



Ultra Hardware Platform

Installation Guide

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Abstract

The Ultra Hardware Platform Installation Guide offers comprehensive information on various storage and compute modules, along with detailed installation instructions and maintenance guidelines.

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1. Introduction

1.1. Unpacking the system

Inspect the box damages. If any equipment appears to be damaged, file a damage claim with the carrier who delivered it. Decide on a suitable location for the rack unit that will hold the Module. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. It will also require a grounded AC power outlet nearby.

1.2. Modules precautions

Determine the placement of each component in the rack before you install the rails. Use a regulating uninterruptible power supply (UPS) to protect the Module from power surges and voltage spikes and to keep your system operating in case of a power failure. Allow any drives and power supply Modules to cool before touching them.

When not servicing, always keep the front door of the rack and all covers/panels on the Modules closed to maintain proper cooling.

1.3. Rack mounting considerations

Ambient operating temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the room's ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (TMRA).

Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit overloading

Consideration should be given to the connection of the equipment to the power supply and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable ground

A reliable ground must be maintained at all times. Pay attention to power supply connections other than the direct connections to the branch circuit (i.e. power strips, etc.).

Safety

To ensure your safety, see the following guidelines:

- The unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.

- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- We recommend using two people to safely rack the hardware.

2. Module types

2.1. C Module

2.1.1. Main features

The following information provides you with an overview of the main features of the C Module.

2.1.1.1. Power

Power type	Information
Power supplies	Dual redundant 800W
Power supply input	100–240 VAC / 47-63 Hz 10-5A
Power certification	Platinum
Steady power	350 W

2.1.1.2. Dimensions

Type	Information
Form factor	2RU
Physical height	3.5 in (8.9 cm)
Physical width	17.5 in (44.5 cm)
Physical depth	21 in (53.3 cm)
Physical weight (racked)	ULT25: 35.26 (16 KG) OPT15: 35 lbs (15.88 Kg) MTM05: 34.31 (15.57 Kg)

2.1.1.3. Environmental

Type	Range
Operating temperature	50 – 85 °F (10 – 30 °C)
Non-operating temperature	14 – 122 °F (-10 – 50 °C)

2.1.2. Chassis features

2.1.2.1. Front features

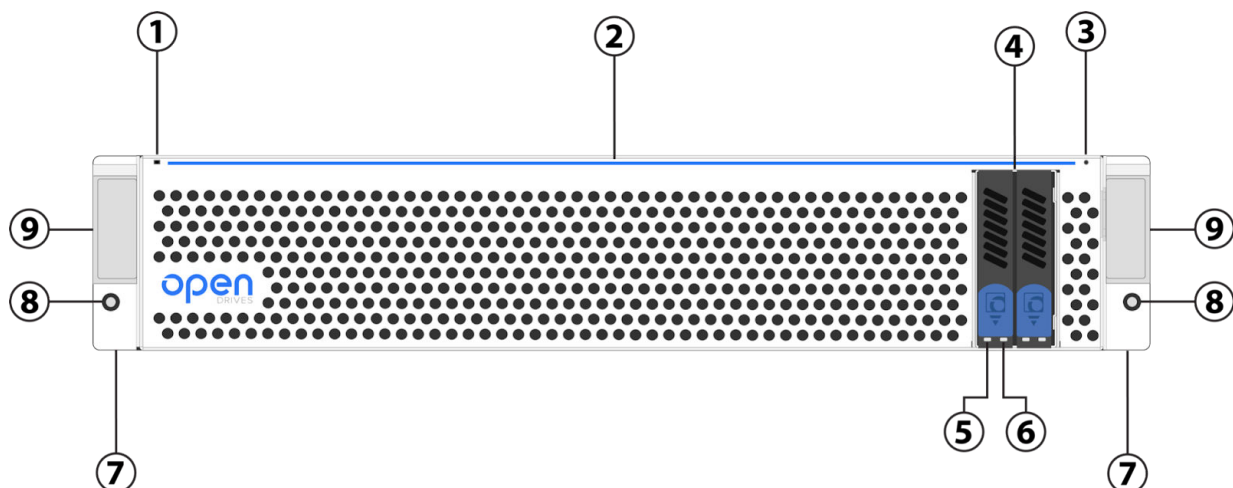
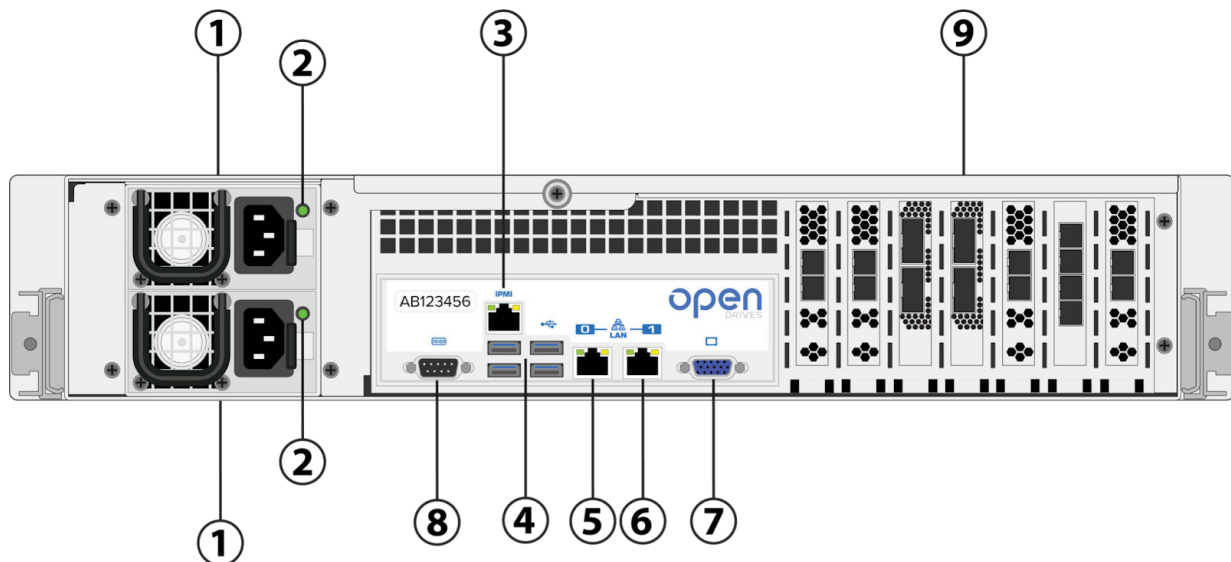


Table 1. Front chassis features

#	Feature	Description
1	Power button	Main power button to apply or remove power from the system Press 1 sec - Power on Press 5 sec - Power off
2	LED indicator strip	Indicates power on
3	LED indicator reset	Hard reset for the LED indicator control
4	System drives	2.5" SSD in carrier (2x)
5	Drive presence LED	White - Power
6	Drive activity LED	Flashing green - Activity Red - Drive failure
7	Rack ear brackets	Secures the system to the rack
8	Thumbscrews	Secures the system to the sliding rails
9	Handles	To pull the chassis while mounted on sliding rails, additionally provides magnetic mounting point for the faceplate

2.1.2.2. Rear features**Table 2. Rear chassis features**

#	Feature	Description
1	Power supply modules	800W power supply Modules (2x for redundancy)
2	Power supply status LED	Solid Green - Normal operation Flashing Green - Unit powered off Yellow - Power cable not present Red - Alert or Failure
3	IPMI LAN port	RJ-45 10/100/1000 ethernet dedicated for IPMI
4	USB ports	4 USB 3.1 type A
5	LAN 0 port	RJ-45 10GBase-T (shared IPMI)
6	LAN 1 port	RJ-45 10GBase-T
7	Monitor port	VGA
8	COM port	Not currently used

#	Feature	Description
9	Expansion ports	ULT25: <ul style="list-style-type: none"> • 100Gb QSFP+ (6) • PCIe via SFF-8644 (8x) OPT15: <ul style="list-style-type: none"> • 100Gb QSFP+ (4x) • SAS via SFF-8644 (8x) • PCIe via SFF-8644 (4x) MTM05: <ul style="list-style-type: none"> • 100Gb QSFP+ (4x) • SAS via SFF-8644 (4x) Refer to specific cabling diagrams for port locations and cabling instructions.

2.1.3. Package contents

- 1x C Module
- 1x pair of sliding rails
- 1x faceplate
- Accessory box:
 - 2x 3ft (1m) NEMA 5-15
 - 2x C13-C14 power cables
 - Sliding rail adapter kit
 - Sliding rail screws
 - Fixed mount rail kit
 - 8x 1m SFF-8644 cables (included with Ultimate C Modules only)
 - 4x 1m SFF-8644 cables (included with Optimum C Modules only)
 - 2x 1m SFF-8644 cables (included with Momentum C Modules only)
- (Optional) Spare PSU Module

2.2. F Module

2.2.1. Main features

The following information provides you with an overview of the main features of the F Module.

2.2.1.1. Power

Power type	Information
Power supplies	Dual redundant 800W
Power supply input	100–240 VAC / 47-63 Hz 10-5A
Power certification	Platinum
Steady power	220 W

2.2.1.2. Dimensions

Type	Information
Form factor	2RU

Type	Information
Physical height	3.5 in (8.9 cm)
Physical width	17.5 in (44.5 cm)
Physical depth	14.3 in (36.2 cm)
Physical weight (racked)	32.4 lbs (14.7 Kg)

2.2.1.3. Environmental

Type	Range
Operating temperature	50 – 85°F (10 – 30°C)
Non-operating temperature	14 – 122°F (-10 – 50°C)

2.2.2. Chassis features

2.2.2.1. Front features

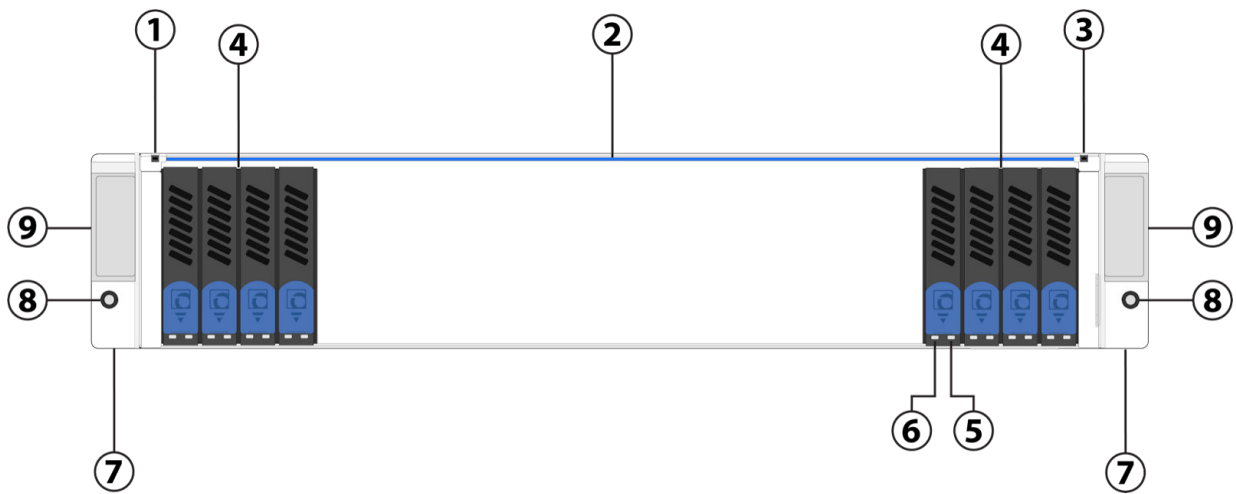


Table 3. Front chassis features

#	Feature	Description
1	Power Button	Main power button to apply or remove power from the system Press 1 sec - Power on Press 5 sec - Power off
2	LED Indicator Strip	Indicates power on
3	LED Indicator Reset	Hard reset for the LED indicator control
4	Drives	2.5" NVMe in carrier (8x)
5	Drive Presence LED	White - Power
6	Drive Activity LED	Flashing Blue - Activity Red - Drive failure
7	Rack Ear Brackets	Secures the system to the rack
8	Thumbscrews	Secures the system to the sliding rails
9	Handles	To pull the chassis while mounted on sliding rails, additionally provides magnetic mounting point for the faceplate

2.2.2.2. Rear features

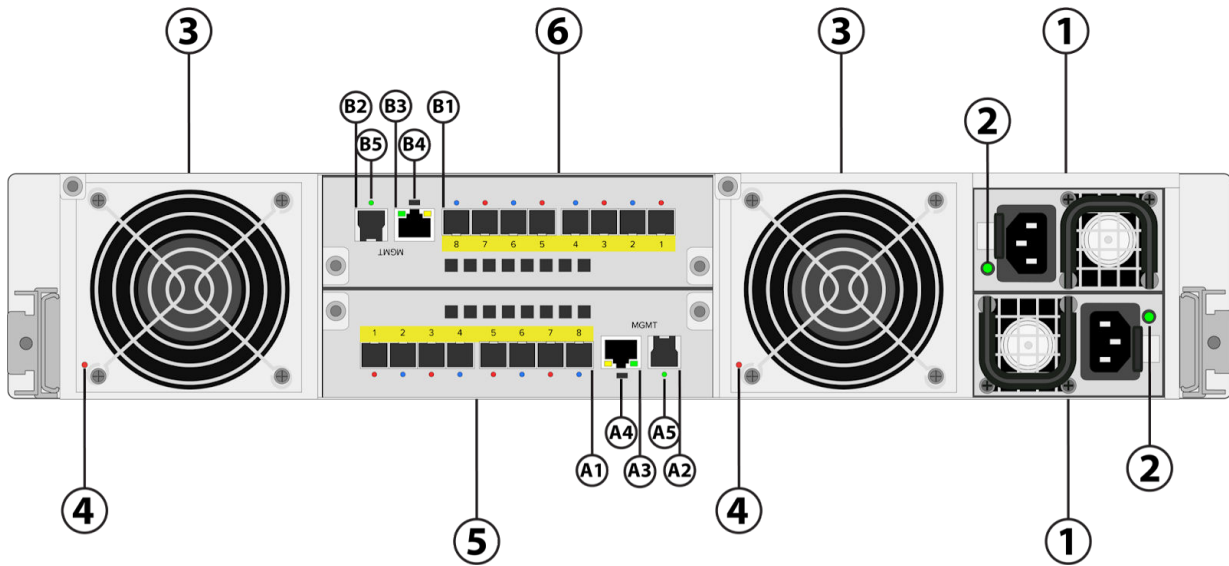


Table 4. Rear chassis features

#	Feature	Description
1	Power supply modules	800W power supply modules (2x for redundancy)
2	Power supply status LED	Solid Green - Normal operation Flashing Green - Unit powered off Yellow - Power cable not present Red - Alert or Failure
3	Fans	Cooling fans in removable trays (2x)
4	Fan fault LED	No light - Normal Red - Fault
5	Controller A	A1. PCIe via SFF-8644 (8x)1. The port indicator lights will illuminate in both red and blue to indicate different port modes. Red lights do not indicate a failure condition. A2. MGMT Terminal - USB Type B A3. MGMT Lan Port - RJ-45 A4. Mute Button - to silence alert buzzer A5. System status LED <ul style="list-style-type: none">• Green - Normal• Red - Alert
6	Controller B	B1. PCIe via SFF-8644 (8x)1. The port indicator lights will illuminate in both red and blue to indicate different port modes. Red lights do not indicate a failure condition. B2. MGMT terminal - USB Type B B3. MGMT Lan port - RJ-45 B4. Mute button - to silence alert buzzer B5. System status LED <ul style="list-style-type: none">• Green - Normal• Red - Alert

2.2.3. Package contents

- 1x F Module
- 1x pair of sliding rails
- 1x faceplate
- Accessory box:
 - 2x 3ft (1m) NEMA 5-15
 - 2x C13-C14 power cables
 - 2x USB cables
 - Sliding rail adapter kit
 - Sliding rail screws
 - Fixed mount rail kit
 - 8x 0.5m SFF-8644 cables

2.3. FD Module

2.3.1. Main features

The following information provides you with an overview of the main features of the FD Module.

2.3.1.1. Power

Type	Specs
Power supplies	Dual redundant 800W
Power supply input	100–240 VAC / 47-63 Hz 10-5A
Power certification	Platinum
Steady power	450 W

2.3.1.2. Dimensions

Type	Specs
Form factor	2RU
Physical height	3.5 in (8.9 cm)
Physical width	17.5 in (44.5 cm)
Physical depth	14.3 in (36.2 cm)
Physical weight (racked)	40.8 lbs (18.5 Kg)

2.3.1.3. Environmental

Type	Range
Operating temp	50 – 85°F (10 – 30°C)
Non-operating temp	14 – 122°F (-10 – 50°C)

2.3.2. Chassis features

2.3.2.1. Front features

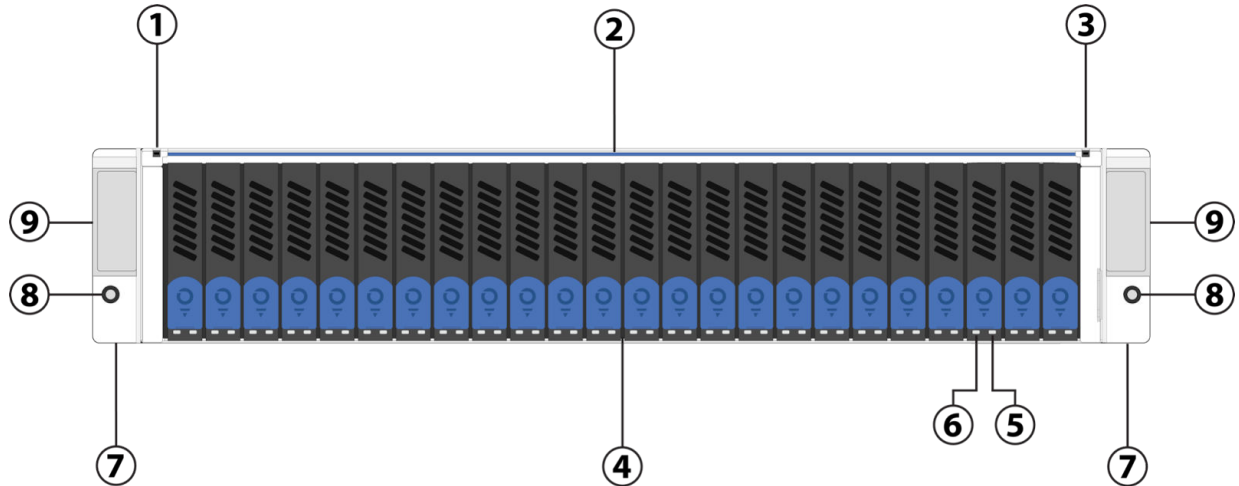


Table 5. Front chassis features

#	Feature	Description
1	Power button	Main power button to apply or remove power from the system Press 1 sec - Power on Press 5 sec - Power off
2	LED indicator strip	Indicates power on
3	LED indicator reset	Hard reset for the LED indicator control
4	Drives	2.5" NVMe in carrier (24x)
5	Drive presence LED	White - Power
6	Drive activity LED	Flashing Blue - Activity Red - Drive failure
7	Rack Ear Brackets	Secures the system to the rack
8	Thumbscrews	Secures the system to the sliding rails
9	Handles	To pull the chassis while mounted on sliding rails, additionally provides magnetic mounting point for the faceplate

2.3.2.2. Rear features

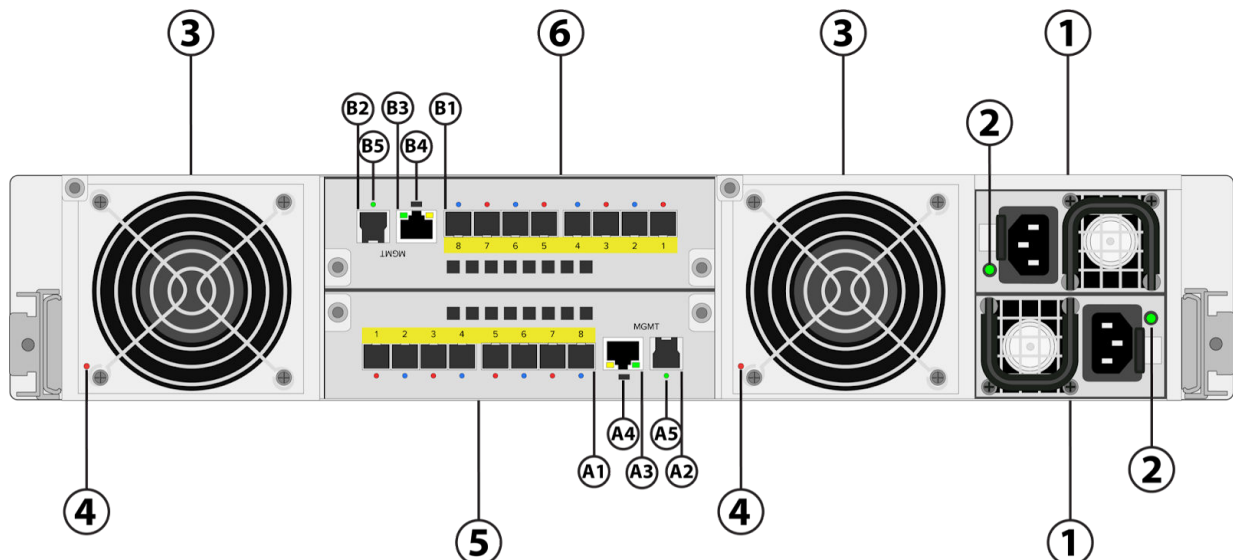


Table 6. Rear chassis features

#	Feature	Description
1	Power Supply Modules	800W power supply Modules (2x for redundancy)
2	Power Supply Status LED	Solid Green - Normal operation Flashing Green - Unit powered off Yellow - Power cable not present Red - Alert or Failure
3	Fans	Cooling fans in removable trays (2x)
4	Fan Fault LED	No light - Normal Red - Fault
5	Controller A	A1. PCIe via SFF-8644 (8x)1. The port indicator lights will illuminate in both red and blue to indicate different controller modes. Red lights do not indicate a failure condition. A2. MGMT Terminal - USB Type B A3. MGMT LAN port - RJ-45 A4. Mute button - to silence alert buzzer A5. System status LED • Green - Normal • Red - Alert
6	Controller B	B1. PCIe via SFF-8644 (8x)1. The port indicator lights will illuminate in both red and blue to indicate different controller modes. Red lights do not indicate a failure condition. B2. MGMT Terminal - USB Type B B3. MGMT LAN port - RJ-45 B4. Mute button - to silence alert buzzer B5. System Status LED • Green - Normal • Red - Alert

2.3.3. Package contents

- 1x FD Module
- 24x drives in carriers
- 1x pair of sliding rails
- 1x faceplate
- Accessory box:
 - 2x 3ft (1m) NEMA 5-15
 - 2x C13-C14 power cables
 - 2x USB cables
 - Sliding rail adapter kit
 - Sliding rail screws
 - Fixed mount rail kit
 - 4x 0.5m SFF-8644 cables

2.4. H Module

2.4.1. Main features

The following information provides an overview of the main features of the H Module.

2.4.1.1. Power

Type	Specs
Power supplies	Dual redundant 800W
Power supply input	100–240 VAC / 47-63 Hz 10-5A
Power certification	Platinum
Steady power	250 W

2.4.1.2. Dimensions

Type	Specs
Form factor	2RU
Physical height	3.5 in (8.9 cm)
Physical width	17.5 in (44.5 cm)
Physical depth	21 in (53.3 cm)
Physical weight (racked)	68.5 lbs (31.1 Kg)

2.4.1.3. Environmental

Type	Specs
Operating temp	50 – 80°F (10 – 26°C)
Non-operating temp	14 – 122°F (-10 – 50°C)

2.4.2. Chassis features

2.4.2.1. Front features

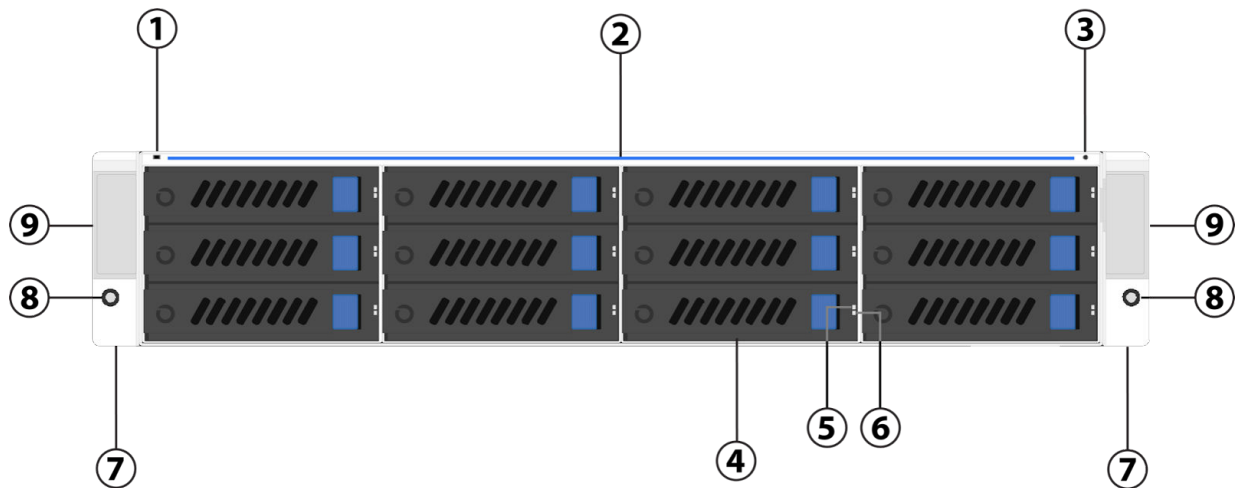


Table 7. Front chassis features

#	Feature	Description
1	Power Button	Main power button to apply or remove power from the system Press 1 sec - Power On Press 5 sec - Power Off
2	LED Indicator Strip	Indicates power on
3	LED Indicator Reset	Hard reset for the LED indicator control
4	Drives	3.5" HDD in carrier (12x)
5	Drive Presence LED	White - Power

#	Feature	Description
6	Drive Activity LED	Flashing Blue - Activity Red - Drive failure
7	Rack Ear Brackets	Secures the system to the rack
8	Thumbscrews	Secures the system to the sliding rails
9	Handles	To pull the chassis while mounted on sliding rails, additionally provides magnetic mounting point for the faceplate

2.4.2.2. Rear features

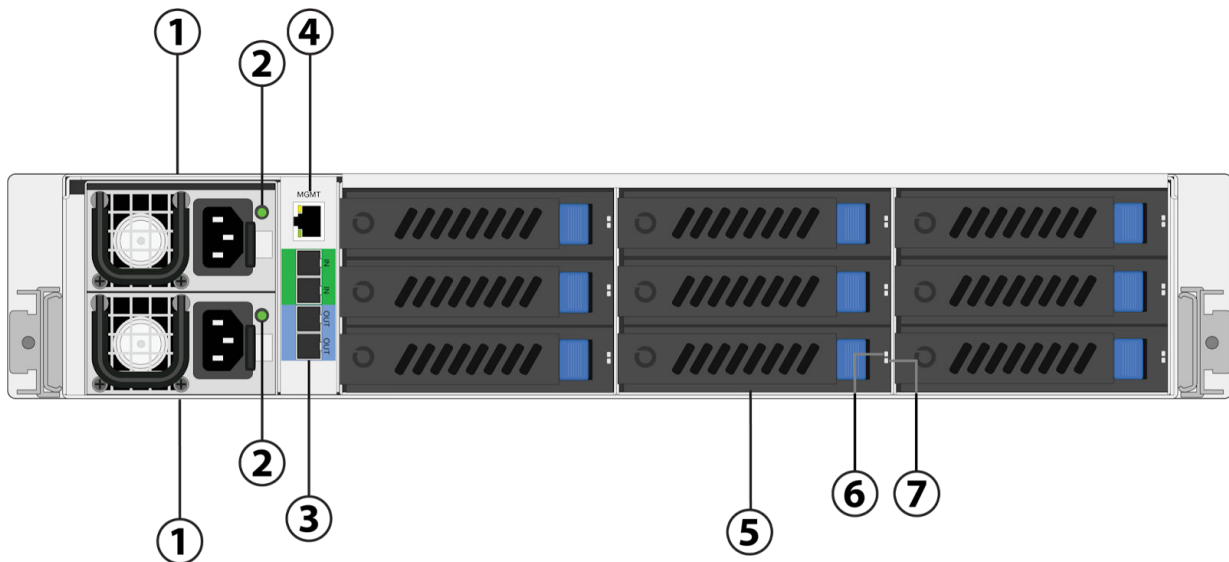


Table 8. Rear chassis features

#	Feature	Description
1	Power supply modules	800W power supply Modules (2x for redundancy)
2	Power supply status LED	Solid Green - Normal operation Flashing Green - Unit powered off Yellow - Power cable not present Red - Alert or Failure
3	IO ports	Four SAS via SFF-8644
4	IPMI LAN port	RJ-45 10/100/1000 ethernet dedicated for IPMI
5	Drives	3.5" HDD in carrier (9x)
6	Drive presence LED	White - Power
7	Drive activity LED	Flashing Blue - Activity Red - Drive failure

2.4.3. Package contents

The H Module is packaged in two separate boxes. Matching boxes will be indicated by the packing labels attached to the outside of the boxes.

Box 1:

- 1x H Module
- 1x pair of sliding rails
- 1x faceplate
- Accessory box:

- 2x 3ft (1m) NEMA 5-15
- 2x 3ft C13-C14 power cables
- Sliding rail adapter kit
- Sliding rail screws
- Fixed mount rail kit
- 2x 0.5m SF8644 cables

Box 2:

- 21x HDD
- (Optional) 3x spare HDD

3. C, F, FD, and H Module installation

3.1. Preparing for setup

The box in which the Module was shipped should include the rackmount hardware needed to install it into the rack. Read this section in its entirety before you begin the installation.

3.1.1. Choosing a setup location

The system should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.

3.1.2. Rack precautions

Ensure that the leveling jacks on the bottom of the rack are extended to the floor so that the full weight of the rack rests on them.

- In single rack installations, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a Module or other component from the rack.
- You should extend only one Module or component at a time, extending two or more simultaneously may cause the rack to become unstable.

3.1.3. Rack requirements

Ultra Series Modules require a 4 post rack. 2 post telco racks are not supported.

Module type	Minimum depth	Vertical rail range
C Module	24.25 in. (61.6cm) usable rack space, frame to frame	Sliding Rails MIN: 24.25 in / 61.6 cm MAX: 34.62 in / 87.95 cm
	20.37 in. (51.75cm) usable rack space, frame to frame	Fixed Rail Ear MIN: 20.37 in / 51.75 cm MAX: 30.5 in / 77.47 cm
F/FD Module	24.25 in. (616mm) usable rack space, frame to frame	Sliding Rails MIN: 24.25 in / 61.6 cm MAX: 34.62 in / 87.95 cm
	13.56 in. (344.5mm) usable rack space, frame to frame	Fixed Rail Ear MIN: 13.56 in / 34.45 cm MAX: 23.875 in / 60.64 cm
H Module	24.25 in. (616mm) usable rack space, frame to frame	Sliding Rails MIN: 24.25 in / 61.6 cm MAX: 34.62 in / 87.95 cm
	20.37 in. (517.5mm) usable rack space, frame to frame	Fixed Rail Ear MIN: 20.37 in / 51.75 cm MAX: 30.5 in / 77.47 cm

3.1.4. Required tools

#2 Philips Screwdriver

3.2. Install the Modules to the rack

This section provides information on installing an Ultra Series Module chassis into a rack unit with the quick-release sliding rails provided. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

3.2.1. Separate the sections of the rack rails

The chassis package includes two rail assemblies in the rack mounting kit. Each assembly consists of two sections: an inner fixed chassis rail that secures directly to the Module chassis and an outer fixed rack rail that secures directly to the rack itself.



NOTE

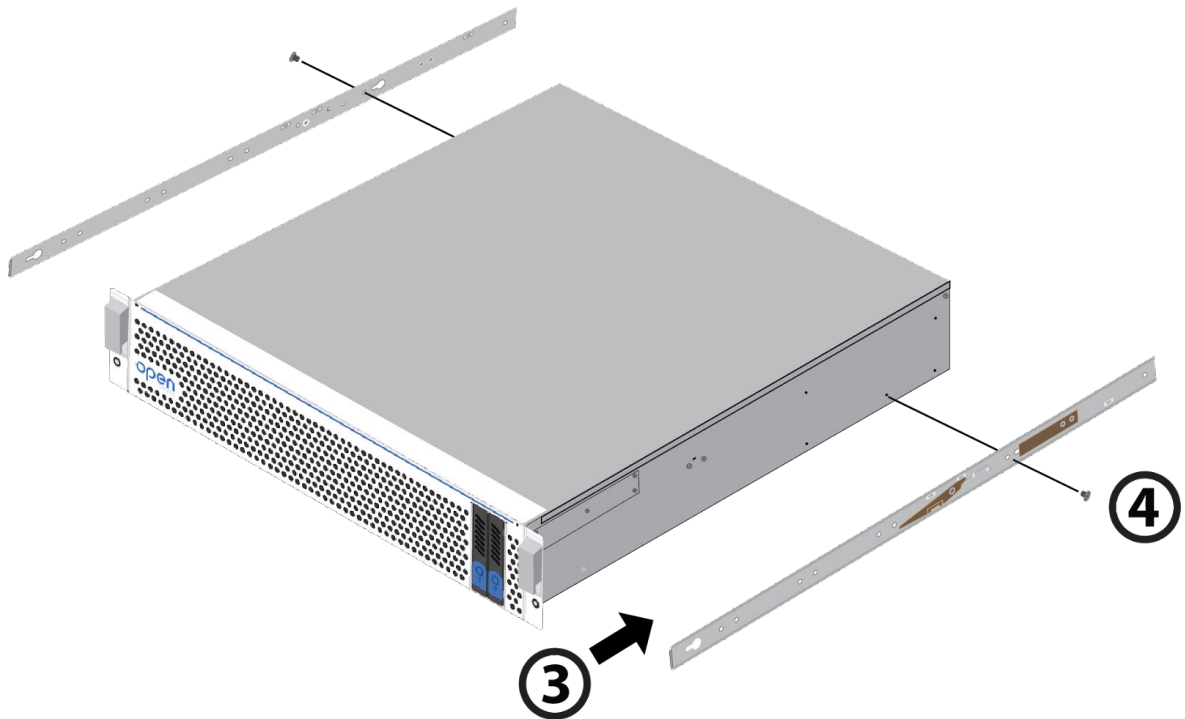
Once separated, the sets are marked LH and RH on both the inner and outer rail to indicate which side of the chassis they should be installed.

3.2.2. Separate the inner and outer rails

1. Locate the rail assembly in the chassis packaging.
2. Place the inner rail on the correct side of the chassis per the label, aligning the mounting stem of the chassis with the forward rail hole. Make sure the extension faces outward just like the pre-attached inner rail.
3. Slide the extension toward the rear of the chassis to set the stem into the notch.
4. Secure the inner rail to the chassis with screws. Repeat steps for the other inner rail extension.

3.2.3. Install the inner rails

1. Remove the inner rails from the outer rail assembly.
2. Place the inner rail on the correct side of the chassis per the label, aligning the mounting stem of the chassis with the forward rail hole. Make sure the extension faces outward just like the pre-attached inner rail.
3. Slide the extension toward the rear of the chassis to set the stem into the notch.
4. Secure the inner rail to the chassis with screws. Repeat steps for the other inner rail extension.



3.2.4. Outer rack rails

Outer rails attach to the rack and hold the chassis in place. The outer rails for the Module chassis extend between 24.25 inches and 30.5 inches.

To Install the outer rails to the rack

1. If your rack provides threaded round holes instead of square holes, first attach the sliding rail adapters to the rack rails in the desired mounting position using the included screws. The sliding rails require square holes and the adapters will provide square hole mounting points.



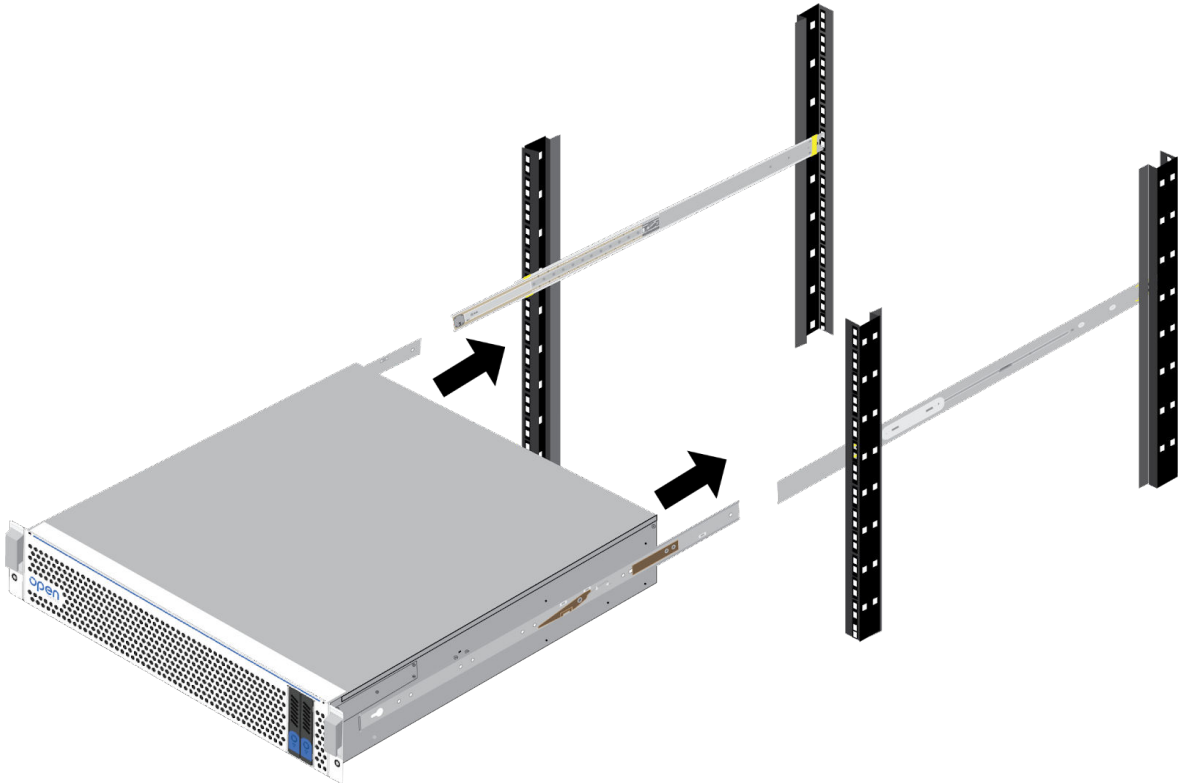
NOTE

Using the adapters may require adjusting the rack rails to accommodate the extra depth.

2. Retract the yellow plastic retainer clips on both ends of the sliding rail to allow the spring mechanism to operate as you insert the rail into the mounting holes.
3. Insert the rear of the outer rail assembly into the chosen square hole positions, followed by the front. Front and rear are marked along the edge of the outer rail.
4. Push the yellow retainer clips towards the rack rails to lock the rail into the mounting holes.
5. Repeat steps 1-4 for the remaining outer rail.

3.2.5. Install the Module into a rack

1. Extend the outer rails.



2. Align the inner rails of the chassis with the outer rails on the rack.
3. Slide the inner rails into the outer rails, keeping the pressure even on both sides. When the chassis has been pushed completely into the rack, it should click into the locked position.
4. Thumbscrews should be used to secure the front of the chassis to the rails and rack.

3.3. Mobile Broadcast racking

This section provides information on installing an Ultra Series Module chassis into a rack unit with the optional fixed mount rails kit provided. The fixed rail mount kit is provided as an option for the following use cases:

- The available depth between front and rear rack rails is less than the minimum required for the sliding rails kit.
- Mobile racks (e.g. - broadcast trucks, pelican rack cases) where G-forces may place too much strain on sliding rails or it is desirable to keep the Module in a fixed position.

There are a variety of rack units on the market, which may mean the assembly procedure and order of operations may differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

The fixed mount rails kit contains the following hardware:

- 2x chassis bracket
- 2x adjustable rack ear
- 6x M5 cage nuts
- 4x M5 machine screws
- 10x chassis screws

To install the fixed mount rail kit

1. Locate the fixed mount rail kit in the accessories box.
2. Attach the brackets to the sides of the chassis with the locking screw tab extended past the rear of the chassis. The brackets and rack ears are identical and may be used left or right.

3. Secure the bracket to the chassis using four (4) provided chassis screws.

Figure 1. Position for C or H Module

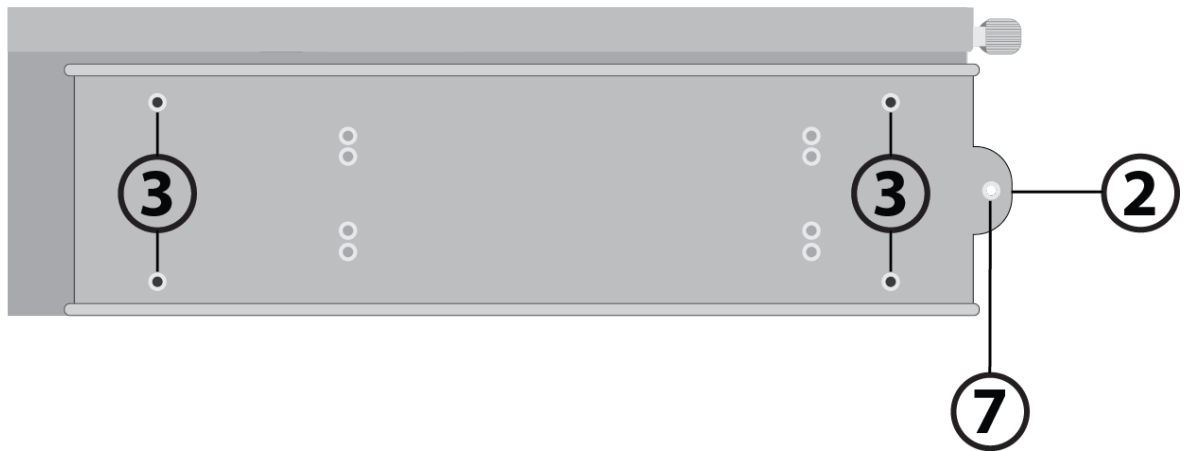
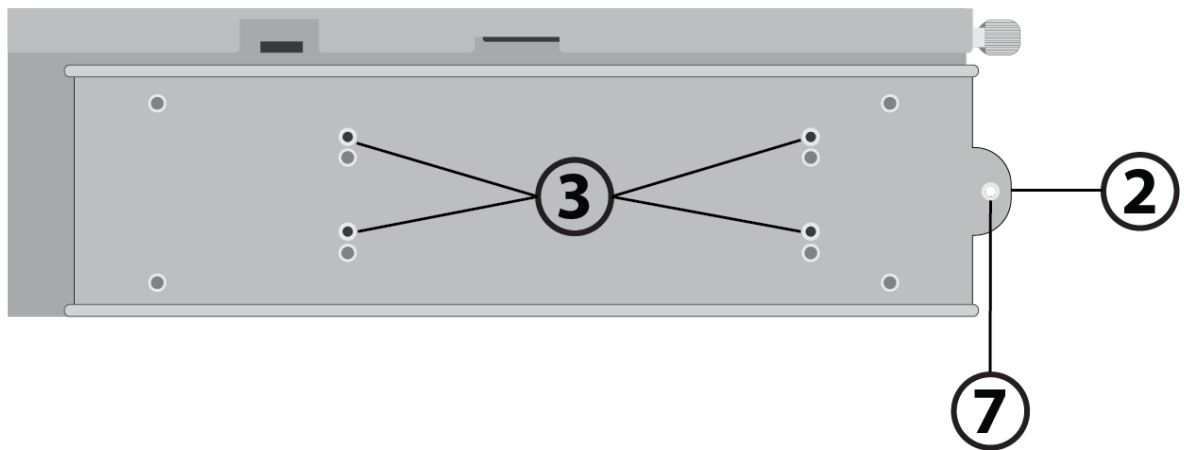


Figure 2. Position for F or FD Module



4. Insert a rack ear into each bracket.
5. If your rack has square holes, insert the 6 cage nuts at the desired positions to align with the holes of the adjustable rack ear and the front ear thumbscrew.
6. Position the chassis in the rack and secure the front and rear using the thumbscrews and M5 machine screws.
7. Lock the sliding position of the adjustable rack ear using one (1) provided chassis screw.

4. HD & HDX Modules installation

4.1. What is HD and HDX?

A high-density storage option of our Optimum and Momentum series. This module addresses the demanding storage needs of customers that want cost effective massively scalable options. These modules are useful across all industries, except for broadcast trucks, mobile workflows or any scenario where the customer has limited space (i.e. narrow NYC server rooms).

HD and HDX provide a 30% and 60% density increase, respectively, over the H module in 4RU.

4.2. Installation

1. Follow the steps provided in the [Ultrastar data 102 \(HDX\)](#) and [Ultrastar Data 60 \(HD\)](#) assembly guides. Mount the empty module to the rails in the rack with 2 people.
2. Attach cables per the approved [cabling guides](#).

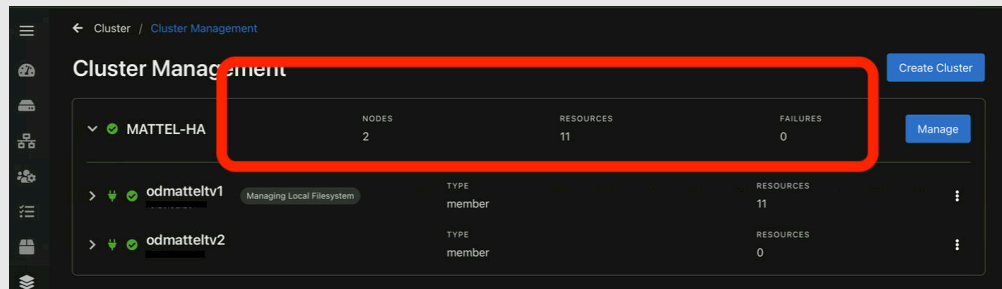
5. Power on an HA or Non-HA system

This section provides instructions about how to power on HA and non-HA systems.



IMPORTANT

- You must power on all connected flash and capacity modules at least 30 seconds prior to any of the controller modules.
- You must manually power on the connected flash and flash capacity modules using the power button.
- You must turn on the active controller first and wait for the "resources" to show up in the cluster management page. After the active controller is turned on, then you can turn on the passive controller.



5.1. Active-Passive HA system

5.1.1. Using the physical hardware

5.1.1.1. Using the physical hardware

1. Identify which controllers are active and passive by using the steps listed in the section [using the Atlas Core UI](#) or [using the CLI](#).
2. Turn on the storage capacity modules by removing the faceplate and pressing the power button. You can confirm the storage capacity modules are turned if the LED strip is blue.



3. On the active controller, press the power button once and wait for the LED strip to turn blue. You may have to remove the faceplate to reach the power button.

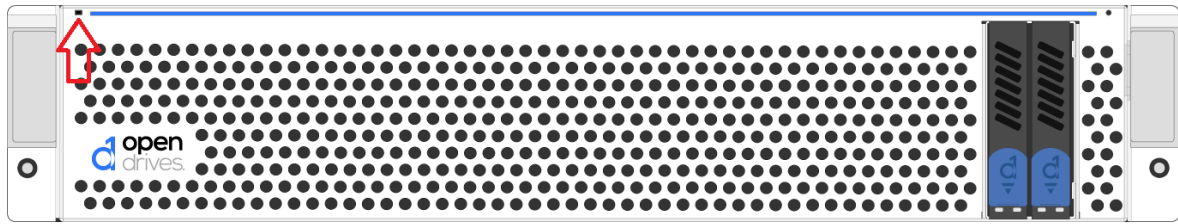


figure e

4. On the passive controller, press the power button once on the controllers and wait for the LED strip to turn blue. For the power button location, see [figure e \[25\]](#) . You may have to remove the faceplate to reach the power button.

5.1.2. Using the IPMI

5.1.2.1. Using the IPMI

1. Open a web browser and enter the active controller IPMI IP address.
 - a. Log into the IPMI UI.
 - b. Navigate to **FRU reading** in the **system** menu.
 - c. Verify the serial number matches the active controller.
 - d. Navigate to **power control** in the **remote control** menu.
 - e. Select the **power on server** option and select the **perform action** button.
2. Open a web browser and enter the passive controller IPMI IP address.
 - a. Log into the IPMI UI.
 - b. Navigate to **FRU reading** in the **system** menu.
 - c. Verify the serial number matches the passive controller.
 - d. Navigate to **power control** in the **remote control** menu.
 - e. Select the **power on server** option and select the **perform action** button.

5.2. Non-HA system

5.2.1. Using the physical hardware

1. Turn on the drive modules by pressing the power button. You can confirm the drive modules are turned if the LED strip is blue. You may have to remove the faceplate to reach the power button.
2. Turn on the controller by pressing the power button once and wait for the LED strip to turn blue. You may have to remove the faceplate to reach the power button.

5.2.2. Using the IPMI

1. Open a web browser and enter the controller IPMI IP address.
2. Log into the IPMI UI.
3. Navigate to **FRU reading** in the **system** menu.
4. Verify the serial number matches the controller.
5. Navigate to **power control** in the **remote control** menu.
6. Select the **power on server** option and select the **perform action** button.

6. Provide remote access to OpenDrives Support

6.1. Establish a connection to an on-premise system

To establish a connection to an on-premise system, use either of the following options:

Option A: Direct connect to the C Module

1. Directly connect a PC or Mac via ethernet cable on MGMT1 (right RJ45 port) on the back of the system. By default, MGMT0 is set to DHCP and MGMT1 is set to 10.10.10.10.
2. Configure your connected client to the IP address 10.10.10.11 with a subnet mask of 255.255.255.0.
3. SSH to 10.10.10.10.
4. Use the credentials provided by support to log into the terminal. Once you enter the credentials, it will then prompt you to change them.
5. Inside the terminal, use the following command:

```
sudo nano /etc/network/interfaces.d/mgmt0
```

- a. Define a static IP address using the following format:

```
auto mgmt0
iface mgmt0 inet static
    address 192.168.x.x
    netmask 255.255.255.0
    mtu 1500
```

- b. Confirm MGMT0 displays as "UP" using the following command:

```
ip address
```

6. In a Chrome browser, enter 10.10.10.10 in the address bar to open .
7. [Collect a fingerprint.](#)
8. [Apply a license.](#)

Option B: Accessing through remote console via IPMI

1. Use the credentials provided by support to log into the terminal. Once you enter the credentials, it will then prompt you to change them.
2. Inside the console, use the following command:

```
sudo nano /etc/network/interfaces.d/mgmt0
```

- a. Define a static IP address using the following format:

```
auto mgmt0
iface mgmt0 inet static
    address 192.168.x.x
    netmask 255.255.255.0
    mtu 1500
```

- b. Confirm MGMT0 displays as "UP" using the following command:

```
ip address
```

3. Open the Chrome browser on a client in the same subnet as the MGMT0 interface.
4. Enter the IP address configured above to open .

5. [Collect a fingerprint.](#)
6. [Apply a license.](#)
7. Navigate to **network**, and choose **configuration**.
8. Configure the high speed interfaces.
9. Choose **configure**.

7. Maintenance

This chapter provides instructions on installing and replacing main system components. To prevent compatibility issues, only use components that match the specifications and/or part numbers given. Installation or replacement of most components require that power first be removed from the system.

7.1. Power supply failure

If either of the two power supply modules fail, the other module will take the full load and allow the system to continue to operate without interruption. The power fail LED will illuminate and remain on until the failed unit is replaced. The hot-swap capability of the power supply modules allows you to replace the failed module without having to power down the system.

To replace the power supply

1. Check the LEDs on the power supplies to determine which module has failed.
2. Unplug the power cord from the failed module.
3. Push the release tab (on the back of the power supply), then pull the power supply out using the handle provided.
4. Push the new power supply module into the power bay until you hear a click (replace with the same model).
5. Reconnect the power cord to the new module.

7.2. Powering off the system

In order to remove power from the modules, the system must be powered off. Use the following procedures to ensure that power has been removed from the system.




IMPORTANT

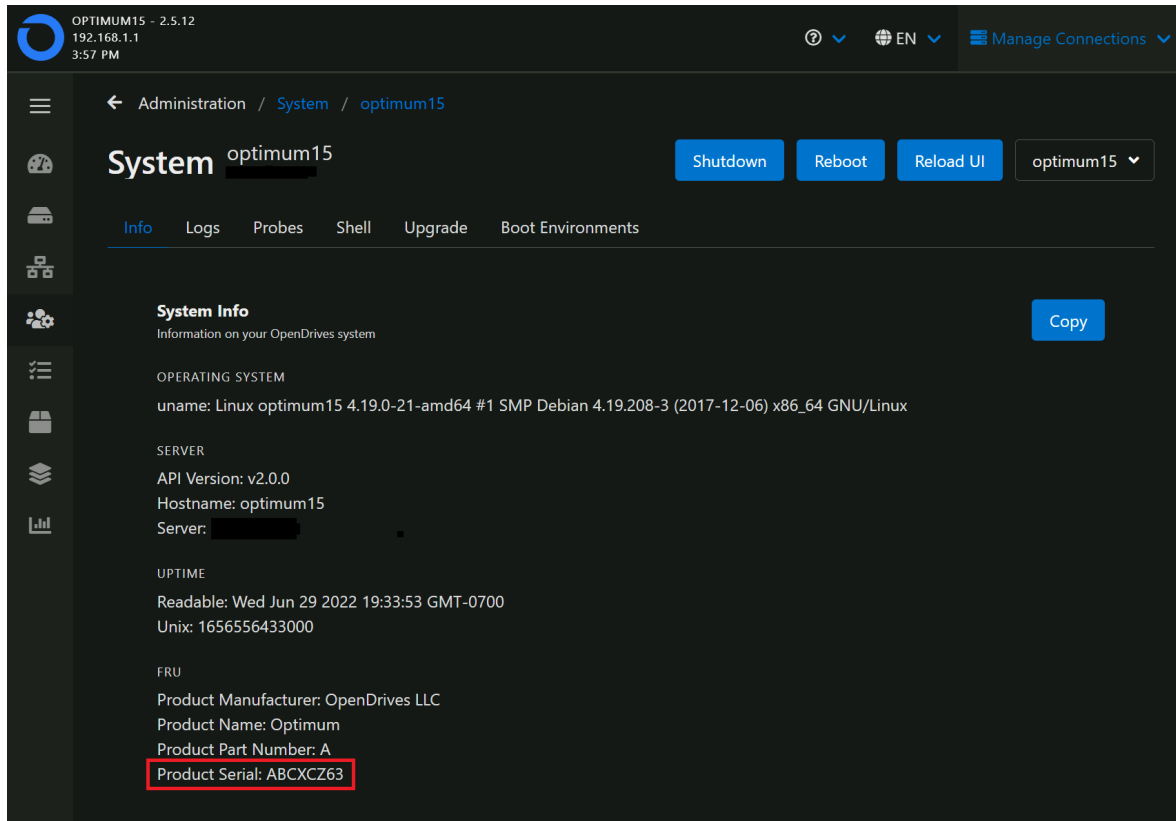
- The C Modules must be turned off before any connected modules are turned off. The best practice is to use the [Atlas Core UI](#) to power off an HA system.
- You must manually turn off the connected flash and capacity modules by using the power button or by removing the power cables.

7.2.1. Active-Passive HA Cluster

To power off an active-passive HA system, using any of the following options:

7.2.1.1. Using the Atlas Core UI

1. Using a web browser, enter the VIP address to open the on the active controller.
2. Log into all cluster members.
3. Select the menu icon  at the top left to expand the navigation menu.
4. Under **administration**, choose **system**.
5. In the **info** tab, record the Product Serial of the active controller. Select the passive controller from the controller drop-down menu and record its Product Serial. This way you can identify by the product serial which controllers are active and passive when turning the system back on.



6. Select the passive controller.

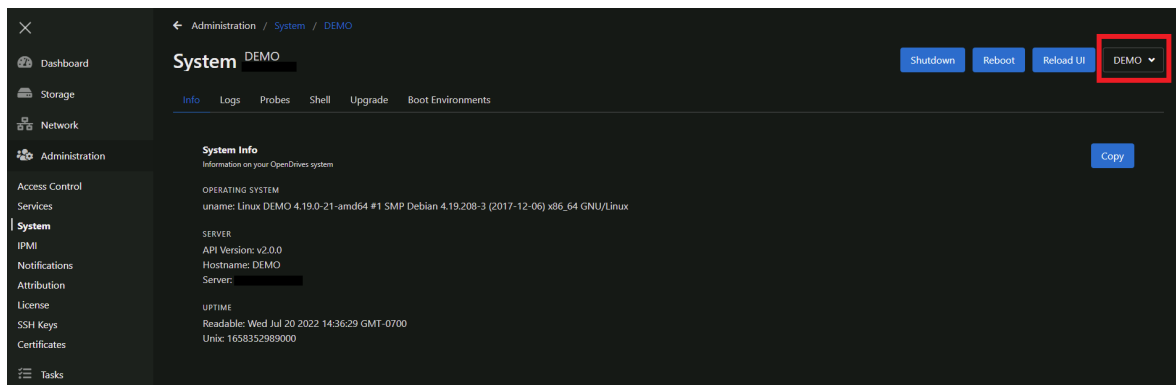


figure a

7. Choose **shutdown**. Wait until the controller turns off completely.

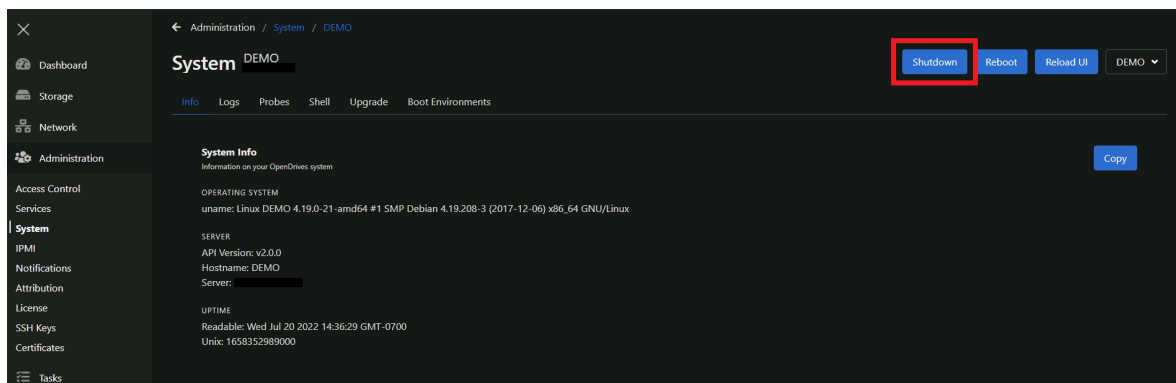


figure b

8. Select the active controller as shown in [figure a](#) [29].

9. Choose **shutdown** as shown in [figure b \[29\]](#). Wait until the controller turns off completely.
10. After all of the controllers are powered off, you can unplug the connected modules. You can see the power status of each controller at the bottom of the dashboard of that controller's IPMI page once logged in.

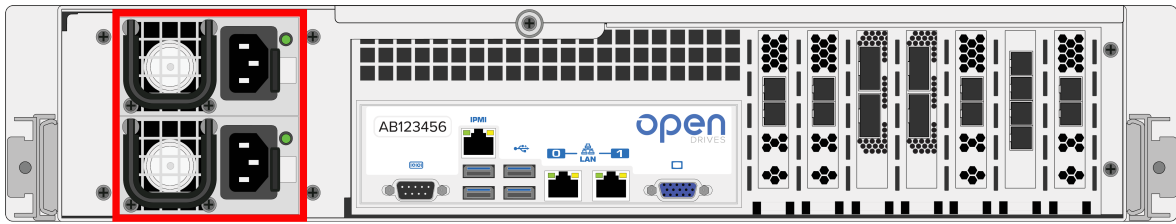


figure c

7.2.1.2. Using the CLI

1. SSH into both controllers.
2. Find the hostid of the system you're on by running the following command:

```
hostid
```

3. Identify which controller is active and which is passive by running the following:

```
sudo pcs status
```

4. Record the serial numbers of the active and passive controllers before powering off a system.
5. Turn off the passive controller by running the following command:

```
sudo poweroff
```

Wait for the passive controller to completely power off.

6. Turn off the active controller by running the following command.

```
sudo poweroff
```

Wait for the active controller to completely power off.

7. After all of the controllers are powered off (LED strip of the controllers will be off), you can unplug all modules as shown in [figure c \[30\]](#).

7.2.1.3. Using the IPMI (console view)

1. Log into the IPMI UI.
2. Choose "remote control" from the menu.
3. Open a KVM (iKVM/HTML5 recommended).
4. Login to Atlas Core.
5. Find the hostid of the system you're on by running the following command:

```
hostid
```

6. Identify which controller is active and which is passive by running the following:

```
sudo pcs status
```

7. Record the serial numbers of the active and passive controllers before powering off a system.
8. Turn off the passive controller by running the following command:

```
sudo poweroff
```

Wait for the active controller to completely power off.

9. Turn off the active controller by running the following command:

```
sudo poweroff
```

Wait for the active controller to completely power off.

- After all of the controllers are powered off (LED strip of the C modules will be off), you can unplug all modules as shown in [figure c \[30\]](#).

7.2.1.4. Using the physical hardware

We do not recommend powering off a system using the button on the controllers.

To power off an HA system using the physical hardware

- Identify which controllers are active and passive using the steps listed in the section using the [Atlas Core UI](#) or [using the CLI](#).
- On the passive controller, press the power button for two seconds to start an orderly shutdown. You may have to remove the faceplate to reach the power button.

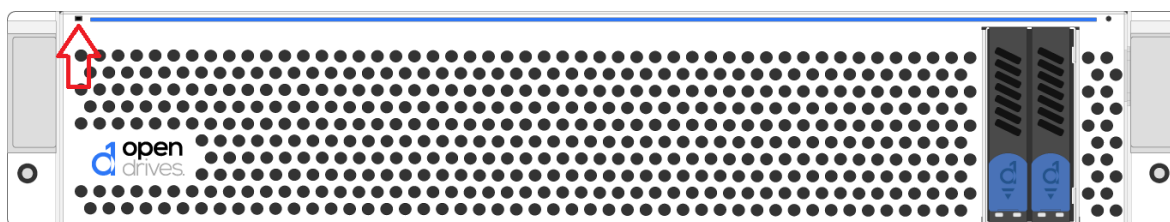


figure d

- On the active controller, press the power button for two seconds to start an orderly shutdown as show in [figure d \[31\]](#). You may have to remove the faceplate to reach the power button.
- Turn off the storage capacity modules by pressing the power button. You may have to remove the faceplate to reach the power button.



7.2.2. Non-HA system

For a non-HA systems (single c module), power off the c module prior to powering off any connect drive modules. To power off a non-HA system, using any of the following options:

7.2.2.1. Using the Atlas Core UI

- Using a web browser, enter the IP address to open the Atlas Core UI.
- Select the menu icon at the top left to expand the navigation menu.
- Navigate to **administration** and choose **system**.
- Choose **shutdown**. Wait until the controller turns off completely.

7.2.2.2. Using the CLI

- SSH into Atlas Core.
- Turn off the system by running the following command:

```
sudo poweroff
```

- Wait for the system to completely power off.

7.2.2.3. Using the IPMI for C and H Modules (console view)

- Log into the IPMI UI.

2. Navigate to iKVM/HTML5 in the remote control menu.
3. Select the iKVM/HTML5 button to launch a remote console.
4. Log into Atlas Core.
5. Turn off the system by running the following command:

```
sudo poweroff
```

6. Wait for the system to completely power off.

7.2.2.4. Using the IPMI for C and H Modules (native power control)

1. Log into the IPMI UI.
2. Navigate to **power control** in the **remote control** menu.
3. Select **power off server - orderly shutdown** for orderly shutdown or **power off server - immediate** to force the power off immediately.

7.2.2.5. Using the physical hardware

- For a C Module, press the power button for two seconds to start an orderly shutdown. In the event the module does not respond to an orderly shutdown, press and hold the power button for 5 seconds to force the power off. You may have to remove the faceplate to reach the power button.
- For F, FD and H modules press and hold the power button for 5 seconds. You may have to remove the faceplate to reach the power button.
- HD and HDX Modules do not have a power button. Power off these Modules by removing the power cables.

After the system has completely shut-down, disconnect the AC power cord(s) from the power strip or outlet. If your system has more than one power supply, remove the AC power cords from all power supply Modules. Disconnect the power cord(s) from the power supply Module(s).

7.3. Drive Carrier

7.3.1. Removing a hot-swap drive carrier

Drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help promote proper airflow for the drive bays. For this reason, even empty carriers without drives installed must remain in the chassis. The following applies to the Ultra Series 2U Modules.

To remove a hot-swap drive carrier

1. Push the release button on the carrier.
2. Swing the handle fully out.
3. Grasp the handle and use it to pull the drive carrier out of its bay.

7.3.2. Removing a drive from a drive carrier

1. After removing a carrier from the server, remove the screws that secure the drive to the carrier and separate the drive from the carrier.
2. Replace the carrier back into the drive bay.

7.3.3. Mounting a new drive in a drive carrier

1. Install the drive into the carrier so that the mounting holes align with those in the carrier.
2. Secure the drive to the carrier with screws appropriate for the drive.
3. Insert the drive carrier back into its bay, orienting the carrier so that the release button is on the right (for 3.5" HDD) or bottom (for 2.5" drives). When the carrier reaches the rear of the bay, the release handle will retract.

4. Push the handle in until it clicks into its locked position.