

Cisco Catalyst CG522-E Cellular Gateway

The Cisco® Catalyst® CG522-E Cellular Gateway offers 5G sub-6-GHz cellular connectivity along with Category 20 (CAT20) access to the LTE Advanced Pro (4G LTE) cellular network to devices that are designed with Ethernet connectivity.

Q What LTE network bands does the CG522-E support?

A This cellular gateway device supports the following LTE Advanced Pro and 3G networks:

5G FR1: 1, 2, 3, 5, 7, 8, 12, 20, 25, 28, 38, 40, 41, 48, 66, 71, 77, 78, 79

4G LTE: 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 18, 19, 20, 21, 25, 26, 28, 29, 30, 32, 34, 38, 39, 40, 41, 42, 43, 46, 48, 66, 71

3G WCDMA: 1, 2, 3, 4, 5, 6, 8, 9, 19

Q How do I access the Command-Line Interface (CLI) via a Secure Shell (SSH) session on the CG522-E?

A The cellular gateway platform can be accessed via a SSH session for initial configuration. Parameters for that initial connection are as follows:

IP address: 192.168.1.1

Default username: admin

Default password: device serial number

The serial number can be found on the bottom of the unit.

Q How do I access the CLI via the console port on the platform?

A The cellular gateway platform can be accessed via a console session for initial configuration. Parameters for that initial connection are as follows:

Baud rate: 9600, 19,200, 38,400, or 115,200 bps, 8 data bits, no parity, 1 stop bit (8N1). No flow control necessary.

Default username: admin

Default password: device serial number

The serial number can be found on the bottom of the unit. Note that the default baud rate is 115,200 bps.

Q What is the quickest path to begin using the unit?

A To begin using the cellular gateway platform, all you really need to do is attach a device operating as a Dynamic Host Configuration Protocol (DHCP) client to the 2.5-Gbps Ethernet port. The port will drop back to 1-Gbps speed if necessary. Assuming that you are connecting to a public Access Point Name (APN), the AutoSIM function will load the appropriate firmware and default APN values.

If custom APN values are necessary, instructions for providing those via the cellular gateway's CLI can be found later in this document.

The DHCP client will receive an IP address from the cellular gateway. That DHCP action will provide information to install a default route on the client that points back to the cellular provider. In addition, the DHCP server will send information to install a route to 192.168.1.1, which will point to the cellular gateway for management connectivity.

Q How do I change the platform password?

A To change the platform password, access the CLI via SSH. Then enter configuration mode using “config t” and use the following commands to update the password:

```
CellularGateway(config)# aaa authentication users
user admin change-password old-password
Value for 'old-password' (<string>): *****
Value for 'new-password' (<string>): *****
Value for 'confirm-password' (<string>): *****
CellularGateway(config)#
System message at 2020-12-01 22:07:57...
Commit performed by system via system using system.
Any customized passwords must meet the following criteria:
```

- Contain at least one uppercase letter
- Contain at least one lowercase letter
- Contain at least one special character (|,\, and / are not supported)
- Contain a number
- Contain a minimum of 8 characters
- Contain no more than 32 characters

Q What routing functions are performed on the CG522-E device?

A None. The CG522-E cellular gateway acts as an IP pass-through device. All Layer 3 and above routing functions will need to be handled by the client device attached to the CG522-E.

Q Does the CG522-E support IPv6 pass-through?

A Yes. It supports IPv6 only, IPv4 only, or concurrent.

Q How are custom APNs configured?

A Custom APNs must be configured using the CG522-E CLI interface at this time. Use the following commands on the CG522-E to configure a custom APN profile:

```
CellularGateway# config t
Entering configuration mode terminal
CellularGateway(config)# controller cellular 1
CellularGateway(config-cellular-1)# sim slot 0
CellularGateway(config-slot-0)# profile id 1 apn
broadband
```

The following options are available for pdn-type:

- IPv4
- IPv4v6
- IPv6

Additionally, it is possible to configure authentication using the following methods:

- chap
- pap
- chap_or_pap

An example of that full configuration is given here:

```
CellularGateway# config t
Entering configuration mode terminal
CellularGateway(config)# controller cellular 1
CellularGateway(config-cellular-1)# sim slot 0
CellularGateway(config-slot-0)# profile id 1 apn
broadband pdn-type IPv4v6 authentication pap
username user001 password pw001
```

Q **How is the CG522-E powered?**

A The system can be powered either by a Power over Ethernet Plus (PoE+) Ethernet connection to the multigigabit LAN interface or by a local power connection. The PoE+ cable run to the device providing the PoE+ power should be no longer than 100 m. The CG522-E can alternatively be powered by an AC power brick that connects to the 4-pin connector on the unit.

Q **Does the CG522-E have to be directly attached to the client device, or can it be attached via a traditional Ethernet infrastructure with switches?**

A The recommended deployment is for the CG522-E cellular gateway to be attached directly to the client device via a dedicated Ethernet cable. However, attachment can be via a switched Ethernet infrastructure provided the following criteria are met:

- A dedicated VLAN is used for connectivity between the CG522-E and the client device
- No other devices are on that VLAN
- No other DHCP servers have access to that VLAN (directly or via DHCP helpers)

Q **Is the CG522-E rated for outdoor use?**

A No, the CG522-E must be used indoors. It is possible to attach antennas to the CG522-E and position those antennas outdoors if absolutely necessary.

Q **Are specific models of the hardware available for certain geographies?**

A No, there is only one product ID, which is intended for global support.

Q **If 5G is unavailable, will the CG522-E connect at 4G or 3G speeds?**

A Yes, the CG522-E will fall back to CAT20 Advanced LTE Pro 3.0. If that fails, it will fall back further to 3G connections.

Q **Is Multiple-Input Multiple-Output (MIMO) supported?**

A For 4G:

2x2 MIMO upstream is supported across all bands.

4x4 MIMO downstream is supported on the following bands: 1, 2, 3, 4, 7, 25, 30, 32, 34, 38, 39, 40, 41, 42, (43), 48, 66.

Bands in parentheses are targeted for future support with a modem firmware upgrade.

For 5G:

2x2 MIMO upstream is not supported.

4x4 MIMO upstream is supported on the following bands: 1, 2, 3, (7, 25, 38, 40, 41, 48), 66, 77, 78, 79.

Bands in parentheses are targeted for future support with a modem firmware upgrade.

Q **Is carrier aggregation supported?**

A For 4G:

Downstream carrier aggregation is supported up to 7CC.

Upstream carrier aggregation is supported up to 2CC with intraband continuous and interband CCs.

For 5G:

Downstream and upstream carrier aggregation is supported.