



# Rack Mount 18.5" LCD Console Tray for Dell

Installer/User Guide

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If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit <https://www.vertiv.com/en-us/support/> for additional assistance.

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# 1 Overview

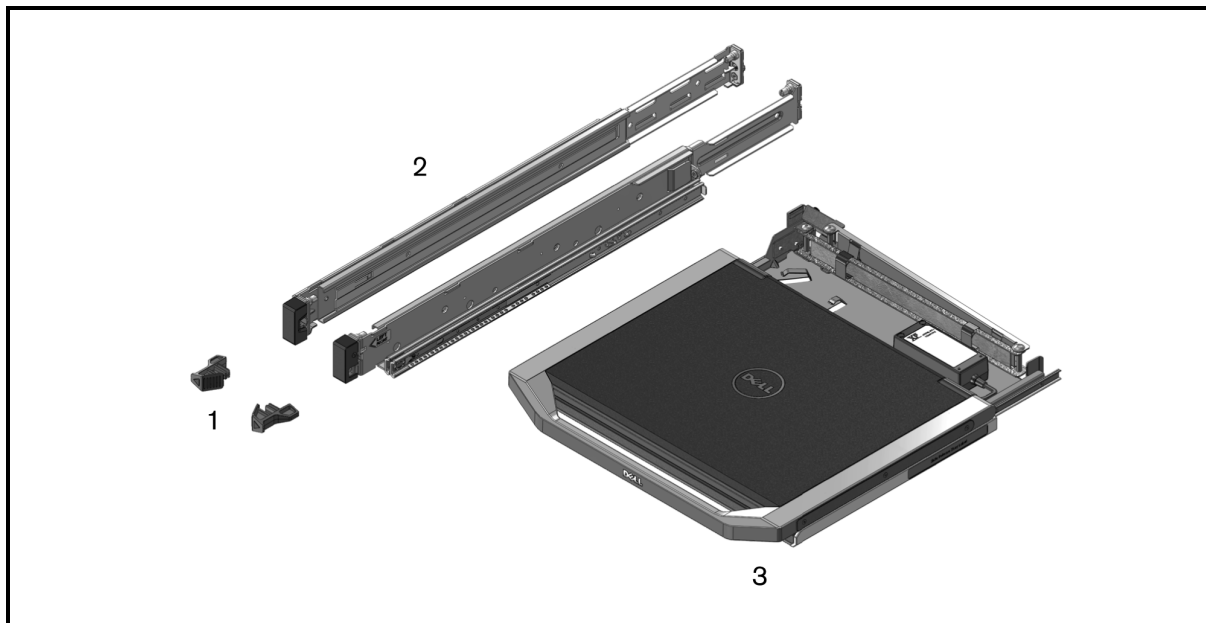
The 1U Rack Mount LCD Console Tray assembly is designed with the most current flat-panel monitor technology and provides a performance-oriented product with no mercury. This product uses a D-Sub, 15-pin VGA connector and supports up to 16 VESA modes, VESA DPMS power management and plug-and-play function. The tray's design conserves rack space compared to a traditional CRT monitor. In addition, the flat-panel monitor consumes less power.

## 1.1 Rack Mount LCD Console Tray Assembly Kit Contents

The LCD console tray includes the following items:

- One 1U Rack Mount LCD Console Tray
- One pair of Dell ReadyRails™ II slide rails
- Inner slide rails (factory installed on the Console Tray)
- One pair of rack travel locks
- Avocent® LCD Console Tray Rack Mount quick installation guide
- Safety and regulatory guide
- China RoHS card
- Customer support card

**Figure 1.1 1U Rack Mount LCD Console Tray Assembly**



**Table 1.1 Rack Mount LCD Console Tray Assembly Descriptions**

Item	Description
1	Rack travel locks
2	Dell ReadyRails™ II slide rails
3	LCD Console Tray

## 1.2 Safety Precautions

Use the following safety guidelines to help ensure your own personal safety and to help protect your system and working environment from potential damage.



**WARNING! The power supplies in your system may produce high voltages and energy hazards, which can cause bodily harm. Only trained service technicians are authorized to remove the covers and access any of the components inside the system.**

This document pertains only to the 1U Rack Mount LCD Console Tray. You should also read and follow the additional safety instructions in the following user guides:

- Remote 1U Rack Mount LCD Console Tray Quick Installation Guide
- Safety, Environmental and Regulatory Guide.

## 1.3 General

Review and observe the following safety instructions:

- Observe and follow service markings.
- Do not service any product except as explained in your system documentation.
- Opening or removing covers that are marked with the triangular symbol with a lightning bolt may expose you to electrical shock.
- Components inside these compartments should be serviced only by a trained service technician.
- Do not attempt to open this product unless you have proper service documentation.
- If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your trained service provider:
  - The power cable, extension cable, or plug is damaged.
  - An object has fallen into the product.
  - The product has been exposed to water.
  - The product has been dropped or damaged.
  - The product does not operate correctly when you follow the operating instructions.
- Keep your system away from radiators and heat sources. Also, do not block cooling its vents.
- Do not spill food or liquids on your system components, and never operate the product in a wet environment. If the system gets wet, see the appropriate section in your troubleshooting guide or contact Technical Support.
- Use the product only with approved equipment.
- Allow the product to cool before removing covers or touching internal components.
- Operate the product only from the type of external power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your service provider or local power company.

**NOTE: To help avoid damaging your system, be sure the voltage selection switch (if provided) on the power supply is set for the voltage that most closely matches the AC power available in your location. Also be sure that your monitor and attached devices are electrically rated to operate.**

- Be sure that your monitor and attached devices are electrically rated to operate with the power available in your location.
- The console tray has custom connectors for the power supply. Be sure you use only the power supply supplied with the console tray.

- Use only power cables provided with this product.
- To help prevent electric shock, plug the system and peripheral power cables into properly grounded electrical outlets. These cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adaptor plugs or remove the grounding prong from a cable.
- Observe extension cable and power strip ratings. Make sure the total ampere rating of all products plugged into the power strip does not exceed 80 percent of the ampere ratings limit for the power strip.
- To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner or uninterruptible power supply (UPS).
- Position the system cables and power cables carefully. Route the cables so that they cannot be stepped on or tripped over. Be sure that nothing rests on any cables.
- Do not modify the power cables or plugs. Consult a licensed electrician or your power company for site modifications. Always follow your local/national wiring rules.

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## 2 Installation

### 2.1 Installing into the Rack

This section provides instructions for installing the LCD console tray in a four-post rack cabinet. The pullout tray assembly features a keyboard with touchpad and a flat-panel monitor that rotates up from the console tray for use. An attached cable-management arm routes the monitor, power, USB and keyboard/touchpad cables to the back of the rack. The monitor's power supply is installed on the console tray.

For removal instructions, see [Removal from the Rack on page 19](#).

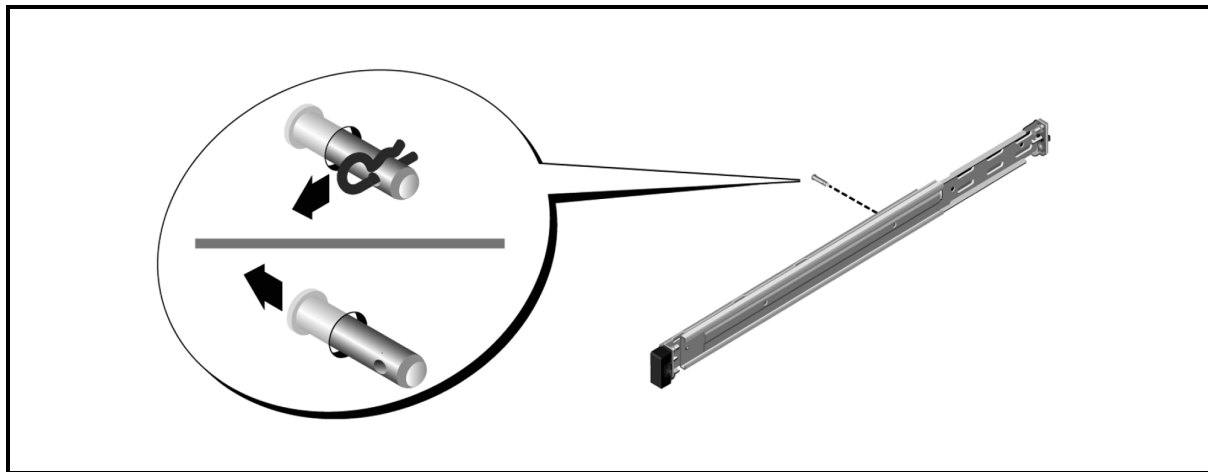
Before installing the rack mount LCD console tray, stabilize the rack in a permanent location. Using the supplied 1U rack mount kit, rack mount your equipment starting at the bottom, then work to the top. Avoid uneven loading or overloading of racks.



**CAUTION:** Do not rack mount the equipment in a way that creates a hazardous condition due to uneven mechanical loading.

Before installing either tool-less or tool-ed rails, you must remove the shipping pins from the slide rail brackets.

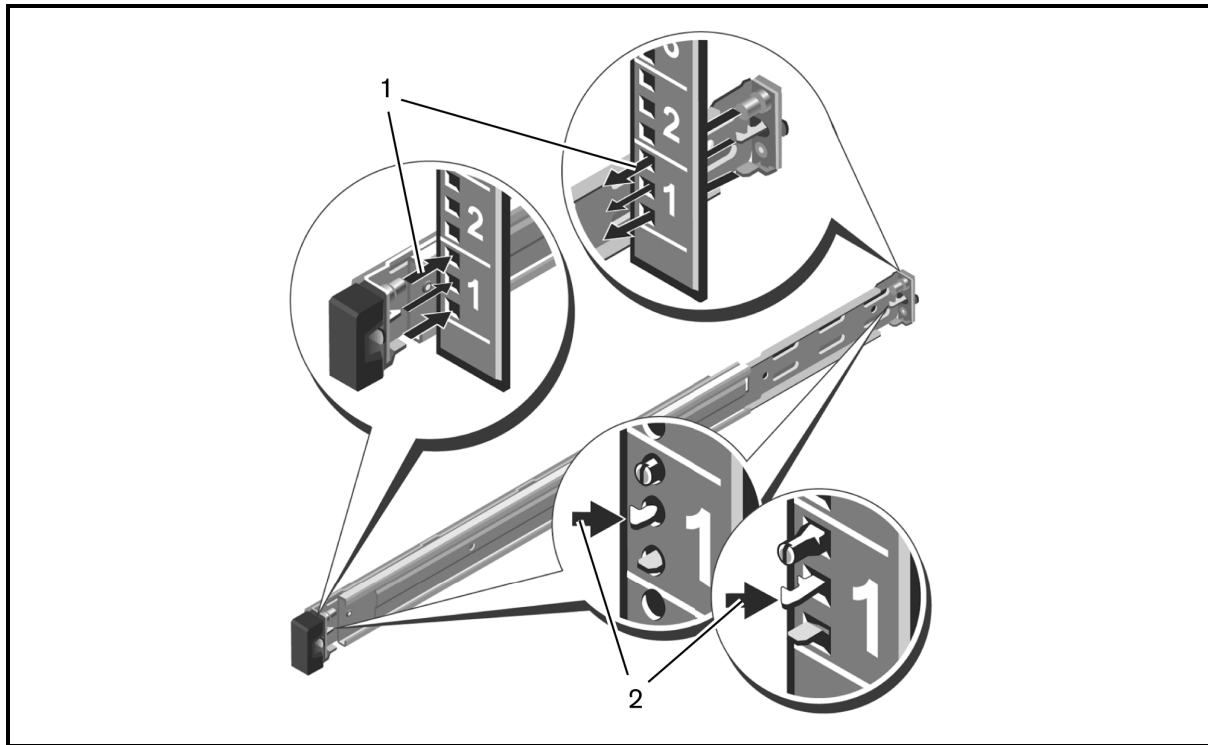
**Figure 2.1 Removing the Shipping Screws**



#### To install tool-less rails:

1. Position the left and right rail mounts labeled FRONT, then orient and seat each mount in the holes on the front side of the vertical rack flanges.
2. Align each mount in the bottom and top holes of the desired U spaces until the latch clicks into place.
3. Engage the back end of the rail until it fully seats in the vertical rack flange and the latch clicks into place.

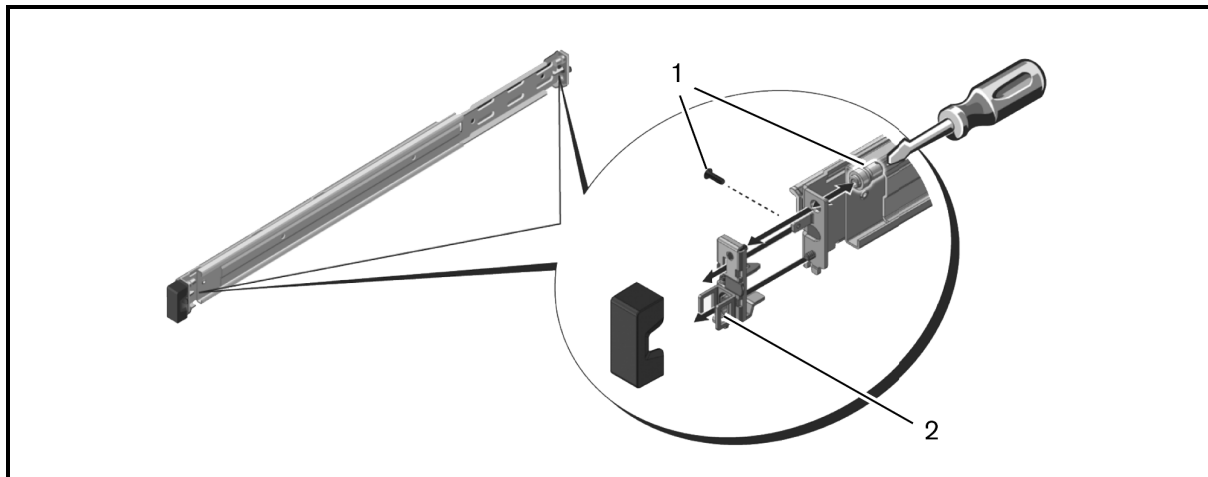
**Figure 2.2 Installing Tool-less Rails**



**To prepare to install tooled rails:**

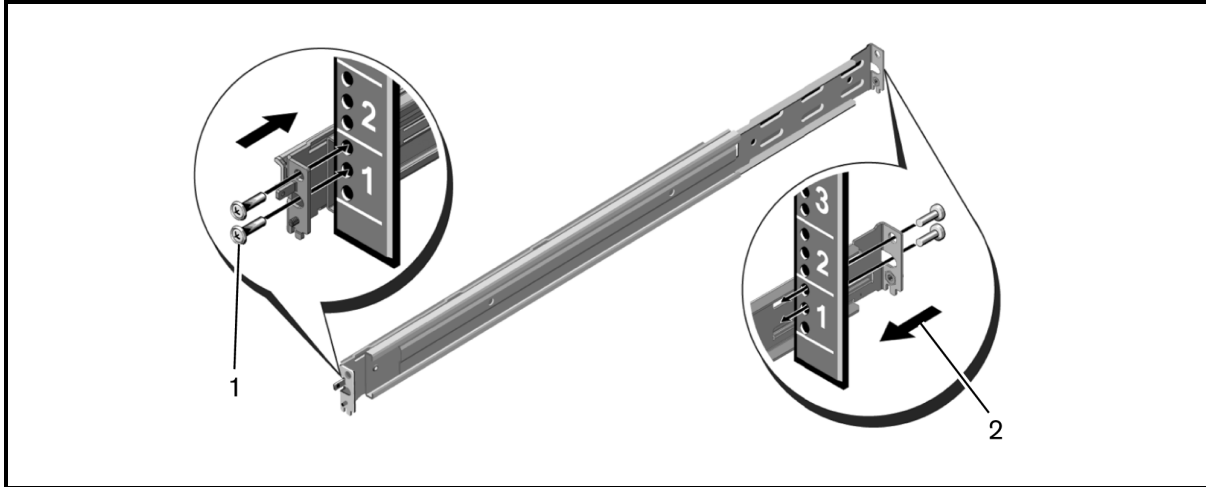
1. Remove the screw from the front mounting bracket using a Torx screwdriver, then remove the pins from the front and rear mounting brackets using a flat-tipped screwdriver.
2. Pull and rotate the rail latch sub-assemblies to remove them from the mounting brackets.

**Figure 2.3 Preparing to Install Tooled Rails**



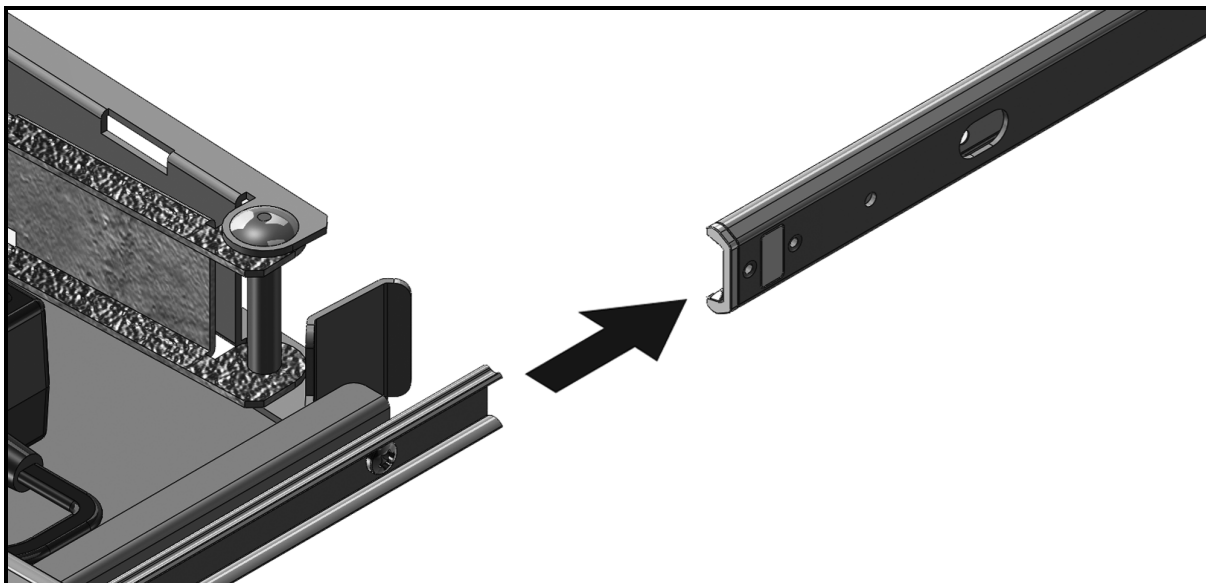
**To install tooled rails:**

1. Attach the left and right mounting rails to the front vertical rack flanges using two supplied pairs of screws.
2. Slide the left and right back brackets forward against the rear vertical rack flanges and attach them using two supplied pairs of screws.

**Figure 2.4 Installing Tooled Rails****To install the console tray:**

**NOTE:** Ensure the system is properly supported until the inner rails are inserted into the slide rails on both sides. Remove any tape securing the monitor to the keyboard tray prior to inserting it into the rack.

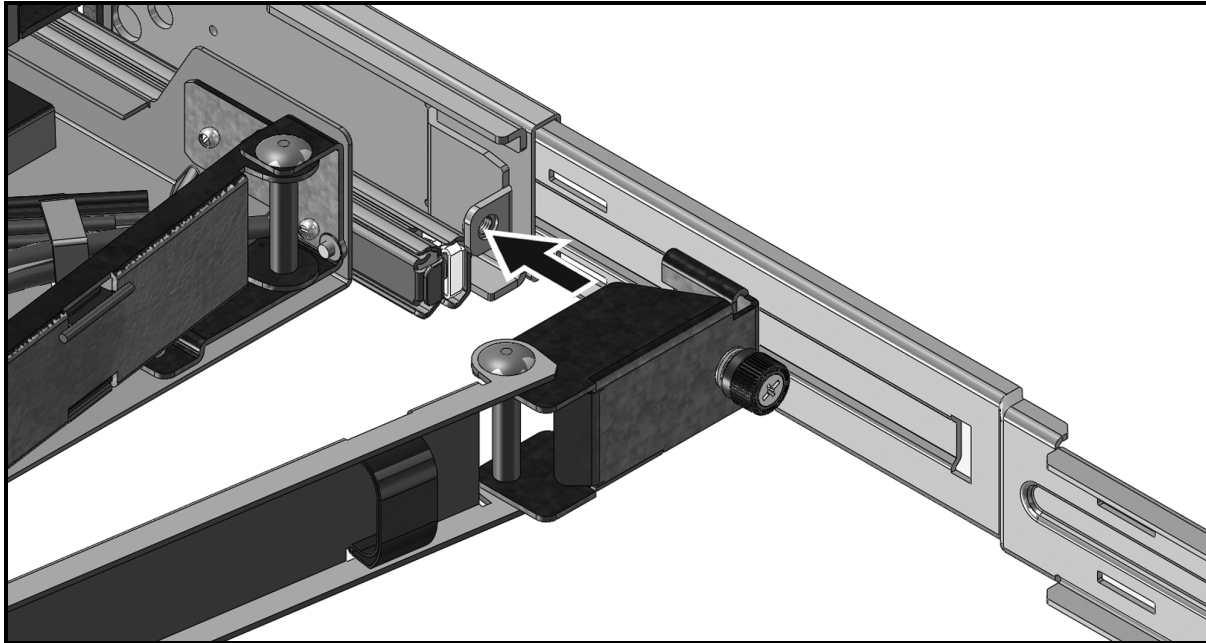
1. Confirm the ball-bearing races are in their forward-most position.
2. Align and insert the ends of the inner rails into the ends of the outer rails.
3. Push the system inward until the inner rails are fully inserted.
4. Pull and push the console tray in and out of the rack until it slides smoothly within the rack.

**Figure 2.5 Installing the Console Tray**

**To install the cable management arm (CMA):**

1. From the back of the rack, cut the zip tie or remove the tape that secures the CMA to the back of the tray.
2. Swing the free end of the CMA out to the bracket on the end of the left stationary rail bracket.
3. Attach the CMA to the bracket with the captive screw on the end of the arm.

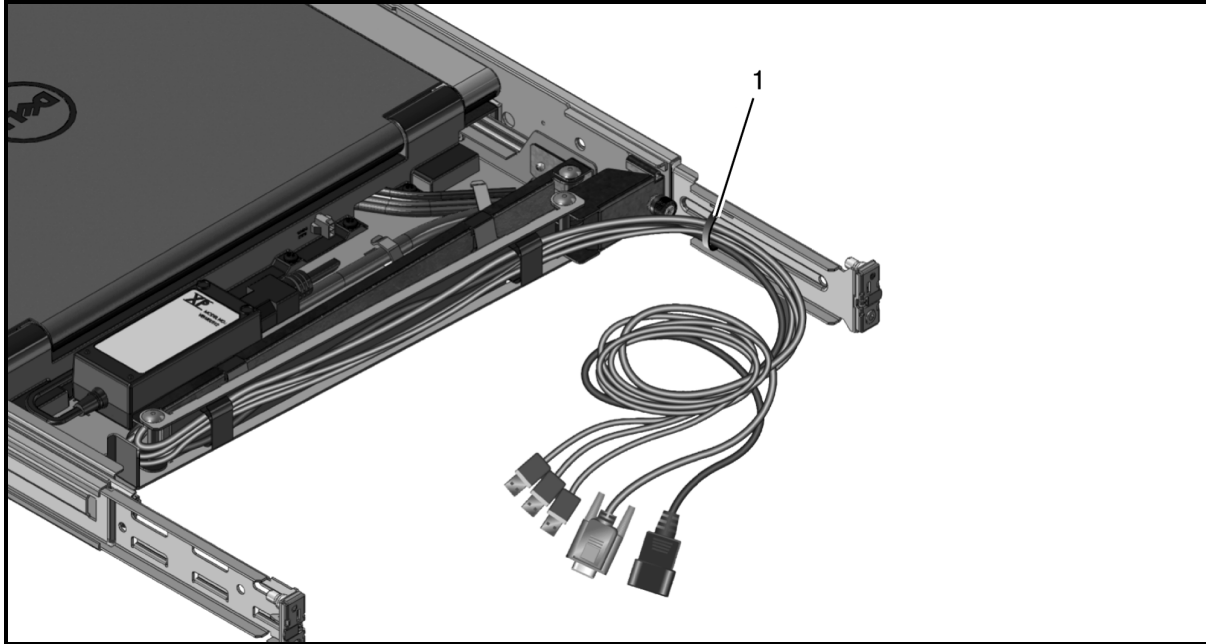
**Figure 2.6** Installing the Cable Management Arm



**To thread the cables to the back of the rack:**

1. Carefully thread the cables through the cable channel on the CMA, then secure the cables to the rear rail bracket with a user-supplied zip tie or velcro, ensuring they are not pulled too tight.
2. Plug the cables into the appropriate target devices.

**Figure 2.7 Threading the Cables**



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## 3 Operating the Console Tray

This console tray features a capacitive touch interface. Touch the LED located below a desired icon. Power is its own icon.

### 3.1 Features

**Table 3.1 Console Features**

Feature	Description
Optimal resolution and refresh	1366 x 768 at 60 Hz
Screen type	Active Matrix Thin Film Transistor (TFT) Liquid Crystal Display (LCD)
Display active area	409.8 mm x 230.4 mm (16.1 inches x 9.1 inches)
Screen diagonal	470.2 mm (18.51 inches)
Support color	16.7 million colors

#### 3.1.1 Power Management Modes

If you have a VESA DPMS-compliant display card or software installed in your system, the monitor automatically reduces its power consumption when not in use. If input from the keyboard, mouse or other input devices is detected, the monitor automatically wakes up, unless stowed. The following table shows the power consumption and signals for this automatic power saving feature.

**Table 3.2 Power Management Modes**

VESA Mode	Video	H-sync	V-sync	Power Used	LED Color
On	Active	Yes	Yes	Maximum 20W	Full bright
Stowed position	Blanked	No	Yes	<0.5W	Amber
Sleep mode	Blanked	Yes	No	<0.5W	Amber
Active-off	Blanked	No	No	<0.5W	Amber
DC power off	NA	NA	NA	0W	Dark

**Table 3.3 Signal Connector (15-pin, D-sub Connector)**

Pin number	Signal
1	Red Video
2	Green Video
3	Blue Video
4	Ground
5	LVDS
6	Red Video Ground
7	Green Video Ground
8	Blue Video Ground
9	NA
10	NA
11	NA
12	SDA (DDC1/2B)
13	Horizontal Sync
14	Vertical Sync
15	SCL (DDC2B)

## 3.2 Setting up the monitor

### To set up the flat-panel monitor:

1. Ensure the monitor has been connected to an appropriate power source.
2. Pull the monitor tray out.
3. Hold the monitor by its handle and rotate it to a maximum 110-degree angle.

**NOTE:** Use the tray's handle to push and pull the tray in the rack.

4. The first time the unit is connected to power, you must press the power icon to turn it on. After the first time, the unit turns on when opened.

**NOTE:** If power is completely disconnected, the console tray defaults into Active-Off mode.

## 3.3 Power Management System

The flat-panel monitor complies with the VESA DPMS (version 11) power management standard. The VESA DPMS proposal provides four phases of power saving modes by detecting horizontal or vertical sync signals. The LED indicator is off when the monitor is in power-saving mode.

**Table 3.4 LED Indications**







Color	Power Status	Description
Blue	Power is good	If video signal is good, the monitor displays the target output. If the monitor does not detect a VGA signal, a scrolling "No VGA" message appears on the monitor.
Amber	Power is good	Monitor is off or target is in sleep mode.
LED indicator is off	No power	Verify the appliance is receiving power.



## 3.4 Using the Front Panel

Use the icons on the front of the monitor to adjust the image settings.

**Table 3.5 Front Panel Controls Descriptions**










Icon	Mode	Description
	Color Settings	Selects color modes on your monitor.
	Brightness/Contrast	Opens the direct access to the brightness and contrast menu.
	Auto Adjust	Automatically adjusts the monitor.
	OSD Menu	Opens the On-Screen Display (OSD).
	Exit	Exits the OSD Menu.
	Power	Turns the monitor's power off and on. When the LED is blue, the monitor is on and fully functional. When the LED is amber, the monitor is in power-save mode. When the LED is blinking amber, the unit has power but no video source.

## 3.5 Using the OSD Menu

The flat-panel monitor features an On-Screen Display (OSD). Press the OSD Menu icon on the front panel of the monitor to access the OSD's main menu. Use the function icons to scroll through the menu and make changes to the selected menu items.

**NOTE:** All the icons on the front panel may also be accessed from the OSD menu.

**Table 3.6 Function Icon Descriptions**

Icon	Function	Description
	Up arrow	Scroll up in the menu.
	Down arrow	Scroll down in the menu.
	Checkmark	Accept change.
	Exit	Exit the OSD menu.
	Return	Return to the previous menu.
	Right arrow	Once you've selected an item from the menu, click the right arrow to access its parameters.
	Toggle	Switch between selections.
	Personalize	Touch this icon to customize the monitor with your personal short cut settings.
	Other settings	Adjust the language and menu. Control DDC/C1 communication. Perform LCD conditioning and factory reset.

**NOTE:** If you change the settings and then proceed to another menu or exit the OSD menu, the monitor automatically saves the changes.

### 3.5.1 OSD Menu Settings

You can use the settings mentioned in the following table to customize your display.

**Table 3.7 OSD Menu Settings**

Function	Description
Brightness/Contrast	Increases or decreases the brightness or contrast. The range is from 0-100 for both the brightness and contrast.
Auto Adjust	Adjusts the screen to optimize the display settings.
Input Source	Scans for available input signals.VGA is the only input signal supported.
Color Settings	Sets the image mode and color format.
Preset Modes	Allows you to select a color mode. The Custom color mode displays the RGB scales.
Reset Color Settings	Returns the color settings to the factory default.

### 3.5.2 Display Settings

You can adjust the image under the Display Settings menu.

**Table 3.8 Display Settings**

function	description
Wide Mode	Sets the image ratio as 1:1 (actual pixel count), Aspect (largest acceptable image per signal input or Fill Screen (adjusts image to 1366x768, providing full screen view. NOTE: Wide mode adjustment is not required at the optimal preset resolution of 1366x768.
Horizontal Position	Adjusts the image left and right.
Vertical Position	Adjusts the image up and down.
Sharpness	Adjusts the sharpness, making the image look softer or sharper.
Pixel Clock and Phase	Adjusts the image quality. Use the Pixel Clock to set the coarse settings and Phase to set the fine settings.
Display Info	Displays the monitor's current settings
Reset Display Settings	Select this option to restore settings to the factory default.

### 3.5.3 Other Settings

From the Other Settings menu, you can adjust the OSD settings.

**Table 3.9 Other Settings**

Function	description
Language	Allows you to select which language the OSD uses.
Menu Timer	Allows you to select the number of seconds, in five-second increments, the OSD will remain active after the last time you touch a button.
Menu Lock	Controls user access to adjustments. When set to Lock, no user adjustments are allowed. To lock and unlock, hold the X (Exit) button on the front panel of the monitor for 15 seconds. When the lock engages or disengages an icon will flash on the screen.
DDC/CI (Display Data Channel/Command Interface)	Allows your monitor parameters (brightness, color balance and so on) to be adjustable via software on your computer.
LCD Conditioning	Helps eliminate image retention if an image appears to be stuck on the monitor. Using the LCD conditioning feature may take several hours. You can safely stop LCD conditioning by pressing any menu button or turning the monitor off. NOTE: The LCD conditioning feature does not remove burn-in.
Factory Reset	Resets all OSD settings to the factory default.

### 3.5.4 Personalize

There are three shortcut keys on the front panel of the monitor. From the Personalize menu, you can assign a control menu to a shortcut key for quick access.

## 3.6 USB 3.0

This device has two USB 3.0 compliant pass-through ports, which provide faster data transmission between your console and connected USB devices. However, if you are using USB 1.1 or 2.0 targets, the maximum speed will be limited to those devices' thresholds. See the following table.

**Table 3.10 USB Maximum Speed Chart**

Device/Target	USB 1.1 Target	USB 2.0 Target	USB 3.0 Target
USB 1.1 Device	12 megabits per second	12 megabits per second	12 megabits per second
USB 2.0 Device	12 megabits per second	480 megabits per second	480 megabits per second
USB 3.0 Device	12 megabits per second	480 megabits per second	4.8 gigabits per second

**NOTE:** The device is limited to 900 mA with a USB 3.0 target and 500 mA with a USB 2.0 target.

## 3.7 Keyboard

Your keyboard provides sets of keys to perform various functions:

- Alphanumeric keys for typing letters, numbers, punctuation and symbols.
- Control keys for performing certain actions: Ctrl, Alt, Esc and the Windows logo key.
- Function keys, labeled F1, F2, F3 and so on, for performing specific tasks.
- Navigation keys for moving the cursor around in documents or windows: Home, End, Page Up, Page Down, Delete, Insert and arrow keys.
- Numeric keypad of numbers grouped together like those on an adding machine.
- The keyboard is limited to four key combination shortcuts or commands.

**Table 3.11 General Windows® Keyboard Shortcuts**

Shortcut	Description
Ctrl+Shift+Esc	Opens the Task Manager window.
F2	Renames the selected item.
F3	Searches for a file or folder.
F4	Displays the Address bar list in Windows Explorer.
F5	Refreshes the active window.
F6	Cycles through screen elements in a window or on the desktop.
F10	Activates the menu bar in the active program.
Ctrl+c	Copies a selected item.
Ctrl+x	Cuts a selected item.
Ctrl+v	Pastes a selected item.
Ctrl+z	Cancel an action.
Ctrl+a	Selects all items in a document or window.
Ctrl+F4	Closes the active window (in programs that allow you to have multiple documents open simultaneously).
Ctrl+Alt+Tab	Uses the arrow keys to switch between open items.
Alt+Tab	Switches between open items.
Alt+Esc	Cycles through items in the order in which they were opened.
Delete	Deletes a selected item and move it to the Recycle Bin.
Shift+Delete	Deletes the selected item without moving it to the Recycle Bin first.
Ctrl+right-arrow key	Moves the cursor to the beginning of the next word.
Ctrl+left-arrow key	Moves the cursor to the beginning of the previous word.
Ctrl+down-arrow key	Moves the cursor to the beginning of the next paragraph.
Ctrl+up-arrow key	Moves the cursor to the beginning of the previous paragraph.
Ctrl+Shift+an arrow key	Selects a block of text.
Shift+any arrow key	Selects more than one item in a window or on the desktop, or selects text within a document.
Windows logo key+m	Minimizes all open windows.
Windows logo key+Shift+m	Restores all minimized windows. This key combination functions as a toggle to restore minimized windows following the use of the Windows logo key and <m> combination.
Windows logo key+e	Starts Windows Explorer.
Windows logo key+r	Opens the Run dialog box.
Windows logo key+f	Opens the Search Results dialog box.
Windows logo key+Ctrl+f	Opens the Search Results-Computer dialog box (if the computer is connected to a network).
Windows logo key+Pause	Opens the System Properties dialog box.

### 3.7.1 Replacing the keyboard

The replaceable console tray keyboard is located by opening the console display.

**To remove the old keyboard:**

1. Fully extend the console tray forward and open the console display.
2. Use the two openings at the front of the keyboard to press forward on its exposed edge and unseat it from its well.
3. Once the keyboard is unseated, lift its front edge upward and remove the keyboard. Ensure you disconnect the attached USB cable from the rear of the keyboard.

**To install the replacement keyboard:**

1. Connect the USB cable protruding from the rear of the surround well to the rear of the new keyboard.
2. Angle the rear of the keyboard into the surround well. Ensure the USB cable is not trapped under the keyboard by pushing any excess cable back into the console tray surround opening.
3. Push the keyboard into position.

## 3.8 Touch Pad

You can use your finger for touch input to move the cursor or select objects on the screen:

**To move the cursor:**

Lightly slide your finger over the touch pad.

**To select an object:**

Lightly tap once on the surface of the touch pad or use your thumb to press the left touch-pad button.

**To select and move (or drag) an object:**

Position the cursor on the object and tap twice on the touch pad. On the second tap, leave your finger on the touch pad and move the selected object by sliding your finger over the surface.

**To double-click an object:**

Position the cursor on the object and tap twice on the touch pad or use your thumb to press the left touch pad button twice.

**To clean the touch pad:**

Using a dry, lint-free cloth, wipe gently across the surface of the touch pad.

## 4 Removal from the Rack

This section provides instructions for removing the console tray from a four-post rack cabinet.

### To remove the console tray from the rack:

1. From the back of the rack, unscrew the captive screw from the cable management arm (CMA) to remove it from the rail.
2. Disconnect the cables from the target devices.
3. Pull the console tray out until the slide rails are in a fully extended position.
4. Press the blue tabs on each side of the console tray.
5. While pressing the tabs in step 4, slide the console tray out of the rack.

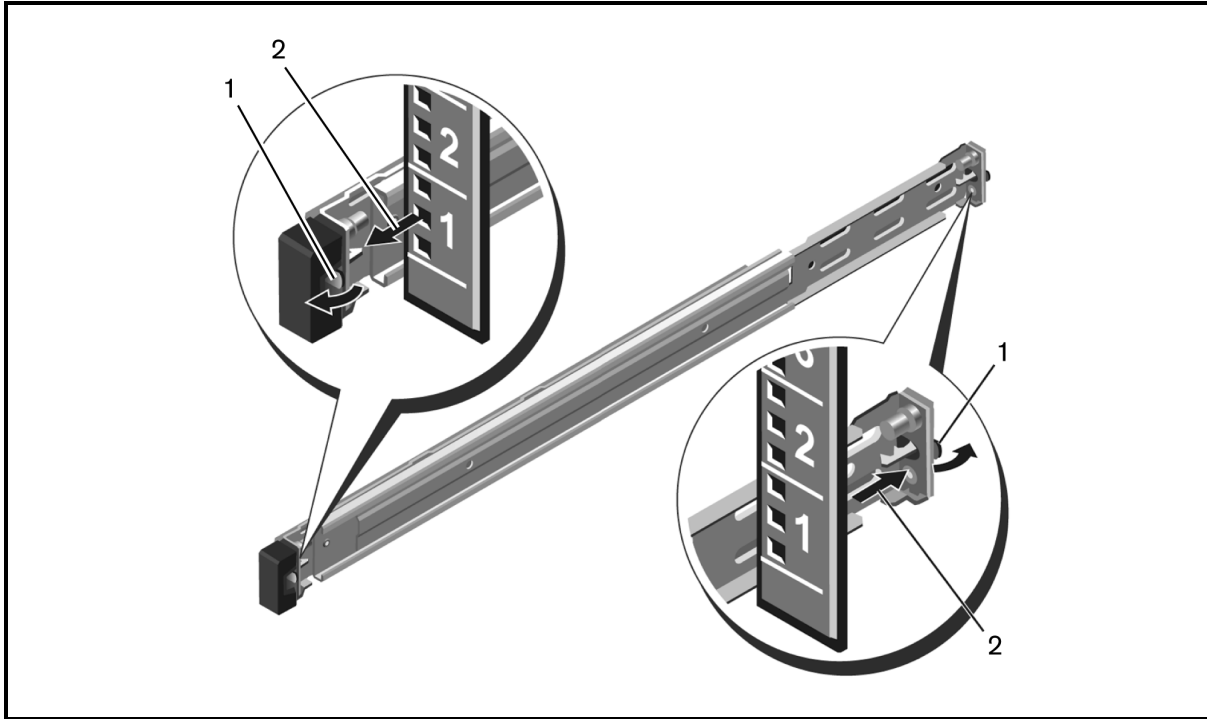
**Figure 4.1** Removing the Console Tray From the Rack



**To remove tool-less rails:**

1. In the front of the rack, pull the blue tab to release the lock.
2. Repeat in the back of the rack and slide the rail out of the rack.

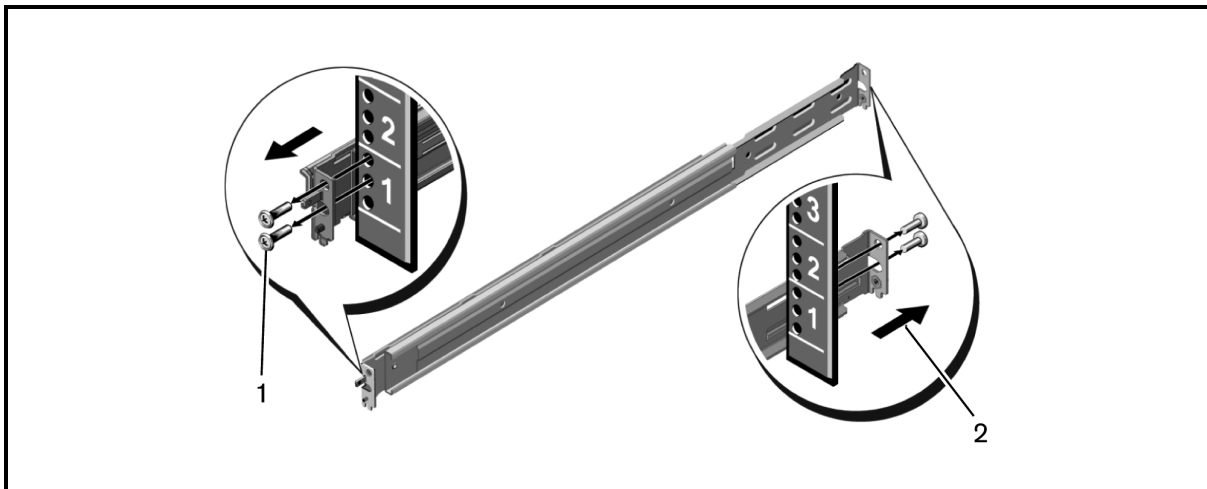
**Figure 4.2 Removing Tool-less Rails**



**To remove tool-ed rails:**

1. Unscrew the two pairs of screws to detach the left and right brackets from the front vertical rack flanges.
2. Unscrew the two pairs of screws to detach the left and right mounting rails from the rear vertical rack flanges.

**Figure 4.3 Removing Tool-ed Rails**





# Appendices

This section contains the Supported Timing table and the product technical specifications.

## Appendix A: Timing

**Table A.1 Supported Timing**

Resolution	Horizontal Frequency and Polarity	Vertical Frequency and Polarity	Pixel Clock	Scan Type	Horizontal Sync	Vertical Sync
640 x 480 @ 60 Hz	31.469 kHz Negative	59.940 Hz Negative	25.175 MHz 39.72 ns	Non-interlaced	3.813 us 96 dots	.064 ms 2 lines
640 x 480 @ 75 Hz	37.5 kHz Negative	75 Hz Negative	31.5 MHz 31.75 ns	Non-interlaced	2.032 us 64 dots	.08 ms 3 lines
800 x 600 @ 60 Hz	37.879 kHz Positive	60.317 Hz Positive	40 MHz 25 ns	Non-interlaced	3.2 us 128 dots	.106 ms 4 lines
800 x 600 @ 75 Hz	46.875 kHz Positive	75 Hz Positive	49.5 MHz 20.2 ns	Non-interlaced	1.616 us 80 dots	.064 ms 3 lines
1024 x 768 @ 60 Hz	43.363 kHz Negative	60.004 Hz Negative	65 MHz 15.38 ns	Non-interlaced	2.092 us 136 dots	.124 ms 6 lines
1024 x 768 @ 75 Hz	60.023 kHz Positive	75.029 Hz Positive	78.75 MHz 12.7 ns	Non-interlaced	1.219 us 96 dots	.05 ms 3 lines
1152 x 864 @ 60 Hz	54.348 kHz Positive	60.053 Hz Positive	80 MHz 12.5 ns	Non-interlaced	1.2 us 96 dots	.055 ms 3 lines
1152 x 864 @ 75 Hz	67.5 kHz Positive	75 Hz Positive	108 MHz 9.26 ns	Non-interlaced	1.185 us 128 dots	.044 ms 3 lines
1366 x 768 @ 60 Hz	47.712 kHz Positive	60.015 Hz Positive	85.5 MHz 11.7 ns	Non-interlaced	1.31 us 112 dots	.126 ms 6 lines
1366 x 768 @ 75 Hz	60.15 kHz Positive	75 Hz Positive	110.195 MHz 9.07 ns	Non-interlaced	1.307 us 144 dots	.049 ms 3 lines
1280 x 800 @ 60 Hz	49.702 kHz Negative	59.81 Hz Positive	83.5 MHz 11.98 ns	Non-interlaced	1.533 us 128 dots	.121 ms 6 lines
1280 x 800 @ 75 Hz	62.795 kHz Negative	74.934 Hz Positive	106.5 MHz 9.39 ns	Non-interlaced	1.202 us 128 dots	.096 ms 6 lines
1280 x 1024 @ 60 Hz	63.981 kHz Positive	60.02 Hz Positive	108 MHz 9.26 ns	Non-interlaced	1.037 us 112 dots	.047 ms 3 lines
1280 x 1024 @ 75 Hz	79.976 kHz Positive	75.025 Hz Positive	135 MHz 7.41 ns	Non-interlaced	1.067 us 144 dots	.038 ms 3 lines
1440 x 900 @ 60 Hz	55.935 kHz Negative	59.877 Hz Positive	106.5 MHz 9.39 ns	Non-interlaced	1.427 us 152 dots	.107 ms 6 lines
1440 x 900 @ 75 Hz	70.635 kHz Negative	74.984 Hz Positive	136.75 MHz 7.31 ns	Non-interlaced	1.112 us 152 dots	.085 ms 6 lines

**NOTE: If the message Out of Range appears, the video signal from the target device is not meeting supported resolutions. Adjust the output resolution to a compliant timing.**

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## Appendix B: Technical Support

Our Technical Support staff is ready to assist you with any installation or operational issues you encounter with your Vertiv product. If an issue should develop, follow the steps below for the fastest possible service.

### To resolve an issue:

1. Check the pertinent section of this manual to see if the issue can be resolved by following the procedures outlined.
2. Visit <http://www.vertiv.com/en-us/support> and use one of the following resources:

Search the knowledge base or use the online service request

-or-

Select *Technical Support Contacts* to find the Vertiv™ Technical Support location nearest you.

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