



CSG300 Series Hardware Guide

At a Glance

The Versa Cloud Services Gateway (CSG) 300 series appliances deliver highly secure site-to-site data connectivity to small businesses and to home offices.

These appliances provide the following features:

- Support for different CPUs and memory sizes:
- Management Ethernet ports with dual use and dedicated options:
 - One RJ45 RS-232 console port
 - One USB 2.0 management port for plugging in external LTE or WiFi modems
 - One copper Gigabit Ethernet dual-purpose port for data and management
- MDI and MDIX autoswitchable copper Gigabit Ethernet ports
- PoE source support on four Ethernet ports, with network interface card (NIC) module add-on
- Wireless options:
 - CSG350—Two built-in wireless slots
 - CSG355 and CSG365—Two LTE slots and one dedicated built-in wireless slot
- External AC power supply
- Fan for cooling
- Desktop mount, or rack-mountable in a 19" rack (CSG355 and CSG365 only)

CSG300 Appliance Models

The CSG300 appliances are available in the following models:

- CSG350—Compact and optimized appliance for deployment in small branches (up to 75 users) that require advanced application and cloud intelligence with hierarchical QoS and that provide a cost-effective SD-WAN solution. The CSG350 appliances have 32 GB of storage.
- CSG355—Powerful appliance for deployment in both small- and medium-sized branches that require advanced SD-Security (NGFW and UTM) along with comprehensive advanced application and cloud-intelligent SD-WAN services on premises. The CSG355 appliances have 32 GB of storage.
- CSG365—High-performance, powerful appliance for deployment at medium-sized branch locations that require advanced application and cloud-intelligent SD-WAN services and advanced SD-Security (NGFW and UTM). The

CSG365 appliances have 64 GB of storage.

Chassis Views

The CSG350 appliance is the smallest of the CSG300 appliances. The CSG355 and CSG365 appliances are physically identical.

CSG350 Appliance

Figure 1 and Figure 2 show the front and rear panels of the CSG350 appliance.

Note: The front panel is the side of the appliance with the SIM slots and two LEDs, for status and power. This is the side that is visible when you install the appliance in an office environment. It also has integrated rack-mount ears for installation in standard 19-inch racks. The rear panel has the power and reset buttons and various connectors and ports.

Figure 1: Front Panel of the CSG350 Appliance

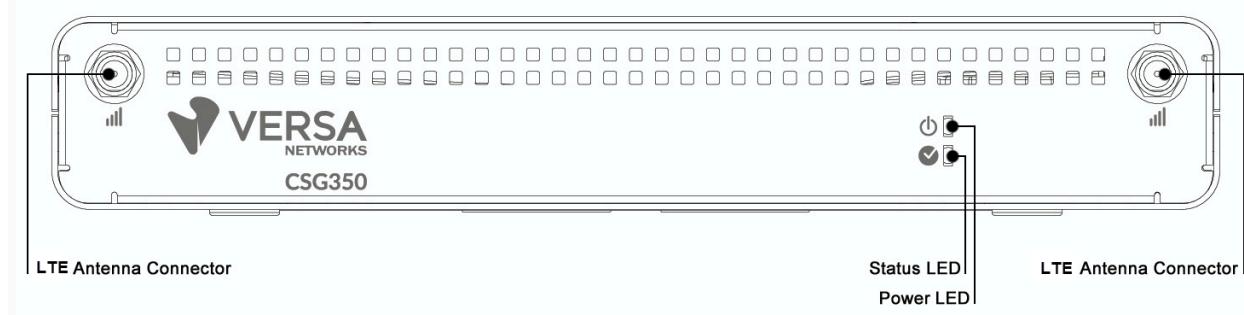
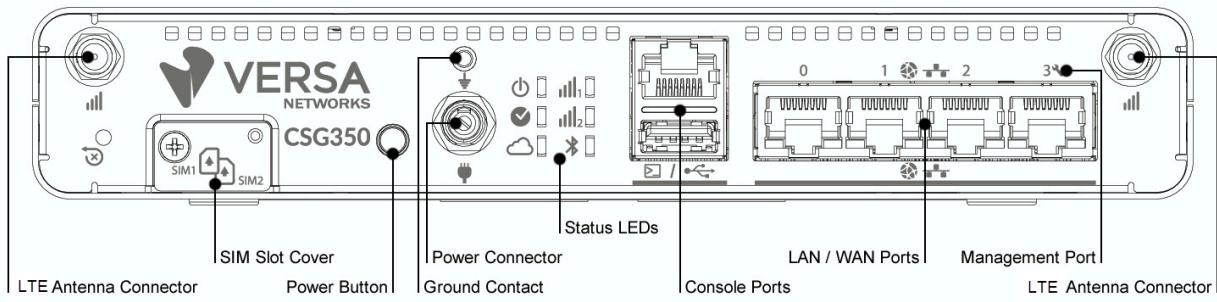


Figure 2: Rear Panel of the CSG350 Appliance



CSG355 and CSG365 Appliances

Figure 3 and Figure 4 show the front and rear panels of the CSG355. The panels for the CSG355 and CSG365 appliances are identical.

Figure 3: Front Panel of the CSG355 Appliance

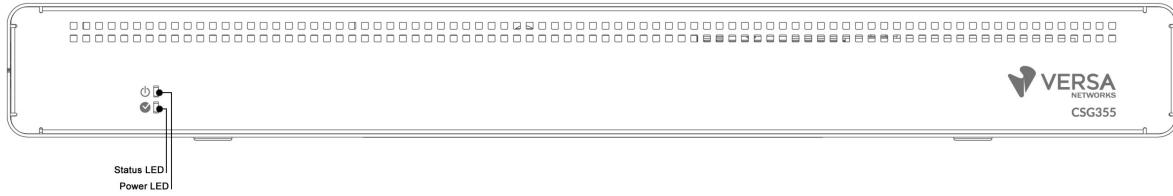
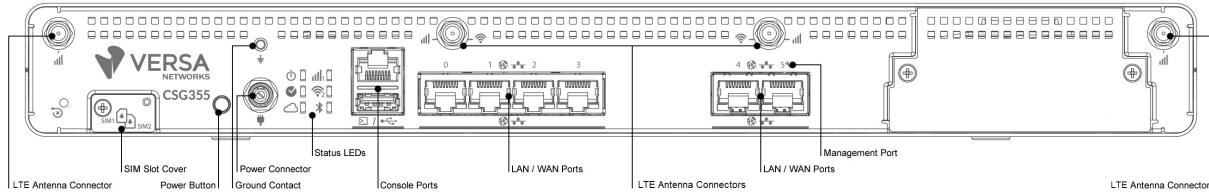


Figure 4: Rear Panel of the CSG355 Appliance



CSG300 Series Appliance Specifications

A CSG300 series appliance chassis is made of aluminum for optimal heat dissipation. This article lists the chassis and regulatory compliance specifications for the CSG300 series appliance. It also lists certifications and export control classification numbers (ECCNs) for the appliance.

Chassis Specifications

CSG350 Appliance

Table 1 lists the specifications for a CSG350 appliance chassis.

Table 1: CSG350 Series Chassis Specifications

Item	Specification
Services and Slot Density	
RJ-45 ports 10/100/1000 Mbps	4
External USB ports (USB 2.0)	1
RJ-45 serial console port	1
Power supply	12VDC, 5A

Item	Specification
Power Specifications	
AC input voltage	100–240 Volts
AC input line frequency	50–60 Hz
Typical power consumption	25 Watts
Power supply efficiency rating	Platinum (80 Plus) or better
Chassis Physical Specifications	
Chassis height	1.38" (34 mm)
Chassis width	7.87" (200 mm)
Chassis depth	5.91" (152 mm)
Chassis weight	2.20 lb (1 kg)
Package Specifications	
Package height	7" (17.78 cm)
Package width	16.7" (42.4 cm)
Package depth	12" (30.48 cm)
Package weight	3.81 lb (1.73 kg)
Operating Conditions	
Temperature	0° to 40°C (32° to 104°F) at sea level
Humidity	10% to 85% relative humidity
Altitude	Maximum 3000 m (10,000 ft)
Noise level	Less than 20 dBA
Storage Conditions	
Temperature	20° to 70°C (68° to 158°F) at sea level
Humidity	10% to 85% relative humidity

CSG355 and CSG365 Appliances

Table 2 lists the specifications for the CSG355 and CSG365 appliance chassis.

Table 2: CSG355 and CSG365 Chassis Specifications

Item	Specification
Services and Slot Density	
RJ-45 ports 10/100/1000 Mbps	4 + 2
External USB ports (USB 2.0)	1
RJ-45 serial console port	1
Disk 1 SSD default size	CSG355: 32 GB CSG365: 64 GB
Power supply	12VDC, 5A
Power Specifications	
AC input voltage	100–240 Volts
AC input line frequency	50–60 Hz
Typical power consumption	33 Watts
Power supply efficiency rating	Platinum (80 Plus) or better
Chassis Physical Specifications	
Chassis height	1.65" (43 mm)
Chassis width	13.8" (370 mm)
Chassis depth	6.7" (172 mm)
Rack height	1 RU
Chassis weight	4.29 lb (1.95 kg)
Package Specifications	
Package height	7" (17.78 cm)
Package width	16.7" (42.4 cm)
Package depth	12" (30.48 cm)
Package weight	6.19 lb (2.82 kg)

Operating Conditions	
Temperature	0° to 40°C (32° to 95°F) at sea level
Humidity	10% to 85% relative humidity
Altitude	Maximum 3000 m (10,000 ft)
Noise level	Less than 30 dBA
Storage Conditions	
Temperature	20° to 70°C (68° to 158°F) at sea level
Humidity	10% to 85% relative humidity

CSG300 Series Appliance SKUs

CSG300 series SKUs have the following format:

model – xxx – yyy

model indicates the CSG300 appliance model number. It can be one of the following:

- CSG350
- CSG355
- CSG365

xxx indicates the number and type of wireless modules. It can be one of the following:

- CSG350:
 - 2LA—2 LTE modules (North America)
 - 2LB—2 LTE modules (APAC)
 - LA—1 LTE module (North America)
 - LB—1 LTE module (APAC)
 - Blank—No LTE or WiFi Module
- CSG355 and CSG365:
 - WLA—1 WiFi module and 1 LTE module (North America)
 - WLB—1 WiFi module and 1 LTE module (APAC)
 - 2LA—2 LTE modules (North America)
 - 2LB—2 LTE modules (APAC)
 - LA—1 LTE module (North America)

- LB—1 LTE module (APAC)
- W—1 WiFi Module

yyy indicates the type and number of NIC ports. It can be one of the following:

- 4GP—4 general-purpose NIC ports
- 8GP—8 general-purpose NIC ports
- T1/E1—1 T1/E1 NIC port
- xDSL—1 VDSL NIC port
- Blank—No LTE or WiFi Module

Regulatory Compliance

Table 3 lists the regulatory compliance specifications for a CSG300 series chassis.

Table 3: CSG300 Series Regulatory Compliance Specifications

Item	Specification
Safety	CB (IEC/EN60950-1 and IEC/EN 62368-1) UL (CSA 22.2 No 62368-1 and UL62368-1)
Security	TPM 2.0 Designed to be FIPS 140-2 Level 2 compliant
EMC	CE, FCC Part 15, Class A
Environmental	RoHS

Certifications

A CSG300 series appliance complies with the certificates listed in Table 4.

Table 4: CSG300 Series Certifications

Region	Certifications
European Union	Safety: <ul style="list-style-type: none"> • EN 60950-1:2005 • EN 62368-1:2014

Region	Certifications
	<p>EMC and Radio Frequency (Bluetooth, GPS, and MPE (SAR Evaluation)):</p> <ul style="list-style-type: none"> • EN 301 489-1 V2.2.3 (2019-11) Class A • EN 301 489-17 V3.1.1 (2017-02) • Draft EN 301 489-52 V1.1.0 (2016-11) • EN 301 893 V2.1.1 (2017-05) • EN 301 893-19 V2.1.1 (2019-04) • EN 300 328 V2.1.1 (2016-11) • EN 301 908-1 V11.1.1 (2016-07) • EN 55032:2015/AC:2016 Class A • EN 55024:2010/A1:2015 • EN 55035: 2017 • EN 50385:2017
America	<p>Safety:</p> <ul style="list-style-type: none"> • UL 62368-1, Second Edition. <p>EMI and Wireless:</p> <ul style="list-style-type: none"> • FCC 47 CFR Part 15, Subpart B, Class A • FCC 47 CFR Part 15C, Subpart C (Section 15.247)
Japan	<p>Telecom, Radio, EMI:</p> <ul style="list-style-type: none"> • JATE—Article 9 and 34 • MIC—ARIB STD-T66 (V3.7) • VCCI—CISPR 32:2016 Class A

Export Control Information

Table 5 lists the ECCN, HTS, and CCATS numbers.

Table 5: ECCN, HTS, and CCATS Numbers

https://docs.versa-networks.com/Hardware/Cloud_Services_Gateway_300_Series/Complete_CSG300_Series_Hardware_Gui...

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Item	ECCN Number	HTS Number	CCATS Number	Versa Use of Item
MatrixSSL software module	5E002	8542310000	G161333	SSL VPN Proxy
QuickSec IPsec toolkit used by Versa Analytics, Versa Director, and Versa Operating System™ (VOS™) device	5D002	8542310000	G161333	IPsec crypto module
Hardware-based encryption and decryption	5A002U	8542310001	G156910L1	CSG300 series appliance

Front and Rear Panel Components

This article describes the front and rear panel components of a CSG300 series appliance. For the exact location of these components on the appliance, see [At a Glance](#).

Front Panel

The front panel of a CSG300 series appliance has two status LEDs.

LEDs

Table 1 lists the LEDs, their colors and states, and the status they indicate.

Table 1: Front Panel LEDs in a CSG300 Series Appliance

LED	Color	Status
Power	Green	<ul style="list-style-type: none"> Off—Appliance is not powered on. Green—Appliance is powered on.
Status	Green, Red	<ul style="list-style-type: none"> Off—Appliance hardware is up, but there is a problem with the configuration or software. Solid green—Controller

LED	Color	Status
		<p>connection is up and running, and probes and control plane packets are being transmitted.</p> <ul style="list-style-type: none"> Blinking green—Controller connection is in the process of being established. Solid red—Controller or CA has rejected this appliance, there is a certificate mismatch, or the appliance is unreachable. Blinking red—Controller is unreachable or unresponsive.

Rear Panel

The rear panel of a CSG300 series appliance has six status LEDs, SIM card slots, and power and reset buttons.

LEDs

The rear panel of a CSG300 series appliance has six LEDs, located in two rows.

Table 2 lists the LEDs, their color and states, and the status they indicate.

Table 2: Rear Panel LEDs in a CSG300 Series Appliance

LED	Color	Status
Power	Green	<ul style="list-style-type: none"> Off—Appliance is not powered on. Green—Appliance is powered on.
Status	Green, Red	<ul style="list-style-type: none"> Off—Appliance hardware is up, but there is a problem with the configuration or software. Solid green—Controller connection is up and running, and probes and control plane packets are being transmitted. Blinking green—A Controller connection is in the process of being established. Solid red—Controller or CA has rejected this appliance, there is a certificate mismatch, or the appliance is unreachable. Blinking red—Controller is unreachable or unresponsive.
Cloud	Green, Red	Currently not supported.
Wireless	White	<ul style="list-style-type: none"> Off—Wireless module is not installed. Solid white—Wireless module is up and running. Blinking white—Wireless module is booting.
LTE	White	<ul style="list-style-type: none"> Off—LTE module not installed or not connected. Solid white—LTE module is up and running. Blinking white—LTE module is connecting.

Bluetooth	Blue	<ul style="list-style-type: none"> Off—Bluetooth module is not installed or services are not running. Solid blue—Bluetooth service is started and advertised.
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SIM Card Slots

The rear panel of a CSG300 series appliance has two nano-SIM card slots. If you subscribe to a single wireless service, use the SIM 1 slot to install the LTE device. If you subscribe to dual wireless service, use both the SIM 1 and SIM 2 slots to activate the LTE devices.

Note: It is strongly recommended that you use only preactivated SIMs in the SIM card slots.

Power Button

The Power button on the rear panel of a CSG300 series appliance turns the power on and off.

To turn the power on, press and immediately release the Power button when the appliance is off.

To turn the power off, press the Power button when the appliance is on, as follows:

- If you press and immediately release the button, the appliance does a graceful software shutdown that is equivalent to issuing the **shutdown now** command from the operating system shell.
- If you press and hold the button for 10 seconds or more, the power for the appliance turns off and the appliance shuts down.

Reset Button

The Reset button on the rear panel of a CSG300 series appliance resets the appliance. 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 on the reset button, you must pause for a second to register the key presses.

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

To press the Reset button, use a sharp, 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.

You can reset the appliance to the factory-default configuration by issuing the **request system reset** CLI command.

Reset the Appliance to the Factory-Default Configuration from the CLI

You can reset the appliance to the factory-default configuration from the CLI. You can connect to the appliance through the serial console port or by using SSH.

The factory default reset procedure may 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 CSG300 Series Appliance](#).
2. Log in to the appliance CLI using the username "admin" and the password "versa123".

Note: To connect to the appliance using SSH, connect your PC to the management port of the appliance. For the port mapping on the CSG700 series 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. Issue the following commands to reset the configuration to 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.

```
$ cli
> request system reset
```

4. Verify that all Versa services are running by issuing the **vsh status** command from the Linux shell. 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 shell 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-addrmngrd  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
```

5. Power off the appliance.

Additional Information

[Factory Default Settings for Branch Devices](#)

The Cloud Services Gateway (CSG) CSG355 and CSG365 appliances offer field configurability using the network interface card (NIC) slot. This article describes the CSG355 and CSG365 NICs.

NIC Types

Table 1 describes the NICs and the Versa Operating SystemTM (VOSTM) software releases in which the NIC is supported.

Table 1: CSG355 and CSG365 NIC Support

NIC Type and Model	NIC Options	Description	VOS Support
Gigabit Ethernet			
• NIC-4GP	4-port RJ45 copper PoE/ PoE+	<ul style="list-style-type: none"> Supports IEEE 802.3af Type 1 PoE and IEEE 802.3at Type 2 PoE+ devices over CAT 5e. Each port can supply up to 30 W of power, with a maximum of 60 W for the module. 	Releases 21.2.1 and later
• NIC-4GP-120 W	4-port RJ45 Gigabit Ethernet	<ul style="list-style-type: none"> Supports IEEE 802.3af Type 1 PoE and IEEE 802.3at Type 2 Class 4 PoE+ devices 802.3at-2009 over CAT 5e. Each port can supply up to 30 W of power, with a maximum of 120 W for the module. 	Releases 21.2.1 and later
• NIC-4GF	4-port Gigabit Ethernet SFP	Supports fiber Gigabit Ethernet MMF or SMF 1000BASE-SX and 1000BASE-LX.	Releases 21.2.3 and later
ADSL+/VDSL			
• NIC-1VA	1 RJ45 port ADSL+/VDSL, Annex A	<ul style="list-style-type: none"> Single-port ADSL+/VDSL module that supports Annex A (POTS) 	Releases 21.2.1 and later
• NIC-1VB	1 RJ45 port ADSL+/VDSL, Annex B	<ul style="list-style-type: none"> Single-port ADSL+/VDSL module that supports Annex B (ISDN) 	Releases 21.2.1 and later
T1/E1			

• NIC-4DS	4-ports RJ45 T1/E1	<ul style="list-style-type: none"> Supports T1/E1 framing Supports all common formats Supports PPP, HDLC, and Frame Relay encapsulations 	Releases 21.2.1 and later
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The CSG355 and CSG365 appliances offer interface modularity, providing four Ethernet ports that support both Type 1 and Type 2 PoE devices. Each port can provide up to 30 W of power, with a maximum of 60 W for the module, for connecting PoE devices such as cameras, access points, and VoIP handsets. The CSG355 and CSG365 appliances support two types of NICs:

- 1-GB copper Gigabit Ethernet port
- 1-GB copper Gigabit Ethernet with PoE port

The four Ethernet ports on the NIC module are labeled Port 6 through Port 9.

Figure 1 shows the four RJ-45 connectors for the four Ethernet ports (1-GB copper GE port and for the 1-GB Copper GE with PoE port).

Figure 1: CSG355 RJ-45 Connectors for 1-GB Copper GE Port with PoE Port

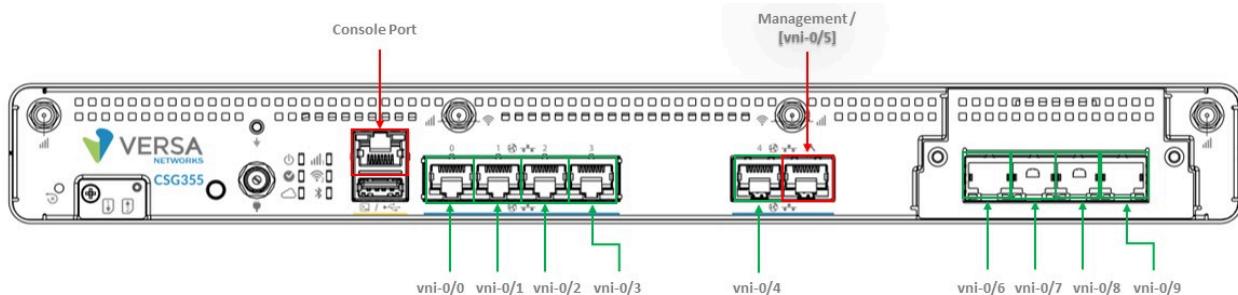


Figure 2 shows the four RJ-45 connectors slots for the 1-GB Copper GE combination port.

Figure 2: CSG355 RJ-45 Connectors for 1-GB Copper GE Combination Port

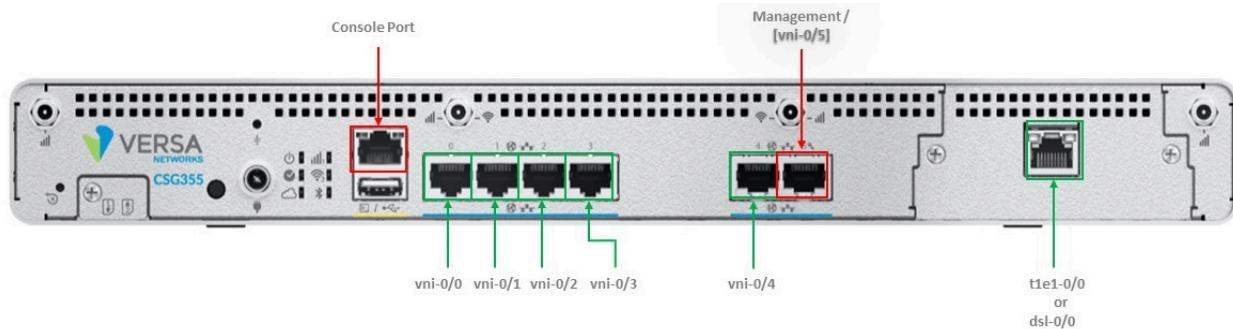
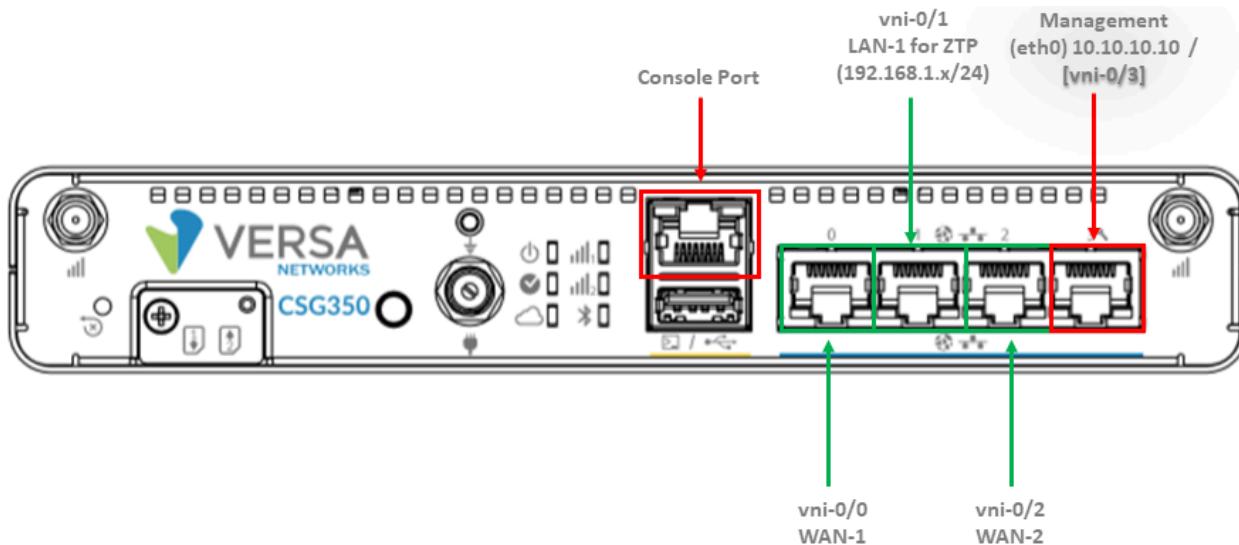


Figure 3 shows the CSG350 series appliance VNI port mapping.

Figure 3: CSG350 RJ-45 Connectors for 1-GB Copper GE Combination Port



NIC Specifications

Table 2 lists the NIC specifications for a CSG300 series appliance.

Table 2: CSG300 Series NIC Specifications

Item	Specification
Item Specification	
Typical power consumption	10 Watts
System power input	3.3 VDC @ 3A
PoE power adapter input	54 VDC @ 2.78A, 100-240 VAC @ 2A, 50-60 Hz

Item	Specification
Physical Specifications	
Height	1.54" (39 mm)
Width	3.25" (82.5 mm)
Depth	5.52" (140 mm)
Weight	
• NIC-8GE	0.33 lb (150 gm)
• NIC-4GP-120 W	0.44 lb (200 gm)
• NIC-1VA/1VB	0.33 lb (150 gm)
• NIC-4DS	0.44 lb (200 gm)
• NIC-4GF	0.33 lb (150 gm)
Package Specifications	
Package height	3.25" (82.55 mm)
Package width	6" (152.4 mm)
Package depth	9" (228.6 mm)
Package weight	0.77 lb (350 gm)
Operating Conditions	
Temperature	0 to 40°C (32 to 104°F)
Humidity	10 to 85% relative humidity

Item	Specification
Altitude	Maximum 3000 m (10000 ft)
Noise level	0 dBm
Storage Conditions	
Temperature	-20 to 70°C (-4 to 158°F) at sea level
Humidity	10 to 85% relative humidity

LTE Modem Module

The CSG300 series LTE modem module is a high-performance Cat-6 LTE Advanced (LTE-A) modem that provides download speeds up to 300 Mbps and upload speeds up to 50 Mbps. The LTE modem supports multiple carriers, and it has been certified by major global carriers. The appliance has two externally accessible SIM card slots, one for each embedded LTE-A modem. If the appliance is configured with two LTE-A modems, each SIM card controls one LTE radio. The appliance also has one USB slot that can be connected to an LTE dongle. With two internal modems and one USB-attached modem, you can deploy up to three simultaneous LTE WAN connections.

The LTE firmware-driven modem module provides the following capabilities:

- Externally accessible SIM cards that support dual-LTE modems.
- Connects to most global carriers' network depending on the SIM card inserted. For example, if the SIM card inserted is from Carrier A, the modem autodetects the SIM card and connects to Carrier A's network.
- Global navigation satellite system (GNSS) receiver enables tracking and location-based services.
- Stores up to three firmware versions, thereby allowing the modem to switch to other networks.
- Firmware can be upgraded over the air.
- Secure boot provides secure connectivity by preventing unauthorized code on target devices.

The LTE modem connections are metered connections, and the Versa software implementation ensures that the LTE service is charged only when needed. Policies and scenarios that determine the use of LTE interfaces are set by network operators and implemented by Versa Operating System™ (VOS™) devices accordingly.

Table 1 lists the supported LTE specifications.

Table 1: LTE Specifications

Specification	APAC Modem	Americas and EMEA Modem
Peak download/upload rate	300/50 Mbps	300/50 Mbps

Specification	APAC Modem	Americas and EMEA Modem
Frequency bands 4G LTE	1, 3, 5, 7, 8, 18, 19, 21, 28, 38, 39, 40, 41	1 through 5, 7, 8, 12, 13, 20, 25, 26, 29, 30, 41
Frequency bands 3G WCDMA	1, 5, 6, 8, 9, 19	1, 2, 3, 4, 5, 8
Supported carrier aggregation	1 + (8, 18, 19 ,21), 3 + (5, 7, 19, 28), 7 + (5, 7, 28), 19 + 21, 38 + 38, 39 + 39, 40 + 40, 41 + 41	1 + 8, 2 + (2, 5, 12, 13, 29), 3 + (7, 20), 4 + (4, 5, 12, 13, 29), 7 + (7, 20), 12 +30, 5 + 30, 41 + 41
Approvals	CE, GCF, JRF/JPA, KC, NCC	CE, FCC, GCF, IC, NCC, PTCRB
Certified Carriers	KDDI, NTT Docomo, Softbank, Telstra	Anatel, AT&T, Bell, Rogers, Sprint, Telus, Verizon, Vodafone, US Cellular
Location Solution	Standalone, Xtra, SUPL 1.0 and 2.0, GLONASS, Galileo, BeiDou	Standalone, Xtra, SUPL 1.0 and 2.0, GLONASS, Galileo, BeiDou

You can order CSG300 series appliances with an optional LTE modem module. The LTE modem modules have either one SIM slot or two SIM slots. For modules with one SIM slot, you insert the SIM card into the SIM1 slot, which is on the back of the appliance. For modules with two SIM slots, you insert a SIM card into each of the two SIM slots, which are labeled SIM1 and SIM2.

Note: If the appliance has two SIM card slots, use SIM slot 1 and vni-0/100 port for bootstrapping when you upgrade the software to a later version.

If the appliance is powered off when you insert the SIM card or cards, the LTE functionality is activated when you boot the appliance. If you insert the SIM card or cards into the LTE modem module when the appliance is powered on and operational, you must reboot the appliance to restart the LTE modem and LTE functionality. To do this, you must power off the appliance, unplug the power cable, plug the power cable back in, and press the power button. Simply powering the appliance on and off does not restart the LTE modem. Also, pressing the reset button on the appliance or rebooting the appliance from Versa Director does not restart the LTE modem.

Embedded WiFi Module

The CSG350 appliance has two internal wireless slots that can be configured for single LTE or dual LTE. The CSG355 and CSG365 appliances have three internal wireless slots.

The CSG300 series appliances have one WiFi access point (AP) module. It is a dual-band module that simultaneously supports 2.4 GHz, for longer distances, and 5 GHz, for faster throughput. It provides the following WiFi capabilities:

- WiFi radios preconfigured for operation at 2.4 GHz or 5.0 GHz
- Supports DFS frequency bands, enabled by default, thereby providing more frequency bands for 5-GHz radio
- Supports 802.11ac Wave 2 standard and 2x2:2 Multi-User Multiple Input Multiple Output (MU-MIMO) for more efficient transmission to multiple clients
- Built-in support for WiFi mesh capabilities
- Bluetooth for ZTP and smartphone applications
- Supports IEEE 802.11a, 802.11b, 802.11g, 802.11n, and 802.11ac protocols
- Supports channel bandwidths of 20 MHz, 40 MHz, and 80 MHz
- Supports channel bonding with channel bandwidths of 5 MHz, 10 MHz, 20 MHz, and 40 MHz
- Background scanning automatically selects the best and cleanest channel
- Supports up to 512 concurrent clients across both frequencies, while each radio supports up to 255 clients
- Supports up to 16 SSIDs simultaneously
- Supports client-steering capabilities across respective frequency bands based on load and number of clients in each frequency, thereby allowing end devices to have an optimum experience
- Certified for FCC and CE

The WiFi AP module has a hardware-based cryptographic engine that includes secure boot. WiFi security is provided by 802.11i, AES-CCMP, AES-GCMP, PRNG, TKIP, WAPI, WEP, WPA, WPA2, and WPS based encryption methods.

You can seamlessly integrate the WiFi AP module with Versa Operating SystemTM (VOSTM) software features, including over-the-air traffic analysis and other analytics. The VOS software provides queuing mechanisms, including weighted round-robin (WRR). In addition, the WiFi AP module has a built-in QoS feature that prioritizes and manages over-the-air traffic. It also has built-in spectrum analyzer capabilities to detect rogue frequencies in an environment.

Interface Numbering

Figure 1 shows the mapping of the Ethernet ports to virtual network interface (VNI) numbering for the CSG350 appliance.

Figure 1: CSG350 Port-to-VNI Mapping

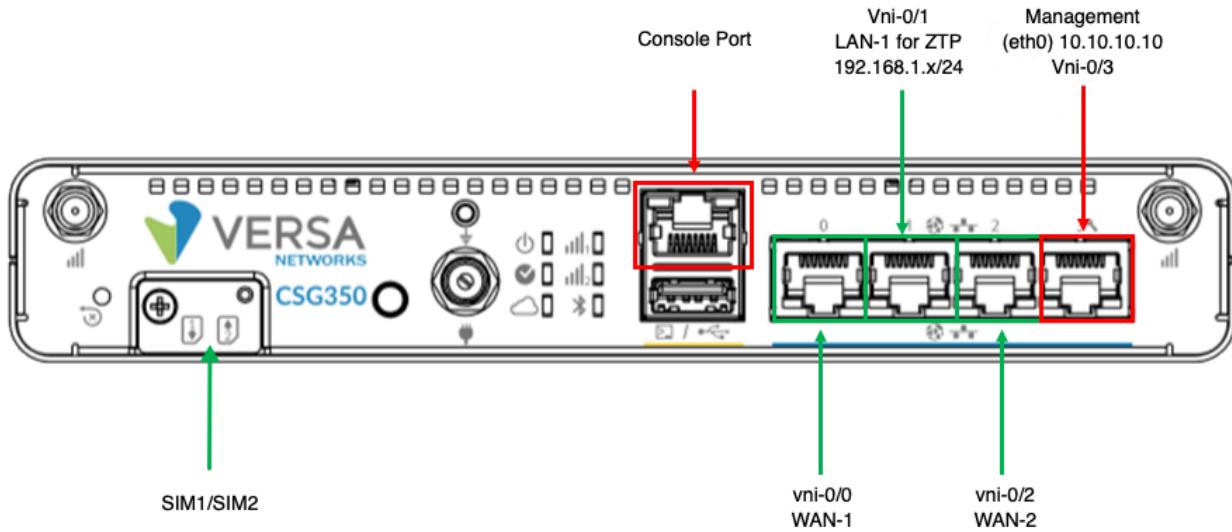
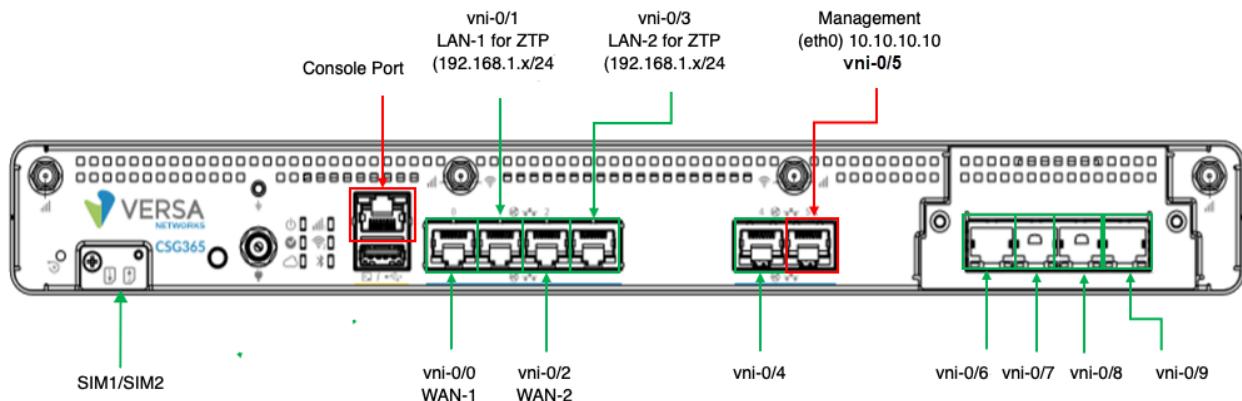


Figure 2 shows port-to-VNI mapping for the CSG355 and CSG365 appliances. Note that the CSG355 and CSG365 chassis are identical.

Figure 2: CSG355 and CSG365 Port-to-VNI Mapping



Power Supply and Airflow

This article describes the AC power supply and airflow requirements for CSG300 appliances.

AC Power Supply

By default, CSG300 series appliances ship with one AC power supply unit.

If you order the CSG300 series appliance with the power-over-Ethernet (PoE) NIC module, an additional power supply

unit ships with the appliance.

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

Table 1: CSG300 AC Power Supply Specifications

Item	Specification
AC input voltage	100–240 Volts
AC input line frequency	50–60 Hz
Typical power consumption with PoE disabled	35 Watts
Typical power consumption with PoE enabled	60 Watts

Airflow Requirements

The CSG300 series appliance is made of aluminum for optimal heat dissipation.

The appliance is cooled by a fan.

When planning your site for installing a CSG300 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 CSG300 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.

Installation Guidelines

This article provides general safety standards and warnings relating to installing or connecting a CSG300 series appliance.

General Safety Guidelines

Caution: Before installing or removing a CSG300 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 CSG300 series appliance in compliance with the following local, national, and international electrical codes:

https://docs.versa-networks.com/Hardware/Cloud_Services_Gateway_300_Series/Complete_CSG300_Series_Hardware_Gui...

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- United States—National Fire Protection Association (NFPA 70), United States National Electrical Code.
- Other countries—International Electromechanical Commission (IEC) 60364, Part 1 through Part 7.
- Evaluated to the TN power system.
- Canada—Canadian Electrical Code, Part 1, CSA C22.1.
- 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.

Caution: There is a risk of explosion if the battery is replaced by an incorrect type.

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 his 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, the user is 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 minimum distance 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.

ANATEL Interference Statement

The following ANATEL interference information applies to Brazil:

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados. Para maiores informações, consulte o site da ANATEL – www.anatel.gov.br.

Declaration of Conformity

The following statement applies to Ukraine:

справжнім (найменування виробника) заявляє, що тип радіообладнання (позначення типу радіообладнання) відповідає Технічному регламенту радіообладнання;

повний текст декларації про відповідність доступний на веб-сайті за такою адресою www.versa-networks.com.

IC Wireless Interference Statement for Canada

The following IC wireless interference information applies to Canada only:

This series appliance contains licence-exempt transmitters or receivers)that comply with Innovation, Science, and Economic Development Canada's licence-exempt RSSs. Operation is subject to the following conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage.
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

To satisfy RF exposure requirements, a separation distance of 20 cm or more must be maintained between the antenna of CSG300 series device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

Les antennes installées doivent être situées de façon à ce que la population ne puisse y être exposée à une distance de moins de 20 cm. Installer les antennes de façon à ce que le personnel ne puisse approcher à 20 cm ou moins de la position centrale de l' antenne.

These radio transmitters IC:2417C-EM7455 and 26338-CSGW1 have been approved by Innovation, Science, and Economic Development Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

- LTE EM7455 modules—Radio transmitter IC: 2417C-EM7455
 - Gain of antenna: 3.23 dBi maximum
 - Type of antenna: 50 ohm, Dipole
- WiFi CSG-W1 modules—Radio transmitter IC: 26338-CSGW1
 - Gain of antenna: 4.55 dBi maximum
 - Type of antenna: 50 ohm, Dipole

Le présent émetteur radio IC:2417C-EM7455 and 26338-CSGW1 a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.

- LTE EM7455 modules—Radio émetteur IC:2417C-EM7455
 - Gain d'antenne: 3.23 dBi maximal
 - Type d'antenne: 50 ohm, Dipole
- WiFi CSG-W1 modules—Radio émetteur IC:26338-CSGW1
 - Gain d'antenne: 4.55 dBi maximal
 - Type d'antenne: 50 ohm, Dipole
- The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.
Les dispositifs fonctionnant dans la bande de 5 150 à 5 250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.
- For devices with detachable antennas, the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz must be such that the equipment still complies with the EIRP limit.
Pour les dispositifs munis d'antennes amovibles, le gain maximal d'antenne permis pour les dispositifs utilisant les bandes de 5 250 à 5 350 MHz et de 5 470 à 5 725 MHz doit être conforme à la limite de la p.i.r.e.
- For devices with detachable antennas, the maximum antenna gain permitted for devices in the band 5725-5850 MHz must be such that the equipment still complies with the EIRP limits as appropriate.
Pour les dispositifs munis d'antennes amovibles, le gain maximal d'antenne permis (pour les dispositifs utilisant la bande de 5 725 à 5 850 MHz) doit être conforme à la limite de la p.i.r.e. spécifiée pour l'exploitation point à point et l'exploitation non point à point, selon le cas.
- Where applicable, antenna types, antenna models) and worst case tilt angles necessary to remain compliant with the EIRP elevation mask requirement set forth in section 6.2.2.3 must be clearly indicated.
Lorsqu'il y a lieu, les types d'antennes (s'il y en a plusieurs), les numéros de modèle de l'antenne et les pires angles d'inclinaison nécessaires pour rester conforme à l'exigence de la p.i.r.e. applicable au masque d'élévation, énoncée à la section 6.2.2.3, doivent être clairement indiqués.

VCCI Interference Statement for Japan

This is a Class A product based on the standard of the VCCI Council. If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 V C C I - A

NBTC Thailand (SDoC) Statement

This telecommunication equipment conforms to the standard or technical requirements of NBTC.

เครื่องโทรศัพท์มือถือและอุปกรณ์นี้ มีความสอดคล้องตามมาตรฐานหรือข้อกำหนดทางเทคนิคของ กสทช.

QR Code



Prepare the Site for Installation

To prepare your site for installing a CSG300 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 and conductive material.
- 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% to 85%, non-condensing.

Rack Requirements

You can mount a CSG355 or CSG365 appliance in a 19-inch four-post rack. Table 1 lists the rack requirements.

Table 1: Rack Requirements for a CSG300 Series 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 allows for proper clearance around the appliance and the rack.
Rack firmly secured to building structure	Secure the rack to floor brackets and to ceiling brackets to ensure maximum stability.

Airflow Requirements

A CSG300 series appliance uses fan-based cooling. Passive cooling occurs by airflow through the vents on the side of the appliance.

When placing a CSG300 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 CSG300 Series Appliance

This article provides instructions about how to unpack a CSG300 series appliance and how to mount a CSG355 or CSG365 appliance in a 19-inch rack.

Unpack a CSG300 Series Appliance

The CSG300 series appliance is packed in a plastic box, 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 CSG300 series appliance:

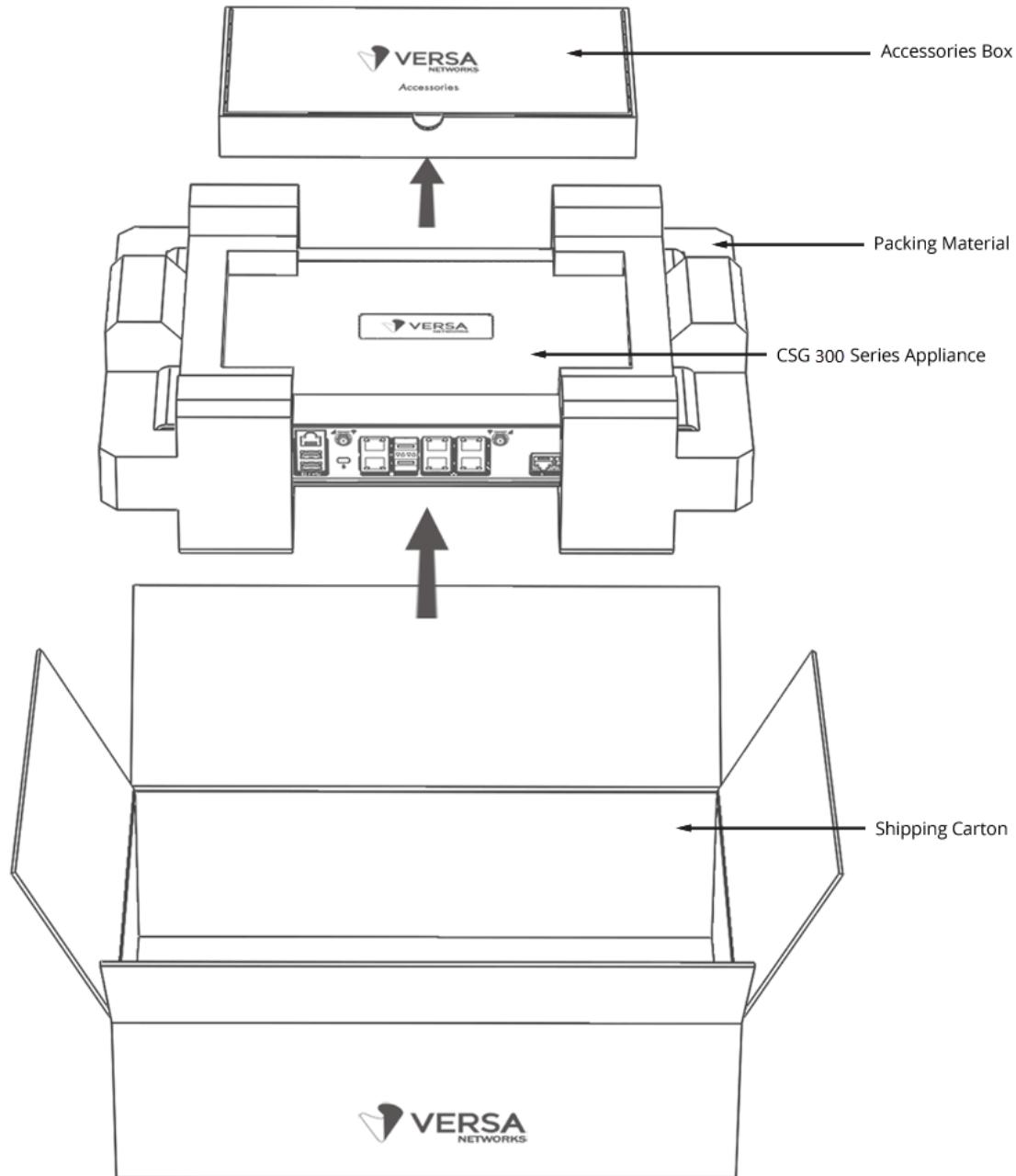
https://docs.versa-networks.com/Hardware/Cloud_Services_Gateway_300_Series/Complete_CSG300_Series_Hardware_Gui...

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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 CSG300 Series 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 CSG300 Series Appliance

The cardboard carton in which a CSG300 series appliance is shipped contains a packing list. Check the packing list against the parts that you receive in the shipping carton.

Packing List for the CSG350 Appliance

Table 1 lists the parts shipped with a CSG350 appliance.

Table 1: Parts Shipped with a CSG350 Appliance

Components	Quantity
CSG350 appliance chassis	1
AC power adapter	1
Standard 3-prong C13 power cable, minimum 2 Amps (US only)	1
RJ45-to-USB serial console cable	1
LTE antenna (included with LTE module only)	2 for single LTE module 4 for dual LTE module

Packing List for the CSG355 or CSG365 Appliance

Table 2 lists the parts shipped with a CSG355 or CSG365 appliance.

Table 2: Parts Shipped with a CSG355 or CSG365 Appliance

Components	Quantity
CSG355 or CSG365 appliance chassis	1
AC power adapter	1
Standard 3-prong C13 power cable, minimum 2 Amps (US only)	1
RJ45-to-USB serial console cable	1
LTE antenna (included with LTE module only)	2 for single LTE module 4 for dual LTE module

Components	Quantity
WiFi antenna (included with WiFi module only)	2
Rack-mounting ears	2
Screws for rack-mounting ears	6 (size M4)
Screws for rack mounting	4 (size M6)

Mount a CSG355 or CSG365 Appliance in a Rack

You can mount a CSG355 or CSG365 appliance in a 19-inch rack. Two people are required to mount the appliance.

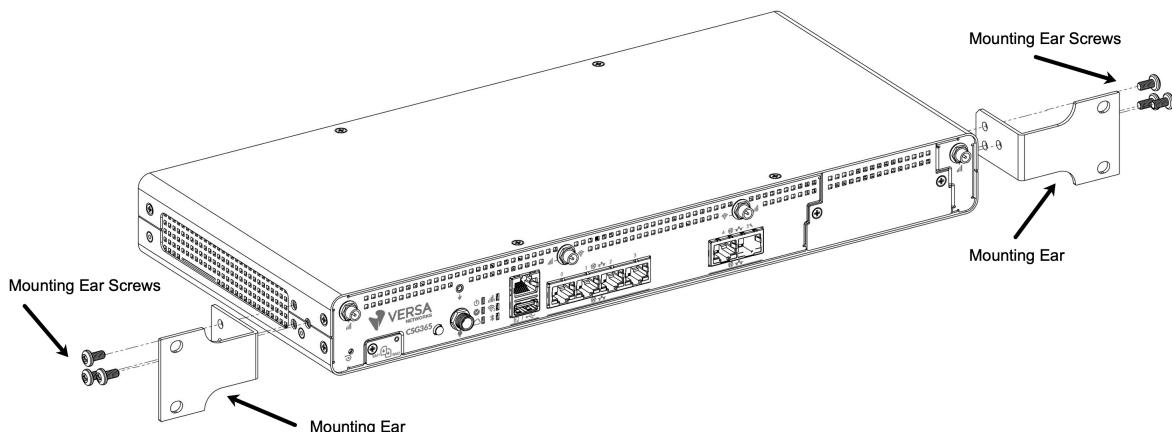
To mount the appliance, ensure that you have the following tools:

- Number 2 Phillips (+) screwdriver
- Tape measure

To mount a CSG355 or CSG365 appliance in a 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 22 cm wide (about 8.6 inches) and must fit within the mounting posts.
3. Attach the two mounting ears to each side of the appliance chassis using a minimum of six M4 screws that are shipped with the appliance. Do not overtighten the screws.

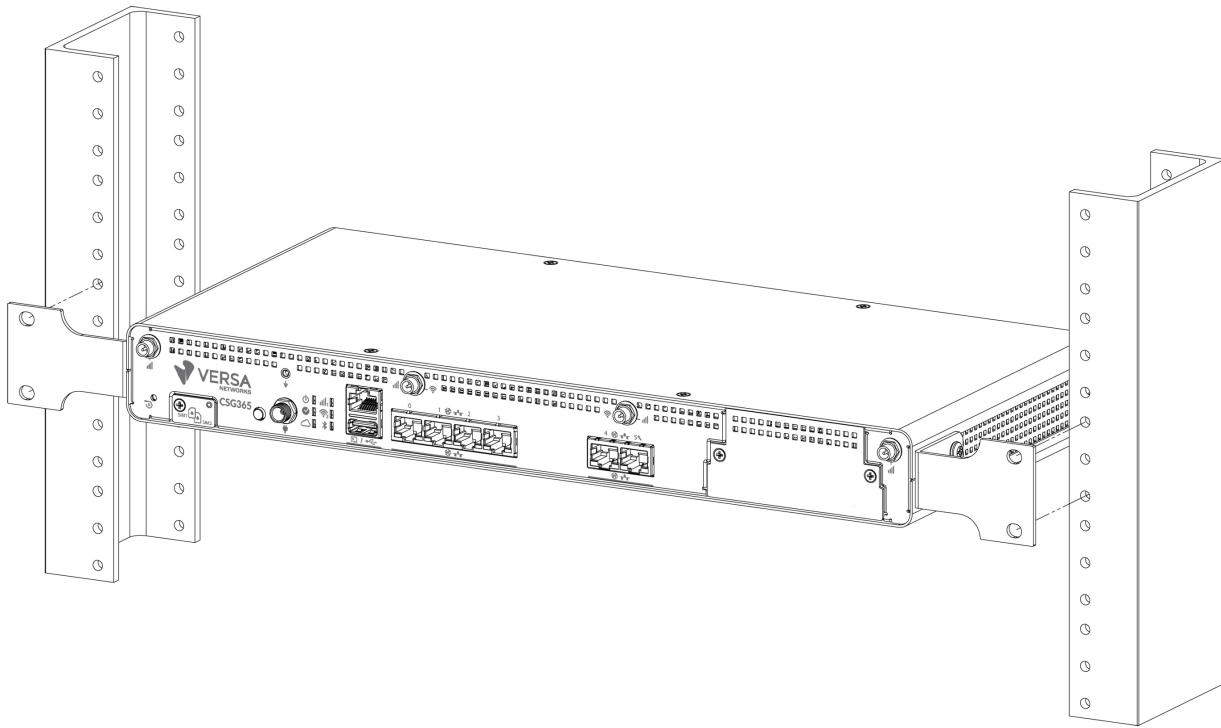
Figure 2: Attach the Mounting Ears to a CSG300 Series Appliance



5. Grasp both sides of the appliance chassis, making sure that the front of the chassis is facing you.

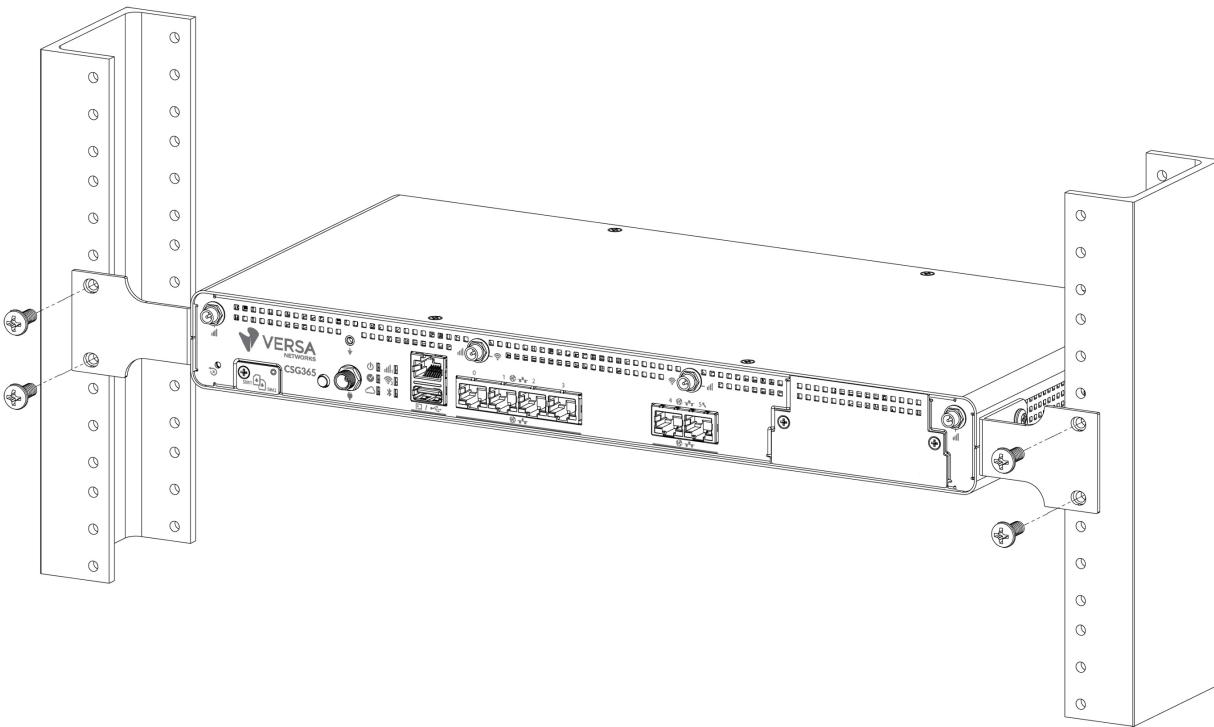
6. Stand in front of the rack and lift the chassis. Then, gently insert the chassis into the rack and slide it as far back as possible.

Figure 3: Insert a CSG365 Series Appliance into the Rack



7. Have a second person secure the mounting ears to the front of the rack using the four M6 screws that shipped with the appliance. Insert and then tighten the screws. Do not overtighten the screws.

Figure 4: Secure the Mounting Ears to the Rack



Connect a CSG300 Series Appliance

This article describes how to connect a CSG300 series appliance to an AC power source and to a management console.

Versa recommends 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 AC Power to a CSG300 Series Appliance

Before you begin connecting AC power to a CSG300 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 local plug.

To connect a CSG300 series appliance to an AC power source:

1. Attach one end of the ESD grounding strap to your bare wrist, and connect the other end to the ESD point on the rack.
2. Plug one end of the AC power cord into the AC power adapter.



3. Plug the NEMA 5-15 end of the AC power cord into an AC power source outlet.



4. Plug the DC end of the power supply unit into the back of the CSG300 series appliance.

Step 2: Configure a Serial Management Console to Connect to a CSG300 Series Appliance

CSG300 series appliances are equipped with an RJ45 serial console port.

To connect to the console port, use the RJ45-to-USB serial console cable supplied with the appliance:

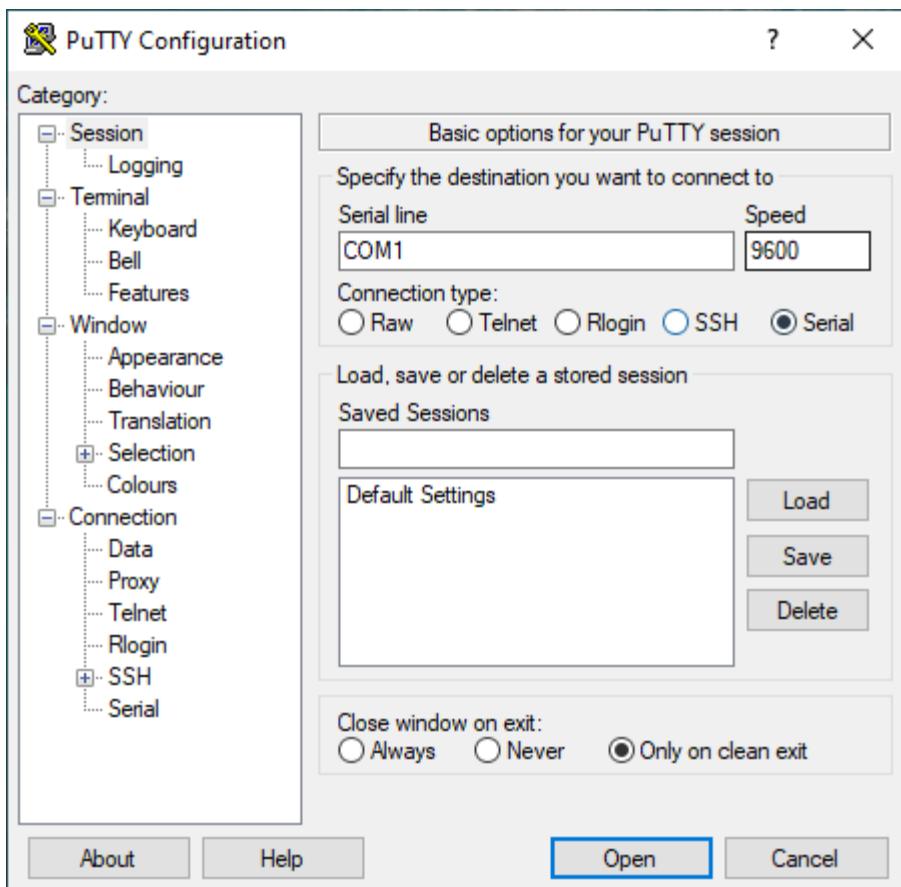
1. Plug the RJ45 end of the console cable into the console port located on the rear panel of the CSG300 series appliance.
2. Plug the USB end of the console cable into the management console (that is, the laptop).

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:

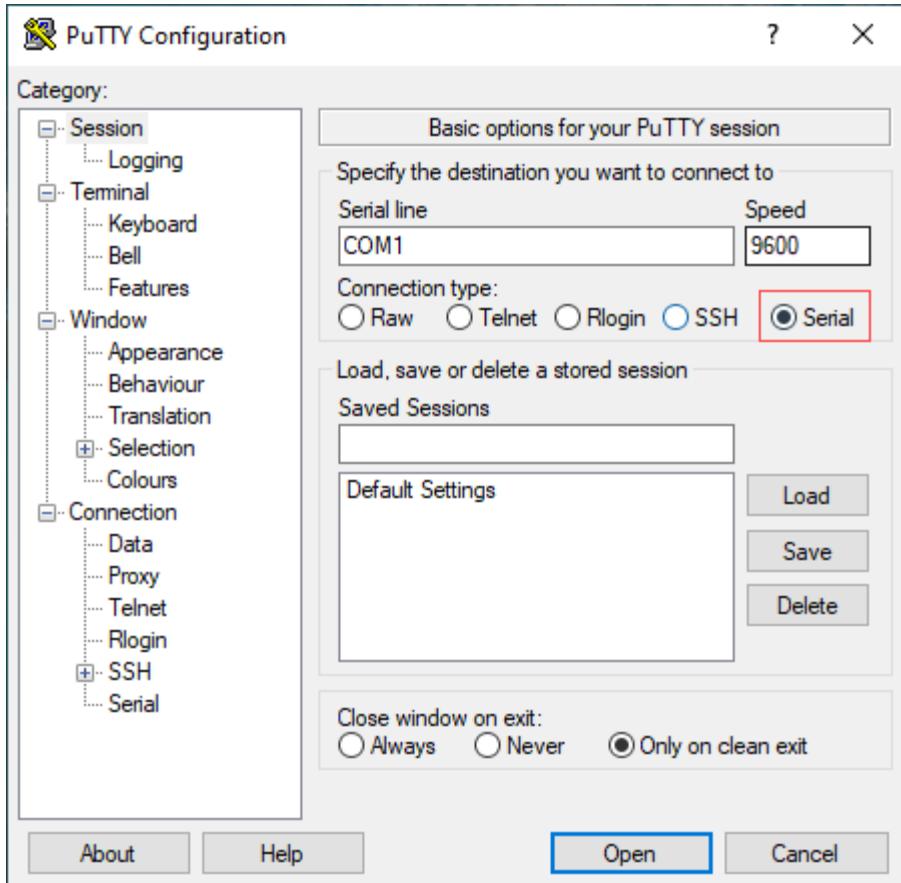
- Speed (baud): 115200
- Data bits: 8
- Stop bits: 1
- Parity: None
- Flow control: None

To connect a management console to a CSG300 series appliance:

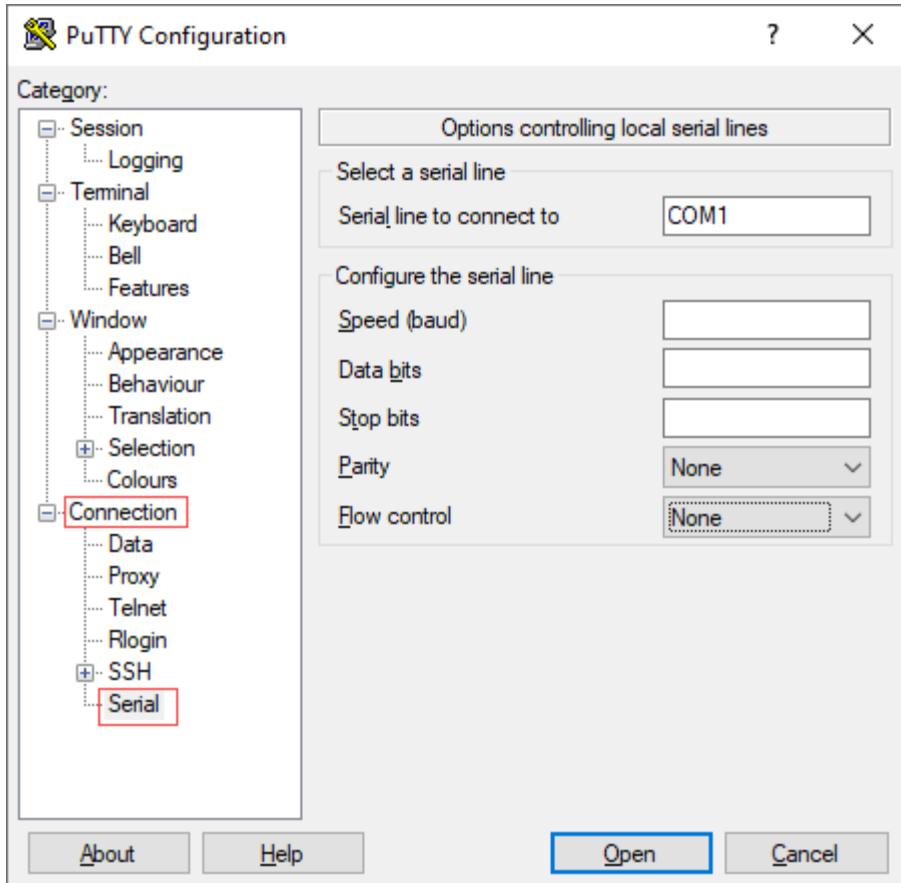
1. Open the PuTTY application. The PuTTY configuration window displays.



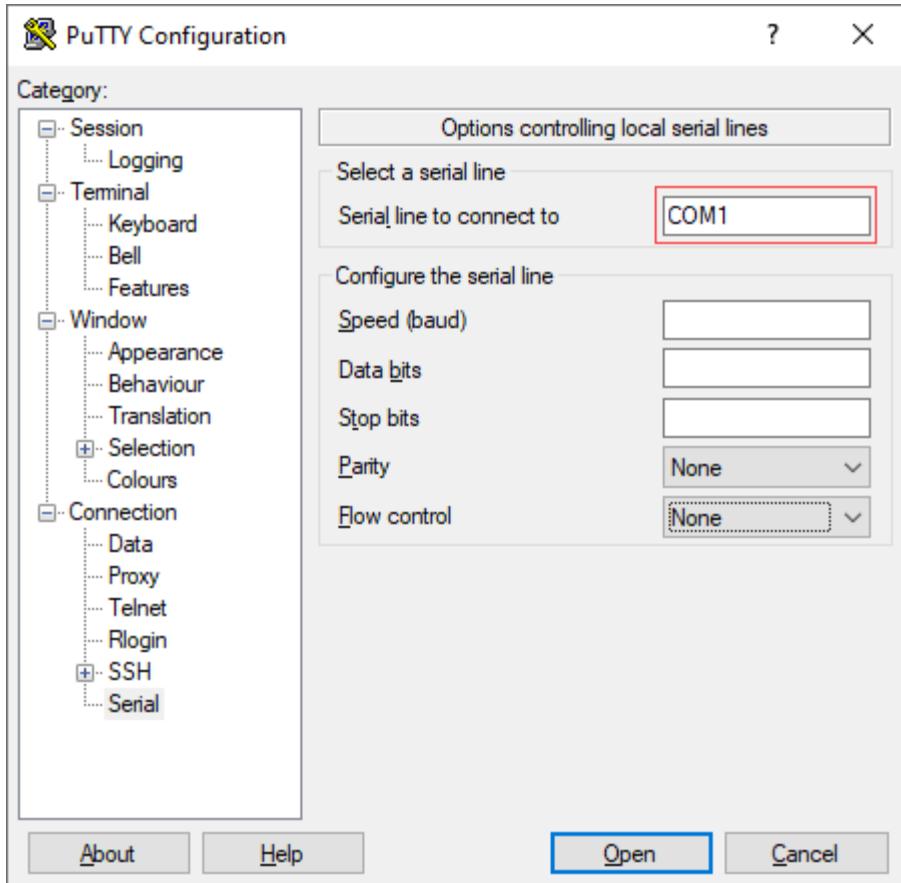
2. In the Category navigation pane, click Session, and then in the Connection Type menu, click Serial.



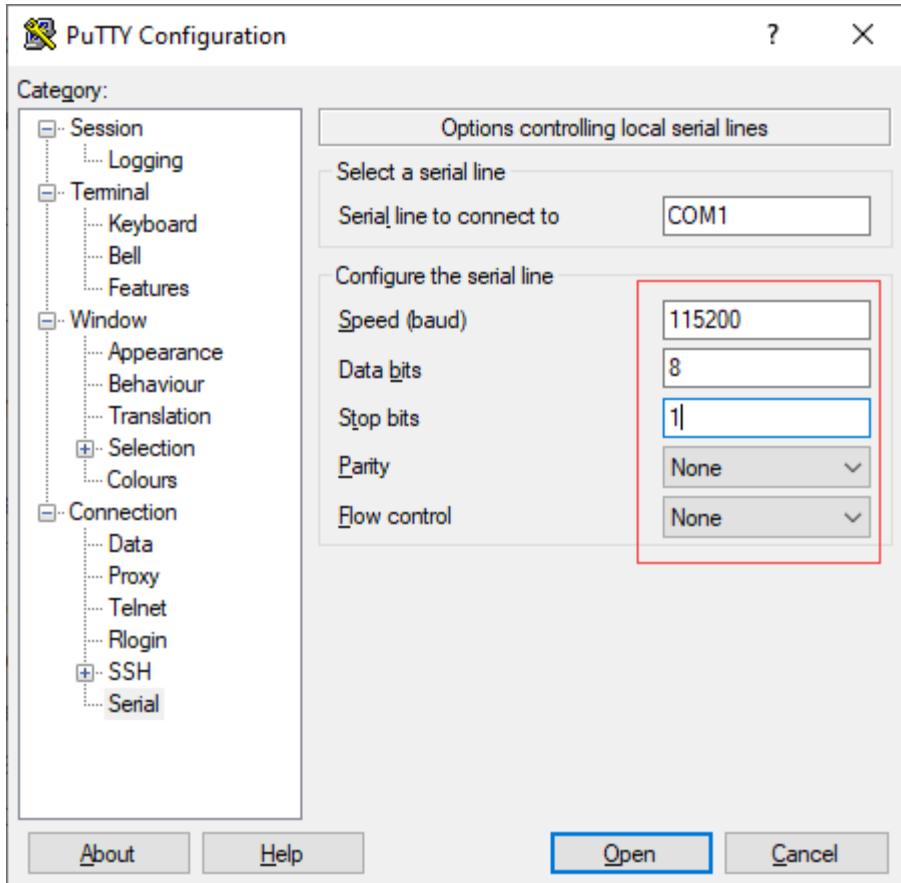
3. In the Category navigation pane, click Connection > Serial. The Options Controlling Local Serial Lines page displays.



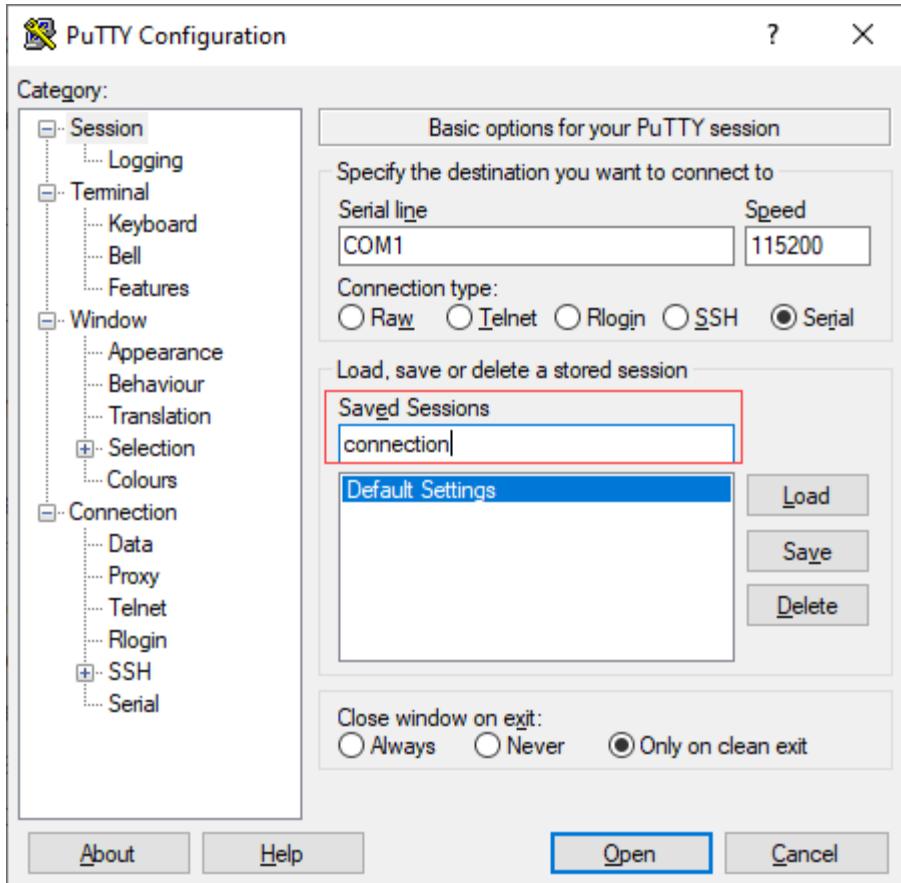
4. In the Serial Line To Connect To field, enter the COM port that your device is connected to. The default COM port is COM1.



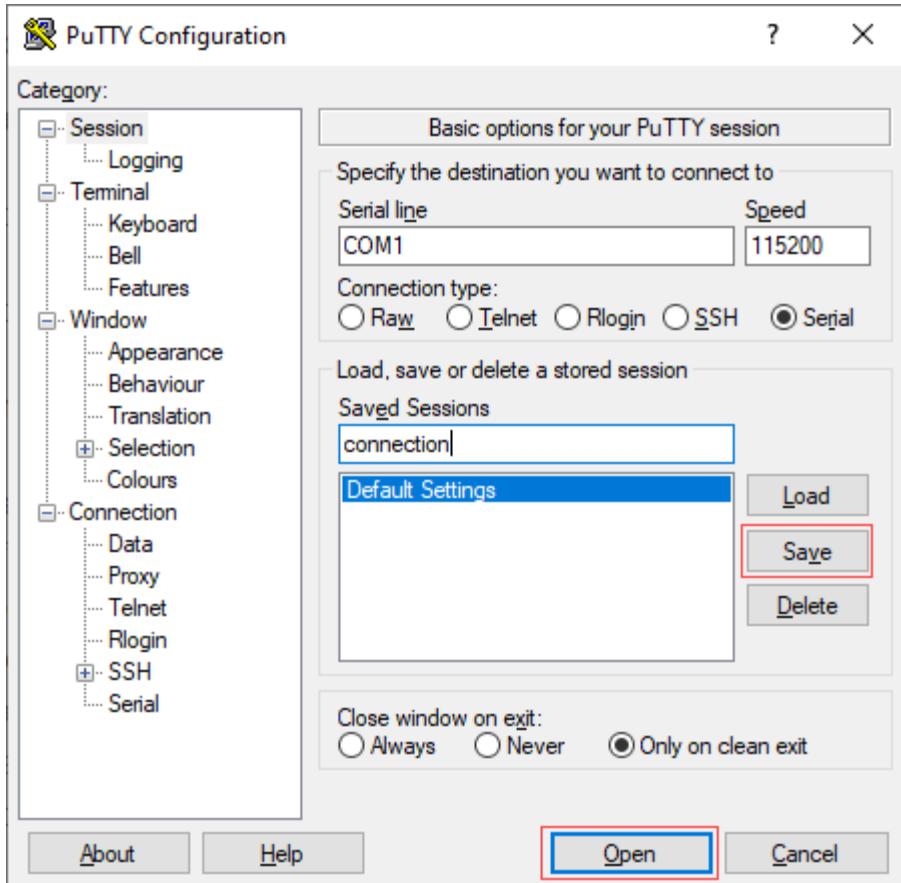
5. In the Configure the Serial Line section, enter the following information.



- a. In the Speed (Baud) field, enter the digital transmission speed. For CSG700 series appliances, the speed must be 115200.
 - b. In the Data bits field, enter the number of data bits used for each character. The recommended value is 8.
 - c. In the Stop bits field, enter the number of bits to be sent at the end of every character. The recommended value is 1.
 - d. In the Parity field, select None. This is the method of detecting errors in transmission.
 - e. 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".

```
versa-flexvnf login: admin
password:
Last login: Wed Oct 14 18:49:52 PDT 2020 on ttys0

VERSATM
FLEXUNF

versa FlexUNF software
release : 21.1.1 (GA)
release date: 20200820
package ID : 6e4e455
[admin@versa-flexvnf: ~] $
```

Step 3: Connect a CSG300 Series Appliance to a Network Management Console

You can deploy and manage a CSG300 series appliance from a Director or Concerto node. While you can configure and manage the appliance using a management console, it is recommended that you do so from the Director or Concerto node.

You can perform monitoring and troubleshooting from the CSG300 series appliance's CLI. To access the CLI, connect the appliance to the management console using a cable with an RJ-45 connector. Plug the RJ45 connector into the console port on the CSG300 series appliance, and plug the other end of the cable into the console server or into a management console.