Vertiv™ AutoView™ AV104/AV108/AV116 Switch

Installer/User Guide

EMI Statements

Products which are certified for EMC in the regions or countries indicated will have the required marking or statement on the product label. The applicable statement for that country is listed below.

Taiwan

警告使用者

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Technical Support Site

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. For additional assistance, visit https://www.VertivCo.com/en-us/support/.

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1 PRODUCT OVERVIEW

The Vertiv™ AutoView™ AV104/AV108/AV116 is a single-user analog switch that supports up to four, eight or 16 target devices and can be 0U or 1U rack-mounted or used as a desktop device. It supports USB keyboard, mouse and VGA video at the local user interface and USB and VGA or DisplayPort video at the target devices. The switch does not have a web interface, therefore, all switching is done locally.

1.1 Features and Benefits

Depending on the model, the switch provides the following features and benefits:

- Buttons for switching among KVM target devices
- LED lights that indicate active and connected targets
- Hotkey switching functionality
- On-screen display switching
- Three USB 2.0 Type-A ports for connecting a keyboard, mouse and flash drive for firmware upgrades
- Two USB 2.0 Type-A pass-through ports to allow you to use connected devices on a selected target
- VGA video output to the local monitor of up to at least 2048 x 1536 pixels

NOTE: The 4-port model does not have on-screen display capability.

NOTE: The unit does not support an absolute mouse. Support is provided for a five-button, scrolling, relative mouse.

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2 BASIC OPERATION

The target devices connect to the product through a high density 26-pin connector and custom cable with USB and VGA connections to the target. A second custom cable has a built-in DisplayPort to VGA adaptor that provides a DisplayPort connection to the target. The custom cables are available in lengths of six or 12 feet. A third custom cable supports cascading between switches. It is identical to the VGA cables but is one foot in length. Contact your Vertiv™ representative to purchase the custom cables.

Depending on the model, you can switch between target devices using the front panel buttons, the on-screen display or hotkeys. On-screen display switching is enabled on the AV108 and AV116 switch. When a connected target device is powered, the corresponding LED on the bottom of the button illuminates orange. When the powered target device is selected, the corresponding LED on the top of the button illuminates green. The switch does not have a sleep or hibernation mode. It remains powered as long as power is provided.

Figure 2.1 AV116 Front and Back Panel

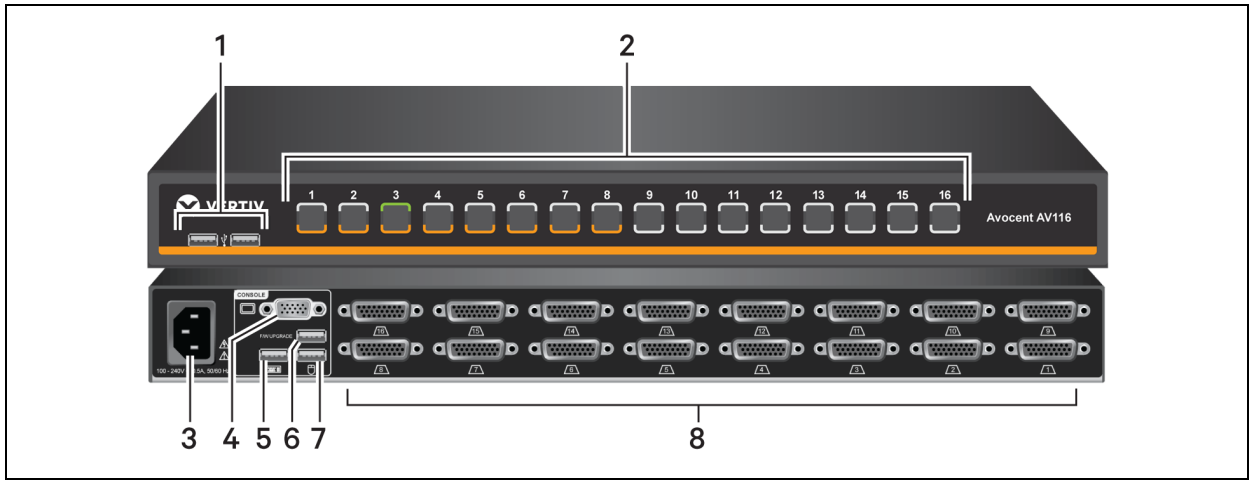


Table 2.1 Front and Back Panel Components

ITEM	DESCRIPTION
1	USB 2.0 Type-A pass-through ports
2	Capacitive port selection touch buttons
3	AC C14 power input connector
4	HD15 VGA connector
5	USB 2.0 Type-A connector for a keyboard
6	USB 2.0 Type-A connector for a firmware upgrade peripheral
7	USB 2.0 Type-A connector for a mouse
8	HD26 target port connectors

Figure 2.2 Front Panel Capacitative Buttons and LEDs

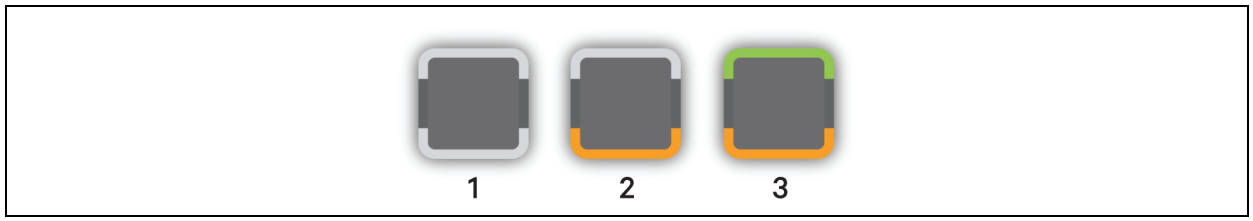


Table 2.2 Switch Buttons and LED Indicators

ITEM	DESCRIPTION
1	Indicates target is not powered or not connected
2	Indicates target is connected and powered
3	Indicates target is connected, powered and selected

2.1 Using Keystroke Commands

The AV104/AV108/AV116 switch supports hotkey functionality. You can use hotkey functionality to do the following:

- Switch KVM between ports
- Switch USB pass-through between ports
- Start and stop scan mode

The default command mode is Ctrl+Ctrl+ [COMMAND]. When activating command mode, Ctrl + Ctrl must be pressed sequentially within one second of each other. You can change the default command mode using activation sequence commands. The commands are not case sensitive.

When in command (hotkey) mode, only keystrokes are passed to the target computer. Mouse activity is disabled.

To exit command mode:

Press Enter to accept the action.

NOTE: You must press Enter to complete the command mode action. There is no way to abort a hotkey sequence unless you enter an incorrect key sequence.

2.1.1 Activation sequence commands

The activation sequence commands allow you to activate default command mode or change the activation sequence.

Table 2.3 Activation Sequence Commands

KEY SEQUENCE	ACTION
Ctrl+Ctrl+H+1+Enter	Activates the default command mode (Ctrl+Ctrl).
Ctrl+Ctrl+H+2+Enter	Changes the activation sequence to Alt + Alt.
Ctrl+Ctrl+H+3+Enter	Changes the activation sequence to Shift + Shift.

2.2 Using the On-Screen Display

In addition to using the front panel buttons and keystroke commands, you can use the on-screen display to control port selection and to rename target devices, enable or disable port binding, display the firmware version and adjust the scan time interval.

You can also rename supported targets from the on-screen display. Target names are limited to 24 English characters.

Since the on-screen display does not support mouse functionality, the arrow keys can be used to navigate among the target devices.

To initiate the on-screen display with a list of targets:

Press Print Screen or press Ctrl+Ctrl+O+Enter.

Figure 2.3 On-Screen Display Initial Window

Table 2.4 On-Screen Display Initial Window

ITEM	DESCRIPTION
1	USB pass-through icon (unbound shown)
2	Target powered icon (powered shown)
3	Target field (selected target field shown)

A green circle appears next to powered targets, a locked icon appears next to a target bound to a port via USB pass-through and an unlocked icon appears next to an unbound target.

To bind or unbind a target:

1. Use the arrow keys to navigate to the target and press Enter.

2. Press B to bind the target.

   -or-

   Press U to unbind the target.

To assign or edit a target name:

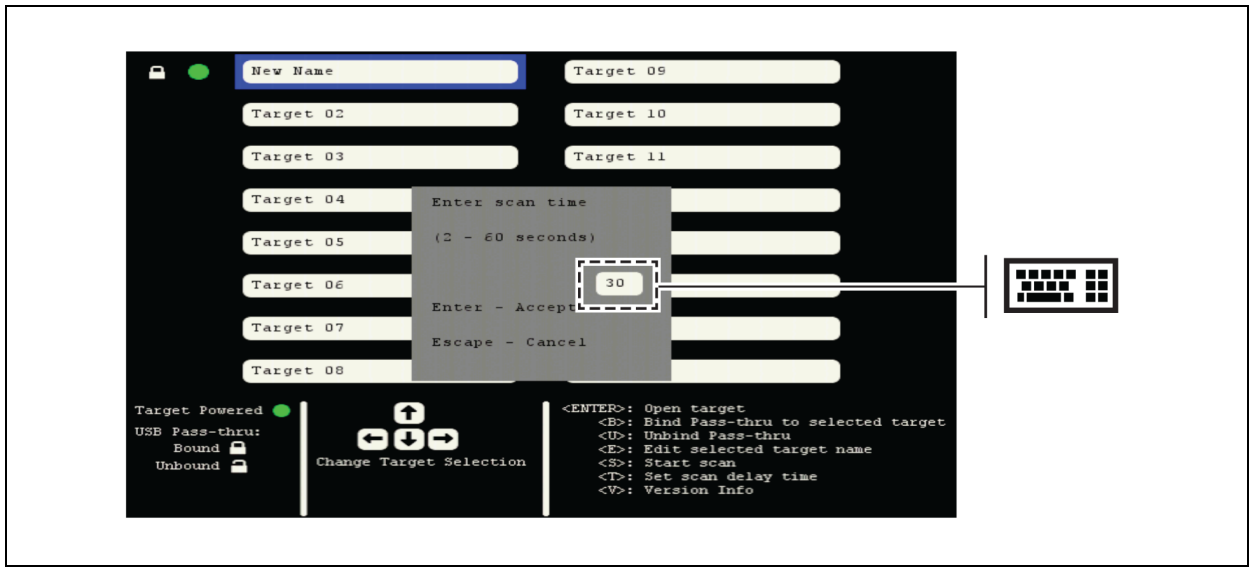
1. Use the arrow keys to navigate to the target field and press E.
2. Type the name in the target field.
3. Press Enter to save.

   -or-

   Press Esc to exit without saving.

To set a scan time and run a scan:

Figure 2.4 Enter Scan Time Dialog Box with Default Time



1. Press T and press Backspace to clear the existing scan time value.

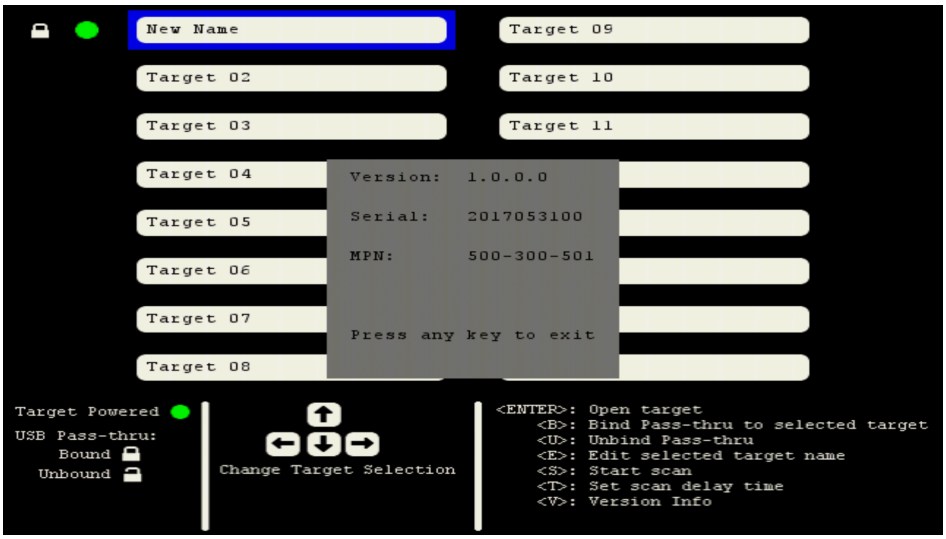
NOTE: The scan time value indicates seconds. The default scan time is 30 seconds.

2. Enter a value between 02 and 60.
3. Press Enter to save the scan time.
4. Press S to start the scan.

To view the firmware version:

Press V.

Figure 2.5 Firmware Version Window



2.3 Switching Between Targets

You can switch between connected target devices using the unit's front panel buttons, keystroke commands or through the on-screen display. The target device does not have to be powered on to be selected. The switch automatically selects port 1 by default.

2.3.1 Local port commands

The local port commands allow you to select a KVM target and toggle between current and previous active ports.

If you are using the on-screen display to toggle between and select ports, your selection is active immediately. If you are in command mode and selecting ports by keystroke, you must exit command mode to enable mouse movement and keystrokes on the target device. Pressing Enter or ESC at the end of a keystroke sequence exits command mode.

Table 2.5 Local Port Commands

KEYSTROKE	VALUE	ACTION
Ctrl+Ctrl+[nn]+Enter	Depending on the switch model, enter a value between 01 and 16 where nn is the value format. For example, 01 selects port 1.	Selects active KVM target.
Ctrl+Ctrl+L+[Backspace]+ [Enter or ESC]	N/A	Toggles between the current and previous active ports. Press and release **Backspace** until you reach the desired port.
Ctrl+Ctrl+L+[X ARROW]+ [Enter or ESC]	Press the up, down, right or left arrow for the variable X ARROW.	Selects the next higher numbered port (up and right arrows) or selects the next lower numbered port (down and left arrows). Press and release the arrow key until you reach the desired port.

2.4 Enabling Port Binding

By default, port binding is enabled for the two front panel USB pass-through ports. Port binding allows the two ports to be connected to the same target as the selected KVM session regardless of the target you select through the front panel buttons, keystroke commands or the on-screen display. When binding is

enabled, the internal USB hub and any devices that are connected to the front USB ports are automatically mapped to the target that is connected to the user through the local port connection. When you switch the KVM connection to a different port, the USB pass-through also switches to that port.

The pass-through ports are connected to a target by an on-board hub and a second USB connector. Each target port on the unit's back panel has two USB cables with connectors. The cable with the black connector is for the KVM connection and the cable with the yellow connector is for the USB pass-through connection. The two front panel pass-through ports are mapped to an internal USB hub and pushed to the yellow USB cable. When you switch to a port, the keyboard and mouse traffic from the local port routes through the black connector to the target.

You can enable and disable binding using keystroke commands or the on-screen display. When port binding is disabled, pass-through port selection is independent of the KVM session selection and you can switch a USB hub and its connected devices to a port different from what you are connected to. You can only use keystroke commands to select a target for the pass-through ports. If the target selected for pass-through is different from the target selected for the KVM session, the green LED on the selected pass-through port flashes slowly and the green LED for the selected KVM session illuminates.

2.4.1 Pass-through USB port commands

The pass-through USB port commands allow you to select a target PC to control the USB hub ports, move or disable the ports and enable or disable port binding. When you initiate keystroke port selection, USB pass-through port binding is automatically disabled.

Table 2.6 Pass-through USB Port Commands

KEY SEQUENCE	VALUE	ACTION
Ctrl+Ctrl+U+[nn]+Enter	Enter a value between 01 and 16 where nn is the value format.	Selects the PC target that controls the USB hub ports.
Ctrl+Ctrl+U+C+Enter	N/A	Moves USB hub ports to currently selected KVM session channel.
Ctrl+Ctrl+U+D+Enter	N/A	Disables USB hub ports. No target connected to hub.
Ctrl+Ctrl+B+ +Enter	N/A	Enables port binding.
Ctrl+Ctrl+B- +Enter	N/A	Disables port binding.

2.5 Operating Scan Mode

The switch supports Scan mode which allows you to scan for newly connected target devices. You can control Scan mode with keystroke commands or from the on-screen display. You can set a scan to run in intervals between 2 and 60 seconds. The default scan interval is 30 seconds. The target device must be connected to a target port and powered on to be detected during Scan mode.

2.5.1 Scan mode commands

The Scan mode commands allow you to determine scan intervals, start or stop a scan and enable or disable mouse movement. When you initiate interval scanning, USB pass-through port binding is automatically disabled.

When interval scanning is stopped, USB pass-through port binding is automatically enabled unless you disable it by keystroke command (Ctrl+Ctrl+B-]+Enter) or through the on-screen display.

Table 2.7 Scan Mode Commands

KEY SEQUENCE	VALUE	ACTION
Ctrl+Ctrl+S+[nn]+Enter	Enter a value between 02 and 60 where nn is the value format.	Sets the interval scan time; the default setting is 30 seconds.
Ctrl+Ctrl+S+G+Enter	N/A	Starts the interval scan function.
Ctrl+Ctrl+S+H+Enter	N/A	Stops the interval scan function.
Ctrl+Ctrl+SM++Enter	N/A	Enables mouse movement to stop scanning.
Ctrl+Ctrl+SM-+Enter	N/A	Disables mouse movement to stop scanning.

2.6 Cascading Units

The switches support one level of switch-to-switch cascading. You can connect a secondary switch to each port of a primary switch. You can connect targets to each port on a secondary switch, but you cannot connect additional switches to a secondary switch.

A cascading cable can be used to connect from a target port on the top-tier unit into a console port of the second-tier unit. You can use a cascading cable or the standard VGA cable for the connection.

Figure 2.6 Cascading Units Example Configuration

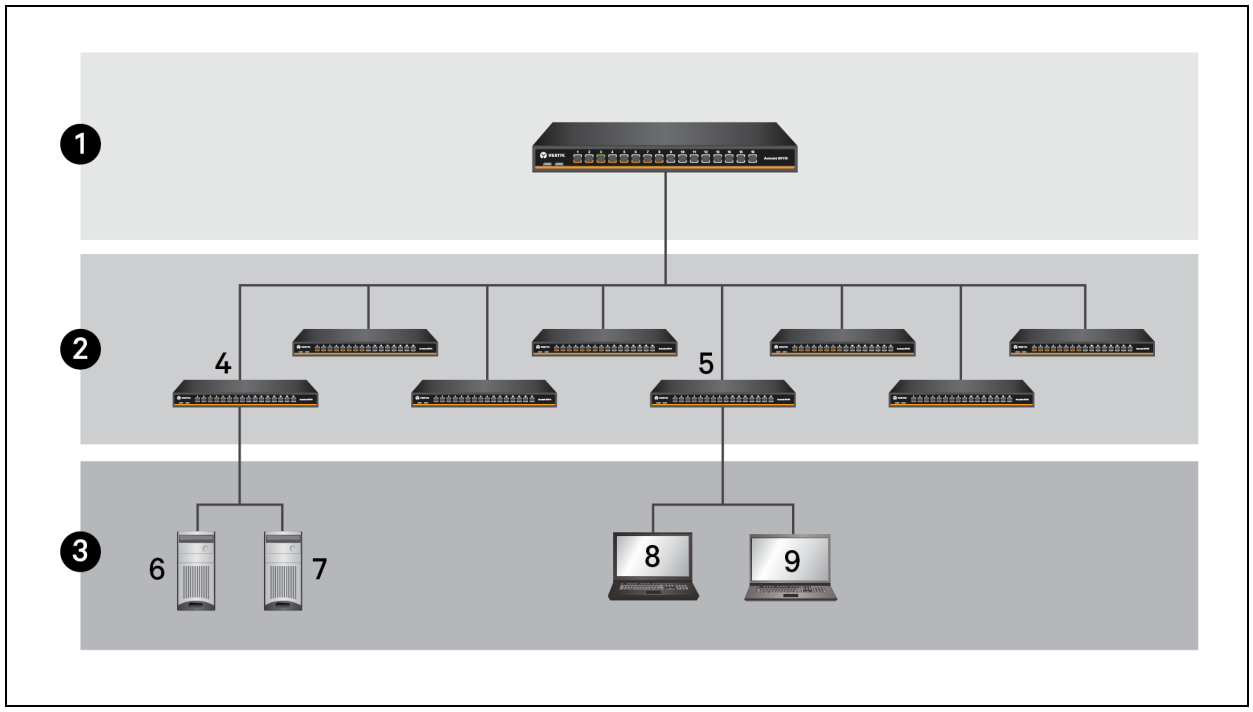


Table 2.8 Cascading Units Example Configuration Components

ITEM	DESCRIPTION
1	Primary switch - You can connect one secondary switch to each port on the primary switch.
2	Secondary switches - You can connect one target to each port on each of the secondary switches.
3	Secondary switch targets - You can only connect target devices to secondary switches. Secondary switches do not support third-tier switch connections.
4	Secondary switch connected to port 1 on the 16-port primary switch

ITEM	DESCRIPTION
5	Secondary switch connected to port 5 on the 16-port primary switch
6	Target device connected to port 1 on a 16-port secondary switch
7	Target device connected to port 2 on a 16-port secondary switch
8	Target Linux® device connected to port 8 on a 16-port secondary switch
9	Target Mac® device connected to port 12 on a 16-port secondary switch

To access the secondary unit's target devices using a hotkey sequence:

1. On the primary switch, select the port that is connected to the secondary switch.
2. Press Ctrl+Ctrl+T+[nn]+Enter where the variable nn signifies the two-digit port number connected to the cascaded unit.

NOTE: The primary and secondary hotkeys in an activation sequence must match (for example, Ctrl+Ctrl, Alt+Alt or Shift+Shift) to use the on-screen display hotkey combination.

2.7 Upgrading Firmware

You can upgrade the switch's firmware by connecting a USB Flash drive loaded with the latest firmware file to the back panel USB 2.0 Type-A connector port. The Flash drive must be FAT32 formatted, and loaded with the following upgrade files:

- cricket.bin – upgrade file for the main processor
- tpu.bin – upgrade files for target processors
- fpga.bin – upgrade for field-programmable gate array (FPGA)

NOTE: The fpga.bin file is only applicable for units with on-screen display capability.

During the process, the switch determines if the upgrade files' versions detected on the USB Flash drive are different from the versions on the switch. If new versions are detected, the unit automatically upgrades and reboots. When the switch is updating, both LEDs for each port illuminate sequentially in a scrolling pattern until the update is complete. When the update is complete, the LEDs flash on and off indicating the switch rebooted and is ready for use.

NOTE: You can also use this process to downgrade firmware.

To upgrade the firmware:

1. Download and copy the upgrade files to the top level of the Flash drive.
2. Insert the Flash drive into the firmware upgrade USB 2.0 Type-A port on the back panel.

To confirm the firmware version:

1. Before removing the Flash drive from the switch, press Ctrl+Ctrl+V+Enter to write the version.txt file to the drive.
2. Remove the Flash drive from the switch and insert it into a computer.
3. Navigate to and open the version.txt file on the Flash drive to view the unit's firmware version.

3 APPENDIX

This section contains the Product Specifications.

Appendix A: Product Specification

The following table lists the product specifications for the Vertiv™ AutoView™ AV104/AV108/AV116 switches.

Table 3.1 Product Specification

SPECIFICATION	DESCRIPTION
Enclosure	Metal
Power input connector	100-240 V, 50-60 Hz AC, single IEC 60320 C14 connector
Number of support target devices	• AV104: 4 • AV108: 8 • AV116: 16
Dimensions	WxHxD: 17.1 x 1.70 x 4.75 inches (434.35 x 43.18 x 120.65 mm)
Operating temperature	32° to 122° F (0° to 50° C)
Storage temperature	-22° to 158° F (-30° to 70° C)
Operating humidity	20-85% relative humidity, non-condensing
Storage humidity	5-95% relative humidity at a maximum wet bulb temperature of 38.7° C

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