



Avaya Call Management System
Dell PowerEdge™ R720 and R620
Computer Hardware Installation,
Maintenance, and Troubleshooting

October 2015

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Chapter 1: Introduction

Purpose

The document describes how to install, maintain, and troubleshoot Dell PowerEdge™ R720 and R620.

Note:

Dell PowerEdge™ R720 and R620 are compatible with Avaya Call Management System (CMS) R17 for new installations and CMS R18 for upgrades.

Intended audience

This document is intended for implementation engineers, support personnel, and system administrators who will install and maintain call center applications, such as CMS.

Document changes since last issue

The following change has been made to this document since the last issue:

- Identified that the Dell R720 and R620 are supported for upgrades to CMS R18.
-

Related resources

Documentation

See the following documents.

Table 1: Related documents

Title	Use this document to:	Audience
Implementing		
<i>Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux</i>	Install, maintain, and troubleshoot CMS on the Linux operating system.	Implementation engineers and system administrators

Avaya Mentor videos

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Go to <http://www.youtube.com/AvayaMentor> and perform one of the following actions:

- Enter a key word in the Search Channel to search for a specific product or topic.
- Scroll down Playlists, and click the name of a topic to see the available list of videos posted on the site.

Documentation websites

All CMS documentation can be found at <http://www.support.avaya.com>. New issues of CMS documentation will be placed on this website when available.

Use the following websites to view related support documentation:

- Information about Avaya products and service
<http://www.avaya.com>
- Dell hardware documentation
<http://www.dell.com>

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Chapter 2: Installation

This section describes how to install the computer and related peripheral equipment. Use the following table to check off each required procedure after completion.

Procedure	Completed
Preparing for installation on page 12	
Unpacking and inventorying the equipment on page 14	
Mounting the Server Using the Rack Mount Kit on page 27	
Setting up power on page 27	
Peripheral connectivity on page 29	
Parts list on page 30	
Avaya approved backup devices on page 31	
Support for KVM and headless CMS systems on page 31	
Connecting the keyboard and mouse on page 32	
Connecting the monitor on page 32	
Connecting to external interfaces on page 32	
Turning on the system and verifying POST on page 33	
Turning the system over for provisioning on page 33	

Preparing for installation

This section contains the following information that will help you prepare for the computer installation:

- [Safety precautions](#) on page 12
- [System precautions](#) on page 13

Safety precautions

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all cautions, warnings, and instructions that are marked on the equipment.
- Never push objects of any kind through openings in the equipment. They could touch dangerous voltage points or short out components. This could result in fire or electric shock.
- Refer servicing of equipment to qualified personnel.
- To protect both yourself and the equipment, observe the following precautions.

Precaution	Item	Problem
Wear a conductive wrist strap or foot strap when handling printed circuit boards.	Wrist or foot strap	Electro-Static Discharge (ESD)
Reinstall all cabinet cover panels after you perform any service work on the system.	Cover panels	System damage and overheating
Make sure that you have installed a filler panel on all empty board slots.	Board slot filler panels	System damage and overheating

System precautions

**WARNING:**

DO NOT make mechanical or electrical modifications to the computer. Dell Computer Corp. is not responsible for regulatory compliance of modified computers.

Ensure that the voltage and frequency of the power outlet used matches the electrical rating labels on the equipment.

Wear antistatic wrist straps when handling any magnetic storage devices and printed circuit boards.

Each power supply uses nominal input voltages of 100-240 V AC at 50-60 Hz. The computer should be powered by an Uninterruptible Power Supply (UPS) or a non-switched, dedicated, 20-amp circuit. Dell products are designed to work with single-phase power systems having a grounded neutral conductor. To reduce the risk of electrical shock, do not plug Dell products into another type of power source. Contact your facilities manager or qualified electrician if you are unsure what type of power is supplied to your building.

A UPS provides a temporary electrical supply to a computer for several minutes, depending on the number of components connected to the UPS. For a CMS computer, a 1.5KVA minimum is required for each power supply. See your UPS documentation to determine the projected amount of backup battery time for your model. If the system is without power for longer than the backup time, the system may shut down improperly, and the customer could lose data.

Each of the following items requires a separate power cord:

- Computer
- External peripherals
- Monitor

Keep in mind the following:

- The room must have sufficient air conditioning capacity to support the cooling needs of the entire system.
- The air conditioning system must have controls that prevent excessive temperature.

Unpacking and inventorying the equipment



WARNING:

Never move the computer when the power is on. Excessive movement can cause catastrophic disk drive failure. Always power the system off before moving the computer.



WARNING:

Always wear an electrostatic discharge (ESD) strap when handling internal components.



CAUTION:

Always have up-to-date system backups before turning off and moving the computer.

Inspect all shipping cartons for evidence of physical damage. If a shipping carton is damaged, request that the carrier representative be present before the carton is opened.

Unpack the computer and associated peripheral equipment. Compare the contents of the carton to the shipping inventory list to verify that all equipment was delivered.

In the United States, Contact your Avaya Sales team if any parts are defective on arrival or are missing.

Outside of the United States, contact your Avaya representative or distributor if any parts are missing or defective.

This section includes the following topics:

- [Parts list](#) on page 15
- [Determining the computer model](#) on page 15
- [Computer layout](#) on page 17

Parts list

Verify that you have the following components before you begin installation:

- Computer and power cord
- Monitor, VGA cable, and monitor AC power cord
- USB keyboard and cable
- USB mouse and cable
- RedHat and CMS software
- Optional Backup device. See [Avaya approved backup devices](#) on page 31 for more information.

Determining the computer model

CMS R17.0 supports the Dell PowerEdge™ R720 MID, R620 MID and LOW computer models. See [Dell PowerEdge™ R720](#) on page 15, [Dell PowerEdge™ R620 MID](#) on page 16, and [Dell PowerEdge™ R620 LOW](#) on page 16 for more information.

Dell PowerEdge™ R720

November 2013 model (used for new CMS R17 installations and upgrades to CMS R18)

- Two Intel® Xeon® E5-2620 2.00GHz 6-Core processors
- 64 GB RAM
- Twelve internal 300 GB SAS disks
- Internal DVD-RW disc drive
- Two hot-swappable 750 W AC power supplies
- RAID 10 system only
- One RAID controller card
- Can be used as a desktop unit or can be configured for rack mounting
- SAS HBA with external ports to support optional tape drive
- Optional backup device

Dell PowerEdge™ R620 MID

May 2013 size model (used for new CMS R17 installations and upgrades to CMS R18)

- One Intel® Xeon® E5-2620 2.00GHz 6-Core processor
- 16 GB RAM
- Four internal 300 GB SAS disks
- Internal DVD-RW disc drive
- Two hot-swappable 495 W AC power supplies
- RAID 10 system only
- One RAID controller card
- Can be used as a desktop unit or can be configured for rack mounting
- SAS HBA w/external ports to support optional tape drive
- Optional backup device

Dell PowerEdge™ R620 LOW

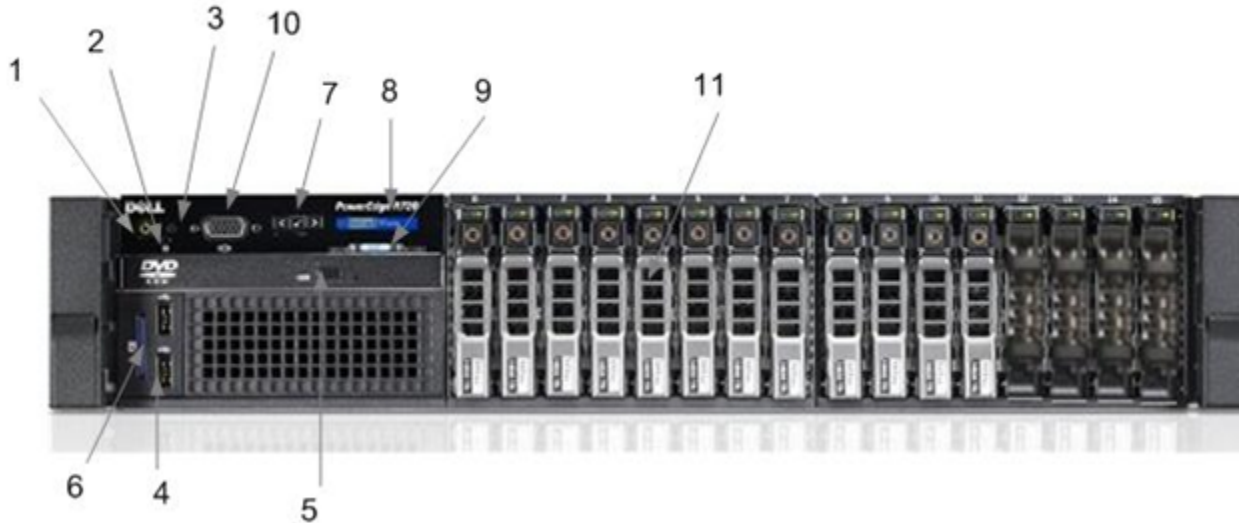
May 2013 LOW-size model (used for new CMS R17 installations and upgrades to CMS R18)

- One Intel® Xeon® E5-2620 2.00GHz 6-Core processor
- 8 GB RAM
- One internal 300 GB SAS disk
- Internal DVD-RW disc drive
- One 495 W AC power supply
- No RAID or mirroring used
- Can be used as a desktop unit or can be configured for rack mounting
- SAS HBA w/external ports to support optional tape drive
- Optional backup device

Computer layout

Familiarize yourself with the layout of the computer.

Dell R720 Front View

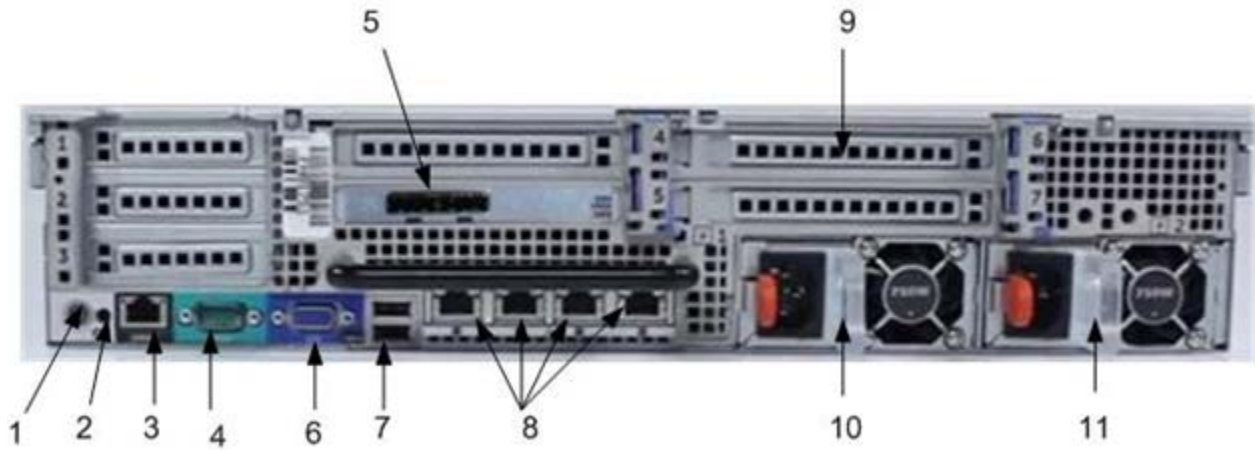


Item	Indicator, Button, or Connector	Icon	Description
1	Power-on indicator, power button		The power-on indicator lights when the system power is on. The power button controls the power supply output to the system. Note: On ACPI-compliant operating systems, turning off the system using the power button causes the system to perform a graceful shutdown before power to the system is turned off.
2	NMI button		Used to troubleshoot software and device driver errors when running certain operating systems. This button can be pressed using the end of a paper clip. Use this button only if directed to do so by qualified support personnel or by the operating system's documentation.

Item	Indicator, Button, or Connector	Icon	Description
3	System identification button		<p>The identification buttons on the front and back panels can be used to locate a particular system within a rack. When one of these buttons is pressed, the LCD panel on the front and the system status indicator on the back flashes blue until one of the buttons is pressed again.</p> <p>Press to toggle the system ID on and off. If the system stops responding during POST, press and hold the system ID button for more than five seconds to enter BIOS progress mode.</p> <p>To reset the iDRAC (if not disabled in F2 iDRAC setup) press and hold the button for more than 15 seconds.</p>
4	USB connector (2)		Allows you to insert USB devices to the system. The ports are USB 2.0-compliant.
5	Optical drive (optional)		<p>One optional SATA DVD-ROM drive or DVD+/-RW drive.</p> <p>NOTE: DVD devices are data only.</p>
6	vFlash media card slot		Allows you to insert a vFlash media card.
7	LCD menu buttons		Allows you to navigate the control panel LCD menu.
8	LCD panel		<p>Displays system ID, status information, and system error messages. The LCD lights blue during normal system operation. The LCD lights amber when the system needs attention, and the LCD panel displays an error code followed by descriptive text.</p> <p>NOTE: If the system is connected to AC power and an error is detected, the LCD lights amber regardless of whether the system is turned on or off.</p>
9	Information tag		A slide-out label panel, which allows you to record system information, such as Service Tag, NIC, MAC address, and so on as per your need.

Item	Indicator, Button, or Connector	Icon	Description
10	Video connector		Allows you to connect a VGA display to the system.
11	Hard drives		<p>Up to eight 2.5 inch hot-swappable hard drives.</p> <p>Up to four 2.5 hot-swappable hard drives and up to two 2.5 inch Dell PowerEdge Express Flash devices (PCIe SSDs).</p>

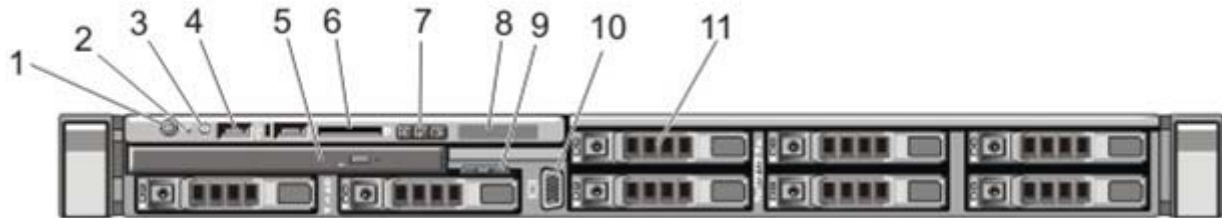
Dell R720 Rear View



Item	Indicator, Button, or Connector	Icon	Description
1	System identification button		<p>The identification buttons on the front and back panels can be used to locate a particular system within a rack. When one of these buttons is pressed, the LCD panel on the front and the system status indicator on the back blink until one of the buttons is pressed again.</p> <p>Press to toggle the system ID on and off. If the system stops responding during POST, press and hold the system ID button for more than five seconds to enter BIOS progress mode.</p> <p>To reset iDRAC (if not disabled in F2 iDRAC setup) press and hold for more than 15 seconds.</p>
2	System identification connector		Allows you to connect the optional system status indicator assembly through the optional cable management arm.
3	iDRAC7 Enterprise port		<p>Dedicated management port.</p> <p>NOTE: The port is available for use only if the iDRAC7 Enterprise license is installed on your system.</p>
4	Serial connector		Allows you to connect a serial device to the system.

Item	Indicator, Button, or Connector	Icon	Description
5	PCIe expansion card slot		Allows you to connect a PCIe expansion card.
6	Video connector		Allows you to connect a VGA display to the system.
7	USB connectors (2)		Allows you to connect USB devices to the system. The ports are USB 2.0-compliant.
8	Ethernet connectors (4)		Four integrated 10/100/1000 Mbps NIC connectors or Four integrated connectors: <ul style="list-style-type: none"> ● Two integrated 10/100/1000 Mbps NIC connectors ● Two integrated 100 Mbps/1 Gbps/10 Gbps SFP+ connectors
9	PCIe expansion card slot		Allows you to connect a PCIe expansion card.
10	Power supply (PSU1)		AC 495W, 750W or 1100W
11	Power supply (PSU2)		AC 495W, 750W or 1100W

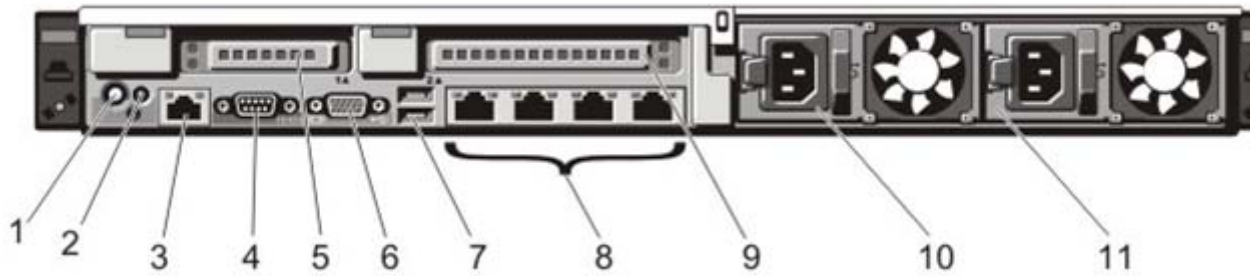
Dell R620 Front View



Item	Indicator, Button, or Connector	Icon	Description
1	Power-on indicator, power button		<p>The power-on indicator lights when the system power is on. The power button controls the power supply output to the system.</p> <p>Note: On ACPI-compliant operating systems, turning off the system using the power button causes the system to perform a graceful shutdown before power to the system is turned off.</p>
2	NMI button		<p>Used to troubleshoot software and device driver errors when running certain operating systems. This button can be pressed using the end of a paper clip.</p> <p>Use this button only if directed to do so by qualified support personnel or by the operating system's documentation.</p>
3	System identification button		<p>The identification buttons on the front and back panels can be used to locate a particular system within a rack. When one of these buttons is pressed, the LCD panel on the front and the system status indicator on the back flashes blue until one of the buttons is pressed again.</p> <p>Press to toggle the system ID on and off. If the system stops responding during POST, press and hold the system ID button for more than five seconds to enter BIOS progress mode.</p> <p>To reset the iDRAC (if not disabled in F2 iDRAC setup) press and hold the button for more than 15 seconds.</p>
4	USB connector (2)		<p>Allows you to insert USB devices to the system. The ports are USB 2.0-compliant.</p>

Item	Indicator, Button, or Connector	Icon	Description
5	Optical drive (optional)		One optional SATA DVD-ROM drive or DVD+/-RW drive. NOTE: DVD devices are data only.
6	vFlash media card slot		Allows you to insert a vFlash media card.
7	LCD menu buttons		Allows you to navigate the control panel LCD menu.
8	LCD panel		Displays system ID, status information, and system error messages. The LCD lights blue during normal system operation. The LCD lights amber when the system needs attention, and the LCD panel displays an error code followed by descriptive text. NOTE: If the system is connected to AC power and an error is detected, the LCD lights amber regardless of whether the system is turned on or off.
9	Information tag		A slide-out label panel, which allows you to record system information, such as Service Tag, NIC, MAC address, and so on as per your need.
10	Video connector		Allows you to connect a VGA display to the system.
11	Hard drives (8)		Up to eight 2.5 inch hot-swappable hard drives. Up to four 2.5 hot-swappable hard drives and up to two 2.5 inch Dell PowerEdge Express Flash devices (PCIe SSDs).

Dell R620 Rear View



Item	Indicator, Button, or Connector	Icon	Description
1	System identification button		<p>The identification buttons on the front and back panels can be used to locate a particular system within a rack. When one of these buttons is pressed, the LCD panel on the front and the system status indicator on the back blink until one of the buttons is pressed again.</p> <p>Press to toggle the system ID on and off. If the system stops responding during POST, press and hold the system ID button for more than five seconds to enter BIOS progress mode.</p> <p>To reset iDRAC (if not disabled in F2 iDRAC setup) press and hold for more than 15 seconds.</p>
2	System identification connector		Allows you to connect the optional system status indicator assembly through the optional cable management arm.
3	iDRAC7 Enterprise port		<p>Dedicated management port.</p> <p>NOTE: The port is available for use only if the iDRAC7 Enterprise license is installed on your system.</p>
4	Serial connector		Allows you to connect a serial device to the system.
5	PCIe expansion card slot (riser 2)		Allows you to connect a PCIe expansion card.
6	Video connector		Allows you to connect a VGA display to the system.
7	USB connectors (2)		Allows you to connect USB devices to the system. The ports are USB 2.0-compliant.

Item	Indicator, Button, or Connector	Icon	Description
8	Ethernet connectors (4)		Four integrated 10/100/1000 Mbps NIC connectors or Four integrated connectors: <ul style="list-style-type: none"> ● Two integrated 10/100/1000 Mbps NIC connectors ● Two integrated 100 Mbps/1 Gbps/10 Gbps SFP+ connectors
9	PCIe expansion card slot (riser 3)		Allows you to connect a PCIe expansion card.
10	Power supply (PSU1)		AC 495W, 750W or 1100W
11	Power supply (PSU2)		AC 495W, 750W or 1100W

Technical specifications

Device name	Description
Monitor	
Power Consumption	<ul style="list-style-type: none"> ● Normal operation - 17 W ● Switch off - Less than 0.5 W
Dimensions (with stands)	<ul style="list-style-type: none"> ● Height 380.6 mm (14.98 inches) ● Width 374.5 mm (14.74 inches) ● Depth 59.0 mm (2.32 inches)
Dimensions (without stands)	<ul style="list-style-type: none"> ● Height 307.0 mm (12.09 inches) ● Width 374.5 mm (14.74 inches) ● Depth 59.0 mm (2.32 inches)
Weight (with stand assembly and cables)	4.31 kg (9.5 lb)
Weight (without stand assembly)	3.04 kg (6.7 lb) For wall mount or VESA mount considerations - no cables
Operating Temperature	5° to 35° C (41° to 95°F)
Operating Humidity	10% to 80% (non-condensing)
Thermal dissipation	<ul style="list-style-type: none"> ● 86.2 BTU/hour (maximum) ● 58.6 BTU/hour (typical)
Keyboard	
Dimensions	<ul style="list-style-type: none"> ● Height 3/4 inches ● Width 18 inches ● Depth 5-5/8 inches
R620 System (LOW and MID)	
Dimensions	<ul style="list-style-type: none"> ● Height 42.8 mm (1.68 inches) ● Width 482.4 mm (18.99 inches) with rack latches and 434 mm (17.08 inch) without rack latches ● Depth 700.5 mm (27.58 inches) of eight-hard-drive systems
Weight	18.58 kg (40.96 lbs) of eight-hard-drive systems
VA Rating	6.5 A X 110 VAC = 715 VA

Device name	Description
Nominal Power Consumption	6.5 A - 3 A (X 2) (with 495 W AC power supply unit)
Heat Output	1908 BTU/hr maximum (495 W power supply)
Operating Temperature	Continuous operation: 10 °C to 35 °C. De-rate maximum allowable dry bulb temperature at 1 °C/300 m above 900 m (1°F /550 ft)
Humidity	10% to 80% relative humidity (RH), with 26 °C maximum dew point
R720 System	
Dimensions	<ul style="list-style-type: none"> ● Height 87.3 mm ● Width 482.4 mm with rack latches and 444 mm without rack latches ● Depth 723 mm
Weight	29.5kg (64.9lbs)
VA Rating	10.0 A X 110 VAC = 1100 VA
Nominal Power Consumption	10.0A - 5 A (X 2) (with 750 W AC power supply unit)
Heat Output	2891 BTU/hr maximum (750 W power supply)
Operating Temperature	Continuous operation: 10 °C to 35 °C. De-rate maximum allowable dry bulb temperature at 1 °C/300 m above 900 m (1°F /550 ft)
Humidity	10% to 80% relative humidity (RH), with 26 °C maximum dew point

Mounting the Server Using the Rack Mount Kit

For more information about mounting the Dell R720 server using sliding rails, see ftp://ftp.dell.com/Manuals/all-products/esuprt_ser_stor_net/esuprt_poweredge/poweredge-r710_Setup%20Guide4_en-us.pdf.

For more information about mounting the Dell R620 server using the Rack Mount Kit, see <http://support.dell.com/support/edocs/systems/peR620/en/placemat/rack/r620pmrack.pdf>.

Setting up power

To set up the AC power:

Chapter 2: Installation

1. Plug the IEC end of the power cord in to the AC outlet.

For installations outside of the United States and Canada, obtain a power cord for your local configuration.

2. Plug the power cord from the computer into an outlet on the UPS if a UPS is available.

A UPS provides a temporary electrical supply to a computer for several minutes, depending on the number of components connected to the UPS. For a CMS computer, a 1.5KVA minimum is required for each power supply. See your UPS documentation to determine the projected amount of backup battery time for your model. If the system is without power for longer than the backup time, the system may shut down improperly, and the customer could lose data.

If a UPS is not being used, you must use a grounded outlet on a minimum 15-amp circuit.

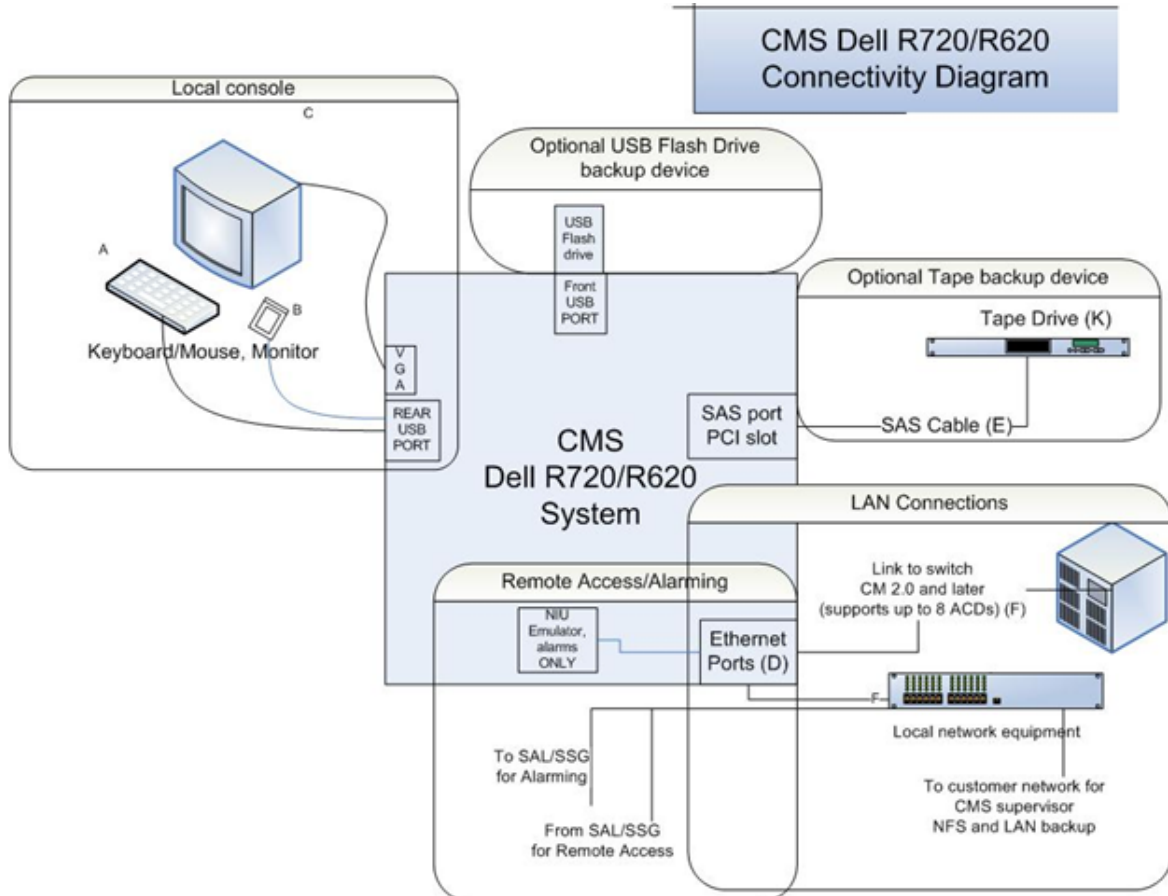


Important:

Do not turn on power at this time.

Peripheral connectivity

The following diagram shows in general how equipment connects to the computer. The callouts are described in [Parts list](#) on page 30.



Parts list

The following table lists parts that are required to connect most of the external devices to the computer. For information about switch connections for CMS, see *Avaya Call Management System Switch Connections, Administration, and Troubleshooting*.

Connectivity diagram call out	Comcode or part of comcode	Description
A ¹	N/A ²	USB keyboard with cable Dell QuietKey Keyboard, No Hot Keys, English, No Palmrest, ESG, Customer Install
B ¹		USB mouse with cable Dell MS111 USB Optical Mouse, OptiPlex and Fixed Precision, Customer Install
C ¹		VGA Monitor with cable Dell E170S, 17 Inch Flat Panel, 17.0 Inch Viewable ImageSize, OptiPlex, Precision Latitude and Enterpr
D	N/A	Gigabit ethernet ports (built-in)
E (optional)		Customer supplied HD-68 to VHDCI SCSI cable (3 feet, 0.8 meters) (or) SAS to SAS cable (0.5 meters)
F	N/A	Customer supplied category 5 UTP cord (10 feet, 3 meters)
K ¹ (optional)	N/A ²	Customer supplied tape drive and AC power cord

1. Dell provides maintenance spares for these parts.

2. The comcode for this bundle changes regularly and may not be ordered for maintenance spares, so it is not listed in the table. This bundle includes the processor, peripherals, and other equipment.

Avaya approved backup devices

The following table lists the backup devices approved by Avaya:

Tape drive	Tape cartridge	CMS computers
DAT 160	DDS compliant 150 meter 160-GB DAT cartridge 8 mm	Dell R720 and R620
DAT 320	DDS compliant 153 meter 320-GB DAT cartridge 8 mm	Dell R720 and R620
LT04	820 meter 800 GB LTO-4 cartridge 12.65 mm	Dell R720 and R620
LT05	846 meter 1.5 TB LTO-5 cartridge 12.65 mm Note: LTO-4 cartridges can also be used in the LTO-5 drive.	Dell R720 and R620

Support for KVM and headless CMS systems

It has come to the attention of Avaya that several customers have requested support for headless and/or KVM solutions for CMS systems. CMS does not support the use of headless or KVM solutions for CMS systems. Use of these solutions is only by *Permissive Use*.

Connecting the keyboard and mouse

Connect the keyboard and mouse to the USB ports.

Connecting the monitor

1. Connect the power cord from the monitor to the UPS or wall outlet.
 2. Connect the VGA cable to the VGA connection at the rear of the system and connect the opposite end to the VGA port on the Monitor.
-

Connecting to external interfaces

This section describes the external interfaces connected to the computer. This section includes the following topics:

- [Connecting the switch link](#) on page 32.
 - [Connecting to the customer network](#) on page 33.
 - [Connecting the Customer Supplied SAS Tape Drive](#) on page 33.
-

Connecting the switch link

The CMS computer uses TCP/IP over a local area network (LAN) at only 10/100 Mbps for a connection to the switch. One CMS computer can collect data from several switches. To the CMS computer, each switch represents one ACD.

You must use ethernet port 1 for this connection.

For detailed information about how to connect and administer the switch link, see *Avaya Call Management System Switch Connections, Administration, and Troubleshooting*.

Connecting to the customer network

The computer supports built-in ethernet ports that support network speeds of 10/100/1000 Mbps. However, for CMS installations, you must use only speeds of 10/100 Mbps. This ethernet connection is used for CMS Supervisor, network printers, and LAN backup.

You must use ethernet port 0 for this connection.

Connecting the Customer Supplied SAS Tape Drive

The customer supplied Serial Attached SCSI (SAS) cable connects one of the SAS ports in PCIe on the back of the computer to the SAS port on the rear of the customer supplied tape drive.

Turning on the system and verifying POST

Once you assemble the system, including the loose hardware that is shipped with the system that you installed with help from CMS Provisioning, turn on the system and verify the results of the Power-On Self Test (POST).

To turn on the system and verify POST:

1. Plug the power cord of the UPS into an AC outlet.
2. Turn on the power to the UPS.
3. Turn on tape drive.
4. Turn on the system monitor.
5. Press and release the power button.
6. The system boots.

Turning the system over for provisioning

After completing the physical installation of the system, the installation continues with software provisioning. This is often done with the support of the Avaya CMS Provisioning group. Provisioning the system consists of the following:

- Setting up CMS

Chapter 2: Installation

- Authorizing features
- Adding logins and passwords
- Testing the software
- Setting up system alarming

To continue with provisioning, see the chapter “Turning the system over to the customer” in the *CMS Software Installation, Maintenance, and Troubleshooting* document for your CMS release.

Chapter 3: Maintenance

This section describes the following maintenance procedures:

- [Precautions](#) on page 36
- [Turning the computer off and on](#) on page 37
- [Using an ESD wrist strap](#) on page 37
- [Maintaining disk drives](#) on page 38
- [Maintaining tape drives](#) on page 39
- [Connecting to external interfaces](#) on page 39
- [Adding memory and replacing the CPU](#) on page 41

Precautions



DANGER:

Hazardous energy levels are present inside the system when the system remains connected to a power source. Be sure to follow the safety procedures in the owner's guide or service manual.



WARNING:

Before replacing any component in the system, you must turn off the computer and disconnect the AC power cord.



CAUTION:

Printed circuit boards and hard disk drives contain electronic components that are extremely sensitive to static electricity. Ordinary amounts of static from your clothes or the work environment can destroy components. Do not touch the components or any metal parts without taking proper antistatic precautions. See [Using an ESD wrist strap](#) on page 37 for more information.



CAUTION:

Avoid keeping the cover off for extended periods of time while the system is operating. The cover must be installed to prevent automatic thermal shutdown.



Important:

For security purposes, CMS R17 and later releases include a *CMS hardware* authorization feature. During the initial CMS feature authorization process, the system preserves information about the configuration and hardware of the CMS system. The system periodically checks the changes to the motherboard, IP address, or MAC address. If the system detects differences between the preserved CMS hardware information and the current CMS hardware information, the CMS hardware feature is reset to *not authorized*. This forces the `auth_set` command to be re-run. If at any time the system displays a message that the `auth_set` command needs to be run, then the customer must contact Avaya Services personnel to run the `auth_set` command. The `auth_set` command requires a password that is only available to authorized Avaya personnel. Once the `auth_set` command has been re-run, the system preserves the new CMS hardware information.

To minimize downtime the customer must make arrangements with Avaya personnel to run the `auth_set` command prior to performing any of the following changes to the system:

- Replacing a motherboard
- Changing the IP address of the CMS system

- Restoring a Virtual CMS

Turning the computer off and on

Use the following procedures to turn the computer off and on.

To turn off the computer:

1. Log in to the system as root.
2. Enter:

```
/usr/sbin/shutdown -h now
```

This shuts down the system.
3. Turn off the system monitor.
4. Turn off any external devices, starting with the device that is closest to the system and working toward the farthest device.

To turn on the computer:

1. Turn on any external devices, starting with the device that is farthest from the system and working toward the system.
2. Turn on the system monitor.
3. Press and release the power button.
If the system is operating properly, a banner screen is displayed within about 5 minutes after it is turned on.
4. Log in to the system as root.

Using an ESD wrist strap

Before you work on components inside the computer:

1. Make sure that the computer is plugged in to AC power.
2. Make sure that the power is off.
3. Attach the Electro-Static Discharge (ESD) wrist strap to the chassis frame and to your wrist.
4. Unplug the AC power cord.

Maintaining disk drives

This section includes the following topics:

- [Prerequisites](#) on page 38
- [Required references](#) on page 38
- [Replacing a disk drive](#) on page 38

Prerequisites

If possible, do a CMSADM backup before you add or replace a disk drive. See your *CMS Software Installation, Maintenance, and Troubleshooting* document for this procedure.

Required references

The following references are required when doing procedures in this section:

- The *CMS Software Installation, Maintenance, and Troubleshooting* document for your CMS release.
- *Dell PowerEdge™ R720 Server* and *Dell PowerEdge™ R620 Server* at the Dell documentation Web site:
<http://www.dell.com>

Replacing a disk drive

This procedure describes how to replace a disk drive.

To remove a disk drive:

Note:

This procedure should be followed multiple times if replacing multiple disk drives.

1. Dell SAS disks are hot-swappable. However, if the customer has the LOW system, it only has one disk. So you cannot apply hot-swapping to LOW systems. Follow the instructions in *Software Installation, Maintenance, and Troubleshooting* for your version of CMS to complete the procedures before removal of the disk.
2. Locate the disk drive to be removed. A map of drive locations is located on the front right side of the system.
3. Press the drive button to release the drive latch.

4. Pull firmly on the drive latch to slide the drive out of the drive bay.
5. Set the drive aside on an antistatic mat.
6. Remove the replacement hard drive from its shipping container and antistatic packaging.
7. Press the drive button to release the drive latch.
8. Orient the hard drive with the drive latch towards you, and the label facing up.
9. Carefully slide the drive into the drive bay by pressing on the area between the drive button and the drive status LEDs.
10. When you feel resistance, press firmly so that the drive latch begins to close.
11. Press the drive latch closed.

Maintaining tape drives

This section includes the following topics:

- [Cleaning the customer supplied tape drive](#) on page 39

Cleaning the customer supplied tape drive

This section describes how to clean the tape drive.

Note:

CMS computers do not ship with tape drive cleaning tapes. Customers using tape backup must purchase at least one cleaning tape as soon as the computer is installed and in service. The number of cleaning cycles available on a cleaning cartridge depends on the manufacturer of the cartridge. You must clean the tape regularly to maximize tape drive performance. You must clean the tape drive once a week or every five (5) data backups, whichever comes first.

To clean the tape drive, follow the instructions in the manufacturers documentation for the tape drive the customer purchased.

Connecting to external interfaces

This section describes the external interfaces connected to the computer. This section includes the following topics:

- [Connecting the switch link](#) on page 40.

- [Connecting to the customer network](#) on page 40.
- [Connecting the tape drive](#) on page 40.

Connecting the switch link

The CMS computer uses TCP/IP over a local area network (LAN) at only 10/100 Mbps for a connection to the switch. One CMS computer can collect data from several switches. To the CMS computer, each switch represents one ACD.

You must use ethernet port 1 for this connection.

For detailed information about how to connect and administer the switch link, see *Avaya Call Management System Switch Connections, Administration, and Troubleshooting*.

Connecting to the customer network

The computer supports built-in ethernet ports that support network speeds of 10/100/1000 Mbps. However, for CMS installations, Avaya recommends that you only use speeds at the 10/100 Mbps speed range. This ethernet connection is used for CMS Supervisor, network printers, and LAN backup.

You must use ethernet port 0 for this connection.

Connecting the tape drive

Connections to the tape drive are for the Dell R720 and Dell R620 platform only.

Connecting an optional SAS tape drive

A Serial Attached SCSI (SAS) cable connects from the SAS port located on the back of the computer to the SAS port on the back of the tape drive.

Turning on the system

To turn on the system:

1. Connect the power cord from the tape drive to a power source.
2. Turn on the tape drives, starting with the tape drive that is farthest from the system and working toward the system.
3. Turn on the system monitor.

4. Press and release the power button.

Adding memory and replacing the CPU

Dell technicians, Avaya technicians, or Avaya business partner technicians can upgrade and repair memory and CPU. Contact Avaya support or your business partner if your system needs any upgrades or repairs.

Chapter 4: Troubleshooting

This section describes the following troubleshooting procedures:

- [System messages](#) on page 43
- [Recovery procedures](#) on page 44

Additional troubleshooting:

See the *Dell PowerEdge™ R720 Owner's Manual* at the following Dell web site for additional troubleshooting procedures:

http://downloads.dell.com/Manuals/Common/poweredge-r720_Owner's%20Manual_en-us.pdf

See the *Dell PowerEdge™ R620 Owner's Manual* at the following Dell web site for additional troubleshooting procedures:

<http://support.dell.com/support/edocs/systems/peR620/en/om/r620omen.pdf>

System messages

System messages can alert you to system problems, such as a device that is about to fail. By default, many of the messages are displayed on the system console and are stored in **/var/log**.

To display system messages:

1. Enter:

```
dmesg
```

The system displays the most recent messages as shown in the following example:

```
Wed Feb 14 11:01:59 MST 2001
Feb 14 08:19:20 tern pseudo: [ID 129642 kern.info] pseudo-device: tod0
Feb 14 08:19:20 tern genunix: [ID 936769 kern.info] tod0 is /pseudo/tod@0
Feb 14 08:19:22 tern syslogd: going down on signal 15
.....
.....
.....
Feb 16 14:24:08 tern scsi: [ID 365881 kern.info] /pci@1f,0/pci@1/scsi@1,1/st@5,:
Feb 16 14:24:08 tern <HP DDS-4 DAT (Sun)>
Feb 16 14:24:08 tern scsi: [ID 193665 kern.info] st12 at glml: target 5 lun 0
Feb 16 14:24:08 tern genunix: [ID 936769 kern.info] st12 is /pci@1f,0/pci@1/scs0
Feb 19 10:17:59 tern automountd[198]: [ID 784820 daemon.error] server cortex nog
Feb 19 10:18:27 tern last message repeated 6 times
```

The `/var/log` directory contains several message files. The most recent messages are in `/var/log/messages`. Previous system messages are organized into weekly message files and are identified by the date that is appended to the `messages` file.

The message files may contain not only system messages, but also crash dumps and other data, which can cause `/var/log` to grow quite large. To keep the directory to a reasonable size and ensure that future crash dumps can be saved, you should remove unneeded files periodically. You can automate the task by using `crontab`. See your Linux® system documentation for information on `crontab`.

Recovery procedures

This section provides solutions for the following problems:

- [Loss of power](#) on page 44

Loss of power

If the system loses power, it is recommended (but not required) that you empty the disc drive and tape drives. The system boots from the disk by default.

To turn on the computer:

1. Turn on all external devices.
2. Turn on the system monitor.
3. Press and release the power button.

To turn off the computer:

1. Log in to the system as root.
2. Enter:

```
/usr/sbin/shutdown -h now
```

This shuts down the system.

3. Turn off the system monitor.
4. Turn off all external devices.

Glossary

Automatic Call Distribution (ACD)	<p>A switch feature. ACD is software that channels high-volume incoming call traffic to agent groups (splits or skills).</p> <p>Also an agent state where the extension is engaged in an ACD call (with either the agent talking to the caller or the call waiting on hold).</p>
Boot disk	<p>A disk that contains the Linux® operating system and customer data.</p>
CMS	<p>Call Management System (CMS). A software product used by business customers that have an Avaya telecommunications switch and receive a large volume of telephone calls that are processed through the Automatic Call Distribution (ACD) feature of the switch.</p>
FB- DIMM	<p>Dual In-line Memory Module. A narrow printed circuit board that holds memory chips. It plugs into a FB-DIMM socket on the motherboard or memory board.</p>
IDE	<p>Integrated Drive Electronics</p>
Non-Volatile Random Access Memory (NVRAM)	<p>A random access memory (RAM) system that holds its contents when external power is lost.</p>
SAS	<p>Serial Attached SCSI.</p>
SCSI	<p>See Small Computer System Interface (SCSI).</p>
SCSI Bus	<p>An industry standard peripheral bus that is used to connect intelligent peripherals to a computer. It uses a daisy-chained cabling arrangement that originates at the Host Adapter to interconnect up to seven intelligent peripheral controllers on the bus. The Dell computer uses a fast SCSI-2 implementation.</p>
SCSI ID	<p>Each tap on the SCSI bus is required to have a unique identification or address, which is the SCSI ID. The ID is set by a push button located on each device.</p>
SCSI Single-Ended Bus	<p>A version of the SCSI bus designed to minimize cost and space. Cable lengths up to 6 meters are supported. A SCSI single-ended bus is not compatible with the differential version of the SCSI bus.</p>
Small Computer System Interface (SCSI)	<p>A hardware interface that allows the connection of devices (such as hard disks) to a computer system.</p>
SSO	<p>Services Support Organization. The Avaya organization that provides technical support for Avaya products.</p>

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