**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](https://example.com)

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

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**

   ![Screenshot of Netsmith configuration for Resource: FW350-10ac(1.1) Version: 5.3.6](image)

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

   ![Screenshot of VRWLI-1.1.000 - Create/Modify WanLink](image)

   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

Logged into: 192.168.100.106:4002 as: Admin
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
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 cable

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

A. LANforge is now ready to accept incoming traffic on eth0, the single physical port that is connected to a Routed Mode WanLink

B. 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.
   A. Go to the Layer-3 tab and click Create
B. Set Endpoint A to 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
For more information see [LANforge-GUI User Guide](#)