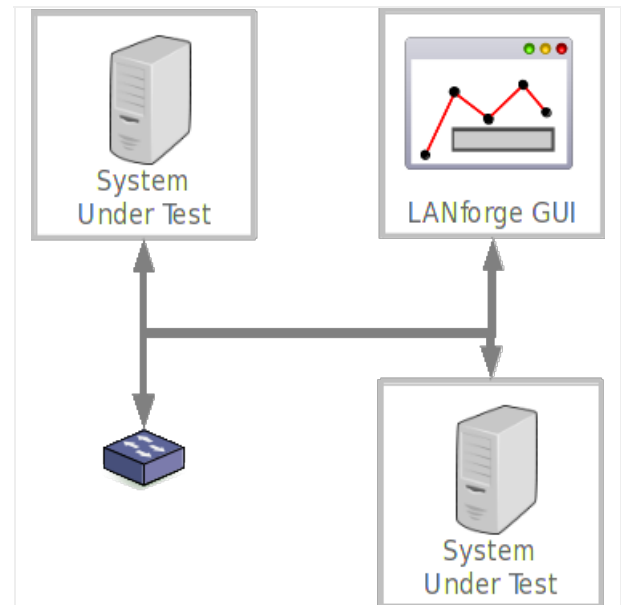
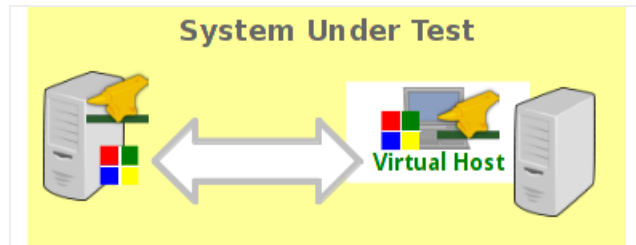


Layer 3 Testing on Windows

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

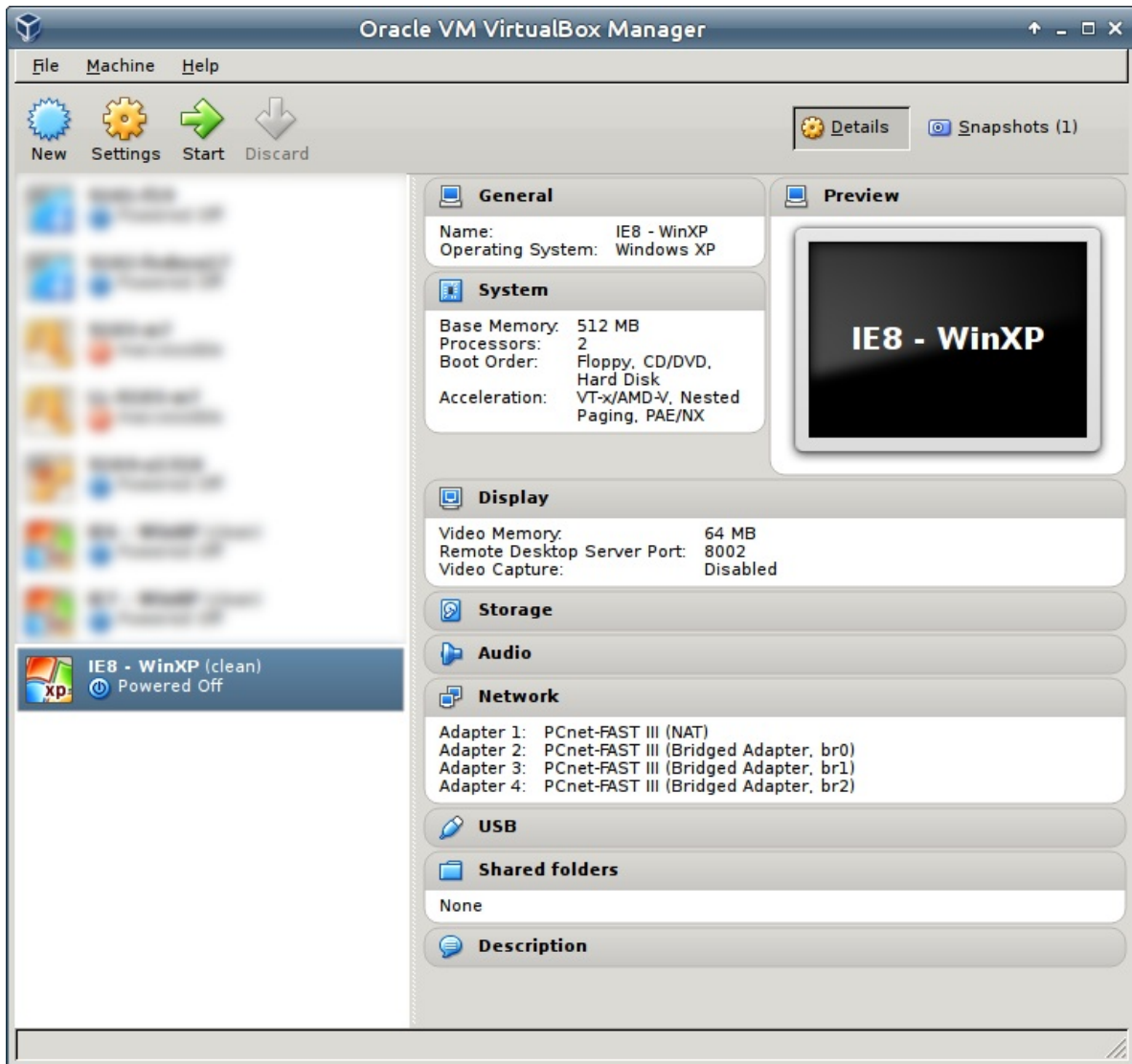
This scenario involves installation on one physical Windows 7 workstation with three network ports and a Windows XP virtual host with four network ports running within VirtualBox. We will create a pair of layer three connections and see test results.



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.

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

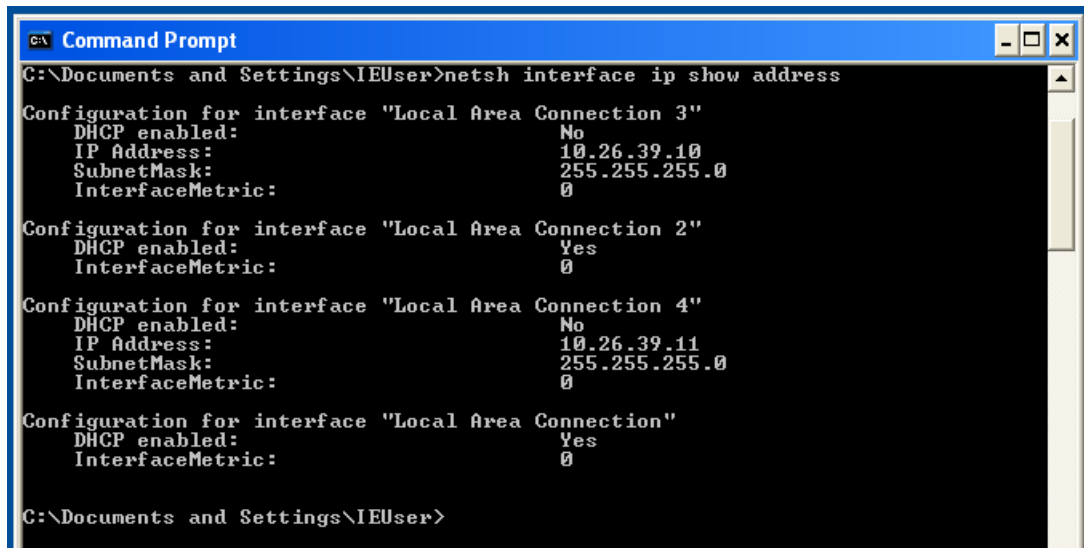


- C. Set the IPs for the various ports using the Windows Network Settings control panel.

- 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`.



```
C:\Documents and Settings\IEUser>netsh interface ip show address

Configuration for interface "Local Area Connection 3"
DHCP enabled: No
IP Address: 10.26.39.10
SubnetMask: 255.255.255.0
InterfaceMetric: 0

Configuration for interface "Local Area Connection 2"
DHCP enabled: Yes
InterfaceMetric: 0

Configuration for interface "Local Area Connection 4"
DHCP enabled: No
IP Address: 10.26.39.11
SubnetMask: 255.255.255.0
InterfaceMetric: 0

Configuration for interface "Local Area Connection"
DHCP enabled: Yes
InterfaceMetric: 0

C:\Documents and Settings\IEUser>
```

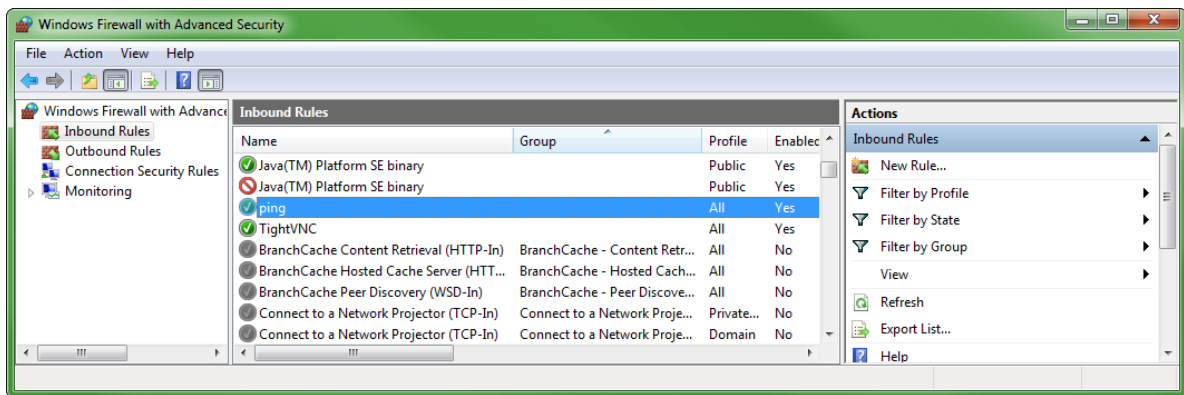
E. Set up network ports on the Windows workstation. The configuration includes one physical port on the motherboard and a four-port Intel PCIe card.

- A. **Local Area Connection:** 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.

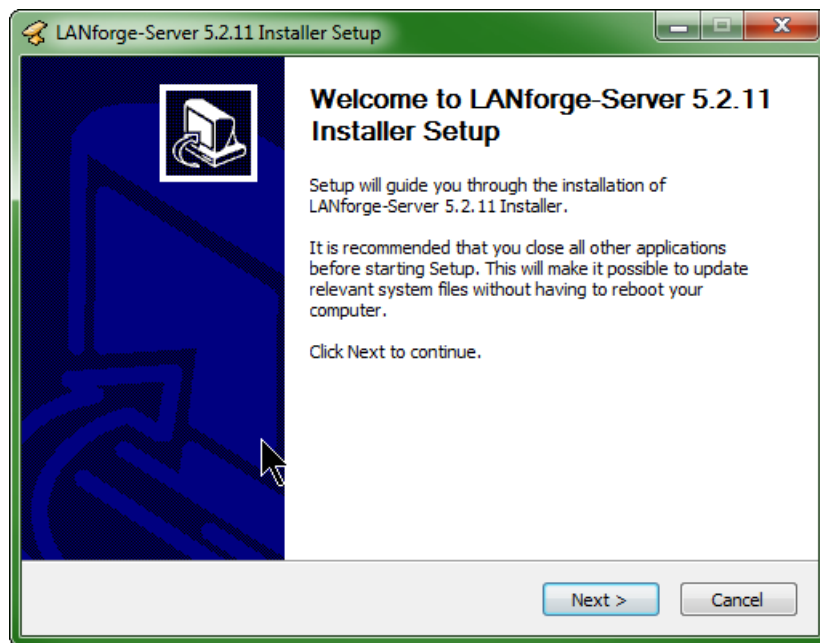
F. Make sure your LANforge client GUI can ping the IP of the virtual guest management port.

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

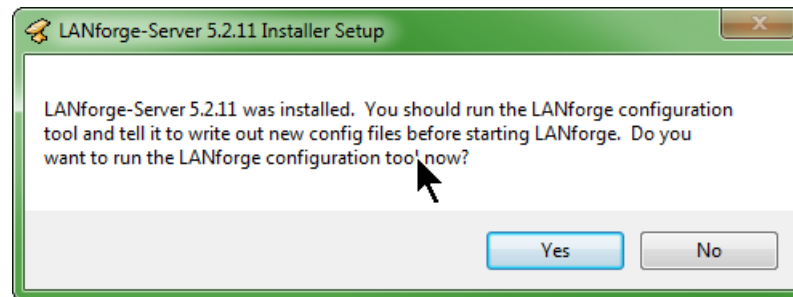
H. If necessary, configure the Windows firewall to allow ICMP packets. Or disable the Windows firewall.



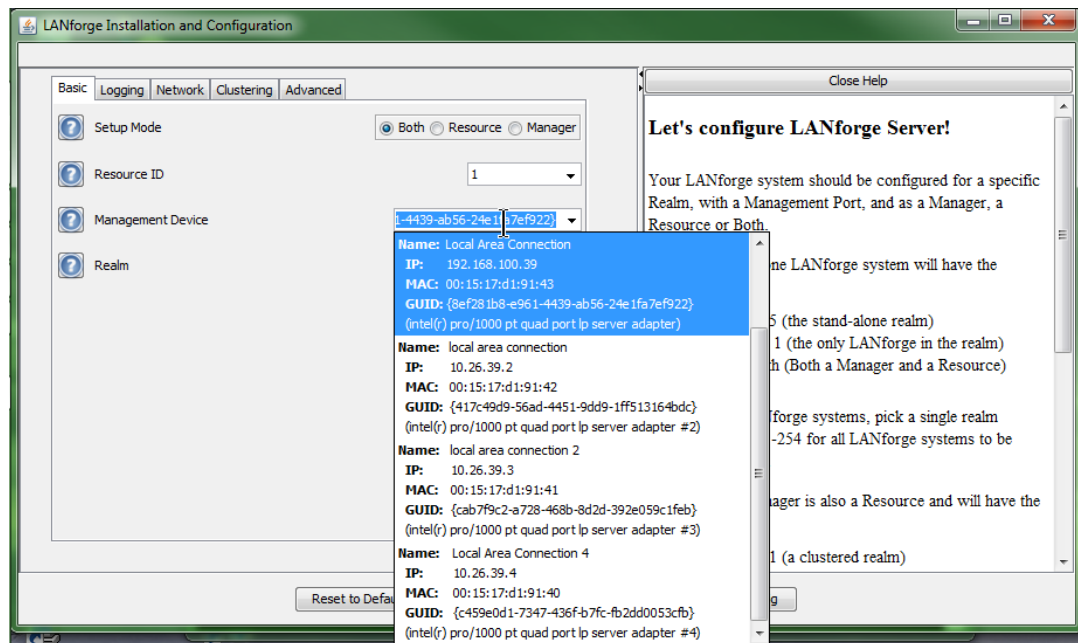
2. Install LANforge Server on the Windows workstation



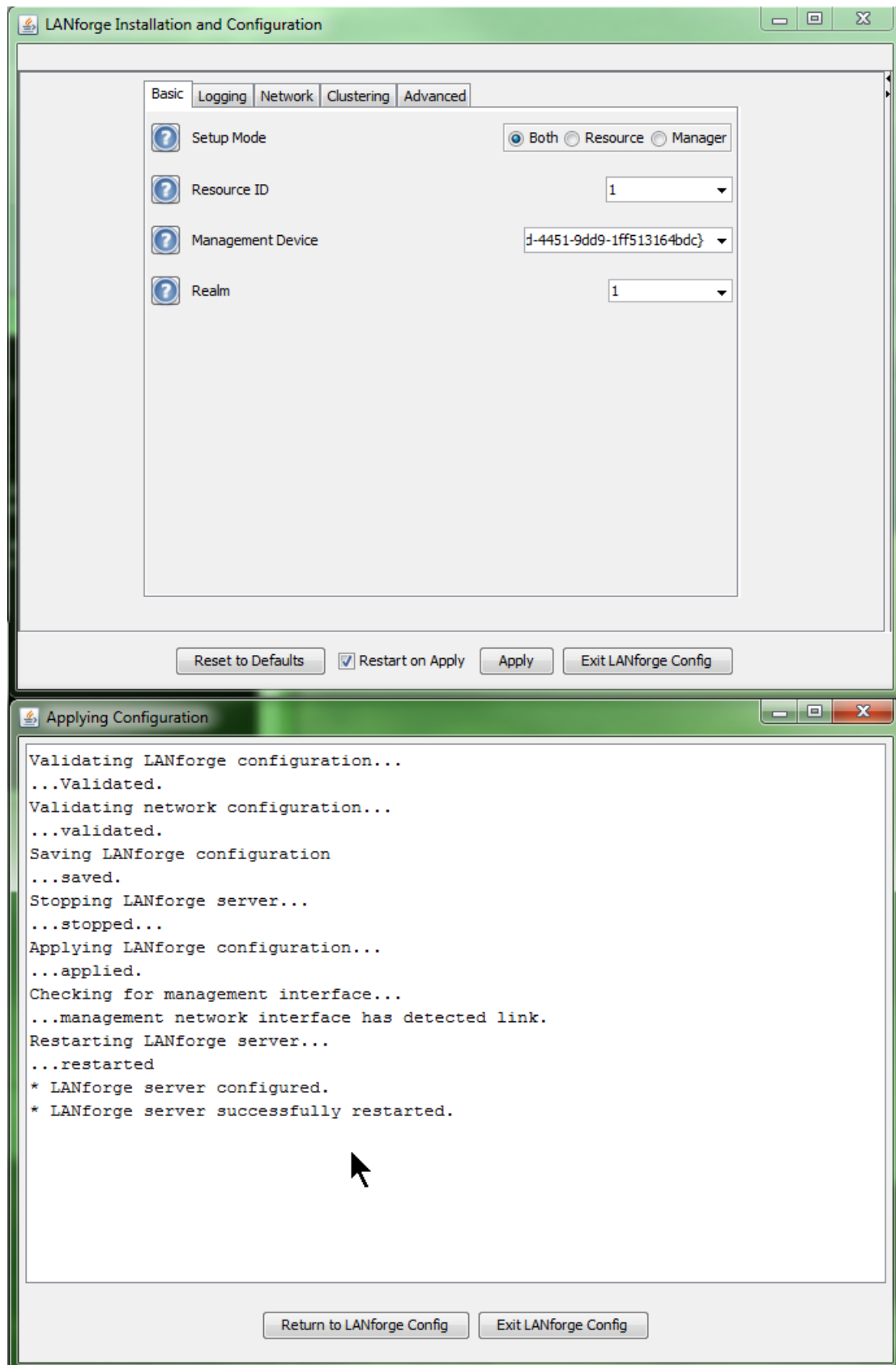
- A. Make sure you install WinPCAP if it is not already installed.
- B. At the end of the LANforge Server install, launch the LANforge Configuration Utility



- A. Set the **Realm** to 1
- B. Set the **Resource** to 1
- C. Set the **Mode** to **Both**
- D. Set the Management port to the local LAN addressed port.

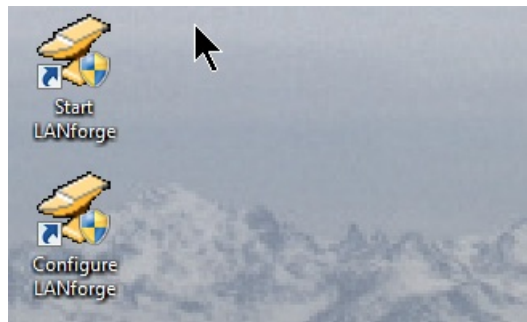


C. Apply the configuration and LANforge Server will start in Manager mode.

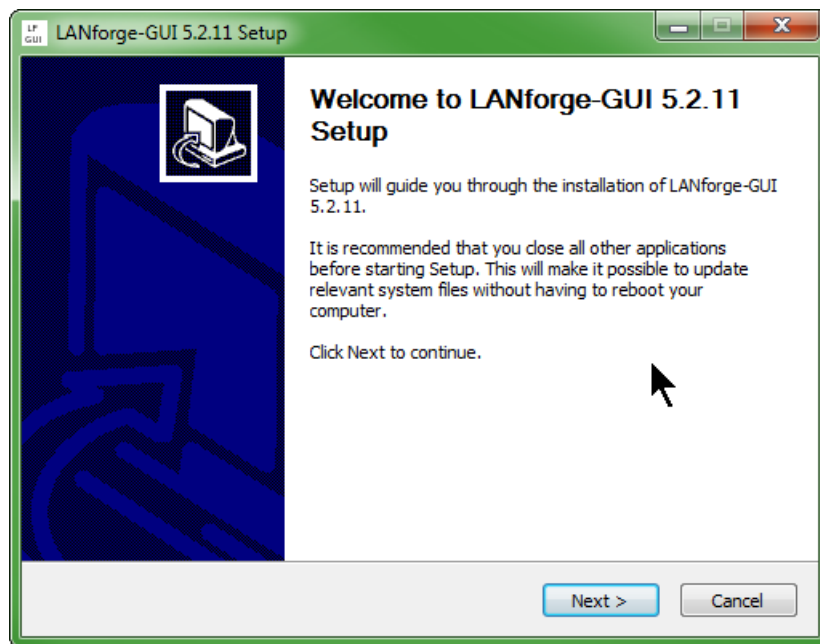


D. Click the **Exit LANforge Config** button. Leave the LANforge Server running (you may minimize the DOS windows.)

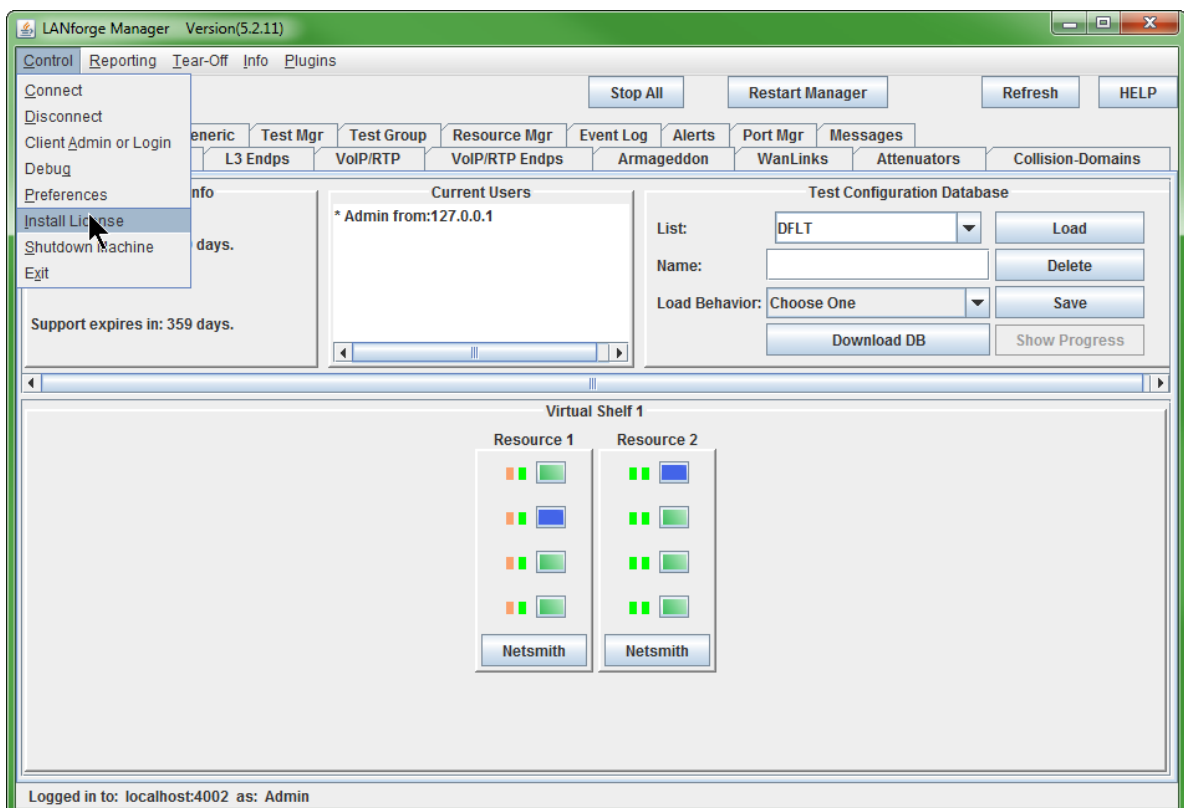
E. Desktop icons allow you to start and configure LANforge Server later.



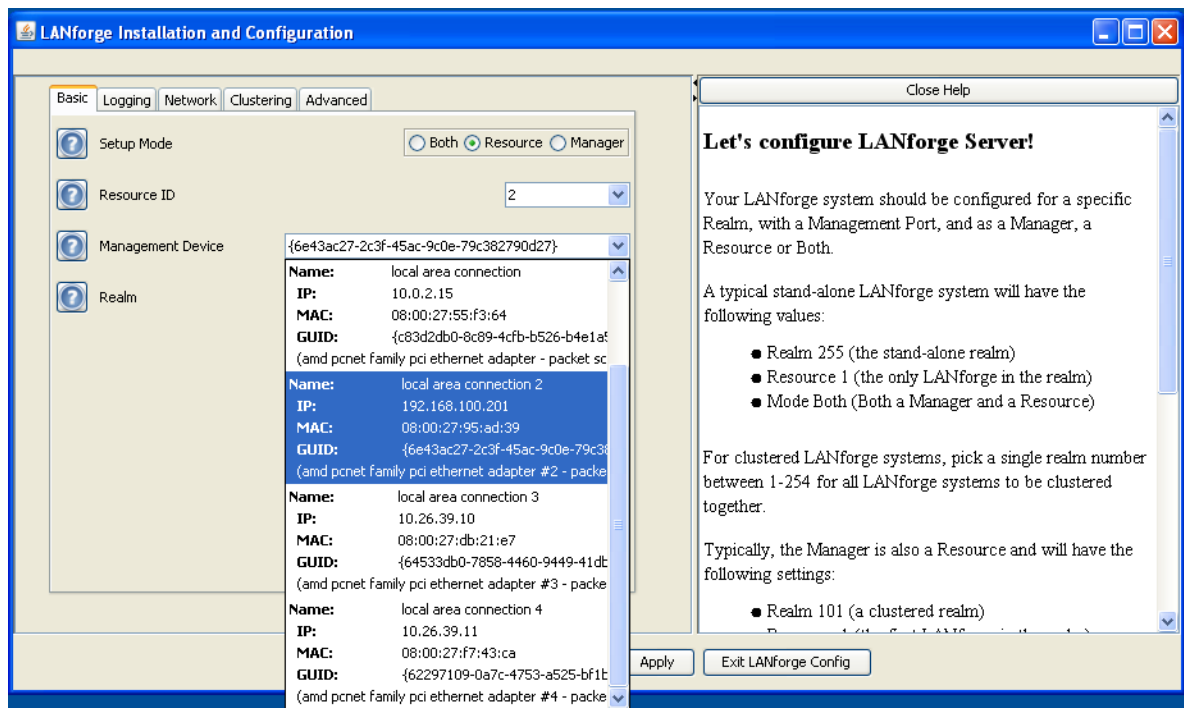
3. Install the LANforge GUI on the Windows workstation.



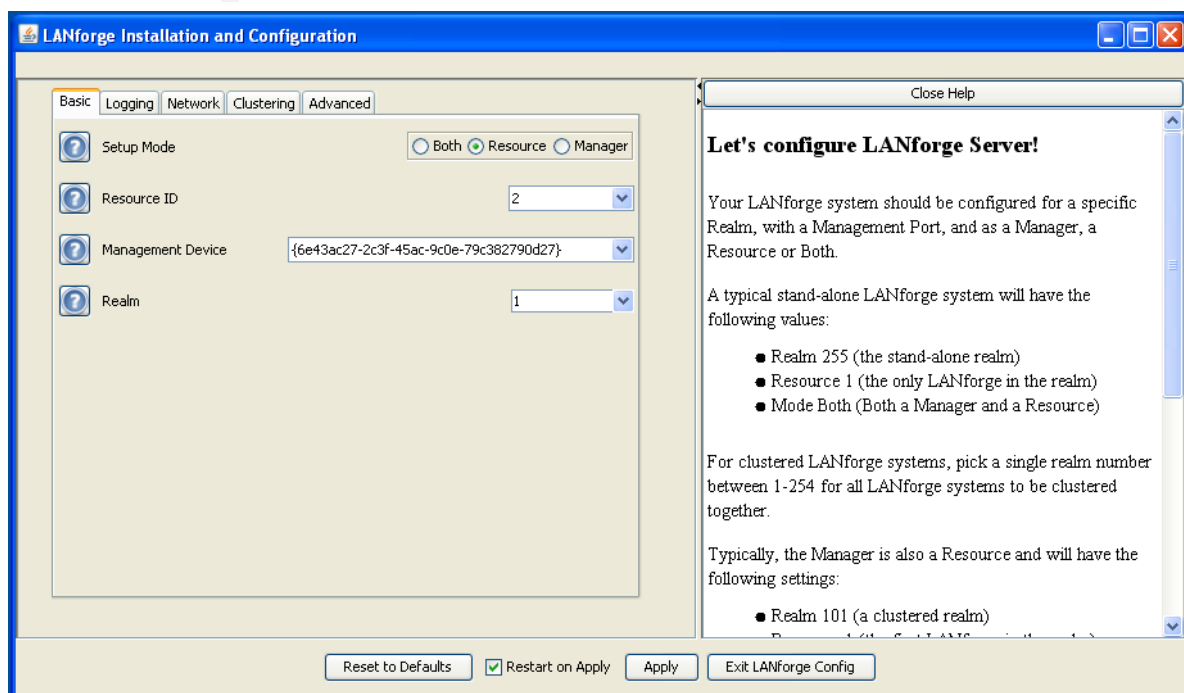
A. Don't forget to install the licences.



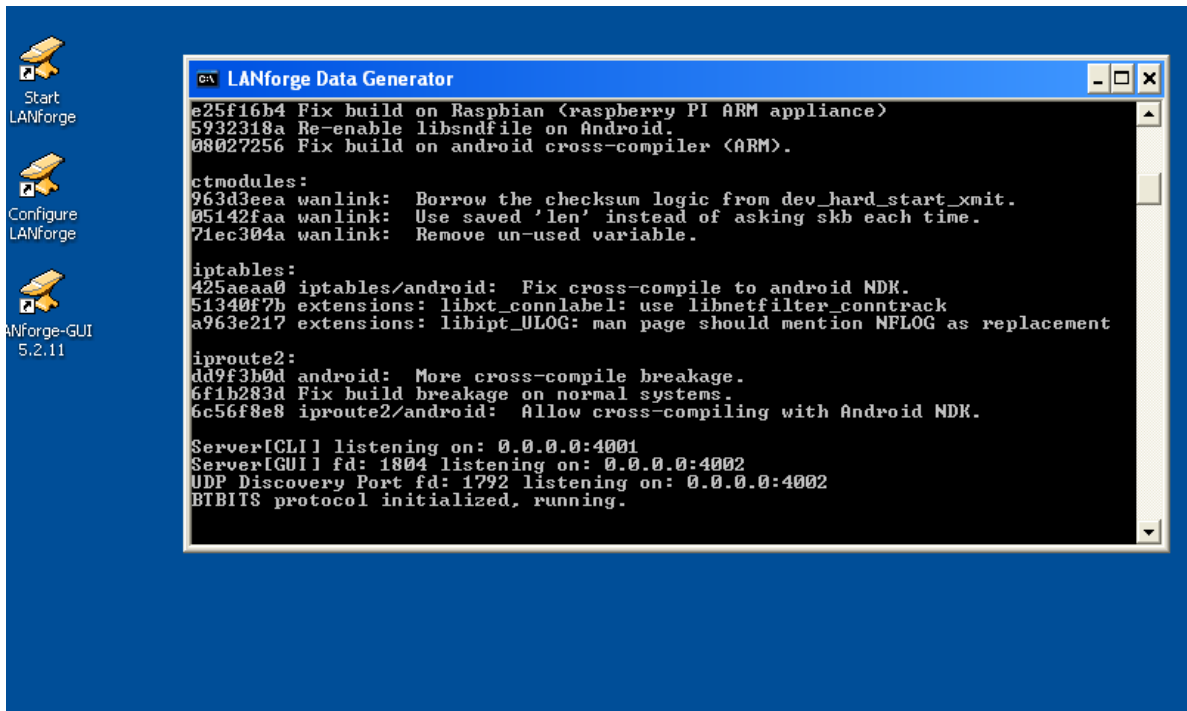
4. Install LANforge Server on the virtual guest
 - A. Make sure you install WinPCAP if it is not already installed.
 - B. At the end of the system install, launch the LANforge Configuration Utility
 - C. Set the **Mode** to **Resource**
 - D. Set the Management port to the local LAN addressed port.



- E. Set the **Realm** to **1**
- F. Set the **Resource** to **2**

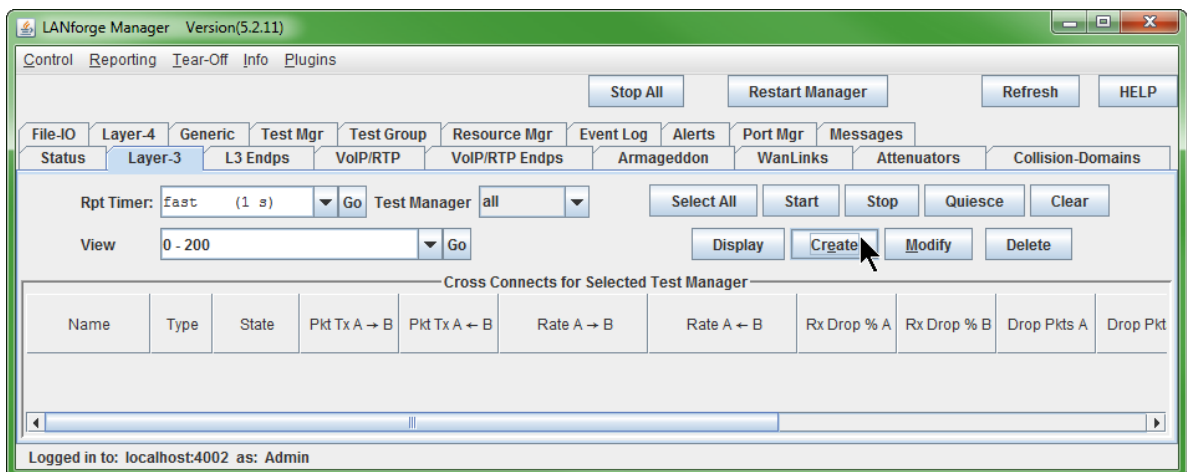


G. Apply the configuration and LANforge Server will start in resource mode.



5. Create Layer 3 connections

A. In the **Layer-3** tab, click **Create**



B. In the **Level-1** box, create the first cross connect:

w7-ad1_xp-ad2 - Create/Modify Cross Connect

+ - All Display Sync Batch-Create Apply OK Cancel

1

CX Name: w7-ad1_xp-ad2

CX Type: LANforge / TCP

Cross-Connect

	Endpoint A	Endpoint B
Resource:	1 (atlantis)	2 (ie6winxp)
Port:	1 (ad1)	2 (ad2)
Min Tx Rate:	100M (100 Mbps)	100M (100 Mbps)
Max Tx Rate:	Same	Same
Min PDU Size:	TCP Pld (1,460 B)	TCP Pld (1,460 B)
Max PDU Size:	Same	Same
IP ToS:	Best Effort (0)	Best Effort (0)
Pkts To Send:	Infinite	Infinite

Select the Cross-Connect's type.

- 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 **Level1-1** 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 10.x 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

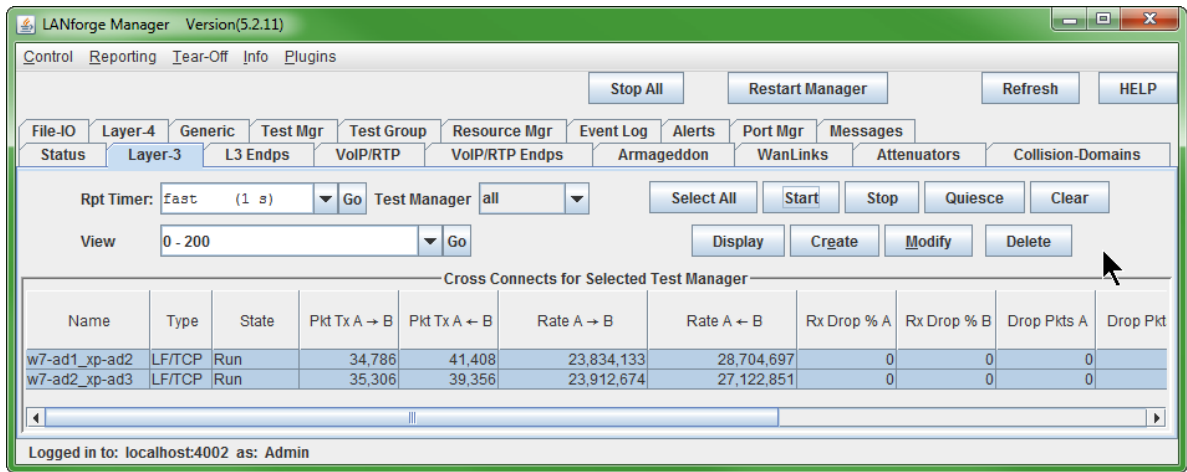
E. In the **Layer-3** tab, you will now see your two cross-connects:

Name	Type	State	Pkt Tx A → B	Pkt Tx A ← B	Rate A → B	Rate A ← B	Rx Drop % A	Rx Drop % B	Drop Pkts A	Drop Pkt
w7-ad1_xp-ad2	LF/TCP	Stopped	0	0	0	0	0	0	0	0
w7-ad2_xp-ad3	LF/TCP	Stopped	0	0	0	0	0	0	0	0

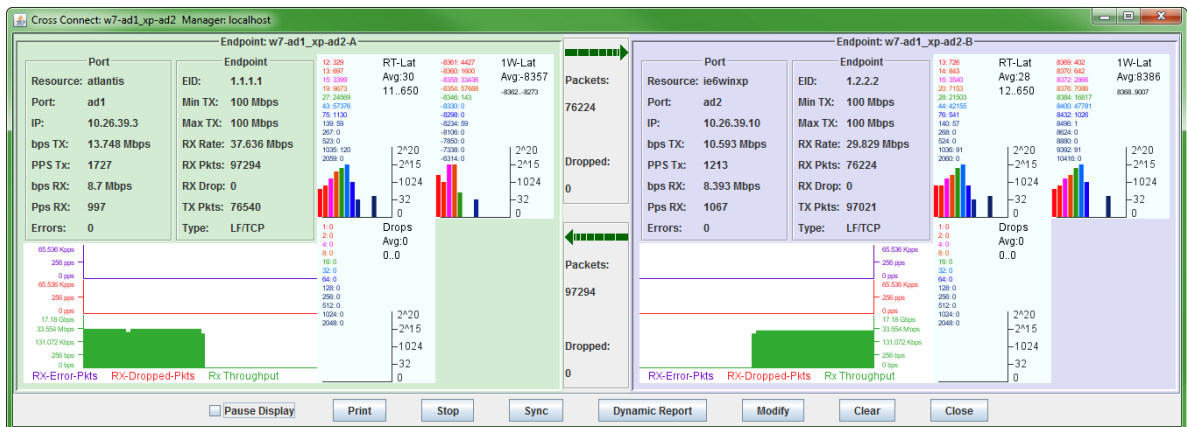
6. Start Layer 3 connections

- 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:

