Dell PowerEdge R7415

Technical Specifications

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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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Dell EMC PowerEdge R7415 overview

The PowerEdge R7415 is a 2U, single socket rack system and support these configurations:

- One AMD EPYC™ processor
- Sixteen DIMM slots
- Two redundant power supply units (PSU) or single cabled PSU
- 8 x 3.5 inch, 12 x 3.5 inch, 12 x 3.5 inch + 2 x 3.5 inch (rear), or 24 x 2.5 inch SAS, SATA, or NVMe drives (up to 12 SAS/SATA/NVMe + 12 NVMe drives), 8 x 2.5 inch (universal drive) + 16 (NVMe drive), 24 x 2.5 inch (NVMe drive only).

NOTE: Hot swap for the NVMe drives is supported for your system. For more information on correct usage and technical specifications, see the *Dell PowerEdge Express Flash NVMe PCIe SSD 2.5 inch Small Form Factor User's Guide* at **Dell.com/support/manuals** > **All Products** > **Server, Storage, & Networking** > **Dell Adapters** page.

NOTE: All instances of SAS, SATA hard drives, SSDs and NVMe drives are referred to as drives in this document, unless specified otherwise.

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Technical specifications

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

Topics:

- System dimensions
- Chassis weight
- Processor specifications
- Supported operating systems
- PSU specifications
- System battery specifications
- Expansion bus specifications
- Memory specifications
- Drive specifications
- Ports and connectors specifications
- Video specifications
- Environmental specifications

System dimensions

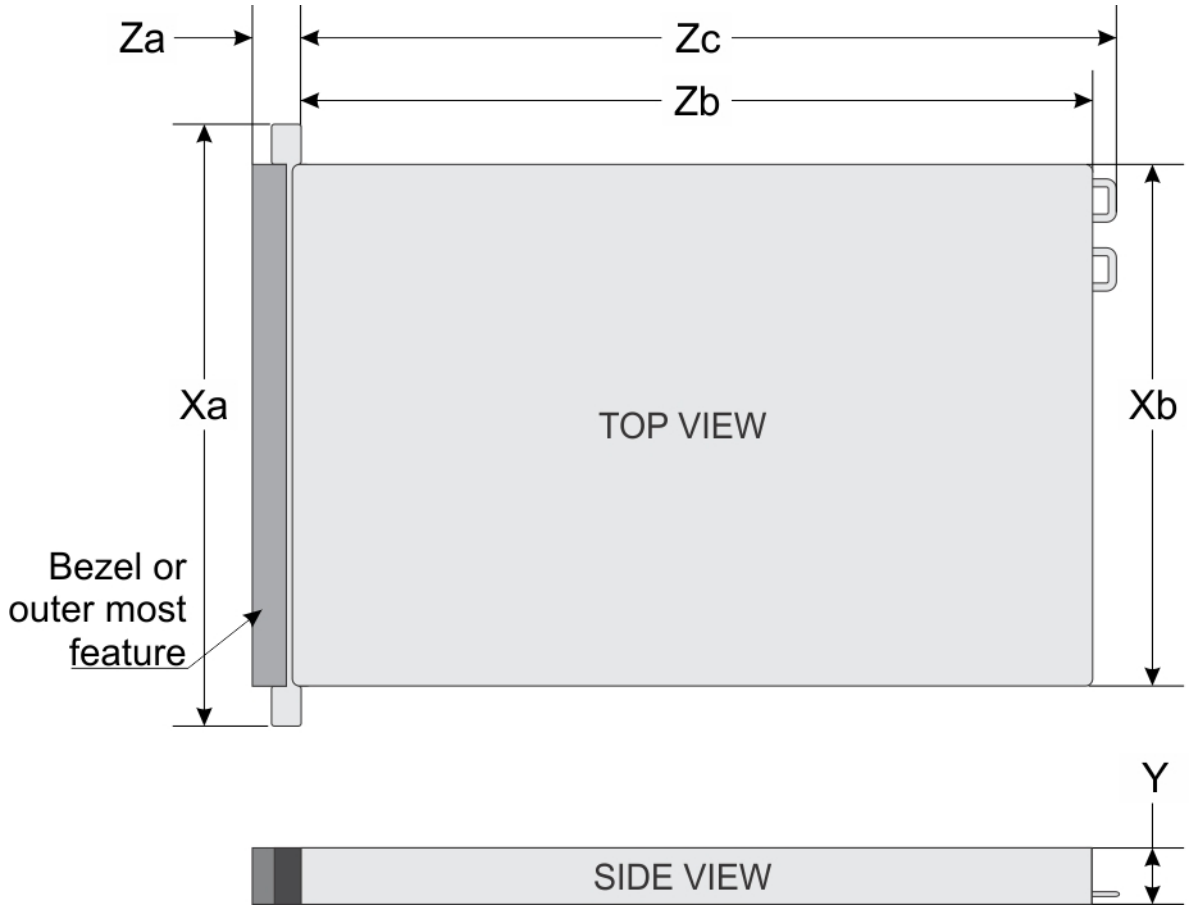


Figure 1. Dimensions of the PowerEdge R7415 system

Table 1. Dimensions of the PowerEdge R7415 system

Xa	Xb	Y	Za (with bezel)	Za (without bezel)	Zb*	Zc
482 mm (18.97 inches)	434 mm (17.08 inches)	86.8 mm (3.41 inches)	35.84 mm (1.41 inches)	22 mm (0.87 inches)	647.07 mm (25.47 inches)	681.755 mm (26.84 inches)

* - Zb goes to the nominal rear wall external surface where the system board I/O connectors are located.

Chassis weight

Table 2. Chassis weight

System	Maximum weight (with all drives/SSDs)
8 x 3.5 inch	24.4 kg (53.79 lb)
12 x 3.5 inch	26.61 kg (58.66 lb)
12 x 3.5 inch + 2 x 3.5 inch (rear)	28.21 kg (62.19 lb)
24 x 2.5 inch	23.22 kg (51.19 lb)

Processor specifications

The PowerEdge R7415 system support one AMD EPYC™ processor.

Table 3. Supported Processors for R7415

Processor number	TDP (W)	Core count
AMD 7601	180 W	32
AMD 7551P	180 W	32
AMD 7451	180 W	24
AMD 7401P	155 W	24
AMD 7351P	155 W	16
AMD 7281	155 W	16
AMD 7251	120 W	8

Supported operating systems

The R7415 supports the following operating systems:

- Microsoft Windows Server® with Hyper-V
- Red Hat® Enterprise Linux
- SUSE® Linux Enterprise Server

Virtualization options:

- VMware® ESXi 6.7

NOTE: For more information about the specific versions and additions, go to Supported OS.

PSU specifications

The PowerEdge R7415 system supports the following AC or DC power supply units (PSU).

Table 4. PSU specifications

PSU	Class	Heat dissipation (maximum)	Frequency	Voltage
1600 W AC	Platinum	6000 BTU/hr	50/60 Hz	100–240 V AC, autoranging
1100 W AC	Platinum	4100 BTU/hr	50/60 Hz	100–240 V AC, autoranging
1100 W HVDC	Platinum	4100 BTU/hr	50/60 Hz	100–240 V AC autoranging and 200–380 V DC
1100 W DC	Platinum	4416 BTU/hr	N/A	(-(48–60)) V DC
750 W AC	Titanium	2843 BTU/hr	50/60 Hz	200–240 V AC, autoranging
750 W AC	Platinum	2891 BTU/hr	50/60 Hz	100–240 V AC, autoranging
750 W Mixed Mode HVDC(for China only)	Platinum	2891 BTU/hr	N/A	100–240 V AC autoranging and 240 V DC
750 W Mixed Mode AC	Platinum	2891 BTU/hr	50/60 Hz	100–240 V AC
750 W Mixed Mode DC (for China only)	Platinum	2891 BTU/hr	N/A	240 V DC
495 W AC	Platinum	1908 BTU/hr	50/60 Hz	100–240 V AC, autoranging
450 W AC	Bronze	1871 BTU/hr	50/60 Hz	100–240 V AC, autoranging

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

NOTE: This system is also designed to connect to the IT power systems with a phase-to-phase voltage not exceeding 230 V.

NOTE: If a system with 1600 W AC PSU operates at low line 100-120 V AC, then the power rating per PSU is derated to 800 W.

NOTE: If a system with 1100 W AC PSU or 1100 W mixed mode PSU operates at low line 100-120 V AC, then the power rating per PSU is derated to 1050 W.

System battery specifications

The PowerEdge R7415 system supports CR 2032 3.0-V lithium coin cell system battery.

Expansion bus specifications

The PowerEdge R7415 system supports PCI Express (PCIe) Gen3 expansion cards, which need to be installed on the system board using expansion card risers. This system supports low profile, full height, and 2U expansion card risers.

Table 5. Expansion card riser configurations

Expansion card riser	PCIe slots on the riser	Processor connection	Height	Length	Slot width
Riser-1B (2U riser)	Slot 2	Processor 1	Full Height	Full Length	x16
Riser-1B (2U riser)	Slot 3	Processor 1	Full Height	Full Length	x16
Riser-1A (low profile riser right)	Slot 2	Processor 1	Low Profile	Half Length	x16
Riser-3A (low profile riser left)	Slot 3	Processor 1	Low Profile	Half Length	x16

NOTE: The expansion-card slots are not hot-swappable.

Memory specifications

The PowerEdge R7415 system supports 16 DDR4 DIMM (registered DIMM (RDIMM) and load reduced DIMM (LRDIMM)) slots. Supported memory bus frequencies are 2666 MT/s, 2400 MT/s, 2133 MT/s, and 1866 MT/s.

Table 6. Memory specifications

Memory module sockets	Memory capacity	Minimum RAM	Maximum RAM
Sixteen 288-pin	• 8GB, 16GB, or 32GB single rank or dual rank (RDIMMs) • 64GB quad rank(LRDIMMs)	• 8 GB with single processor	• 1 TB with a single processor

NOTE: For optimal performance, populate one DIMM per channel with DDR4-2666 memory modules on the first slot of each memory channel. The first slot of each channel can be identified as the DIMM slots with white latches. For example, 64 GB system memory capacity can be divided into 8 x 8 GB DIMM slots.

Drive specifications

Drives

The PowerEdge R7415 system supports:

- Up to 8 x 3.5 inch (SAS, SATA or Nearline SAS) front accessible drives in slots 0 to 7

  or

- Up to 12 x 3.5 inch (SAS, SATA or Nearline SAS) front accessible drives in slots 0 to 11

  or

- Up to 12 x 3.5 inch (SAS, SATA or Nearline SAS) front accessible drives in slots 0 to 11 + up to 2 x 3.5 inch (SAS, SATA or Nearline SAS) rear accessible drives in slots 12 to 13

  or

- Up to 24 x 2.5 inch (SAS, SATA or Nearline SAS) front accessible drives in slots 0 to 23

  or

- Up to 12 x 2.5 inch (SAS, SATA or Nearline SAS) front accessible drives in slots 0 to 11 and up to 12 x 2.5 inch NVMe drives in 12 universal slots 12 to 23

  or

- Up to 24 x 2.5 inch NVMe drives in bay 0 (slot 0 to 11) and bay 1 (slots 0 to 11)

  or

- Up to 8 x 2.5 inch (SAS, SATA or Nearline SAS) front accessible drives in Universal slots 0 to 7 (Bay 0) and up to 16 x 2.5 inch NVMe drives in bay 0 (slots 8 to 11) and bay 1 (slots 0 to 11)

NOTE: Hot swap for the NVMe drives is supported for your system. For more information on correct usage and technical specifications, see the *Dell PowerEdge Express Flash NVMe PCIe SSD 2.5 inch Small Form Factor User's Guide* at **Dell.com/support/manuals** > **All Products** > **Server, Storage, & Networking** > **Dell Adapters** page.

NOTE: Universal slots that support SAS, SATA hard drives/SSDs, or NVMe drives in the same slot.

Ports and connectors specifications

USB ports

The PowerEdge R7415 system supports:

- USB 2.0-compliant port on the front panel
- USB 3.0-compliant port on the back panel
- USB 3.0-compliant internal port

The following table provides more information about the USB specifications:

Table 7. USB specifications

Front panel	Back panel	Internal USB
Three USB 2.0-compliant port (One iDRAC Direct (Micro-AB USB) port + two USB 2.0 port) **NOTE:** The Micro-AB USB 2.0-compliant port on the front panel can be used only as an iDRAC Direct or a management port.	Two USB 3.0-compliant port	One internal USB 3.0 port

NIC ports

The PowerEdge R7415 system supports two Network Interface Controller (NIC) ports on the back panel, which have two 1 Gbps configuration.

NOTE: You can install up to four PCIe add-on NIC cards.

NOTE: For information about Linux network performance settings, see the *Linux® Network Tuning Guide for AMD EPYC™ Processor Based Servers* AMD tuning guide.

Serial connector

The serial connector connects a serial device to the system. The PowerEdge R7415 system supports one serial connector on the back panel, which is a 9-pin connector, Data Terminal Equipment (DTE), 16550-compliant.

VGA ports

The Video Graphic Array (VGA) port enables you to connect the system to a VGA display. The PowerEdge R7415 system supports two 15-pin VGA ports one each on the front and back panels.

Internal Dual SD Module

The PowerEdge R7415 system supports two optional flash memory card slots with an internal dual MicroSD module.

NOTE: One card slot is dedicated for redundancy.

Video specifications

The PowerEdge R7415 system supports Matrox G200eW3 graphics card with 16 MB capacity.

Table 8. Supported video resolution options

Resolution	Refresh rate (Hz)	Color depth (bits)
1024 x 768	60	8, 16, 32
1280 x 800	60	8, 16, 32
1280 x 1024	60	8, 16, 32
1360 x 768	60	8, 16, 32
1440 x 900	60	8, 16, 32
1600 x 900	60	8, 16, 32
1600 x 1200	60	8, 16, 32
1680 x 1050	60	8, 16, 32
1920 x 1080	60	8, 16, 32
1920 x 1200	60	8, 16, 32

NOTE: 1920 x 1080 and 1920 x 1200 resolutions are only supported in reduced blanking mode.

Environmental specifications

NOTE: For additional information about environmental certifications, please refer to the Product Environmental Datasheet located with the Manuals & Documents on support.dell.com.

Table 9. Temperature specifications

Temperature	Specifications
Storage	–40°C to 65°C (–40°F to 149°F)
Continuous operation (for altitude less than 950 m or 3117 ft)	10°C to 35°C (50°F to 95°F) with no direct sunlight on the equipment.
Fresh air	For information about fresh air, see the Expanded Operating Temperature section.
Maximum temperature gradient (operating and storage)	20°C/h (68°F/h)

Table 10. Relative humidity specifications

Relative humidity	Specifications
Storage	5% to 95% RH with 33°C (91°F) maximum dew point. Atmosphere must be non-condensing at all times.
Operating	10% to 80% relative humidity with 29°C (84.2°F) maximum dew point.

Table 11. Maximum vibration specifications

Maximum vibration	Specifications
Operating	0.26 G_{rms} at 5 Hz to 350 Hz (all operation orientations).
Storage	1.88 G_{rms} at 10 Hz to 500 Hz for 15 min (all six sides tested).

Table 12. Maximum shock specifications

Maximum shock	Specifications
Operating	Six consecutively executed shock pulses in the positive and negative x, y, and z axes of 6 G for up to 11 ms.
Storage	Six consecutively executed shock pulses in the positive and negative x, y, and z axes (one pulse on each side of the system) of 71 G for up to 2 ms.

Table 13. Maximum altitude specifications

Maximum altitude	Specifications
Operating	3048 m (10,000 ft)
Storage	12,000 m (39,370 ft)

Table 14. Operating temperature derating specifications

Operating temperature derating	Specifications
Up to 35°C (95°F)	Maximum temperature is reduced by 1°C/300 m (1°F/547 ft) above 950 m (3,117 ft).
35°C to 40°C (95°F to 104°F)	Maximum temperature is reduced by 1°C/175 m (1°F/319 ft) above 950 m (3,117 ft).
40°C to 45°C (104°F to 113°F)	Maximum temperature is reduced by 1°C/125 m (1°F/228 ft) above 950 m (3,117 ft).

Particulate and gaseous contamination specifications

The following table defines the limitations that help avoid any equipment damage or failure from particulates and gaseous contamination. If the levels of particulates or gaseous pollution exceed the specified limitations and result in equipment damage or failure, you may need to rectify the environmental conditions. Re-mediation of environmental conditions is the responsibility of the customer.

Table 15. Particulate contamination specifications

Particulate contamination	Specifications
Air filtration	Data center air filtration as defined by ISO Class 8 per ISO 14644-1 with a 95% upper confidence limit. **NOTE:** This condition applies to data center environments only. Air filtration requirements do not apply to IT equipment designed to be used outside a data center, in environments such as an office or factory floor. **NOTE:** Air entering the data center must have MERV11 or MERV13 filtration.
Conductive dust	Air must be free of conductive dust, zinc whiskers, or other conductive particles. **NOTE:** This condition applies to data center and non-data center environments.
Corrosive dust	• Air must be free of corrosive dust. • Residual dust present in the air must have a deliquescent point less than 60% relative humidity. **NOTE:** This condition applies to data center and non-data center environments.

Table 16. Gaseous contamination specifications

Gaseous contamination	Specifications
Copper coupon corrosion rate	<300 Å/month per Class G1 as defined by ANSI/ISA71.04-1985.
Silver coupon corrosion rate	<200 Å/month as defined by AHSRAE TC9.9.

NOTE: Maximum corrosive contaminant levels measured at ≤50% relative humidity.

Standard operating temperature

Table 17. Standard operating temperature specifications

Standard operating temperature	Specifications
Continuous operation (for altitude less than 950 m or 3117 ft)	10°C to 35°C (50°F to 95°F) with no direct sunlight on the equipment.

Expanded operating temperature

Table 18. Expanded operating temperature specifications

Expanded operating temperature	Specifications
Continuous operation	5°C to 40°C at 5% to 85% RH with 29°C dew point. **NOTE:** Outside the standard operating temperature (10°C to 40°C), the system can operate continuously in temperatures as low as 5°C and as high as 40°C. For temperatures between 35°C and 40°C, de-rate maximum allowable temperature by 1°C per 175 m above 950 m (1°F per 319 ft).
≤ 1% of annual operating hours	–5°C to 45°C at 5% to 90% RH with 29°C dew point. **NOTE:** Outside the standard operating temperature (10°C to 40°C), the system can operate down to –5°C or up to 45°C for a maximum of 1% of its annual operating hours. For temperatures between 40°C and 45°C, de-rate maximum allowable temperature by 1°C per 125 m above 950 m (1°F per 228 ft).

NOTE: When operating in the expanded temperature range, system performance may be impacted.

NOTE: When operating in the expanded temperature range, ambient temperature warnings may be reported on the bezel's LCD panel and in the System Event Log.

Expanded operating temperature restrictions

- Do not perform a cold startup below 5°C.
- The operating temperature specified is for a maximum altitude of 3050 m (10,000 ft).
- Redundant power supply configuration is required.
- GPGPU card is not supported.
- Rear drive configuration is not supported.
- Non-Dell qualified peripheral cards and/or peripheral cards greater than 25 W are not supported.
- 180 W CPU is not supported.
- Cabled PSU is not supported.

Thermal restriction matrix

Table 19. Thermal restriction matrix for R7415

Storage configuration		Front	8 x 3.5-inch drive	12 x 3.5-inch drive		12 x 3.5-inch drive	24 x 2.5-inch drive	24 x 2.5-inch drive with NVMe
Storage configuration		Rear	N/A	N/A		2 x 3.5-inch drive	N/A	N/A
Fan type			Standard fan	Standard fan		High performanc e fan	Standard fan	High performance fan
CPU heat sink type			1.5U heat sink	1.5U heat sink		2U heat sink	1.5U heat sink	1.5U heat sink
Processor number	TDP (W)	Core count	Ambient = 35°C	Ambient = 35°C	Ambient = 35°C	Ambient = 35°C	Ambient = 35°C	Ambient = 30°C
AMD 7601	180 W	32	Yes	Yes	Yes	Yes	Yes	Yes
AMD 7551P	180 W	32	Yes	Yes	Yes	Yes	Yes	Yes
AMD 7451	180 W	24	Yes	Yes	Yes	Yes	Yes	Yes
AMD 7401P	155 W/ 170 W	24	Yes	Yes	Yes	Yes	Yes	Yes
AMD 7351P	155 W/ 170 W	16	Yes	Yes	Yes	Yes	Yes	Yes
AMD 7251	120 W	8	Yes	Yes	Yes	Yes	Yes	Yes
AMD 7281	155 W/ 170 W	16	Yes	Yes	Yes	Yes	Yes	Yes
AMD 7261	155 W/ 170 W	8	Yes	Yes	Yes	Yes	Yes	Yes

Other thermal restrictions

The list below are other thermal restrictions:

1. Mellanox CX4 and CX5 only support up to 35°C ambient.

3

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 Technologies 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 product name and model, see the front of your system.

  3. On the Product Support page, click **Manuals & documents**.
- Using search engines:
  - Type the name and version of the document in the search box.

Table 20. Documentation resources

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

Table 20. Documentation resources (continued)

Task	Document	Location
	For information about installing the operating system, see the operating system documentation.	Operating System Manuals
	For information about updating drivers and firmware, see the Methods to download firmware and drivers section in this document.	Drivers
Managing your system	For information about system management software offered by Dell, see the Dell OpenManage Systems Management Overview Guide.	PowerEdge Manuals
	For information about setting up, using, and troubleshooting OpenManage, see the Dell OpenManage Server Administrator User's Guide.	OpenManage Manuals > OpenManage Server Administrator
	For information about installing, using, and troubleshooting Dell OpenManage Enterprise, see the Dell OpenManage Enterprise User's Guide.	OpenManage Manuals
	For information about installing and using Dell SupportAssist, see the Dell EMC SupportAssist Enterprise User's Guide.	Software Serviceability Tools
	For information about partner programs enterprise systems management, see the OpenManage Connections Enterprise Systems Management documents.	OpenManage Manuals
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.	Storage Controller Manuals
Understanding event and error messages	EEMI guide	QRL
Troubleshooting your system	For information about identifying and troubleshooting the PowerEdge server issues, see the Server Troubleshooting Guide.	PowerEdge Manuals

4

Getting help

Topics:

- Contacting Dell
- Documentation feedback
- Accessing system information by using QRL
- Receiving automated support with SupportAssist
- Recycling or End-of-Life service information

Contacting Dell

Dell provides several online and telephone based support and service options. If you do not have an active internet connection, you can find contact information about your purchase invoice, packing slip, bill, or Dell product catalog. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical assistance, or customer service issues:

Steps

1. Go to Dell Support
2. Select your country from the drop-down menu on the lower right corner of the page.
3. For customized support:
   a. Enter your system Service Tag in the **Enter your Service Tag** field.
   b. Click **Submit**.
   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.

Documentation feedback

You can rate the documentation or write your feedback on any of our Dell documentation pages and click **Send Feedback** to send your feedback.

Accessing system information by using QRL

You can use the Quick Resource Locator (QRL) located on the information tag in the front of the system, to access the information about the PowerEdge system.

Prerequisites

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

The QRL includes the following information about your system:

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

Steps

1. Go to QRL and navigate to your specific product or
2. Use your smartphone 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 R7415



Figure 2. Quick Resource Locator for PowerEdge R7415

Receiving automated support with SupportAssist

Dell EMC SupportAssist is an optional Dell EMC Services offering that automates technical support for your Dell EMC 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 EMC 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 EMC Technical Support.
- **Automated diagnostic collection** — SupportAssist automatically collects system state information from your devices and uploads it securely to Dell EMC. This information is used by Dell EMC Technical Support to troubleshoot the issue.
- **Proactive contact** — A Dell EMC Technical Support agent contacts you about the support case and helps you resolve the issue.

The available benefits vary depending on the Dell EMC Service entitlement purchased for your device. For more information about SupportAssist, go to 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 How to Recycle and select the relevant country.