Troubleshooting and Diagnosing Connectivity Issues

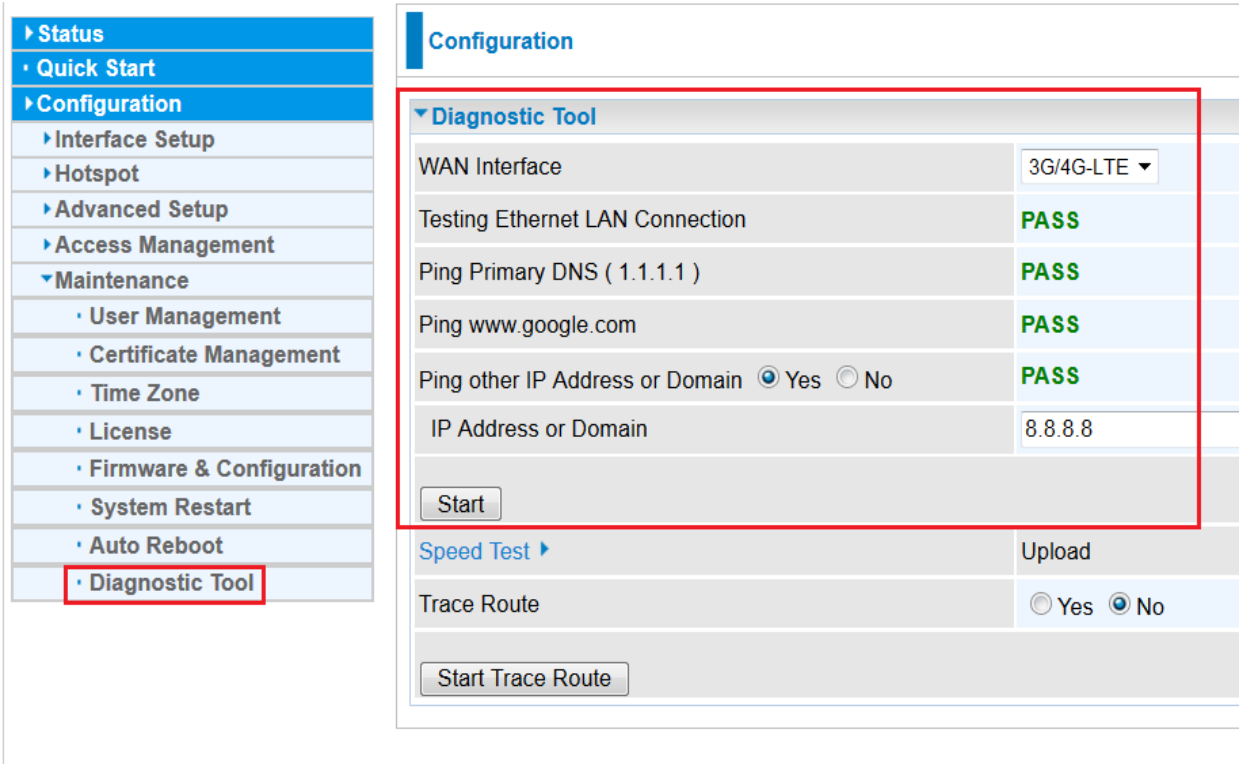
Summary

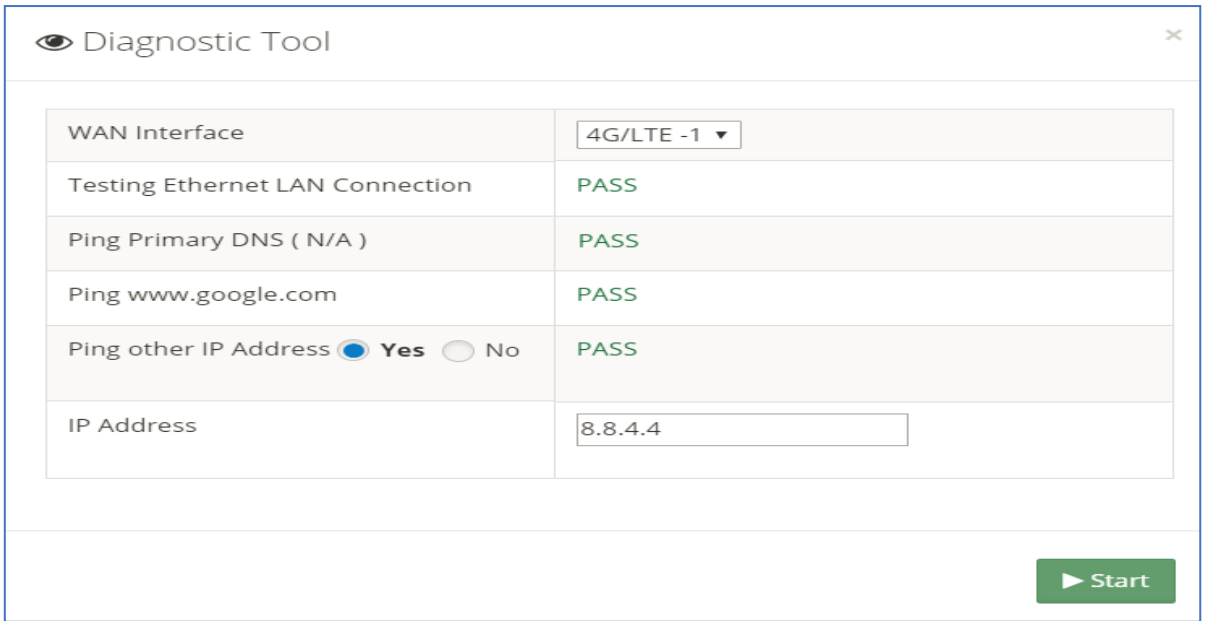
This article shows how to troubleshoot LAN/WAN connectivity issues for a BEC 4G LTE router. These steps can help identify and determine whether the root problem is at the end-user equipment, CPE, signal-related, or upstream issues.

Steps

Step 1: Diagnostic Tool

Login to the router and click ***Configuration > Maintenance > Diagnostic Tool***. This feature is also found on the BECentral portal under ***Command*** > ***Diagnostic Tool***. You can also use the ***Ping other IP Address*** feature to ping devices on the LAN (ensure that ICMP ping is allowed on the device).





Step 2: Signal Strength and Suggestions

Ensure the signal strength of the device is within the following thresholds. Generally, the better signal, the better throughput you will see.

RSRP

RSRP	Signal strength	Description
>= -80 dBm	Excellent	Strong signal with maximum data speeds
-80 dBm to -90 dBm	Good	Strong signal with good data speeds
-90 dBm to -100 dBm	Fair to poor	Reliable data speeds may be attained, but marginal data with drop-outs is possible. When this value gets close to -100, performance will drop drastically
<= -100 dBm	No signal	Disnonnection

RSRQ

RSRQ	Signal quality	Description
>= -10 dB	Excellent	Strong signal with maximum data speeds
-10 dB to -15 dB	Good	Strong signal with good data speeds
-15 dB to -20 dB	Fair to poor	Reliable data speeds may be attained, but marginal data with drop-outs is possible. When this value gets close to -20, performance will drop drastically
<= -20 dB	No signal	Disconnection

SINR

SINR	Signal strength	Description
>= 20 dB	Excellent	Strong signal with maximum data speeds
13 dB to 20 dB	Good	Strong signal with good data speeds
0 dB to 13 dB	Fair to poor	Reliable data speeds may be attained, but marginal data with drop-outs is possible. When this value gets close to 0, performance will drop drastically
<= 0 dB	No signal	Disconnection

RSSI

RSSI	Signal strength	Description
> -65 dBm	Excellent	Strong signal with maximum data speeds
-65 dBm to -75 dBm	Good	Strong signal with good data speeds
-75 dBm to -85 dBm	Fair	Fair but useful, fast and reliable data speeds may be attained, but marginal data with drop-outs is possible
-85 dBm to -95 dBm	Poor	Performance will drop drastically
<= -95 dBm	No signal	Disconnection

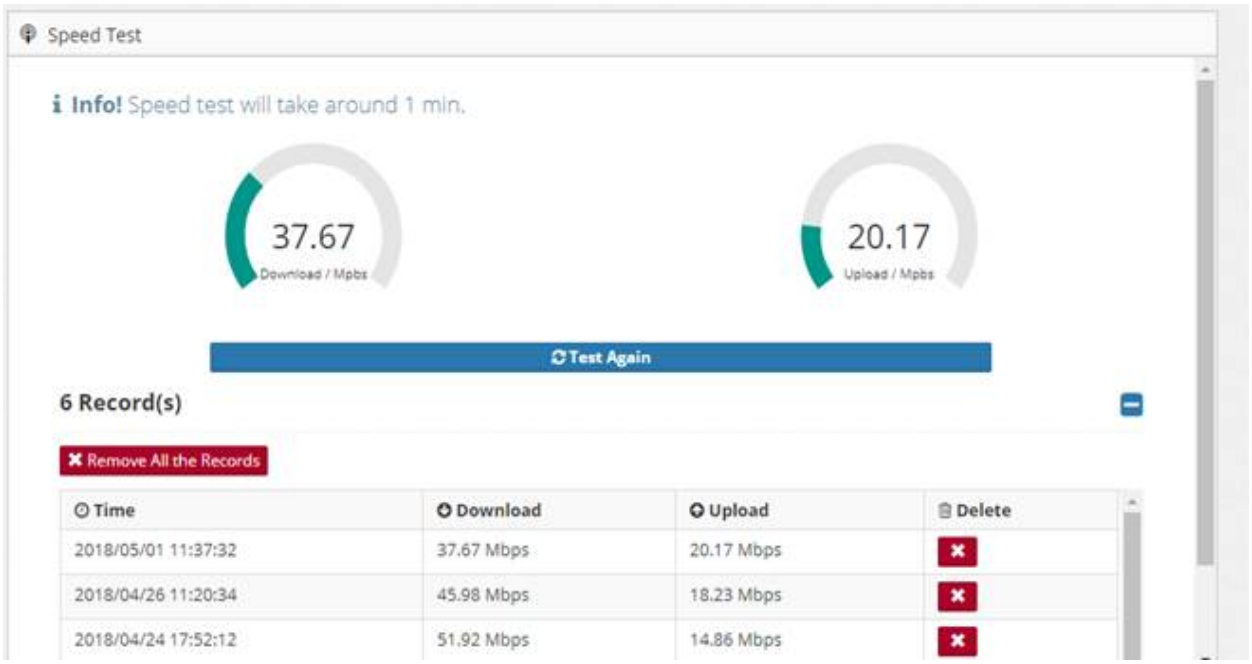
If you did not get required minimum values, please try some of the suggestions listed below to improve your connection:

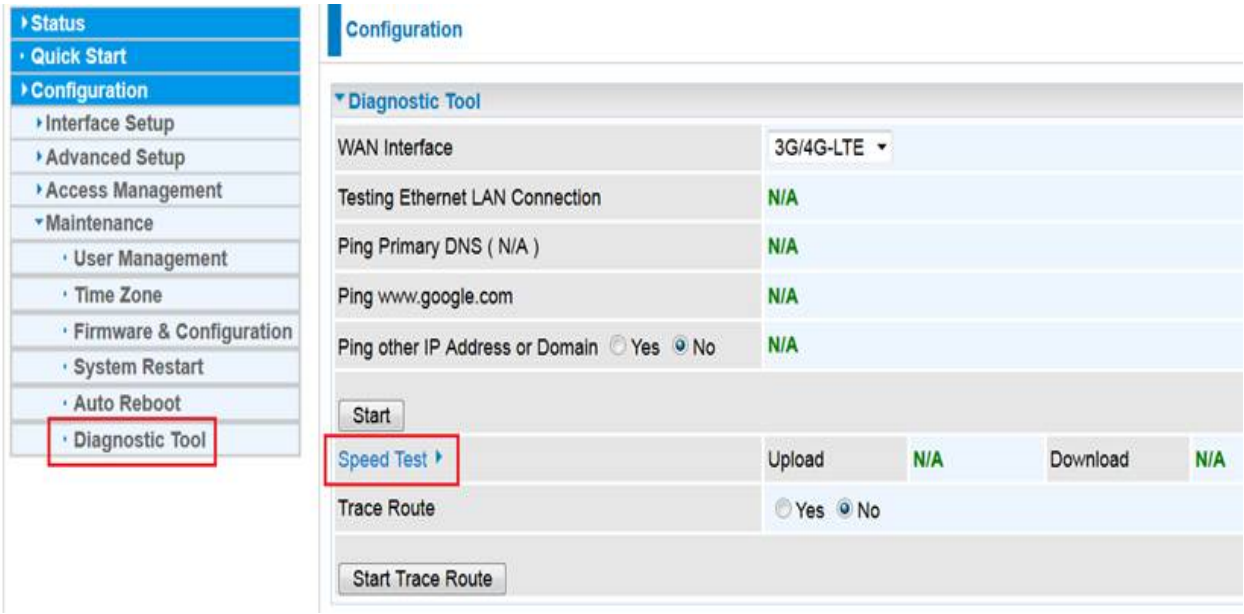
- Move the router to a side of the building that face the carrier's cellular tower.
- Move the router to a higher point in the building, close to the window, or on top of the cabinets.
- Do not place the router near any electrical devices, wiring, or radio devices.
- Use high-gain antenna if needed.

Step 3: Remote Speedtest

Perform a Remote Speedtest via the device's WEB GUI or using the BECentral portal. This will help determine if there are any bandwidth bottlenecks from the BEC CPE point to the Internet (Speedtest server). If the Speedtest returns normal Download/Upload results and the end-user continues to experience "slow Internet/no Internet" type problems, it may be possible their equipment is malfunctioning due to malware, faulty LAN connection, or other equipment failure. Speeds can possibly be improved using the suggestions from Step #2, depending on other factors such as speed package provisioning, tower usage, etc.

Note: Speed tests use a considerable amount of bandwidth over an LTE connection, please use at your discretion.


Speed Test
Info! Speed test will take around 1 min.
37.67
Download / Mpbs
20.17
Upload / Mpbs
Test Again
6 Record(s)
Remove All the Records
Time
Download
Upload
Delete
2018/05/01 11:37:32
37.67 Mbps
20.17 Mbps
2018/04/26 11:20:34
45.98 Mbps
18.23 Mbps
2018/04/24 17:52:12
51.92 Mbps
14.86 Mbps


Status
Quick Start
Configuration
Interface Setup
Advanced Setup
Access Management
Maintenance
User Management
Time Zone
Firmware & Configuration
System Restart
Auto Reboot
Diagnostic Tool
Configuration
Diagnostic Tool
WAN Interface
3G/4G-LTE
Testing Ethernet LAN Connection
N/A
Ping Primary DNS (N/A)
N/A
Ping www.google.com
N/A
Ping other IP Address or Domain
Yes
No
N/A
Start
Speed Test
Upload
N/A
Download
N/A
Trace Route
Yes
No
Start Trace Route