

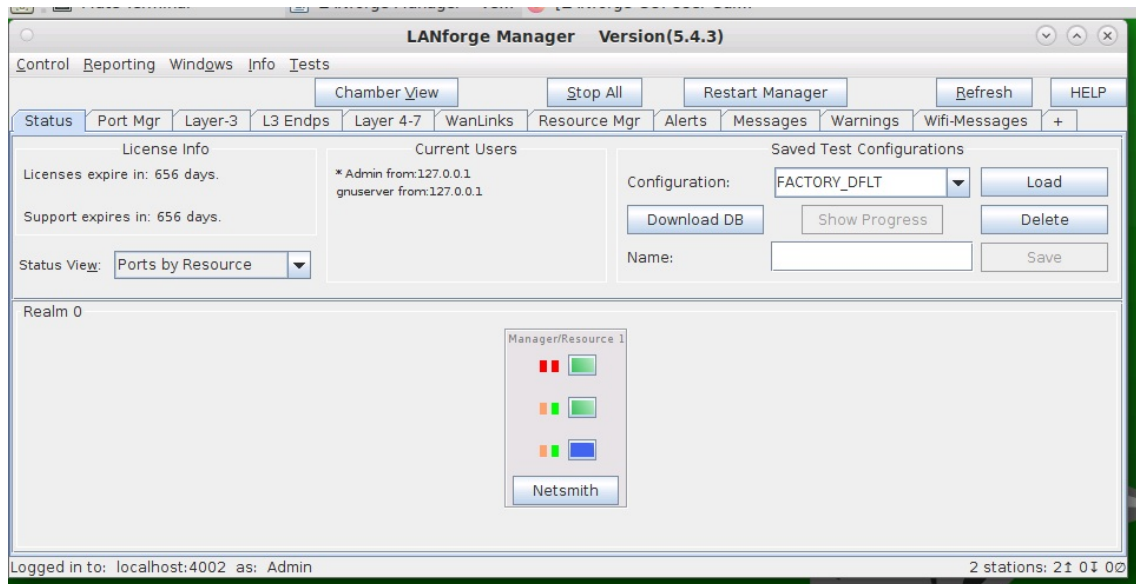
## Routed Mode WanLinks with a Single Physical Port

**Goal:** Setup a Routed Mode WanLink between two Virtual Routers that only use one physical port.

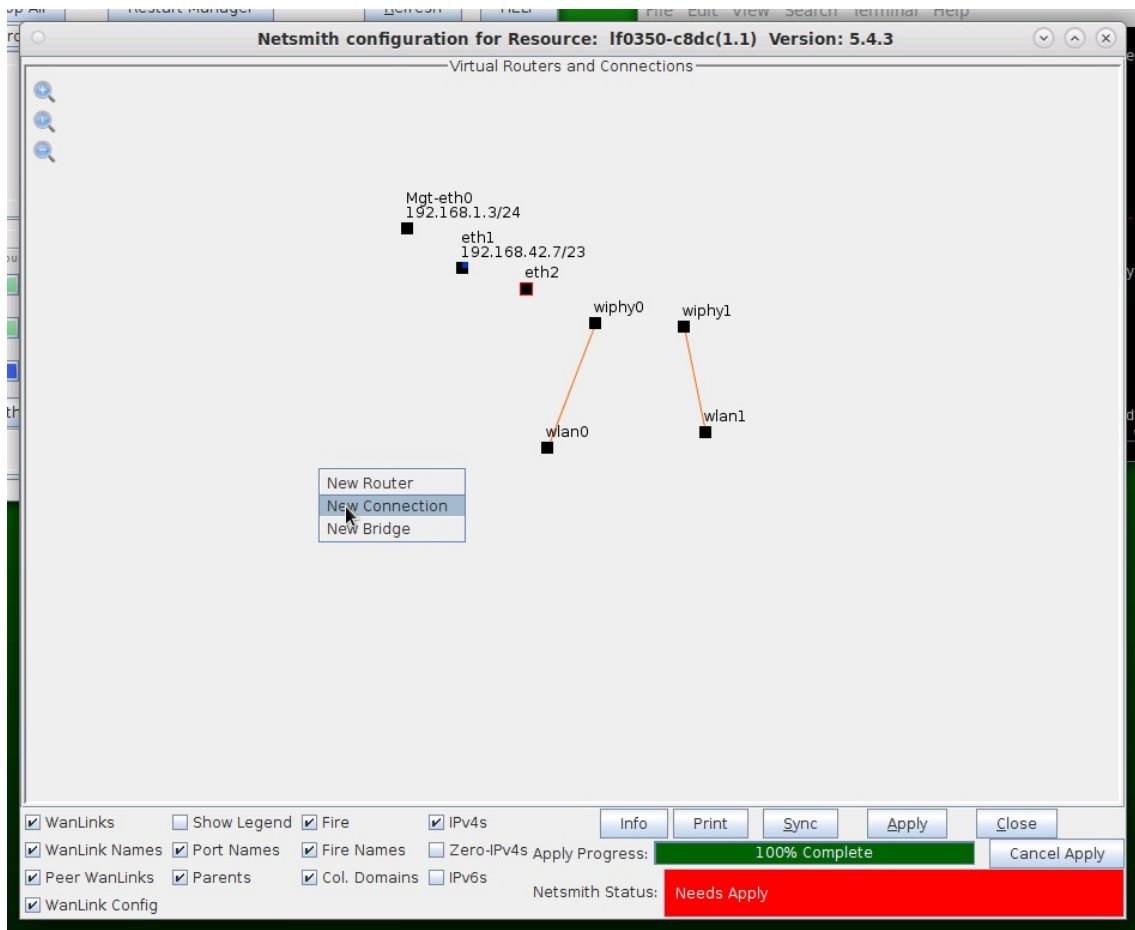
In this test scenario, LANforge-ICE is used to simulate a routed network where a single physical port is used for incoming and outgoing traffic. The traffic will enter the physical port and will then be sent through two Virtual Routers connected by a WanLink and then back out the same physical port.

1. Setup a Netsmith Connection.

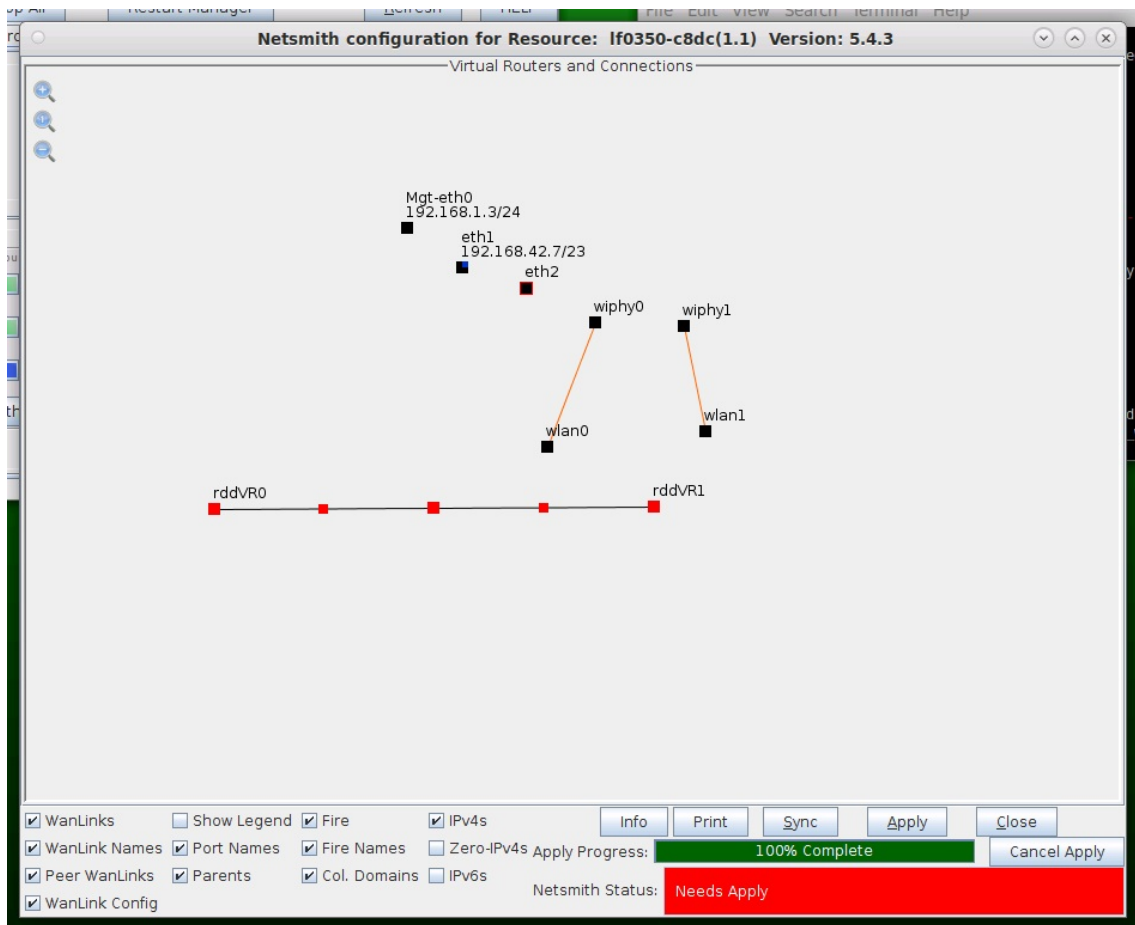
A. Go to the **Status** tab and click **Netsmith**



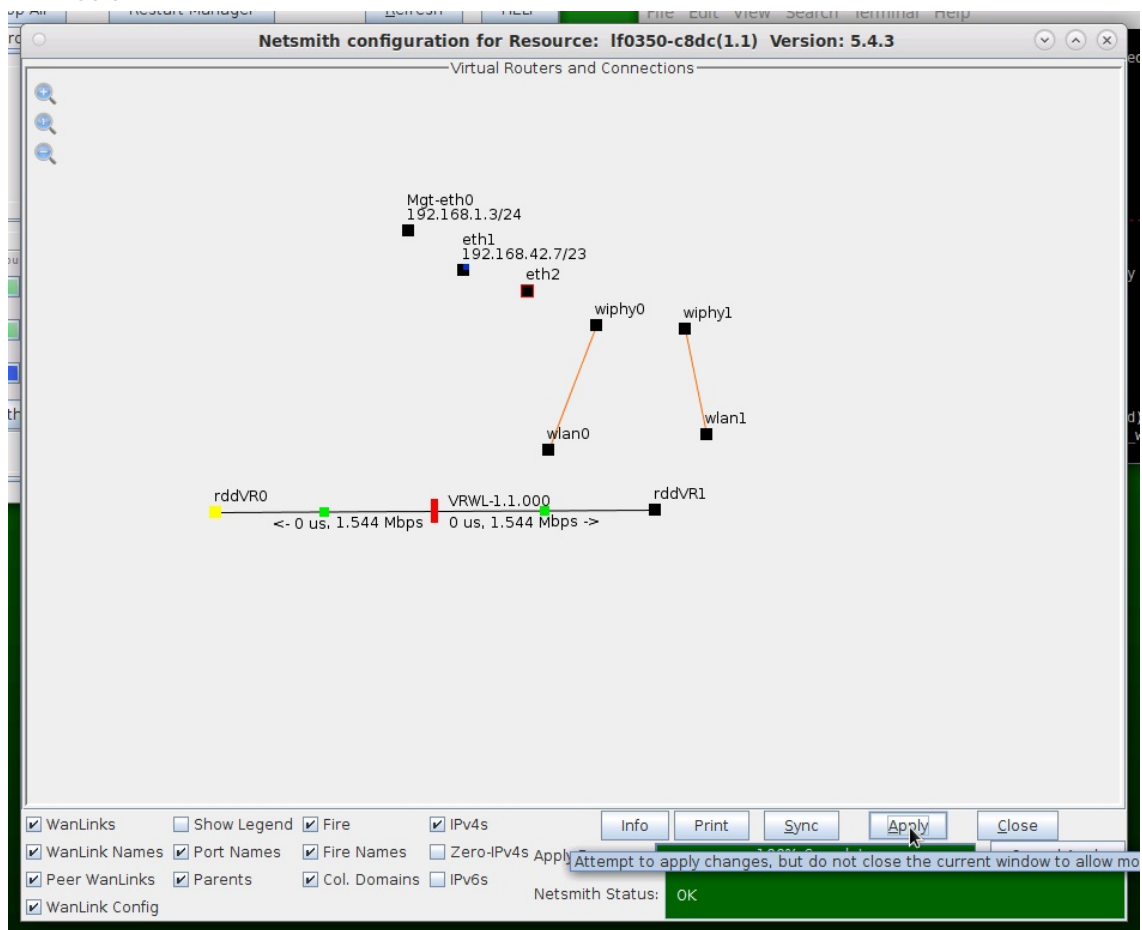
B. Right-click in the Netsmith window and select **New Connection**



C. Accept defaults, Auto Create everything and click **OK**



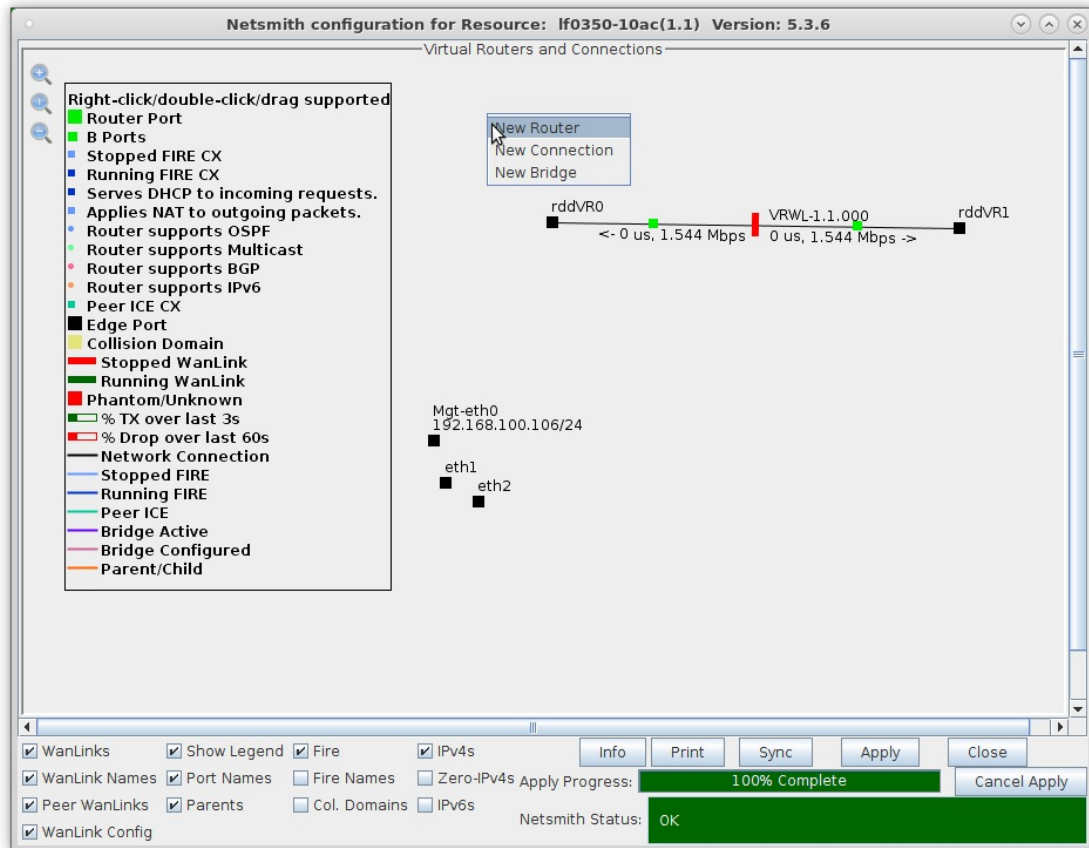
D. Click **Apply** in the Netsmith window to create the connection



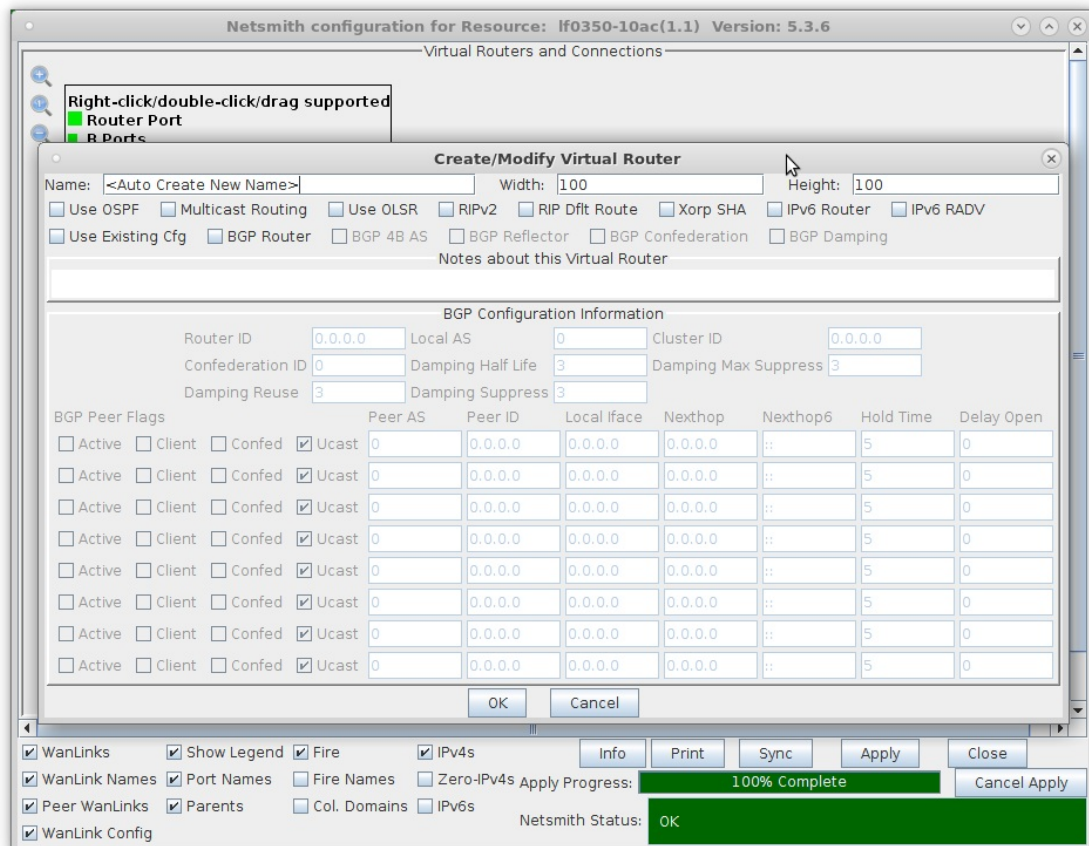
For more information see [LANforge-GUI User Guide: Netsmith](#)

2. Setup two Virtual Routers.

A. Right-click in the Netsmith window and select **New Router**

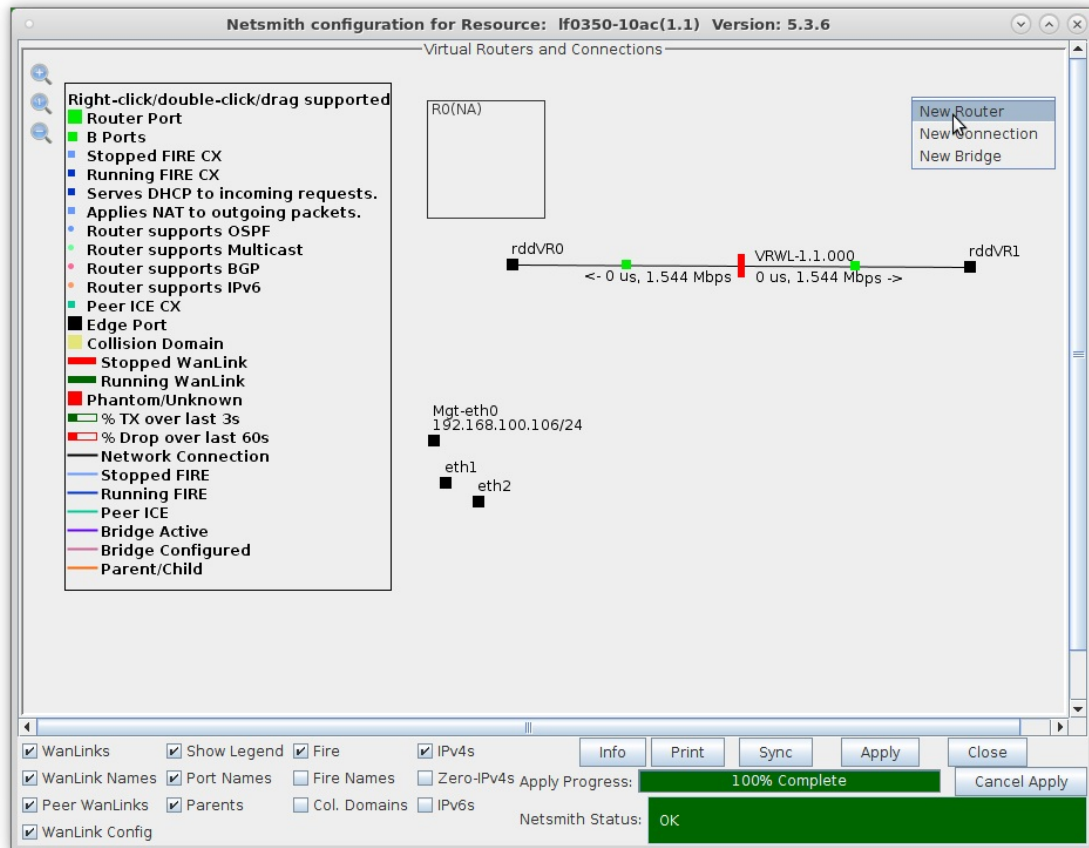


B. Accept defaults, or change the name, graphical size and notes about the Virtual Router



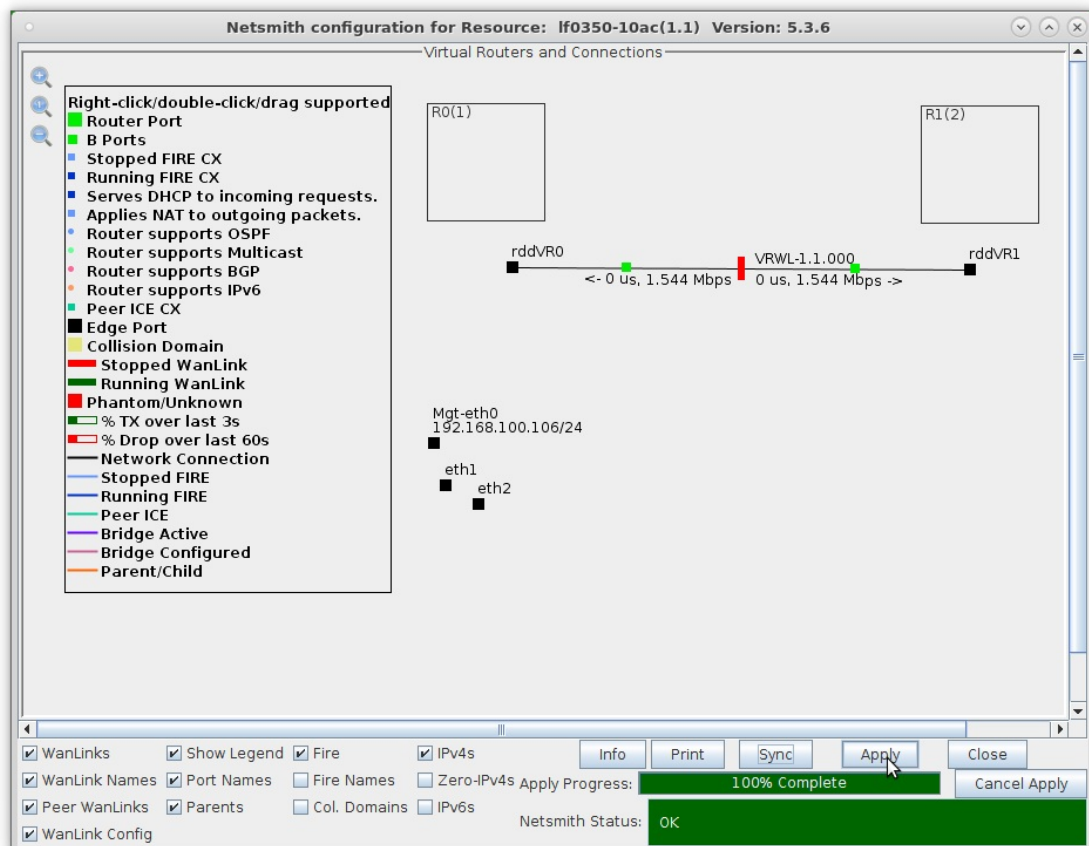
A. Click **OK** when done

C. Click the **Apply** button and repeat for the second Virtual Router



A. **NOTE:** After making any changes to the Netsmith window, you must click **Apply** or your changes will NOT be implemented and could be lost

D. Click the **Apply** button followed by the **Sync** button

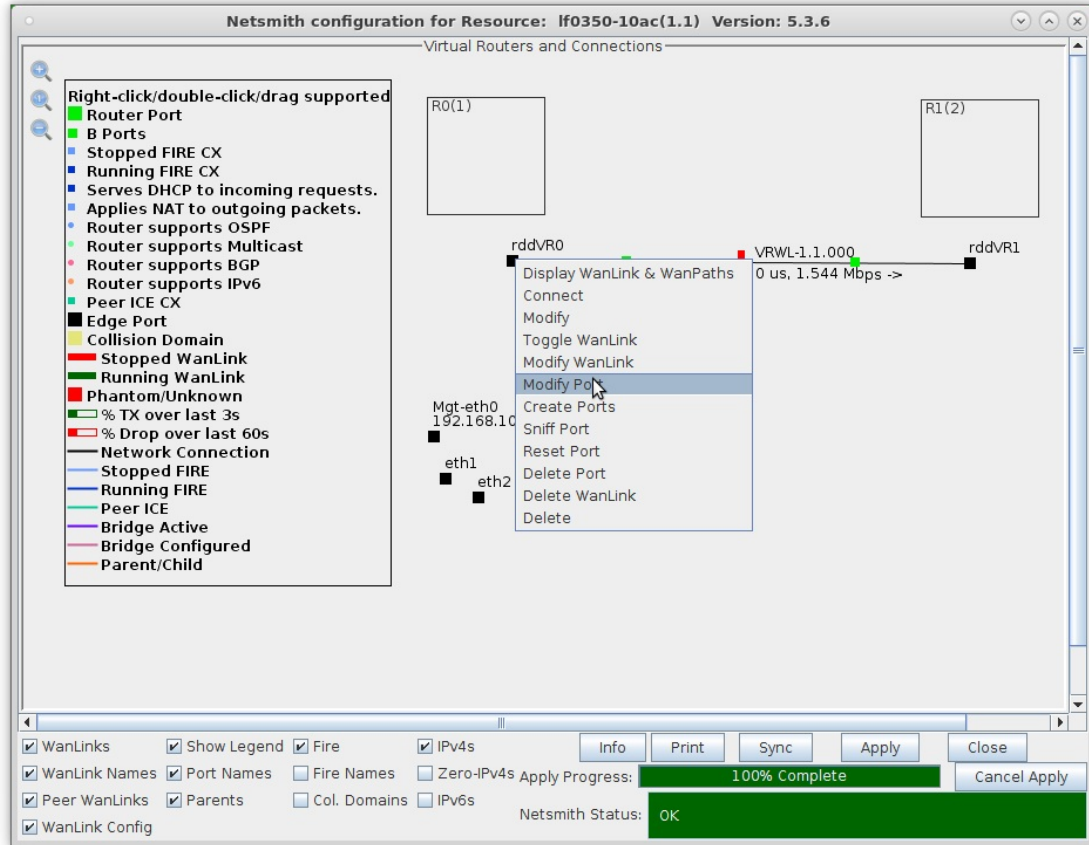


A. **NOTE:** Clicking **Sync** makes sure any changes are synchronized with the current database

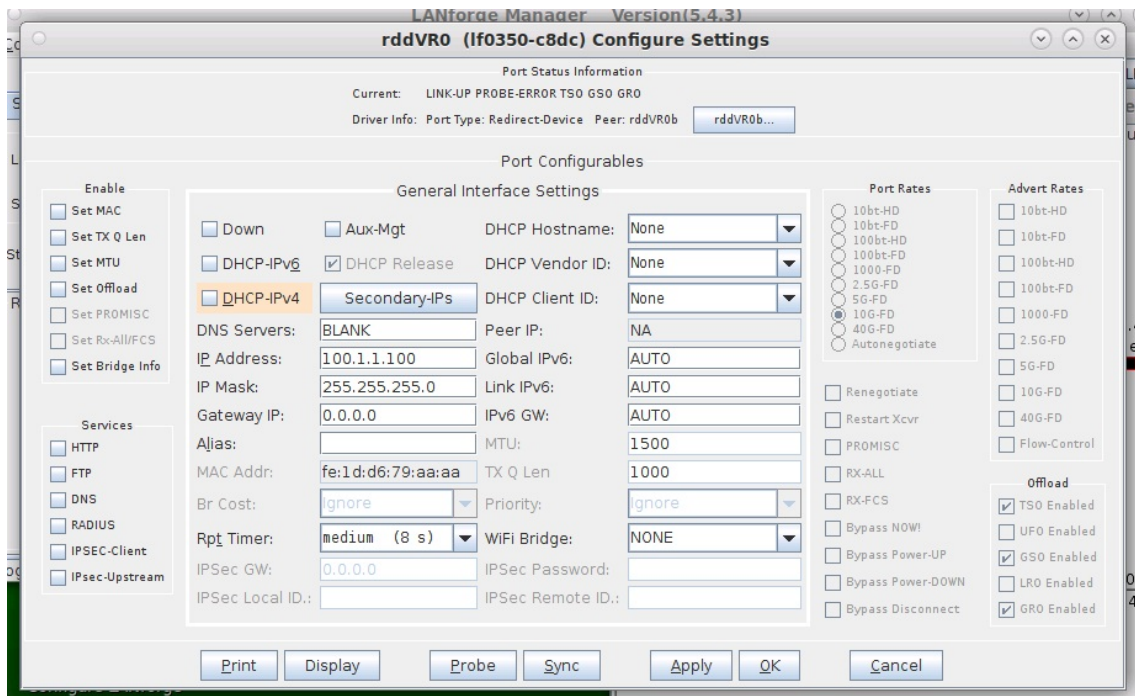
B. Also, note the Netsmith Apply Progress bar displayed at the bottom of the Netsmith window

For more information see [LANforge-GUI User Guide: Netsmith](#)

3. Configure the ports on the ends of the WanLink.
  - A. Right-click port rddVR0 and select **Modify Port**

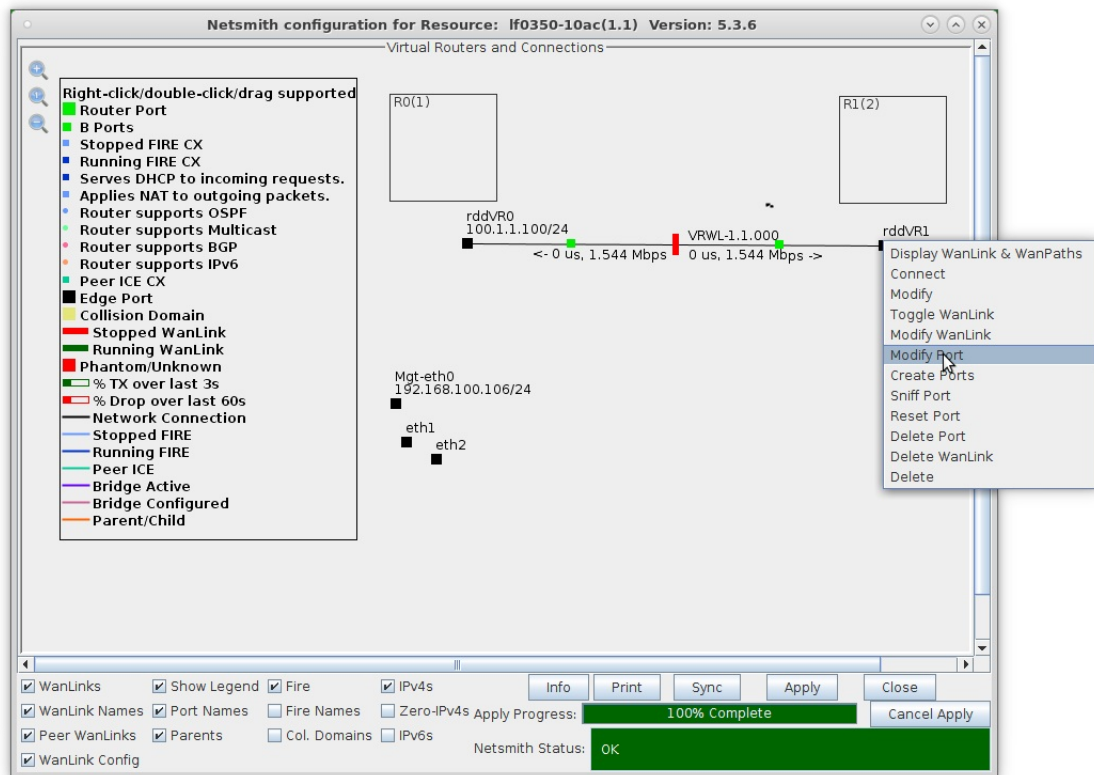


- B. Assign an IP address and Network Mask

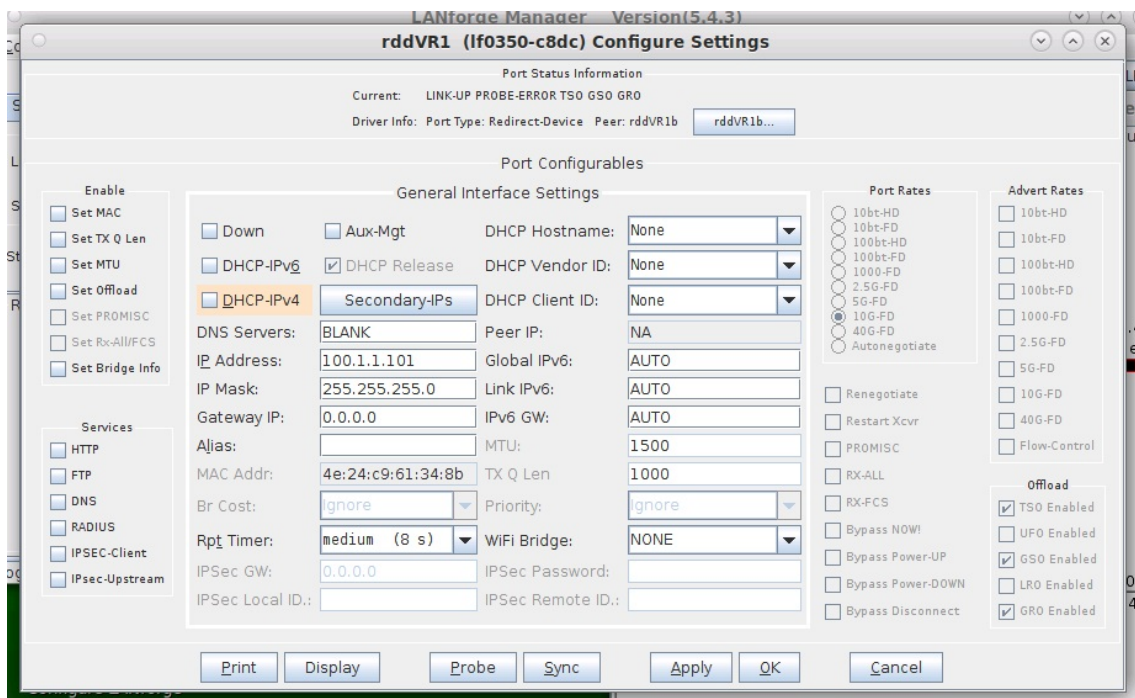


- A. This example uses 10.1.1.100 and 255.255.255.0

C. Right-click port rddVR1 and select **Modify Port**



D. Assign an IP address and Network Mask

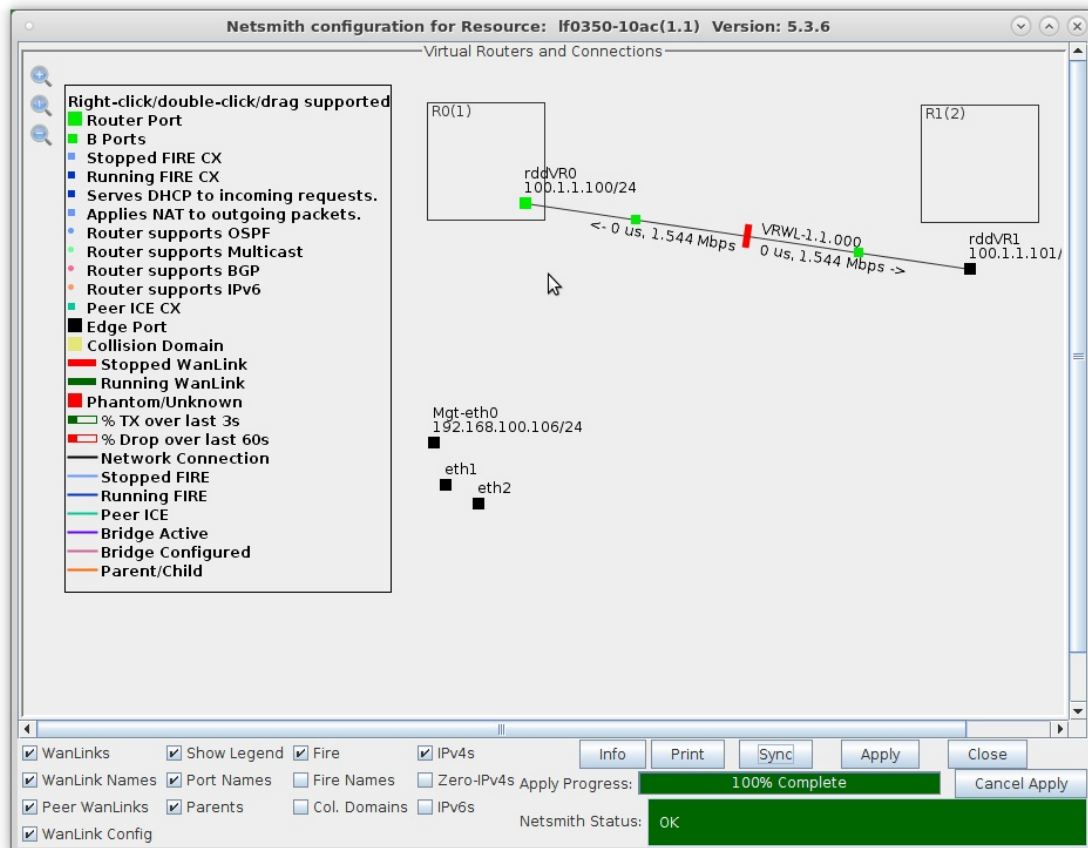


A. This example uses 10.1.1.101 and 255.255.255.0

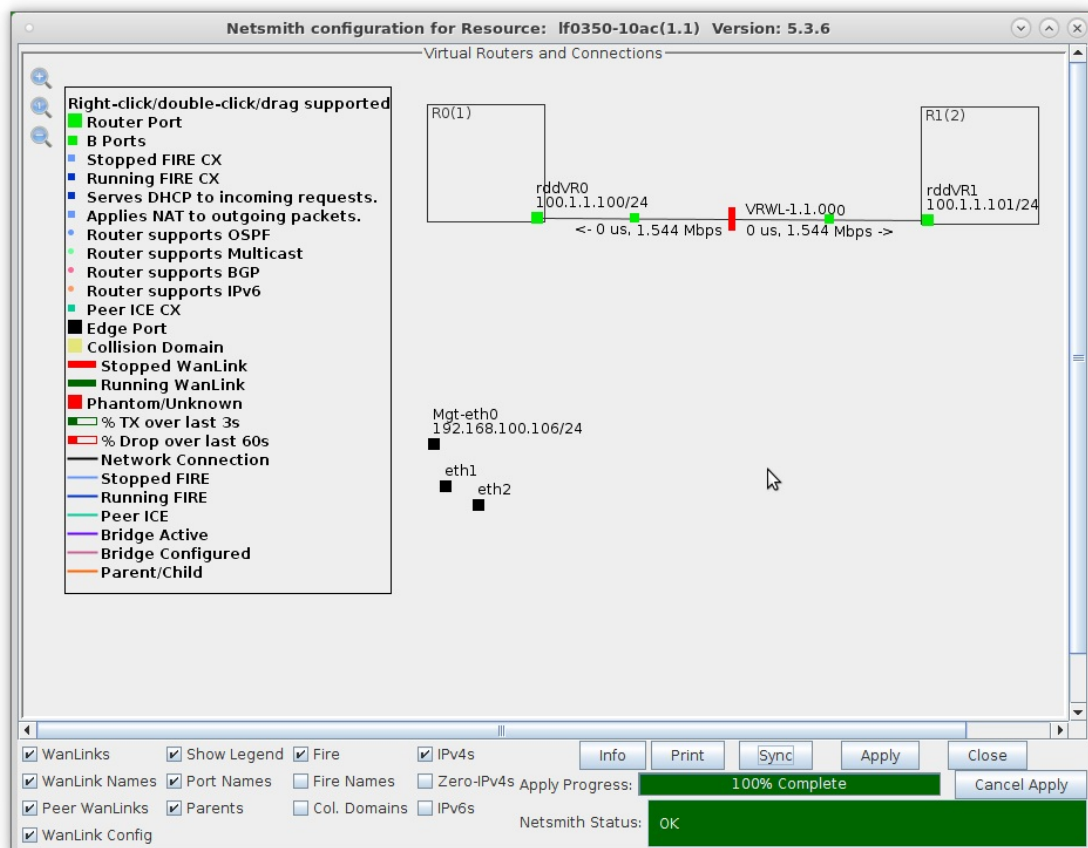
For more information see [LANforge-GUI User Guide: Netsmith](#)

4. Drag the ends of the WanLink into the Virtual Routers.

A. Left-click and drag rddVR0 into Router R0(1)

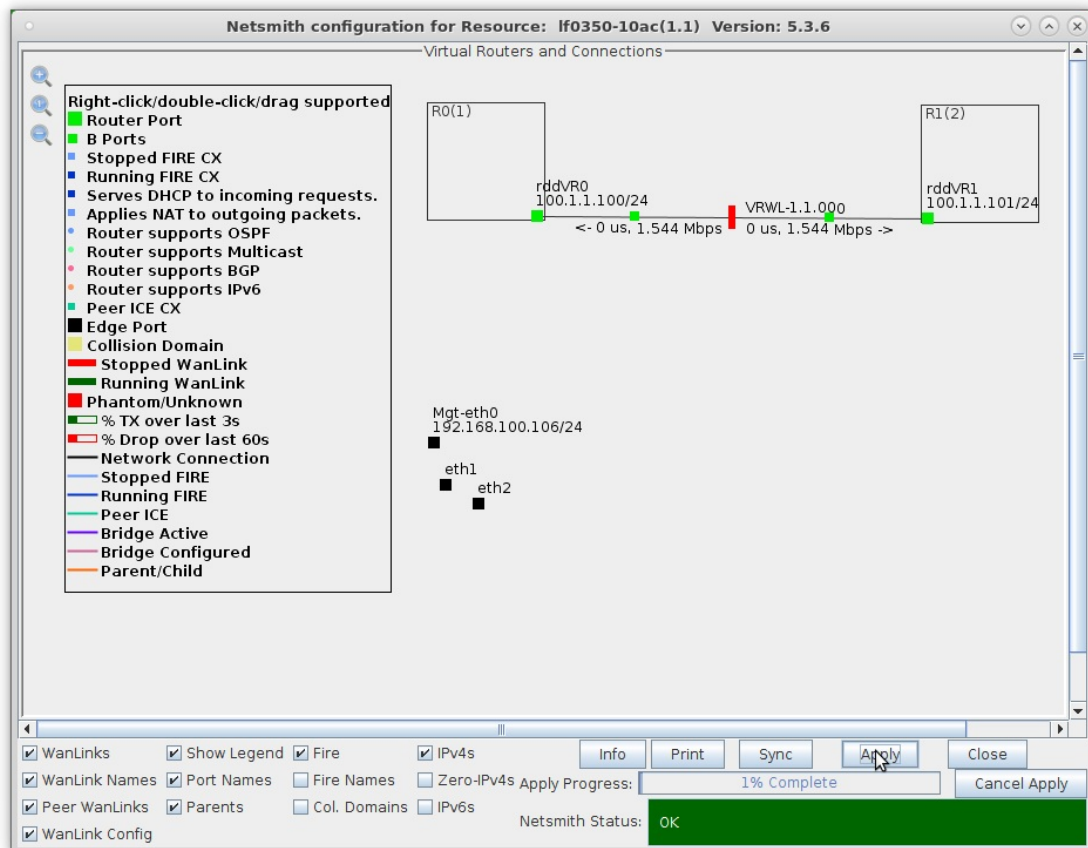


B. Left-click and drag rddVR1 into Router R1(2)





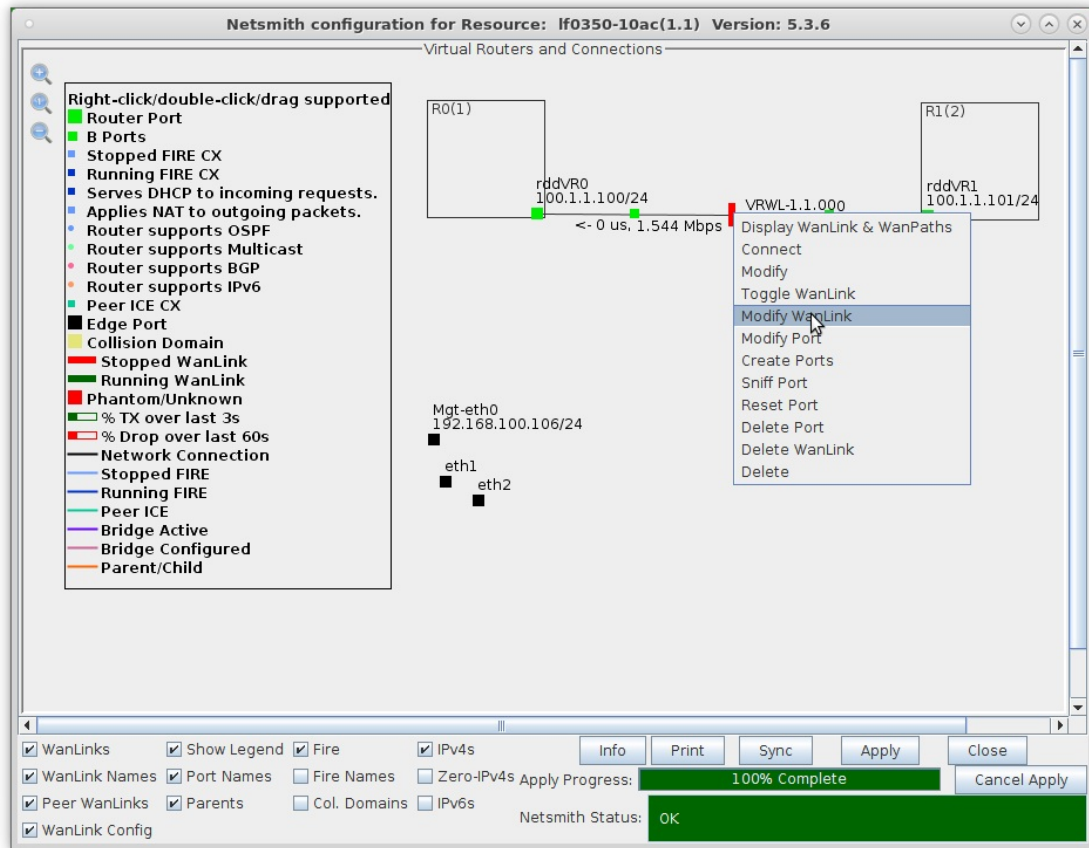
C. Click the **Apply** button at the bottom of the Netsmith window



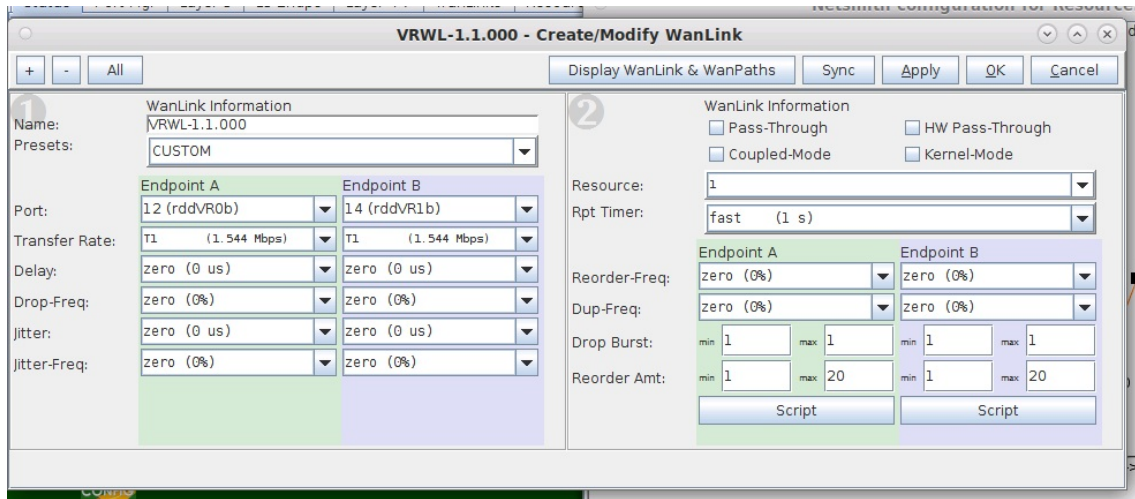
For more information see [LANforge-GUI User Guide: Netsmith](#)

5. Setup the Routed Mode WanLink characteristics.

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

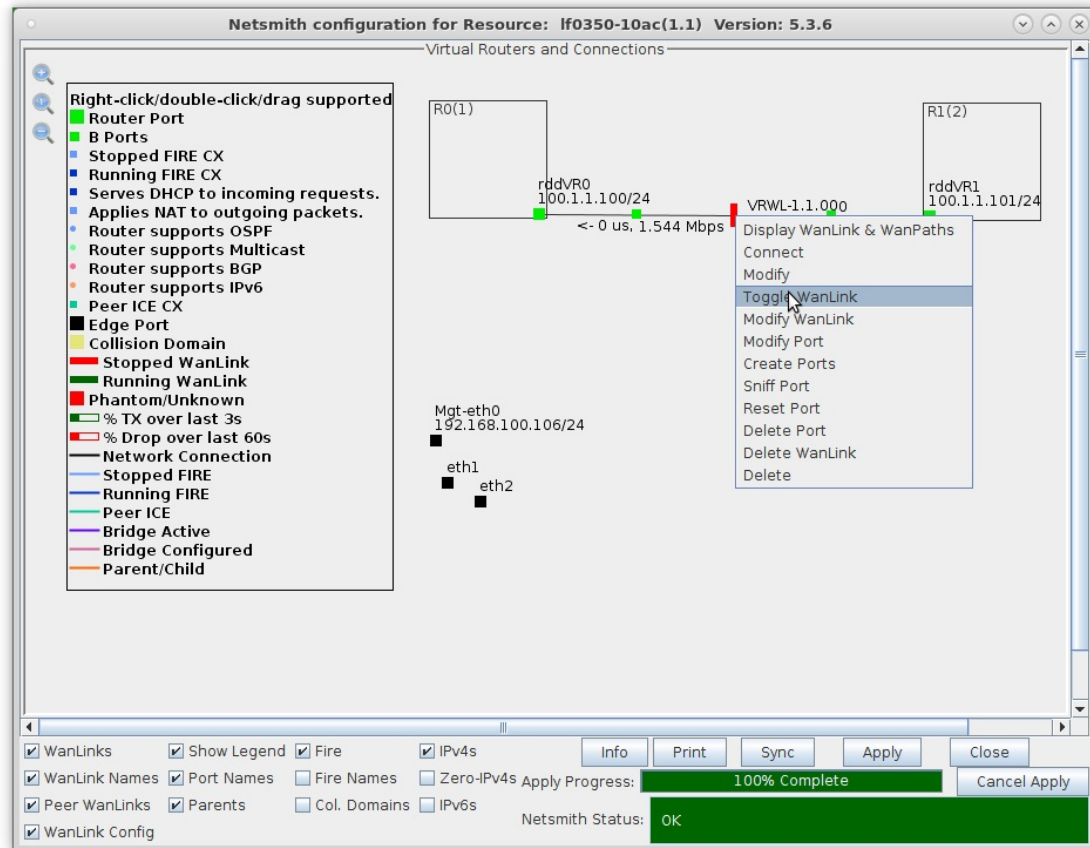


- B. Verify that the B-side ports, rddVR0b and rddVR1b, are filled in



- A. **NOTE:** Be sure to set the impairment, if any, and transfer rate  
 B. Click **OK** when done

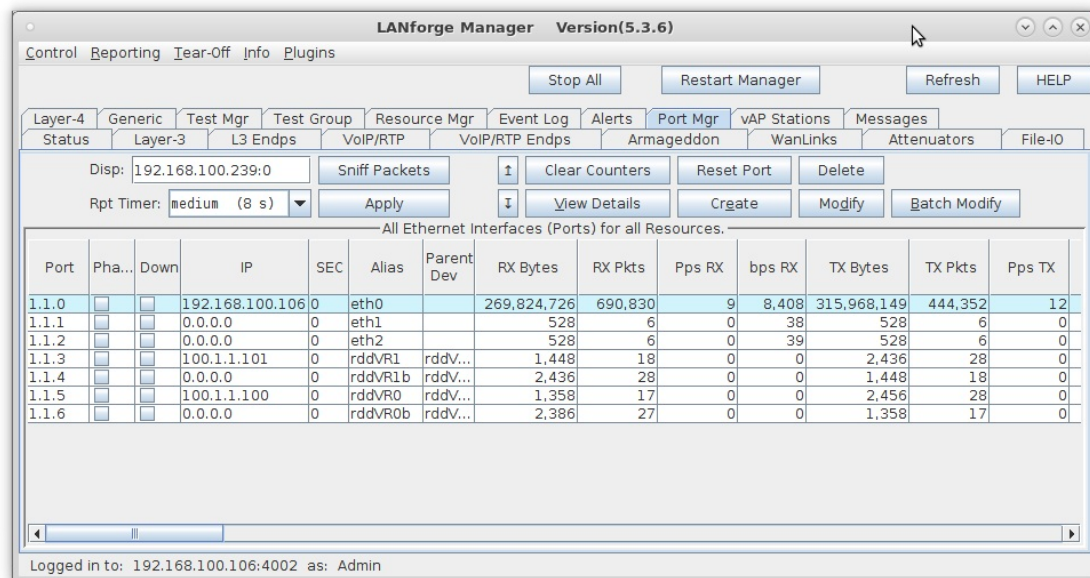
C. Right-click the WanLink and select **Toggle Wanlink** to set its status to Running (green)



For more information see [LANforge-GUI User Guide: Netsmith](#)

## 6. Setup MAC VLANs.

A. Go to the **Port Mgr** tab, select eth1 and click **Create**



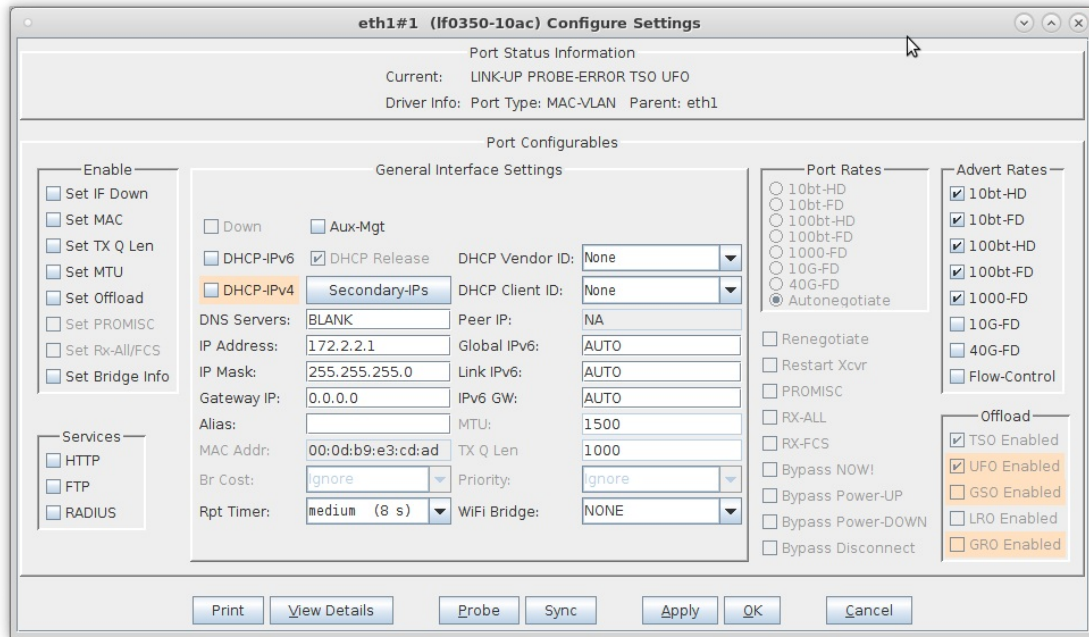
B. Select the **MAC-VLAN** button

- A. Set a MAC address that begins with 00 (Ex: 00:11:33:55:77:01)
- B. Set the Quantity to 2
- C. Set the IP Address to 172.1.1.1 and IP Mask to 255.255.255.0
- D. Leave the Gateway IP field blank
- E. Click **OK** when done

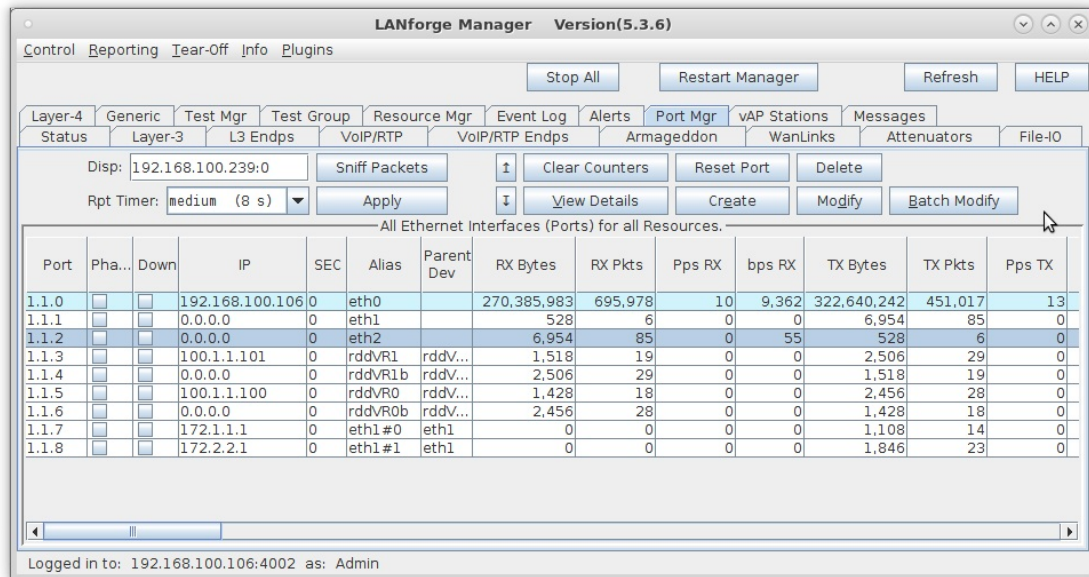
C. Select the MAC VLAN eth1 #1 and click **Modify**

Port	Pha...	Down	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX
1.1.0			192.168.100.106	0	eth0		270,124,382	693,526	9	8,827	319,635,849	447,964	13
1.1.1			0.0.0.0	0	eth1		528	6	0	0	6,166	75	0
1.1.2			0.0.0.0	0	eth2		6,166	75	0	36	528	6	0
1.1.3			100.1.1.101	0	rddVR1	rddV...	1,518	19	0	0	2,506	29	0
1.1.4			0.0.0.0	0	rddVR1b	rddV...	2,506	29	0	0	1,518	19	0
1.1.5			100.1.1.100	0	rddVR0	rddV...	1,428	18	0	0	2,456	28	0
1.1.6			0.0.0.0	0	rddVR0b	rddV...	2,456	28	0	0	1,428	18	0
1.1.7			172.1.1.1	0	eth1#0	eth1	0	0	0	0	1,038	13	0
1.1.8			172.1.1.2	0	eth1#1	eth1	0	0	0	0	1,128	14	0

D. Set eth1#1 IP address to 172.2.2.1 and IP Mask to 255.255.255.0



E. Select eth2 and click **Create**



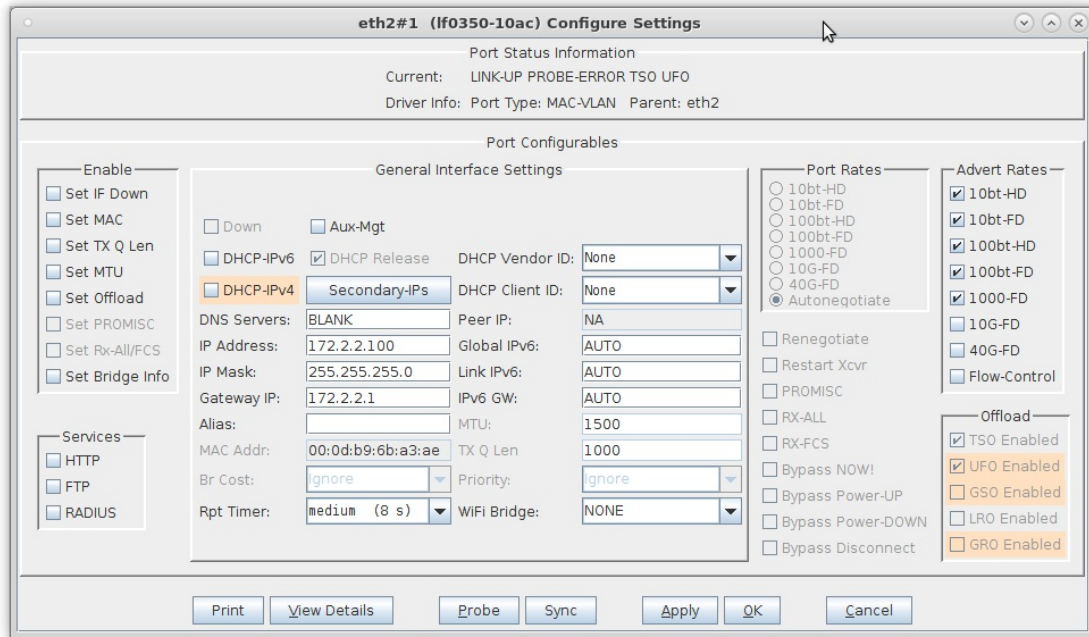
F. Select the **MAC-VLAN** button

- A. Set a MAC address that begins with 00 (Ex: 00:22:44:66:88:01)
- B. Set the Quantity to 2
- C. Set the IP Address to 172.1.1.100 and IP Mask to 255.255.255.0
- D. Set the Gateway IP to 172.1.1.1
- E. Click **OK** when done

G. Select the MAC VLAN eth2#1 and click **Modify**

Port	Pha...	Down	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX
1.1.00			192.168.100.106	0	eth0		270,635,535	698,242	9	8,893	325,639,014	453,975	13
1.1.01			0.0.0.0	0	eth1		2,644	32	0	23	7,234	89	0
1.1.02			0.0.0.0	0	eth2		7,234	89	0	4	2,644	32	0
1.1.03			100.1.1.101	0	rddvR1	rddv...	1,588	20	0	0	2,576	30	0
1.1.04			0.0.0.0	0	rddvR1b	rddv...	2,576	30	0	4	1,588	20	0
1.1.05			100.1.1.100	0	rddvR0	rddv...	1,498	19	0	4	2,526	29	0
1.1.06			0.0.0.0	0	rddvR0b	rddv...	2,526	29	0	0	1,498	19	0
1.1.07			172.1.1.1	0	eth1#0	eth1	0	0	0	0	1,178	15	0
1.1.08			172.2.2.1	0	eth1#1	eth1	0	0	0	0	2,056	26	0
1.1.09			172.1.1.100	0	eth2#0	eth2	0	0	0	0	1,058	13	0
1.1.10			172.1.1.101	0	eth2#1	eth2	0	0	0	0	1,058	13	0

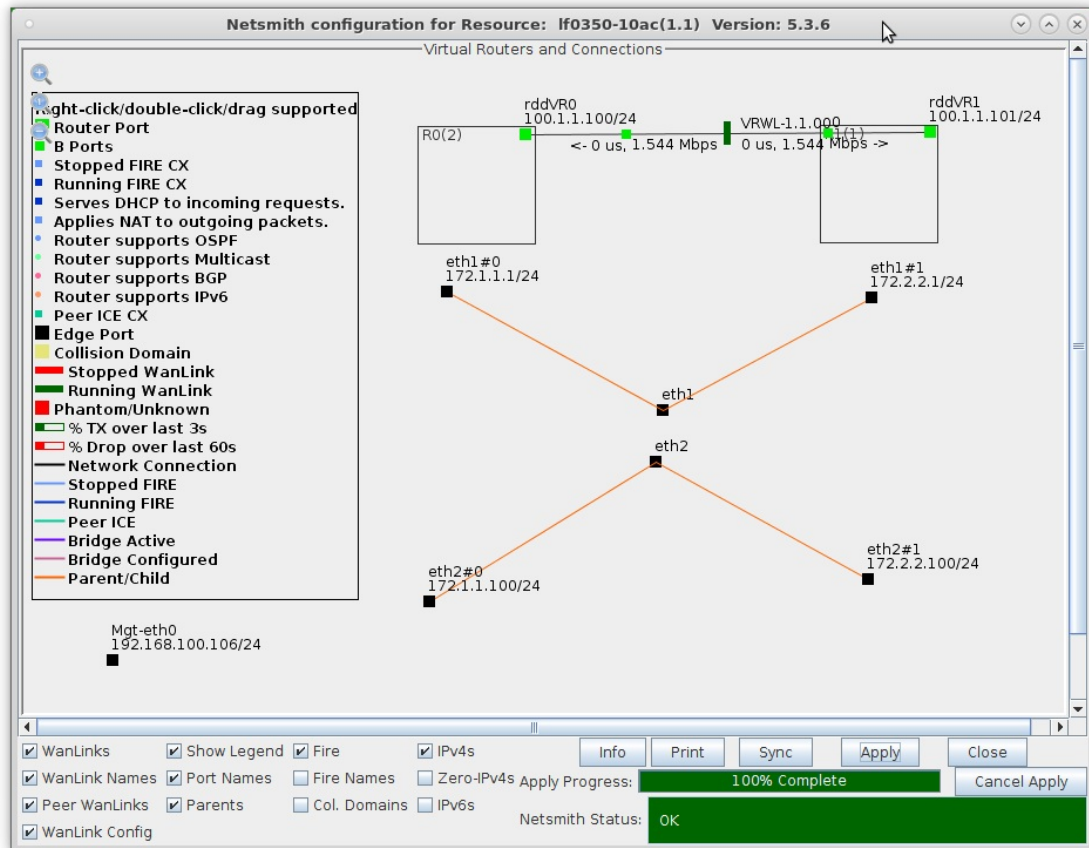
H. Set eth2#1 IP address to 172.2.2.100, IP Mask to 255.255.255.0 and Gateway IP to 172.2.2.1



For more information see [LANforge-GUI User Guide: Virtual Interfaces](#)

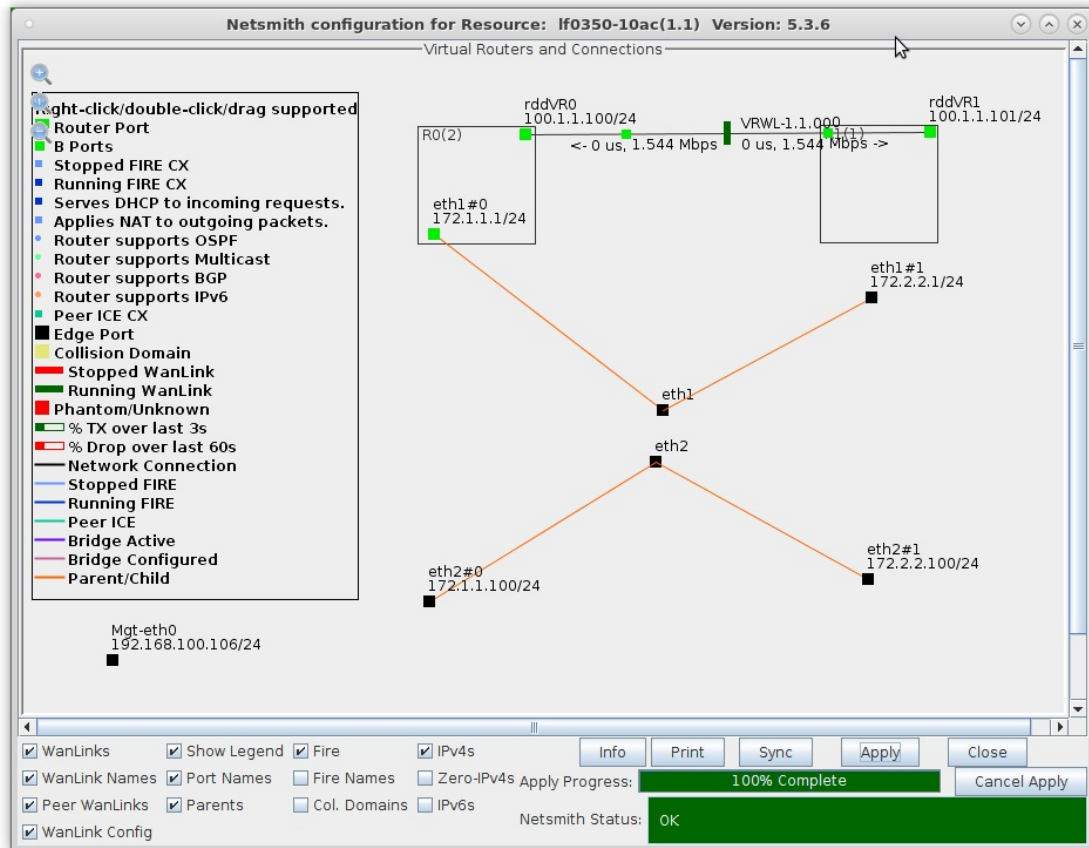
## 7. Configure Netsmith.

- A. After clicking on the sync button, move the ports on the Netsmith window to be more clearly visible. **Eth1 and eth2 are connected via a loopback cabel**

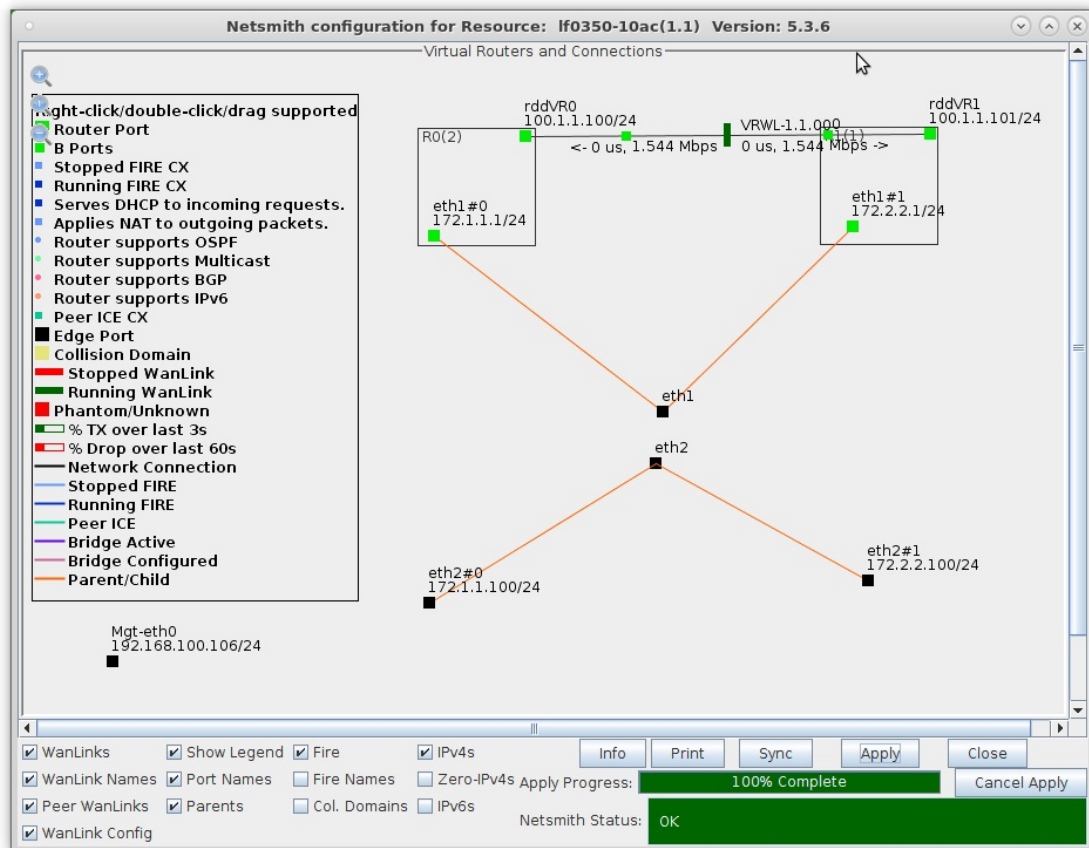


- A. **NOTE:** Be sure to click **Apply** after moving objects so that their new positions are saved to the database

B. Drag eth1#0 into Router R0(1)

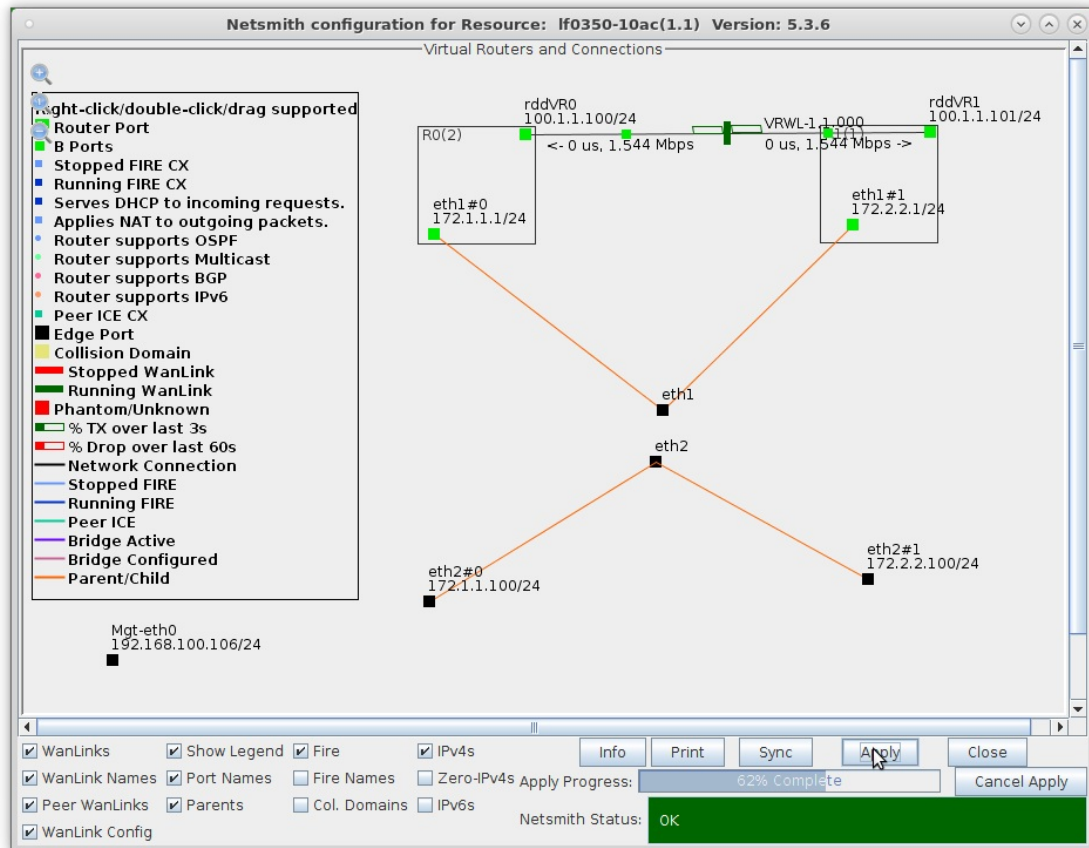


C. Drag eth1#1 into Router R1(2)





D. Click **Apply** in the Netsmith window

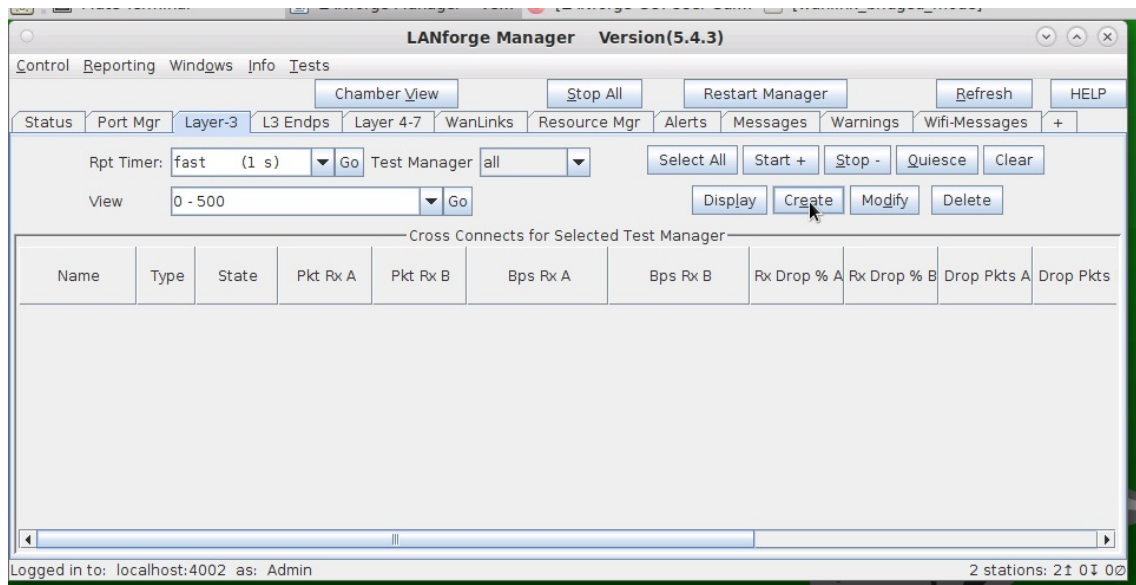


- LANforge is now ready to accept incoming traffic on eth0, the single physical port that is connected to a Routed Mode WanLink
- Ports eth0 and eth1 are physically connected via a loopback cable in this example. MAC VLANs on eth1 are configured to generate test traffic to the Routed Mode WanLink

For more information see [LANforge-GUI User Guide: Netsmith](#)

8. Setup a Layer-3 UDP connection between MAC VLANs eth2#0 and eth2#1.

- Go to the **Layer-3** tab and click **Create**



B. Set Endpoint A to be eth2#0 and Endpoint B to be eth2#1

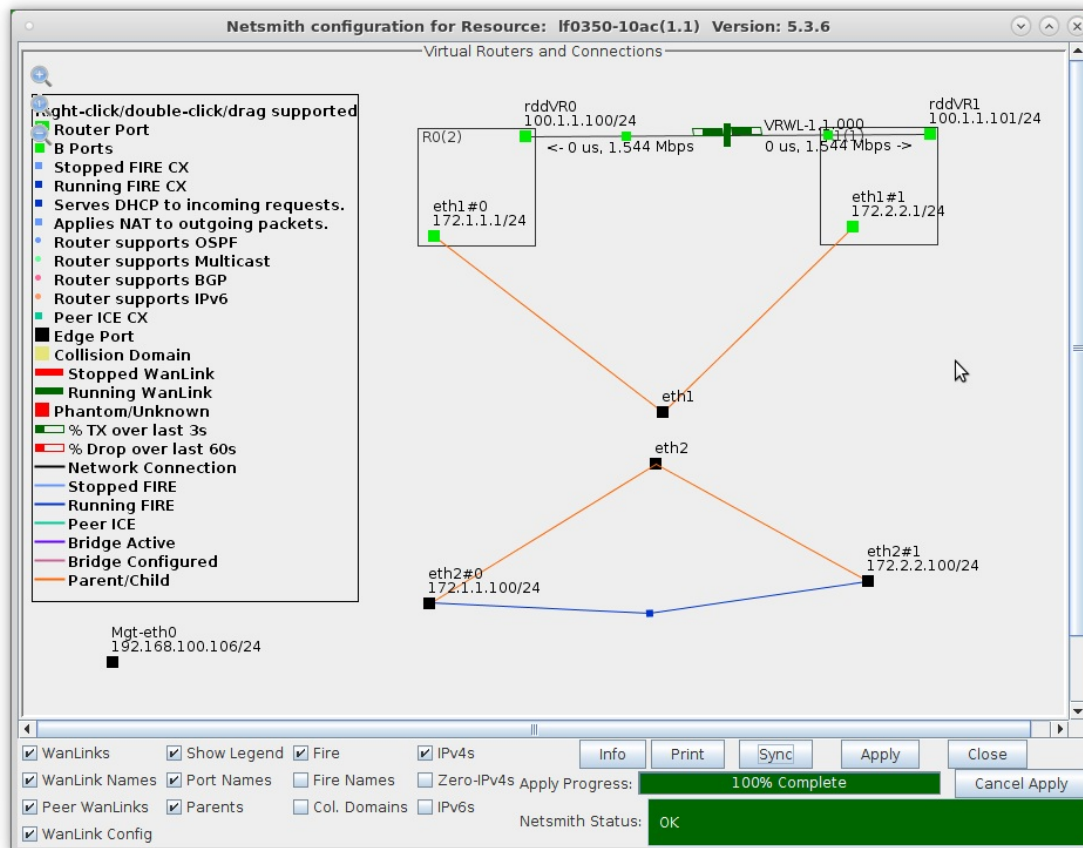
A. Enter the CX name then set the CX Type to LANforge UDP and the Report Timer to 1000

B. Set the Min/Max Tx Rate to 1024000 and the Min/Max Pkt Size to 1472

C. Select the new connection and click **Start**

Name	Type	State	Pkt Rx A	Pkt Rx B	Bps Rx A	Bps Rx B	Rx Drop % A	Rx Drop % B	Drop Pkts A	Drop Pkt:
udp-cx	LF/UDP	Run	3,616	3,625	1,022,598	1,022,614	0	0	0	

D. Netsmith now shows the new connection and traffic flowing through the Routed Mode WanLink



For more information see [LANforge-GUI User Guide](#)

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