Layer 3 Testing on Windows

**Goal**: Test layer-3 connection throughput between two Windows hosts.

This scenario involves installation on one physical Windows 7 workstation with three network ports and a Windows XP virtual host with four network ports running within VirtualBox. We will create a pair of layer three connections and see test results.

1. Configure Virtual Guest Windows machine
   A. **Note**: LANforge installations on Windows are not able to change the IP of ports. Please do this before running LANforge.

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B. Set up four network ports on the virtual guest. This example shows three ports connected to the host machine over bridge interfaces.

C. Set the IPs for the various ports using the Windows Network Settings control panel.
   A. **Local Area Connection**: DHCP. This is the default VirtualBox NAT port. We'll leave this one as a backup port for safety sake.
   B. **Local Area Connection 2**: 192.168.1.201, we will use this for normal LAN and LANforge communications
   C. **Local Area Connection 3**: 10.26.39.1, for LANforge use.
   D. **Local Area Connection 4**: 10.26.39.10, for LANforge use.

For more information see **Windows IP Address**
D. Review the IPs for the various ports using `netsh`.

E. Set up network ports on the Windows workstation. The configuration includes one physical port on the motherboard and a four-port Intel PCIe card.
   A. **Local Area Connection 1**: 192.168.100.39, we will use this for normal LAN and LANforge communications.
   B. **Local Area Connection 2**: 10.26.39.2, for LANforge use.
   C. **Local Area Connection 3**: 10.26.39.3, for LANforge use.
   D. **Local Area Connection 4**: 10.26.39.4, for LANforge use.

F. Make sure your LANforge client GUI can ping the IP of the virtual guest management port.

G. Make sure your LANforge Manager can ping the IPs of the virtual guest management ports.

H. If necessary, configure the Windows firewall to allow ICMP packets. Or disable the Windows firewall.

2. Install LANforge Server on the Windows workstation.
A. Make sure you install WinPCAP if it is not already installed.

B. At the end of the LANforge Server install, launch the LANforge Configuration Utility.

C. Set the Realm to 1
D. Set the Resource to 1
E. Set the Mode to Both
F. Set the Management port to the local LAN addressed port.
C. Apply the configuration and LANforge Server will start in Manager mode.

D. Click the Exit LANforge Config button. Leave the LANforge Server running (you may minimize the DOS windows.)
E. Desktop icons allow you to start and configure LANforge Server later.

3. Install the LANforge GUI on the Windows workstation.

A. Don’t forget to install the licences.
4. Install LANforge Server on the virtual guest
   A. Make sure you install WinPcap if it is not already installed.
   B. At the end of the system install, launch the LANforge Configuration Utility
   C. Set the **Mode** to **Resource**
   D. Set the Management port to the local LAN addressed port.

E. Set the **Realm** to **1**
F. Set the **Resource** to **2**
5. Create Layer 3 connections
   A. In the Layer-3 tab, click Create
B. In the Level-1 box, create the first cross connect:

A. Name the Cross Connect to **w7-ad1_xp-ad2**
B. The CX Type is `LANforge / TCP`
C. Set the Endpoint A Resource to `Windows 7`
D. The Endpoint A Port to the first 10.x addressed port, `ad1`
E. Set the Endpoint A Min PDU Size to TCP `(1460 B)`
F. Set the Endpoint A Min Tx Rate to 100Mbit. This is a limit of the XP guest.
G. Endpoint B Resource: XP Guest
H. Endpoint B Port: `ad2`
I. Endpoint B Min Tx Rate: 100Mbit
J. Set the Endpoint B Min PDU Size to TCP `(1460 B)`
K. Set the Endpoint B Min Tx Rate to 100Mbit. This is a limit of the XP guest.
L. Click OK to commit those settings

C. For the second cross connect, click **Create** in the Layer-3 tab.
D. In the Level-1 box, create the second cross connect:

A. Name the Cross Connect to w7-ad2_xp-ad3
B. The CX Type is LANforge / TCP
C. Set the Endpoint A Resource to Windows 7
D. The Endpoint A Port will be the next free 10x port, ad2
E. Set the Endpoint A Min PDU Size to TCP (1460 B)
F. Set the Endpoint A Min Tx Rate to 100Mbit. This is a limit of the XP guest.
G. The opposite end Endpoint B Resource is the XP Guest
H. Set the Endpoint B Port to ad3
I. Set the Endpoint B Min PDU Size to TCP (1460 B)
J. Set the Endpoint B Min Tx Rate to 100Mbit. This is a limit of the XP guest.
K. Click OK to commit those settings

E. In the Layer-3 tab, you will now see your two cross-connects:

6. Start Layer 3 connections
   A. Highlight the connections
   B. Click Start
C. You will see data transferring along the cross connects.

D. Highlight both connections and click **Display** to see the connection statistics for each. Here is the first:

E. Here is the second: