Wanos on XenServer

Complete Lab Setup Guide

This guide explains how to deploy a complete Wanos lab on XenServer. The step-by-step guide includes steps to create Head Office and Branch Wanos VM instances on the same Hypervisor system as well as virtual networks to simulate the Server LAN, WAN Link and Branch LAN. Physical Interfaces can be used to connect the lab to the physical network. Additional Workstation VM's are added to simulate end to end testing.

The lab setup uses bridge mode and hence the **192.168.1.X/24** address space is used on both Head Office and Branch sides. The lab design is illustrated in the following network diagram:

Topics are divided into chapters. Click on a title to directly jump into that chapter.

Table of Contents

Compatible Virtual Machines

The following Wanos image formats are compatible when importing to XenServer.

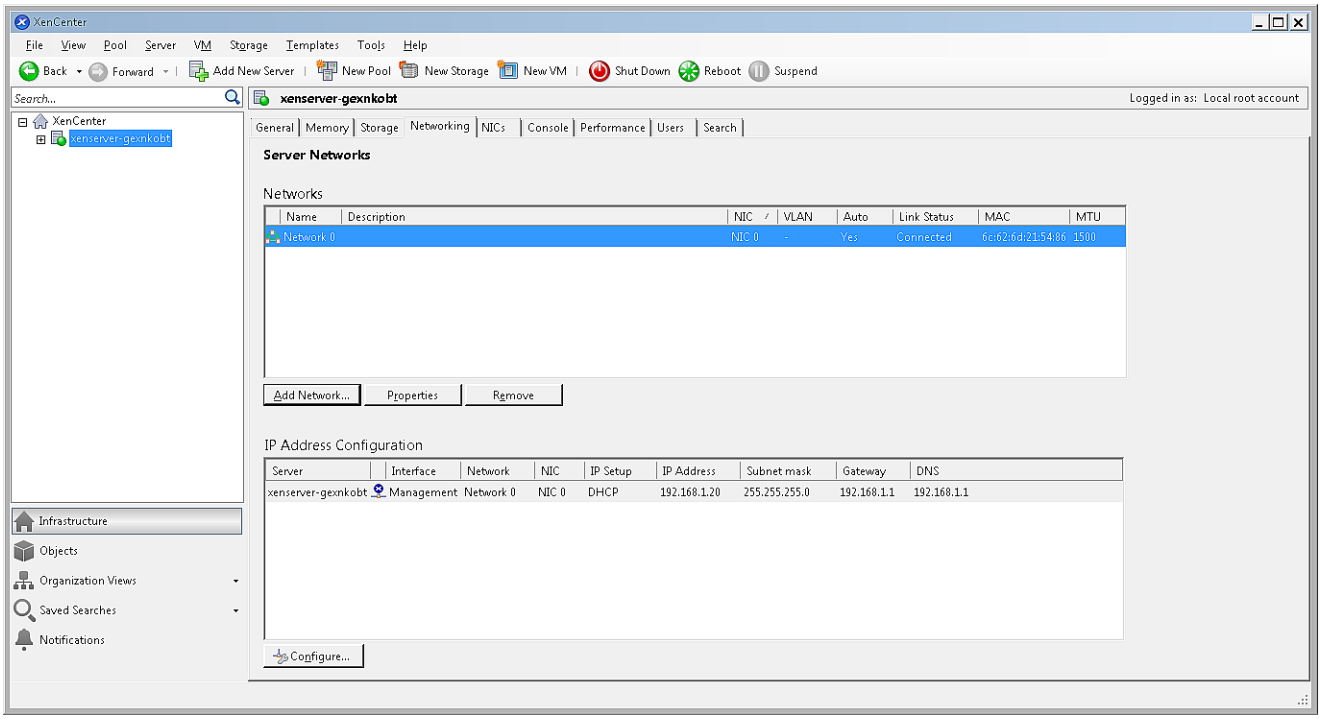
VHD – Format used by Microsoft Hyper-V.

OVA / **OVF** – An Open Standards format also used by Oracle VirtualBox.

VMDK – A container format used by VMWare products.

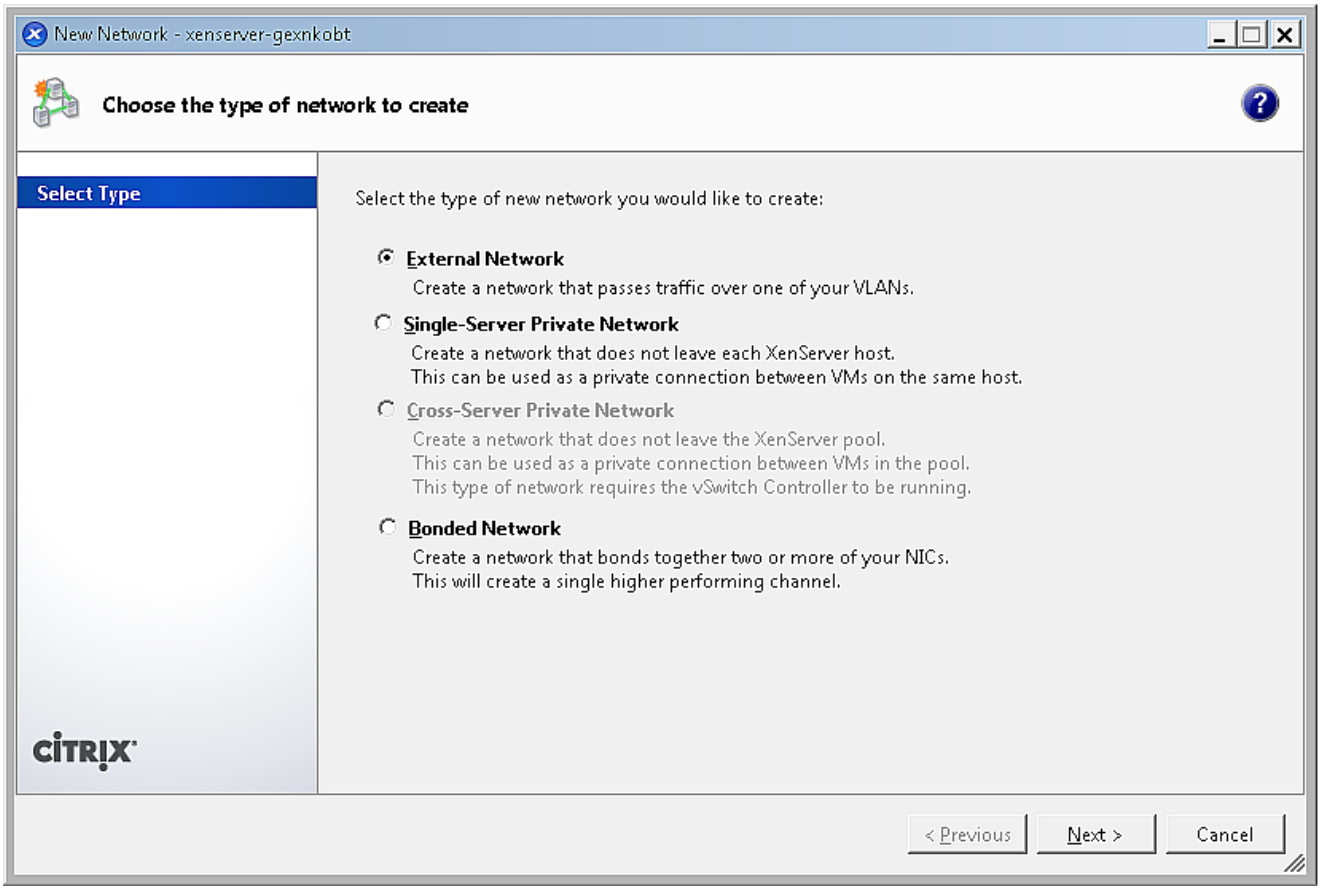
Configure Server Networks

This section explains how to configure XenServer Server Networks. Three networks will be created for lab use. Server Networks can be found by navigating on **XenCenter Windows Management Console** > **Server** > **Networking**. Refer to the screenshot for reference.

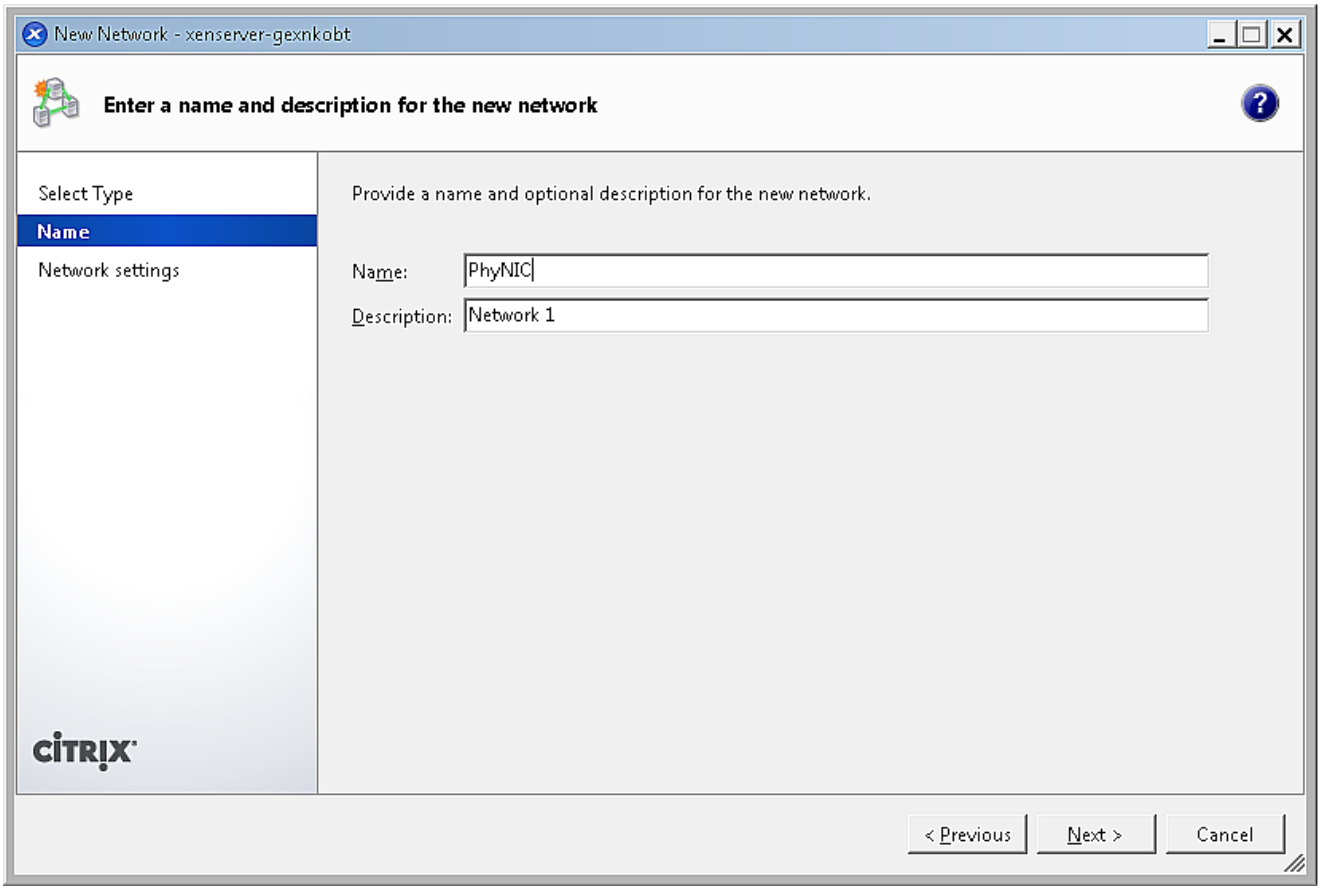


PhyNIC

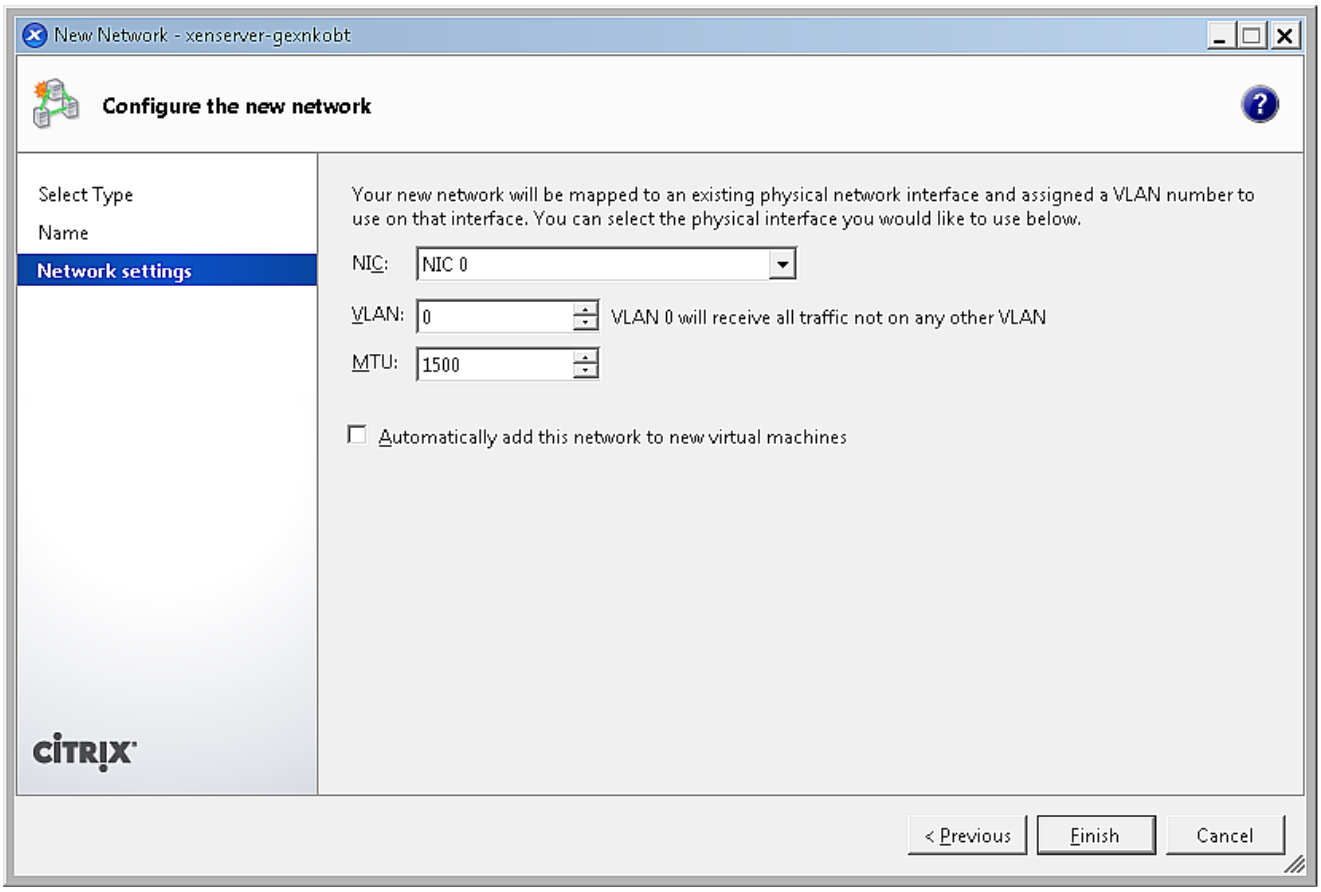
From Networking (*tab*), click **Add Network**, select **External Network** and click **Next**.



Set **Name** to **PhyNIC** and **Description** to **Network 1** (*optional*). Click **Next**.

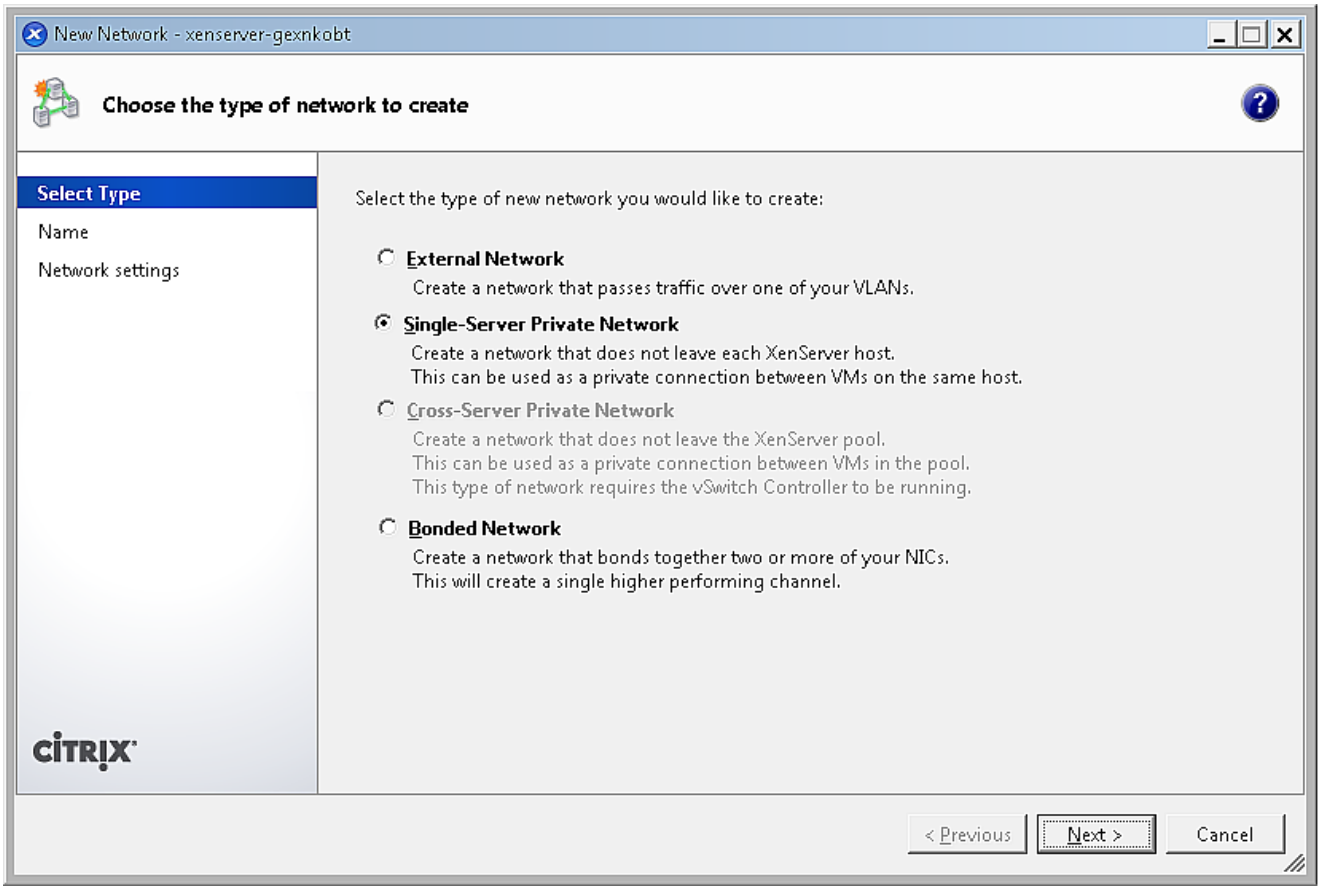


Select the correct Network Adapter under **NIC** (**NIC 0** *was used*), set the **VLAN** to **0** and leave **MTU** as **1500** (*default*). Click **Finish** to create the network.

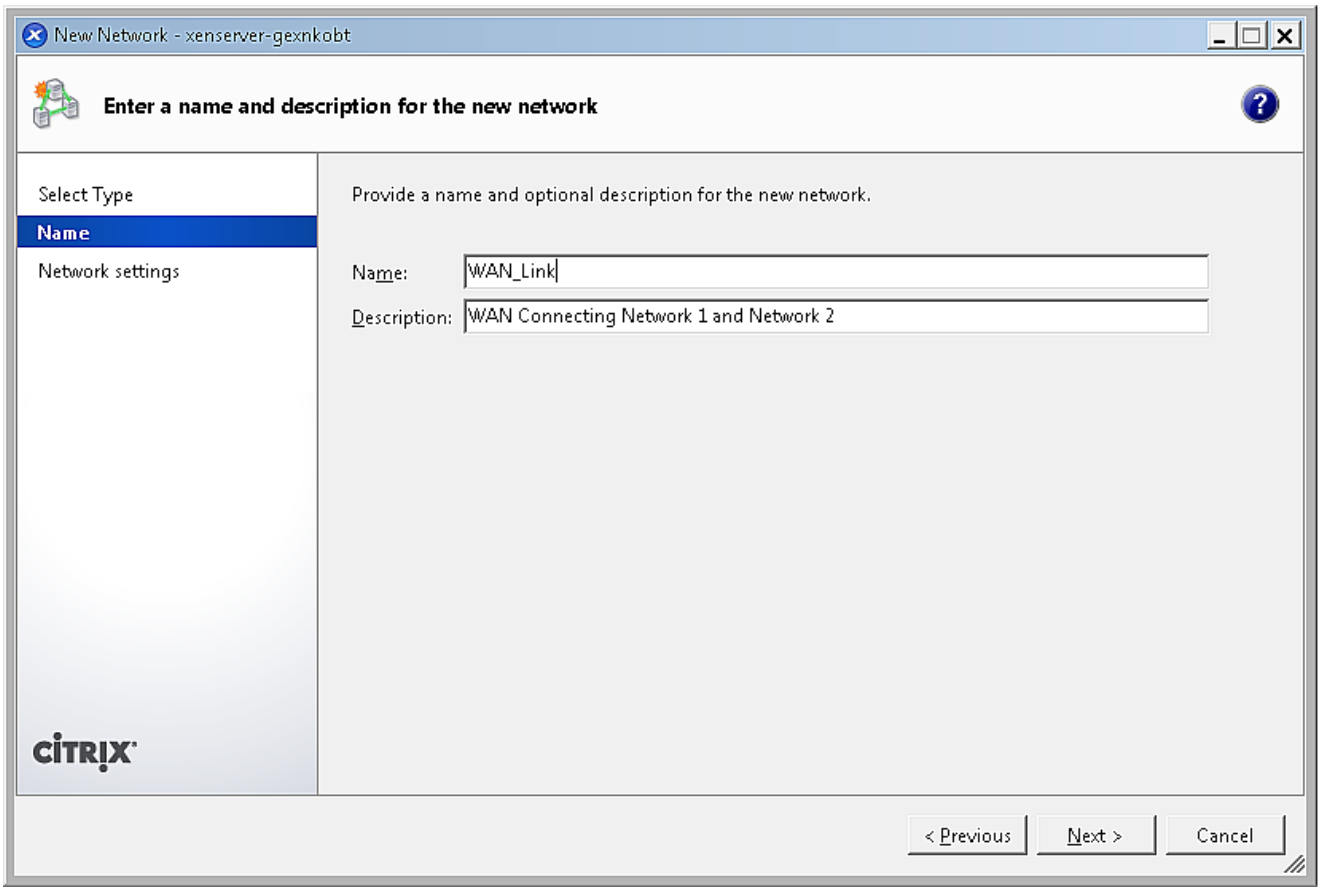


WAN_Link

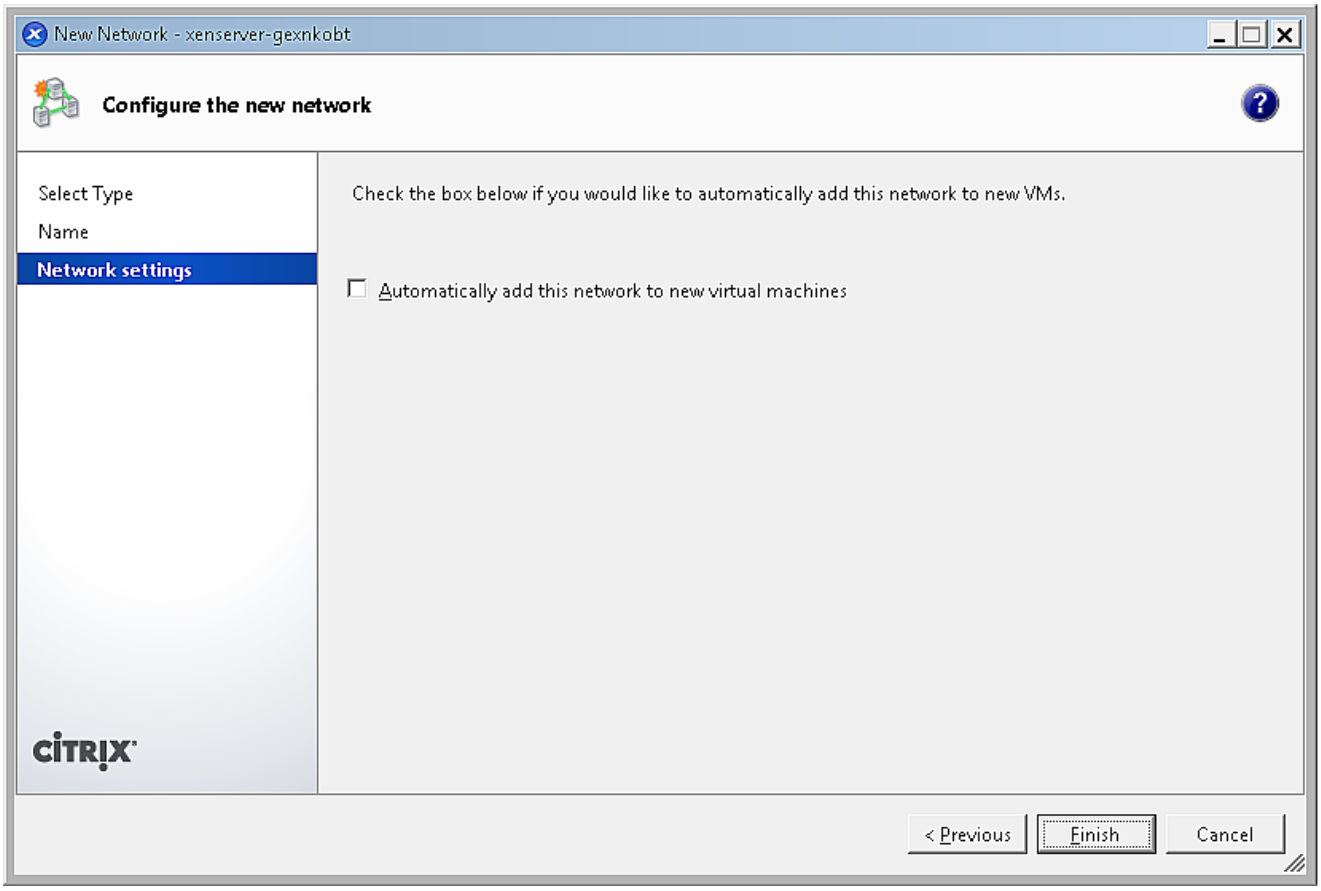
From Networking (*tab*), click **Add Network**, select **Single-Server Private Network** and click **Next**.



Set **Name** to **WAN_Link** and **Description** to **WAN Connecting Network 1 and Network 2** (*optional*). Click **Next**.

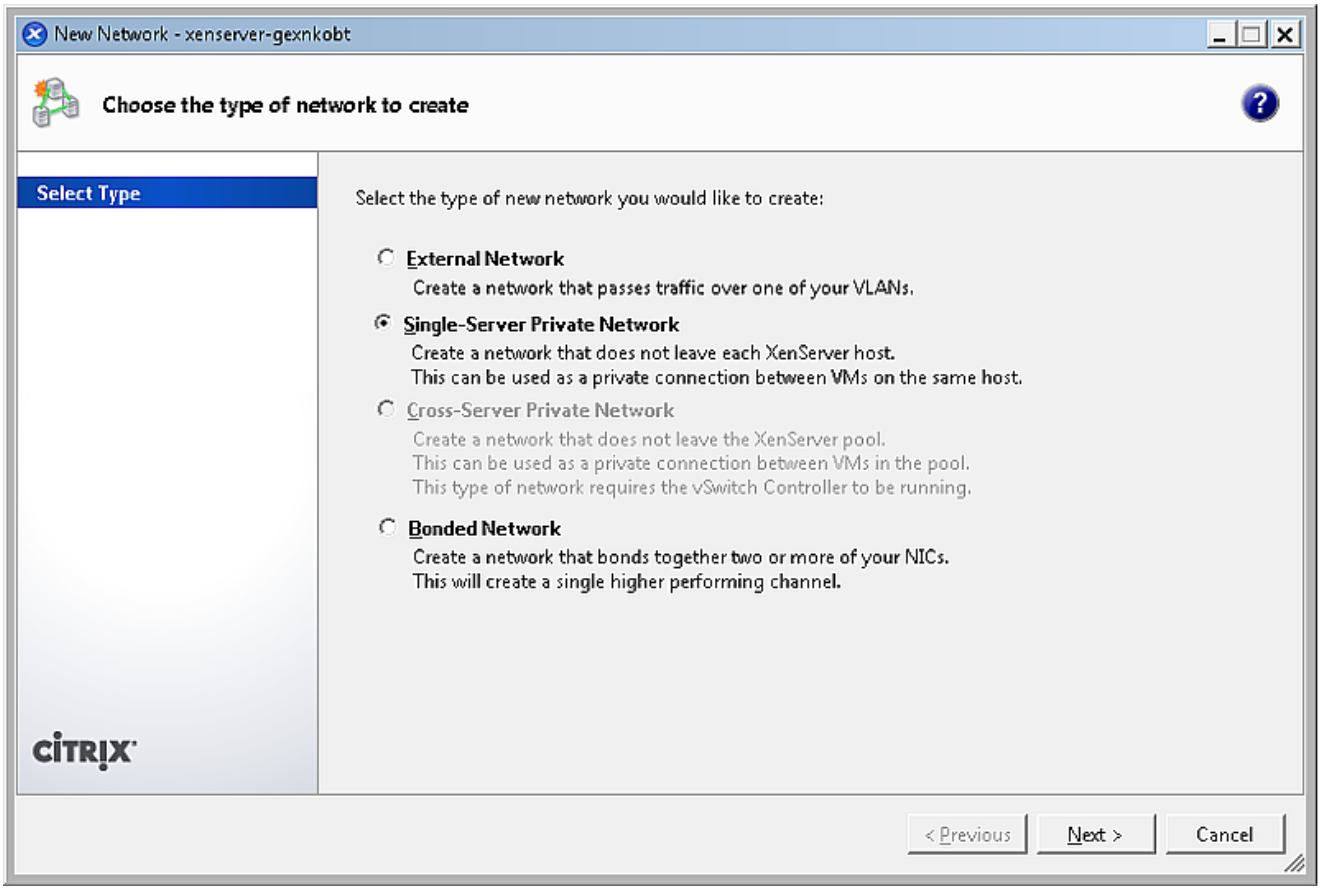


Leave **Automatically add this network to new virtual machines** unchecked. Click **Finish** to create the network.

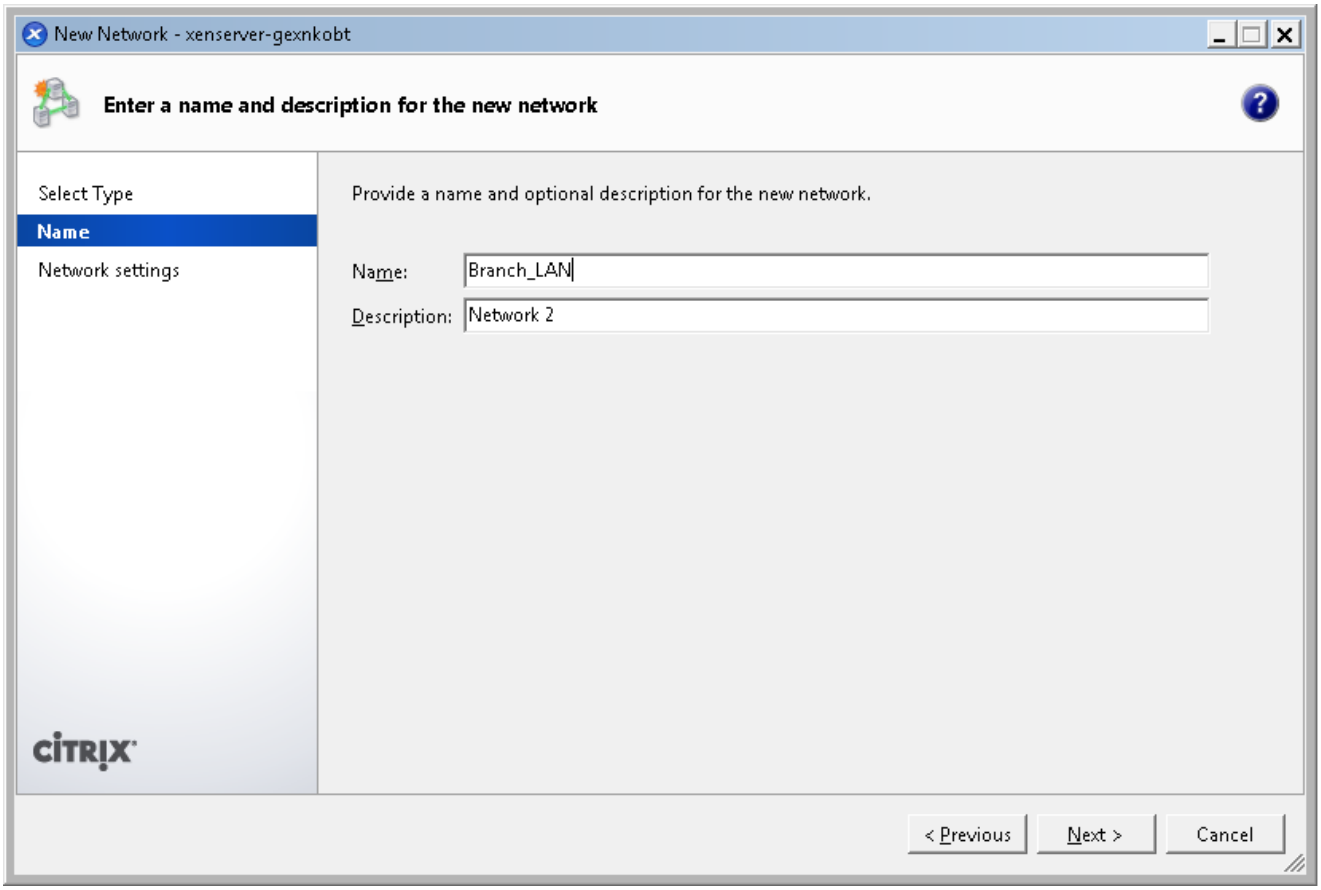


Branch_LAN

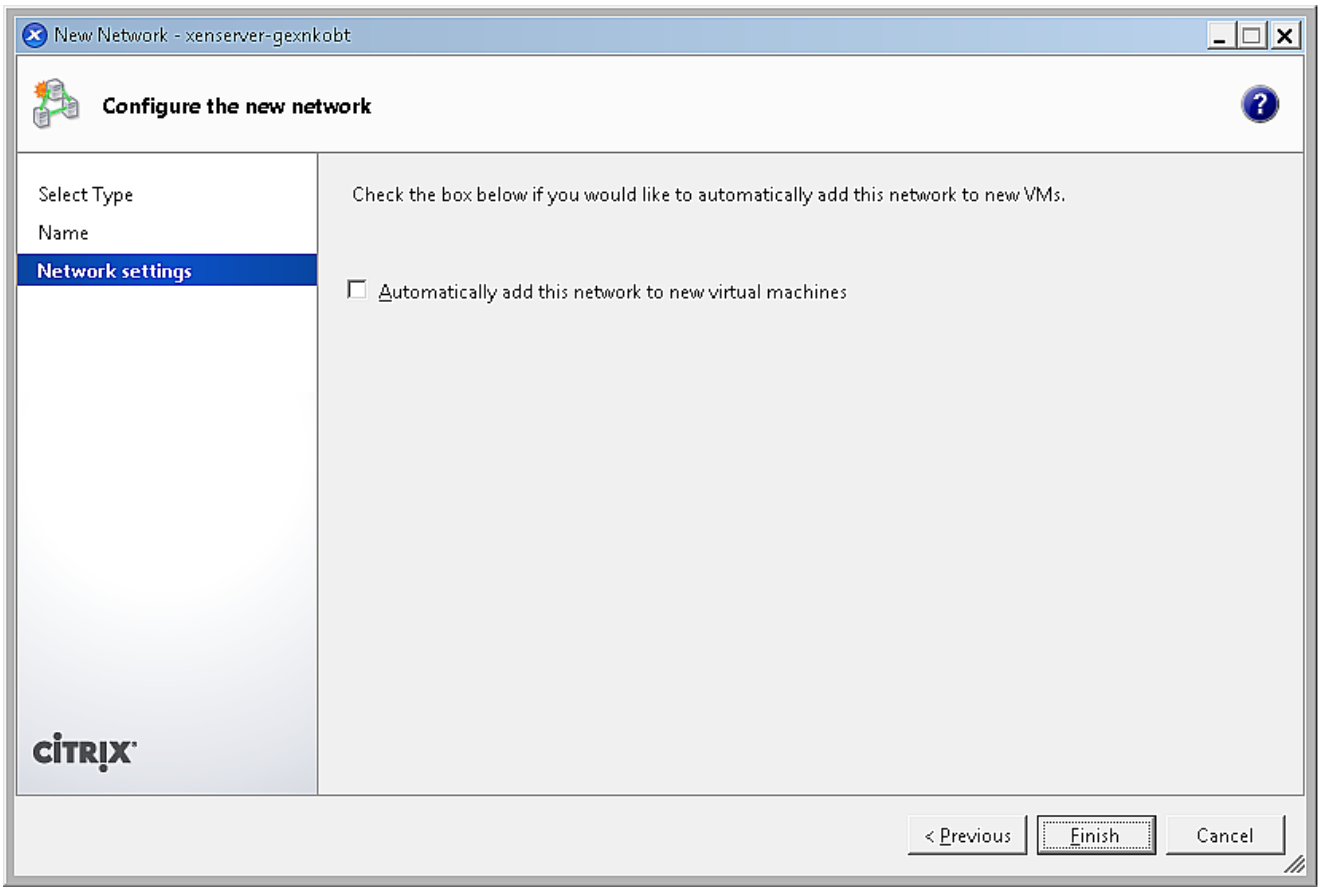
From Networking (*tab*), click **Add Network**, select **Single-Server Private Network** and click **Next**.



Set **Name** to **Branch_LAN** and **Description** to **Network 2** (*optional*). Click **Next**.



Leave **Automatically add this network to new virtual machines** unchecked. Click **Finish** to create the network.



Deploy Wanos Appliances on XenServer

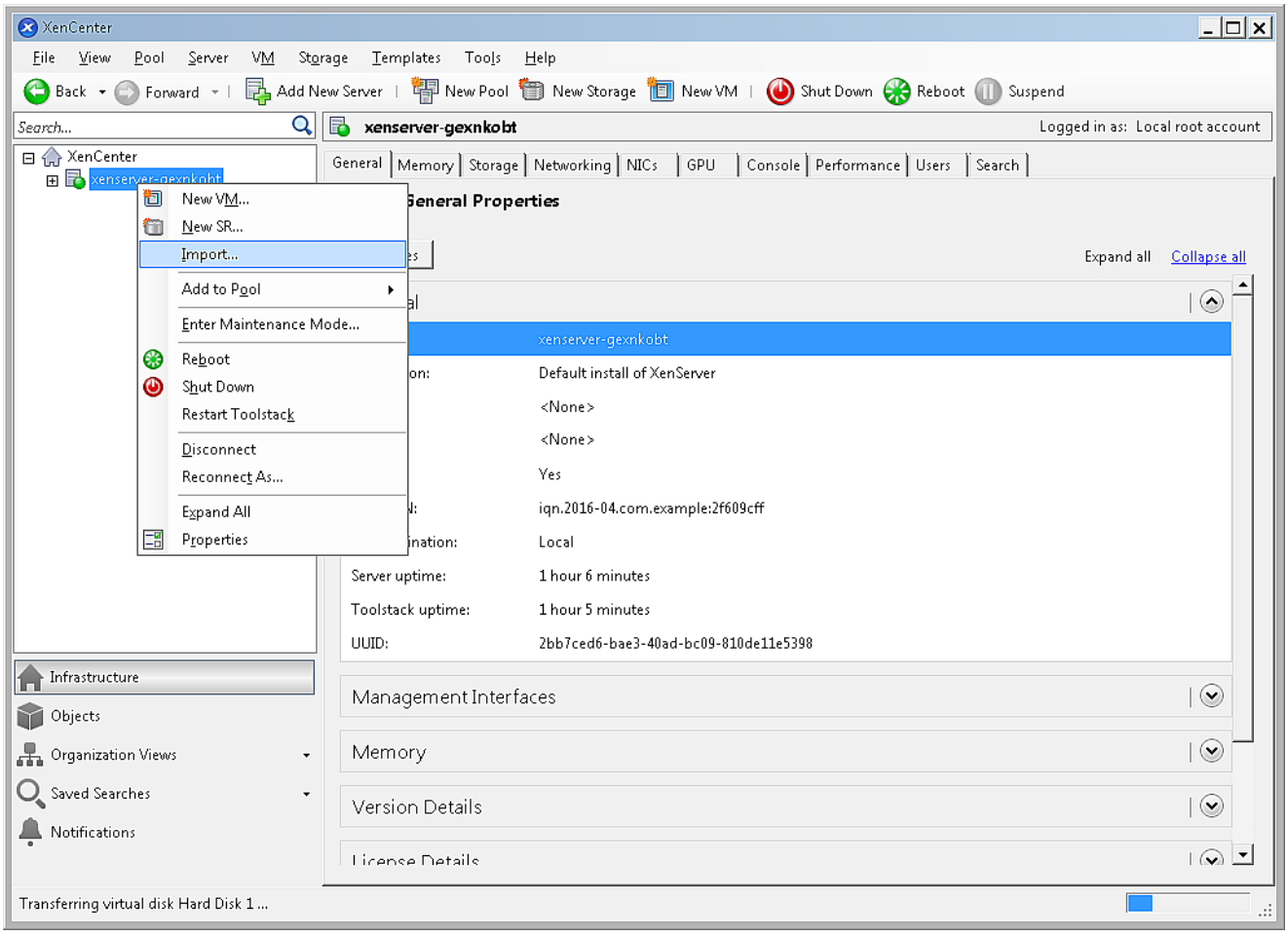
This section explains the process of deploying Wanos in XenServer. Two Wanos VMs will be deployed to simulate two offices that will be explained in a later chapter. The VMs are named **Wanos-HQ** and **Wanos-Branch**. Download the latest version of Wanos at http://wanos.co/wan-optimization/download/

Assuming **Virtual Appliance OVA** was downloaded, uncompress the zip file to extract the OVA file into a directory of preference (e.g. Downloads).

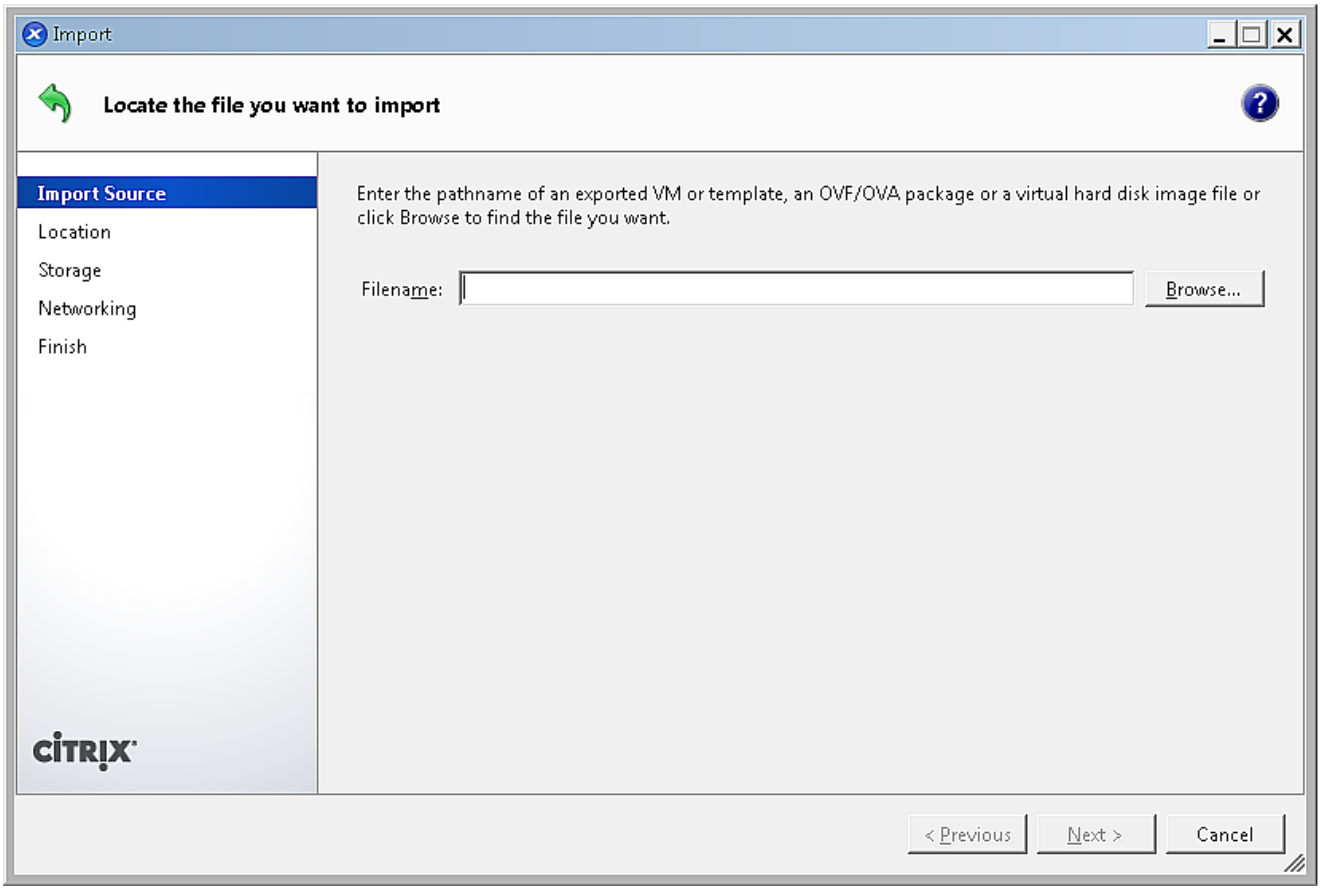
This chapter is divided into two sections. Click the title below to jump directly to the instructions.

Deploy Wanos-HQ

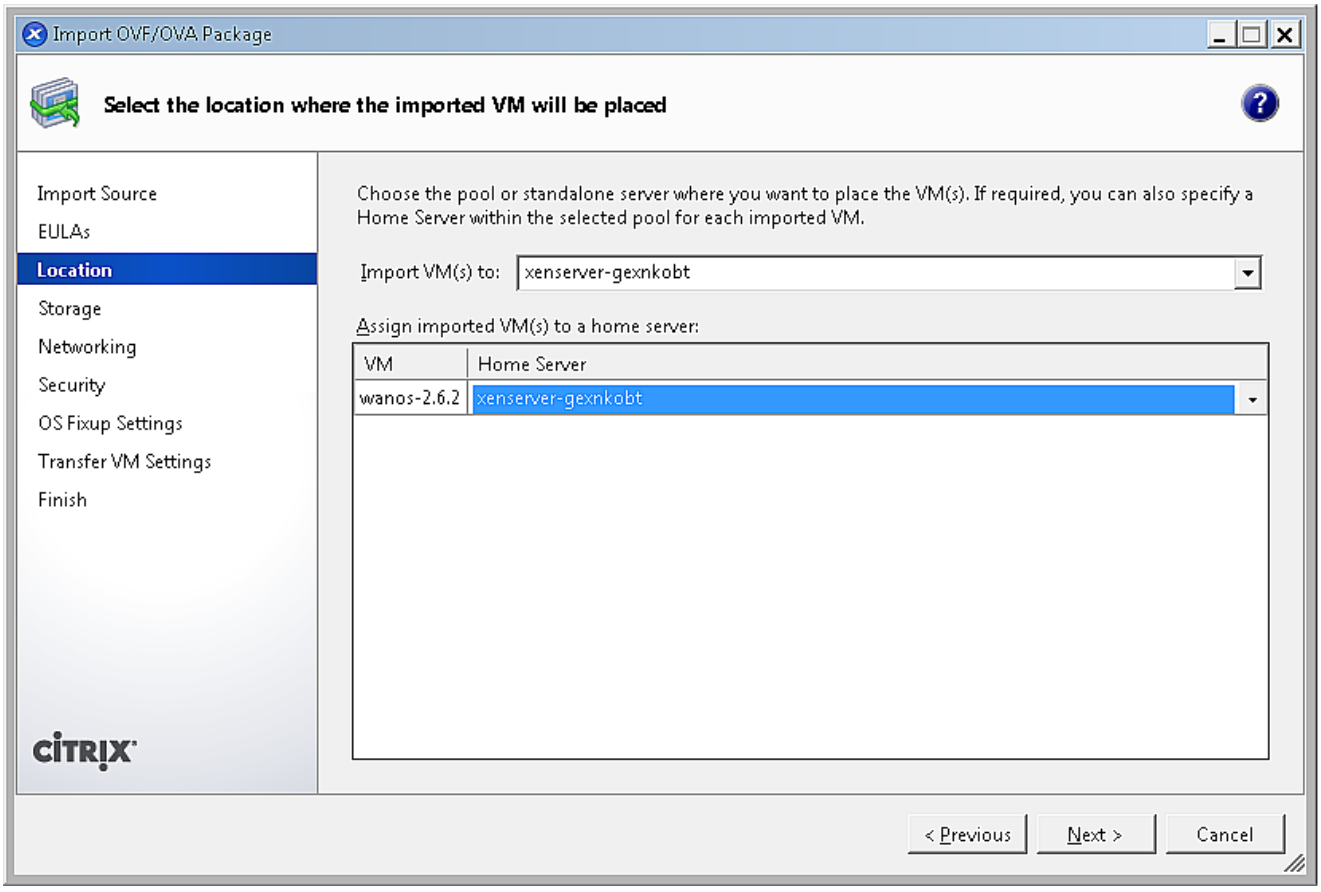
On **XenCenter Windows Management Console**, connect to the target **Server**, right click and select **Import**. Refer to the screenshot below.



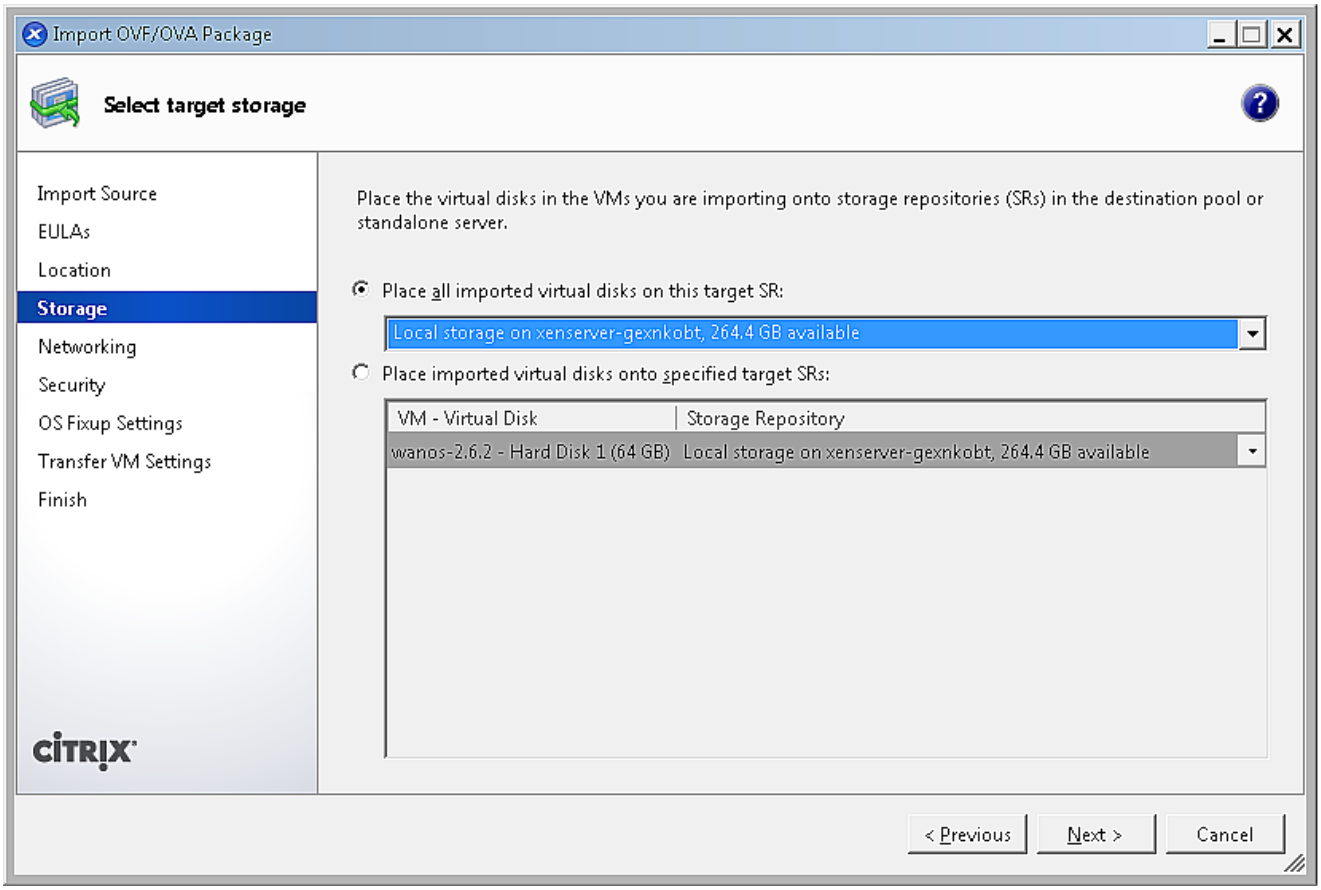
Locate the extracted Wanos **OVA** or **VHD** file by clicking **Browse** and point to the directory where Wanos was extracted. Click **Next** to continue.



Select the appropriate Pool and/or Server from the **Import VM(s) to:** and **Home Server** drop down list. In this example, the defaults were selected. Click **Next** to continue.



Select the appropriate **Storage Repository** (**SR**) on the list. In this laboratory based deployment, the virtual disk is placed on the default SR. Click **Next** to continue.

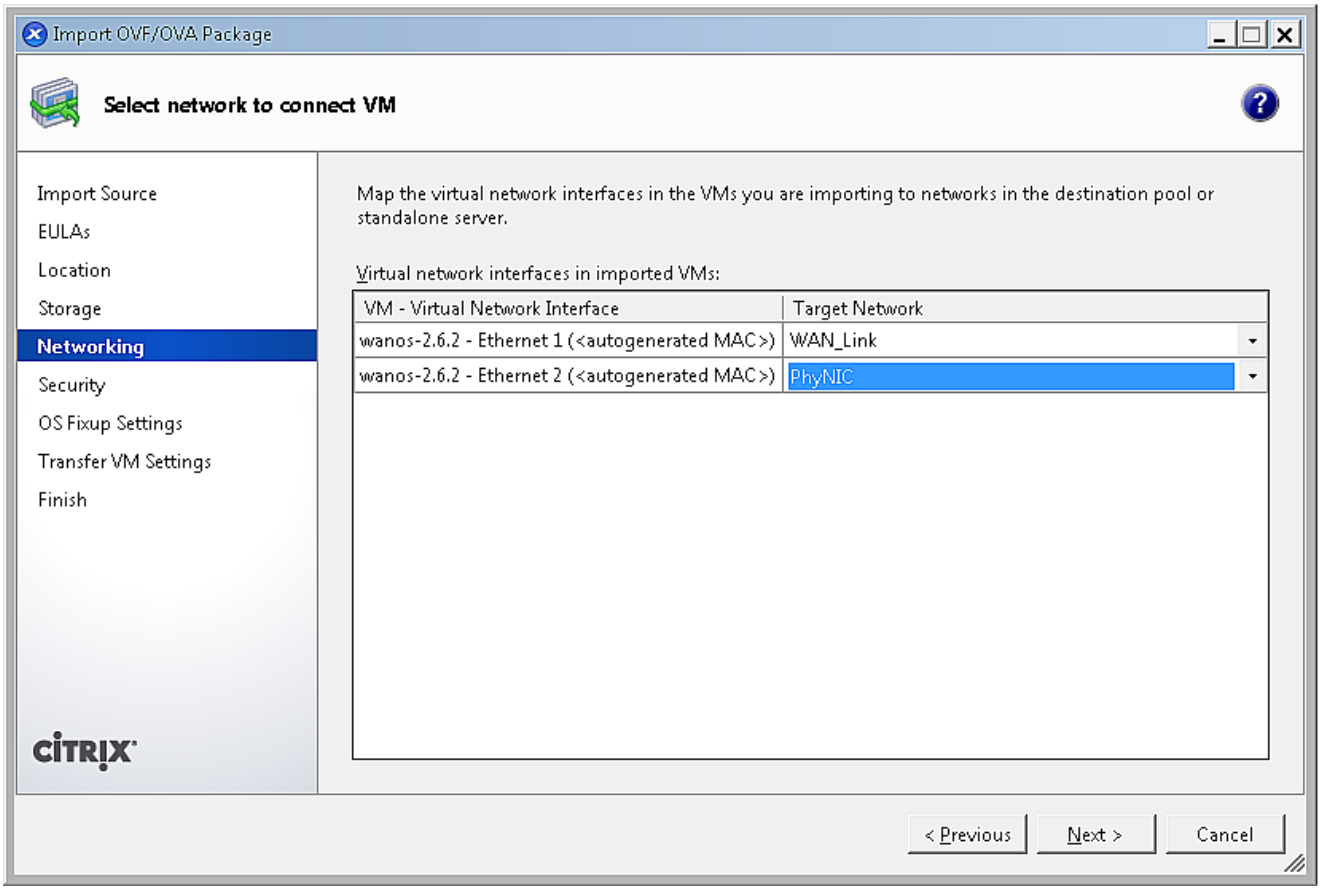


Set the **VM – Virtual Network Interface** to the following **Target Networks**.

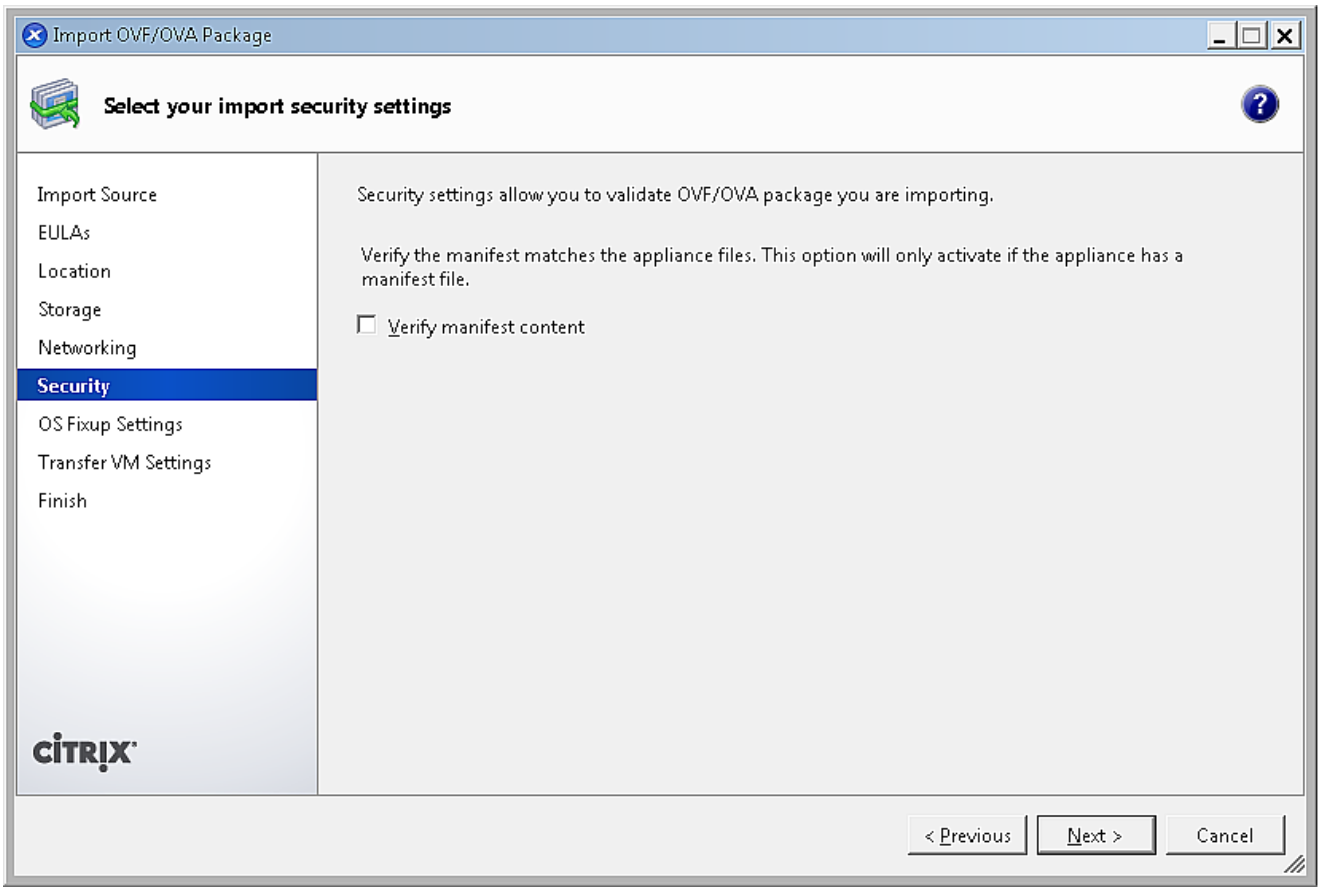
Ethernet 1: **WAN_Link**

Ethernet 2: **PhyNIC**

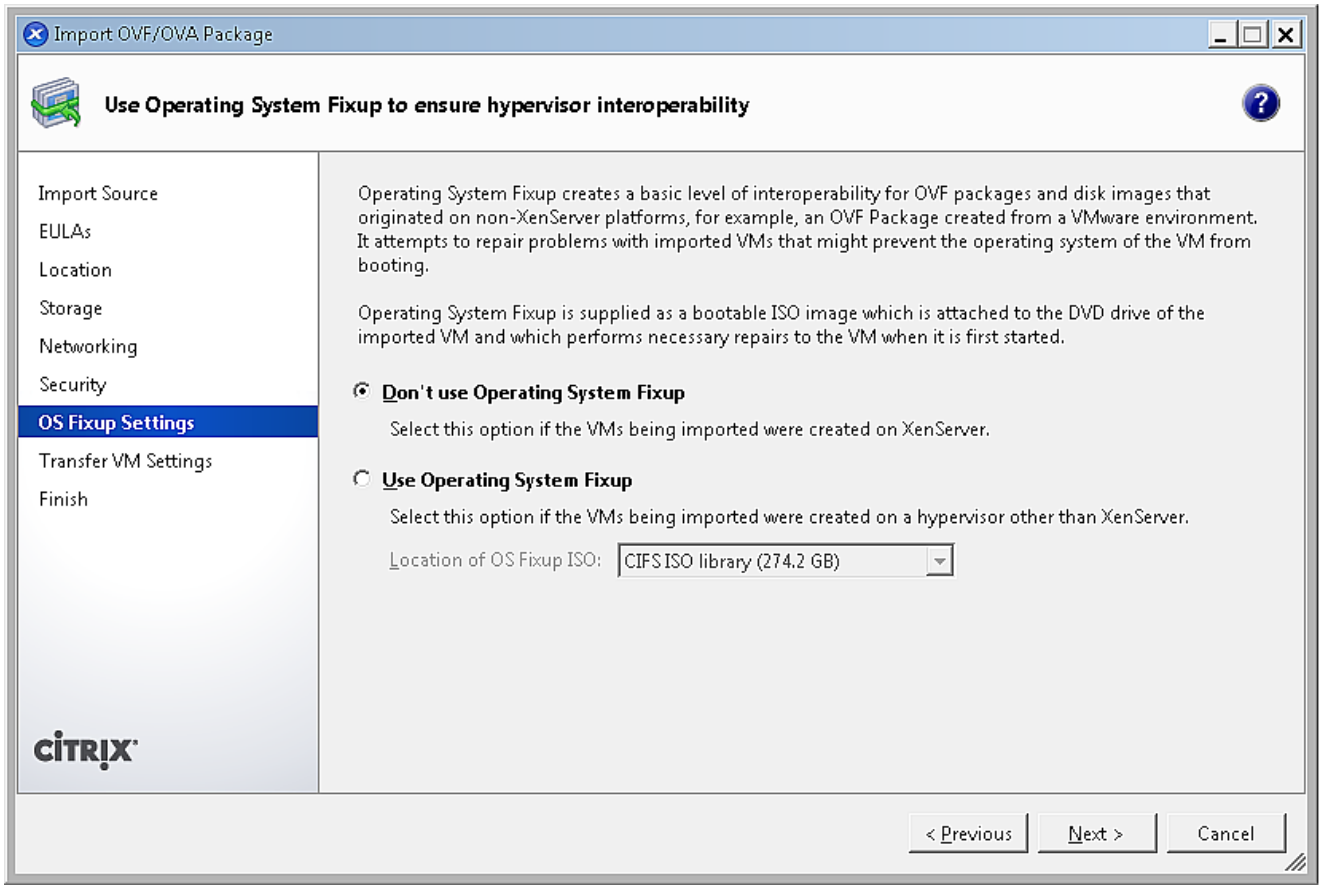
Refer to Configure Server Networks if the required Target Network does not exist. Click **Next** to continue.



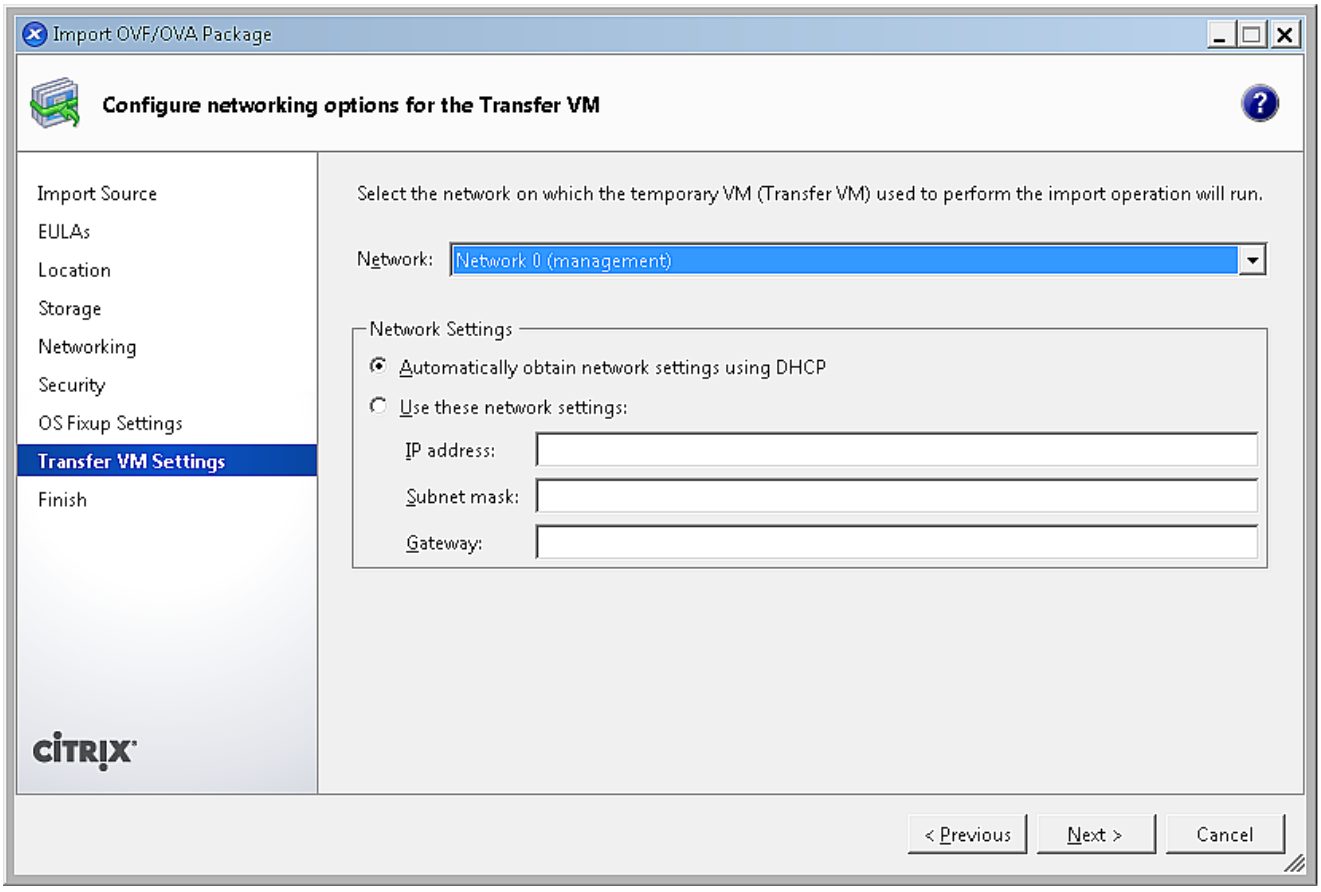
Wanos does not have a manifest file. Click **Next** to continue.



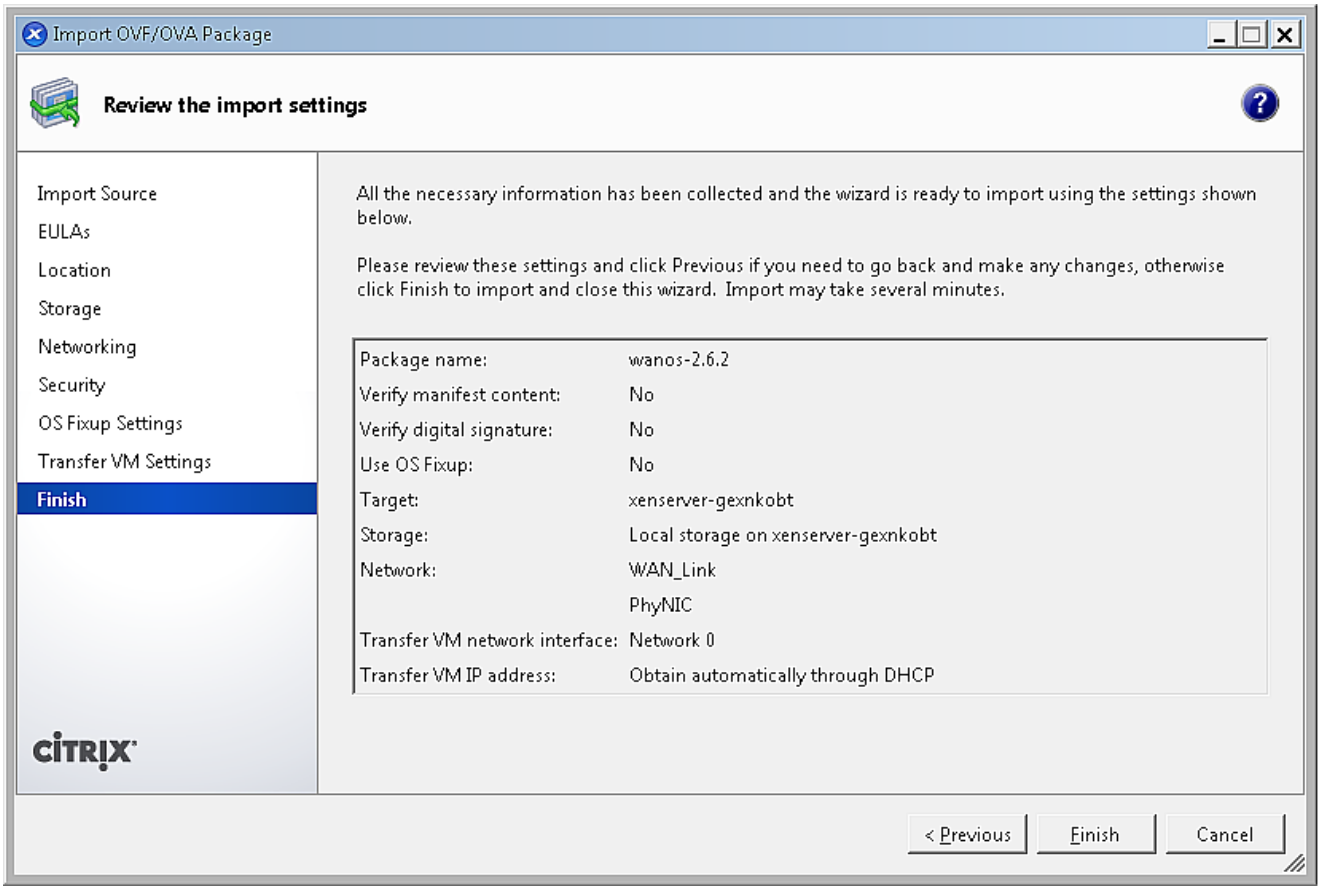
For Production systems, it is recommended to configure a Fixup ISO. This deployment guide is not for designed for Production systems. Select **Don't user Operation System fixup**. Click **Next** to continue.



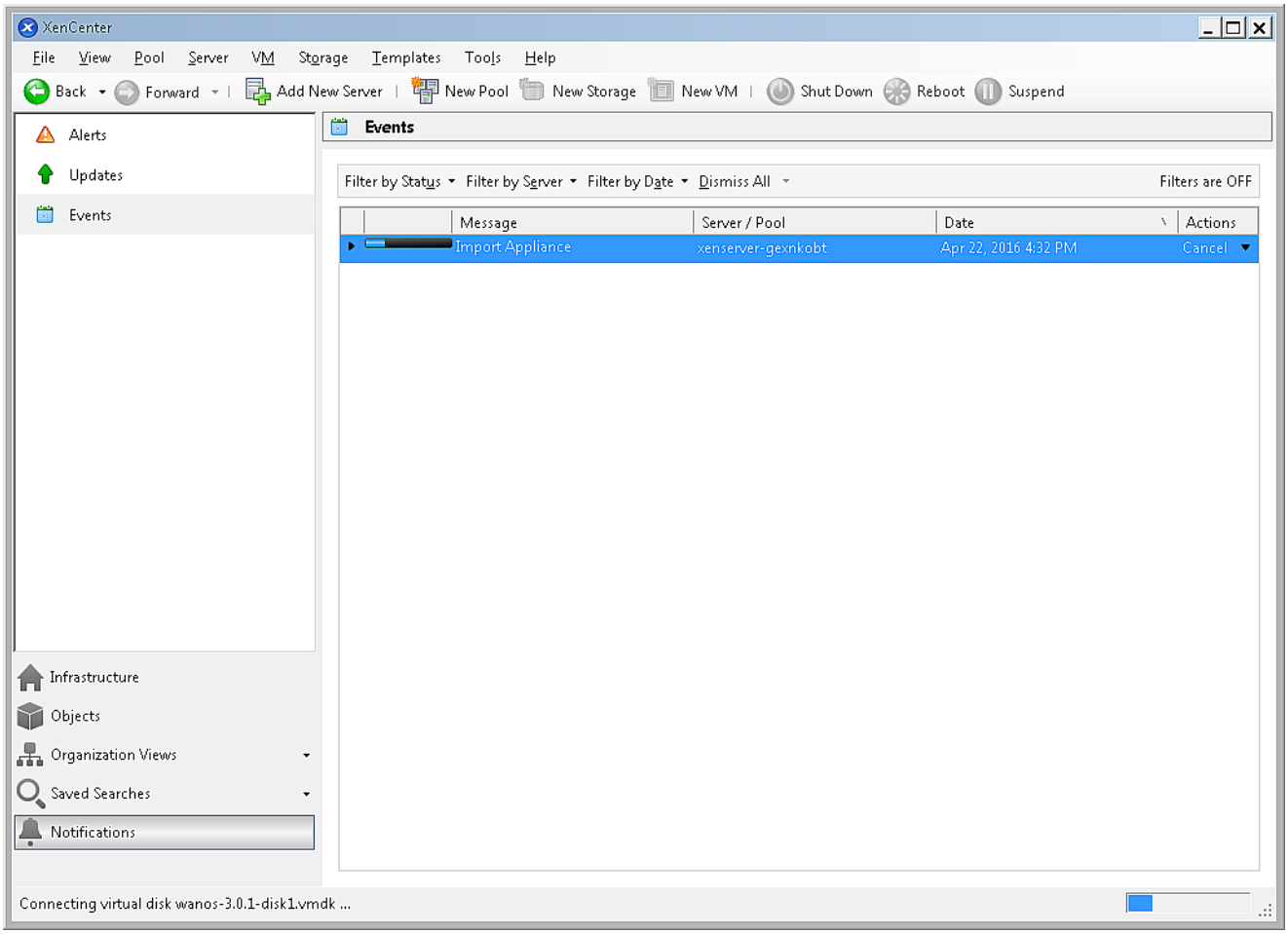
Specify the **Network** configuration in order for the import operation to run. This deployment guide will use the default. Click **Next** to continue.



This is the last section of the import wizard. Review the choices and click **Previous** if there are changes to be made. Click **Finish** to complete the wizard and start the import process.



Check the status of the VM import from **Notifications** > **Events**. Refer to the screenshot below.



Deploy Wanos-Branch

Follow the same steps outlined in Deploy Wanos-HQ except for the following:

Set the **VM – Virtual Network Interface** to the following **Target Networks**.

Ethernet 1: **WAN_Link**
Ethernet 2: **Branch_LAN**

Ensure that the latest version is installed by updating to the latest version. The steps are outlined in the wiki entry Update Process.

Deploy Windows Virtual Machines

This guide assumes that the user has a Windows-based virtual machine, in OVA format, available for import. Refer to Compatible Virtual Machines for a list of compatible container/format that can be imported to XenServer. Note that only one **VM – Virtual Network Interface** is needed on the Windows virtual machines.

Deploy HQ-PC

Follow the same steps outlined in Deploy Wanos-HQ except for the following:

Set the **VM – Virtual Network Interface** to the following **Target Networks**.

Ethernet 1: **PhyNIC**

Deploy Branch-PC

Follow the same steps outlined in Deploy Wanos-HQ except for the following:

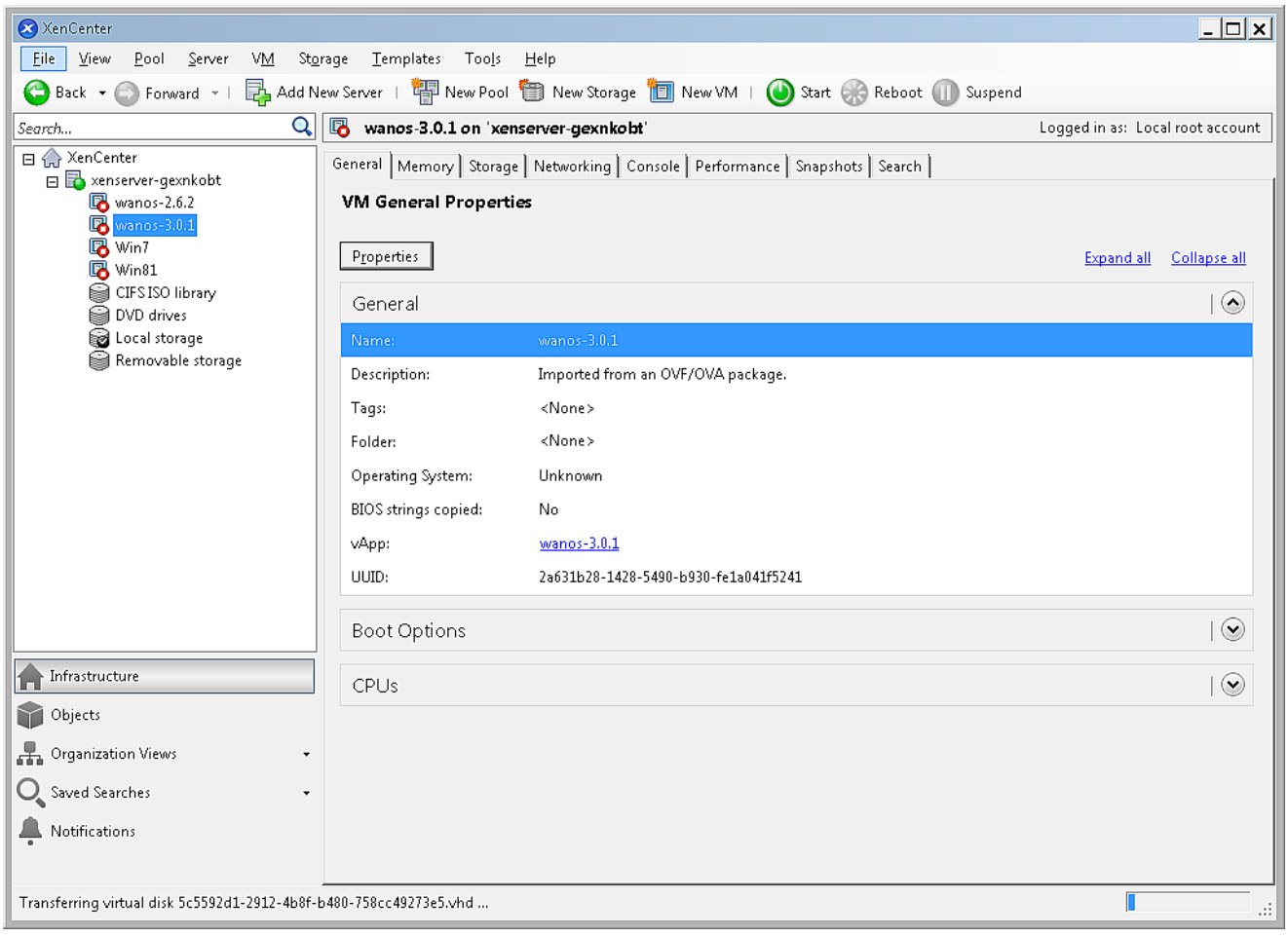
Set the **VM – Virtual Network Interface** to the following **Target Networks**.

Ethernet 1: **Branch_LAN**

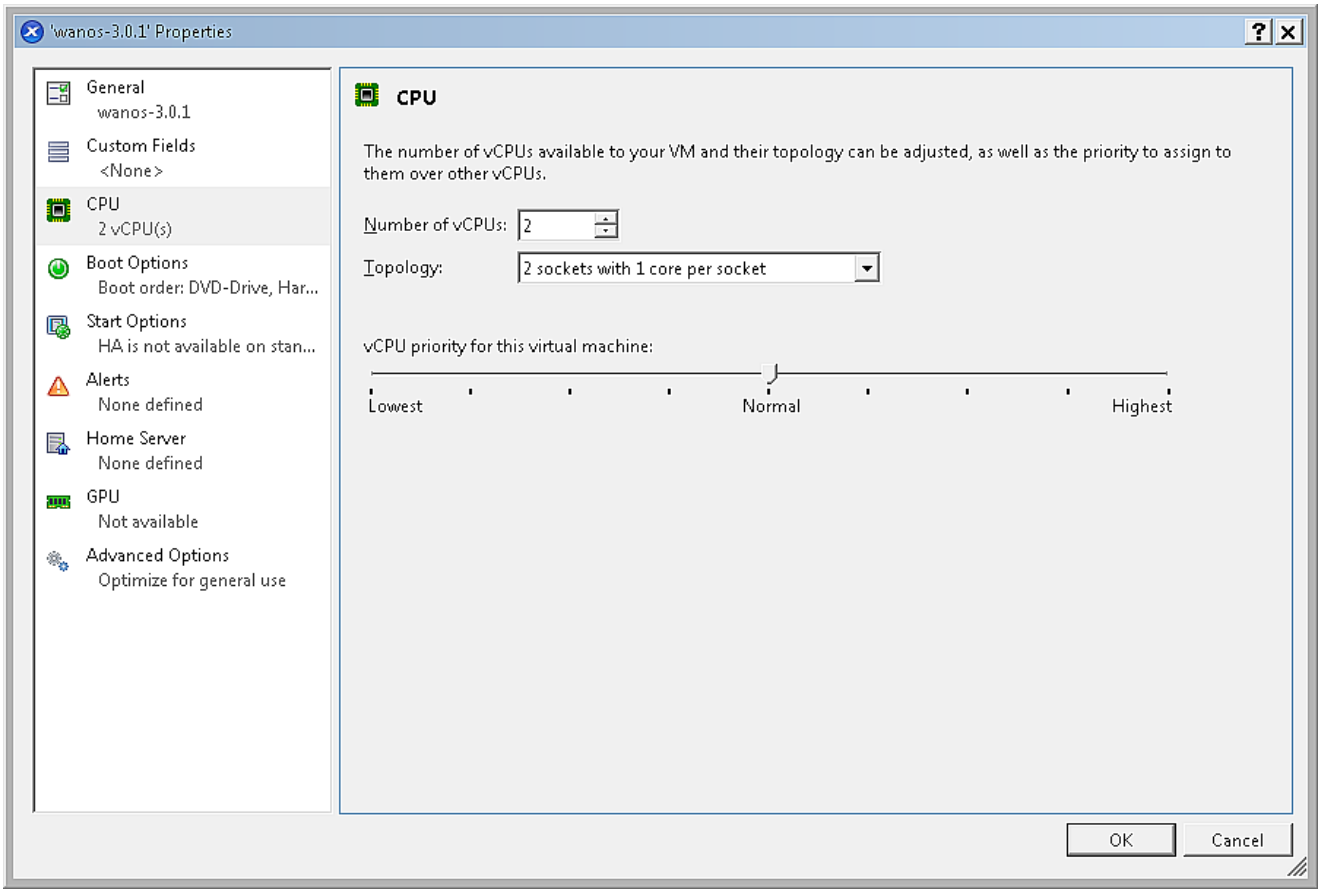
Post Deployment Setup

Before starting the virtual machines, it is important to check the configured hardware on the Virtual Machines. This guide will focus on **General** and **Memory** configuration.

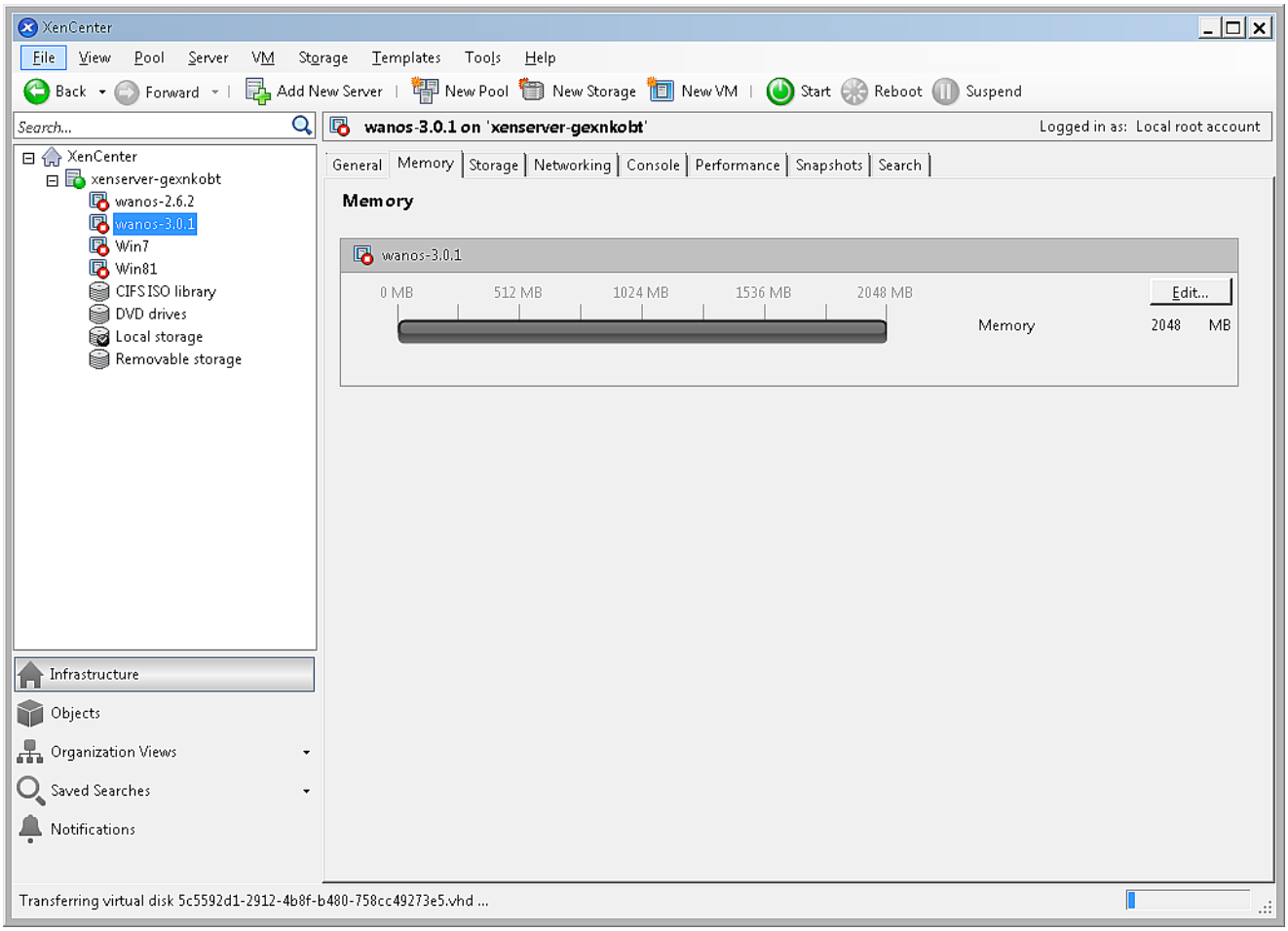
On General and Memory are available on each Virtual Machine. Refer to the screenshots below.



Screenshot of General (tab) on the target Virtual Machine.



Screenshot of CPU section under General Properties



Screenshot of Memory (tab) on the target Virtual Machine.

For this deployment guide, set the following parameters on the virtual machines.

Virtual Machine	CPU	Memory
Wanos-HQ	4 (1 socket with 4 cores)	2048 MB
Wanos-Branch	4 (1 socket with 4 cores)	2048 MB
HQ-PC	2 (1 socket with 2 cores)	1536 MB
Branch-PC	2 (1 socket with 2 cores)	1536 MB

If the XenServer Host Machine cannot accomodate the specifications in the table, adjust the value to fit the available hardware resources.

For more information on hardware and performance please refer to the links below for the recommended system requirements:

Wanos Appliance

http://wanos.co/wan-optimization/performance/

http://wanos.co/wan-optimization/hardware/

http://wanos.co/wiki/index.php?title=Sizing_Guide

WAN Optimization Demonstration

This section will allow the user to observe how WAN Optimization works. This is a simple lab deployment that will require the following:

Click an item to review the deployment process. Note that this deployment will use the **192.168.1.X/24** network and the **Default Gateway** is configured as **192.168.1.1**.

Wanos-HQ (virtual machine)
Wanos-Branch (virtual machine)
HQ-PC (virtual machine)
Branch-PC (virtual machine)
3 Server Networks – **WAN_Link**, **Branch_LAN**, **PhyNIC**
Router (When connecting to the Internet via PhyNIC)

IP Configuration

1) Set the IP address on Wanos-HQ:

   Log into Wanos-HQ using the default username and password:

   Username: **tc**

   Passwod: **ChangeM3**

   Run the command in the terminal:

   ```
   wanos-cfg
   ```

   Set the IP Address to **192.168.1.16**

   Set the Network Mask to **24**

   Set the Gateway Address to **192.168.1.1**

   Save the new settings.

2) Set the IP address on Wanos-Branch:

   Log into Wanos-Branch using this username and password:

   Username: **tc**

   Passwod: **ChangeM3**

   Run the command in the terminal:

   ```
   wanos-cfg
   ```

   Set the IP Address to **192.168.1.17**

   Set the Network Mask to **24**

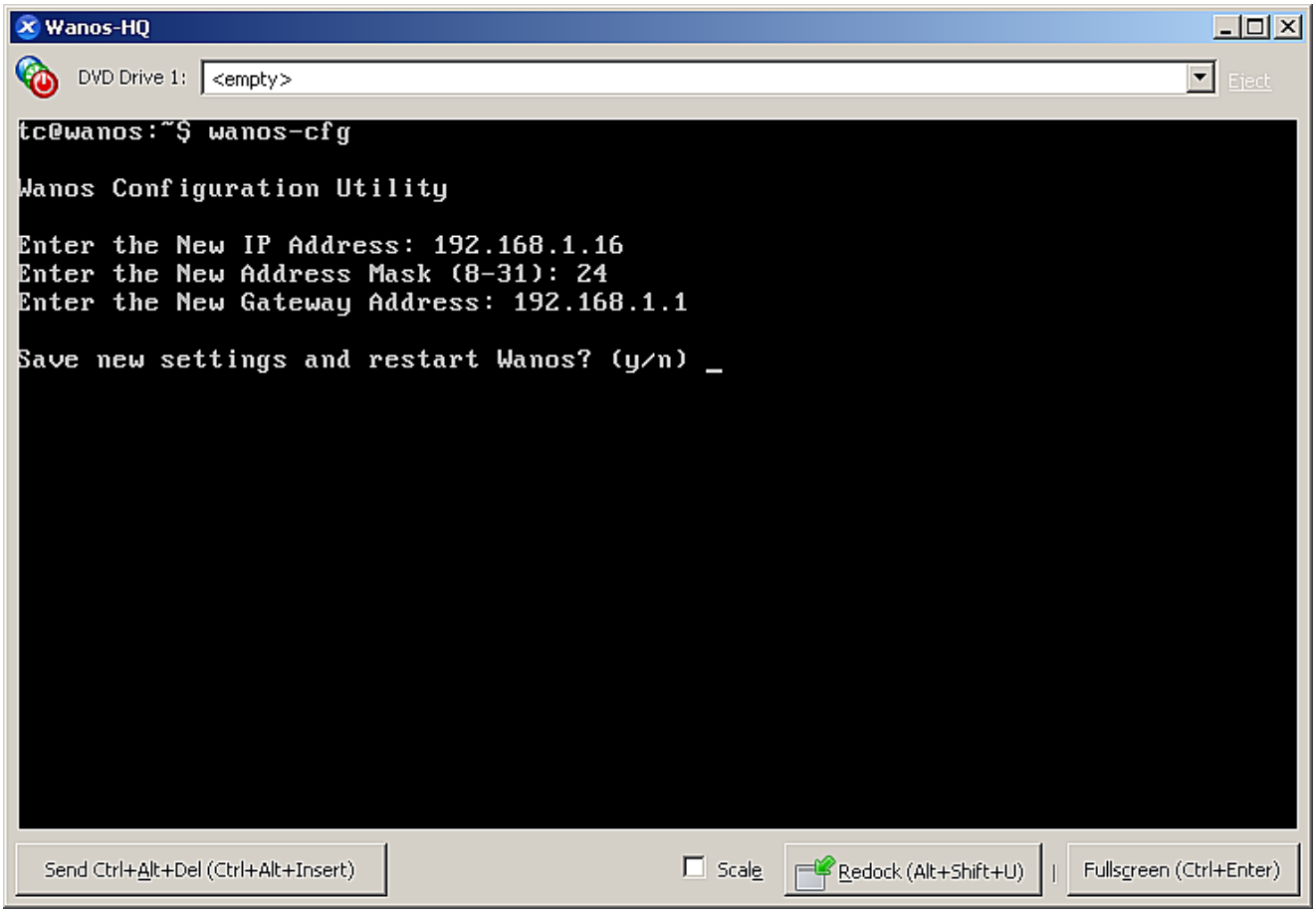
   Set the Gateway Address to **192.168.1.1**

   Save the new settings.

3) Set the IP Addresses of the Workstations:

   IP addresses of the Windows **HQ-PC** (**192.168.1.9**) and **Branch-PC** (**192.168.1.8**) are set manually or by DHCP when phyNIC is connected to the external network with DHCP server.

Refer to the screenshot below for reference.



Running wanos-cfg on XenServer Console

Testing Wan Optimization

The user needs to ensure that a file share, Website or FTP site is available on the HQ-PC for testing purposes. A Silesia Corpus test file can be downloaded on the Wanos Wiki site.

When using a file share, from HQ-PC, open Windows Explorer and connect to **\\192.168.1.8** (Wanos-Branch). Copy the file and paste it to a preferred directory within HQ-PC (e.g. Downloads directory).

Open a web browser and access Wanos-Branch Web UI at https://192.168.1.17. Enter the default username and password: **wanos**. During the file copy process, a stream of data from **Optimized Mbps: Wan Tx** and **Optimized Mbps: Wan Rx** graphs can be seen indicating that WAN Optimization is working.