CSG5000 Hardware Guide

At a Glance

The Versa Cloud Services Gateway (CSG) 5000 series appliances deliver carrier-grade reliability, high performance, and high computational capacity for enterprise-grade routing, SD-WAN, and next-generation security scenarios. They are designed for WAN edge deployments in large regional offices, campus sites, or data centers that require advanced secure SD-WAN along with comprehensive advanced application and cloud-intelligent SD-WAN and SASE services on-premises.

The CSG5000 series appliances enable secure, scalable, and reliable enterprise-wide networking.

CSG5000 series appliances run Versa Operating System™ (VOS™) software, which provides comprehensive integrated security, routing, SD-WAN, multitenancy, NGFW, UTM, and analytics in a single operating system.

Versa Networks management and control software, including Versa Director and Versa Analytics, support CSG5000 series appliances. Versa Director supports configuration, monitoring, and provisioning of CSG5000 series appliances, and Versa Analytics provides device, network, and security analytics. Managed service providers (MSPs) and enterprises of all sizes can deploy CSG5000 series appliances for scalable managed services.

The CSG5000 series appliances come with LAN and WAN ports, including four QSFP28-based 100-Gigabit Ethernet ports and sixteen SFP+/SFP28-based 10-Gigabit/25-Gigabit Ethernet ports. You can configure any of these ports as LAN or WAN ports even though CSG5000 interfaces are marked with LAN, WAN, and port numbers.

For Releases 22.1 and later, CSG5000 series appliances support hardware-based egress class of service (CoS) and shaping for Intel E810-based adapters, which support data rates up to 100 Gbps interfaces. You can configure four traffic classes at the interface level. The four interface-level traffic classes are scheduled as priority queues. There is only a single queue per traffic class. You can configure each traffic class for committed and maximum bandwidths as a percentage of line rate (that is, the interface transmit, or Tx, rate) or as an absolute rate, in kilobits per second. The traffic classes are scheduled as work conserving; that is, a traffic class can burst to its peak rate to consume any unused bandwidth from other traffic classes that are operating below their committed rate. Note that for hardware-based QoS, only interface-level shaping is supported. No other egress CoS and shaping configurations, including VLAN and adaptive shaping, are supported. For more information, see Configure CoS.

CSG5000 series appliances provide the following features:

- Sixteen 25/10-Gigabit Ethernet SFP+/SFP28 ports for LAN/WAN interfaces
- Four 100-Gigabit Ethernet QSFP28 ports for LAN/WAN interfaces

- Management Ethernet ports
  - One RJ45 Gigabit Ethernet port
  - One RJ45 RS232 serial console port
  - One intelligent platform management interface (IPMI) Gigabit Ethernet port for out-of-band management
  - Two USB 3.0 management ports
- Field replaceable 1+1 redundant, hot-swappable power supply units (PSUs) (front-to-rear airflow)
- Three field replaceable 2+1 redundancy fans for cooling (front-to-rear airflow)
- Rack-mountable in a 19-inch rack

CSG5000 Appliance Models

The CSG5000 series appliances is available in one model, the CSG5000, which has 2 x 1 TB of SSD storage.

Chassis Views

The CSG5000 series appliance front panel is the side of the appliance with LEDs for status and power, a soft reset button, and ports. It also has integrated rack-mount ears for installation in standard 19-inch racks. The rear panel has two hot-swappable power supply units, ground contact, and three cooling fans.

Figure 1 and Figure 2 show the front and rear panels of a CSG5000 series appliance.

Figure 1: Front Panel of a CSG5000 Series Appliance

Figure 2: Rear Panel of a CSG5000 Series Appliance

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CSG5000 Series Appliance Specifications

This article lists the chassis and regulatory compliance specifications for the Cloud Services Gateway (CSG) 5000 series appliances. It also lists certifications and export control classification numbers (ECCNs) for the appliance.

Chassis Specifications

Table 1 lists the chassis specifications for the CSG5000 appliance.

Table 1: CSG5000 Appliance Chassis Specifications

Item	Specification
Services and Slot Density	
RJ45 management port 10/100/1000BASE-T	1
RJ45 IPMI port 10/100/1000BASE-T	1
External USB ports (USB 3.0 Type A)	2
RJ-45 RS232 serial console port	1
10/25-Gigabit Ethernet SFP+/SFP28 ports for LAN/WAN interfaces	16
100-Gigabit Ethernet QSFP28 Ethernet ports for WAN/ LAN interfaces	4
Trusted Platform Module (TPM) interfaces	2.0 module
Power supply	850 W, field-replaceable 1+1 redundant, hot-swappable AC input
Hardware offload engines for cryptography and for compression and decompression	2 internal C627-based QAT engines
Power Specifications	

Item	Specification
AC input voltage	100–240 Volts
AC input line frequency	50–60 Hz
Maximum power rating	850 W
Typical power consumption	383 W
Power supply efficiency rating	Platinum (80 Plus) or better
Chassis Physical Specifications	
Height	3.46" (88 mm)
Width	17.24" (438 mm)
Depth	23.62" (600 mm)
Weight	33 lb (15 kg)
Height	2 RU
Package Specifications	
Height	12.00" (305 mm)
Width	24.80" (630 mm)
Depth	34.65" (880 ;mm)
Weight	55 lb (25 kg)
Operating Conditions	
Temperature	0°C to 40°C (32°F to 104°F) at sea level
Humidity	15% to 85% non-condensing
System cooling	Front-to-back airflow with 3 field-replaceable fans with built-in 2+1 redundancy
Storage Conditions	
Temperature	–20°C to 80°C (–4°F to 167°F) at sea level
Humidity	15% to 85% non-condensing

Regulatory Compliance

Table 2 lists the regulatory compliance specifications for the CSG5000 appliance chassis.

Table 2: CSG5000 Appliance Regulatory Compliance Specifications

Item	Specifications
Security	TPM 2.0
EMC	FCC (US), CE (EU), CB (IEC), UL
Environmental	RoHS 2.0

Certifications

CSG5000 appliances comply with the certificates listed in Table 3.

Table 3: CSG5000 Appliance Certifications

Region	Certifications
Australia and New Zealand	AS/NZS CISPR 32:2015 + AMD1:2020 Class A
European Union	CE—EU Directive 2014/30/EU • EN 55011:2016+A2:2021 Class A Group 1 • CISPR 11:2015+AMD1:2016+AMD2:2019 Ed 6.2 Class A Group 1 BS EN 55011:2016+A2:2021 Class A Group 1 • EN 55032:2015+A1:2020 Class A / BS EN 55032:2015+A1:2020 Class A CISPR 32:2015+AMD1:2019 Class A • EN IEC 61000-6-4:2019 / BS EN IEC 61000-6-4:2019 • EN IEC 61000-3-2:2019+A1:2021 Class A / BS EN IEC 61000-3-2:2019+A1:2021 Class A EN 61000-3-3:2013+A1:2019 / BS EN 61000-3-3:2013+A1:2019 • EN 55035:2017+A11:2020 / BS EN 55035:2017+A11:2020 EN IEC 61000-6-2:2019 / BS EN IEC 61000-6-2:2019 • EN 61000-4-2:2009 / EN IEC 61000-4-3:2020 / EN 61000-4-4:2012 • EN 61000-4-5:2014+A1:2017 / EN

Region	Certifications
	61000-4-6:2014+AC:2015 / EN 61000-4-8:2010 EN IEC 61000-4-11:2020+AC:2020-06
Japan	VCCI—CISPR 32:2016 Class A
United States and Canada	FCC CFR Title 47, Part 15, Subpart B, Class A ICE-003, Issue 7, October 2020 ANSI C63.4-2014 ANSI C63.4a-2017

Export Control Information

Table 4 lists the ECCN, HTS, and CCATS numbers for a CSG5000 appliance.

Table 4: ECCN, HTS, and CCATS Numbers

Item	ECCN Number	HTS Number	CCATS Number	Versa Use of Item
Embedded SSL software module	5E002	8542310000	G161333	SSL VPN proxy
IPsec toolkit used by Versa Operating System™ (VOS™) devices	5D002	8542310000	G161333	IPsec cryptographic module
CSG5000 series appliance	5A002A	8517620090	G191284	CSG5000 appliance

Restriction Level Information

A CSG5000 appliance complies with the restriction level listed in Table 5.

Table 5: CSG5000 Appliance Restriction Level Information

Versa Product	ECCN Number	HTS Number	CCATS Number	Export Classification Details	Encryption Status	Encryption Eligibility
CSG5000 appliance	5A002A	8517620090	G191284	CSG5000 export classification number assigned by BIS	Restricted	740.17(A) and (B)(2)(i)(A)

Front and Rear Panel Components

This article describes the front and rear panel components of a Cloud Services Gateway (CSG) 5000 series appliance. For the exact location of these components on the appliance, see At a Glance.

Front Panel

The front panel of a CSG5000 series appliance has a power button, a reset button, and four status LEDs located, as shown in Figure 1.

Figure 1: Front Panel of a CSG5000 Appliance

LEDs

Status LEDs provide the operational status of the appliance and interfaces. Table 1 lists the LEDs, their colors and states, and the status they indicate.

Table 1: Front Panel LEDs in a CSG5000 Appliance

LED	Color	Status
Power	Green	• Off—Appliance is not powered on.

LED	Color	Status
		• Green—Appliance is powered on.
Status	Green, Red	• Off—Appliance hardware is up, but there is a problem with the configur • Solid green—Controller connection is up and running, and probes and transmitted. • Blinking green—Controller connection is in the process of being establi • Solid red—Controller node or CA has rejected this appliance, there is a unreachable. • Blinking red—Controller node is unreachable or unresponsive.
Cloud	Green, Red	Currently not supported.

Power Button

Pressing the power on/standby button on the front panel of a CSG5000 series appliance turns the power on.

To turn the power off, use one of the following methods:

- Press and release the power on/standby button. This method initiates a controlled shutdown of applications and the operating system before the appliance enters standby mode.
- Press and hold the power on/standby button for 4 seconds or more. If an application stops responding, you can use this method to force a shutdown.

Reset Button

The Reset button on the front panel of a CSG5000 appliance resets the appliance to the factory-default settings. The reset functionality depends on the number of times you press the button within a span of 30 seconds, as described in Table 3. In between each press of the reset button, you must pause for a second to register the key press.

The Reset button is recessed so that it is not accidentally pressed while the appliance is operational.

To press the Reset button, use a narrow tool.

Table 3: Reset Button Press Behavior

Number of Presses	Behavior
2	Reset the appliance to the factory-default snapshot.

Number of Presses	Behavior
4	Reset the appliance to the branch prestaging configuration.
6	Reset the appliance to the branch staging configuration.
8	Reset the appliance to branch post-staging configuration.

Reset the Appliance from the CLI

You can reset the appliance to the factory-default configuration by issuing the request system reset CLI command. To do this, your first connect to the appliance through the serial console port or by using SSH.

The factory-default reset procedure can take up to 20 minutes to complete. Do not power off the appliance during this time.

To reset an appliance to the factory-default configuration:

1. To connect to the appliance through the serial console port, see Configure a Management Console to Connect to a CSG5000 Appliance.
2. To connect to the appliance using SSH, connect your PC to the management port of the appliance. For the port mapping on the CSG5000 appliance, see Interface Numbering. The management port has the default static IP address 10.10.10.10/24. Configure the PC IP address to any IP from this segment, for example, 10.10.10.1/24. Open an SSH session to the appliance using its IP address, 10.10.10.10.
3. Log in to the appliance using the username "admin" and the password "versa123".
4. Start the CLI:

   ```
   % cli
   ```

5. Issue the following command to reset the configuration to the factory default. If the current software version on the appliance is the same as that of the factory reset snapshot, the procedure takes about 10 minutes to complete. If the software versions are different, the procedure takes about 20 minutes to complete. Do not power off the appliance during the process.

   ```
   # request system reset
   ```

6. Verify that all Versa services are running by issuing the **vsh status** command from the Linux bash CLI. The following is a sample output of this command. If all the services are shown as stopped, issue the **vsh start** command from the Linux bash CLI to start them manually.

   ```
   # vsh status
   versa-service    is Running, [*] process 6784
   versa-infmgr     is Running, [-] process 5623
   versa-rfd        is Running, [-] process 5838
   versa-vmod       is Running, [-] process 5839
   versa-ip2user    is Running, [-] process 5844
   versa-imgr       is Running, [-] process 5848
   versa-acctmgrd   is Running, [-] process 5845
   ```

```
versa-fltrmgr    is Running, [-] process 5648
versa-vstated    is Running, [-] process 5625
versa-addrmgrd   is Running, [-] process 5857
versa-rt-cli-xfm is Running, [-] process 5798
versa-rtd        is Running, [-] process 5827
versa-dhcpd      is Running, [-] process 5620
versa-eventd     is Running, [-] process 5843
versa-vrrpd      is Running, [-] process 5643
versa-dnsd       is Running, [-] process 5646
versa-ppmd       is Running, [-] process 5793
versa-snmp-xform is Running, [-] process 5800
versa-certd      is Running, [-] process 5849
versa-ntpd       is Running, [*] process 5612
versa-dhclient6  is Running, [-] process 5807
versa-redis      is Running, [-] process 6927
versa-av-redis   is Running, [-] process 5003
versa-spackmgr   is Running, [-] process 5832
versa-monit      is Running, [*] process 6078
versa-confd      is Running, [*] process 4798
versa-fail2ban   is Running, [*] process 6093
versa-auditd     is Running, [*] process 6116
versa-nodejs     is Running, [-] process 5775
```

7. Power off the appliance:

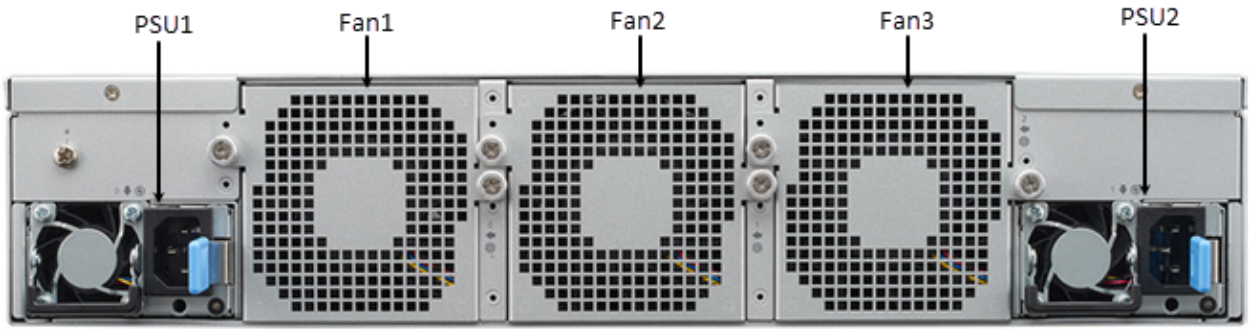
```
# sudo poweroff
```

Rear Panel

The rear panel of a CSG5000 series appliance has the following components, as shown in Figure 2:

- Two hot-swappable power supply units (PSUs), each 850 W, that provide 1+1 redundancy with front-to-back airflow
- Three front-to-back cooling field-replaceable fans that provide 2+1 redundancy

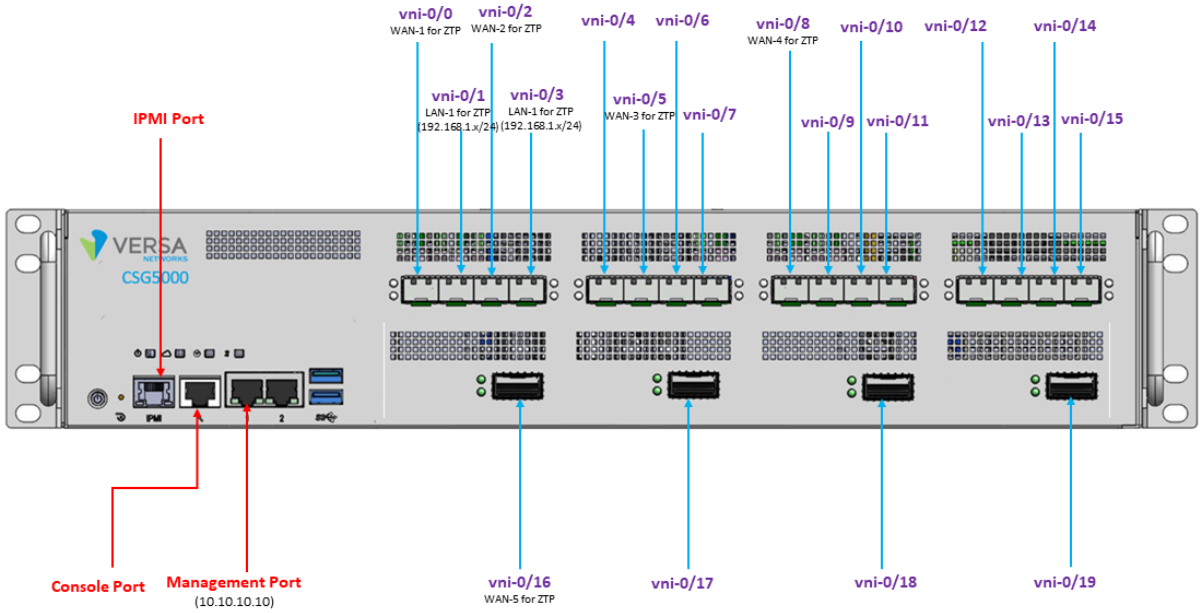
Figure 2: Rear Panel of a CSG5000 Appliance



Interface Numbering

Figure 1 shows the mapping of the Ethernet ports to virtual network interface (VNI) numbering for the CSG5000 series appliance.

Figure 1: CSG5000 Port-to-VNI Mapping



Power Supply and Airflow

This article describes the AC power supply and airflow requirements for Cloud Services Gateway (CSG) 5000 series appliances.

AC Power Supply

By default, CSG5000 appliances ship with redundant, hot-swappable AC power supply units (PSUs). These are modularized power supply units that can be removed from the appliance.

Table 1 describes the AC power supply specifications for each power supply unit.

Table 1: CSG5000 AC Power Supply Specifications

Item	Specification
AC input voltage	100–240 V

Item	Specification
AC input line frequency	50–60 Hz
PSU	Internal 850 W, field-replaceable, 1+1 redundant AC input, hot-swappable

Airflow Requirements

The CSG5000 series appliances have 2+1 redundant fans, which are hot swappable in the field. The fans provide front-to-back cooling.

Validated SFPs for CSG5000 Appliances Series Appliances

This article lists the small form-factor pluggable (SFP/SFP+) optics supported on the Cloud Services Gateway (CSG) 5000 series appliance fiber interfaces, and it describes the remote switches that have been tested with the SFPs.

Supported VNI Ports

Table 1 describes the VNI ports and supported transceivers on the CSG5000 series appliance.

Table 1: VNI Ports and Interfaces Supported on the CSG5000 Series Appliance

Appliance	Ports	Supported SFP/SFP+
CSG5000	vni-0/0 through vni-0/15	1/10/25-Gigabit Ethernet fiber ports
CSG5000	vni-0/16 through vni-0/19	100-Gigabit Ethernet fiber ports Direct attach copper cable (copper DAC)

Supported 1-Gigabit Ethernet SFP Transceivers

Table 2 describes the 1-Gigabit Ethernet SFP transceiver modules supported on the CSG5000 series appliance.

Table 2: 1-Gigabit Ethernet SFP Transceiver Modules Supported on the CSG5000 Series Appliance

Type	Manufacturer	Part Number	vni-0/0 through vni-0/15	Transceiver Description
Short-reach (SR)	Finisar	FTLF8519P3BNL	Yes	1000BASE-SX Ethernet 500-m extended temperature SFP+

Type	Manufacturer	Part Number	vni-0/0 through vni-0/15	Transceiver Description
				optical transceiver
Long-reach (LR)	Finisar	FTLF1318P3BTL	Yes	1000BASE-LX Ethernet 10-km industrial temperature Gen 3 SFP+ optical transceiver

Supported 10-Gigabit Ethernet SFP+ Transceivers

Table 3 describes the 10-Gigabit Ethernet SFP+ transceiver modules supported on the CSG5000 series appliance.

Table 3: 10-Gigabit Ethernet SFP+ Transceiver Modules Supported on the CSG5000 Series Appliance

Type	Manufacturer	Part Number	vni-0/0 through vni-0/15	Transceiver Description
Short-reach (SR)	Finisar	FTLX8574D3BCL	Yes	10GBASE-SR/SW 400-m multimode datacom SFP+ optical transceiver
Long-reach (LR)	Finisar	FTLX1471D3BCL/ FTLX1475D3BCL	Yes	10GBASE-LR/LW 1310-m single-mode datacom SFP+ optical transceiver

Supported 25-Gigabit Ethernet SFP28 Transceivers

Table 4 describes the 25-Gigabit Ethernet SFP28 transceiver modules supported on the CSG5000 series appliance.

Table 4: 25-Gigabit Ethernet SFP28 Transceiver Modules Supported on the CSG5000 Series Appliance

Type	Manufacturer	Part Number	vni-0/0 through vni-0/15	Transceiver Description
Short-reach (SR)	Finisar	FTLF8536P4BCL	Yes	25-Gigabit Ethernet 850-nm SFP28 100-m multimode

Type	Manufacturer	Part Number	vni-0/0 through vni-0/15	Transceiver Description
				optical transceiver
Long-reach (LR)	Finisar	FTLF1436P3BCL	Yes	25-Gigabit Ethernet 1310-nm SFP28 10-km single mode optical transceiver

Supported 100-Gigabit Ethernet QSFP28 Transceivers

Table 5 describes the 100-Gigabit Ethernet QSFP28 transceiver modules supported on the CSG5000 series appliance.

Table 5: 100-Gigabit Ethernet QSFP28 Transceiver Modules Supported on the CSG5000 Series Appliance

Type	Manufacturer	Part Number	vni-0/16 through vni-0/19	Transceiver Description
Short-reach (SR)	Finisar	FTLC9558REPM/ FTLC9555REPM	Yes	100-m parallel MMF 100-GB QSFP28 multimode optical transceiver
Long-reach (LR)	Finisar	FTLC1154RDPL/ FTLC1156RDPL	Yes	10-km 1310-nm 100-GB QSFP28 single-mode optical transceiver
Direct attach copper cable (DAC)	Finisar	QSFP-100G	Yes	QSFP-100G-CU5M–compatible 100-GB QSFP28 passive direct-attach copper cable

Compatible Remote Switches

The following switches have been tested with a 1-Gigabit Ethernet link connection to the CSG5000 series appliance:

- Cisco Nexus-3048T
- Dell S3048 and S4128F switches
- Juniper EX2200

Connection Recommendations

The following are recommendations for connecting the CSG5000 series appliance at 10/25/100-Gigabit Ethernet speeds:

- After you insert an SFP or change the SFP speed, you must disable and then re-enable the VNI interface on the CSG5000 series appliance.
- If the configuration on the remote device changes, you must disable and then reenable the VNI interface on the CSG5000 series appliance.
- Ensure that you have enabled the 1-Gigabit Ethernet interface in the Versa Operating System™ (VOS™) software.
- For 1-Gigabit Ethernet SFPs, you must turn off autonegotiation on the remote device, and then you must set the connection speed to 1-Gigabit Ethernet. For example, for Cisco switches, in the interface configuration, configure the speed to 1000:

  ```
  interface Ethernet 1/25
  speed 1000
  ```

  For Juniper switches, configure no-autonegotiation on the interface:

  ```
  enable;
  ether-options {
      no-auto-negotiation;
      link-mode full-duplex;
      speed {
          1g;
       }
  }
  ```

Note: Before you order units in bulk, validate connections with the target remote device in a lab or testing environment to ensure that there are no compatibility or link issues.

Installation Guidelines

This article provides general safety standards and warnings related to installing or connecting a Cloud Services Gateway (CSG) 5000 series appliance.

General Safety Guidelines

Caution: Before installing or removing a CSG5000 series appliance, ensure that the appliance chassis is electrically connected to ground. When you are installing or removing an appliance, ensure that you wear an ESD grounding wrist strap. To put the ESD grounding strap on properly, attach it to an ESD point, and then place the other end of the strap around your bare wrist, making good skin contact. Failure to use an ESD grounding strap could damage the appliance.

- Install the CSG5000 series appliance in compliance with the following local, national, and international electrical codes:
  - United States—National Fire Protection Association (NFPA 70), United States National Electrical Code.

    - Canada—Canadian Electrical Code, Part 1, CSA C22.1.
    - Other countries—International Electromechanical Commission (IEC) 60364, Part 1 through Part 7. Evaluated to the TN power system.
- Locate the emergency power-off switch in the installation area. In case of an electrical accident, turn off the power quickly.
- Disconnect power to the appliance before installing or removing it.
- Disconnect power from the circuit that is being used for the appliance.
- If hazardous conditions exist, do not work alone.
- If you are working under conditions that might be hazardous to the eyes, wear safety glasses or goggles.

Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be collocated or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement

This equipment complies with CE and FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

Warning: Operation of this equipment in a residential environment could cause radio interference.

Warning: Operation of this equipment is for indoor use only.

Prepare the Site for Installation

To prepare your site for installing a Cloud Services Gateway (CSG) 5000 series appliance, follow the guidelines and requirements listed in this article.

Site Preparation Guidelines

- Install the appliance in an enclosed and secure environment, and allow only authorized personnel to access the device.
- Keep the area around the appliance free from dust.
- Follow ESD prevention procedures to avoid any damage to the appliance.

Environmental Requirements

- Ensure that the area in which you operate the appliance has adequate air circulation so that the cooling system functions normally. Ambient air temperature may not be sufficient to cool the chassis to acceptable operating temperatures without adequate circulation.
- Avoid temperature extremes.
- High humidity conditions can cause moisture to penetrate into the chassis. The appliance can operate in relative humidity of 10 percent to 85 percent, non-condensing.

Rack Requirements

You can mount a CSG5000 series appliance in a 19-inch four-post rack using slide rails. Table 1 lists the rack requirements.

Table 1: Rack Requirements for a CSG5000 Appliance

Requirement	Guidelines
Rack type	Use a 19-inch, four-post rack that has bracket holes spaced at 1-U (1.75 in., or 4.45 cm) increments, and that has panels strong enough to support the weight of the appliance.
Rack size	Comply with the size and strength standards of a 19-inch rack. Ensure that the rack rails are spaced wide enough to accommodate the external dimensions of the appliance chassis. Ensure that the spacing of rails and the adjacent racks allow for proper clearance around the appliance and the rack.

Requirement	Guidelines
Rack firmly secured to building structure	Secure the rack to floor brackets and to ceiling brackets to ensure maximum stability.

Airflow Requirements

The CSG5000 series appliances have 2+1 redundant fans, which are hot swappable in the field. The fans provide front-to-back cooling.

When planning your site for installing a CSG5000 series appliance in a 19-inch rack, keep in mind that the front side of the rack is the cool area, and the rear side is where hot air exits from the fan. Ensure that there is space on the rear side of the appliance to allow air to exit from the fan.

When placing a CSG5000 series appliance on a desk, ensure that there is space on the rear side of the appliance to allow air to exit from the fan. Also ensure that the vents on the side of the unit are never blocked, to allow hot air to flow out of the appliance. Covering the vents prevents heat from dissipating out of the appliance, which can cause the chassis to overheat and then shut down.

Install a CSG5000 Series Appliance

This article provides instructions about how to unpack a Cloud Services Gateway (CSG) 5000 series appliance and how to install it. You can mount a CSG5000 series appliance directly in a 19-inch rack, or you can install a slide rail in a 19-inch rack and then mount the CSG5000 series appliance on the slide rail. The minimum depth of the slide rail is 698 mm (27.48 inches), and the maximum depth is 998 mm (39.39 inches).

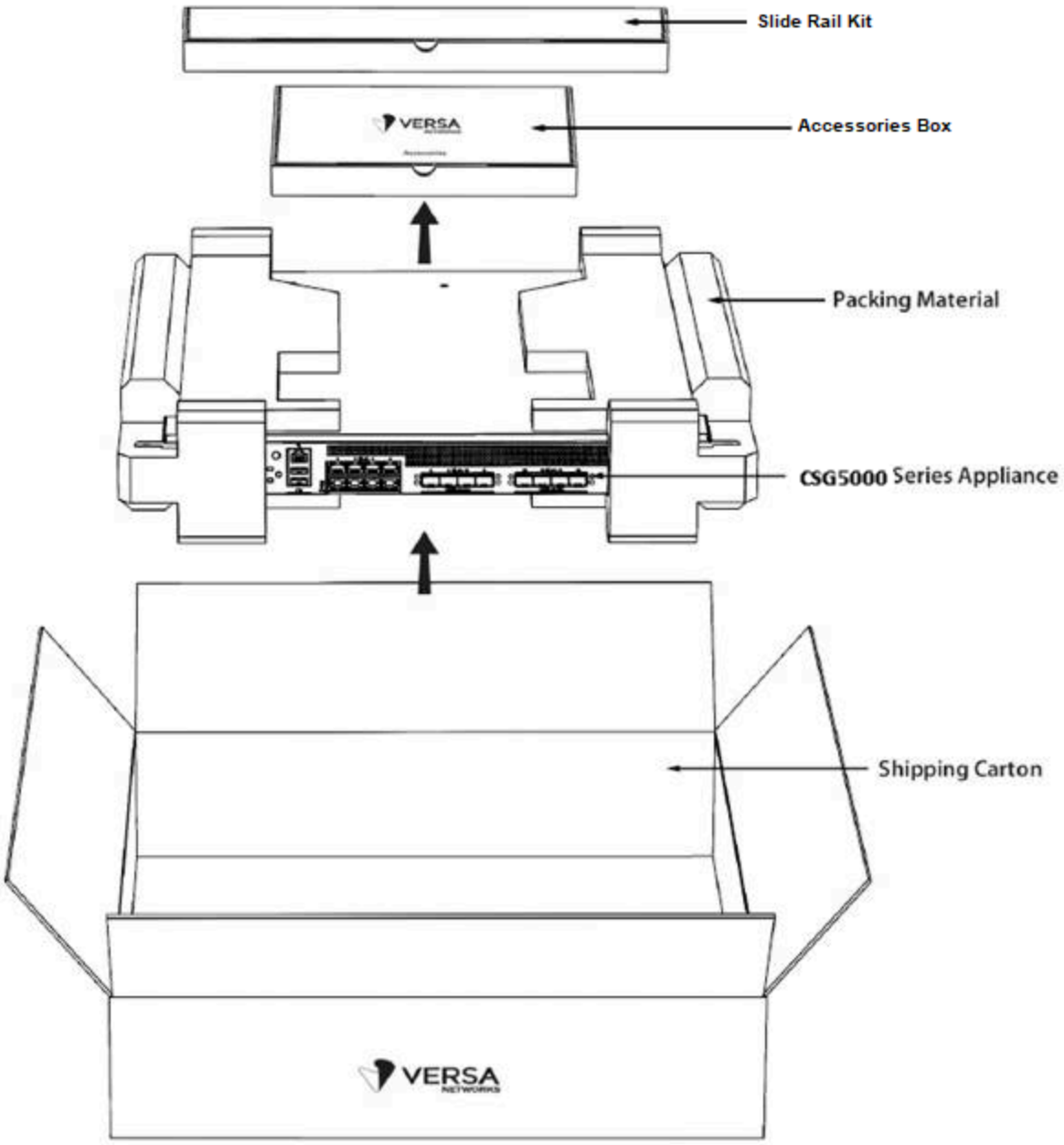
Unpack a CSG5000 Series Appliance

The CSG5000 series appliance is packed in a plastic bag, and it is shipped in a cardboard carton, secured with foam packing material. The carton also contains an accessory box. It is recommended that you unpack the appliance only when you are ready to install it.

To unpack a CSG5000 series appliance:

1. Open the top flaps of the cardboard carton.
2. Remove from the box the foam packing material holding the appliance and the accessories in place. See Figure 1.
3. Remove the accessory box and the appliance from the foam packing material.
4. Remove the accessories from the accessories box.
5. Verify the components against the packing list that is included in the box.

Figure 1: Unpack a CSG5000 Appliance



Note: It is recommended that you save the shipping carton and packing material when unpacking the appliance, in case you need to later move the appliance or return it. See How To Return Hardware.

Packing List for a CSG5000 Series Appliance

The cardboard carton in which a CSG5000 series appliance is shipped contains a packing list. Check the packing list against the parts that you receive in the shipping carton.

Table 1 lists the parts shipped with a CSG5000 series appliance.

Table 1: Parts Shipped with a CSG5000 Series Appliance

Components	Quantity
CSG5000 appliance chassis	1
Power cable (US only)	1
Console cable USB to RJ-45	1
Grounding wire (#18 AWG)	1
Rear-post brackets	2
Rear-post bracket ears	2
Screws for ear locking	2
Screws for rack mounting	4
Screws	20

Mount a CSG5000 Series Appliance in a Rack

You can mount a CSG5000 series appliance in a four-post, 19-inch rack.

To mount the appliance, ensure that you have the following tools:

- Number 2 Phillips (+) screwdriver
- Tape measure

To mount a CSG5000 series appliance in a four-post, 19-inch rack:

1. Place the appliance chassis on a flat, stable surface.
2. Check the internal dimensions of the rack with a tape measure. The appliance is 43.8 mm wide (about 17.24 inches) and must fit within the mounting posts.
3. Attach the two rear post brackets to the appliance chassis using the six bracket screws that are shipped with the appliance. Use the rack screws to secure the switch in the rack.
4. Lock the position of the rear post bracket ears using the included position-locking screws. You can adjust the rear post bracket ears to fit different rack depths, from 56 cm to 75 cm.

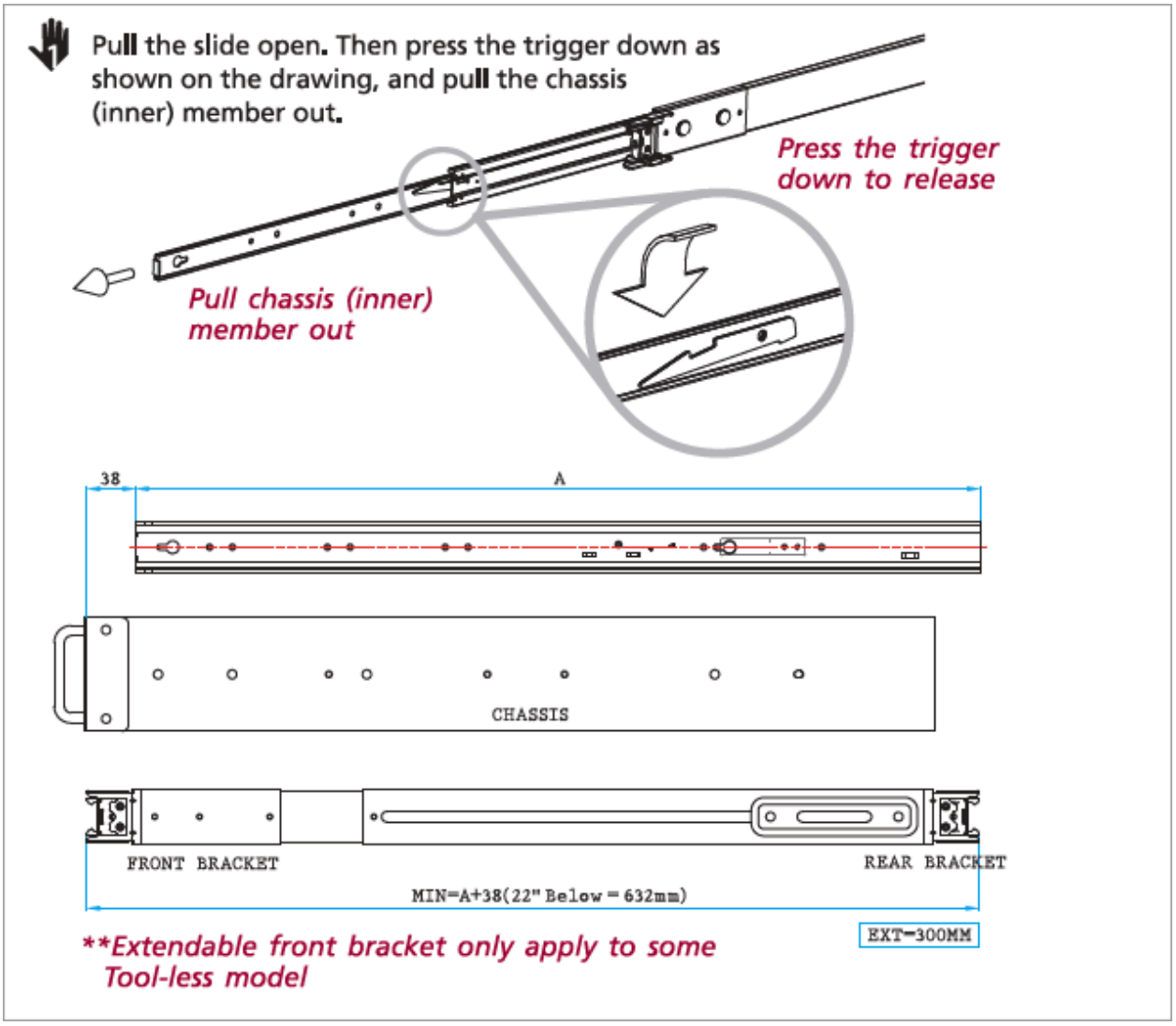
Mount a CSG5000 Series Appliance on a Slide Rail

You can install a slide rail in a 19-inch rack and then install a CSG5000 series appliance on the slide rail. You can

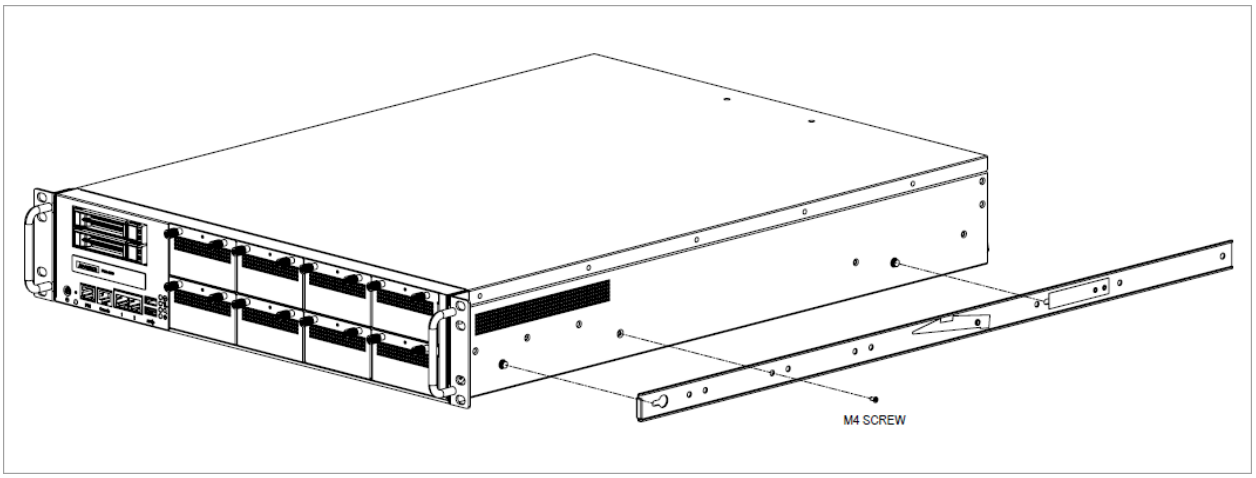
purchase an optional slide rail kit when you purchase a CSG5000 series appliance.

To install a slide rail in a 19-inch rack and install a CSG5000 series appliance on the slide rail:

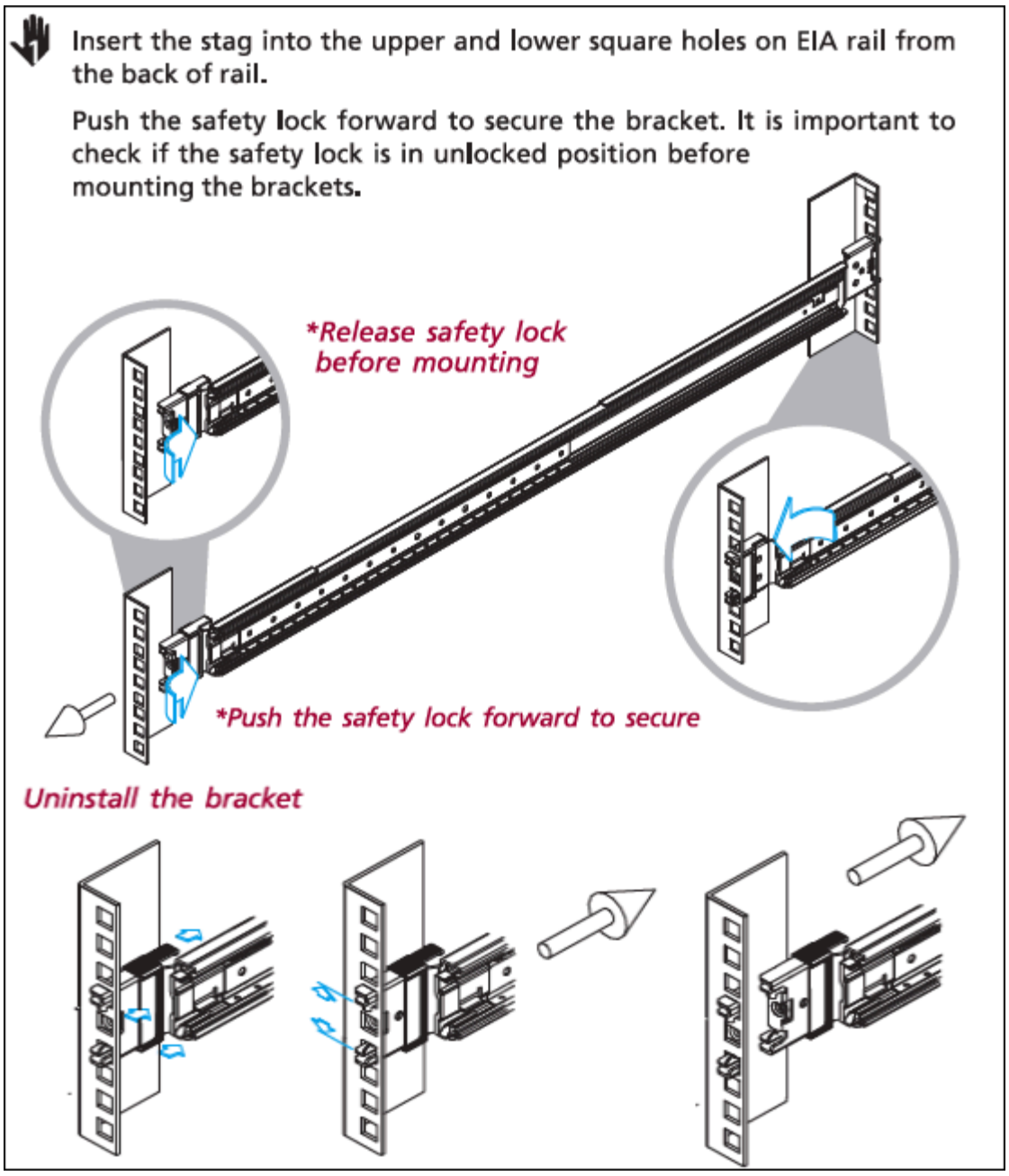
1. Push the lever down, and then pull the inner rail all the way out of the middle rail.



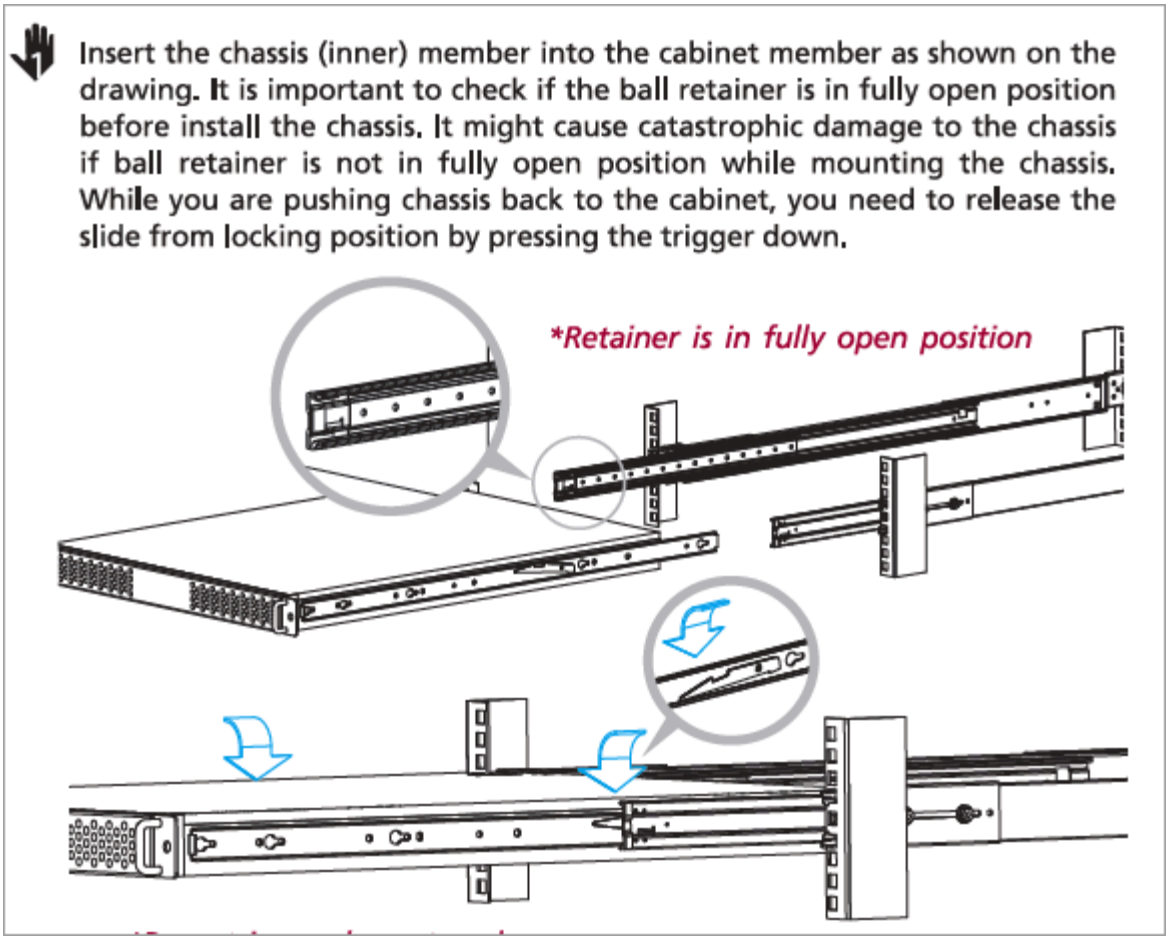
2. Use the M4 screws from accessory box to mount the inner rail to chassis.



3. Attach the cabinet (outer) member to the rail.



4. Mount the chassis into the cabinet. Align and push the inner rails into the extended middle rails. After the chassis is mounted in the middle rails, hold down the locking lever to push the chassis all the way into the rack.



Connect a CSG5000 Series Appliance

This article describes how to connect a Cloud Services Gateway (CSG) 5000 series appliance to an AC power source and to a management console.

Versa Networks recommends that you use an uninterruptible power strategy that prevents power interruptions. A UPS can isolate unpredictable power outages or blackouts, brownouts, lightning, power surges, or spikes.

Step 1: Connect Earth Ground to a CSG5000 Series Appliance

1. To ensure proper operation of a CSG5000 series appliance and to meet safety and electrostatic discharge (ESD) requirements, you must connect the appliance to earth ground before you connect power to the appliance.
2. Ensure that the rack is properly grounded and in compliance with ETSI ETS 300 253. Verify that there is a good electrical connection to the grounding point on the rack and that the grounding point has no paint or isolating surface treatment.
3. Attach the grounding wire (#18 AWG) to the grounding point on the device's rear panel.
4. Connect the other end of the wire to rack ground.

Caution: The earth connection must not be removed unless all supply connections are disconnected.

Step 2: Connect AC Power to a CSG5000 Series Appliance

Before you begin connecting AC power to a CSG5000 series appliance, ensure that you have:

- Electrostatic discharge (ESD) wrist strap.
- An AC power cord is shipped with the appliances only for U.S. customers. Each power supply has a C14 plug that allows you to plug in standard power cords with C13 termination. The other end of the cord must have appropriate NEMA 5-15 local plug.

To connect a CSG5000 series appliance to an AC power source:

1. Install two AC power supply units (PSUs) in the device.
2. Connect an external AC power source (C13) to each PSU.
3. Plug the NEMA 5-15 end of the AC power cord into an AC power source outlet.
4. Push the power button to power on the device.

Step 3: Check that the CSG5000 Series Appliance is Powered On

To check the CSG5000 series appliance is powered on, check that the Power LED is on. When the appliance is operating normally, the power LED is green.

Step 4: Configure a Management Console To Connect to a CSG5000 Series Appliance

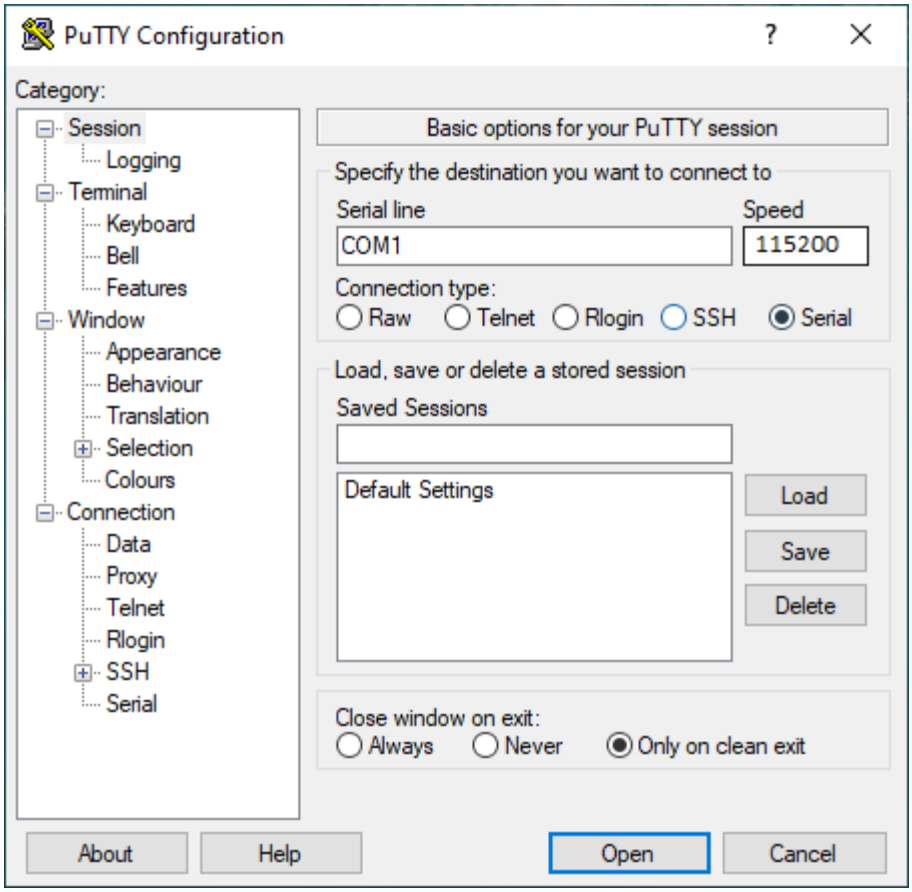
CSG5000 series appliances are equipped with an RJ45 serial console port and an RJ45-to-USB serial console cable that you use to connect the console port. To communicate with the appliance, you must have a terminal emulation program, such as PuTTY, running on your system.

When you set up the connection, use the following default console port settings:

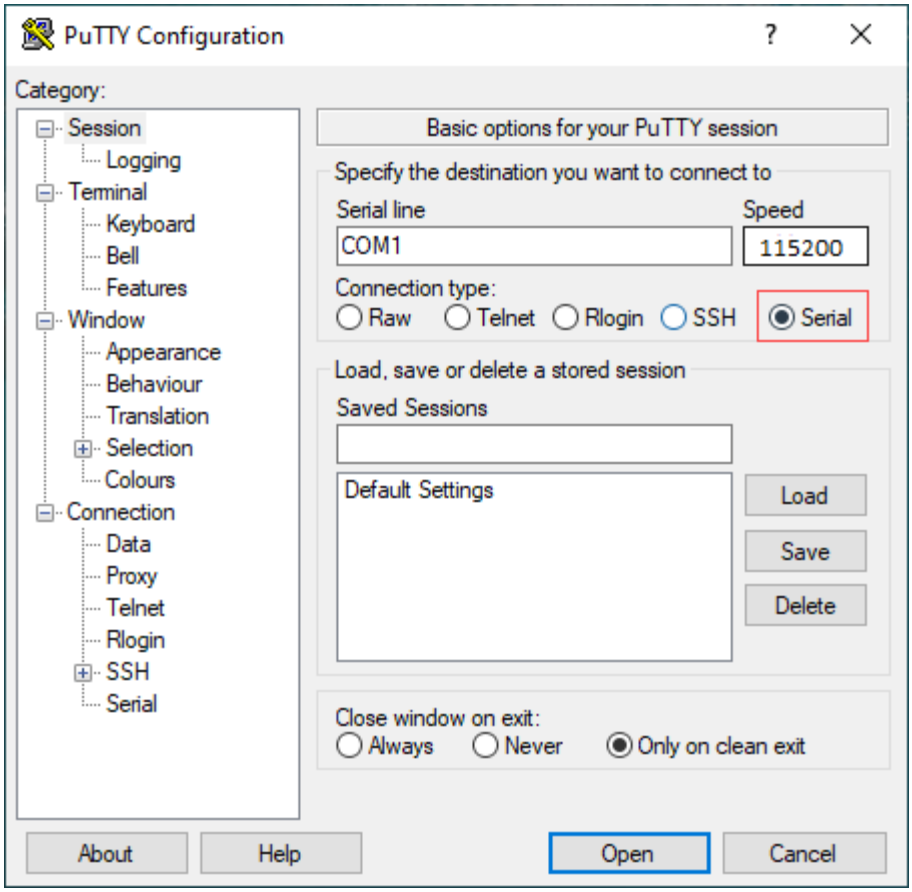
- Speed (baud): 115200
- Data bits: 8
- Stop bits: 1
- Parity: None
- Flow control: None

To connect a management console to a CSG5000 series appliance:

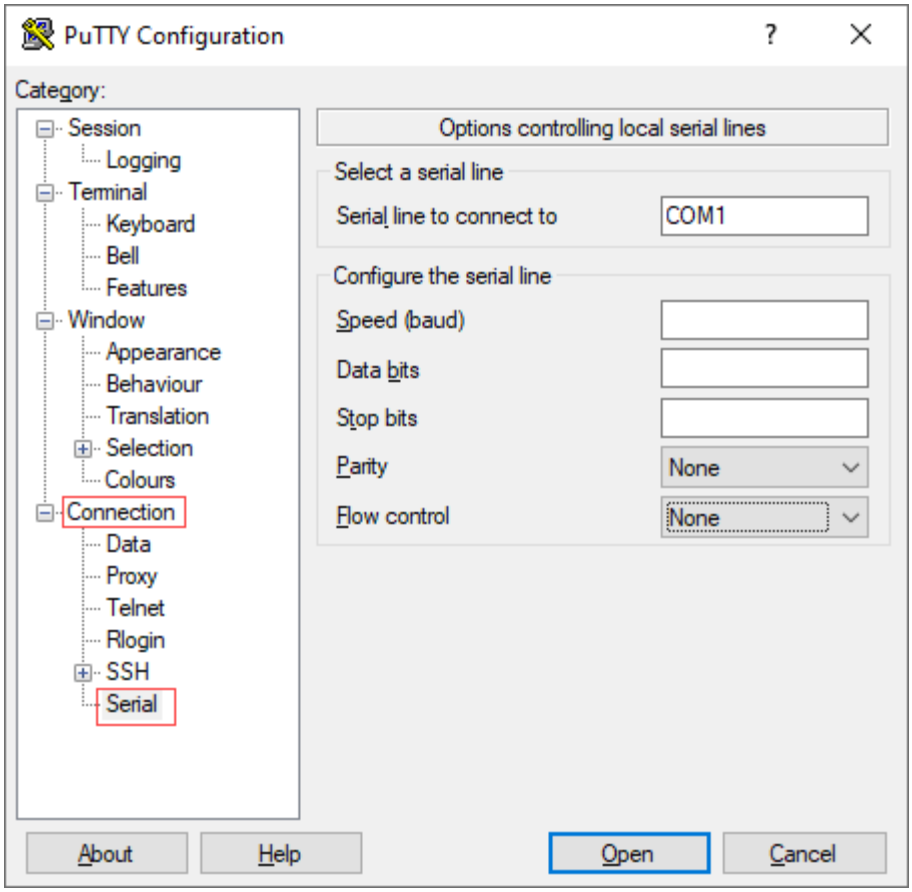
1. Open the PuTTY application. The PuTTY configuration window displays.



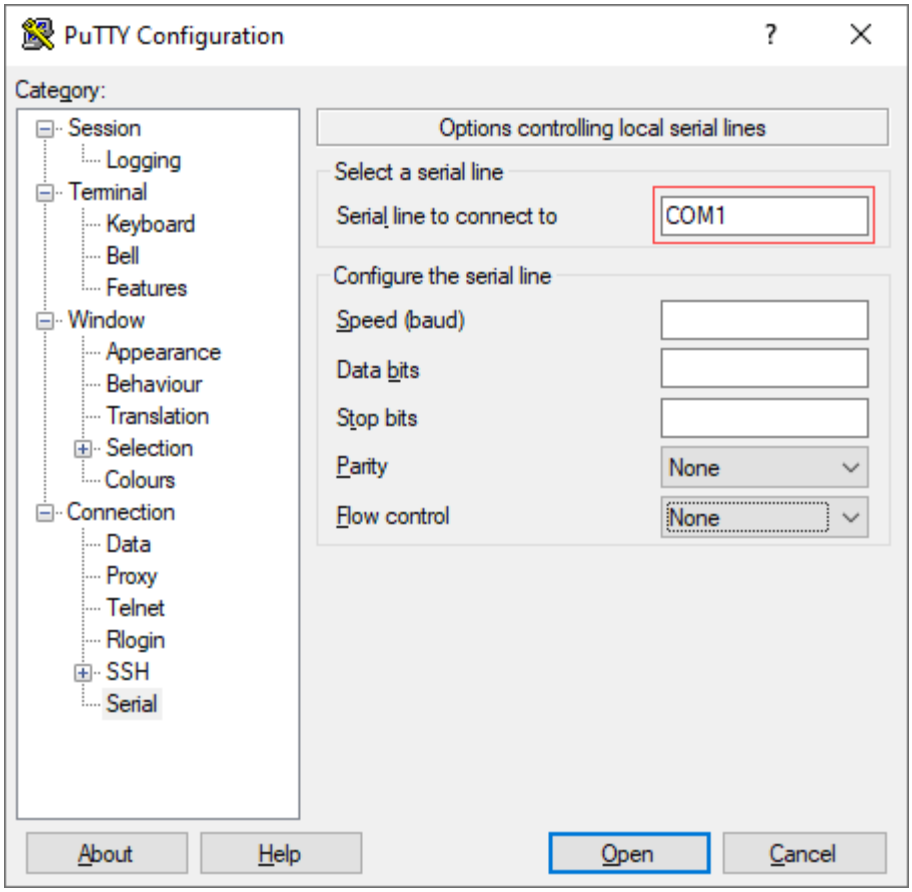
2. In the Category navigation pane, click Session, and then in the Connection Type menu, click Serial.



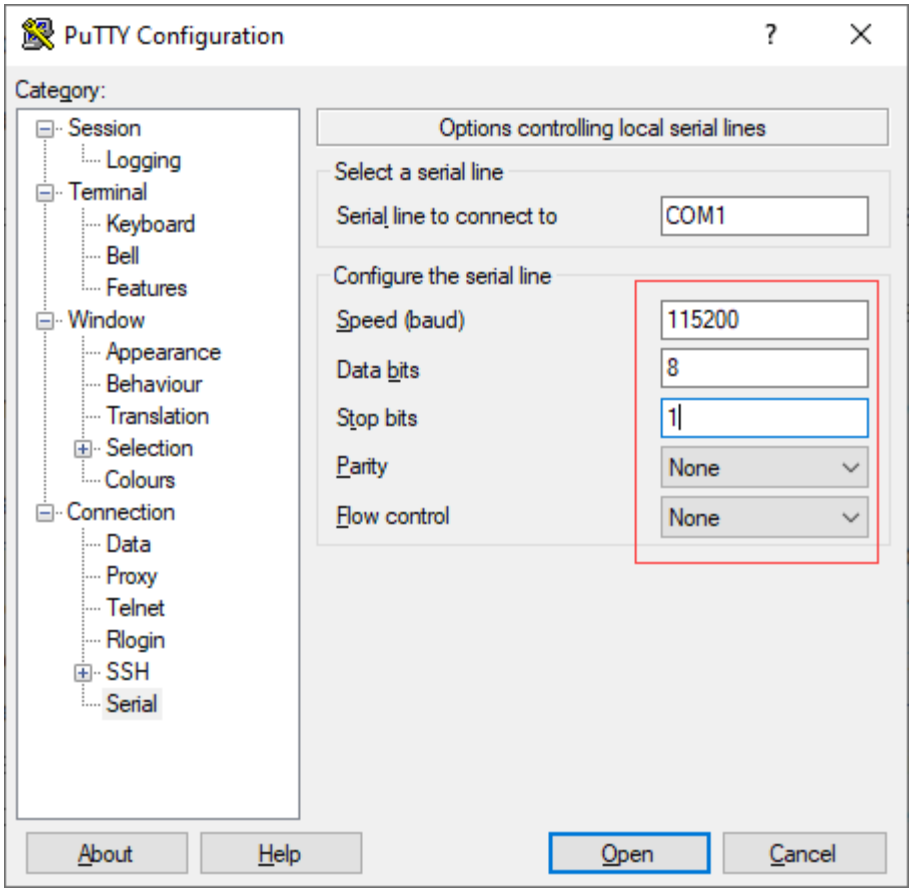
3. In the Category navigation pane, click Connection > Serial. The Options Controlling Local Serial Lines page displays.



4. In the Serial Line To Connect To field, enter the COM port to which your device is connected. The default COM port is COM1.

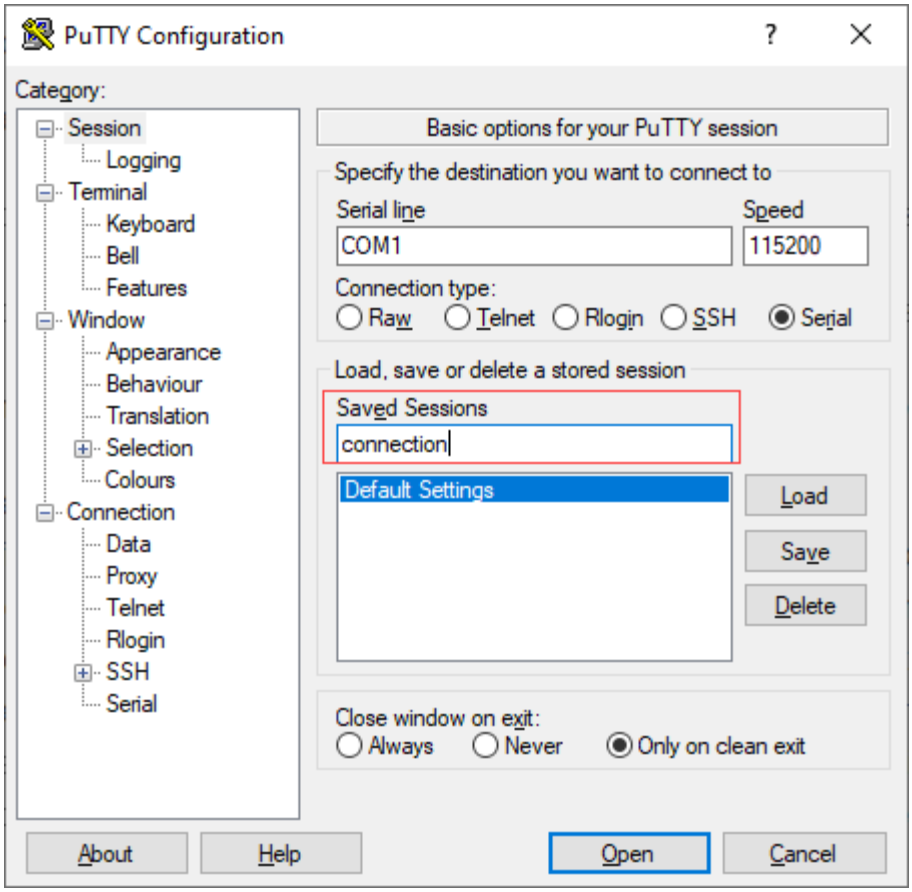


5. In the Configure the Serial Line section, enter the following information.

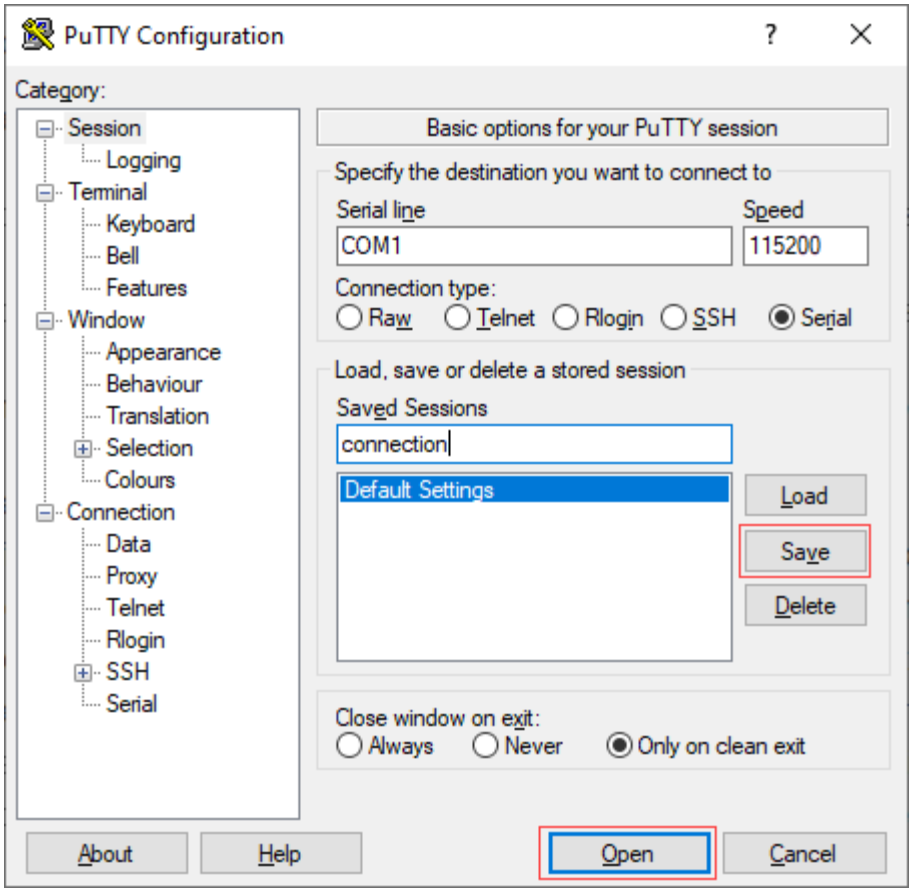


- In the Speed (Baud) field, enter the digital transmission speed. For CSG5000 series appliance, the speed must be 115200 baud.
- In the Data bits field, enter the number of data bits used for each character. The recommended value is 8.
- In the Stop bits field, enter the number of bits to send at the end of every character. The recommended value is 1.
- In the Parity field, select None. This is the method of detecting errors in transmission.
- In the Flow Control field, select None. This is the method of preventing data overflow.

6. Optionally, in the Category navigation pane, click Session, and then in the Saved Sessions field, enter a name to save the session settings.



7. Click Save.
8. To open the session, click Open.



9. Log in to the appliance CLI with the username "admin" and the password "versa123".