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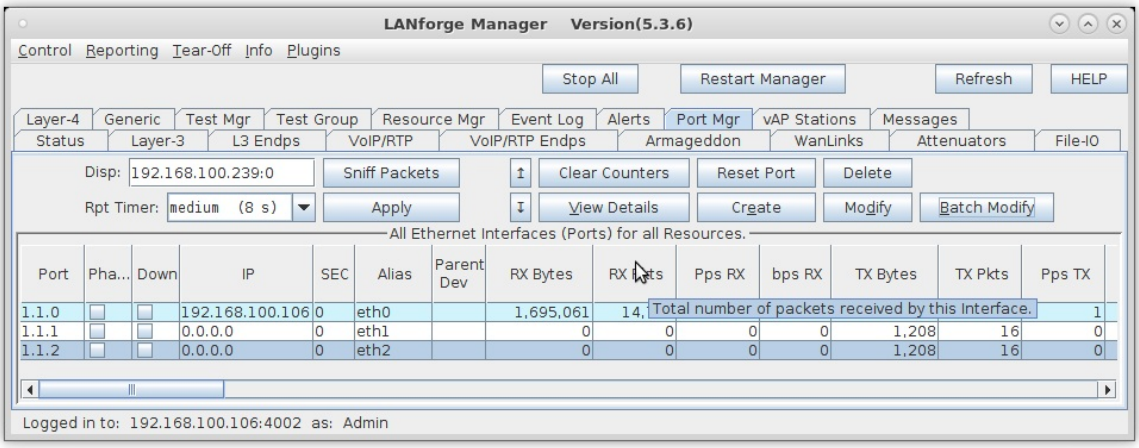
Bridged Mode (Non-routed) WanLink

Goal: Allow LANforge-ICE to sit transparently on a network segment by using a Bridged Mode WanLink to simulate a WAN.

In this test scenario, a LANforge-ICE WanLink is created in Bridged Mode to simulate a WAN consisting of a DS1 speed (1.544Mbps) link with 20ms of delay in one direction and 30ms of delay in the other direction.

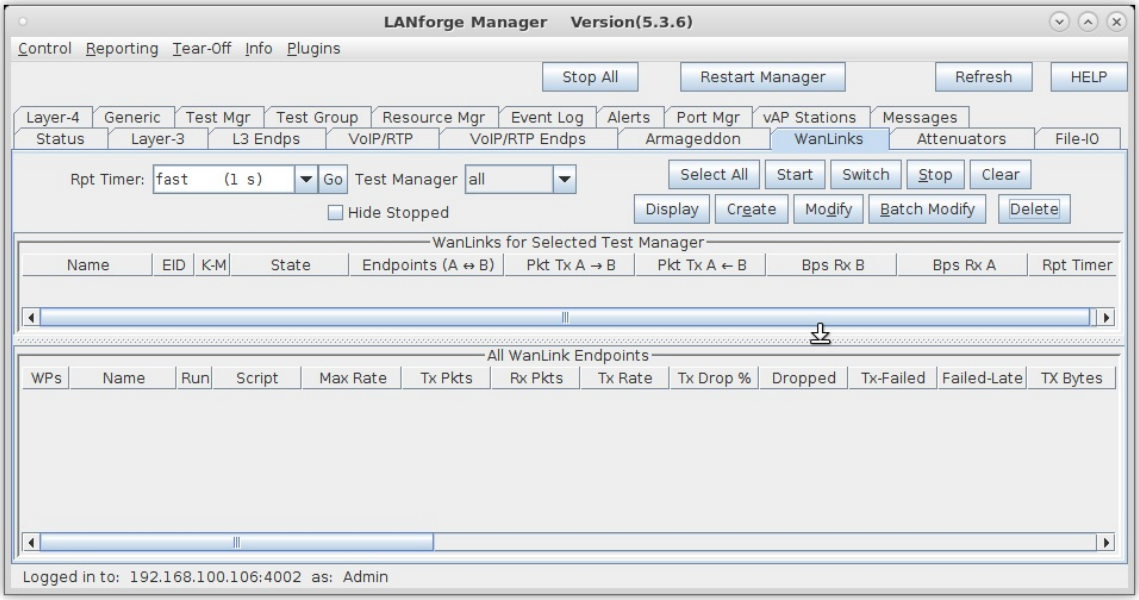
1. Setup the LANforge Ports so that they have 0.0.0.0 IP addresses. (Bridged Mode WanLinks use ports that have no IP address because the ports are transparent to the traffic flowing through them.)
   A. A: Go to the Port Manager to see what ports are available. In this example, we will use eth1 and eth2. eth0 is the management port and cannot be used for WanLinks.



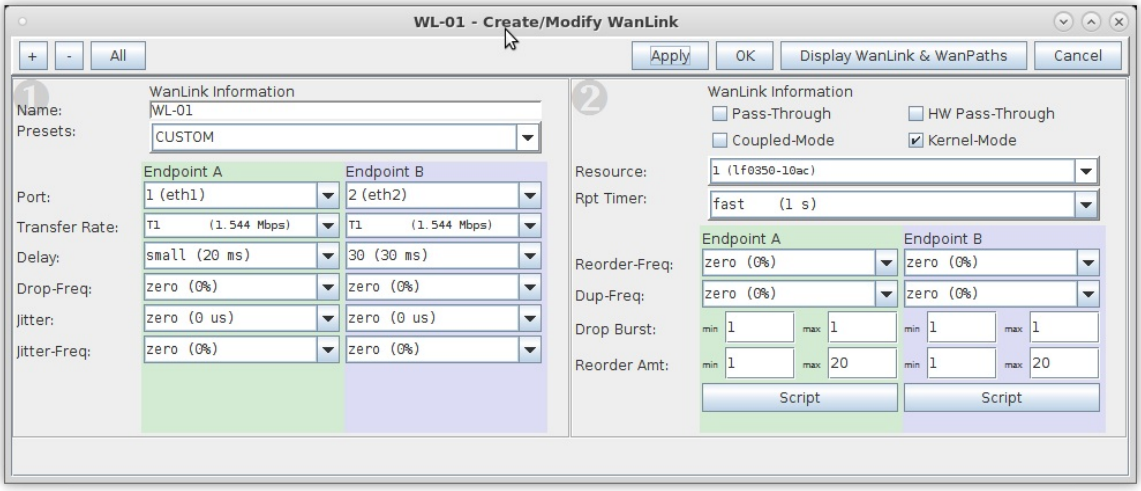
For more information see LANforge-GUI User Guide: Ports (Interfaces)

2. Create a WanLink.

A. Go to the **WanLinks** tab



B. Create a WanLink



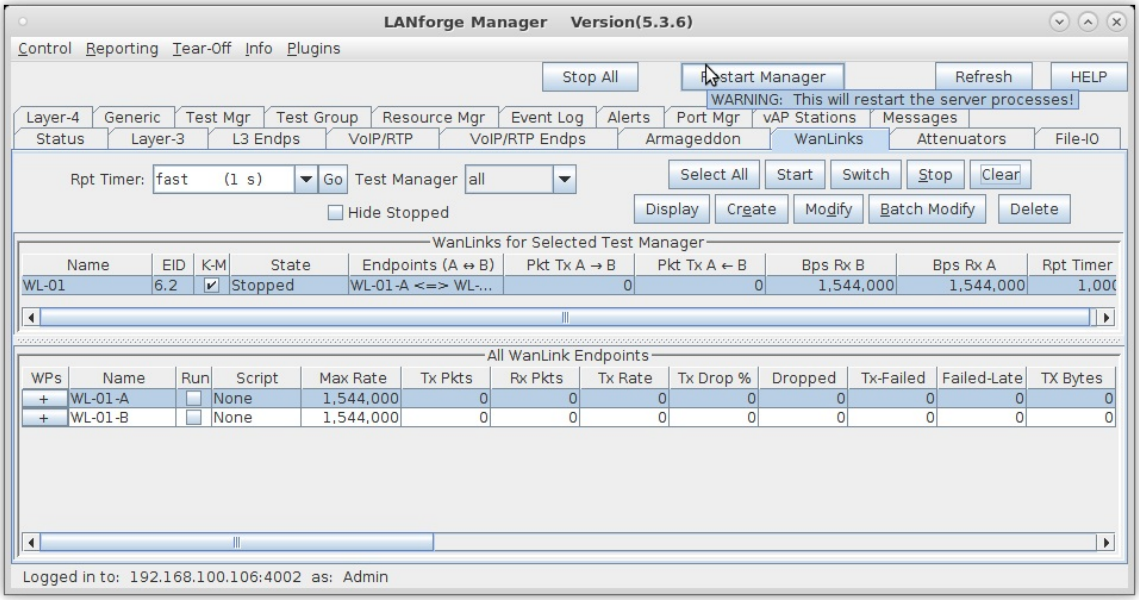
A. To simulate a WAN, enter a specific amount of delay or other impairment

B. For this example, enter 20ms of delay for Entry Point A and 30ms of delay for Entry Point B

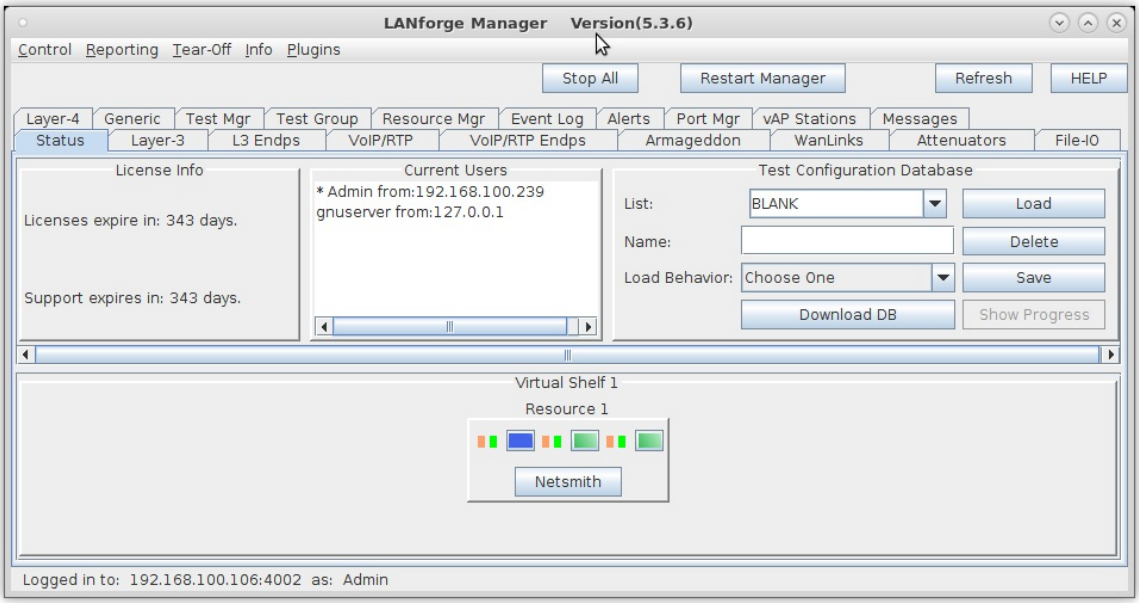
C. Be sure to set the correct ports and transfer rate for each Entry Point

D. Click **OK** when done

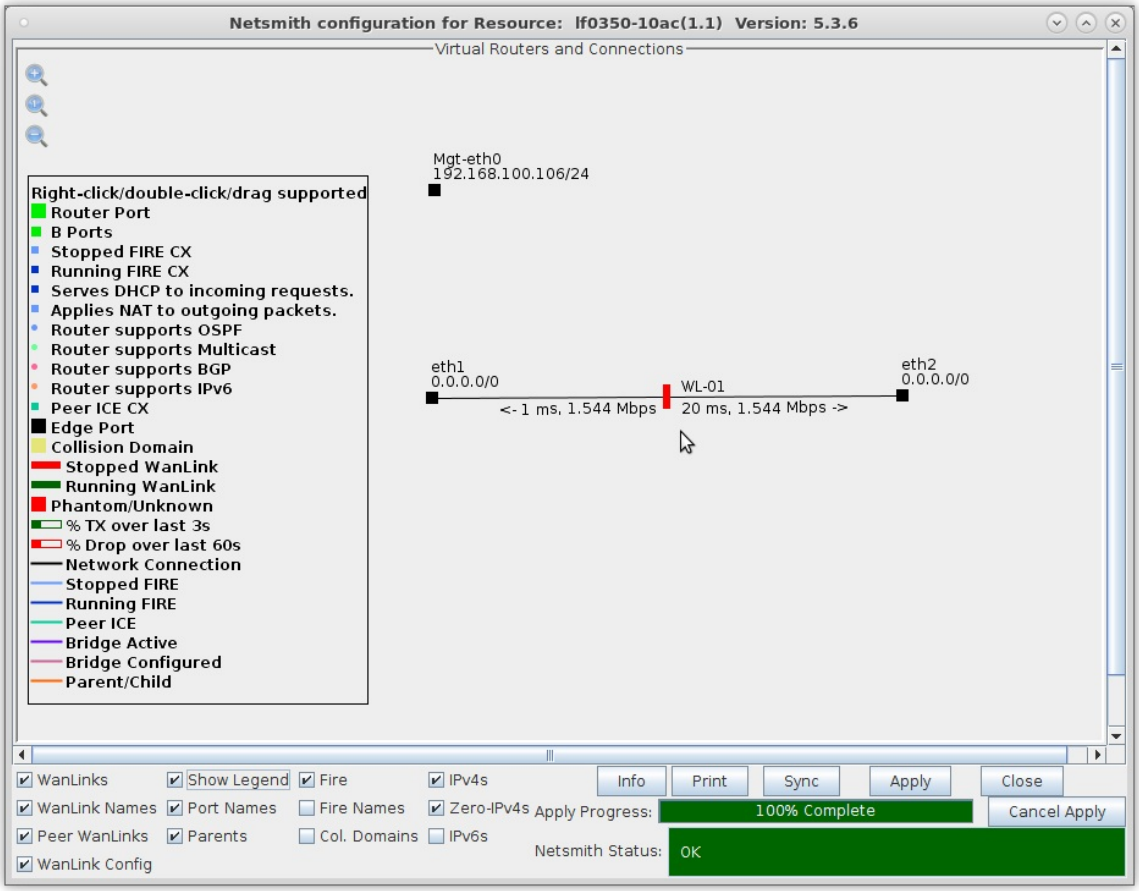
C. Verify the WanLink was created



D. Go to the **Status** tab and click **Netsmith** to view the graphical representation of the WanLink



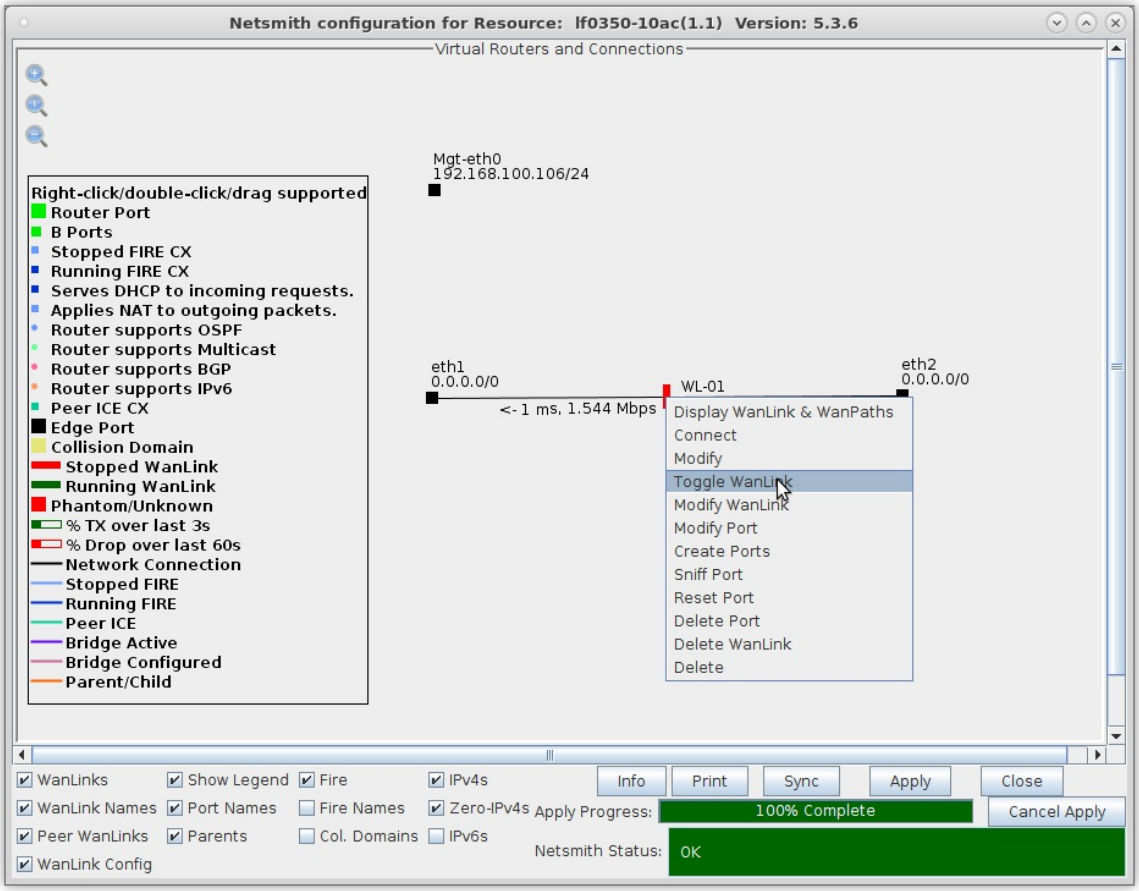
E. This is the general form of a Bridged Mode WanLink in Netsmith. It consists of two 0.0.0.0 IP addressed ports with a vertical bar between them.



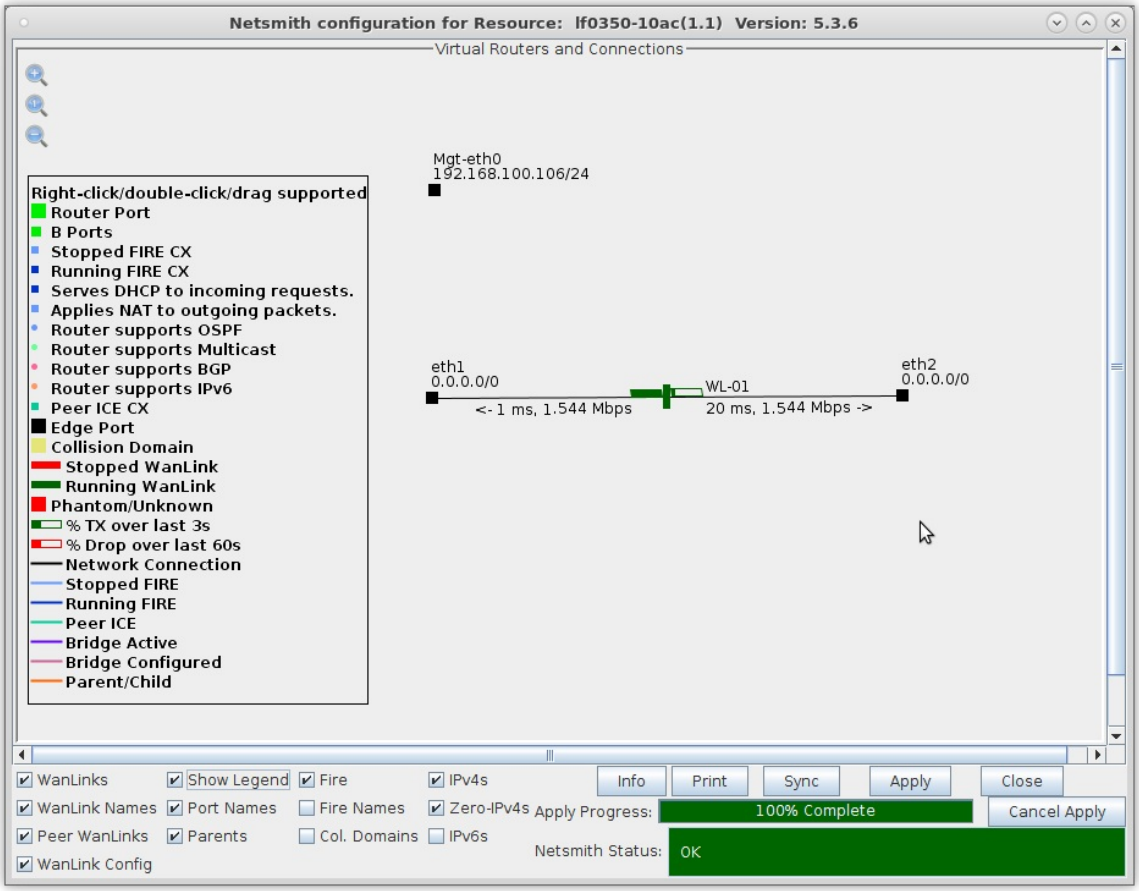
For more information see LANforge-GUI User Guide: WanLinks (ICE)

3. Run traffic and verify results.

A. Right-click on the WanLink and select **Toggle WanLink** to allow traffic to flow from a transmitting device to a receiving device

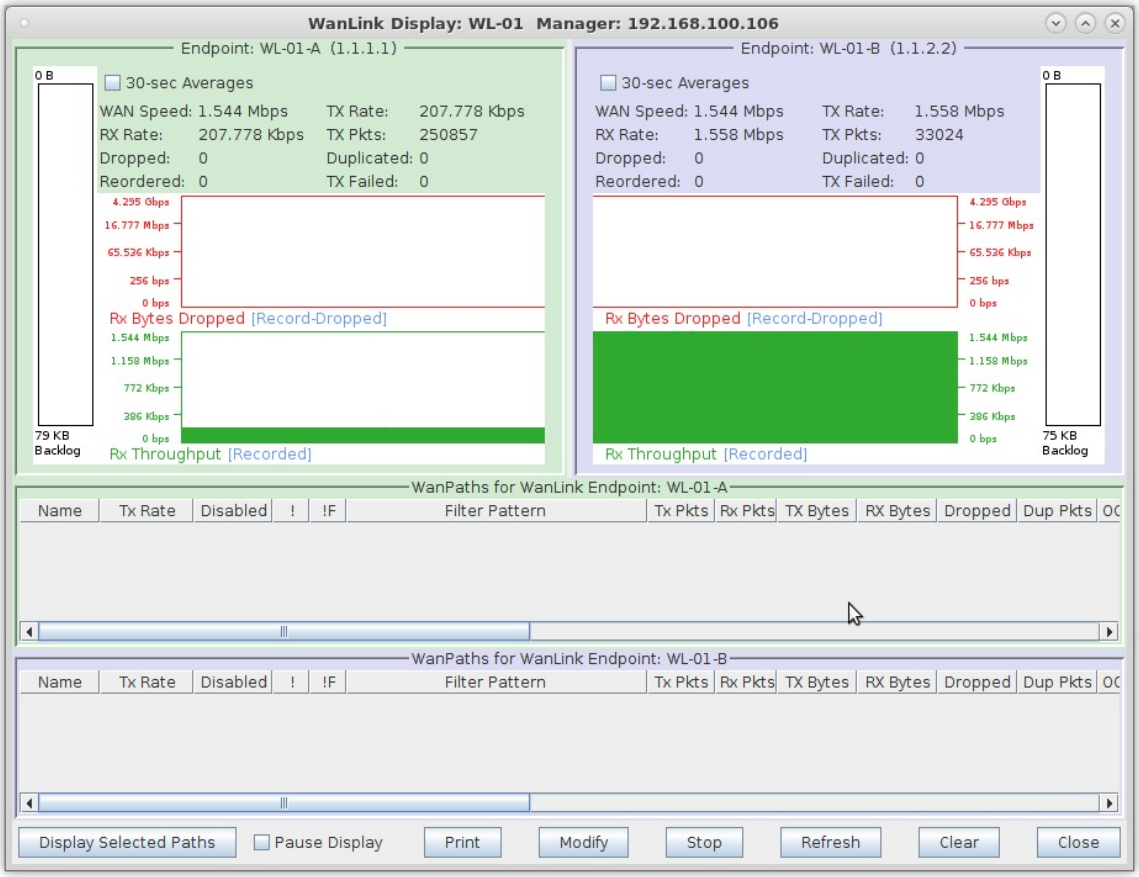


B. The transmitting/receiving devices can be just about anything that generates and receives traffic such as a web server and client or a pair of LANforge-FIRE ports.



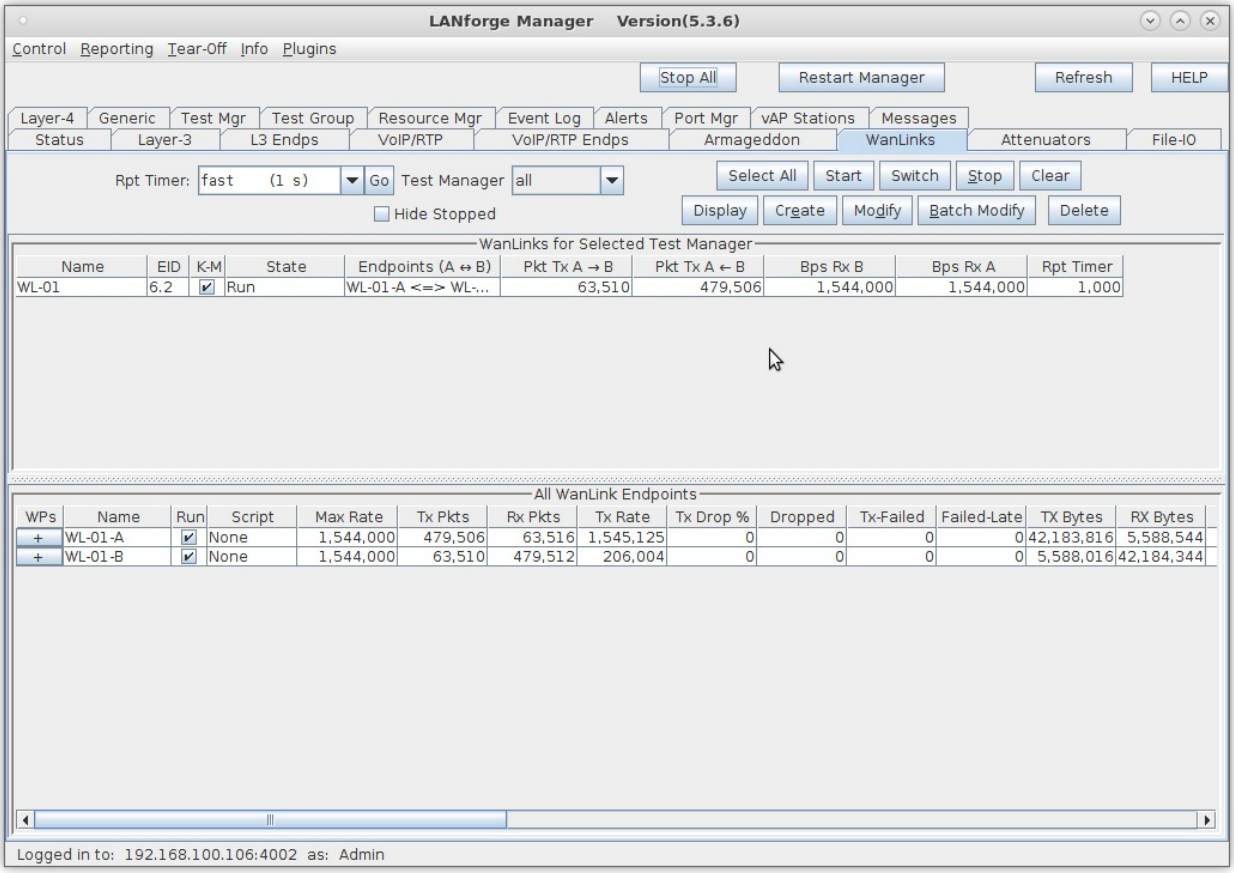
A. Right-click the WanLink and select **Display WanLink**

C. View the WanLink display



For more information see Refer to the LANforge FIRE Cookbook to run traffic.

4. View the **WanLinks** tab



A. Selecting a WanLink automatically selects the WanLink Endpoints on the bottom panel

B. Scroll to the right on the bottom panel to note the Serialization Delay (delay injected by LANforge to account for packet size and transfer rate). Also, the WanLink must have a high enough transfer rate to pass all the traffic. In other words, if a layer-3 connection is sending 100Mbps of traffic, the WanLink must allow at least 100Mbps transfer rate

C. In this case, SD = (1514 bytes * 8 bits/byte) / 1.544Mbps = 7.8ms

D. The total delay as experienced by the transmitting/receiving device is the sum of the WanLink configured delay and the serialization delay which in this case would be about 28ms in one direction and 38ms in the other.

For more information see LANforge FAQ: Serialization Delay