

NETROPYVE 4.0
INSTALLATION GUIDE
VMWARE WALK THROUGH



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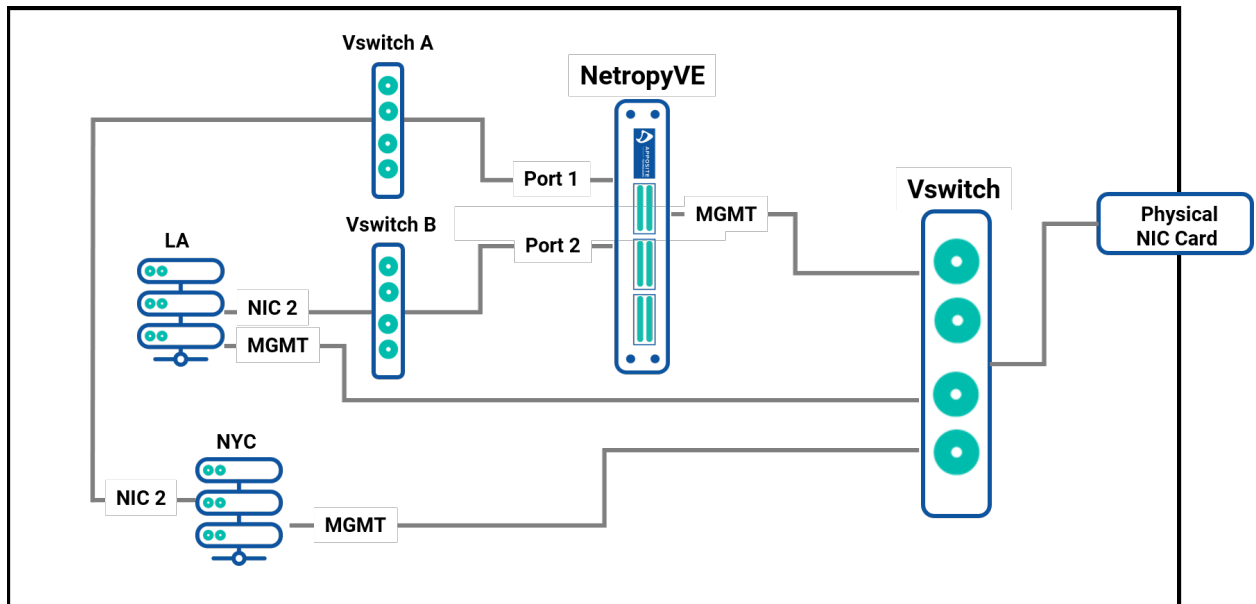
1 OVERVIEW

Objective: To install the NetropyVE product on ESXI 6.5 through an example with the steps to connect the NetropyVE to two virtual machines contained within a single ESXI server.

Assumptions: The reader of the document is familiar with ESXI environment and terminology. The reader already has two virtual machines built and ready to be integrated with the NetropyVE.

This Example: This document will show how to connect two virtual machines to the NetropyVE using the 2nd network cards configured to the virtual machines. The example virtual machines will be called "LA" and "NYC" and be running Ubuntu16 server.

Example Diagram:



2 STEPS

Step 1: Add Virtual Switches

NentropyVE will require 2 virtual switches to route TCP/IP traffic through the 2 emulation ports.

- Login to your ESXI server and choose "Networking" in the Navigation pane
- Choose the "Virtual Switches" tab
- Then "Add a standard virtual switch"
 - Give the switch a name (Vswitch A in this example)
 - Remove the uplink port
 - Click the security Arrow
 - Accept "Promiscuous mode" "Mac address changes" & "Forged Transmits"
*****VERY IMPORTANT*****
 - Click "Add"

The screenshot shows the 'Add standard virtual switch - Vswitch A' dialog box. It has a title bar with a plus icon and the text 'Add standard virtual switch - Vswitch A'. Below the title bar is a section titled 'Add uplink' with a plus icon. The main area contains several rows of configuration options:

vSwitch Name	<input type="text" value="Vswitch A"/>
MTU	<input type="text" value="1500"/>
▶ Link discovery	Click to expand
▼ Security	
Promiscuous mode	<input checked="" type="radio"/> Accept <input type="radio"/> Reject
MAC address changes	<input checked="" type="radio"/> Accept <input type="radio"/> Reject
Forged transmits	<input checked="" type="radio"/> Accept <input type="radio"/> Reject

At the bottom right of the dialog are two buttons: 'Add' and 'Cancel'.

Repeat the process for the 2nd switch that is required:

[Add standard virtual switch](#) |
 [Add uplink](#) |
 [Edit settings](#) |
 [Refresh](#) |
 [Actions](#)

Name	Port groups	Uplinks
vSwitch0	2	1
Vlan Switch	15	1
Vswitch A	0	0
Vswitch B	0	0

Step 2: Create Port Groups

Assign the port groups to the new Vswitches you just created.

- In the Navigator pane click on "Networking"
- Choose the "Port Group" tab
- Then "Add Port Group"
 - Name the port group ("Port Group A" in this example)
 - Assign to the Virtual switch "Vswitch A"
 - Click Add

Add port group - Port Group A

Name	Port Group A
VLAN ID	0
Virtual switch	Vswitch A
▶ Security	Click to expand

Repeat the steps and create a "Port Group B" assigned to "Vswitch B"


[Add port group](#) |
 [Edit settings](#) |
 [Refresh](#) |
 [Actions](#)

Name	Active ports	VLAN ID	Type	vSwitch
Port Group A	0	0	Standard port group	Vswitch A
Port Group B	0	0	Standard port group	Vswitch B


Step 3: Add Network Cards

Add network cards to the virtual hosts and assign them to Vswitch A/B. You will need to shutdown your Virtual Machine and add a 2nd network card.

- In the “Navigator” pane click “Virtual Machines”
- Click on the Virtual Machine you want to assign the VswitchA (This example VM LA)
 - Click Shutdown
 - Then Click “Edit”
 - Add Network Adapter
 - You will see “New Network Adapter” in the Settings window
 - Assign “New Network Adapter” to “Port Group A”
 - Click Save

▼ Hardware Configuration	
▶ CPU	2 vCPUs
▶ Memory	3.95 GB
▶ Hard disk 1	50 GB
▶ USB controller	USB 2.0
▶ Network adapter 1	VM Network (Connected)
▶ Network adapter 2	Port Group A (Connected)
▶ Video card	4 MB
▶ CD/DVD drive 1	ISO [Charlie-Net] ubuntu-16.04.4-server-amd64.iso  Select disc image
▶ Others	Additional Hardware

Repeat the process for the 2nd Virtual Server (This example VM NYC) but assign the “New Network Adapter to “Port Group B.”

▼ Hardware Configuration	
▶ CPU	2 vCPUs
▶ Memory	3.95 GB
▶ Hard disk 1	50 GB
▶ USB controller	USB 2.0
▶ Network adapter 1	VM Network (Connected)
▶ Network adapter 2	Port Group B (Connected)
▶ Video card	4 MB
▶ CD/DVD drive 1	ISO [Charlie-Net] ubuntu-16.04.4-server-amd64.iso  Select disc image
▶ Others	Additional Hardware

Step 4: Assign IPs to “New Network Adapters”

In step 3. We added a second network adapters to VM LA and VM NYC. Now assign IP Addresses to these network cards. In this example we assigned the following

Virtual Machine “LA”

- IP Address: 10.10.10.213
- Subnet Netmask: 255.255.255.0

Virtual Machine “NYC”

- IP Address: 10.10.10.212
- Subnet Mask: 255.255.255.0

Step 5: Install NetropyVE

You must have a valid .ova file provided by Apposite Technologies with a license key or a demo license to proceed to this step.

- In the “Navigator” pane choose “Virtual Machines”
- The “Create / Register VM”
 - Choose “Deploy a virtual machine from a OVF or OVA file”
 - Then click “Next”
 - Enter a name (In this example we use “NetropyVE”)
 - Click or “Drag/Drop” the .ova supplied by Netropy
 - Then click “Next”
 - Select the storage/disk you wish to run the NetropyVE from
 - Then click “Next”
 - Under Network mapping *****VERY IMPORTANT*****
 - VM Network – Choose the Network for management IPS
 - Test Network A – Choose “Port Group A”
 - Test Network B – Choose “Port Group B”
 - Click Next
 - Now click Finish

Deployment options

Select deployment options

Network mappings	VM Network <input type="text" value="VM Network"/>
	Test Network A <input type="text" value="Port Group A"/>
	Test Network B <input type="text" value="Port Group B"/>
Disk provisioning	<input checked="" type="radio"/> Thin <input type="radio"/> Thick

Step 6: Set the IP on the NetropyVE

By default, the NetropyVE IP address is: 10.0.0.10. You can set the NetropyVE to DHCP or static route. You will need console access to configure the TCP/IP settings

- In the "Navigator" pane choose "Virtual Machines"
- Choose the "NetropyVE" virtual machine
- Click on console
 - Login as "admin"
 - Password "admin"

Find IP Address:

DHCP is setup by default to see the IP it was assigned use the command:

```
mgmt show
```

To set Static route type in:

```
mgmt set addr 192.168.170.33 netmask 255.255.255.0
```

```
mgmt set gw 192.168.170.1
```

To see that the settings have taken effect type

```
mgmt show
```

```
[admin@netropy]# mgmt set addr dhcp
[admin@netropy]# mgmt show
Hostname:          netropy
Domain:           int.apposite-tech.com (DHCP)
Ethernet address: 00:0c:29:6b:1b:0b
IP address:       192.168.144.86/255.255.255.0 (DHCP)
Default route:   192.168.144.1 (DHCP)
Name Servers:    (DHCP)
NTP Servers:     (DHCP)
[admin@netropy]# mgmt set addr 192.168.170.33 netmask 255.255.255.0
[admin@netropy]# mgmt set gw 172.16.170.1
[admin@netropy]# mgmt show
Hostname:          netropy
Domain:           int.apposite-tech.com (DHCP)
Ethernet address: 00:0c:29:6b:1b:0b
IP address:       192.168.170.33/255.255.255.0
Default route:   172.16.170.1
[admin@netropy]#
```

You should now be able access the NetropyVE GUI interface by typing the IP address into a browser.

Type "logout" to log out of the console.

Step 7: NetropyVE Licensing

Open a web browser in the navigation window enter the IP address from the “mgmt show” command above.

You will be prompted to accept a license agreement:

Netropy End User License Agreement

Please read the terms of use for the Netropy hardware, software, and documentation.

THIS END USER LICENSE AGREEMENT ("AGREEMENT") IS A LEGAL AGREEMENT BETWEEN YOU AND APPOSITE TECHNOLOGIES LLC ("APPOSITE"). BY DOWNLOADING, INSTALLING, COPYING, ACCESSING OR USING THIS SOFTWARE, YOU AGREE TO THE TERMS OF THIS AGREEMENT. IF YOU ARE ACCEPTING THESE TERMS ON BEHALF OF ANOTHER PERSON OR COMPANY OR OTHER LEGAL ENTITY, YOU REPRESENT AND WARRANT THAT YOU HAVE FULL AUTHORITY TO BIND THAT PERSON, COMPANY OR LEGAL ENTITY TO THESE TERMS. IF YOU DO NOT AGREE TO THESE TERMS, ARE NOT AT LEAST 18 YEARS OF AGE, OR DO NOT HAVE AUTHORITY TO ENTER THIS AGREEMENT, DO NOT DOWNLOAD, INSTALL, COPY, ACCESS OR USE THIS SOFTWARE, AND PROMPTLY RETURN THIS SOFTWARE AND PROOF OF ENTITLEMENT TO THE PARTY FROM WHOM YOU ACQUIRED THEM.

1. DEFINITIONS.

- a. "Documentation" means published user manuals and other explanatory materials provided by Apposite relating to the Software or the Hardware.
- b. "Hardware" means the Apposite-branded hardware product on which the Software is designed to run.
- c. "Software" means the computer software (regardless of format or media in which distributed) designed to run on the Hardware.
- d. "Modifications" means any applicable upgrades, modified versions, updates, bug fixes, patches, or other modifications to the Software made generally available by Apposite to its customers.
- e. "Product" means the Apposite-branded product comprised of the Hardware, the Software, and the Documentation.
- f. "Legacy Product" means any Product purchased prior to August 1, 2017.
- g. "License Period" means for any Product that is not a Legacy Product, the license period identified on the relevant order form or receipt upon your purchase of the Product or the Software, including any purchased extension thereto.
- h. "Warranty Period" means (a) for any Legacy Product, the period during which you maintain a continuous, active subscription to Apposite maintenance services, or (b) for any Product that is not a Legacy Product, the License Period, unless such Product has a perpetual license, in which case the Warranty Period shall be five (5) years from the date of purchase of the Product from Apposite unless extended by purchase of maintenance services.

I ACCEPT

Click “I ACCEPT”

The next popup will be for licensing:

Netropy License Expired

The license on this unit has expired. To renew the license, please contact your Apposite reseller or the Apposite sales team at renewals@apposite-tech.com.
For more information on license renewals, see the Apposite website at <https://www.apposite-tech.com/renewals>.

If you have already purchased a license renewal, you can request a new license key for this device by completing the form at <https://www.apposite-tech.com/license> and the license key file for this unit will be emailed to you.

Once you have a new license key, click on the browse button below to upload the file. The license key can also be installed from the License Key tab on the Administration panel.

Serial number: VN-B859799EAF
Download PIN: E9BZ
License Expiration: **EXPIRED 2019-12-31 23:59:59 UTC**

License Key File

Browse...

Apply Key

Close

Enter your license key and click “Apply Key”

If you do not have a Key please contact your Apposite Sales rep or sales@apposite-tech.com.

The NetropyVE needs access to the internet to validate your license. If you do not have internet access you will get a "License Invalid" error.

It can take 10-30 seconds for the license to validate.

Authenticate using:

User: admin

Pass: admin



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Netropy Network Emulator

Username

Password

[Sign in](#)

Step 8: Configuring and Testing NetropyVE

The easiest way to test the NetropyVE is with a simple ping from Virtual Machine LA to the Virtual Machine NYC.

- Login to the NetropyVE via http
- Click on "Unnamed Path"
 - At the top change the name of the path (this example "VM LA to VM NYC")
 - Set the "Bandwidth" of "WAN Access – Port 1" (this example is 1Gbps)
 - Under WAN set the Delay to constant on both "PORT 1 to PORT 2" and "PORT 2 to PORT 1" (in this example 40ms each)
 - Set the "Bandwidth" of "WAN Access – Port 2" (this example is 1Gbps)
 - Apply Changes

Topology / Path Playback VM LA to VM NYC Create Path

Port 1 - Access Emulation

Outbound to WAN

Bandwidth: 1 Gbps

Background Utilization: Off

Queue Limit: Default

Queue Strategy: Default (FIFO)

MTU Limit: Off

Frame Overhead: 18 - Ethernet HDR+FC

WAN Emulation

Port 1 to Port 2

Delay: Constant

Latency: 40 ms

Loss: Off

Network Outage: Off

Corruption: Off

Reordering: Off

Duplication: Off

Port 2 - Access Emulation

Inbound from WAN: ENABLED

ENABLED Inbound from WAN

Port 2 to Port 1

Delay: Off

Loss: Off

Network Outage: Off

Corruption: Off

Reordering: Off

Duplication: Off

Outbound to WAN

Bandwidth: 1 Gbps

Background Utilization: Off

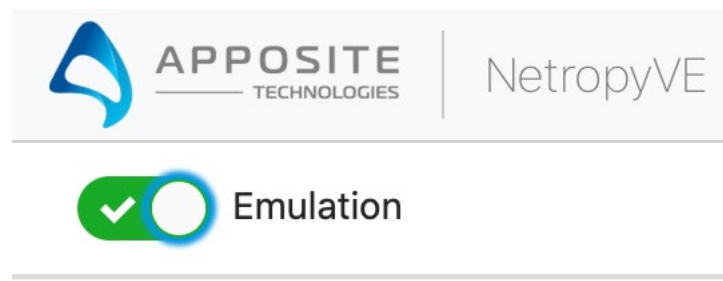
Queue Limit: Default

Queue Strategy: Default (FIFO)

MTU Limit: Off

Frame Overhead: 18 - Ethernet HDR+FC

- Close the window and turn emulation to “on”



Emulation should now be on. When you ping from LA to NYC using the 2nd Ethernet cards you should see latency:

```

appo@LA:~$ ping 10.10.10.212
PING 10.10.10.212 (10.10.10.212) 56(84) bytes of data:
64 bytes from 10.10.10.212: icmp_seq=1 ttl=64 time=80.1 ms
64 bytes from 10.10.10.212: icmp_seq=2 ttl=64 time=80.1 ms
64 bytes from 10.10.10.212: icmp_seq=3 ttl=64 time=80.1 ms

```

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