Cisco Expressway CE1100 Appliance

Installation Guide

First Published: November 2015

Last Updated: March 2020

X8.10

Preface

Change History

Table 1   Installation Guide Change History

Date	Change	Reason
March 2020	Specify that Expressway software versions after X12.5.x are not supported.	Software lifecycle
August 2018	Clarified switch requirements for SFPs in Installation section.	Clarification
August 2018	Guide now applies to both the Expressway and VCS products (formerly separate versions existed for the two products).	Consolidation
September 2017	Clarified methods for connecting to Expressway serial console.	Secure install wizard not exposed on KVM console
July 2017	Removed 10 Gbps NIC requirement for large systems.	Updated for X8.10
April 2017	Added details for new hard disk and the new CIMC interface.	Republished
December 2016	Updated with new secure install wizard instructions.	Updated for X8.9
June 2016	Updated stylesheet, moved history to preface, added TOC.	Updated for X8.8
November 2015	Initial release.	

Contents

Introduction

About This Document

This Expressway guide also now applies to VCS. Any VCS-specific information is noted where necessary in the guide. (Older VCS guides on Cisco.com are still valid for the VCS versions they apply to—as specified on the title page of each guide.)

This document describes how to install a CE1100 appliance into your video network. It contains information on:

- Preparing the installation.
- Installing the hardware.
- Performing the initial configuration.
- Troubleshooting the installation.

Required Expressway / VCS Software Versions

The appliance ships with the product software pre-installed. You can upgrade the software later if necessary.

The appliance supports software version X8.6.1 or later up to X12.5.x. Versions later than X12.5.x are not supported.

About the Cisco Expressway Appliance

The Cisco Expressway appliance described in this document is a CE1100, which is based on a UCS C220 M4L. For more detailed information on installing this appliance, see the *Cisco UCS C220 Server Installation and Service Guide*.

Table 2   Components for the CE1100 Appliance

Item	Part	Quantity
Chassis	UCS-C220-M4L	1
Processor	UCS-CPU-E52637D (3.5 GHz/ 4 core - hyper threaded)	2
RAM	UCS-MR-1X162RU-A (16GB)	2
Hard Disk	UCS-HD2T7KL12G	2
Onboard SAS Controller	UCSC-MRAID12G (Cisco 12G SAS Modular Raid Controller, 1 GB cache and SuperCap)	1
NIC	N2XX-AIPCI01 (Intel X520 Dual Port 10Gb SFP+ Adapter)	1
	EXP-10GSFP-SR (10Gb SR Fiber SFP)	2
	EXP-1GSFP-T (1Gb Copper SFP)	2
PSU	UCSC-PSU1-770W & power cable	2
TPM	UCSX-TPM2-001 (Trusted Platform Module)	1
SD Card	UCS-SD-32G-S (32GB SD Card for UCS servers)	1
Miscellaneous	UCSC-RAILF-M4 (Rail kit)	1
	UCSC-HS-C220M4 (Heat sink)	2
	UCSC-MLOM-BLK (MLOM blank panel)	1

Table 2   Components for the CE1100 Appliance (continued)

	UCSC–BBLKD–L (3.5-inch HDD blank panel)	2
	Accessory Kit	1
	Bezel	1

The following components are field replaceable:

- Hard disks
- PSUs
- 1 Gb and 10 Gb SFP modules

Caution: To avoid compatibility issues, Cisco recommends that you only use the SFPs supplied with your unit. They must be inserted in LAN 1 and LAN 2, which are the designated SFP ports. When inserting the SFPs into the unit, you cannot mix the type of SFP. Either insert two 10 Gb fiber SFPs or two 1 Gb copper SFPs.

To begin a Return Material Authorization (RMA) go to http://www.cisco.com/web/ordering/cs_info/or3/o32/Return_a_Product/WebReturns/product_Online_web_returns.html.

Related Documents

- **For Expressway:** The *Cisco Expressway Administrator Guide* on the Expressway Maintain and Operate Guides page describes how to maintain and operate the Cisco Expressway software.
- **For Expressway:** The *Cisco Expressway Cluster Creation and Maintenance Deployment Guide* on the Expressway Configuration Guides page describes how to create and maintain a cluster of Cisco Expressways.
- **For VCS:** The *Cisco TelePresence Video Communication Server Administrator Guide* on the VCS Maintain and Operate Guides page describes how to maintain and operate the Cisco Expressway software.
- **For VCS:** The *Cisco VCS Cluster Creation and Maintenance Deployment Guide* on the VCS Configurations Guides page describes how to create and maintain a cluster of Cisco Expressways.

Training

Training is available online and at our training locations. For more information on all the training we provide and where our training offices are located, visit www.cisco.com/go/telepresencetraining

Glossary

A glossary of TelePresence terms is available at: https://tp-tools-web01.cisco.com/start/glossary/

Preparing to Install

Environmental and Power Specifications

To view environmental and power specifications for the appliance server, see
http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/hw/C220M4/install/C220M4/spec.html.

Note: If migrating from an older appliance, be aware—while efficient once running—the CE1100 is capable of consuming more power. It has a larger capacity and has greater inrush at power-on. Also, unlike the first-generation appliance or the CE500, it has two power supplies. Refer to the power specifications for more information.

Unpacking the Unit and Preparing the Installation

See http://www.cisco.com/en/US/docs/unified_computing/ucs/c/hw/C220/install/install.html for information on:

- Unpacking and inspecting the server.

  The CE1100 is shipped with 2 x 10 Gb fiber SFPs and 2 x 1 Gb copper SFPs.
- Installation guidelines.
- Rack requirements.
- Equipment requirements.
- Slide rail adjustment range.

Locating Serial Numbers

The Cisco Expressway appliance displays two serial numbers:

- UCS serial number:
  - Has the format FCHxxxxxxxx.
  - Is displayed on the hardware's pull-out tab and in the CIMC web interface.
- Application/Software serial number:
  - Has the format 52DNNNNN, where D indicates the CE1100 series and N are numbers.
  - Is displayed in the Cisco Expressway web interface, on the underside of the pull-out tab, and is available in the SSH session.
  - Must be supplied to obtain release and option keys.

Installation

Task 1: Install the Unit into a Rack

For information on installing the unit in the rack, see http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/hw/C220M4/install/C220M4/install.html.

Task 2: Insert the SFP Network Connection Modules

The CE1100 ships with two 10 Gb fiber small form-factor pluggable (SFP) transceivers and two 1 Gb copper SFPs.

CAUTION: To avoid compatibility issues, the following restrictions apply to SFP modules:

- Only use the SFPs supplied with the appliance.
- Insert the SFPs in the designated SFP ports, LAN 1 and LAN 2.
- Do not mix SFPs. Either insert two 10 Gb fiber SFPs or two 1 Gb copper SFPs.

The following requirements also apply to the SFPs:

- Although SFPs support auto-negotiation for speed and duplex, they only negotiate one speed—to the stated speed of the SFP and full duplex. This means you must connect them to a switch port that supports the stated speed and full duplex:
  - 10 Gb full duplex for fiber SFPs.
  - 1 Gb full duplex for copper SFPs.
- If you are installing the CE1100 in an environment that only supports 100 Mb, such as an older DMZ implementation, a switch is required to handle the speed negotiation from 1 Gb to 100 Mb.

Note: From X8.10, the requirement to have a 10 Gbps NIC in order to achieve the scalability of a large system is removed. It is now possible to have the capacity of a large system with a 1 Gbps NIC subject to your bandwidth constraints.

Task 3: Connect and Power on the Unit

First connect the power cords to the unit, and then connect them to a grounded AC power outlet.

See http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/hw/C220M4/install/C220M4/spec.html for power specifications.

Note: The Cisco Integrated Management Controller (CIMC) has a power monitoring utility that you can use to track power consumption.

The power button is on the top-left corner of the front panel.

When you plug in the CE1100 appliance for the first time, leave it in standby mode for 5 minutes before pressing the power button. This time allows the onboard CIMC to boot; ready the self-test; perform a hardware check; and prepare the power characterization test. Failure to wait adequate time will postpone the power characterization test until the next boot.

When you power on the unit, the system performs a self-test and the unit automatically restarts. This restart is expected behavior.

The first boot takes approximately 5 minutes due to the initial power characterization test. Any subsequent boot of the system takes approximately 2 minutes.

The power characterization test displays the message `Performing Platform Characterization …` when running.

If the power characterization test runs on subsequent bootups, causing a lag in the boot time, it is important that you disable it. It is especially important to disable the test in a clustered environment to avoid issues. See *Specific Issues* in the Troubleshooting, page 15 section for more information.

Task 4: Verify Power Status

Check the Power Status LED on the front of the appliance:

- Off. No AC power is present in the appliance.
- Amber. Appliance is in standby power mode. Power is supplied only to the CIMC and some motherboard functions.
- Green. Appliance is in main power mode. Power is supplied to all server components.

Configure

This section describes the different ways you can connect to the Cisco Expressway and perform the initial configuration.

Connect to the Cisco Expressway

Before you can use the Cisco Expressway, you must configure its IPv4 and/or IPv6 address, subnet mask, default gateway and set the root and admin password. You can also choose to enable the web UI and SSH access. Consult your network administrator for information on which addresses to use. Note that the Cisco Expressway must use a static IP address.

First you need to connect an Ethernet LAN cable from the LAN 1 port on the rear of the unit to your network.

(The LAN 1 port is the left-hand port of the dual port adapter on the rear panel of the unit; see Figure 1   Rear Panel Showing Ports, page 10)

For initial configuration, you must use one of these methods to access the Expressway's serial console:

- Direct connection: Connect a PC to the Cisco Expressway serial port using the supplied cable. You may need to get a USB to DB9 converter cable if your computer does not have a DB9 serial port.
- Remote connection: Use the Cisco Integrated Management Controller (CIMC) tool to connect to the Expressway console using Serial over LAN.

Caution: You cannot use KVM, or vKVM, for initial installation.

This is because the secure install wizard, introduced in X8.9, is not exposed on the KVM console. It also does not show on the VGA output port. The wizard waits indefinitely for you to complete your secure installation on the Expressway's *serial* console. If you are trying to recover from this situation, connect to the serial console as described below and then issue the ctrl+D sequence to the console. The secure install wizard restarts and then you can configure the Expressway.
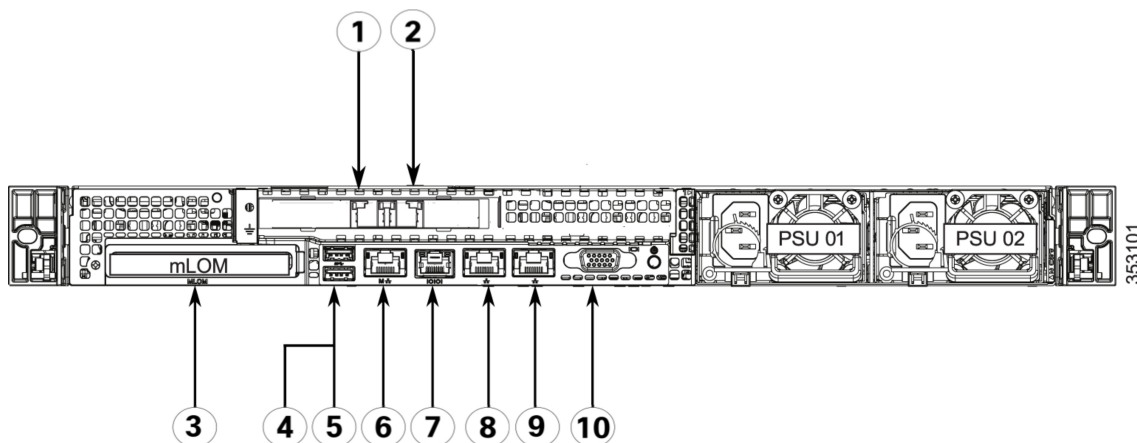
Figure 1   Rear Panel Showing Ports

Table 3   Rear Panel Ports

1	LAN 1 (left-hand SFP port)
2	LAN 2 (right-hand SFP port)
3	Modular LAN-on-motherboard (MLOM) card slot

Configure

Table 3   Rear Panel Ports (continued)

4	USB 3.0 port
5	USB 3.0 port
6	CIMC port
7	Serial Port (RJ-45 connector)
8	LAN 3
9	LAN 4
10	VGA video port (DB-15)

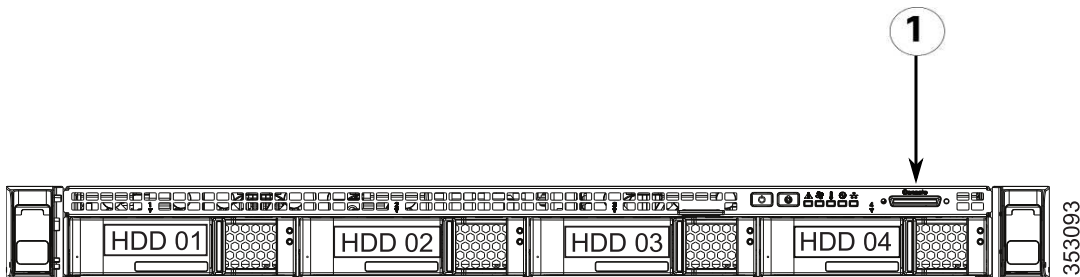**Figure 2   Front Panel Showing KVM Connector**

Table 4   Front Panel Ports

1	KVM console port

Directly Connect to the Expressway Console Using the Serial Port

1. Connect the supplied DB9 to RJ-45 cable from the PC (DB9 end) to the serial port on the rear of the unit (RJ-45 end)

   (The port is marked **10101**, see number 7 on).

   To ensure compatibility, use the blue serial cable supplied in the accessory pack. It is a cross-over cable, with the following pin assignments.

Male RJ45 pin	Female DB9 pin
1	8
2	6
3 TXD	2
4 GND	5
5 GND	5
6 RXD	3
7	4
8	7

   Note: If there is no DB9 port on your PC, you need a USB to DB9 (male).

2. Start a terminal emulator program (for example PuTTY) on the PC and configure it to use the PC's serial port as follows:

   – baud rate: 115200 bits per second

   – data bits: 8

   – parity: none

   – stop bits: 1

   – flow control (hardware and software): none

   Note: Do not leave a terminal emulator session open after it is no longer in use. An open session may cause issues during a system restart.

Remotely Connect to the Expressway Console Using CIMC Serial over LAN

The Cisco Integrated Management Controller (CIMC) is the management interface for the C-Series servers. The CIMC runs within the server, allowing remote administration, configuration, and monitoring of the server using web or Secure Shell (SSH) command line access.

Note: You need an additional IP address if you want to use the Cisco Integrated Management Controller (CIMC) tool. It can be a static IP address or assigned using DHCP.

Configure the CIMC IP address and password (once):

1. Connect your network to the CIMC port (port 6 in Figure 1   Rear Panel Showing Ports, page 10)

2. Connect the supplied KVM adapter (3-legged cable) to the console port at the front of the CE1100 (port 1in Figure 2   Front Panel Showing KVM Connector, page 11).

   Note: You are only using the KVM console to configure CIMC.

3. Connect a USB keyboard and VGA monitor to the KVM adaptor.

4. Switch on the monitor.

5. Switch on the CE1100 appliance.

6. Watch the boot process on the monitor.

7. Press F8 to enter the CIMC configuration.

8. Change the default CIMC password and configure the management interface IP address.

   You must set a strong password.

   We recommend that you leave the default NIC mode as *Dedicated* and NIC redundancy settings as *None*.

9. Press F10 to save your changes and Esc to exit.

   (You can disconnect the peripherals and the adapter)

You have now enabled the CIMC on this Expressway. For more on the CIMC, see the *Cisco UCS C-Series Integrated Management Controller Configuration Guides* on the CIMC Configuration Guides page.

Run CIMC from a remote host and enable Serial over LAN (once):

You can launch the CIMC user interface and manage the Expressway from any remote host that meets the following minimum requirements:

- Java Runtime Environment 1.6 or later.

- HTTP and HTTPS enabled.

- Adobe Flash Player 10 or later.

1. Use your web browser to go to the CIMC IP address you configured.

2. Log in using the credentials you created.

3. Click on the menu arrow in the top left corner.

4. Navigate to **Compute > Remote Management > Serial over LAN**.

5. In the **Serial over LAN Properties**, check **Enabled** and then click **Save Changes**.

   (SoL is disabled by default)

Connect to the Expressway console (any time you need to):

1. Use a terminal emulator to connect using SSH to the CIMC IP address.

2. Enter the default username of `admin` with your CIMC password and press `Enter`.

3. Type `connect host` and press `Enter`.

4. You are now connected using serial over LAN.

   If this is your first time connected to the Expressway's console, follow the install wizard prompts.

Configure the Cisco Expressway

If the system has just booted up, the terminal emulator program on the PC will display the Cisco Expressway's startup information. After approximately four minutes you will get to the Install Wizard. The system's services will restart after you have completed the Install Wizard and this is expected behavior. If the Cisco Expressway was already on when you connected to it, and you do not see the Install Wizard, press Ctrl+D to get to the wizard.

Note:

- If you encounter issues or enter incorrect information during the wizard you can press Ctrl+D to restart it.
- The pre-X8.9 default passwords of the admin and root accounts are well known. You must use strong passwords for these accounts. If your new system is on X8.9 or later, you must supply non-default passwords.
- The default timezone is UTC but you can search for your desired timezone. You can also change it later in the web interface by going to **System > Time**.
- The default values support tab completion.
- From X8.9.1 onwards the Install Wizard displays the serial number and release key, if available, for reference.

1. Follow the prompts given by the Install Wizard to specify the following:
   - Whether you want to use IPv4, IPv6 or Both.
   - The LAN 1 IPv4 subnet mask of the Cisco Expressway (if you have selected IPv4).
   - The IP address of the default gateway of the Cisco Expressway.
   - The root password.
   - The admin password.
   - Whether you want to enable the web UI.
   - Whether you want to use SSH to administer the Cisco Expressway.
   - The timezone.

2. After the wizard is finished the following message will appear:
   ```
   Installation wizard complete
   Press Enter to continue the boot and apply the configuration.
   ```
   Press **Enter**.

3. After it has applied the configuration and rebooted, the Cisco Expressway is ready to use. You can access the Cisco Expressway's web interface, if enabled, using the IP address assigned to the LAN 1 Ethernet port.

Use the Web Interface

Note:

- You must enter the address as HTTPS.
- We recommend enabling the web UI in the install wizard but it is also possible to access your system using CLI commands.

1. Open a browser window and in the address line type either:
   - The IP address of the Cisco Expressway (for example: https://10.0.0.1).
   - The FQDN of the Cisco Expressway (for example: https://mydomain.example.com).
   The **Login** page will appear.
2. Select **Administrator Login**.
3. Log in with a username of `admin` and your system password.
   You will be presented with the **Overview** page.

See the online help or *Cisco Expressway Administrator Guide* for information on the configuration options available for each page of the Cisco Expressway web interface.

Use the Command Line Interface (CLI)

The command line interface is available over SSH and through the serial port by default.

1. Start an SSH session.
2. Enter the IP address or FQDN of the Cisco Expressway.
3. Log in with a username of `admin` and your system password.
   You will see a welcome message.

For a full list of CLI commands available on the Cisco Expressway, see *Cisco Expressway Administrator Guide*.

Change Other System Settings

You are also required to configure the following:

- The system name of the Cisco Expressway. This is used by the Cisco TelePresence Management Suite (Cisco TMS) to identify the system. This can be set from the **System administration** page (**System > Administration**) on the web interface.
- Automatic discovery. If you have multiple Cisco Expressways in the same network you may want to disable automatic discovery on some of them. This can be set from the **H.323** page on the web interface (**Configuration > Protocols > H.323**).
- The DNS server address(es), if URI dialing or Fully Qualified Domain Names (FQDNs) are to be used. This can be set from the **DNS** page on the web interface (**System > DNS**).

See the online help or *Cisco Expressway Administrator Guide* for more information on these configuration options.

Check for Updates and Upgrading

To check whether your Cisco Expressway has the latest software installed go to http://software.cisco.com/download/navigator.html and navigate to the Cisco Expressway.

See the *Cisco Expressway Administrator Guide* for information on how to upgrade.

Caution: The CE1100 only supports software version X8.6.1 or later. If you are upgrading your hardware, do not downgrade to an unsupported software version.
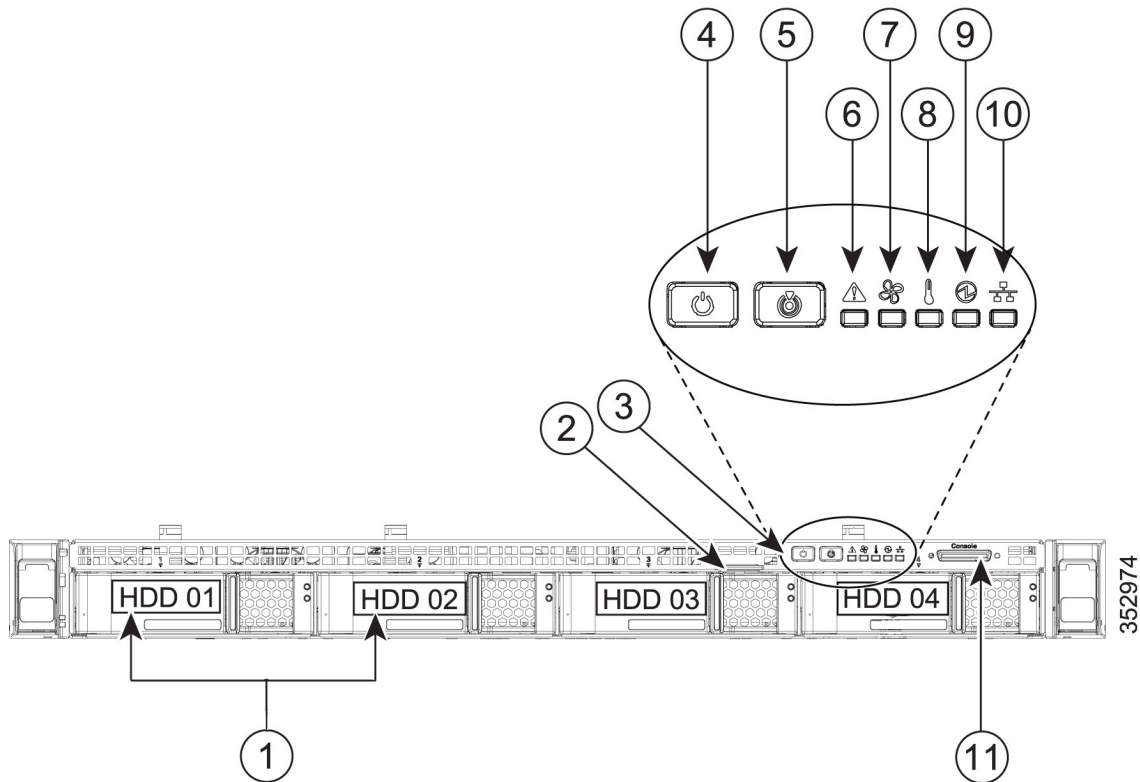
Troubleshooting

Locating LEDs and Components

Front View

Below is an illustration of the unit's front view and a list of the LEDs and components available.

Figure 3   Front View of the Cisco Expressway Unit

1	HD drive activity/fault LED
2	Identification button/LED
3	Operational panel buttons and LEDs
4	Power button/power status LED
5	Identification button/LED
6	System status LED
7	Fan status LED
8	Temperature status LED
9	Power supply status LED
10	Network link activity LED

11	KVM connector (for USB/VGA connection)

Rear View

Below is an illustration of the unit's rear view and a list of the LEDs and components available.

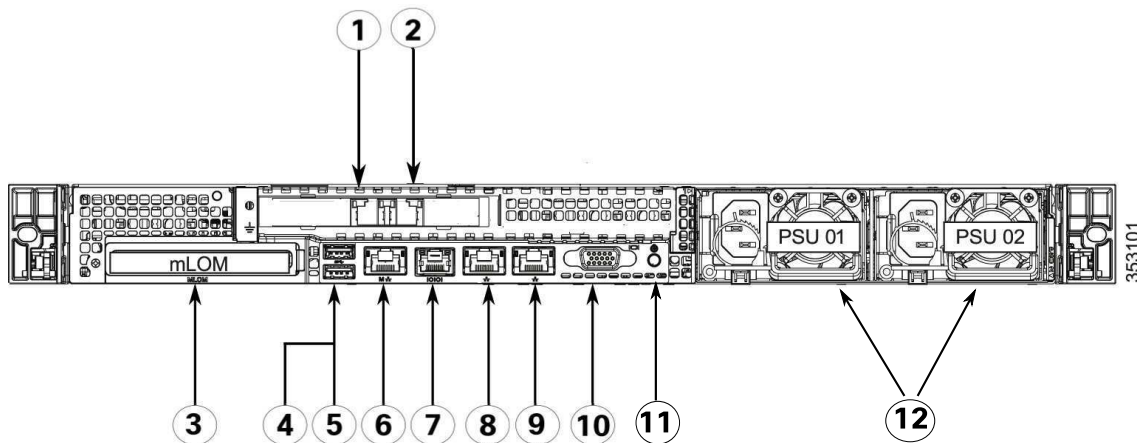**Figure 4   Rear View of the Cisco Expressway Unit**

1	LAN 1
2	LAN 2
3	Modular LAN-on-motherboard (mLOM) card slot
4	USB 3.0 port
5	USB 3.0 ports
6	1-Gb Ethernet dedicated management port
7	Serial port (RJ-45 connector)
8	LAN 3
9	LAN 4
10	VGA video connector
11	Rear unit identification button/LED
12	Power supplies (up to two, redundant as 1+1)

Definitions of LED States

For the definitions of the LED states see http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/hw/C220M4/install/C220M4/replace.html.

Reset from the Internal Recovery Partition (IRP)

The Cisco Expressway CE1100 appliance comes pre-installed with an SD card that you can use to complete a reinstall of your configuration. You must reset the SD card and enable the virtual drive before proceeding with the reinstall using the KVM console in the Cisco Integrated Management Controller (CIMC). Once the reset has been complete, ensure that you disable the virtual drive again.

Note: You must set up and access the CIMC to instigate a reinstall. See Remotely Connect to the Expressway Console Using CIMC Serial over LAN, page 12.

Reset the SD Card and Enable the Virtual Drive

1. Log in to the CIMC.
2. Click the menu arrow in the top left corner and navigate to **Storage > Cisco FlexFlash**.
3. Under the **General** tab, click on **Activate/Reset FlexFlash Controller** and click **ok** in the popup window that appears. The reset ensures your FlexFlash Controller is in the correct state.
4. Click the **Virtual Drives** tab.
5. Check the **Hypervisor** checkbox.
6. Click **Enable Virtual Drive** and confirm that you would like to enable the virtual drive.

IRP Reinstall Using the KVM Console

1. Launch the **KVM Console** using the icon in the CIMC.
2. Power up the CE1100 and, when prompted, press `F2` to enter `Setup`.
3. Select `Boot Options` and ensure that the `CiscoVD Hypervisor` is visible as one of the options.

Note: If the `CiscoVD Hypervisor` is not visible, you can select the `UEI: Built-in EFI Shell` boot option and change it to `CiscoVD Hypervisor`.

4. When prompted, press `F6` to enter the `Boot Menu`.
5. Select `CiscoVD Hypervisor` as the boot option.
6. When prompted, type `y` and press `Enter` to proceed with the reinstall.
7. When asked whether to **keep any release keys if possible**, type `y` and press `Enter`.
8. You will be given the option to add option keys. This can also be done later on the web interface or CLI.
9. Type `b` and press `Enter` to reboot.
10. Connect using serial to complete the reset.
11. You will see the factory installation wizard.
12. Your release key should be visible. Press `Enter` to proceed to the install wizard and follow the steps in Configure the Cisco Expressway, page 13

Note: If the SD card is unable to locate your release key, contact the Cisco Technical Assistance Center (TAC) for your release key and reapply it.

Disable the Virtual Drive After the Reinstall

1. During the reboot, press `F2` to enter `Setup`.
2. Under `Boot Options` select the `CiscoVD Hypervisor` and disable it.
3. Press `F10` to save and exit.
4. While your system is rebooting, return to the **Virtual Drive Info** tab – in the CIMC interface under **Storage** – and uncheck the **Hypervisor** check box to disable it.

Specific Issues

Active Options Only Indicates '150 traversal calls' or '3750 registrations' for Large Deployments

To utilize the large-scale capabilities (500 traversal calls and 5000 registrations) of the Cisco Expressway, the CE1100 unit must have an active 10 Gb network connection.

Note: From X8.10, the requirement to have a 10 Gbps NIC in order to achieve the scalability of a large system is removed. It is now possible to have the capacity of a large system with a 1 Gbps NIC subject to your bandwidth constraints.

Lag During Boot up Due to Power Characterization Check

The power characterization test is run only once when you plug in and power up the CE1100. If the power characterization test continues to run, causing a lag in the boot time, ensure that it is disabled in the CIMC. To do so:

1. Log in to the CIMC (see Remotely Connect to the Expressway Console Using CIMC Serial over LAN, page 12).
2. Go to **Server > Power Policies > Power Cap Configurations**.
3. Ensure that the **Power Characterization at Boot** check box is unchecked.
4. Click **Save Changes**.

Notices

Technical Support

If you cannot find the answer you need in the documentation, check the web site at http://www.cisco.com/cisco/web/support/index.html where you will be able to:

- Make sure that you are running the most up-to-date software.
- Get help from the Cisco Technical Support team.

Make sure you have the following information ready before raising a case:

- Identifying information for your product, such as model number, firmware version, and software version (where applicable).
- Your contact email address or telephone number.
- A full description of the problem.

To view a list of Cisco TelePresence products that are no longer being sold and might not be supported, visit: http://www.cisco.com/en/US/products/prod_end_of_life.html and scroll down to the TelePresence section.

Accessibility Notice

Cisco is committed to designing and delivering accessible products and technologies.

The Voluntary Product Accessibility Template (VPAT) for Cisco Expressway is available here:

http://www.cisco.com/web/about/responsibility/accessibility/legal_regulatory/vpats.html#telepresence

You can find more information about accessibility here:

www.cisco.com/web/about/responsibility/accessibility/index.html

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The following information is for FCC compliance of Class B devices: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If the equipment causes interference to radio or television reception, which can be

determined by turning the equipment off and on, users are encouraged to try to correct the interference by using one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Modifications to this product not authorized by Cisco could void the FCC approval and negate your authority to operate the product.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved.

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