**Goal:** Setup a Routed Mode WanLink between two Virtual Routers.

In this test scenario, LANforge-ICE is used to simulate a routed network where incoming traffic on one port is sent through one Virtual Router then through a WanLink, then through a second Virtual Router and then finally out to a port on a different network.

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 then 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**

![Netsmith configuration window](image)

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

![Virtual Router configuration](image)

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.

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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

   ![Image of the Netsmith configuration interface]

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

   ![Image of the VRWL-1.1.000 - Create/Modify WanLink interface]

   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 the physical ports.
A. Right-click port eth1 and select **Modify Port**

B. Assign port eth1 an IP address and Network Mask

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**NOTE:** This example uses 172.1.1.1 and 255.255.255.0
C. Drag port eth1 into Router R0(1)

D. Right-click port eth2 and select Modify Port
E. Assign port eth2 an IP address and Network Mask.

F. If either physical port connects to a larger routed network, right-click the port and select Modify and enter values for Next Hop and Subnets as follows:

- **NOTE**: Next Hop is the default gateway of your next network hop
- Up to 8 different subnets can be configured or 0.0.0.0/0 for any subnet
- Click OK when done, then click Apply in Netsmith to apply your changes
G. Drag port eth2 into Router R1(0)

H. Click the **Apply** button at the bottom of the Netsmith window
7. Run traffic and verify results. (Refer to LANforge FIRE Cookbook to run traffic)

A. Verify that the traffic on eth1 is being sent to Default Gateway 172.1.1.1 and that traffic on eth2 is being sent to Default Gateway 172.2.2.1

A. **NOTE:** In this example, traffic to eth1 is from a port configured with IP address 172.1.1.105 Network Mask 255.255.255.0 and Default Gateway 172.1.1.1

B. Traffic to eth2 is from a port configured with IP address 172.2.2.106 Network Mask 255.255.255.0 and Default Gateway 172.2.2.1

C. To generate routed network traffic refer to the LANforge FIRE Cookbook **Routed Network Testing** section.

D. If your physical configuration is complete, Netsmith should appear as shown here:
B. Right-click one of the Virtual Routers and select **Show Routing Table** to view the internal routing table for the Virtual Router.

C. LANforge Virtual Routers by default use simple subnet routing, but can also use OSPF or BGP routing protocols. LANforge can also perform IPv4 multicast routing.

For more information see **LANforge-GUI User Guide: Netsmith**

For more information see **LANforge FIRE Cookbook**

Candela Technologies, Inc., 3417 Main Street, Suite 201, Ferndale, WA 98248, USA
www.candelaitech.com | sales@candelaitech.com | +1.360.380.1618