TCP Throughput Testing with iPerf

This quick card describes how to run an iPerf TCP Throughput test using the NSC-100 or NSC-200 Network & Service Companion OneCheck Ethernet test.

- Mobile Device (Smartphone or Tablet) with VIAVI Mobile Tech App
- Network & Service Companion equipped with the following:
  - Software release V4.2.5 or greater
  - NSC-OC-ETHERNET option for up to 1 Gigabit Ethernet testing
  - NSC-IPERF-1G option for up to 1 Gigabit Ethernet testing
  - NSC-IPERF-10G option for 2.5, 5, AND 10 Gigabit Ethernet testing
  - NSC-OPTICAL-ETHERNET to perform tests with an Optical Transceiver.
- Optical Transceiver supporting the line rate to be tested:
  - NSC-SFP-ELEC-10G 10G Electrical Ethernet SFP+
  - NSC-SFP-ELEC-1.25-5-10G 1G, 2.5G, 5G and 10G Electrical Ethernet SFP+
  - NSC-SFP-ELEC-AUTO-10G 2.5G, 5G and 10G Auto-neg Electrical Ethernet SFP+
  - NSC-SFP-850-1G-10G 1G and 10G Optical Ethernet SFP+ 850 nm SR
  - NSC-SFP-1310-1G-10G 1G and 10G Optical Ethernet SFP+ 1310 nm LR
  - NSC-SFP-1550-1G-10G 1G and 10G Optical Ethernet SFP+ 1550 nm ER
- Cables to match the optical transceiver and the line under test
- Fiber optic inspection microscope (P5000i or FiberChek Probe)
- Fiber optic cleaning supplies

PAIRING THE NSC TO YOUR MOBILE DEVICE

On the Network & Service Companion:
1. Press the Power button to turn on the unit. The Power indicator will turn solid green when the NSC is on.
2. Press and hold the Pair button on the NSC for 3 seconds to enter pairing mode. The blue Pair indicator blinks.
QUICK CARD

On the Mobile Device:
1. Go to the Settings menu, enable Bluetooth, and scan for available devices.
2. Pair with VIAVI NSC.
3. Launch the VIAVI Mobile Tech App:
   1. If you are using Stratsync for Asset and Report Management, tap LOGIN WITH INSTRUMENT, enter your Tech ID, and tap LOGIN when prompted.
   2. If you do not use Stratsync, tap LOCAL MODE.
4. Press CONNECT to connect to VIAVI NSC.
5. Press to view the Companion menu. You can now control the instrument through the Mobile Tech App and run all tests on the Companion.
6. Press to exit Job View.

CONFIGURE PROFILE

The following Information is needed to configure the Ethernet Profile:

- Interface Type (RJ-45 or SFP)
- Autonegotiation (On or Off)
- Interface Rate
  - (10M, 100M, 1G, 2.5G, 5G, 10G)
- Upload Speed Threshold (Mbps)
- Download Speed Threshold (Mbps)
- Iperf Server DNS name or IP address

1. Press to display the Profile Manager screen.
2. Press CREATE NEW PROFILE to create a new profile.
3. Select New Ethernet Profile and, if prompted, ACCEPT TERMS OF USE.
4. Enter a Profile Name.
5. Slide controls to the right (green) to enable Run Ping Test and Run Iperf. Slide all other General controls to the left (red).
6. Swipe up screen to view Interface Configuration and Data Interface settings.
7. Configure Interface Type as follows:

<table>
<thead>
<tr>
<th>Port</th>
<th>Interface Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Gig Electrical</td>
<td>RJ45</td>
</tr>
<tr>
<td>2.5Gig Electrical</td>
<td>SFP</td>
</tr>
<tr>
<td>5Gig Electrical</td>
<td>SFP</td>
</tr>
<tr>
<td>10Gig Electrical</td>
<td>SFP</td>
</tr>
<tr>
<td>1Gig Optical</td>
<td>SFP</td>
</tr>
<tr>
<td>10Gig Optical</td>
<td>SFP</td>
</tr>
</tbody>
</table>

8. Configure other interface settings to match the port under test on your network equipment:
   - **Autonegotiation**: On or Off (typically, on)
   - **Interface Rate**: 10M, 100M, 1G, 2.5G, 5g, or 10G (Only needed if Autonegotation is Off)

9. If a Static IP Address if required, change the Address Type to “Static” and enter IPv4 Address, Gateway, and Subnet Mask.

10. Swipe up screen to view Ping settings.
    - In the Server section, enter the DNS name or IP Address of your iPerf Server.

11. Swipe up screen to view Iperf Test settings.
    - Enter the DNS Name or IP Address of the Iperf Server.
    - Enter the Port for the Iperf server.
    - Enter the maximum Window Size (KB) supported by the Iperf server.
    - Enter Upload and Download Pass/Fail Thresholds (Typically 95% of CIR).

12. Press to initiate the test.
CONNECT TO LINE UNDER TEST

► For 1G Electrical RJ45 interfaces:
  1. Connect the RJ45 jack to the port under test using CAT 5E or better cable.

► For Multigig Electrical SFP interfaces:
  1. Insert desired Multigig Electrical SFP into the SFP cage on the bottom of the NSC.
  2. Connect the SFP to the port under test using CAT 6A or better cable.

► For Optical Interfaces:
  1. Insert desired Optical Transceiver into the SFP port on the bottom of the NSC.
  2. Use the VIAVI P5000i or FiberChek Probe microscope to inspect both sides of every connection being used (SFP, attenuators, patch cables, bulkheads)
     o Focus the fiber on the screen.
     o If it appears dirty, clean the fiber end-face and re-inspect.
     o If it appears clean, run the inspection test.
     o If it fails, clean the fiber and re-run inspection test. Repeat until it passes.
  3. Connect the SFP to the port under test using a jumper cable compatible with the line under test.

Figure 12: Network and Service Companion Interfaces

Figure 13: Inspect Before You Connect
RUN TEST

1. In the Select a Location window, tap Select and select the location for your test.

2. Press START

3. Tap 🔍 to zoom in on Iperf results and view progress.

4. When the test completes, verify that all results pass ✔ and that Download and Upload speeds meet or exceed pass/fail thresholds.

5. Tap 🔍 to return to the summary view.

Figure 14: Select a Location and Start
Figure 15: Summary Results
Figure 16: Iperf Results