

QUICK CARD

Ethernet Packet Capture and Protocol Analysis

This quick card describes how to set up the OneAdvisor 800 to capture and analyze live, in-service network traffic from a **TAP** (Test Access Point) or **SPAN** (Switch Port Analyzer) port on an Ethernet switch. A TAP is a passive optical splitter used to provide a monitor point for packet capture and protocol analysis. A SPAN port is a spare switch port configured to transmit a copy of the packets sent or received on another switch port. It allows the OneAdvisor to receive and analyze all network traffic, without being physically attached to that port. Bidirectional Traffic can be transmitted to the OneAdvisor on a single RJ-45, SFP, or QSFP port. The quick card documents a procedure to set up the OneAdvisor on a 1GigE Interface utilizing IPv4 address filters, but the same workflow may be applied to other data rates and filters.





EQUIPMENT REQUIREMENTS

- OneAdvisor 800 equipped with the following:
 - RAXxMA-O Radio Analysis Module, SPA06MA-O Spectrum Analyzer Module, TM400GB-QQ 400G Module, or TM400GB-QO 400G Module.
 - Transport software release V5.1.0 or greater
 - CA10M1GE or ONA-SP-10M1GE 1 Gigabit Ethernet option
 - CA10GCAPTURE or ONA-SP-1GECAP 1 Gigabit Ethernet Capture option
- Optical Transceiver supporting the Ethernet Interface type to be tested (SFP, QSFP)
- SPAN port or Optical TAP (Observer nTAP)
- Cables to match the optical transceiver and the TAP or SPAN port
- Fiber optic inspection microscope (P5000i, FiberChek Probe, or INX-760)
- Fiber optic cleaning supplies



Figure 1: Equipment Requirements

LAUNCH TEST

1. Press the Power button  on the ONA-800 base top panel to turn on the OneAdvisor.
2. Tap  to display the Home Screen.
3. Tap  to display the Tests menu.
4. Tap **Radio Analysis Transport >** or **400G Transport >** to show the Transport test application.
5. Tap the **Transport** icon. 

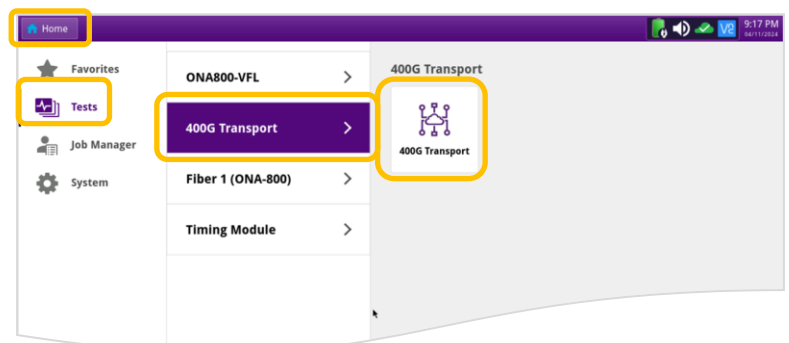


Figure 2: Transport Launch screen

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LAUNCH TEST (Continued)

- If the **Select Test** menu is not displayed, tap **>> All Tests** in the lower left screen.
- Using the **Select Test** menu or favorite test list, launch the Ethernet Traffic test for the desired data rate. For example: **Ethernet ▶ 1GigE Optical ▶ Layer 3 Traffic ▶ IPv4 ▶ P1 Terminate**.
 - Note:** Launch a **Layer 3 Traffic ▶ IPv6** test if you wish to filter using IPv6 addresses. Launch a **Layer 2 Traffic** test if you do not require IP filters (TOS/DSCP, Protocol, or Source/Destination IP Address)

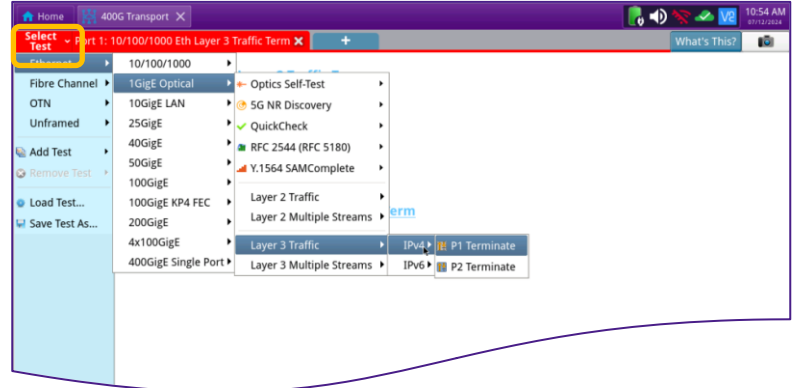


Figure 3: Select Test

CONFIGURE TEST

- Insert desired transceiver into the Port 1 SFP or QSFP slot on the top of the ONA-800.
- Tap the **Setup** soft key on the top right side of the screen.
- Select the **Interface/Connector** folder.
- Review SFP information:
 - ✓ Verify that the SFP operates on the correct wavelength (850nm, 1310nm, etc.).
 - ✓ Verify that the SFP supports the required data rate (1G, 10G, etc.)
- Select the **Ethernet** folder.
 - If you are running a **Layer 3 Traffic ▶ IPv4** tests, set **ARP Mode** to **Disabled**.
- Select the **Capture** folder.
 - Set the desired **Capture Buffer size** (1 to 8MB)
 - Optionally set **Capture frame slicing** to 64 Bytes, 128Bytes, or 256 Bytes to conserve buffer space.

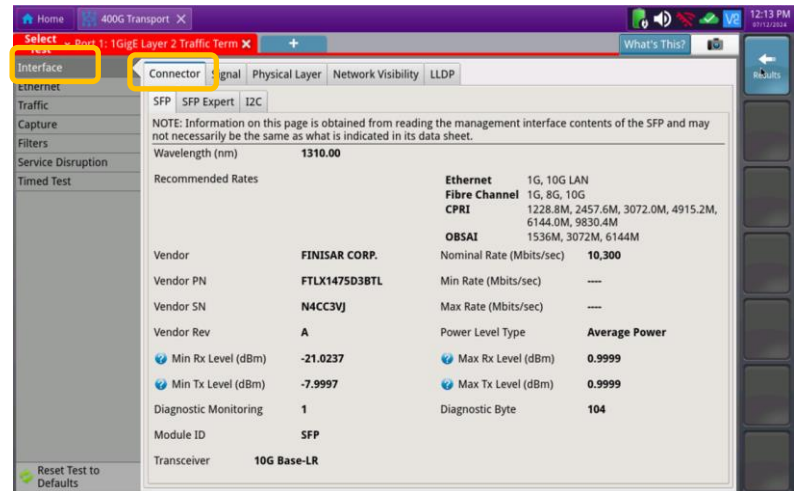


Figure 4: Setup, Interface/Connector

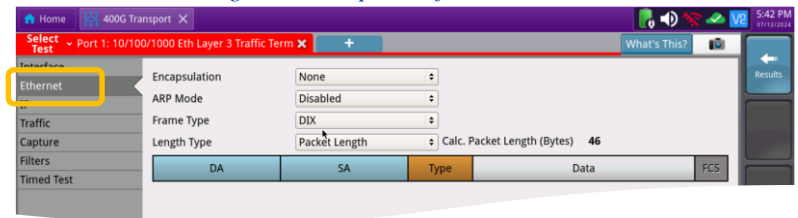


Figure 5: Setup, Ethernet

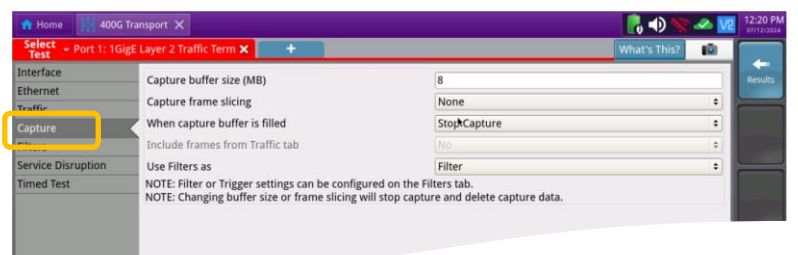


Figure 6: Setup, Capture

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CONFIGURE TEST (Continued)

7. Select the **Filters** folder.
 - In Summary settings, set **Filter Mode** to **Detailed**.
 - **Ethernet** settings:
 - For MAC Address Filters, tap **DA** or **SA** field and enter address type and MAC Address.
 - For VLAN filters, set **Encapsulation** to **VLAN**, tap the **VLAN** field and enter VLAN ID and Priority.
 - For Ethertype filters, tap the **Type** field and enter an Ethertype.
 - In **IP** settings:
 - For IP Filter, set **IP Filter** to **Enable** and set **Address Filter** to **Single Direction** or **Either Direction**.
 - Tap **TOS/DSCP**, **Protocol**, **Source IP Address**, and **Destination IP Address** fields. Tap the check box to enable the filter and enter desired values.
 - In **Payload** settings, turn **Payload Analysis** off.

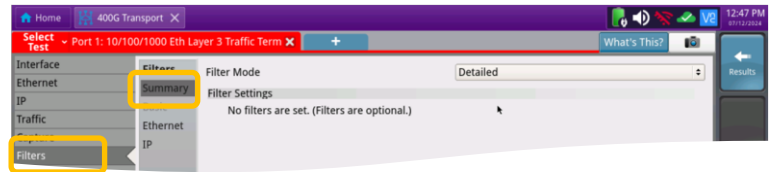


Figure 7: Setup, Filters/Summary

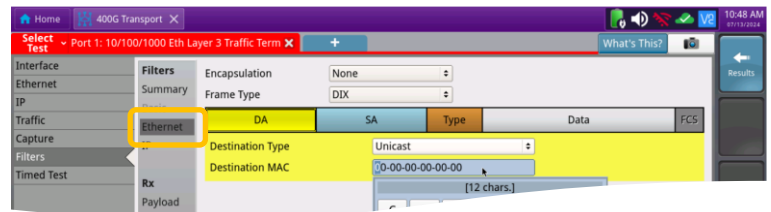


Figure 8: Setup, Filters/Ethernet

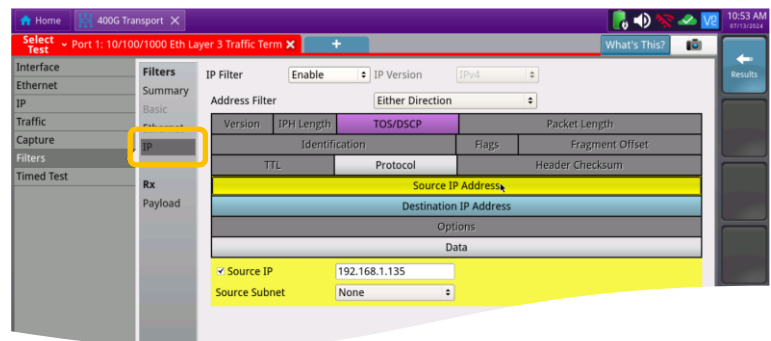


Figure 9: Setup, Filters/IP

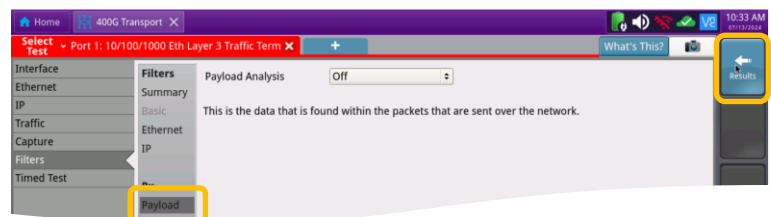


Figure 10: Setup, Payload Analysis

8. Tap the **Results** soft key.
9. Set the right Results Window to display **Ethernet/Capture** results. Swipe up to view and select **Capture**.

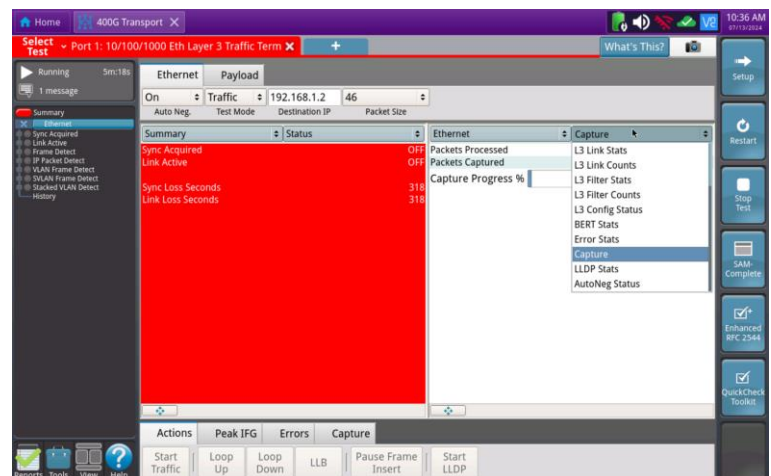


Figure 11: Results

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CAPTURE PACKETS

- For Optical TAPs and Optical SPAN Ports:
 - Use the VIAVI P5000i, FiberChek Probe, or INX 760 microscope to inspect both sides of all connections (SFP, patch cables, and bulkheads)
 - Focus the fiber on the screen.
 - If it appears dirty, clean the fiber end-face and re-inspect.
 - If it appears clean, run the inspection test.
 - If it fails, clean the fiber and re-run the inspection test. Repeat until it passes.
 - If you are using an optical SPAN port:
 - Connect the OneAdvisor SFP to the SPAN port using a duplex LC patch cable.
 - Select the **Laser** tab in the **Actions** panel.
 - Press **Laser Off**. The button will turn yellow and be relabeled **Laser On**.
 - If you are using an optical TAP, connect the Rx side of the OneAdvisor SFP to the TAP using a simplex LC patch cable.
- For Copper TAPs and Copper SPAN Ports:
 - Connect the OneAdvisor Copper SFP to the SPAN port using CAT5E or better cable for 1G, CAT6A or better cable for 10G.
- Press the **Restart** soft key.
- Verify the following:
 - Summary** LED is green.
 - Sync Acquired** LED is green.
 - Link Active** LED is green.
 - Frame Detect** is green.
- Select the **Capture** tab in the Actions panel, and press **Start Capture**. The button will turn yellow and be relabeled **Capture Started**.
- When the desired number of packets have been processed, press **Capture Started** to stop packet capture. The button will turn gray and be relabeled **Start Capture**.



Figure 12: Inspect Before You Connect

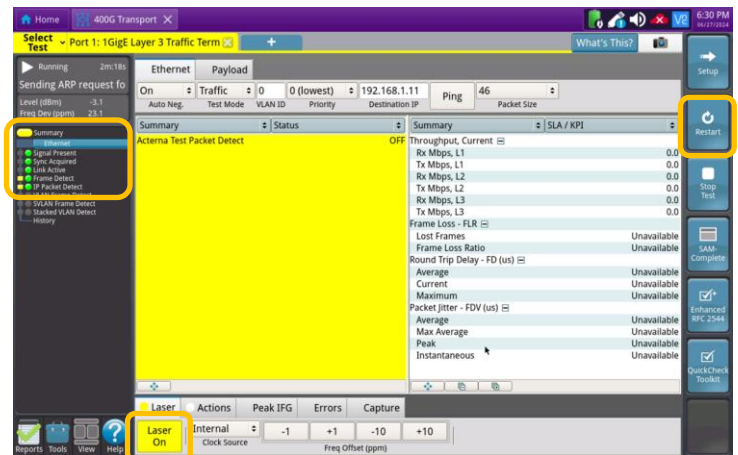


Figure 13: Results

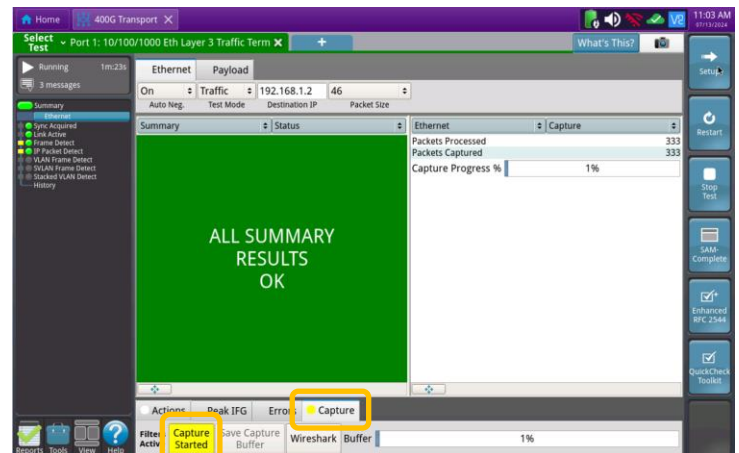
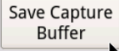



Figure 14: Start Capture

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PROTOCOL ANALYSIS

1. Press . Ensure "Launch Wireshark after saving" is checked and press  to save the PCAP (Packet CAPture) file to the /user/bert/capture folder of the OneAdvisor hard drive.

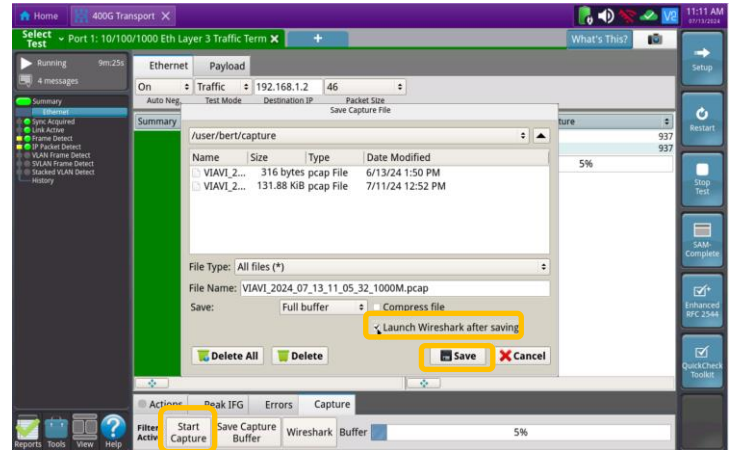


Figure 15: Save Capture File

2. View and analyze the packet capture using WireShark.

Note: Go to <https://www.wireshark.org> for information and tutorials on WireShark.

3. Tap **F**ile and **Q**uit in the Wireshark menu bar to return to the OneAdvisor test results.

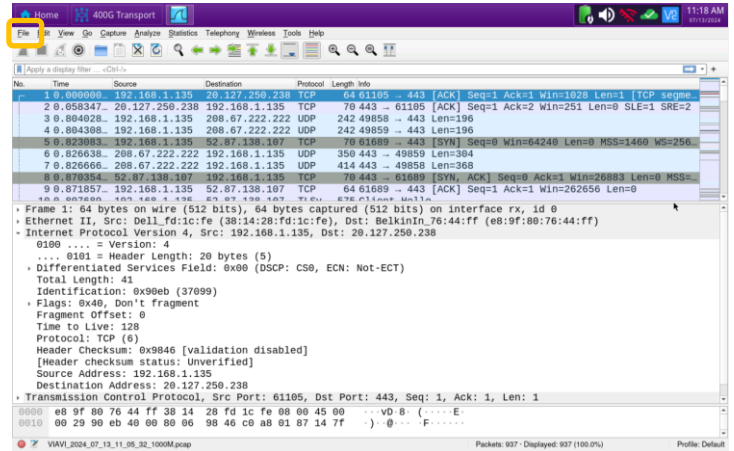


Figure 16: WireShark