# Network & Service Companion (NSC-100/200)



## QUICK CARD

## **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-1-2.5-5-10G 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:

- Press the Power button U to turn on the unit. The Power indicator will turn solid green when the NSC is on.
- Press and hold the Pair button without on the NSC for 3 seconds to enter pairing mode. The blue Pair indicator blinks.



Figure 2: Front View

Figure 1: Equipment Requirements



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:
  - If you are using Stratasync 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 <u>Companion</u> 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 **Profile Manager** to display the Profile Manager screen.

**CREATE NEW PROFILE** 

2. Press

to create a new profile.

3. Select New Ethernet Profile and, if prompted, ACCEPT TERMS OF USE.

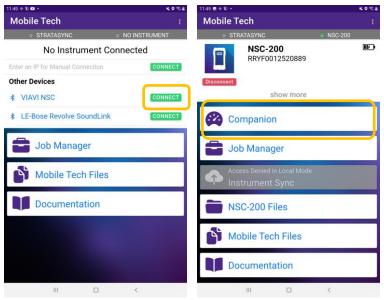


Figure 3: Mobile Tech App

Figure 4: Companion

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#### Figure 5: Work Order



Figure 6: Profile Manager

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## CONFIGURE PROFILE (Continued)

- 4. Enter a **Profile Name**.
- Slide controls to the right for enable Run Ping Test and Run Iperf.
   Slide all other General controls to the left
- Swipe up screen to view Interface
  Configuration and Data Interface settings.
- 7. Configure Interface Type as follows:

Port	Interface Type
1Gig Electrical	RJ45
2.5Gig Electrical	SFP
5Gig Electrical	SFP
10Gig Electrical	SFP
1Gig Optical	SFP
10Gig Optical	SFP

- 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)
- 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.

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<	Profile	Editor	
		rt an	
		port	
-			
Genera	al		
Profile Na	me	New Ethernet Profile	
Password		Enter Password	
Run Ping	Test		
Run Trace	eroute Test		
Run Ookla	a Speedtest	0	
Run Web	Test	$\bigcirc$	
Run Trues	Speed	$\bigcirc$	
Run Spee	dCheck	0	
Run Iperf	Test		
Save	and Exit	Save and Run	

Figure 8: Profile Editor

7:18	₩ .ul 🗢 👀
< Pro	ofile Editor
Ping Configur	ation
Run Ping Test	
Server	iperf.par2.as49434.net
Tx Count (1 - 1000000000)	10
Tx Size (24 - 2000)	24
Tx Packet Interval (r	ms) 100 -
Max Loss Threshold (%)	5
Traceroute Co	onfiguration
Run Traceroute Tes	t 🔵
Destination IP / DNS Name	S www.google.com
Delete S	Save and Exit Run

Figure 10: Ping Configuration

< Profile	Editor
Interface Config	uration
Interface Type	RJ45 ~
Autonegotiation	
Interface Rate	10/100/1000M
Data Interface	
Interface Protocol	IPv4 -
Customize MAC Addres	ss 🔵
Custom MAC Address	
Address Type	DHCP -
User Class	Enter User Class
Vendor	Enter Vendor
VLAN	
	7
Delete Save	and Save and Run

Figure 9: Interface Configuration

Iperf Test Configuration		
Run Iperf Test	(	
Iperf Version	3	
Gateway Enable	•	
Server	perf.par2.as49434.net	
Port	9237	
Test Duration (s)	15	
Transport Protocol	TCP -	
Number of Streams	User Deflaed	
Streams	30	
Window Size (KB)	256	
Upload Threshold (Mbps)	20	

Figure 11: Iperf Configuration



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## CONNECT TO LINE UNDER TEST

#### ► For 1G Electrical RJ45 interfaces:

- 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. **SFP C**
  - 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)
  - $\circ$   $\,$  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..

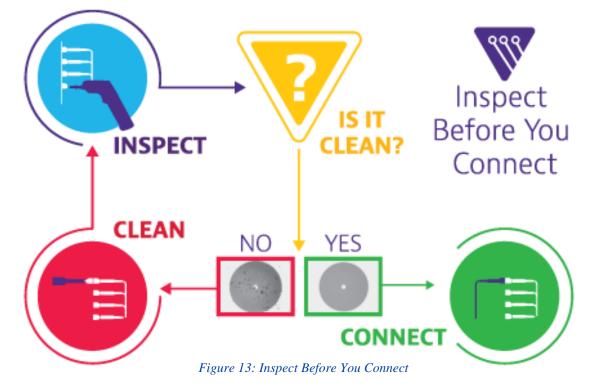




Figure 12: Network and Service Companion Interfaces



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# QUICK CARD

### RUN TEST

- 1. In the Select a Location window, tap Select and select the location for your test.
- 2. Press START
- Tap 53 to zoom in on **Iperf** results and view progress. 3.
- 4. When the test completes, verify that all results pass and that Download and Upload speeds meet or exceed pass/fail thresholds.
- 5. Tap  $\frac{1}{2}$  to return to the summary view.

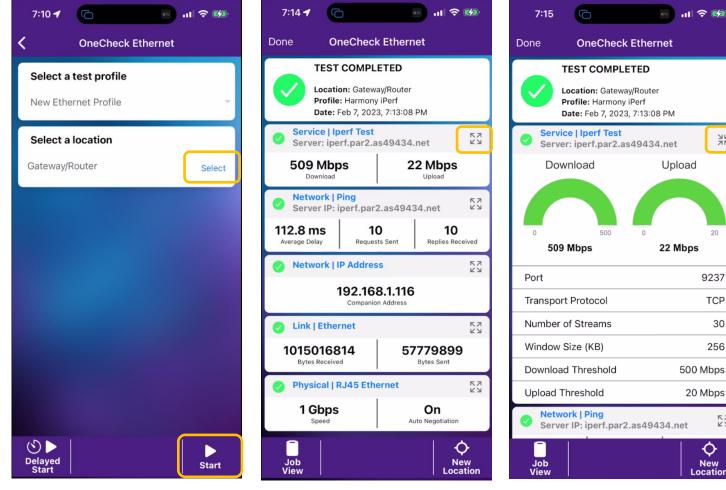


Figure 14: Select a Location and Start

Figure 15: Summary Results

Figure 16: Iperf Results

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