LTE Modem Module

The Cloud Services Gateway (CSG) 700 series LTE modem module is a high-performance Cat-12 LTE Advanced modem that provides up to 300 Mbps download speeds and 50 Mbps upload speeds. The LTE modem supports multiple carriers, and it has been certified by major global carriers. The modem has a single SIM card that is externally accessible.

The CSG750, CSG750R, CSG770, and CSG770R appliances LTE modem module is a high performance Advanced Pro Cat-12 modem (LG) and sub-6 5G modem (5H) that can be used as a primary or backup WAN access link for the branch and remote sites. Enterprise customers can deploy CSG700 series appliances with up to two built-in and two additional attached LTE links simultaneously for wireless WAN access from the branch to provide active-active connectivity to two active LTE access links.

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

- Externally accessible SIM card that supports dual-LTE modems.
- Connects to most global carrier's network based on the SIM card inserted.
- 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.
- Connect to two LTE modems with the two USB slots on the appliance.

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 using Versa Operating System^{TM} (VOS^{TM}) software.

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
Frequency bands 4GLTE	1, 3, 5, 7, 8, 18, 19, 21, 28, 38, 39, 40, and 41	1 through 5, 7, 8, 12, 13, 20, 25, 26, 29, 30, and 41

Specification	APAC Modem	Americas and EMEA Modem
Frequency bands 3G WCDMA	1, 5, 6, 8, 9, and 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, and 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, and 41+41
Location Solution	Standalone, Xtra, SUPL 1.0 & 2.0, GLONASS, Galileo, BeiDou	Standalone, Xtra, SUPL 1.0 & 2.0, GLONASS, Galileo, BeiDou
Approvals	CE, GCF, JRF/JPA, KC, NCC	CE, FCC, GCF, IC, NCC, PTCRB
Certified Carriers	NTT Docomo, Telstra, KDDI, Softbank	AT&T, Bell, Rogers, Sprint, Telus, Verizon, Vodafone, US Cellular, Anatel

Table 2 lists the supported 5G specifications

Table 2: 5G Specifications

Features	Specification Summary
Modem	Sub-6 FR1 (3GPP Release 15) with CAT-20/CAT-18 LTE-Advanced Pro, HSPA+ support
Regional	Global
5G category	Sub-6, FR1
5G bands (NSA and SA)	n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n38, n40, n41, n48, n66, n77, n78, n79
LTE category	Cat-20 for uplink and Cat-18 for downlink directions
5G maximum speeds	Download—300 Mbps Upload—50 Mbps
Antenna	4x4 MIMO

You can order CSG730, CSG750, CSG750R, CSG770, and CSG770R model 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 front 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 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 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.