physical interface sections

Creates the sub interface for a specific VLAN. Just below we specify which VLAN will be tagged for this sub-interface.

Any inband routes that this sub-interface is responsible for need to be added in a similar fashion

After creating the file, apply it to the running config with:
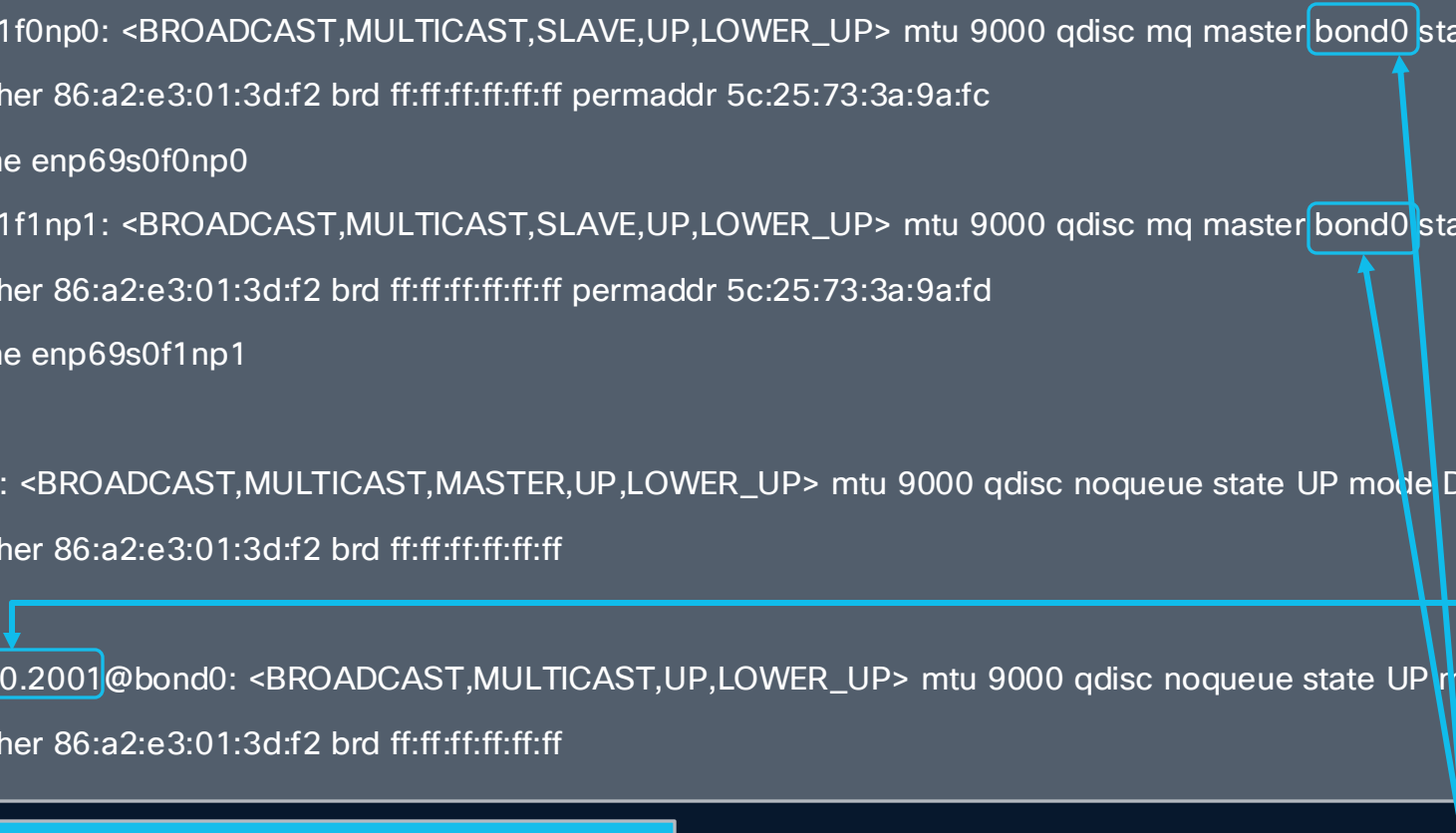
sudo netplan apply

TAC Tip

Port channels

```
cisco-tac@c885-m8-h11:~$ ip link show

5: ens211f0np0: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 9000 qdisc mq master bond0 state UP mode DEFAULT group default qlen 1000
    link/ether 86:a2:e3:01:3d:f2 brd ff:ff:ff:ff:ff:ff permaddr 5c:25:73:3a:9a:fc
    altname enp69s0f0np0
6: ens211f1np1: <BROADCAST,MULTICAST,SLAVE,UP,LOWER_UP> mtu 9000 qdisc mq master bond0 state UP mode DEFAULT group default qlen 1000
    link/ether 86:a2:e3:01:3d:f2 brd ff:ff:ff:ff:ff:ff permaddr 5c:25:73:3a:9a:fd
    altname enp69s0f1np1
--
9: bond0: <BROADCAST,MULTICAST,MASTER,UP,LOWER_UP> mtu 9000 qdisc noqueue state UP mode DEFAULT group default qlen 1000
    link/ether 86:a2:e3:01:3d:f2 brd ff:ff:ff:ff:ff:ff
--
18: bond0.2001@bond0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 9000 qdisc noqueue state UP mode DEFAULT group default qlen 1000
    link/ether 86:a2:e3:01:3d:f2 brd ff:ff:ff:ff:ff:ff
```

LACP is not supported when SuperNIC is in DPU mode. Convert to NIC mode with this guide here.

TAC Tip

The interfaces called out in the yaml file now show as being in the bond. The bond is now present in 'ip link show', as is the sub-interface for VLAN 2001.

Converting NICs

CISCO Live!

Converting between Ethernet and InfiniBand

Converting the ports to InfiniBand is as simple as setting the new link type and rebooting the host.

Commands used:
mst status –v
mlxconfig –d 0000:<device ID> set LINK_TYPE_P1=<1 or 2>
    Link type 1 = IB, Link type 2 = Eth

```
cisco-tac@c885-m8-h11:~$ sudo mst status –v
DEVICE_TYPE       MST   PCI       RDMA   NET               NUMA
BlueField3(rev:1)  NA    09:00.0   mlx5_4  net-ens204f0np0   0
```

```
cisco-tac@c885-m8-h11:~$ sudo mlxconfig -y -d 0000:09:00.0 set LINK_TYPE_P1=1
Configurations:                         Next Boot         New
    LINK_TYPE_P1                        ETH(2)            IB(1)
 Apply new Configuration? (y/n) [n] : y
Applying... Done!
-I- Please reboot machine to load new configurations.
```

```
cisco-tac@c885-m8-h11:~$ sudo mst status –v
DEVICE_TYPE       MST   PCI       RDMA   NET             NUMA
BlueField3(rev:1)  NA    09:00.0   mlx5_4  net-ibs204f0    0
```

Upgrading CIMC

CISCO Live !

Recommended process

- Ensure that the host is powered down

- Downtime is expected to be ~1 hour

- Use CLI with the script provided on software.cisco.com
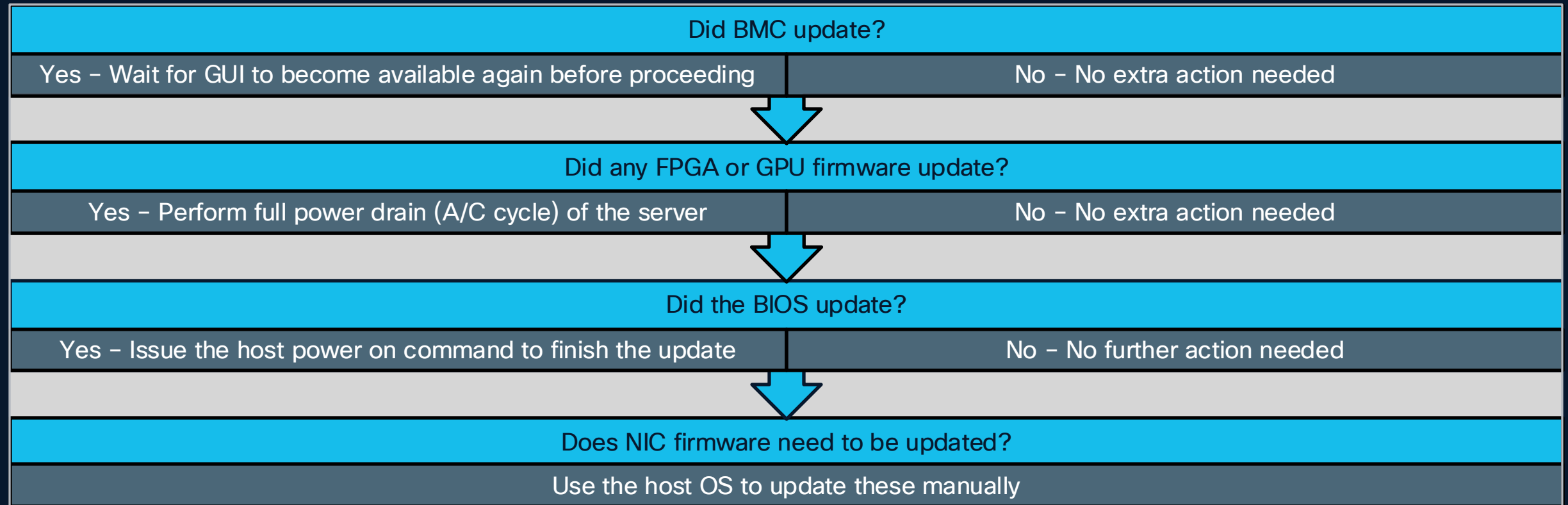
Did BMC update?	
Yes – Wait for GUI to become available again before proceeding	No – No extra action needed

Did any FPGA or GPU firmware update?	
Yes – Perform full power drain (A/C cycle) of the server	No – No extra action needed

Did the BIOS update?	
Yes – Issue the host power on command to finish the update	No – No further action needed

Does NIC firmware need to be updated?
Use the host OS to update these manually

Recommended process

```
python3 ./ucs-c885a-m8-upgrade-v1.4.py -B ucs-c885a-m8-1.1.0.250015D.tar.gz -U root -P          -I 10.10.200.1 -D

Extracting firmware bundle... success
Validating BMC login details... success
Inventory started... success

Inventory Details
-----------------
IP               : 10.10.200.1
Hostname         : C885A-LLLYYWWSSSS
Board Serial     : LLLYYWWSSSS
Product Name     : UCSC-885A-M8-H11
Host Power State: Off
GPU Model        : NVIDIA HGX H100 8-GPU


+------+------------+-----------------+-------------------+-----------------+
| S.No | Component  | Running FW version | Packaged FW Version | Update Required |
+------+------------+-----------------+-------------------+-----------------+
| 1    | BMC        | 1.0.28          | 1.0.32            | Yes             |
+------+------------+-----------------+-------------------+-----------------+
| 2    | BIOS       | 1.0.28          | 1.0.32            | Yes             |
+------+------------+-----------------+-------------------+-----------------+
| 3    | GPU        | HGX-22.10-1-rc67 | HGX-22.10-1-rc80 | Yes             |
+------+------------+-----------------+-------------------+-----------------+
| 4    | DCSCM-FPGA | 2.05            | 4.01              | Yes             |
+------+------------+-----------------+-------------------+-----------------+
| 5    | MB-FPGA    | 2.05            | 4.01              | Yes             |
+------+------------+-----------------+-------------------+-----------------+
| 6    | HIB-FPGA   | 2.24            | 6.0               | Yes             |
+------+------------+-----------------+-------------------+-----------------+


Inventory completed successfully
```

Readme file in the script download provides the command for inventory and firmware upgrade

Password is currently required to be passed via plain text to the script

Inventory allows the confirmation on what is going to be upgraded and current state of the host.

Recommended process

```
python3 ./ucs-c885a-m8-upgrade-v1.4.py -B ucs-c885a-m8-1.1.0.250015D.tar.gz -U root -P [        ]       -I 10.10.200.1 -F
...
After the BIOS update, the BMC reboots, so the BMC update will be triggered once it is back online. This process will take approximately 17 minutes.
...
Update Status
-------------
IP              : 10.10.200.1
Hostname        : C885A-LLLYYWWSSSS
Board Serial    : LLLYYWWSSSS
Product Name    : C885A M8
Host Power State: Off
GPU Model       : NVIDIA HGX H100 8-GPU


+------+-------------+-------------------+-------------------+-----------------+---------------+-------------------+
| S.No | Component   | Running FW version | Packaged FW Version | Update Required | Update Status | Update Percentage |
+------+-------------+-------------------+-------------------+-----------------+---------------+-------------------+
| 1    | BMC         | 1.0.28            | 1.0.32            | Yes             | Triggered     |         0         |
+------+-------------+-------------------+-------------------+-----------------+---------------+-------------------+
| 2    | BIOS        | 1.0.28            | 1.0.32            | Yes             | Completed     |        100        |
+------+-------------+-------------------+-------------------+-----------------+---------------+-------------------+
| 3    | GPU         | HGX-22.10-1-rc67  | HGX-22.10-1-rc80  | Yes             | Completed     |        100        |
+------+-------------+-------------------+-------------------+-----------------+---------------+-------------------+
| 3    | DCSCM-FPGA  | 2.05              | 4.01              | Yes             | Completed     |        100        |
+------+-------------+-------------------+-------------------+-----------------+---------------+-------------------+
| 4    | MB-FPGA     | 2.05              | 4.01              | Yes             | Completed     |        100        |
+------+-------------+-------------------+-------------------+-----------------+---------------+-------------------+
| 5    | HIB-FPGA    | 2.24              | 6.0               | Yes             | Completed     |        100        |
+------+-------------+-------------------+-------------------+-----------------+---------------+-------------------+


Update completed successfully
The GPU  update has been completed successfully. Please perform an A/C power cycle to activate.
The FPGA update has been completed successfully. Please perform an A/C power cycle to activate.
The BIOS update has been completed successfully. Please power ON the host to activate.
The BMC  update has been successfully triggered and will take approximately 12 minutes to complete. During this time, the HTTPS service will be unavailable.


NOTE: Please wait until the HTTPS service is restored.
```

CIMC GUI based upgrades
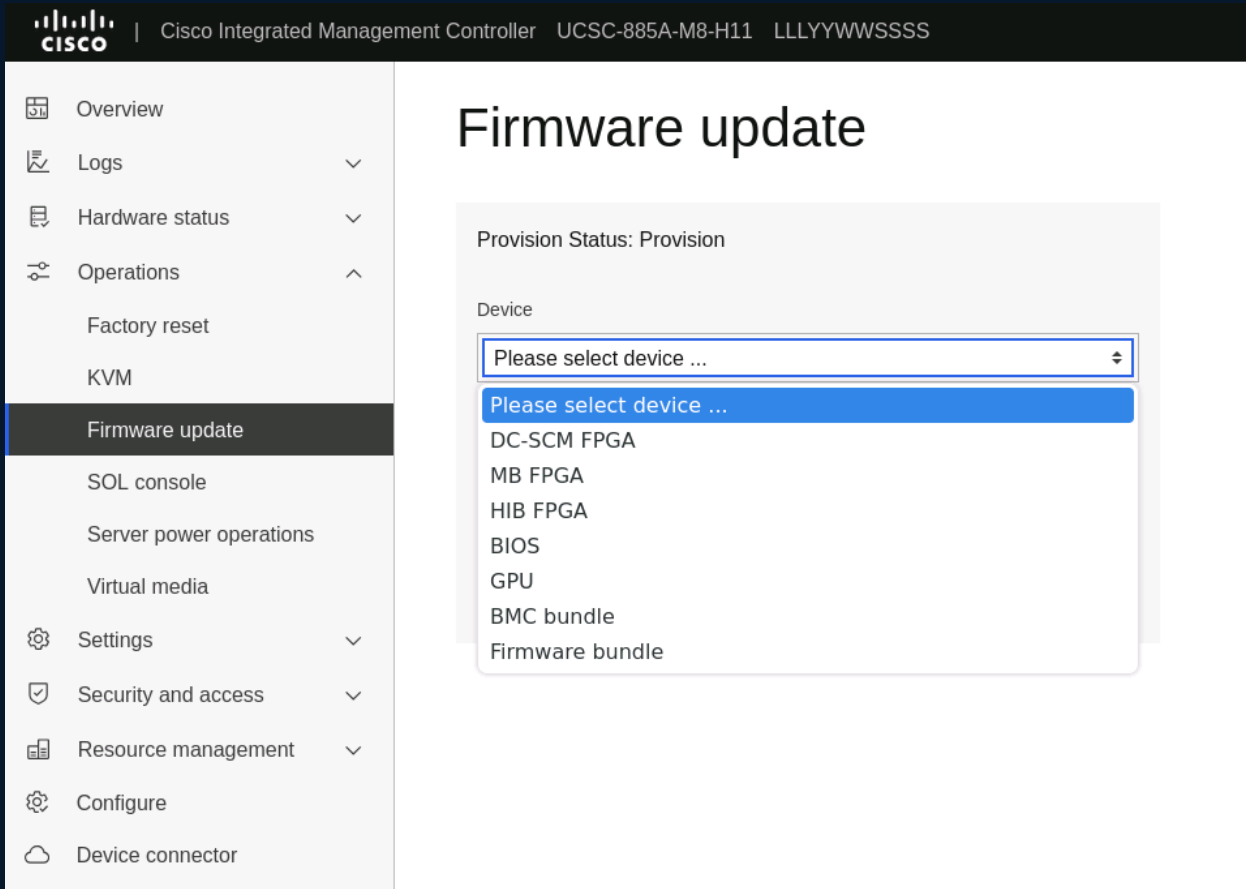
Navigating to Operations > Firmware update each component can be upgraded individually or the entire bundle as we did via CLI.

Same rule applies, the host must be offline to perform any upgrade

When selecting individual components, the current version is displayed
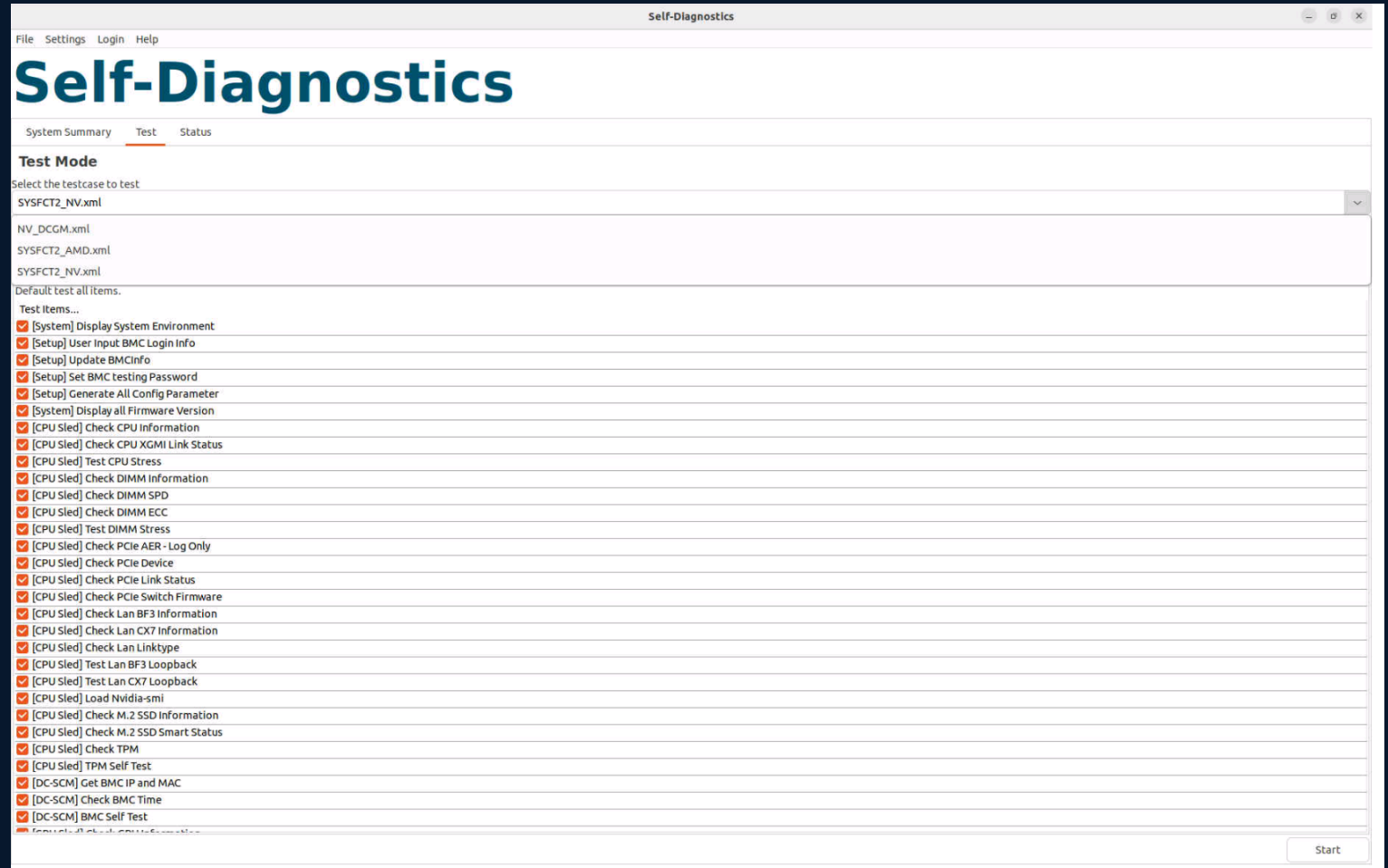
Running the Diagnostic ISO

CISCO Live !

Booting and Running the Diagnostic ISO

Requirements

- Diagnostic ISO downloaded from CCO to be made mountable on a USB

- Three tests, two for NVIDIA, one for AMD GPUs

- General runtime is 30 minutes to 1 hour

- While it is running, the screen may lock. To log back in the username / password is: kona / kona123

  TAC Tip

Setting Diagnostic ISO IP

1] Lan / Volume / Power button
2] Wired Connections and Network Settings
3] Select the appropriate connections to set an IP or enable DHCP

Gathering logs

- SSH to the diagnostic ISO using the standard credentials kona / kona123

- The generated files are in the folder: /home/kona/selfdiag/log

- Use scp command to push the files to your local machine: scp /home/kona/selfdiag/log/* <username>@<jumphost>

```
kona@kona:~/selfdiag/log$ pwd
/home/kona/selfdiag/log


kona@kona:~/selfdiag/log$ ls -l
total 416
-rw-r--r-- 1 kona kona 230812 May 27 23:22 20250527225708.zip
-rw-r--r-- 1 kona kona 191700 May 27 23:22 LLLYYWWSSSS_20250527225708.zip


kona@kona:~/selfdiag/log$ scp /home/kona/selfdiag/log/* <username>@<jumphost>:/path/to/destination
<username>@<jumphost>'s password:
20250527225708.zip                                          100%
LLLYYWWSSSS_20250527225708.zip                              100%
```

Complete Your Session Evaluations

Complete a minimum of 4 session surveys and the Overall Event Survey to be entered in a drawing to win 1 of 5 full conference passes to Cisco Live 2026.

Earn 100 points per survey completed and compete on the Cisco Live Challenge leaderboard.

Level up and earn exclusive prizes!

Complete your surveys in the Cisco Live mobile app.

Session ID: TACDCN-2018

Continue your education

Visit the Cisco Showcase for related demos

Book your one-on-one Meet the Engineer meeting

Attend the interactive education with DevNet, Capture the Flag, and Walk-in Labs

Visit the On-Demand Library for more sessions at www.CiscoLive.com/on-demand

Contact me at: jasosmi3@cisco.com

Thank you

CISCO Live !