

Dell PowerEdge XR4000r

Installation and Service Manual

Notes, cautions, and warnings

 **NOTE:** A NOTE indicates important information that helps you make better use of your product.

 **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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About this document

This document provides an overview about the system, information about installing and replacing components, diagnostic tools, and guidelines to be followed while installing certain components.

Dell PowerEdge XR4000r system configurations and features

The PowerEdge XR4000r system is a 2U rackmount chassis that supports:

- Up to four XR4510c 1U single-width compute sleds or up to two XR4520c 2U single-width compute sled or up to two XR4510c 1U, single -width and one XR4520c 2U, single-width compute sleds and an optional nano-server (witness sled XR4000w) example vSAN.
- Up to two redundant AC or DC power supply units

Topics:

- [System configurations - front view for PowerEdge XR4000r](#)
- [System configurations - rear view for PowerEdge XR4000r](#)
- [Power supply unit indicator codes](#)
- [Locating the Express Service Code and Service Tag](#)
- [System information label](#)
- [Rail sizing and rack compatibility matrix](#)

System configurations - front view for PowerEdge XR4000r

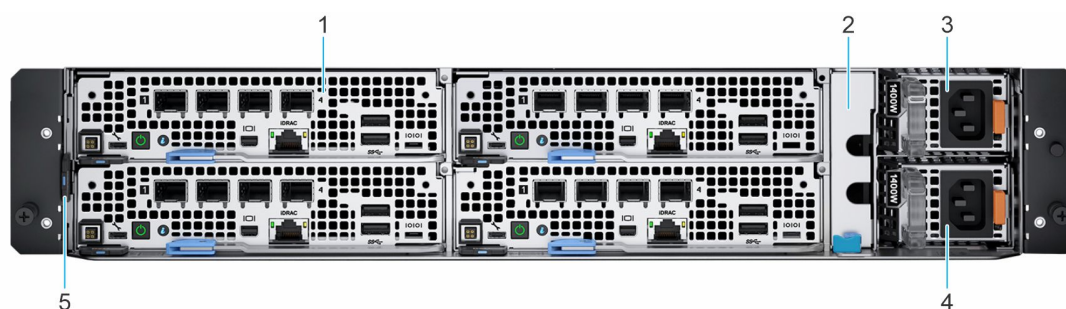




Figure 1. Front view of chassis with four 1U sleds and an optional witness sled

Table 1. Features available on the front of the system

Item	Ports, panels, and slots	Icon	Description
1	XR4510c 1U sled	N/A	XR4510c server for computing.
2	XR4000w witness sled	N/A	Optional witness server with Intel Atom processor.
3	Power supply 1		Indicates PSU 1.
4	Power supply 2		Indicates PSU 2.
5	Information tag	N/A	Information tag which contains service tag information.

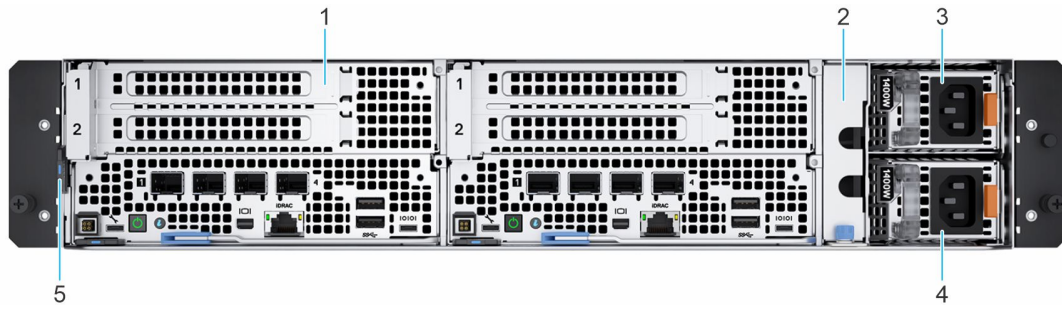




Figure 2. Front view of chassis with two 2U sleds and an optional witness sled

Table 2. Features available on the front of the system

Item	Ports, panels, and slots	Icon	Description
1	XR4520c 2U sled	N/A	XR4520c server for computing.
2	XR4000w witness sled	N/A	Optional witness server with Intel Atom processor
3	Power supply 1		Indicates PSU 1.
4	Power supply 2		Indicates PSU 2.
5	Information tag	N/A	Information tag which contains service tag information.

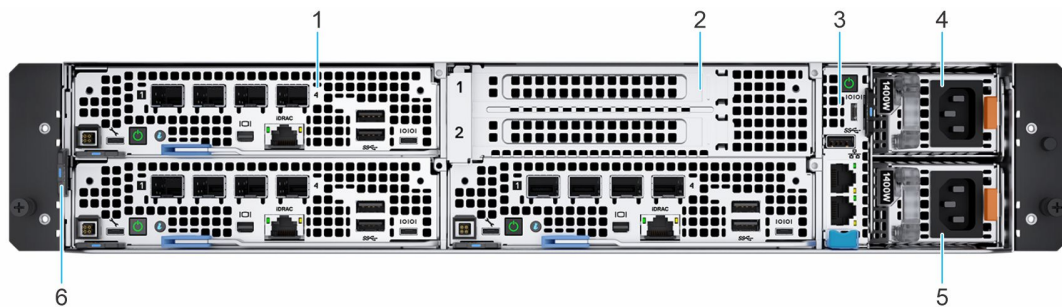




Figure 3. Front view of chassis with two 1U sleds and one 2U sled and an optional witness sled

Table 3. Features available on the front of the system

Item	Ports, panels, and slots	Icon	Description
1	XR4510c 1U sled	N/A	XR4510c server for computing.
2	XR4520c 2U sled	N/A	XR4520c server for computing.
3	XR4000w witness sled	N/A	Optional witness server with Intel Atom processor.
4	Power supply 1		Indicates PSU 1.
5	Power supply 2		Indicates PSU 2.
6	Information tag	N/A	Information tag which contains service tag information.

System configurations - rear view for PowerEdge XR4000r

Rear view of the system



Table 4. Rear view of the system

Item	Ports, panels, or slots	Icon	Description
1	Blank Filler	N/A	Blank filler cover the AC-socket opening, when power supply cables from the front of the chassis.
2	Kensington lock slot	N/A	Kensington lock slot for securing the chassis.

Power supply unit indicator codes

AC and DC power supply units (PSUs) have an illuminated translucent handle that serves as an indicator. The indicator shows if power is present or if a power fault has occurred.

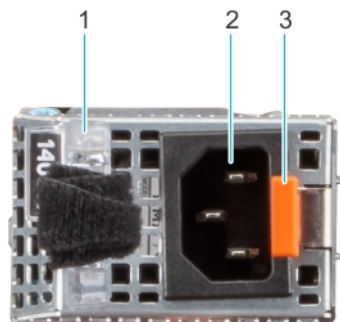


Figure 4. AC PSU status indicator

1. AC PSU handle
2. Socket
3. Release latch

Table 5. AC PSU status indicator codes

Power indicator codes	Condition
Green	Indicates that a valid power source is connected to the PSU and the PSU is operational.
Blinking amber	Indicates an issue with the PSU.
Not powered on	Indicates that the power is not connected to the PSU.
Blinking green	Indicates that the firmware of the PSU is being updated.

Table 5. AC PSU status indicator codes (continued)

Power indicator codes	Condition
Blinking green and powers off	<p>⚠ CAUTION: Do not disconnect the power cord or unplug the PSU when updating firmware. If firmware update is interrupted, the PSUs will not function.</p> <p>When hot-plugging a PSU, it blinks green five times at a rate of 4 Hz and powers off. This indicates a PSU mismatch due to efficiency, feature set, health status, or supported voltage.</p> <p>⚠ CAUTION: If two PSUs are installed, both the PSUs must have the same type of label; for example, Extended Power Performance (EPP) label. Mixing PSUs from previous generations of PowerEdge servers is not supported, even if the PSUs have the same power rating. This results in a PSU mismatch condition or failure to power on the system.</p> <p>⚠ CAUTION: If two PSUs are used, they must be of the same type and have the same maximum output power.</p> <p>⚠ CAUTION: When correcting a PSU mismatch, replace the PSU with the blinking indicator. Swapping the PSU to make a matched pair can result in an error condition and an unexpected system shutdown. To change from a high output configuration to a low output configuration or vice versa, you must power off the system.</p> <p>⚠ CAUTION: AC PSUs support both 240 V and 120 V input voltages with the exception of Titanium PSUs, which support only 240 V. When two identical PSUs receive different input voltages, they can output different wattages, and trigger a mismatch.</p>

Table 6. DC PSU status indicator codes

Power indicator codes	Condition
Green	Indicates that a valid power source is connected to the PSU, and the PSU is operational.
Blinking amber	Indicates an issue with the PSU.
Not powered on	Indicates that the power is not connected to the PSU.
Blinking green	<p>When hot-plugging a PSU, it blinks green five times at a rate of 4 Hz and powers off. This indicates a PSU mismatch due to efficiency, feature set, health status, or supported voltage.</p> <p>⚠ CAUTION: If two PSUs are installed, both the PSUs must have the same type of label; for example, Extended Power Performance (EPP) label. Mixing PSUs from previous generations of PowerEdge servers is not supported, even if the PSUs have the same power rating. This results in a PSU mismatch condition, or failure to power on the system.</p> <p>⚠ CAUTION: If two PSUs are used, they must be of the same type and have the same maximum output power.</p> <p>⚠ CAUTION: When correcting a PSU mismatch, replace the PSU with the blinking indicator. Swapping the</p>

Table 6. DC PSU status indicator codes (continued)

Power indicator codes	Condition
	<p>PSU to make a matched pair can result in an error condition and an unexpected system shutdown. To change from a High Output configuration to a Low Output configuration or conversely, you must power off the system.</p> <p>CAUTION: Combining AC and DC PSUs is not supported.</p>

Locating the Express Service Code and Service Tag

The unique Express Service Code and Service Tag are used to identify the system.

The information tag is located on the rear of the system that includes system information such as iDRAC MAC address, Express Service Tag label.

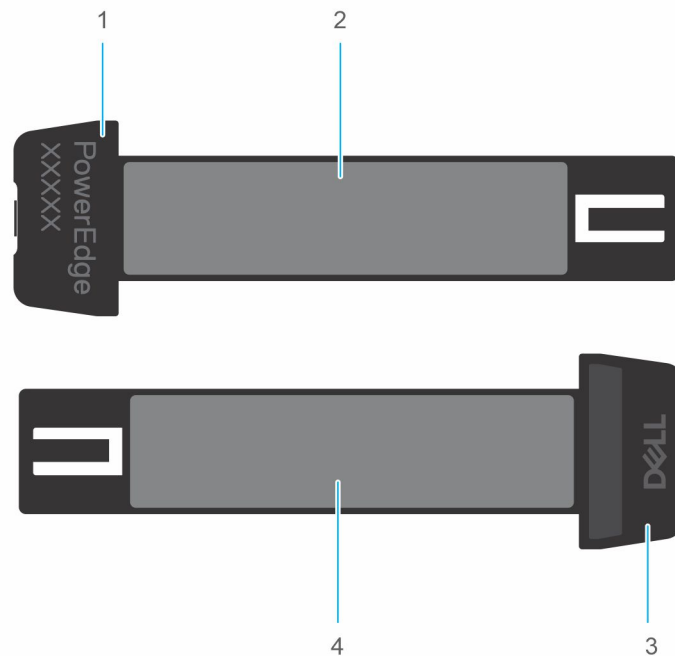


Figure 5. Locating the Service Tag of your system

1. Information tag (bottom view)
2. iDRAC MAC address information label
3. Information tag (top view)
4. Express Service Tag label

The Mini Enterprise Service Tag (MEST) label is located on the system. The MEST includes the Service Tag (ST), Express Service Code (Exp Svc Code), and Manufacture Date (Mfg. Date). The Exp Svc Code is used by Dell EMC to route support calls to the appropriate personnel.

Alternatively, the Service Tag information is located on a label on the left wall of the system.

System information label

Figure 6. Mechanical overview

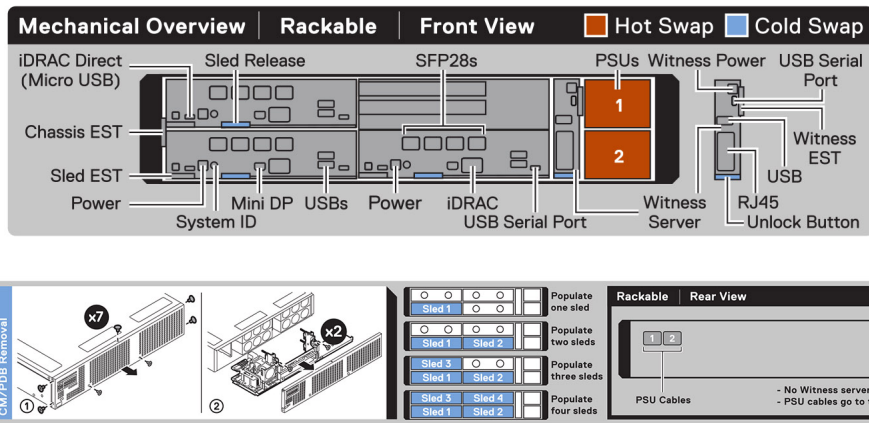


Figure 7. System tasks,

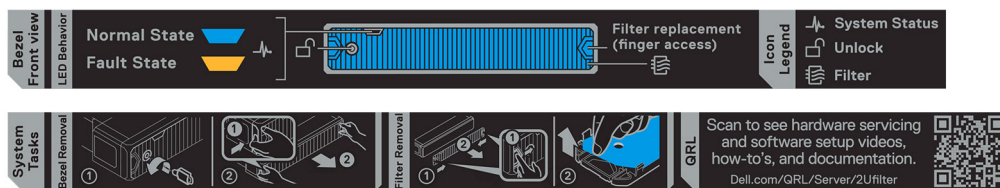


Figure 8. Bezel tasks

Rail sizing and rack compatibility matrix

For specific information about the rail solutions compatible with your system, see the *Dell Enterprise Systems Rail Sizing and Rack Compatibility Matrix* available at https://i.dell.com/sites/csdocuments/Business_solutions_engineering-Docs_Documents/en/rail-rack-matrix.pdf.

The document provides the information that is listed below:

- Specific details about rail types and their functionalities.
- Rail adjustability range for various types of rack mounting flanges.
- Rail depth with and without cable management accessories.
- Types of racks supported for various types of rack mounting flanges.

Technical specifications

The technical and environmental specifications of your system are outlined in this section.

Topics:

- [Chassis dimensions](#)
- [System weight](#)
- [Witness cooling fan specifications](#)
- [PSU specifications](#)
- [Power module assembly](#)
- [Supported operating systems](#)
- [PowerEdge XR sleds ports and connectors](#)
- [Environmental specifications](#)

Chassis dimensions

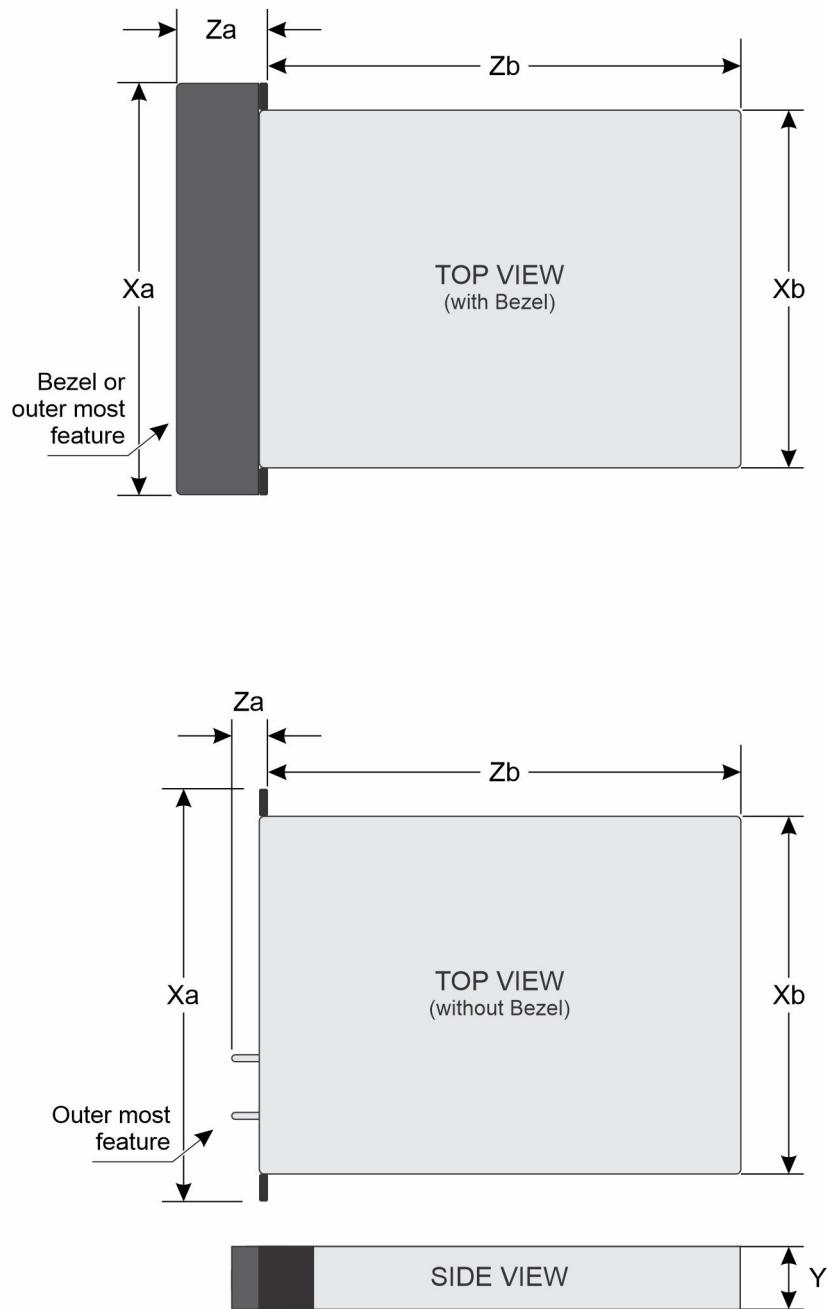


Figure 9. Chassis dimensions

Table 7. PowerEdge XR4000r chassis dimensions

Xa	Xb	Y	Za	Zb
482.6 mm (19 inches)	434 mm (17.08 inches)	87.05 mm (3.42 inches)	102.5 mm (4.03 inches) With bezel 22.73 mm (0.89 inches) Without bezel	352.55 mm (13.87 inches) Ear to rear wall

System weight

Table 8. PowerEdge XR4000r system weight

System configuration	Maximum weight (with all drives/SSDs)
Weight of chassis without sleds	7.96 kg (17.54 pound)
Weight of chassis with sleds and bezel and witness node	19.14 kg (42.20 pound)

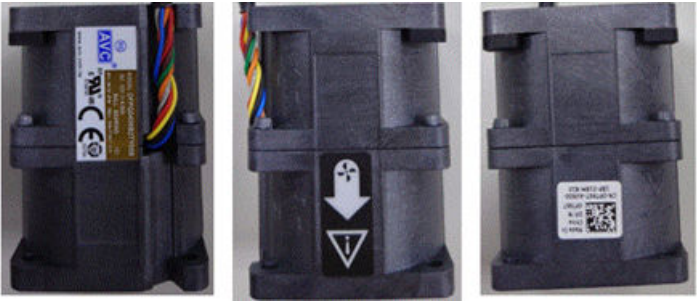
Table 9. PowerEdgesystemweight handling recommendations

Chassis weight	Description
40 pounds - 70 pounds	Recommend two person to lift
70 pounds- 120 pounds	Recommend three person to lift
≥ 121 pounds	Recommend to use a server-lift

Witness cooling fan specifications

The PowerEdge XR4000r system supports one standard fan with Normal air flow (NAF) or Reverse air flow (RAF) for witness sled cooling.

Table 10. Cooling fan specifications

Fan type	Label color	Label image
Standard (STD) fan (60 mm cable length)	No label	

NOTE: The cooling fan installed in the chassis is used for optional witness sled cooling.

PSU specifications

The PowerEdge XR4000r system supports up to two AC or DC power supply units (PSUs).

Table 11. PSU specifications

PSU	Class	Heat dissipation (maximum) (BTU/hr)	Frequency (Hz)	Voltage	AC		DC	Current (A)
					High line 200–240 V	Low line 100–120 V		
1800W Mixed Mode	Titanium	6750 BTU/hr	50/60 Hz	200 - 240 V AC	1800W	NA	NA	10 A
		6750 BTU/hr	NA	240 V DC	NA	NA	1800 W	8.2 A
1400 W Mixed Mode	Platinum	5250 BTU/hr	50/60 Hz	100 - 240 V AC	1400 W	1050 W	NA	12 A - 8 A

Table 11. PSU specifications (continued)

PSU	Class	Heat dissipation (maximum) (BTU/hr)	Frequency (Hz)	Voltage	AC		DC	Current (A)
					High line 200–240 V	Low line 100–120 V		
		5250 BTU/hr	NA	240 V DC	NA	NA	1400 W	6.6 A
1100 W Mixed Mode	Titanium	4265 BTU/hr	50/60 Hz	100 - 240 V AC	NA	NA	NA	12 A - 6 A
		4265 BTU/hr	NA	240 V DC	NA	NA	1100 W	5.2 A
1100 W DC	NA	4265 BTU/hr	NA	-48 - (-60) V	NA	NA	1100 W	27 A

NOTE: This system is also designed to connect to the IT power systems with a phase-to-phase voltage not exceeding 240 V.

NOTE: Heat dissipation is calculated using the PSU wattage rating.

NOTE: When selecting or upgrading the system configuration, to ensure optimum power utilization, verify the system power consumption with the Enterprise Infrastructure Planning Tool available at Dell.com/calc.

Power module assembly

The Dell PowerEdge XR4000r power module assembly which consists of two power distribution board (PDB's) and are connected to each other so either or both power supplies can power the whole chassis. The power distribution board (PDB) at the bottom also has chassis manager board to manage the chassis and the optional witness sled. The witness sled fan module is mounted on the PDB which helps in cooling the witness sled. It also has two power interpose board (PIB) which provide power to the sleds.

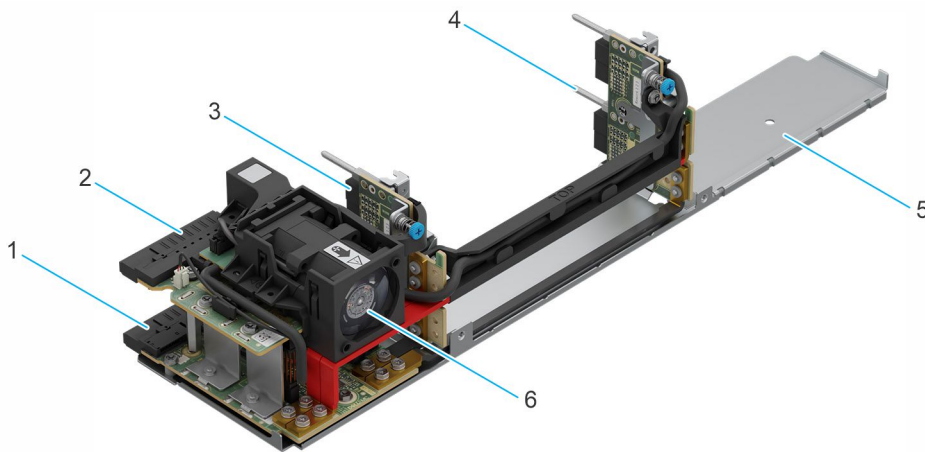


Figure 10. Power module assembly specifications

Table 12. Power module assembly

Item	Component	Description
1	Power distribution board 2/ Chassis Manager (PDB2/CM)	This is the power distribution board which provides power to the chassis components. The PSU 2 slot is located on the PDB 2. Chassis Manager (CM) is also integrated on this board.

Table 12. Power module assembly (continued)

Item	Component	Description
2	Power distribution board 1 (PDB1)	This is the power distribution board which provides power to the chassis components. The PSU 1 slot is located on the PDB 1.
3	Power Interposer Board (PIB)	The power interposer board (PIB) provides power to the 1U and 2U sleds
4	Power Interposer Board (PIB)	The power interposer board (PIB) provides power to the 1U and 2U sleds
5	Power module tray	The power module tray houses the complete power module assembly.
6	Witness fan	The witness fan is installed in the power module assembly of the chassis. The chassis manager (CM) is responsible for the witness fan operations.

Supported operating systems

The PowerEdge XR4000r system supports the following operating systems:

- Azure Stack HCI
- Canonical Ubuntu Server LTS
- Microsoft Windows Server with Hyper-V
- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- VMware ESXi

For more information, go to www.dell.com/ossupport.

PowerEdge XR sleds ports and connectors

PowerEdge XR4510c

Table 13. PowerEdge XR4510c externally accessible ports and connectors

Connector	Description
USB ports and connectors	<ul style="list-style-type: none"> • Two USB 3.0-compliant port on the front of the sled. • One USB 3.0-compliant internal port. • One Micro-AB USB 2.0-compliant port for iDRAC Direct on the front of the sled. • One RJ45 with port for iDRAC remote management (dedicated port only) • One Mini-DisplayPort on the front of the sled. • Four Network Interface Controller (NIC) ports embedded on the LAN on Motherboard (LOM). • One Micro-USB connector for RS232 serial port, which is a 2-pin connector on the front of the sled.

PowerEdge XR4520c

Table 14. PowerEdge XR4520c externally accessible ports and connectors

Connector	Description
USB ports and connectors	<ul style="list-style-type: none"> • Two USB 3.0-compliant port on the front of the sled. • One USB 3.0-compliant internal port.

Table 14. PowerEdge XR4520c externally accessible ports and connectors

Connector	Description
	<ul style="list-style-type: none"> • One micro USB 2.0-compliant port for iDRAC Direct on the front of the sled. • One RJ45 with port for iDRAC remote management (dedicated port only) on the front of the sled. • One Mini-DisplayPort on the front of the sled. • Four Network Interface Controller (NIC) ports embedded on the LAN on Motherboard (LOM). • One Micro-USB connector for RS232 serial port, which is a 2-pin connector on the front of the sled

PowerEdge XR4000w

Table 15. PowerEdge XR4000w externally accessible ports and connectors

Connector	Description
USB ports and connectors	<ul style="list-style-type: none"> • One USB 3.0-compliant port on the front of the sled. • Two Intel I210 Network Interface Controller (NIC) ports embedded on the LAN on Motherboard (LOM). • One Micro-USB connector for RS232 serial port, which is a 2-pin connector on the front of the sled.

Environmental specifications

NOTE: For additional information about environmental certifications, refer to the *Product Environmental Datasheet* located with the *Documentation* on www.dell.com/support/home.

Table 16. Operating and non-operating temperature considerations

Description	Temperature range
Operating temperature range for rear air-flow (RAF) configuration	-5 to <55°C with a startup temperature of 0°C
Operating temperature range for normal air-flow (NAF) configuration	-5 to <45°C with a startup temperature of 0°C
Ambient temperature for rear air-flow (RAF) and normal air-flow (NAF) with GPU	45°C
Non-operating temperature range	-40 to 85°C

Environmental Considerations

The PowerEdge XR4000r system is targeted for edge deployments and it meets all the additional standards for thermal, shock, vibration parameters.

Table 17. Environmental considerations

Industry	Configuration	Description
Telco	GR-1089-CORE	Electromagnetic Compatibility and Electrical Safety – Generic Criteria for Network Telecommunications Equipment
	GR-63-CORE	NEBS Requirements: Physical Protection
	SR-3580 (NEBS Level 3)	NEBS Criteria Levels
	GR-3108-CORE (Class 1)	Network Equipment in the Outside Plant (OSP). An exception is made for cold boot at 0C instead of -5C.
Military	MILSTD 810H	Environmental engineering considerations and laboratory test

Table 17. Environmental considerations (continued)

Industry	Configuration	Description
	MILSTD 461G///	Requirements for the control of electromagnetic interference characteristic of subsystems and equipment
	MILSTD 901E	High impact shock test – Shipboard
	MILSTD 1474E	Department of Defense Design Criteria Standard Noise Limits
Marine	IEC-60945	Maritime navigation and radiocommunication equipment and systems – General requirements
	DNV-GL	Environmental Test Specification for Instrumentation and Automation Equipment
Power Industry	IEEE 1613	Environmental and testing requirements for communications networking devices in electric power substations
	IEC – 61850-3	Communication networks and systems for power utility automation
Safety	NA	LDV, IEC/EN, CFR, CSA
EMC	NA	EN, CISPR, ES, DTAG, CFR, ICES, VCCI
EMV	NA	RoHS, WEEE, EN, ECE

Thermal restriction matrix

Table 18. XR4000r chassis - RAF Configuration Matrix

CPU Type	HSK type	Fan type	RAF Configurations		
			Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)
Intel® Xeon® D - 2796NT, 20C,120W	Vaper Chamber (VC) HSK	Standard (STD) fan	Yes	Yes	Yes
Intel® Xeon® D - 2776NT,16C,117W			Yes	Yes	Yes
Intel® Xeon® D - 2753NT,12C,87W			Yes	Yes	Yes
Intel® Xeon® D - 2733NT,8C,80W			Yes	Yes	Yes
Intel® Xeon® D - 2712T,4C,65W			Yes	Yes	Yes

PCI-E Card Support

Table 19. XR4000r PCI-E Card Support Thermal Limitation (RAF Configurations)

PCI-E Type	RAF Configurations		
	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)
nvidia GPGPU A2	Not Supported		Yes
nvidia GPGPU A30			Yes

Table 20. M.2 Support Thermal Limitation for XR4000r chassis (RAF Configurations)

M.2 Type	Riser Module			Mancini Module			AIC Card			M.2 Module (Witness Sled)		
	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)
Micro n 480G B	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Micro n 800G B	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Micro n 960G B	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Micro n 1.92T B	Throttling Active	Yes	Yes	No	No	No	Yes	Yes	Yes	No	No	No
Micro n 3.84T B	Throttling Active	Yes	Yes	No	No	No	Yes	Yes	Yes	No	No	No
Hynix 480G B	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Hynix 800G B	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Hynix 960G B	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hynix 1.92T B	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	No	No	No
Hynix 3.84B T	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	No	No	No

Table 21. XR4000w Processor Support Thermal Limitation for XR4000r chassis (RAF Configurations)

CPU Type	HSK type	Fan type	RAF Configurations		
			Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)
Intel Atom C3508, 4 cores, 11.5W	Aluminum extrusion	Fan	Yes	Yes	Yes

Table 22. XR4000r chassis - NAF Configuration Matrix

CPU Type	HSK type	Fan type	NAF Configurations		
			Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)
Intel® Xeon® D - 2796NT, 20C,120W	Vaper Chamber (VC) HSK	XR4000 Fan	No	No	Yes
Intel® Xeon® D - 2776NT,16C,117W			No	No	Yes
Intel® Xeon® D - 2753NT,12C,87W			No	No	Yes
Intel® Xeon® D - 2733NT,8C,80W			No	No	Yes
Intel® Xeon® D - 2712T,4C,65W			No	No	Yes

PCI-E Card Support

Table 23. PCI-E Card Support Thermal Limitation on XR4000r chassis (NAF Configurations)

TDP (W)	NAF Configurations		
	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)
nvidia GPGPU A2	Not Supported		Yes
nvidia GPGPU A30			Yes

Table 24. M.2 Support Thermal Limitation for XR4000r chassis (NAF Configurations)

M.2 Type	Riser Module			Mancini Module			AIC Card			M.2 Module (Witness Sled)		
	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)
Micro n 480G B	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes	No	No	No
Micro n 800G B	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes	No	No	No
Micro n 960G B	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes
Micro n 1.92T B	Not Supported	Not Supported	Yes	No	No	No	Not Supported	Not Supported	Yes	No	No	No
Micro n 3.84T B	Not Supported	Not Supported	Yes	No	No	No	Not Supported	Not Supported	Yes	No	No	No
Hynix 480G B	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes	No	No	No

Table 24. M.2 Support Thermal Limitation for XR4000r chassis (NAF Configurations) (continued)

M.2 Type	Riser Module			Mancini Module			AIC Card			M.2 Module (Witness Sled)		
	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)	Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)
Hynix 800GB	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes	No	No	No
Hynix 960GB	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes	Not Supported	Not Supported	Yes
Hynix 1.92TB	Not Supported	Not Supported	Yes	No	No	No	Not Supported	Not Supported	Yes	No	No	No
Hynix 3.84TB	Not Supported	Not Supported	Yes	No	No	No	Not Supported	Not Supported	Yes	No	No	No

Table 25. XR4000w Processor Support Thermal Limitation for XR4000r chassis (NAF Configurations)

Processor Type	HSK type	Fan type	NAF Configurations		
			Edge 2 (Max 55°C)	Edge 1 (Max 50°C)	ASHRAE A4 (Max 45°C)
Intel Atom C3508, 4 cores, 11.5W	Aluminum extrusion	Fan	Not Supported		Yes

Thermal Restrictions

ASHRAE A4 Support Restriction for RAF (Reverse Air Flow Direction) Configurations

- CPU TDP greater than 120W are not supported within A3/A4.
- Nvidia A30 card is not supported above 45°C ambient temperature.
- Nvidia A2 GPU card is not supported above 45°C ambient temperature.
- In redundant mode, two power supplies are required. A single power supply failure is not supported.
- If memory slots are not fully populated, dummy DIMMs are required.

Edge1 Support Restriction for RAF (Reverse Air Flow Direction) Configurations

- CPU TDP greater than 120W are not supported within A3/A4.
- Nvidia A30 card is not supported above 45°C ambient temperature.
- Nvidia A2 GPU card is not supported above 45°C ambient temperature.
- In redundant mode, two power supplies are required. A single power supply failure is not supported.
- If memory slots are not fully populated, dummy DIMMs are required.

Edge2 Support Restriction for RAF (Reverse Air Flow Direction) Configurations

- CPU TDP greater than 120W are not supported within A3/A4.
- Nvidia A30 card is not supported above 45°C ambient temperature.
- Nvidia A2 GPU card is not supported above 45°C ambient temperature.
- Micron M.2 with 1.92TB and 3.84TB on Riser Module has active throttling for thermal protection when fully loaded and at 55°C environment temperature.
- Micron M.2 with 3.84TB on AIC card has active throttling for thermal protection when fully loaded and at 55°C environment temperature.

- In redundant mode, two power supplies are required. A single power supply failure is not supported.
- If memory slots are not fully populated, dummy DIMMs are required.

ASHRAE A4 Support Restriction for NAF (Normal Air Flow Direction) Configurations

- CPU TDP greater than 120W are not supported within A4.
- Nvidia A30 card is not supported above 45°C environment temperature.
- Nvidia A2 GPU card is not supported above 45°C environment temperature.
- In redundant mode, two power supplies are required. A single power supply failure is not supported.
- If memory slots are not fully populated, dummy DIMMs are required.

Minimum configuration to POST

The components listed below are the minimum configuration to POST:


- One XR4510c or XR420c sled
- One memory module (DIMM) in socket A1 of the sled
- One power supply unit


Installing and removing system components

Topics:

- Safety instructions
- Before working inside your system
- After working inside your system
- Recommended tools
- Optional front bezel
- Bezel filter
- XR4000r sled
- Rear cover
- Power module assembly
- Cooling fans
- Power supply unit
- Witness sled


Safety instructions


 **NOTE:** Whenever you need to lift the system, get others to assist you. To avoid injury, do not attempt to lift the system by yourself.


 **CAUTION:** Ensure that two or more people lift the system horizontally from the box and place it on a flat surface, rack lift, or into the rails.


 **WARNING:** Opening or removing the system cover while the system is powered on may expose you to a risk of electric shock.


 **WARNING:** Do not operate the system without the cover for a duration exceeding five minutes. Operating the system without the system cover can result in component damage.

 **CAUTION:** Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that are shipped with your product.

 **NOTE:** It is recommended that you always use an antistatic mat and antistatic strap while working on components inside the system.

 **CAUTION:** To ensure proper operation and cooling, all system bays and fans must always be populated with a component or a blank.

 **NOTE:** While replacing the hot swappable PSU, after next server boot; the new PSU automatically updates to the same firmware and configuration of the replaced one. For updating to the latest firmware and changing the configuration, see the *Lifecycle Controller User's Guide* at <https://www.dell.com/idracmanuals>.

 **NOTE:** While replacing faulty storage controller, FC, or NIC card with the same type of card, after you power on the system; the new card automatically updates to the same firmware and configuration of the faulty one. For updating to the latest firmware and changing the configuration, see the *Lifecycle Controller User's Guide* at <https://www.dell.com/idracmanuals>.

NOTE: Please wait for 10 minutes between AC cycles (Power off and Power on cycles) for graceful shutdown to occur when XR4000r and XR4000z chassis has XR4000w installed. This ensures graceful shutdown of underlying hardware and software components in the system.

Before working inside your system

Prerequisites

Follow the safety guidelines listed in the [Safety instructions](#).

Steps

If applicable, remove the system from the rack.

For more information, see the *Rail Installation Guide* relevant to your rail solutions at www.dell.com/poweredgemanuals.

After working inside your system

Prerequisites

Follow the safety guidelines listed in [Safety instructions](#).

Steps

1. If applicable, install the system into the rack.
For more information, see the *Rail Installation Guide* relevant to your system at www.dell.com/poweredgemanuals.
2. Reconnect the peripherals and connect the system to the electrical outlet, and then power on the system.

Recommended tools

You may need any or combination of the following tools to perform the removal and installation procedures:

- Key to the bezel lock. The key is required only if your system includes a bezel.
- Phillips 1 screwdriver
- Phillips 2 screwdriver
- Torx T8 screwdriver
- Wrist grounding strap connected to the ground
- ESD mat

You need the following tools to assemble the cables for a DC power supply unit:

- AMP 90871-1 hand-crimping tool or equivalent
- Tyco Electronics 58433-3 or equivalent
- Wire-stripper pliers to remove insulation from size 10 AWG solid or stranded, insulated copper wire

NOTE: Use alpha wire part number 3080 or equivalent (65/30 stranding).

Optional front bezel

Removing the front bezel

Prerequisites

1. Follow the safety guidelines listed in the [Safety instructions](#).
2. Keep the bezel key handy.

NOTE: The bezel key is part of the bezel package.

Steps

1. Unlock the bezel.
2. Press the release button on both sides of the bezel.
3. Pull the bezel out of the enclosure.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

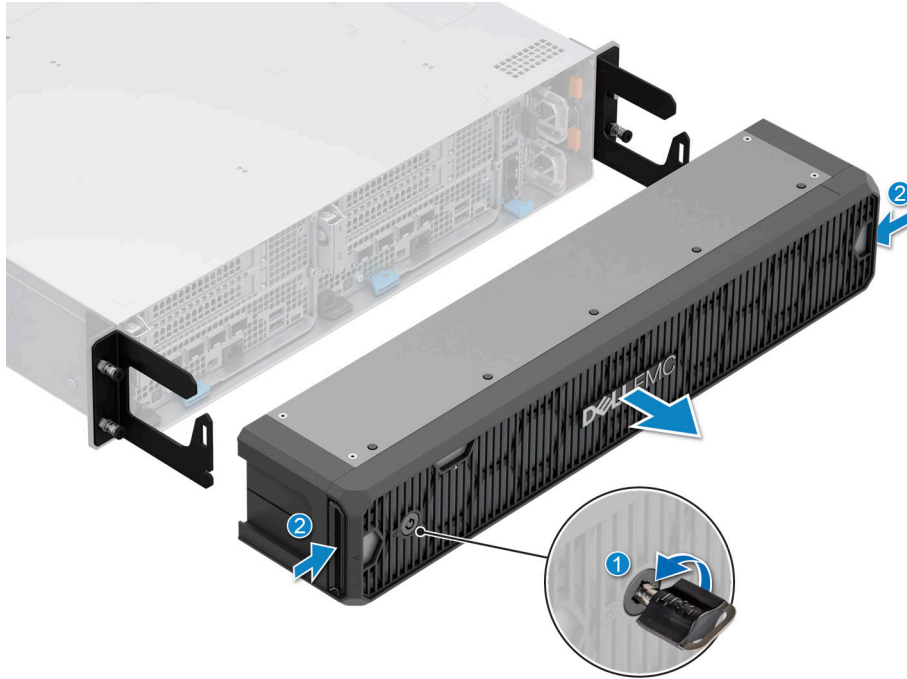


Figure 11. Removing the front bezel

Next steps

Replace the front bezel.

Installing the front bezel

Prerequisites

1. Follow the safety guidelines listed in the [Safety instructions](#).
2. Locate and remove the bezel key.

NOTE: The bezel key is part of the bezel package.

Steps

1. Align and insert the tabs on the bezel into the slots on the system.
2. Press the bezel until the release buttons click in place.
3. Lock the bezel.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

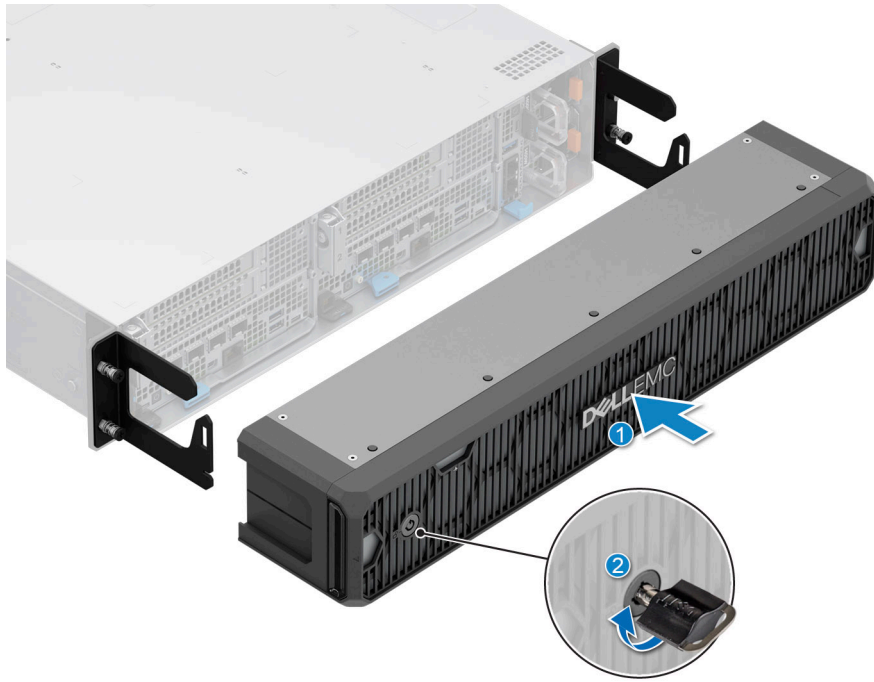


Figure 12. Installing the front bezel

Bezel filter

Removal and installation of the bezel filter

Prerequisites

1. Follow the safety guidelines listed in the [Safety instructions](#).
2. Follow the procedure listed in the [Before working inside your system](#).
3. [Remove the front bezel](#).

Steps

1. Pull the grill by pressing the latch on both sides.

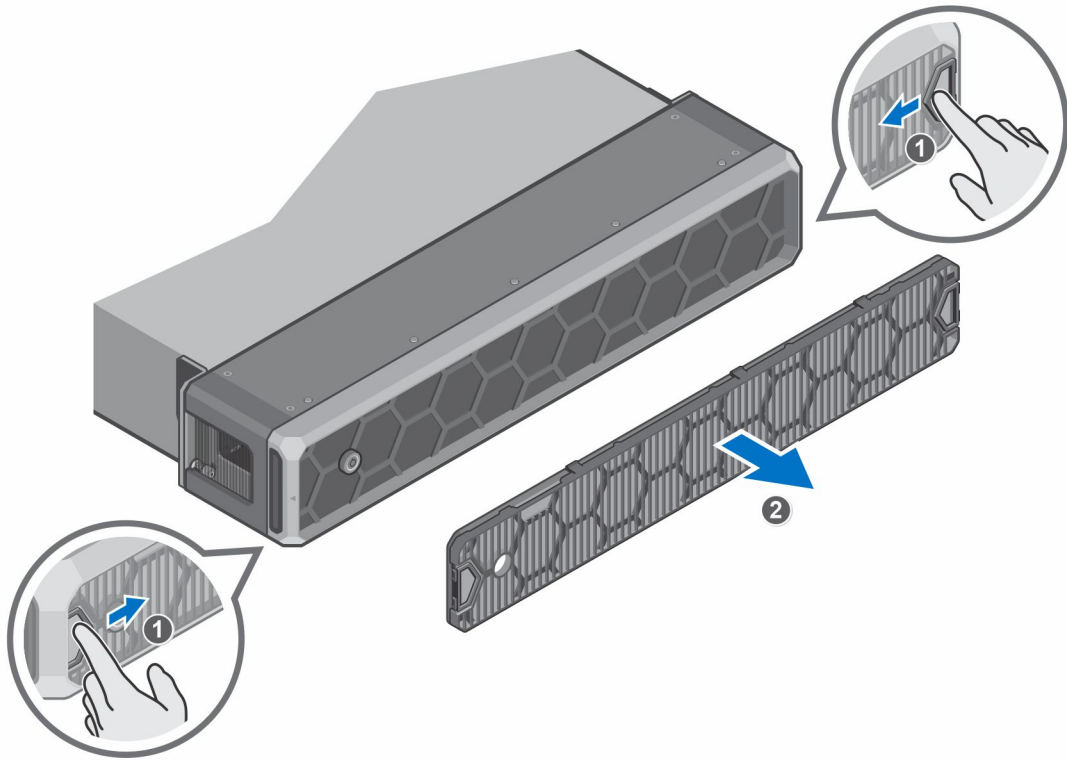


Figure 13. Removing the grill from the front bezel

2. Remove the filter from the inner side of the grill and install a new bezel filter.

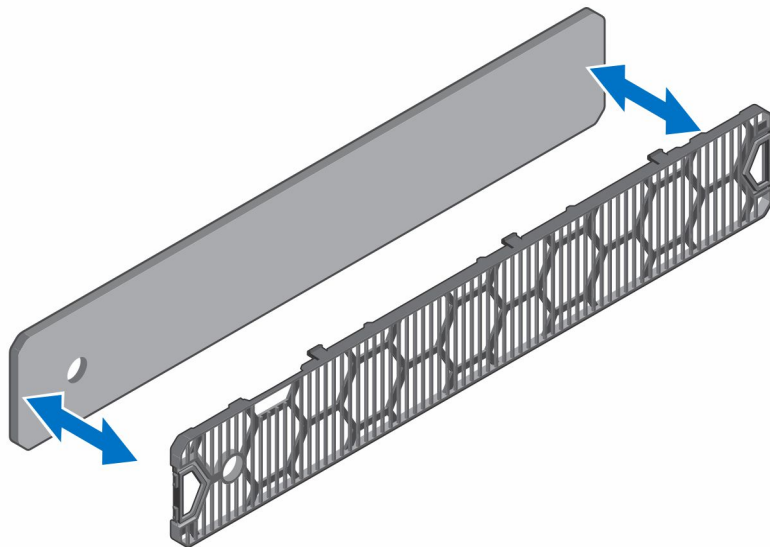


Figure 14. Removal and installation of the bezel filter

NOTE: To maintain optimal system health, Dell Technologies recommends checking and changing the filter every three months. Filters can be ordered from Dell.

3. Align both the latches on the grill into to the bezel latch slots and push until the grill locks into place.

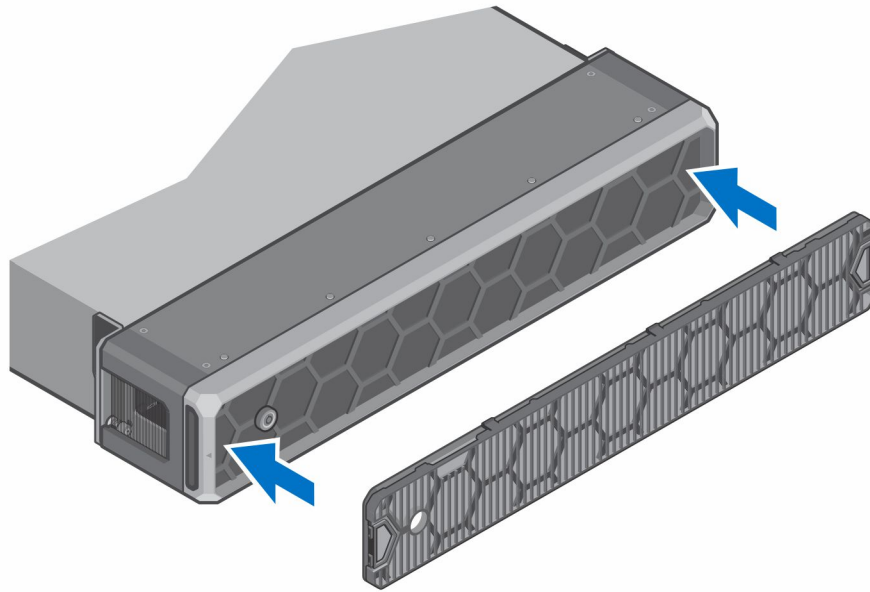


Figure 15. Installing the grill into the bezel

XR4000r sled

Removing a sled blank

Prerequisites

Follow the safety guidelines listed in [Safety instructions](#).

Steps

Pull the sled blank to remove it from the enclosure.



Figure 16. Removing a sled blank

Next steps

Install a sled or sled blank.

Installing a sled blank

Prerequisites

Follow the safety guidelines listed in [Safety instructions](#).

Steps

1. Align the sled blank with the bay of the chassis.
2. Insert and push the sled blank, until it locks into place.



Figure 17. Installing a sled blank

Removing a sled

Prerequisites

1. Follow the safety guidelines listed in the [Safety instructions](#).
2. Remove the front bezel, if applicable.

Steps

1. Pull the blue lever on the sled to release the sled handle.
2. Holding the sled handle, slide the sled out of the enclosure.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

CAUTION: Support the system with both hands while sliding it out of the enclosure.



Figure 18. Removing a 1U sled from XR4000r

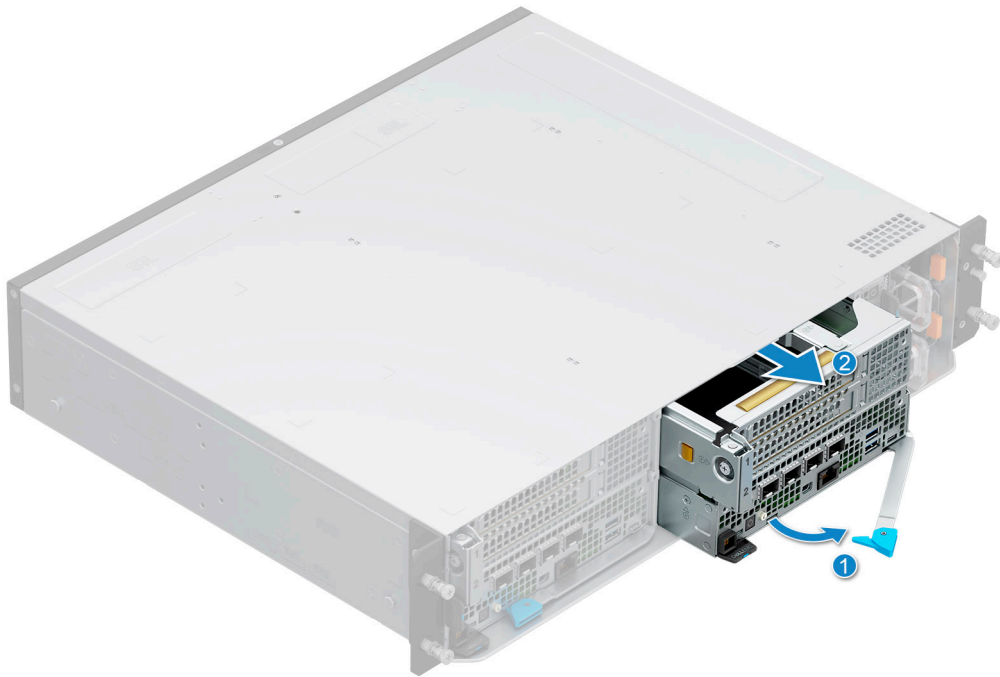


Figure 19. Removing a 2U sled from XR4000r

Next steps

Installing the sled

Installing a sled

Prerequisites

Follow the safety guidelines listed in [Safety instructions](#).

Steps

1. Pull the blue lever on the sled to free the sled handle.
2. Holding the sled with both hands, align the sled along the sled-bay in to the chassis.
3. Slide the sled into the chassis, ensure the sled handle is in lock position.
4. Push the sled handle inwards so that it locks into place and secures the sled in the chassis.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

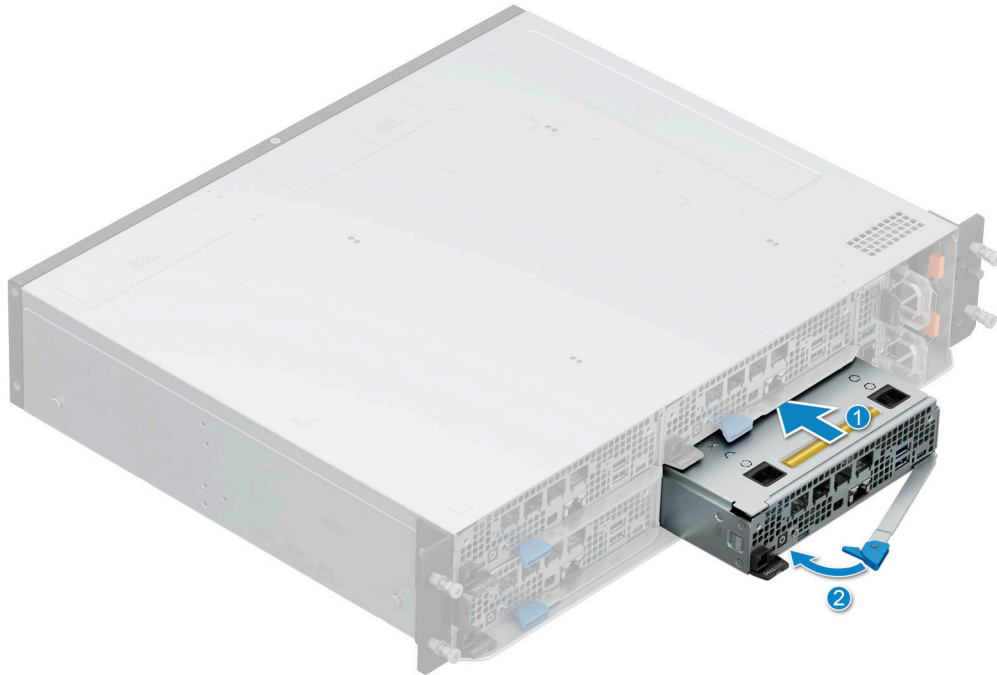


Figure 20. Installing a 1U sled into XR4000r



Figure 21. Installing a 2U sled into XR4000r

Next steps

1. Install the [front bezel](#).
2. Follow the procedure listed in [After working inside your system](#).

Rear cover

Removing the rear cover

Prerequisites

Follow the safety guidelines listed in the [Safety instructions](#).

Steps

1. Using the Torx #8 screwdriver, remove the screws that secures the rear cover on to the chassis.
2. Pull the rear cover to disengage from the chassis.

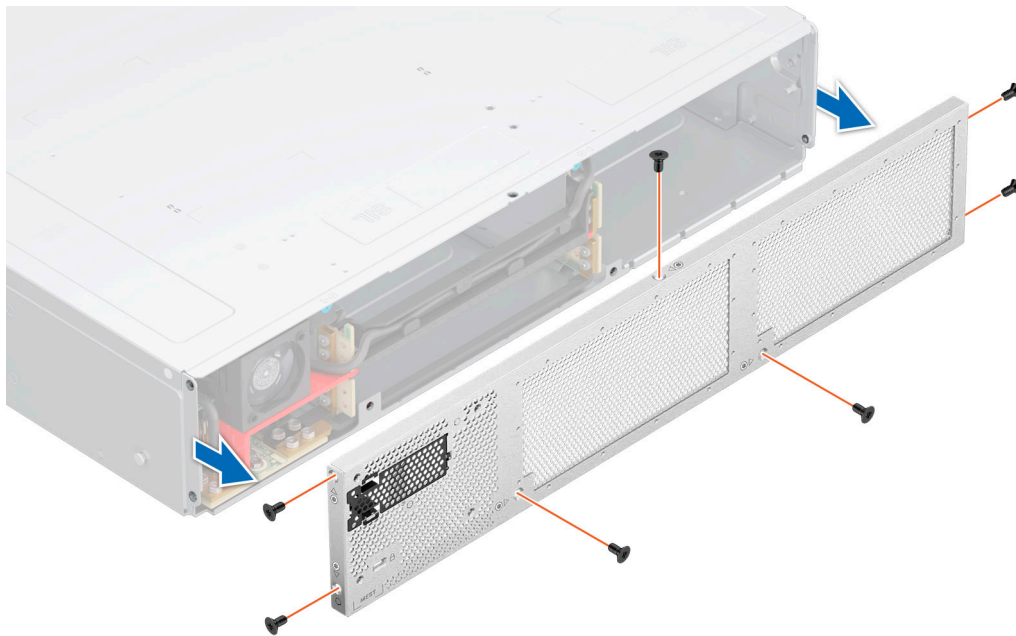


Figure 22. Removing the rear cover

Next steps

[Replace the rear cover](#).

Installing the rear cover

Prerequisites

Follow the safety guidelines listed in the [Safety instructions](#).

Steps

1. Align and insert the cover on the rear of the chassis.
2. Using the Torx #8 screwdriver, tighten the screws that secures the rear cover on to the chassis.

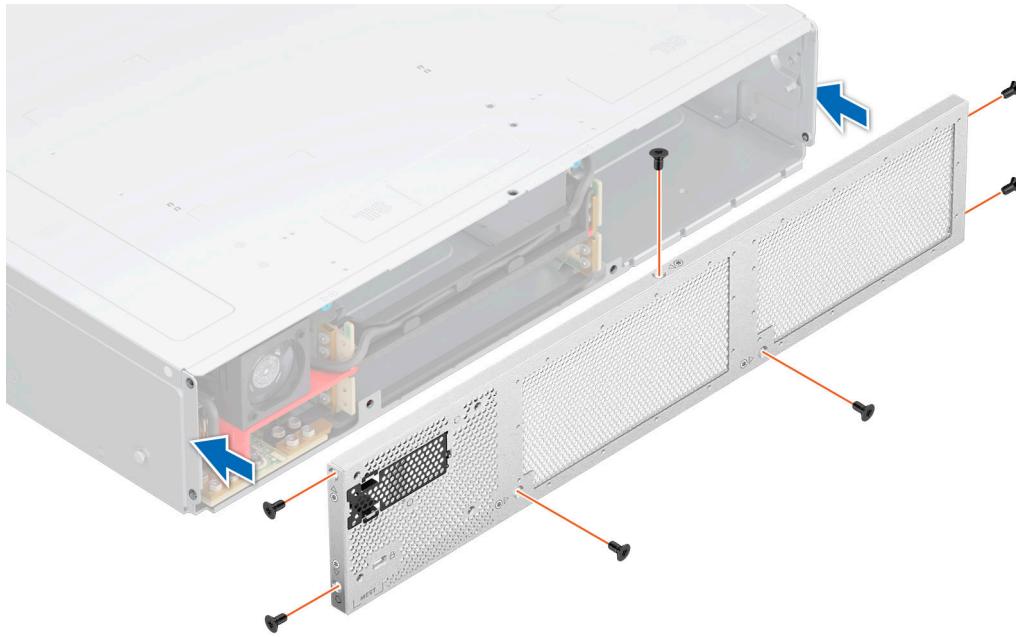


Figure 23. Installing the rear cover

Power module assembly

Removing power module assembly

Prerequisites

1. Follow the safety guidelines listed in the [Safety instructions](#).
2. [Remove the rear cover](#).
3. Remove the [sleds](#).
4. Remove the [witness sled](#).
5. Remove the [power supply units](#).

Steps

1. Using a Phillips 2 screwdriver, loosen the two captive screws.
2. Pull the power tray along with the power module assembly (PDB) from the chassis.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

NOTE: Support the power tray with both hands while sliding it out of the chassis.

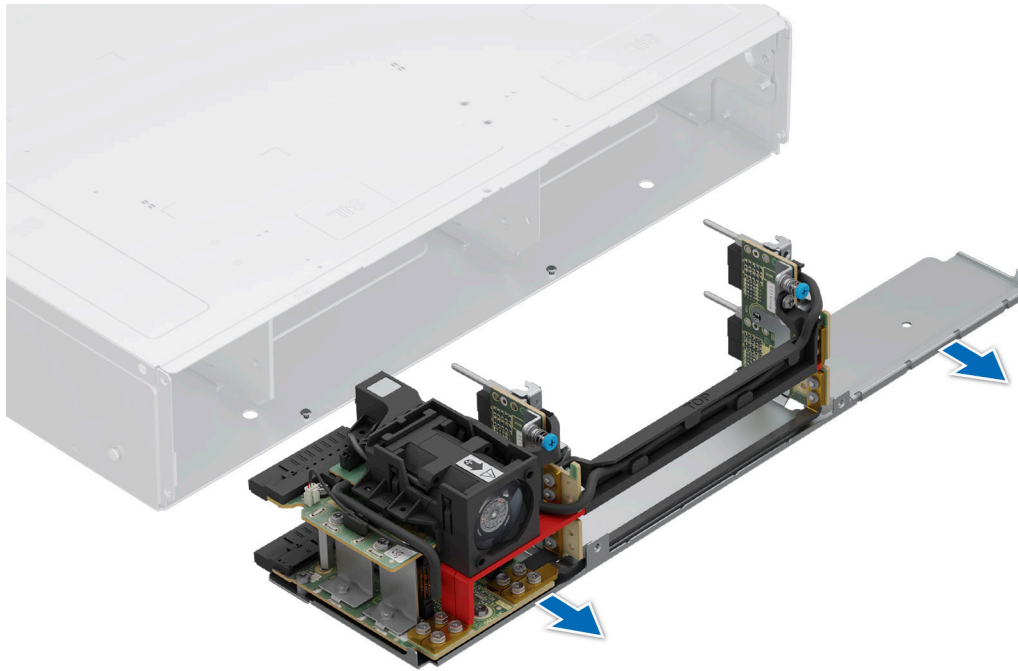


Figure 24. Removing power module assembly

Next steps

Replace power module assembly.

Installing the power module assembly

Prerequisites

Follow the safety guidelines listed in the [Safety instructions](#).

Steps

1. Align and insert the power tray along with the power module assembly (PDB) into the chassis.
2. Using the Phillips 2 screwdriver, tighten the two captive screws to secure power tray in to the rear of the chassis.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

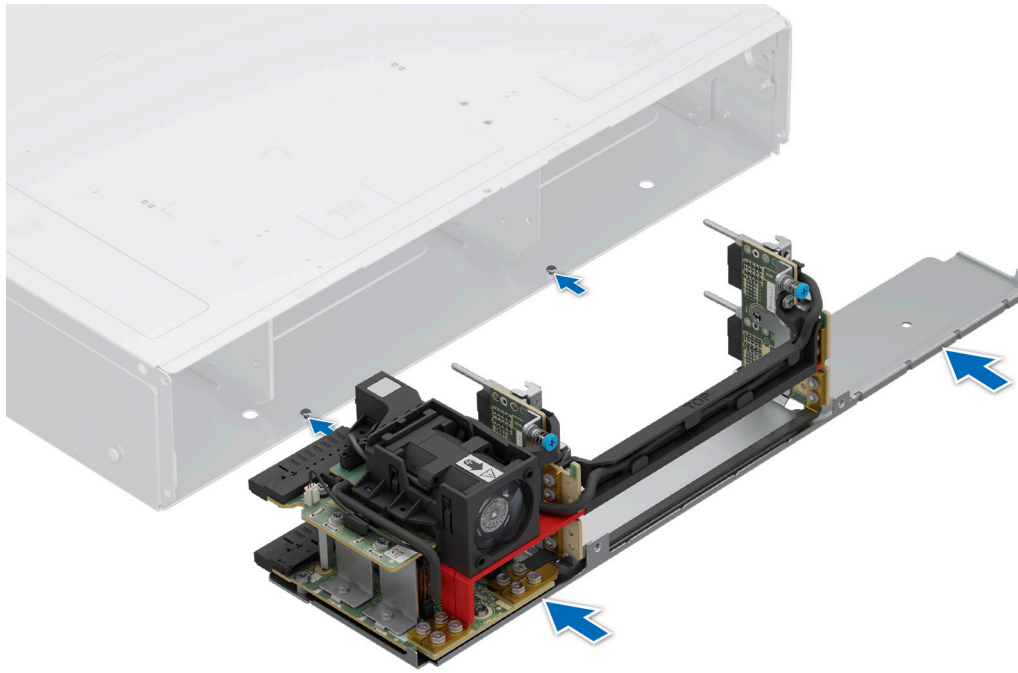


Figure 25. Installing the power module assembly

3. Install the rear cover.

Next steps

Follow the procedure listed in [After working inside your system..](#)

Cooling fans

Removing the witness fan

Prerequisites

1. Follow the safety guidelines listed in the [Safety instructions](#).
2. [Remove the rear cover](#).
3. [Remove the power module assembly](#).

Steps

1. Using the Phillips 2 screwdriver, remove the screw connected to the power distribution board (PDB) .
2. Disconnect the fan cable connected to the fan board.
3. Disconnect the NAF/RAF detection switch cable from power distribution board (PDB).
4. Lift the witness fan module from the power distribution board (PDB).

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

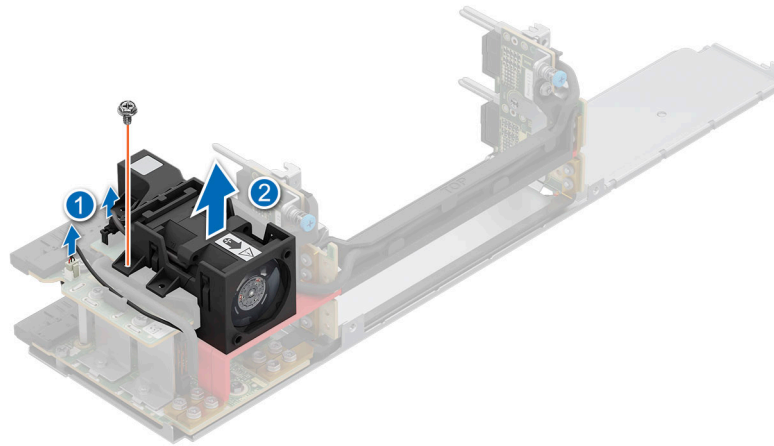


Figure 26. Removing the witness fan

Next steps

Replace the witness fan module.

Installing the witness fan

Prerequisites

Follow the safety guidelines listed in the [Safety instructions](#).

Steps

1. Align the witness fan and place it on the power distribution board (PDB).
2. Using the Phillips 2 screw driver, tighten the screws on the power distribution board (PDB).

i **NOTE:** The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.

3. Connect the RAF/NAF detection switch cable to the power distribution board (PDB).
4. Connect the fan cable to the fan board.

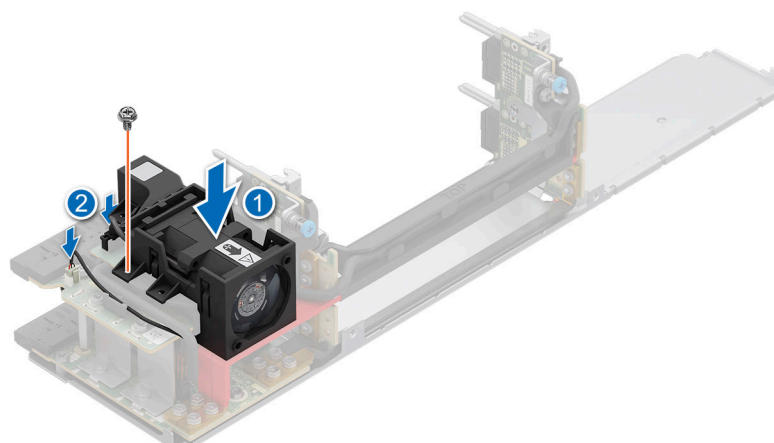


Figure 27. Installing the fan and the witness fan

Next steps

1. Install the power module assembly.
2. Install the rear cover.
3. Follow the procedure listed in the [After working inside your system](#).

Power supply unit

NOTE: While replacing the hot swappable PSU, after next server boot; the new PSU automatically updates to the same firmware and configuration of the replaced one. For updating to the latest firmware and changing the configuration, see the *Lifecycle Controller User's Guide* at <https://www.dell.com/idracmanuals>.

Removing a power supply unit blank

Prerequisites

Follow the safety guidelines listed in the [Safety instructions](#).

Steps

Pull the blank out of the system.

CAUTION: To ensure proper system cooling, the PSU blank must be installed in the second PSU bay in a non-redundant configuration. Remove the PSU blank only if you are installing a second PSU.

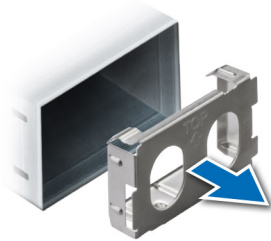


Figure 28. Removing a power supply unit blank

Next steps

Replace the [PSU](#) or [PSU blank](#).

Removing a power supply unit

Prerequisites

CAUTION: The system requires one power supply unit (PSU) for normal operation. On power-redundant systems, remove and replace only one PSU at a time in a system that is powered on.

1. Follow the safety guidelines listed in the [Safety instructions](#).
2. Disconnect the power cable from the power outlet and from the Power Supply Unit (PSU) you intend to remove.
3. Remove the cable from the strap on the PSU handle.

NOTE: The PowerEdge XR4000r has two types of Power Supply Units (PSUs). The PSUs with black straps are designed for normal air flow (NAF) and the PSUs with blue straps are designed for reverse air flow (RAF).

Steps

Press the orange release latch, and holding the PSU handle slide the PSU out of the PSU bay.



Figure 29. Removing a normal air flow (NAF) power supply unit



Figure 30. Removing a reverse air flow (RAF) power supply unit

Next steps

Replace the PSU or replace the PSU blank.

Installing a power supply unit

Prerequisites

1. Follow the safety guidelines listed in the [Safety instructions](#).
2. For systems that support redundant Power Supply Units (PSUs), ensure that both the PSUs are of the same type and have the same maximum output power.

NOTE: The maximum output power (shown in watts) is listed on the PSU label.

3. [Remove the PSU blank](#).

NOTE: The PowerEdge XR4000r has two types of Power Supply Units (PSUs). The PSUs with black straps are designed for normal air flow (NAF) and the PSUs with blue straps are designed for reverse air flow (RAF).

Steps

Slide the PSU into the PSU bay until the release latch snaps into place.



Figure 31. Installing a normal air flow (NAF) power supply unit



Figure 32. Installing a reverse air flow (RAF) power supply unit

Next steps

1. Connect the power cable to the PSU, and plug the cable into a power outlet.

CAUTION: When connecting the power cable to the PSU, secure the cable to the PSU with the strap.

NOTE: When installing, hot swapping, or hot adding a new PSU, wait for 15 seconds for the system to recognize the PSU and determine its status. The PSU redundancy may not occur until discovery is complete. The PSU status indicator turns green to indicate that the PSU is functioning properly.


NOTE: For certain premium configurations with high power consumption, system PSU might stay with 2+0 mode only, 1+1 redundant mode is not available.

NOTE: While replacing the hot swappable PSU, after next server boot; the new PSU automatically updates to the same firmware and configuration of the replaced one. For more information about the Part replacement configuration, see the *Lifecycle Controller User's Guide* at <https://www.dell.com/idracmanuals>

Installing a power supply unit blank

Prerequisites

1. Follow the safety guidelines listed in the [Safety instructions](#).
2. Follow the procedure listed in [Before working inside your system](#).
3. [Remove the PSU](#).

 **NOTE:** Install the power supply unit (PSU) blank only in the second PSU bay.

Steps

Align the PSU blank with the PSU bay and push it into the PSU bay until it clicks into place.

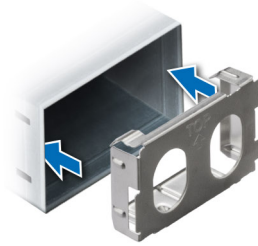


Figure 33. Installing a power supply unit blank

Witness sled

Removing a witness sled blank

Prerequisites

Follow the safety guidelines listed in [Safety instructions](#).

Steps

1. Pull up the plunger located on the witness sled blank.
2. Remove the witness sled blank.

 **NOTE:** The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.



Figure 34. Removing a witness sled blank

Next steps

Install the [witness sled](#) or [witness sled blank](#).

Installing a witness sled blank

Prerequisites

Follow the safety guidelines listed in [Safety instructions](#).

Steps

1. Align the sled blank with the bay of the chassis.
2. Insert and push the sled blank until the plunger locks into place.

NOTE: The numbers on the image do not depict the exact steps. The numbers are for representation of sequence.



Figure 35. Installing a witness sled blank

Removing the witness sled

Prerequisites

1. Follow the safety guidelines listed in the [Safety instructions](#).
2. Disconnect all the peripherals and the cables from the witness sled.

Steps

Pull the blue tag to slide the witness sled from the chassis.



Figure 36. Removing the witness sled

Next steps

Replace witness sled.

Installing the witness sled

Prerequisites

Follow the safety guidelines listed in the [Safety instructions](#).

Steps

1. Align and insert the witness sled into chassis.
2. Using the witness sled handle, slide the sled until it locks into place.



Figure 37. Installing the witness sled

Next steps

Connect all the cables and peripherals.

Getting help

Topics:

- [Recycling or End-of-Life service information](#)
- [Contacting Dell Technologies](#)
- [Accessing system information by using QRL](#)
- [Receiving automated support with SupportAssist](#)

Recycling or End-of-Life service information

Take back and recycling services are offered for this product in certain countries. If you want to dispose of system components, visit www.dell.com/recyclingworldwide and select the relevant country.

Contacting Dell Technologies

Dell provides online and telephone based support and service options. If you do not have an active internet connection, you can find Dell contact information on your purchase invoice, packing slip, bill or Dell product catalog. The availability of services varies depending on the country and product, and some services may not be available in your area. To contact Dell for sales, technical assistance, or customer service issues follow these steps:

Steps

1. Go to www.dell.com/support/home.
2. Select your country from the drop-down menu on the lower right corner of the page.
3. For customized support:
 - a. Enter the system Service Tag in the **Enter a Service Tag, Serial Number, Service Request, Model, or Keyword** field.
 - b. Click **Search**.
The support page that lists the various support categories is displayed.
4. For general support:
 - a. Select your product category.
 - b. Select your product segment.
 - c. Select your product.
The support page that lists the various support categories is displayed.
5. For contact details of Dell Global Technical Support:
 - a. Click [Contact Technical Support](#).
 - b. The **Contact Technical Support** page is displayed with details to call, chat, or e-mail the Dell Global Technical Support team.

Accessing system information by using QRL

You can use the Quick Resource Locator (QRL) located on the information tag in the front of the XR4000r system, to access information about PowerEdge XR4000r. There is also another QRL for accessing product information located on the back of the system cover.

Prerequisites

Ensure that your smartphone or tablet has a QR code scanner installed.

The QRL includes the following information about your system:

- How-to videos
- Reference materials, including the Installation and Service Manual, and mechanical overview
- The system service tag to quickly access the specific hardware configuration and warranty information
- A direct link to Dell to contact technical assistance and sales teams

Steps

1. Go to www.dell.com/qrl, and navigate to your specific product or
2. Use your smart phone or tablet to scan the model-specific Quick Resource (QR) code on your system or in the Quick Resource Locator section.

Quick Resource Locator for PowerEdge XR4000r system



Figure 38. Quick Resource Locator for PowerEdge XR4000r system

Receiving automated support with SupportAssist

Dell SupportAssist is an optional Dell Services offering that automates technical support for your Dell server, storage, and networking devices. By installing and setting up a SupportAssist application in your IT environment, you can receive the following benefits:

- Automated issue detection — SupportAssist monitors your Dell devices and automatically detects hardware issues, both proactively and predictively.
- Automated case creation — When an issue is detected, SupportAssist automatically opens a support case with Dell Technical Support.
- Automated diagnostic collection — SupportAssist automatically collects system state information from your devices and uploads it securely to Dell. This information is used by Dell Technical Support to troubleshoot the issue.
- Proactive contact — A Dell Technical Support agent contacts you about the support case and helps you resolve the issue.

The available benefits vary depending on the Dell Service entitlement purchased for your device. For more information about SupportAssist, go to www.dell.com/supportassist.

Documentation resources

This section provides information about the documentation resources for your system.

To view the document that is listed in the documentation resources table:


- From the Dell support site:
 1. Click the documentation link that is provided in the Location column in the table.
 2. Click the required product or product version.
-  **NOTE:** To locate the model number, see the front of your system.
- 3. On the Product Support page, click **Documentation**.
- Using search engines:
 - Type the name and version of the document in the search box.

Table 26. Additional documentation resources for your system

Task	Document	Location
Setting up your system	<p>For more information about installing and securing the system into a rack, see the Rail Installation Guide included with your rail solution.</p> <p>For information about setting up your system, see the <i>Getting Started Guide</i> document that is shipped with your system.</p>	www.dell.com/poweredgemanuals
Configuring your system	<p>For information about the iDRAC features, configuring and logging in to iDRAC, and managing your system remotely, see the Integrated Dell Remote Access Controller User's Guide.</p> <p>For information about understanding Remote Access Controller Admin (RACADM) subcommands and supported RACADM interfaces, see the RACADM CLI Guide for iDRAC.</p> <p>For information about Redfish and its protocol, supported schema, and Redfish Eventing implemented in iDRAC, see the Redfish API Guide.</p> <p>For information about iDRAC property database group and object descriptions, see the Attribute Registry Guide.</p> <p>For information about Intel QuickAssist Technology, see the Integrated Dell Remote Access Controller User's Guide.</p>	www.dell.com/poweredgemanuals
	<p>For information about earlier versions of the iDRAC documents.</p> <p>To identify the version of iDRAC available on your system, on the iDRAC web interface, click ? > About.</p>	www.dell.com/idracmanuals

Table 26. Additional documentation resources for your system (continued)

Task	Document	Location
	For information about installing the operating system, see the operating system documentation.	www.dell.com/operatingsystemmanuals
	For information about updating drivers and firmware, see the Methods to download firmware and drivers section in this document.	www.dell.com/support/drivers
Managing your system	For information about systems management software offered by Dell, see the Dell OpenManage Systems Management Overview Guide.	www.dell.com/poweredgemanuals
	For information about setting up, using, and troubleshooting OpenManage, see the Dell OpenManage Server Administrator User's Guide.	www.dell.com/openmanagemanuals > OpenManage Server Administrator
	For information about installing and using Dell Secure Connect Gateway, see the Dell Secure Connect Gateway Enterprise User's Guide.	https://www.dell.com/serviceabilitytools
	For information about partner programs enterprise systems management, see the OpenManage Connections Enterprise Systems Management documents.	www.dell.com/openmanagemanuals
Working with the Dell PowerEdge RAID controllers	For information about understanding the features of the Dell PowerEdge RAID controllers (PERC), Software RAID controllers, or BOSS card and deploying the cards, see the Storage controller documentation.	www.dell.com/storagecontrollermanuals
Understanding event and error messages	For information about the event and error messages generated by the system firmware and agents that monitor system components, go to qrl.dell.com > Look Up > Error Code , type the error code, and then click Look it up .	www.dell.com/qrl
Troubleshooting your system	For information about identifying and troubleshooting the PowerEdge server issues, see the Server Troubleshooting Guide.	www.dell.com/poweredgemanuals