FusionHub

SpeedFusion Virtual Appliance

Installation Guide

Release 6.3.2

Table of Contents

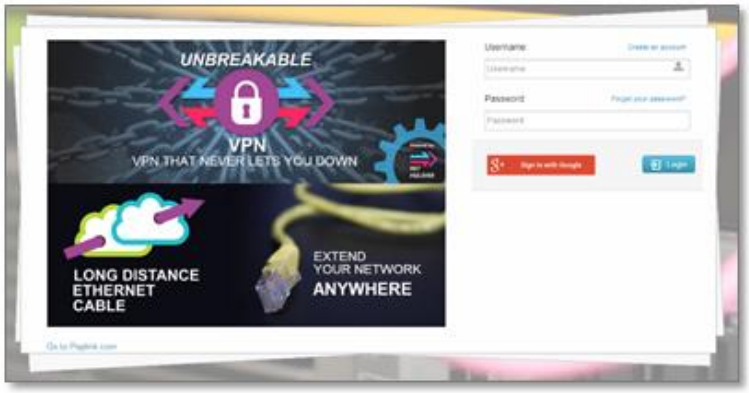
1. Purpose

This manual is a step-by-step guide to building a Peplink FusionHub server.

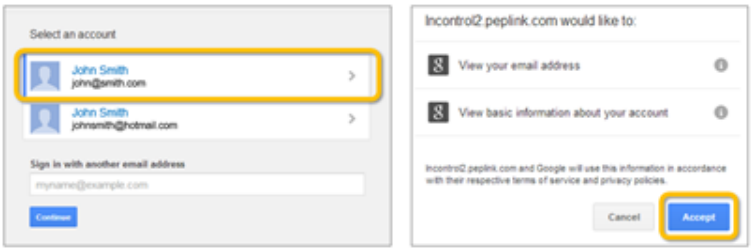
2. FusionHub License Generation

If you already have set up an InControl 2 account, please skip to step 5

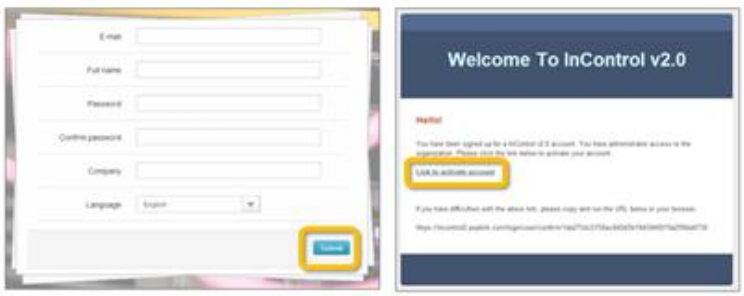
1. To obtain FusionHub evaluation license information and download the FusionHub ISO file from InControl 2, first sign in.



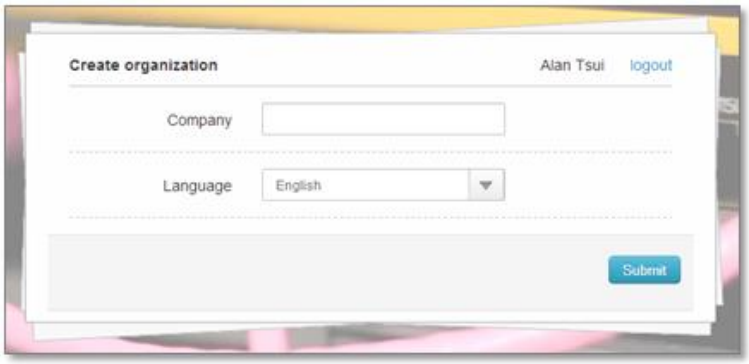
To sign in with Gmail, click **Sign in with Google**, choose your account, and then grant InControl 2 permissions.



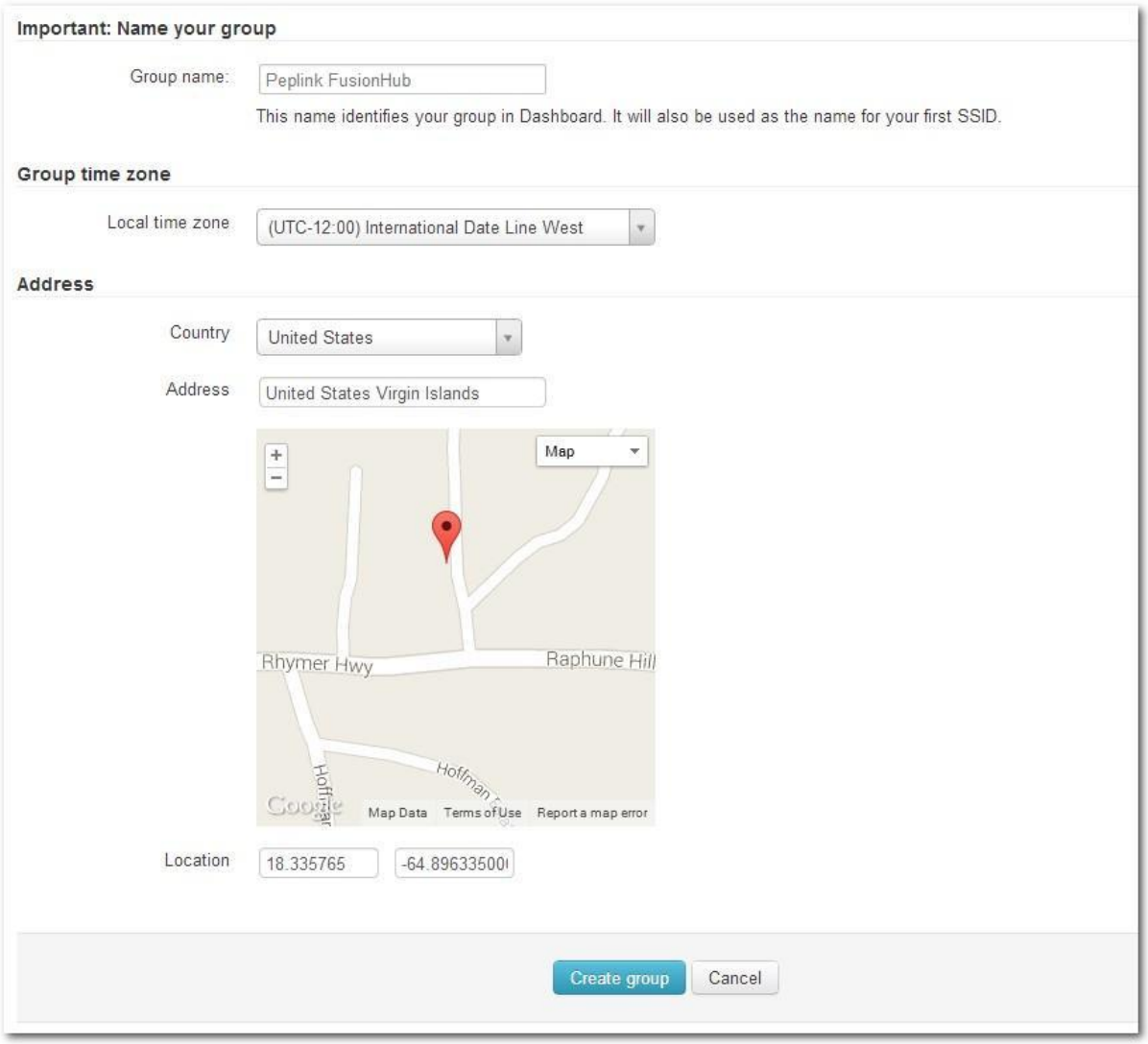
To sign in without Gmail, click **Login** and enter your information. Next, click the link found in your confirmation email. Return to the first screen to enter your username and password.



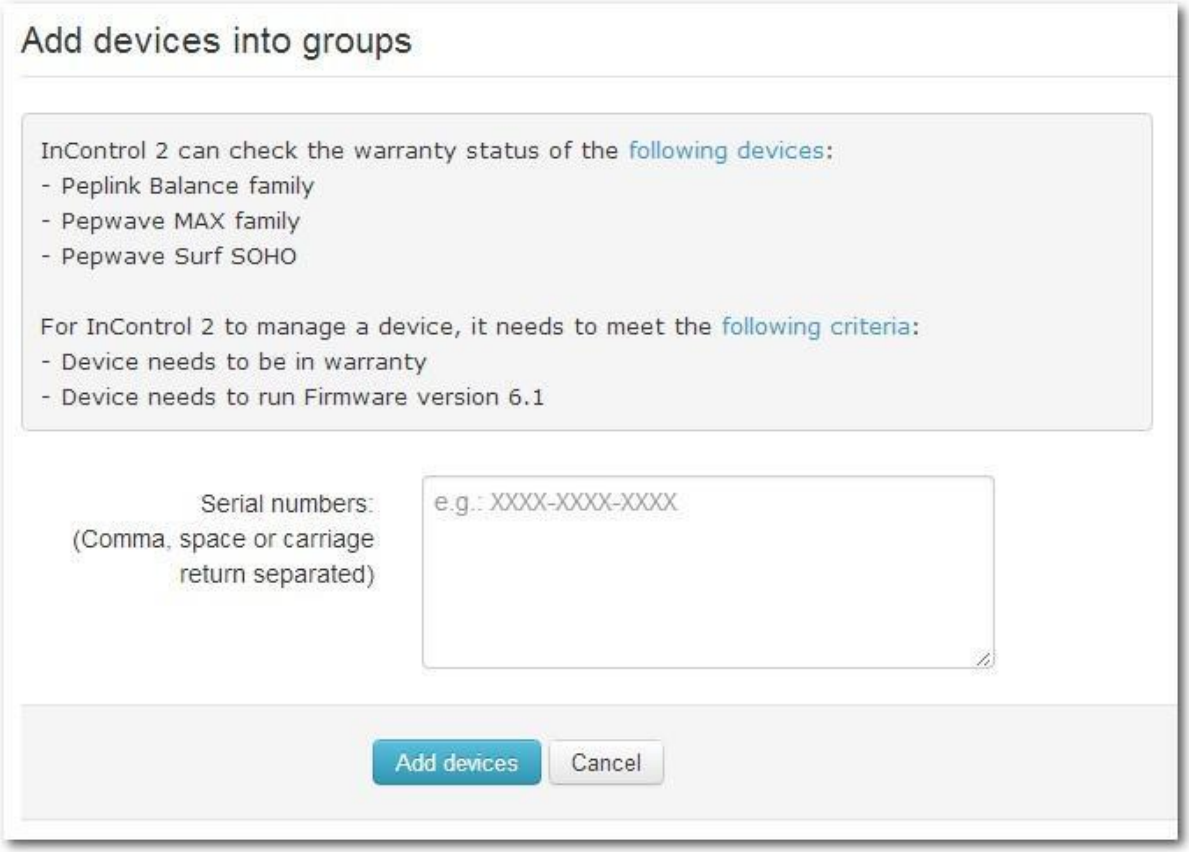
2. Once you successfully login, InControl 2 will prompt you to name your organization and choose your language.



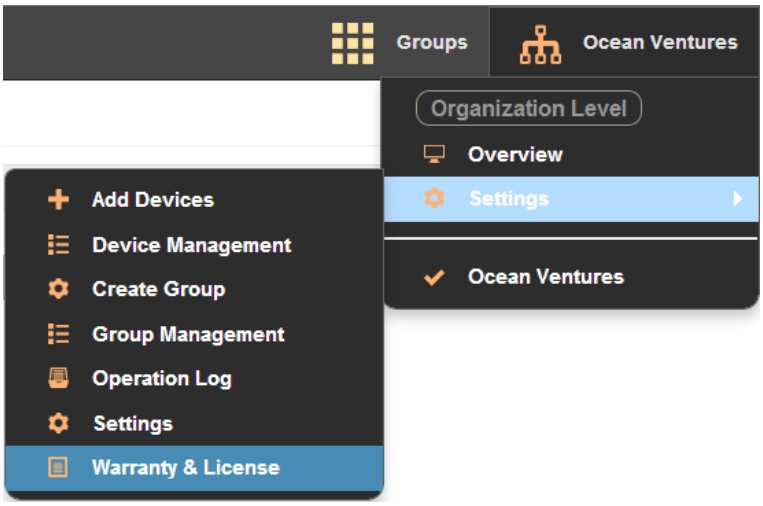
3. Name your group, choose a local time zone, and specify your location. Click **Create group** to finish.



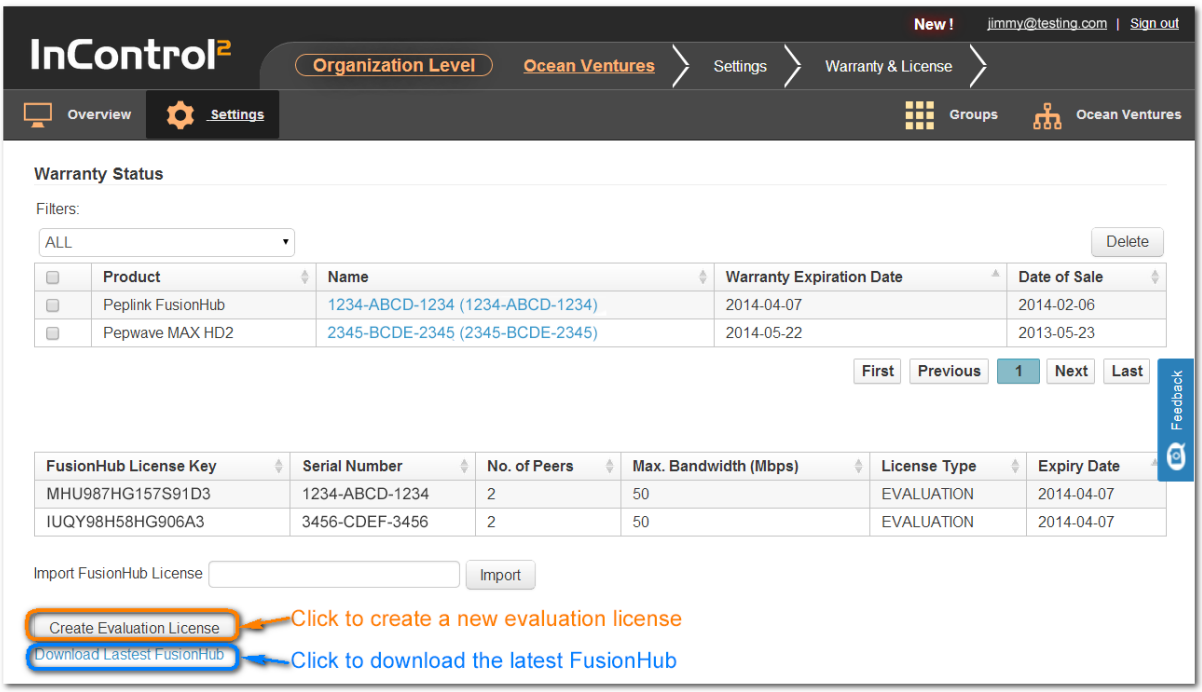
4. On the **Add devices into groups** dialog, click **Cancel** to skip this step and create the group.



5. To obtain an evaluation license, navigate to **Organization>Settings>Warranty & License**.



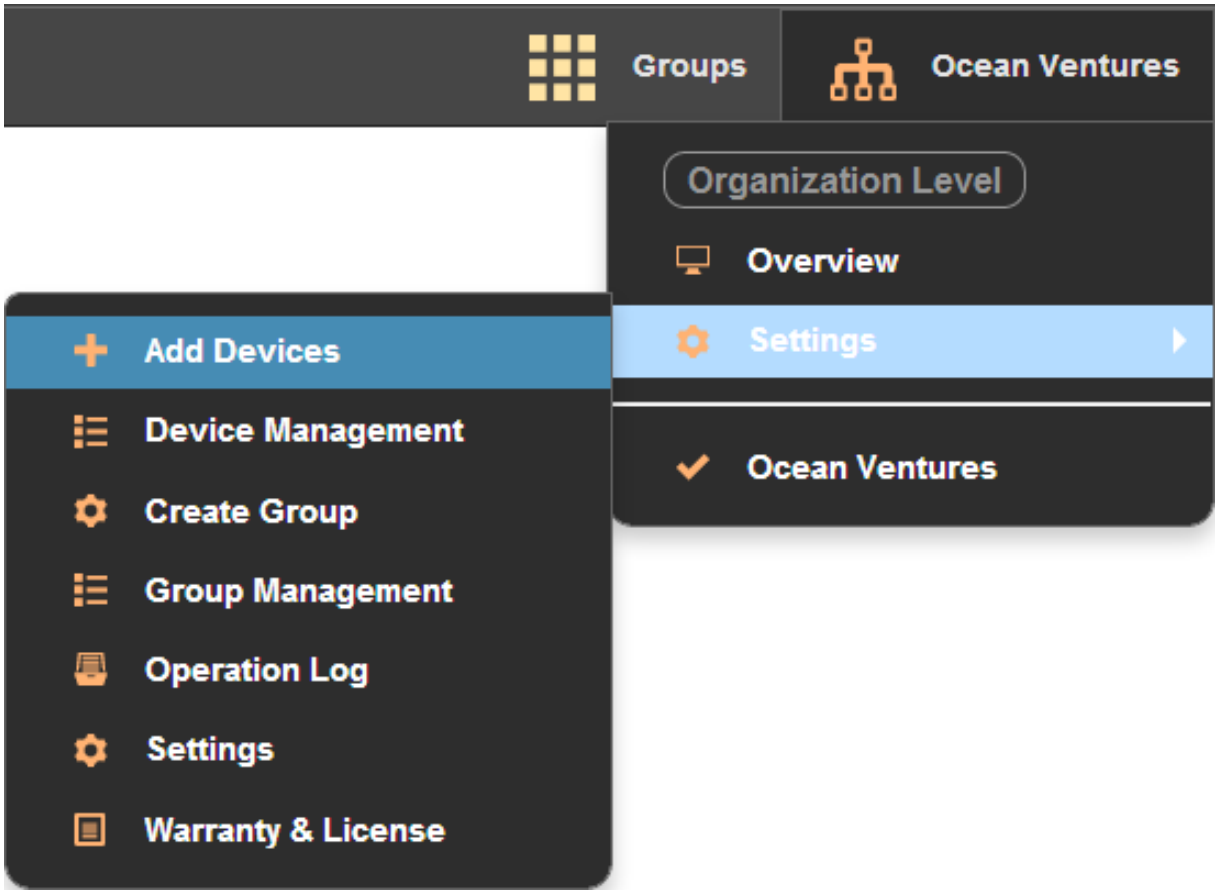
6. On the "Warranty Status" screen, click the **Create Evaluation License** button.



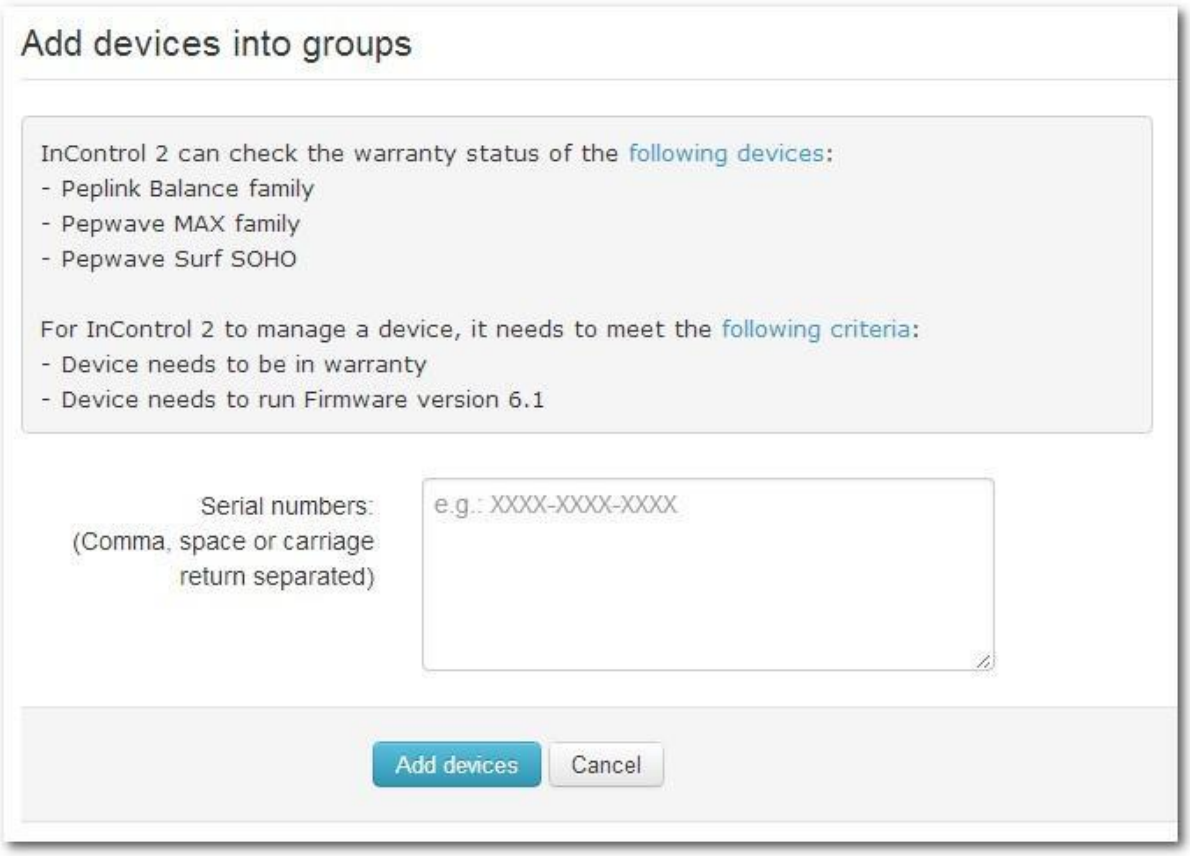
To download the FusionHub, click the **Download Latest FusionHub** button located below the **Create Evaluation License** button.

7. InControl 2 will send the license information to the email address used to login. Follow the steps in the email to add a virtual router using your FusionHub serial number.

8. To add FusionHub onto your organization, navigate to **Organization>Settings>Add Devices**.



9. Enter the serial number from your license information email. Click **Add devices** and continue your FusionHub installation.



3. FusionHub Download

For all VM platforms besides Amazon Web Services, please download FusionHub from the following link:

http://download.peplink.com/firmware/fusionhub/get

For Amazon Web Services, please refer to page 62 for instructions on how to download and install.

4. FusionHub Deployment

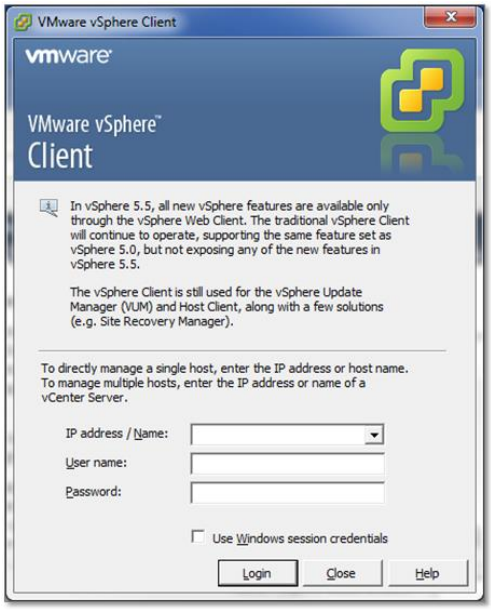
This section will show how to implement FusionHub on VMware (ESXi server, Workstation, Player), Oracle VirtualBox, Citrix XenCenter, Microsoft Hyper-V, and Amazon Web Services. Please select your VM platform:

4.1 VMware ESXi Server

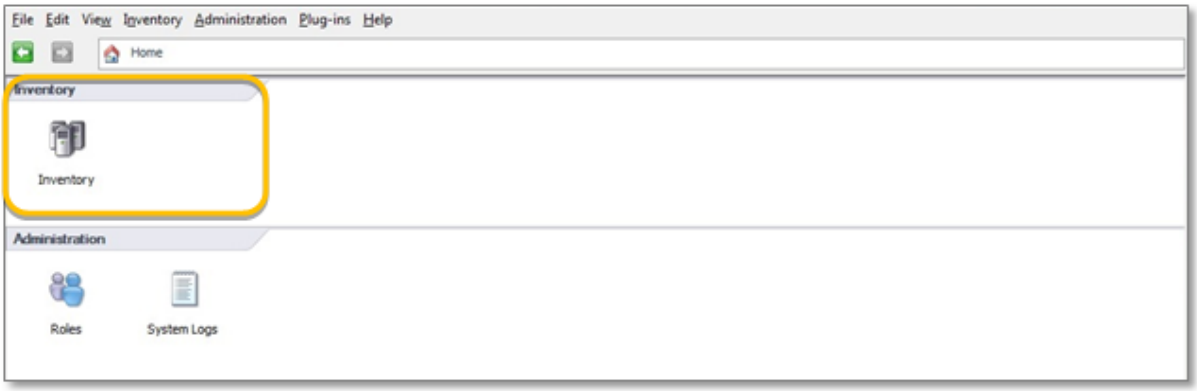
1. Download **VMware ESXi 5.5.0** from **www.vmware.com/go/download-vsphere** and install it.

2. For VMware vSphere server installation hardware requirements, refer to **http://www.vmware.com/products/vsphere-hypervisor/gettingstarted.html**

3. Open **VMware vSphere**. Enter the appropriate **IP address / Name**, **User name**, and **Password**. Click **Login** to login to the ESXi server. **Make sure that your computer and ESXi server are on the same network.** If your computer and ESXi server are not on the same network, you won't be able to connect to FusionHub's Web admin interface, even though you can remotely access the ESXi server through a router. Follow the steps found in **4 FusionHub Interface Configuration** to connect to FusionHub's Web admin interface.



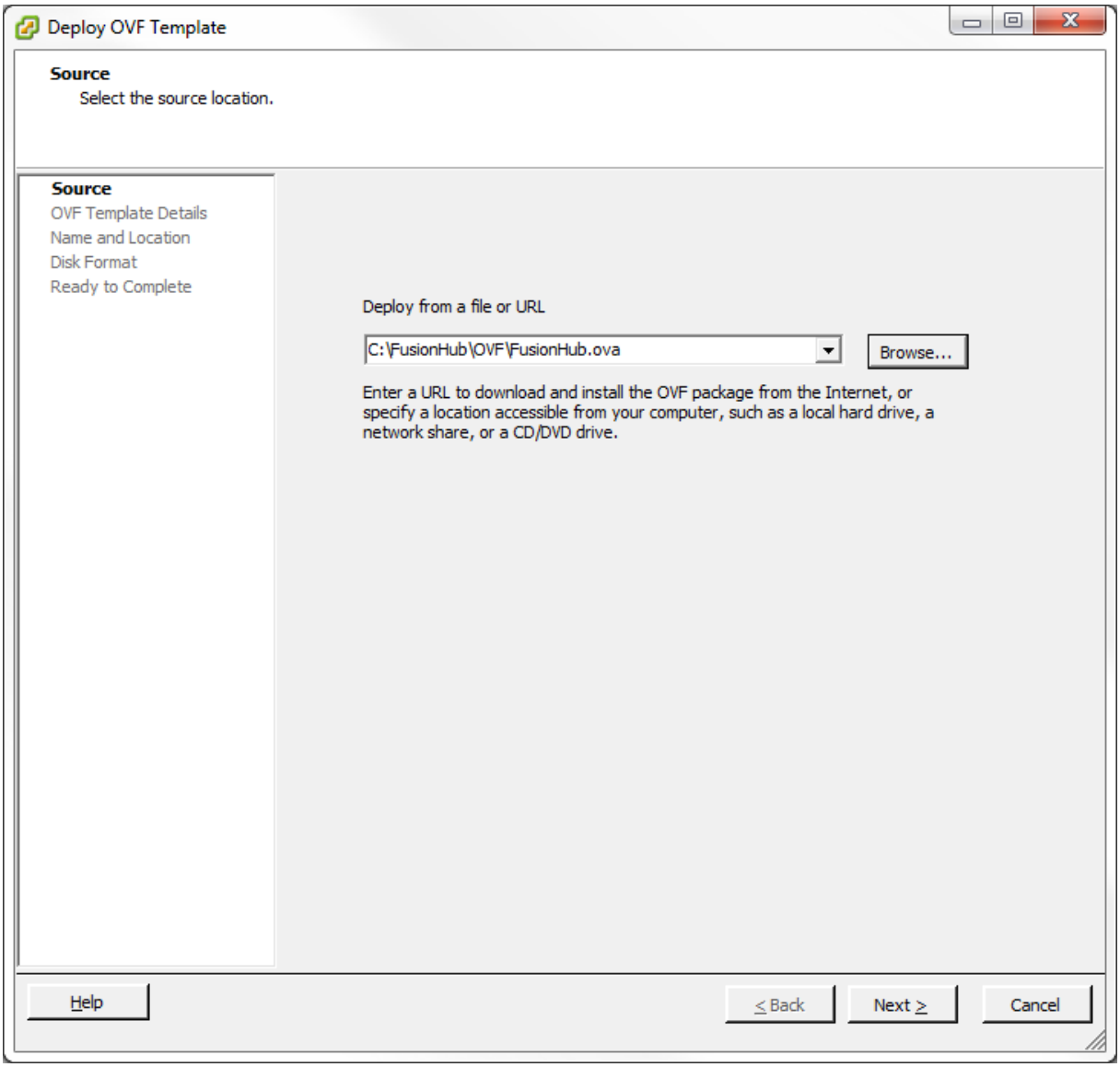
4. After successfully logging in, click **Inventory**. The remaining contents of this section will cover deploying a FusionHub virtual machine to your ESXi server.



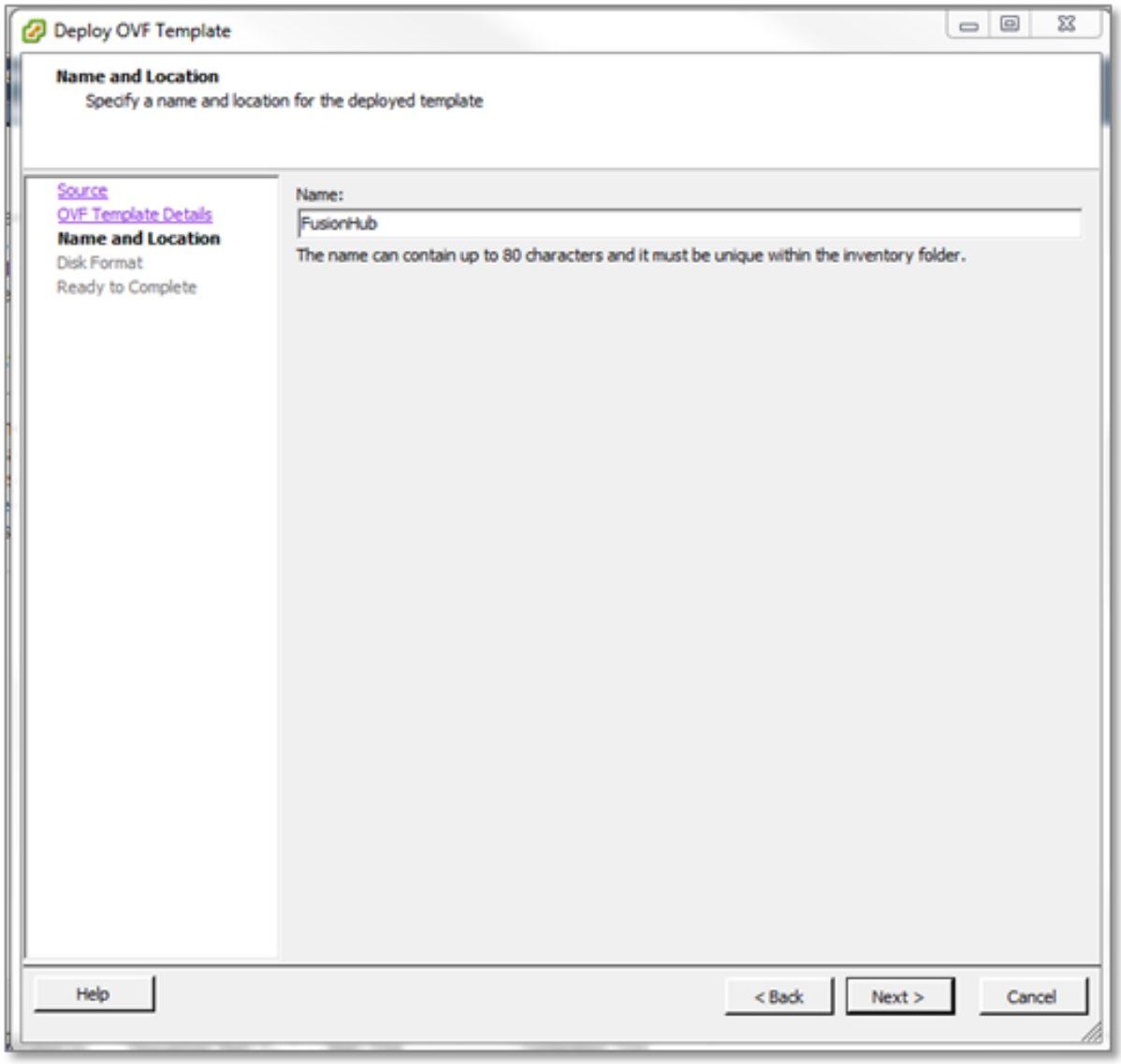
5. Click the **inventory object** to begin deploying the OVF template.

6. Click File > Deploy OVF Template... to deploy the FusionHub OVF template downloaded from InControl 2. In order to deploy the OVF template successfully, please make sure that your ESXi server supports virtual machine version 8, which runs on VMware ESXi 5.5 and later.

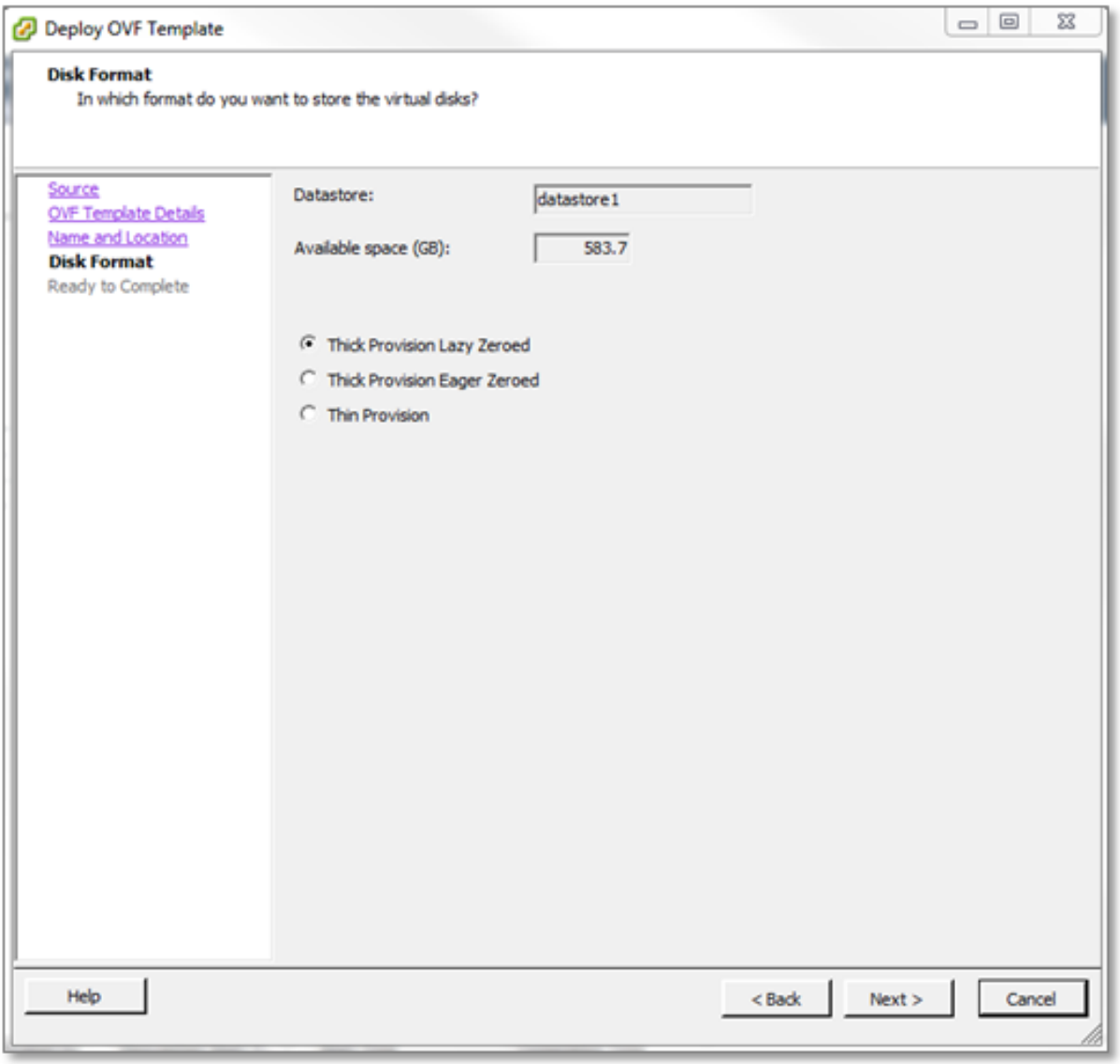
7. On the **Source** dialog of the **Deploy OVF Template** wizard, click **Browse**. Locate the FusionHub.ova template file on your computer and click **Next**.


Deploy OVF Template
Source
Select the source location.
Source
OVF Template Details
Name and Location
Disk Format
Ready to Complete
Deploy from a file or URL
C:\FusionHub\OVF\FusionHub.ova
Browse...
Enter a URL to download and install the OVF package from the Internet, or specify a location accessible from your computer, such as a local hard drive, a network share, or a CD/DVD drive.
Help
< Back
Next >
Cancel

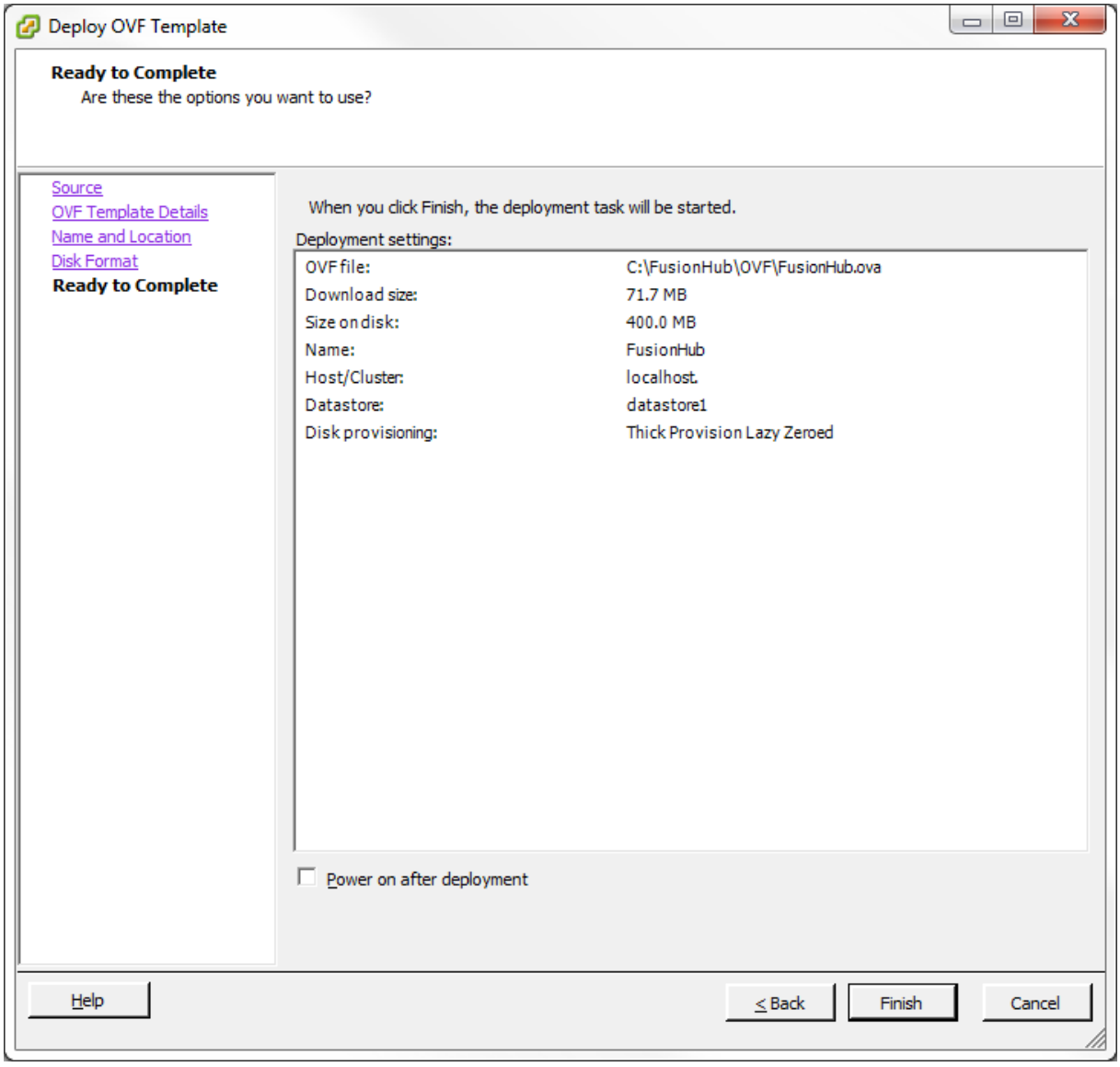
8. On the **Name and Location** dialog, type a **name** or keep the default setting. Click **Next**.



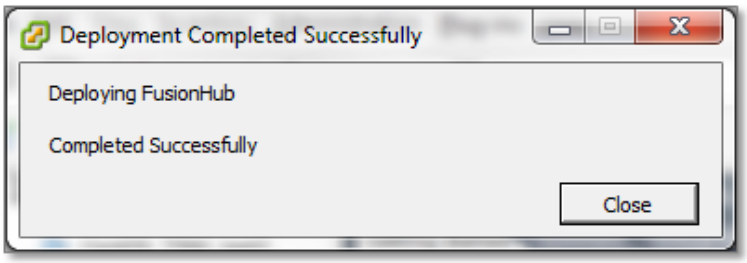
9. Keep the default settings on the **Disk Format** dialog. Click **Next**.



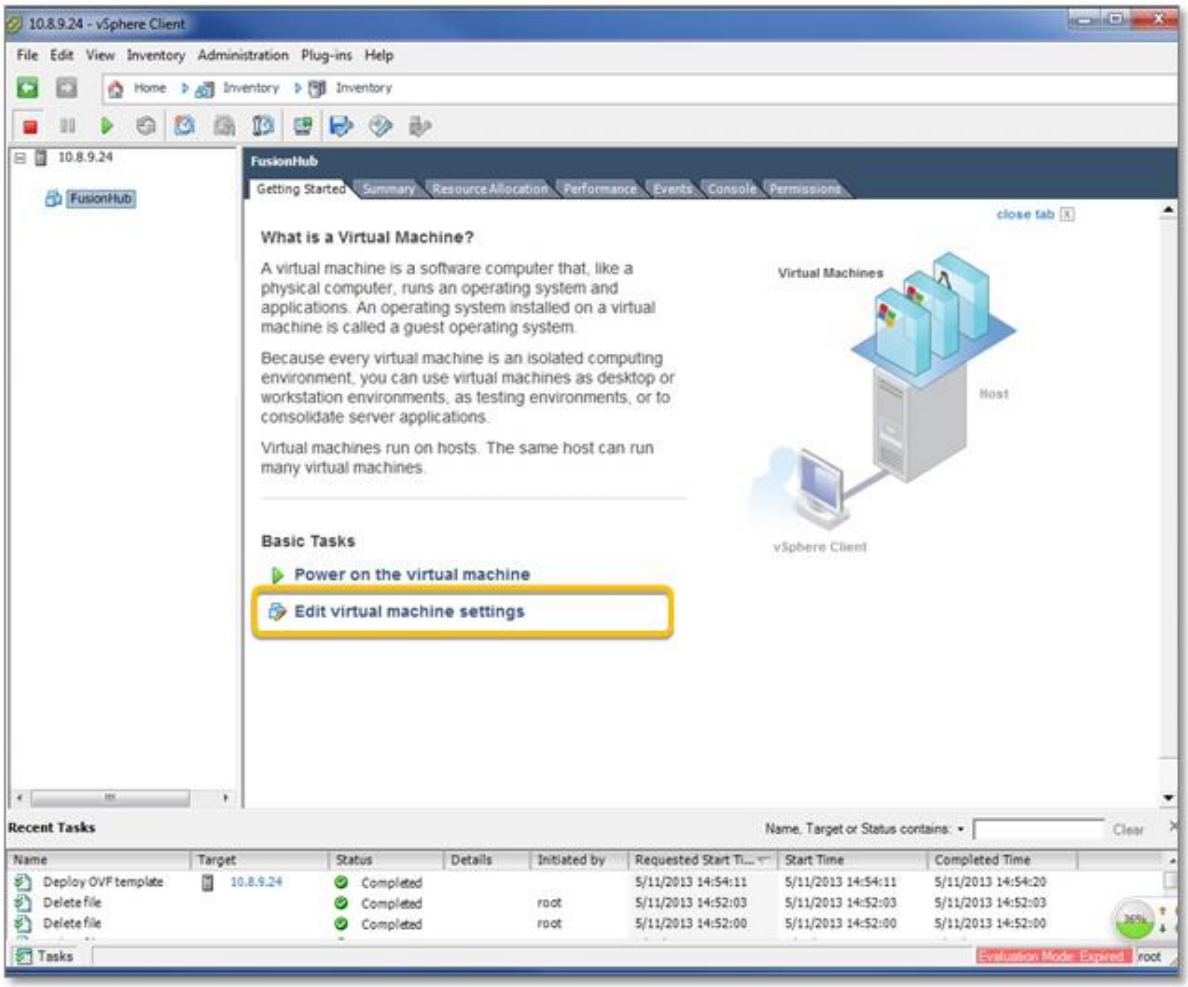
10. On the **Ready to Complete** dialog, review the deployment settings. Click **Finish** to complete the process and close the wizard.



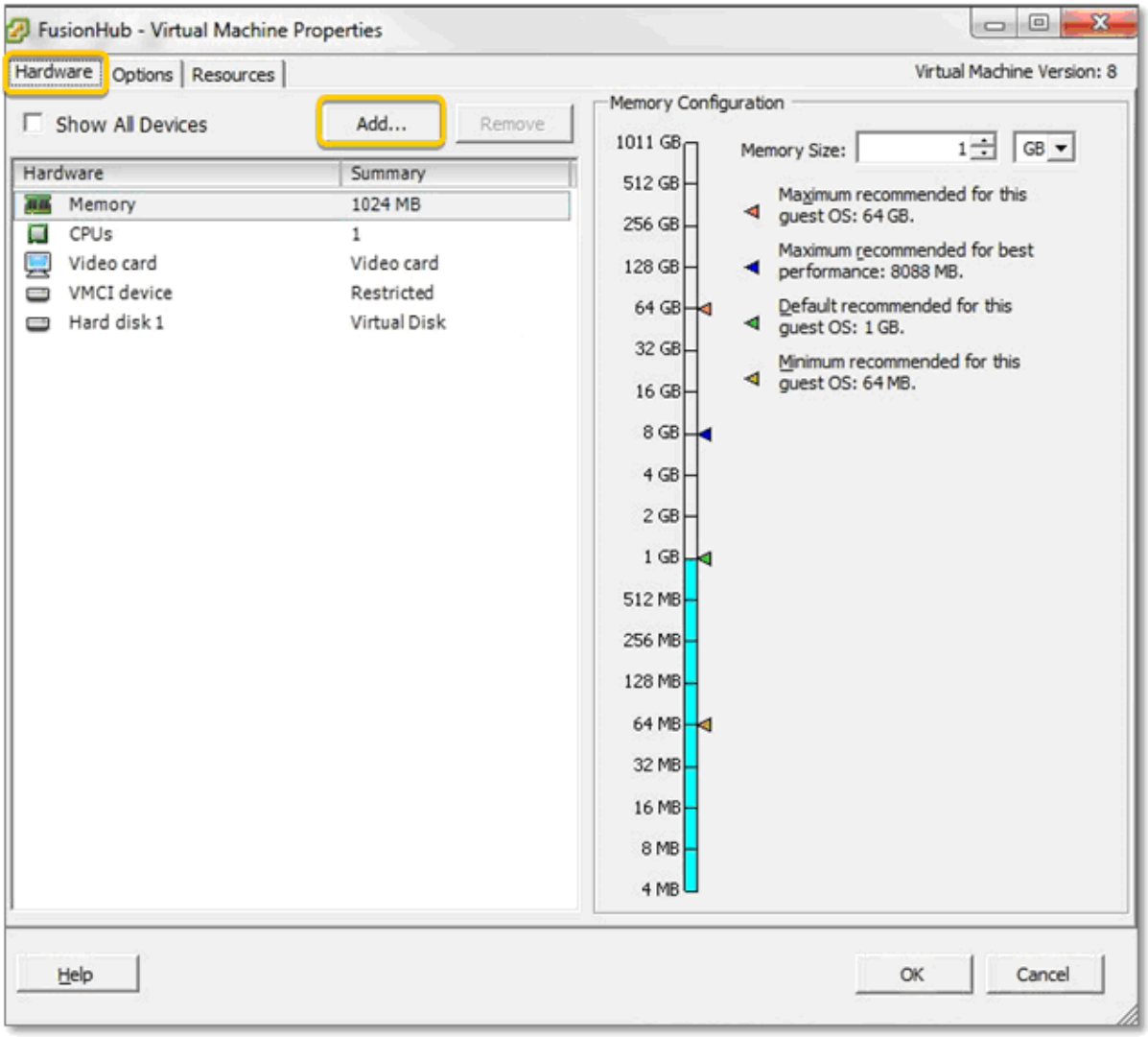
11. Once you have completed the steps above, a FusionHub virtual machine is created.



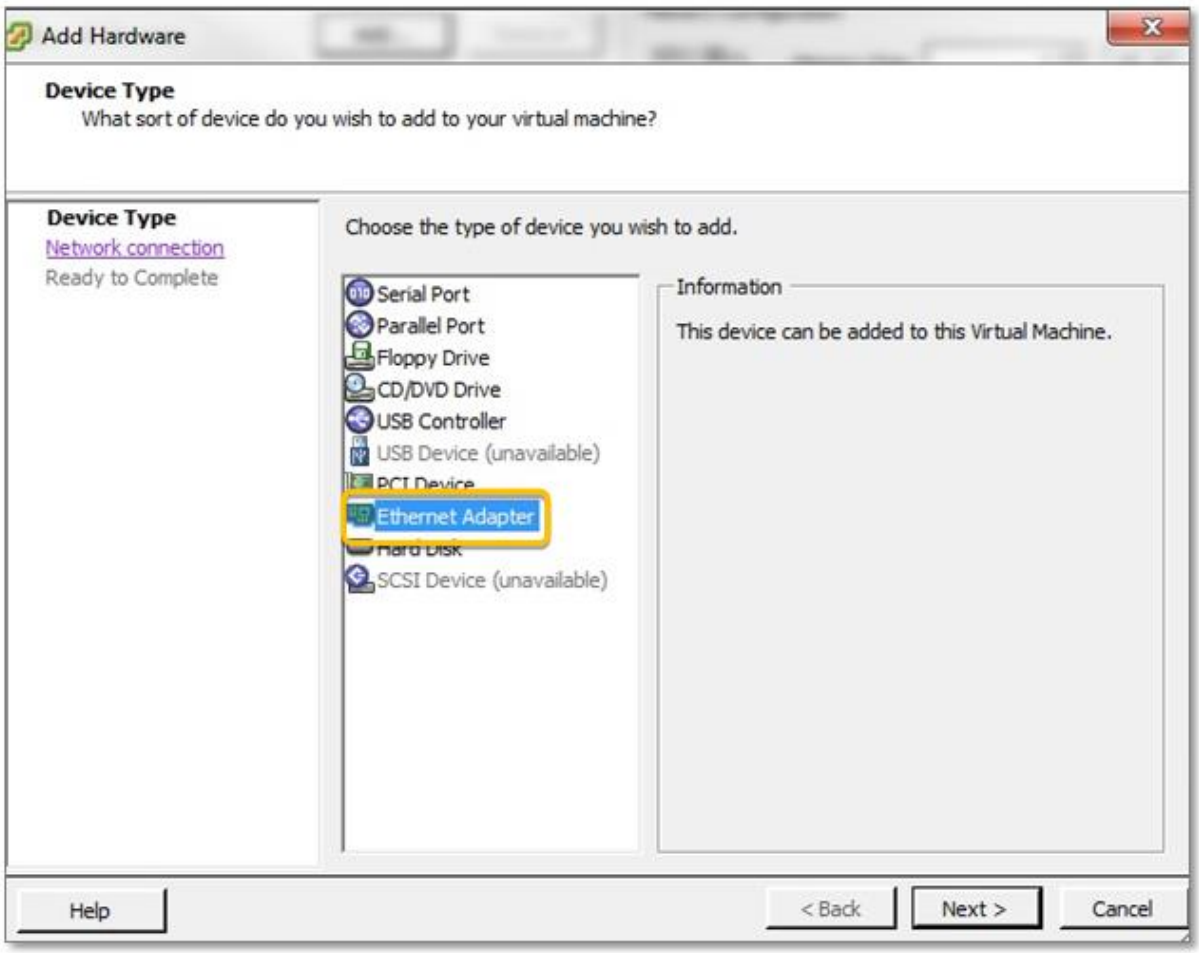
12. Click **FusionHub** in the column on the left side of the dialog to select the virtual machine. Click **Edit virtual machine settings** to begin adding an Ethernet adapter to the FusionHub virtual machine.



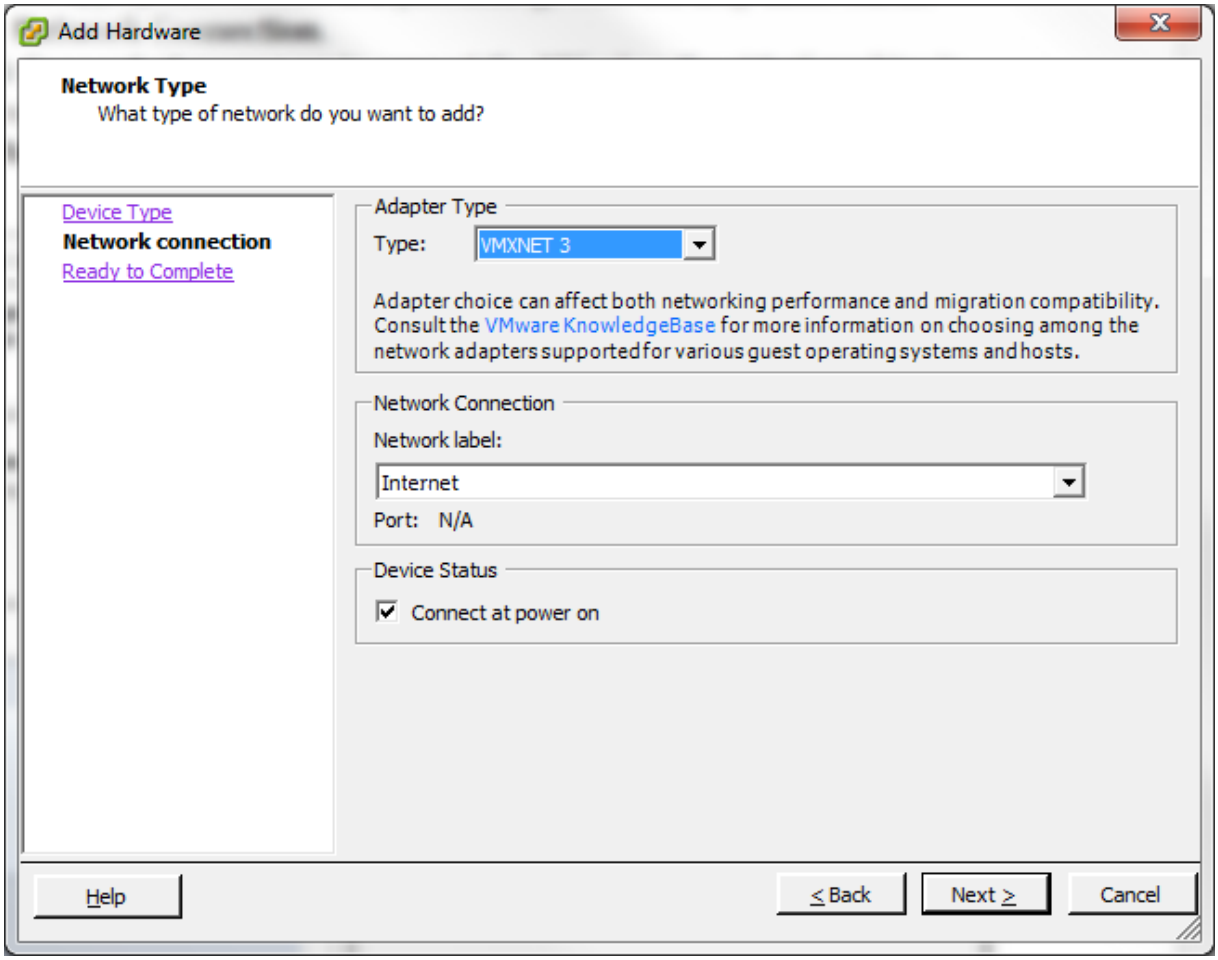
13. Click Add, found under the Hardware tab on the FusionHub – Virtual Machine Properties dialog.



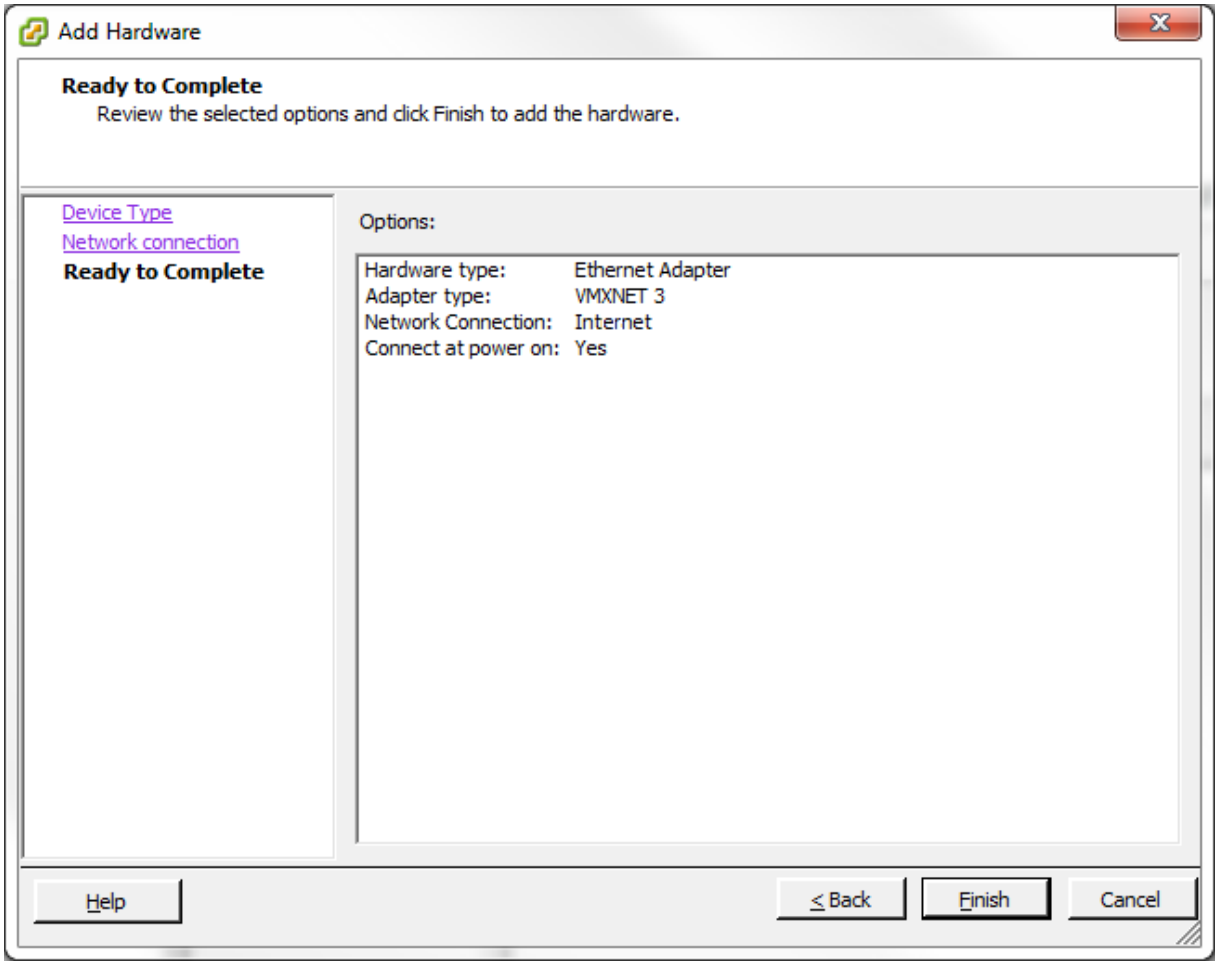
14. On the **Add Hardware** dialog, select **Ethernet Adapter**. Click **Next**.



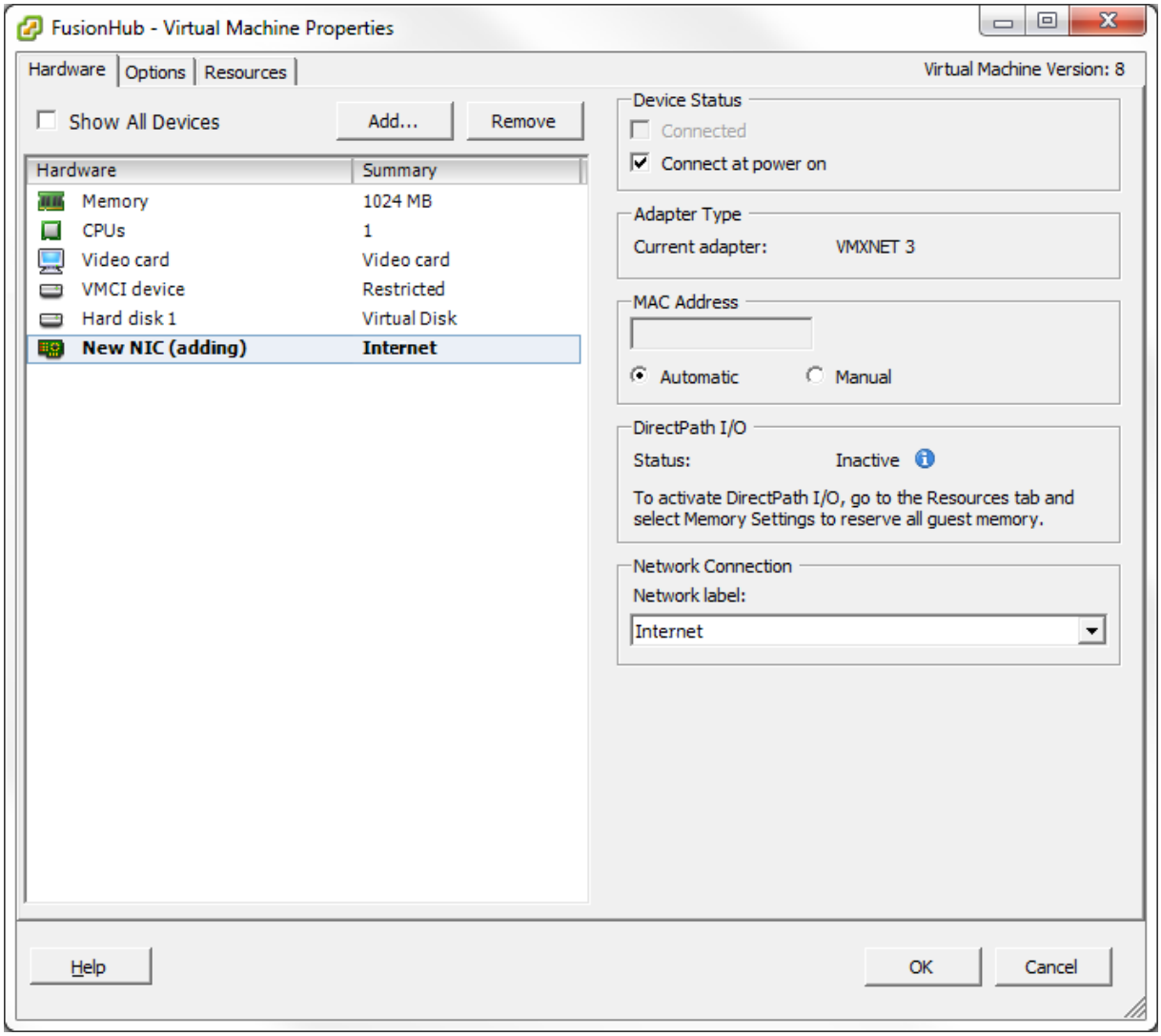
15. On the **Network Type** dialog, select **VMXNET 3** as the **Adapter Type**. Select the appropriate network and port settings from the drop-down menus under **Network Connection**.
16. Check **Connect at power on** to connect the NIC when the virtual machine is powered on.
17. Click **Next**.



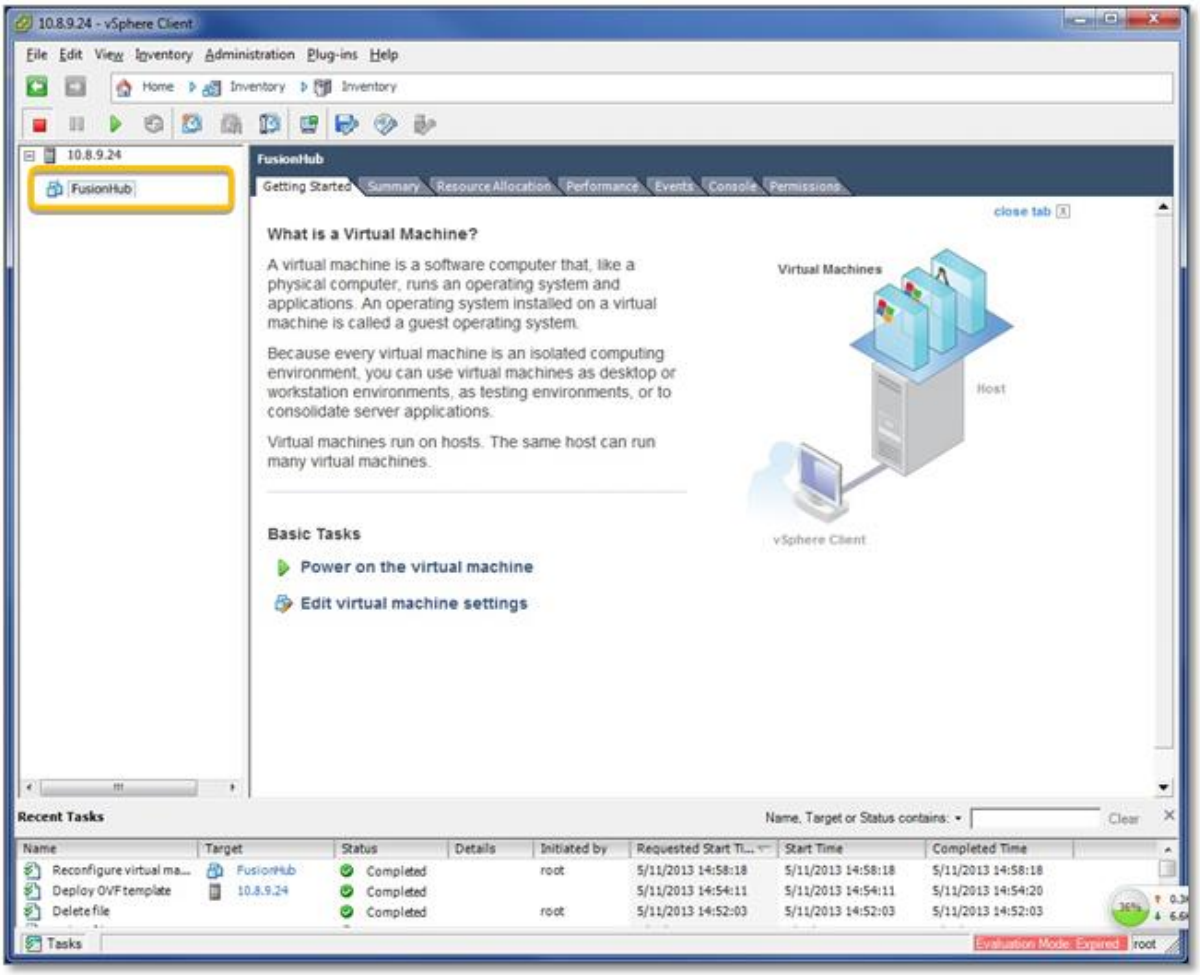
18. On the **Ready to Complete** dialog, review your settings and click **Finish**.



19. Click **OK** to finish adding hardware.



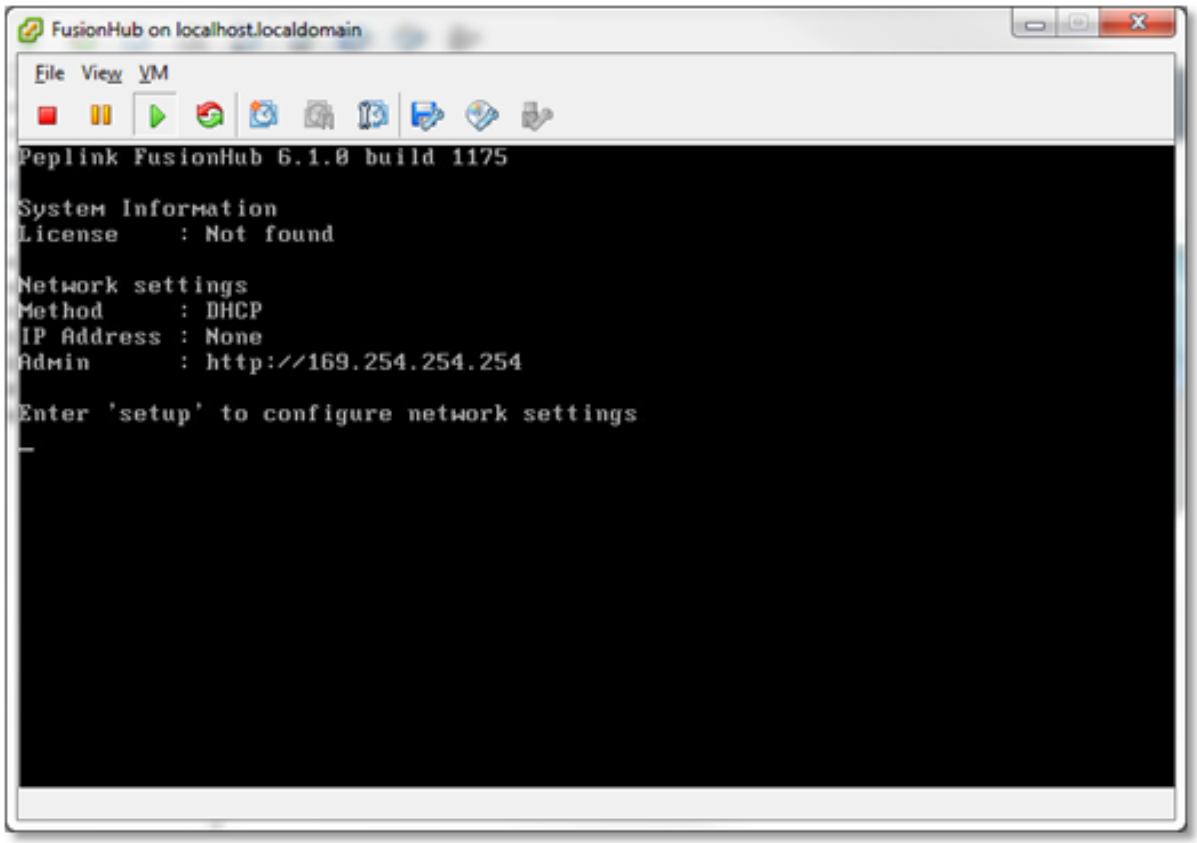
20. Click Power on the virtual machine to run FusionHub.



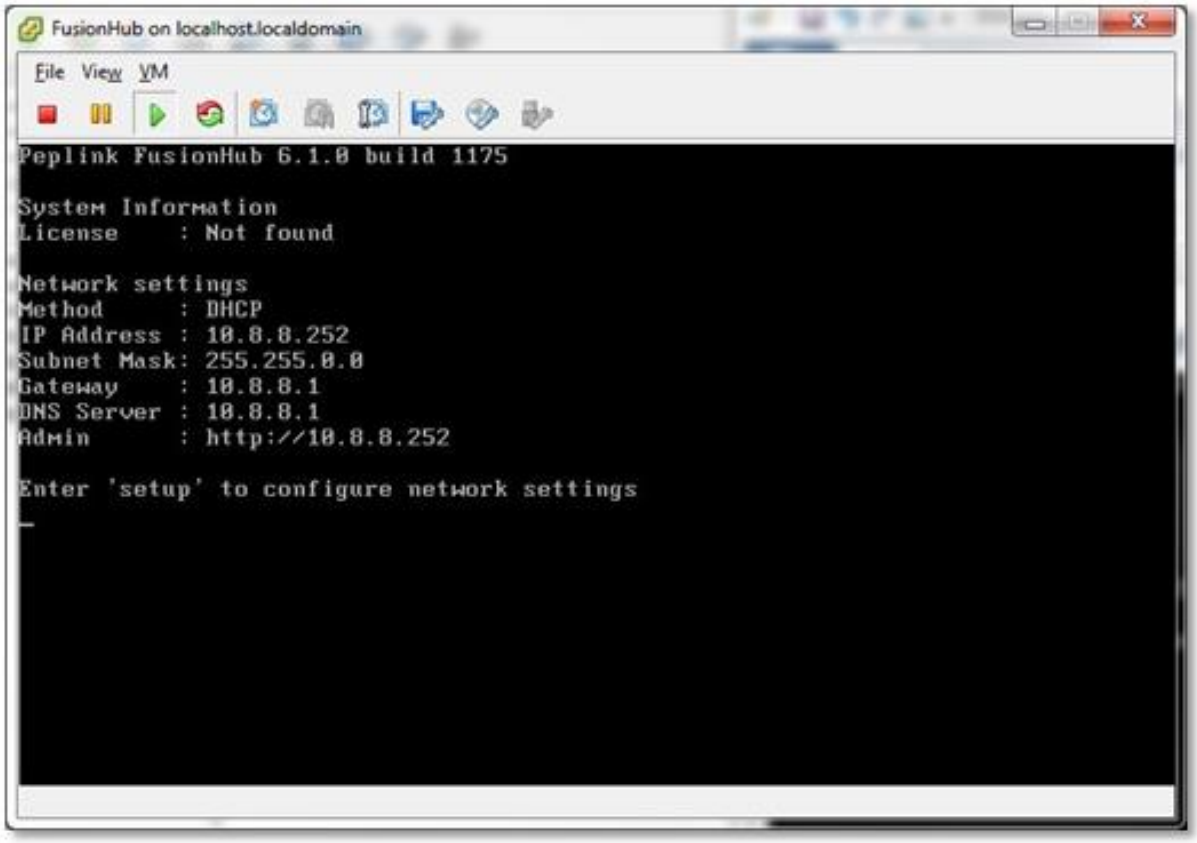
21. When the FusionHub virtual machine is powered on, right-click **FusionHub**. Select **Open Console** for general information about FusionHub, including:

- FusionHub version
- System information
- Network settings:

Method: DHCP
IP Address: None
Admin: http://169.254.254.254



22. The default WAN connection method is DHCP. If the DHCP server is available on your network, the FusionHub IP address will be automatically obtained by the DHCP server. In this case, the console will look similar to the following:

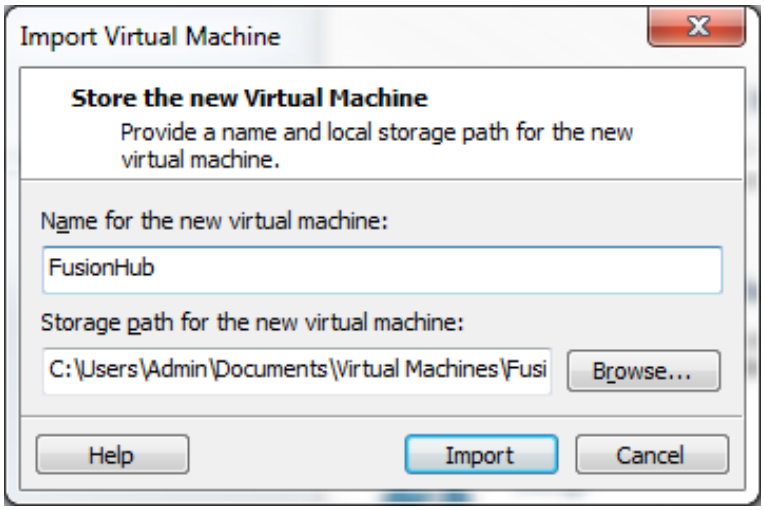


Please navigate to **FusionHub Interface Configuration** to continue your installation.

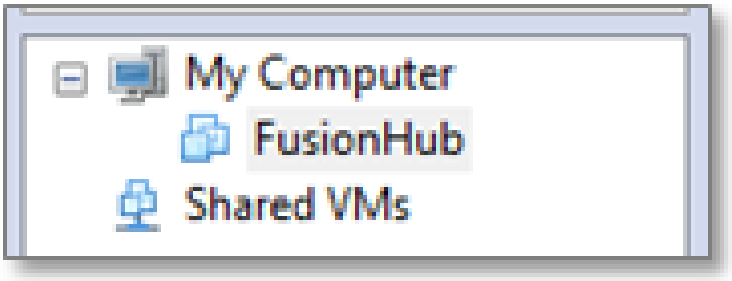
4.2 VMware Workstation

1. Click **FusionHub** in the column on the left side of the dialog to select the virtual machine. Click **Edit virtual machine settings** to begin adding an Ethernet adapter to the FusionHub virtual machine.
2. Download **VMware Workstation 10** from **http://www.vmware.com/products/workstation/** and install it. For VMware Workstation installation hardware requirements, refer to http://pubs.vmware.com/workstation-10/index.jsp?topic=%2Fcom.vmware.ws.using.doc%2FGUID-55FF3F07-6C2E-41F7-B361-C7D870BCC4D7.html
3. Open VMware Workstation and deploy the OVF template.
4. Click **File > Open** to open the FusionHub.ova template downloaded from InControl 2.

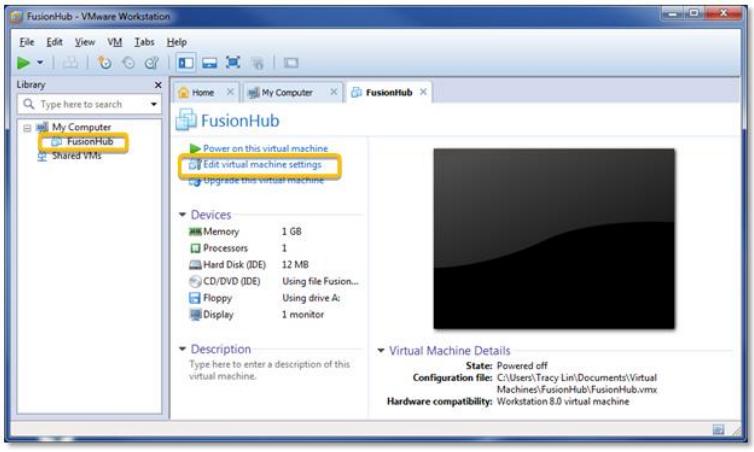
5. On the Store the new Virtual Machine dialog, type a name for the new virtual machine (i.e., FusionHub) and select the storage path. Please note that the storage path for this FusionHub virtual machine should not be the same as for the downloaded FusionHub OVF template file. Click Import.



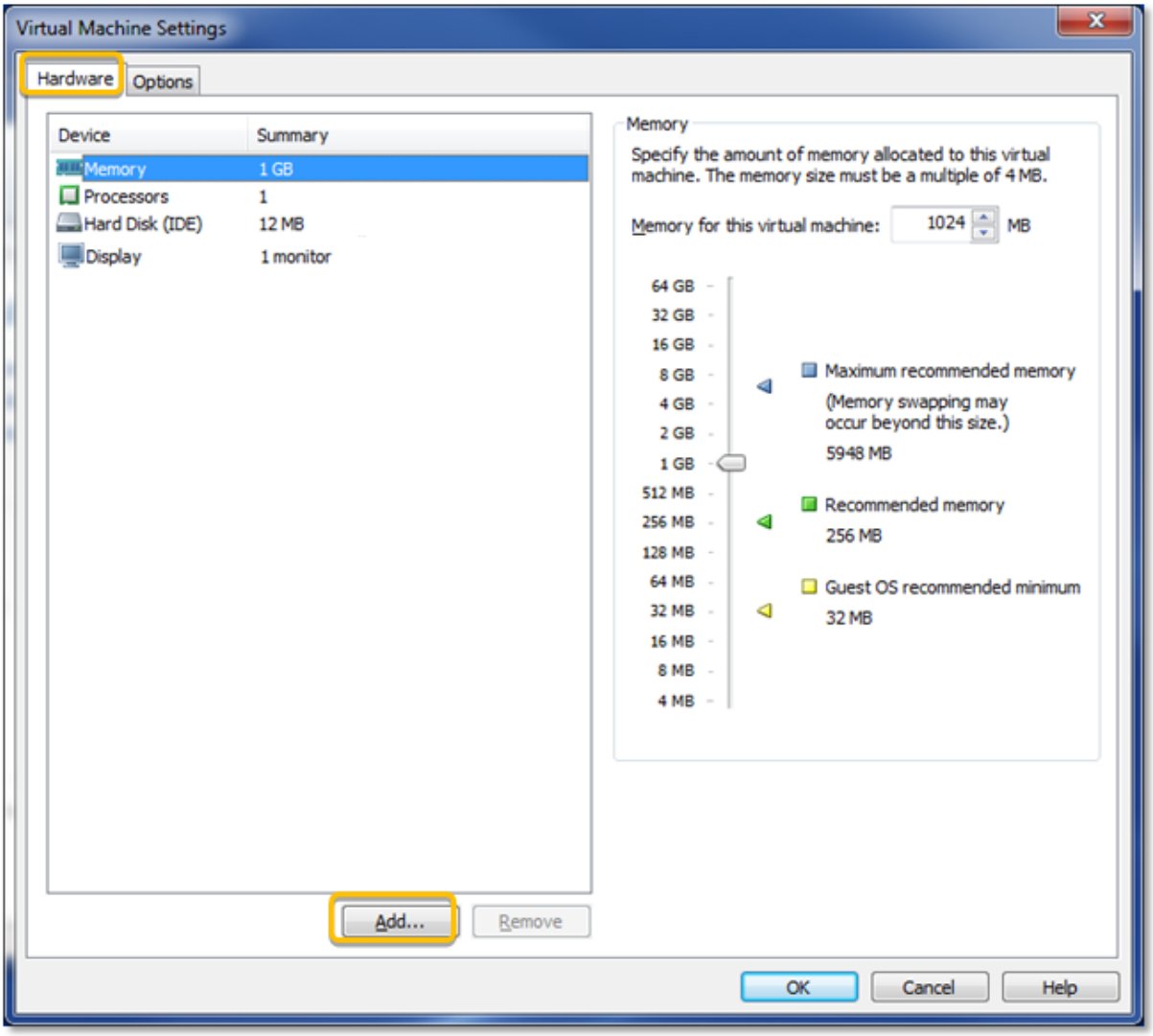
6. After successful import, a FusionHub virtual machine is created.



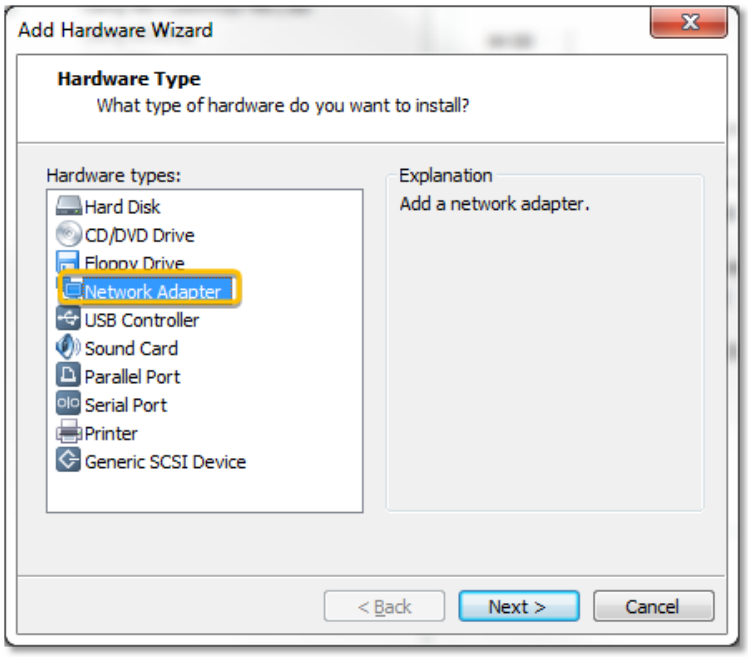
7. Click **FusionHub** in the column on the left side of the dialog to select the virtual machine. Click **Edit virtual machine settings** to begin adding an Ethernet adapter.



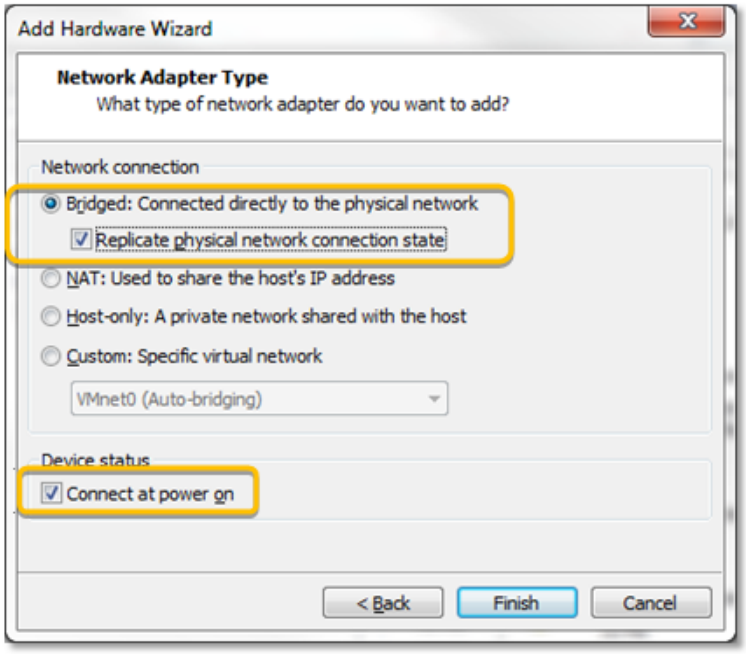
8. Click **Add**, found under the **Hardware** tab on the **Virtual Machine Settings** dialog.



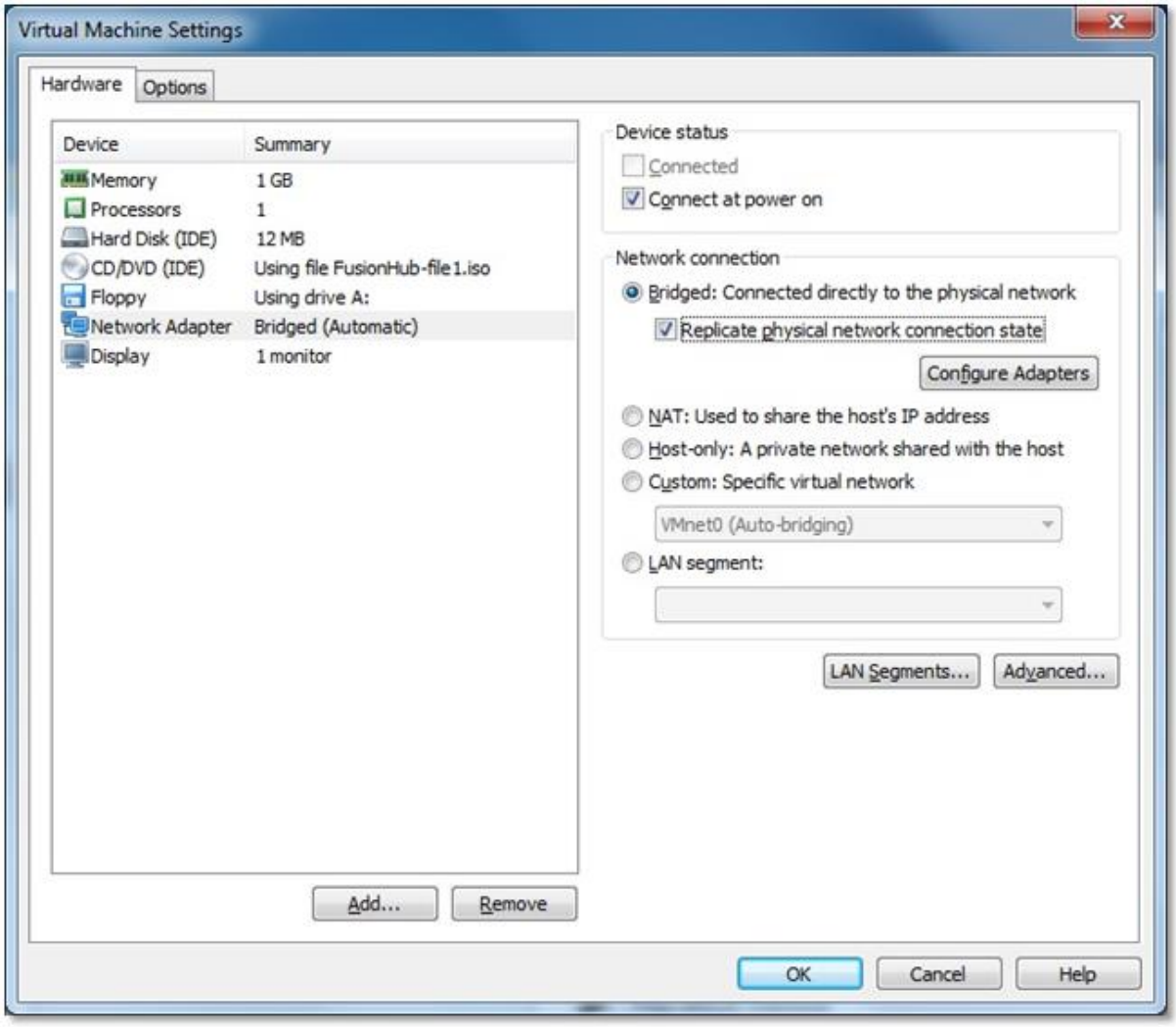
9. On the Add Hardware Wizard dialog, select Network Adapter. Click Next.



10. On the Network Adapter Type dialog, select Bridged: Connected directly to the physical network and Replicate physical network connection state. Check Connect at power on and click Finish.

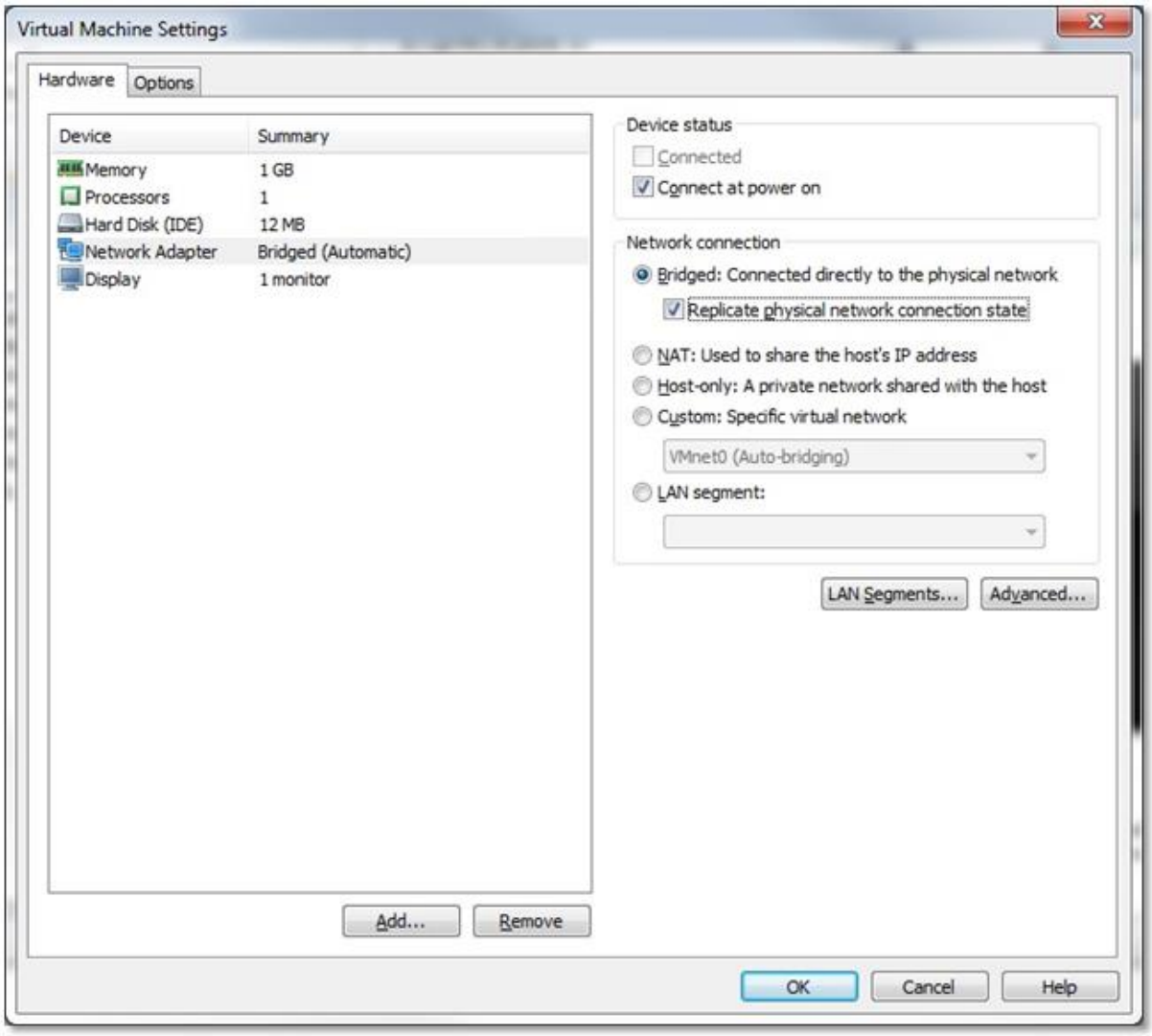


11. Click **Configure Adapters** to select the host adapter. This will apply only if you have more than one network adapter. Otherwise, skip this step.

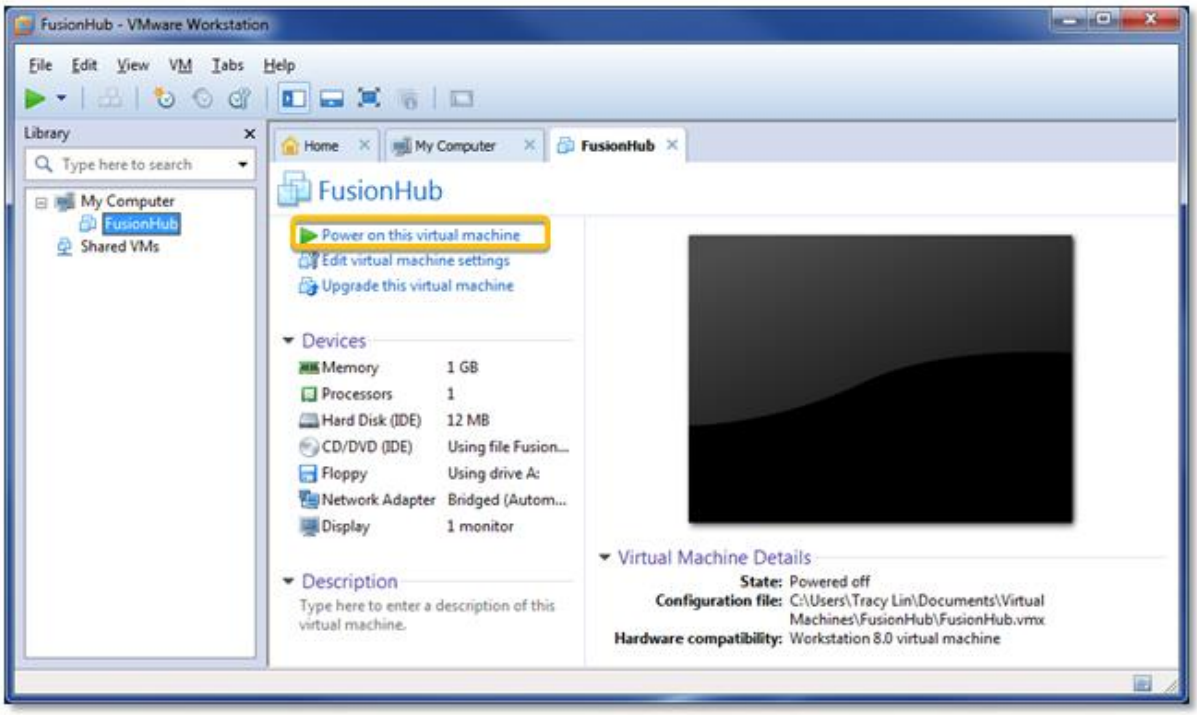


12. When the **Automatic Bridging Settings** dialog opens, select the host network adapter you want to automatically bridge and click **OK**.

13. Click **OK** to finish adding hardware.



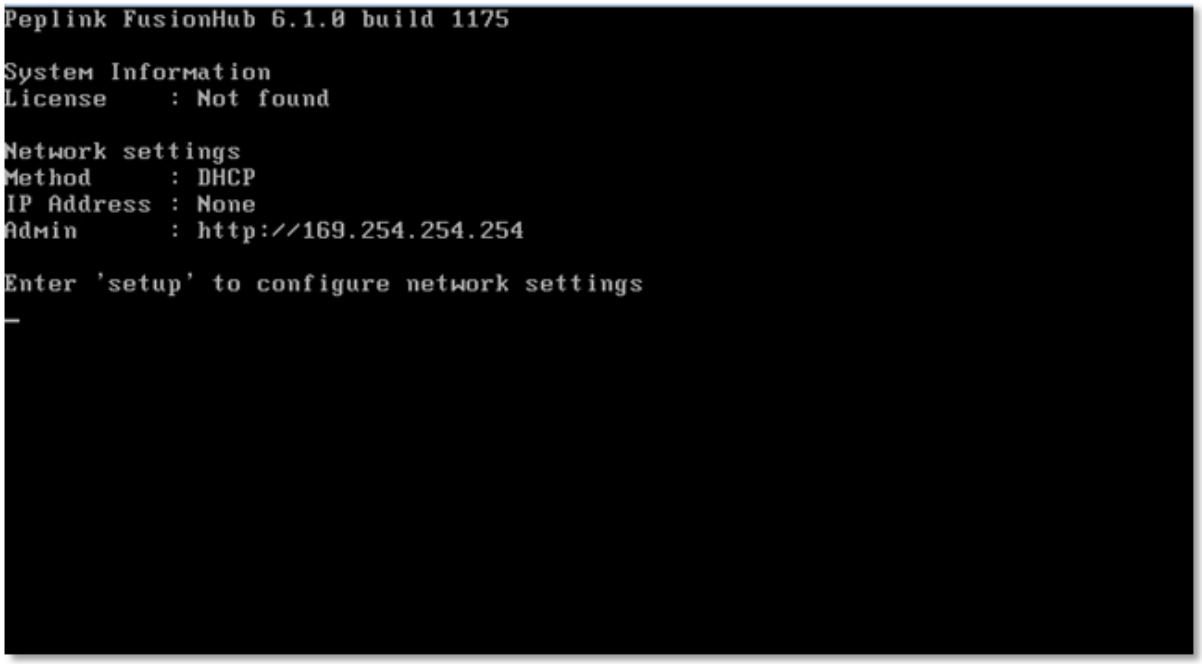
14. Click Power on this virtual machine to run FusionHub.



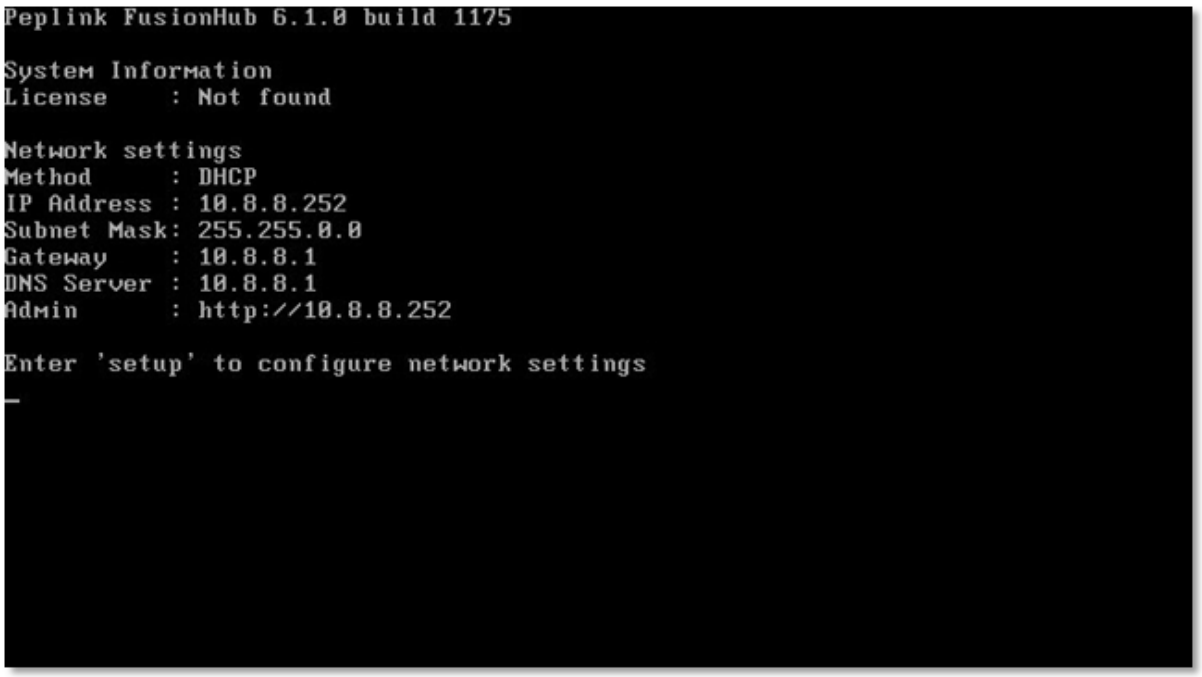
15. The FusionHub console opens automatically and displays the following general information about FusionHub:

- FusionHub version
- System information
- Network settings:

Method: DHCP
IP Address: None
Admin: http://169.254.254.254



16. The default WAN connection method is DHCP. If the DHCP server is available on your network, the IP address of FusionHub will be automatically obtained by DHCP server. In this case, the console will look similar to the following:

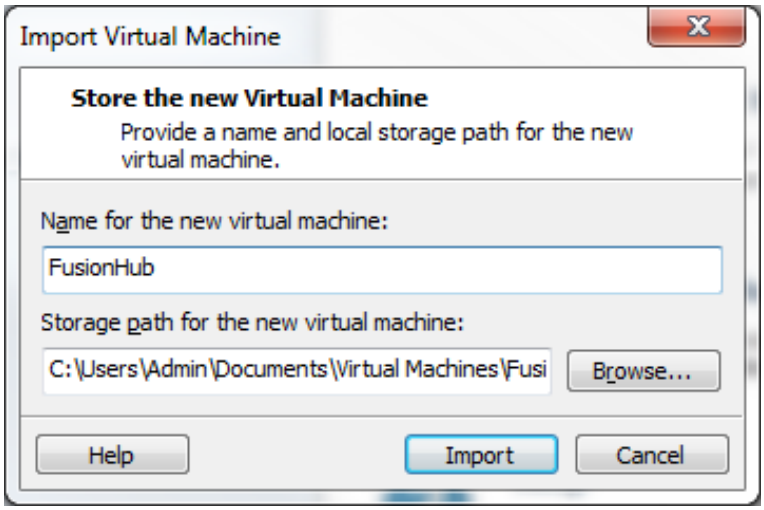


Please navigate to **FusionHub Interface Configuration** to continue your installation.

4.3 VMware Player

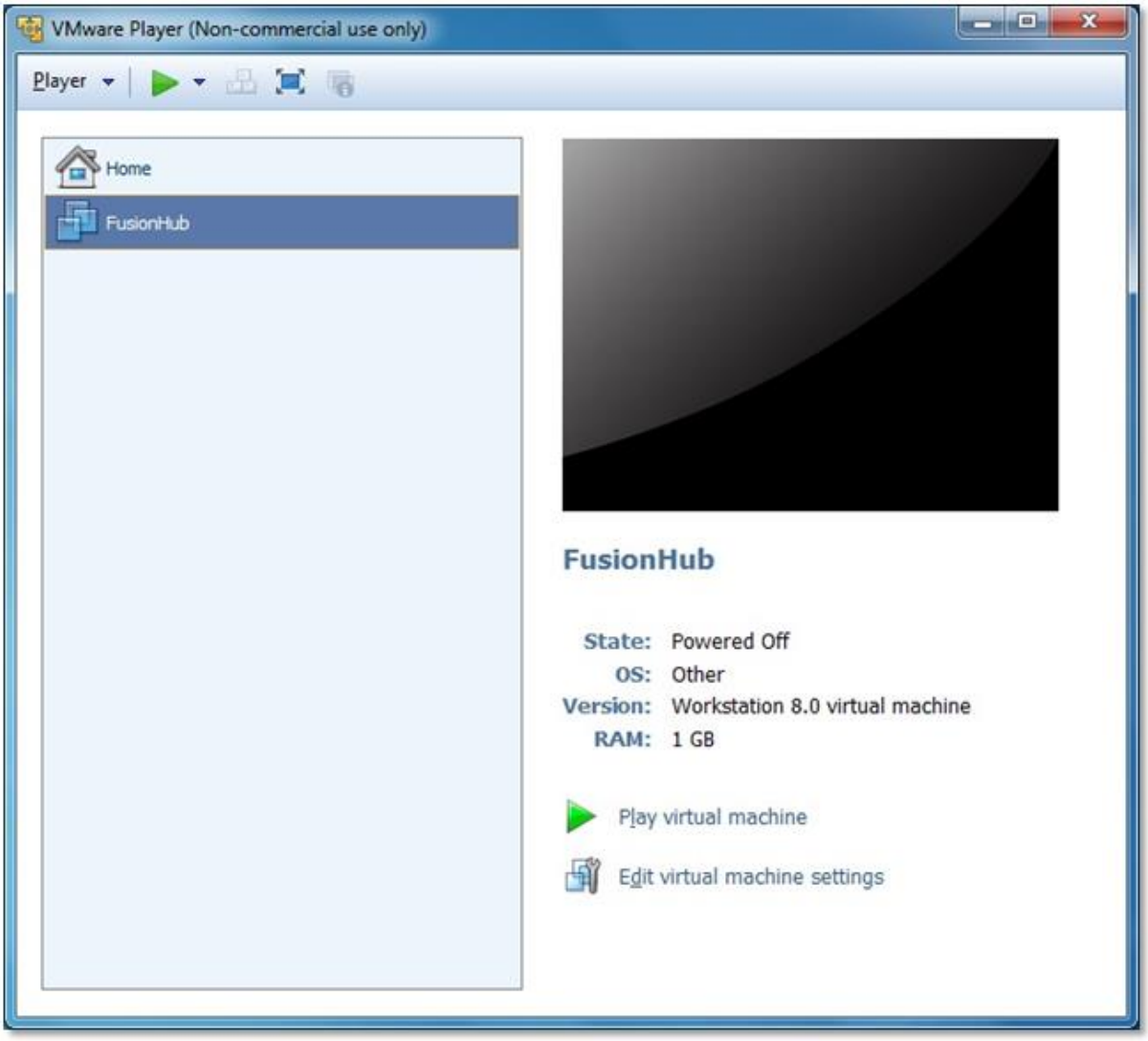
1. Download VMware Player 6.0 from **https://my.vmware.com/web/vmware/free#desktop_end_user_computing/vmware_player/6_0** and install it.
2. Open **VMware Player** and install FusionHub.
3. Click **Open a Virtual Machine** to import the FusionHub.ova template downloaded from InControl 2.

4. On the Store the new Virtual Machine dialog, type a name for the new virtual machine (i.e., FusionHub) and select the storage path. Please note that the storage path for this FusionHub virtual machine should not be the same as that for the downloaded FusionHub OVF template file. Click Import.

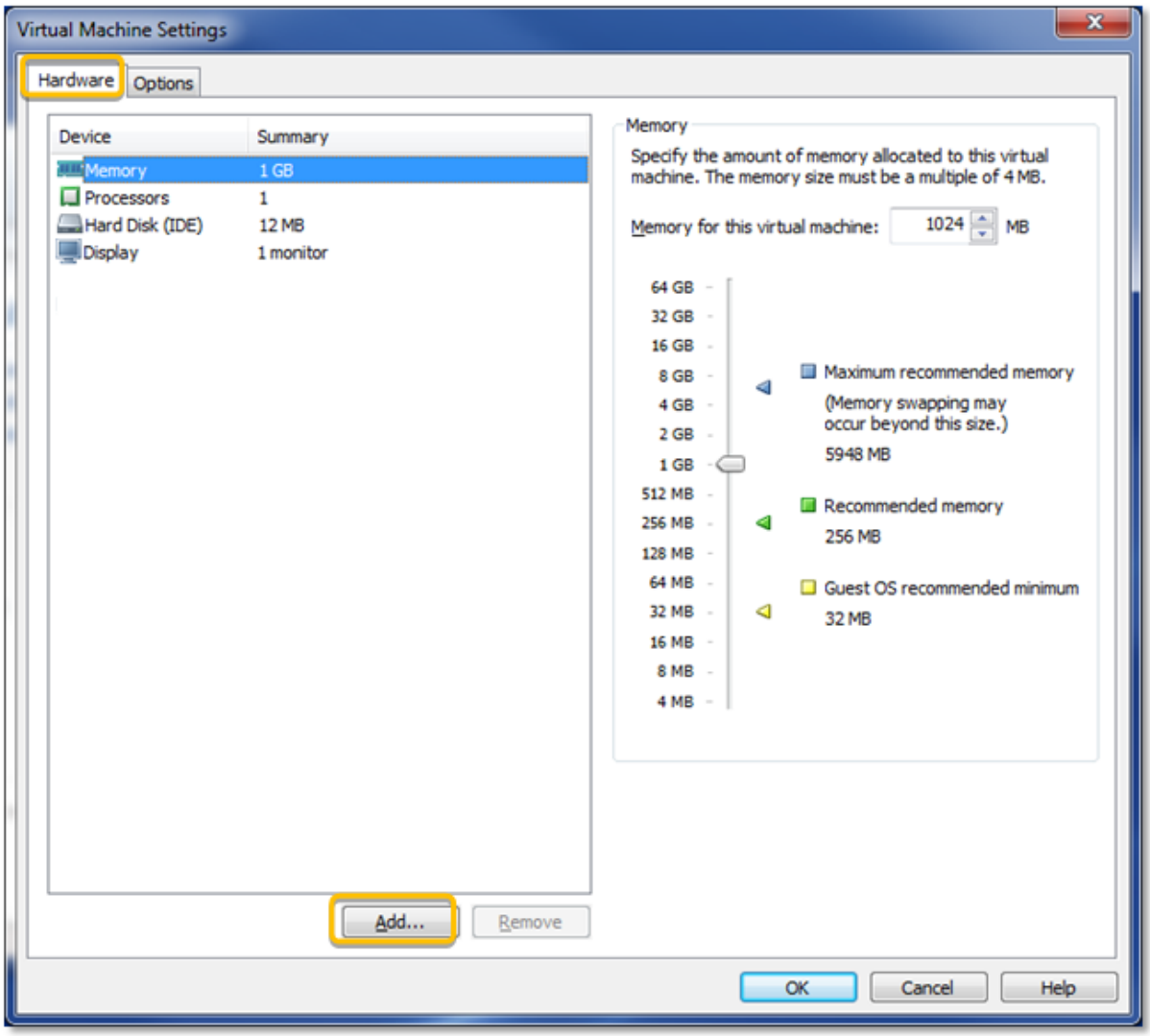


5. After successful import, a FusionHub virtual machine is created.

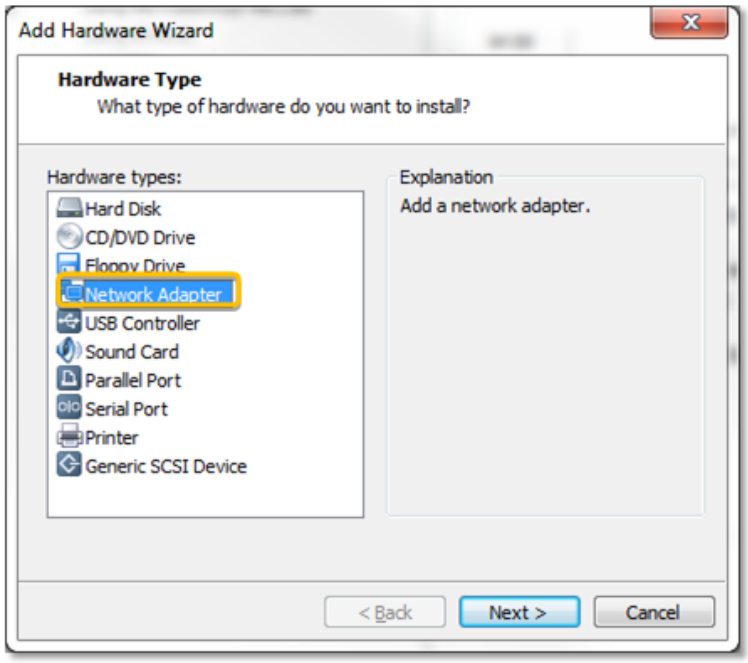
6. Click **FusionHub** in the column on the left side of the dialog to select the virtual machine. Click **Edit virtual machine settings** to begin adding an Ethernet adapter to the FusionHub virtual machine.



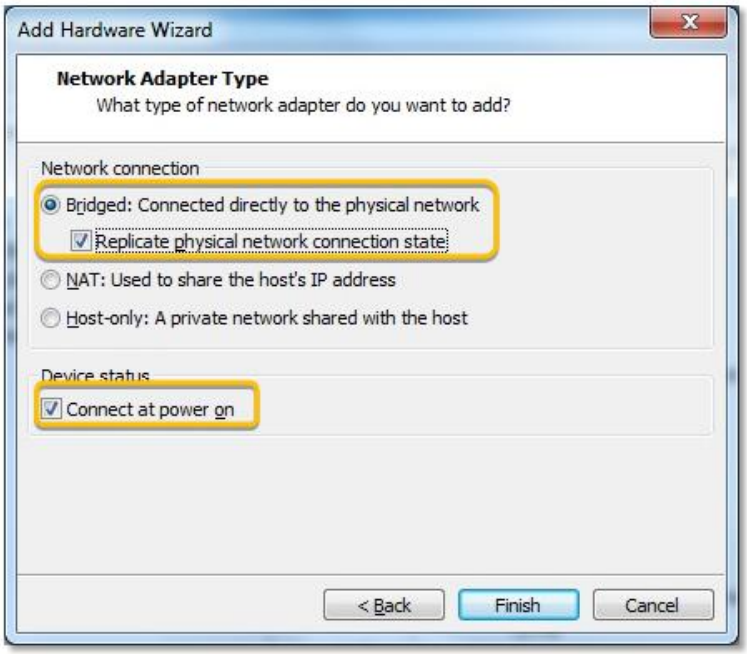
7. Click **Add**, found under the **Hardware** tab on the **Virtual Machine Settings** dialog.



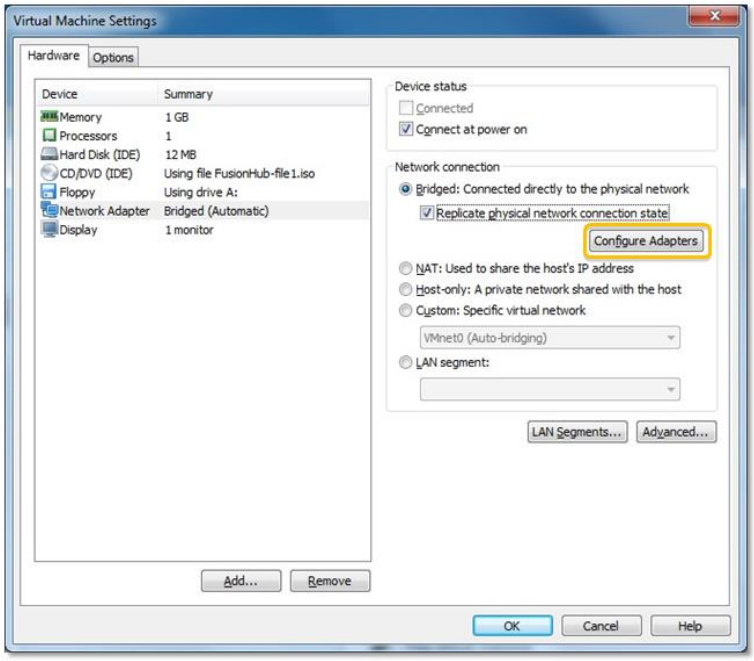
8. On the Add Hardware Wizard dialog, select Network Adapter. Click Next.



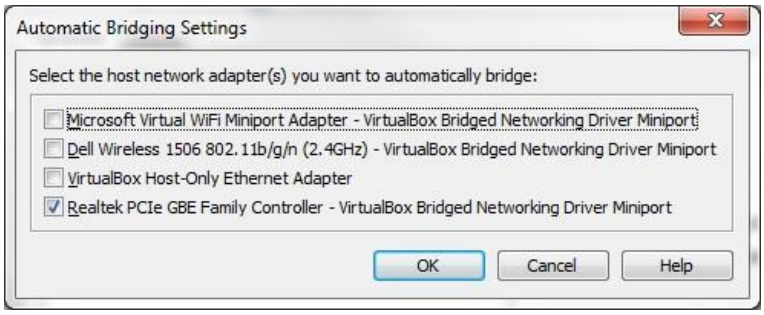
9. On the Network Adapter Type dialog, select Bridged: Connected directly to the physical network and Replicate physical network connection state. Check Connect at power on and click Finish.



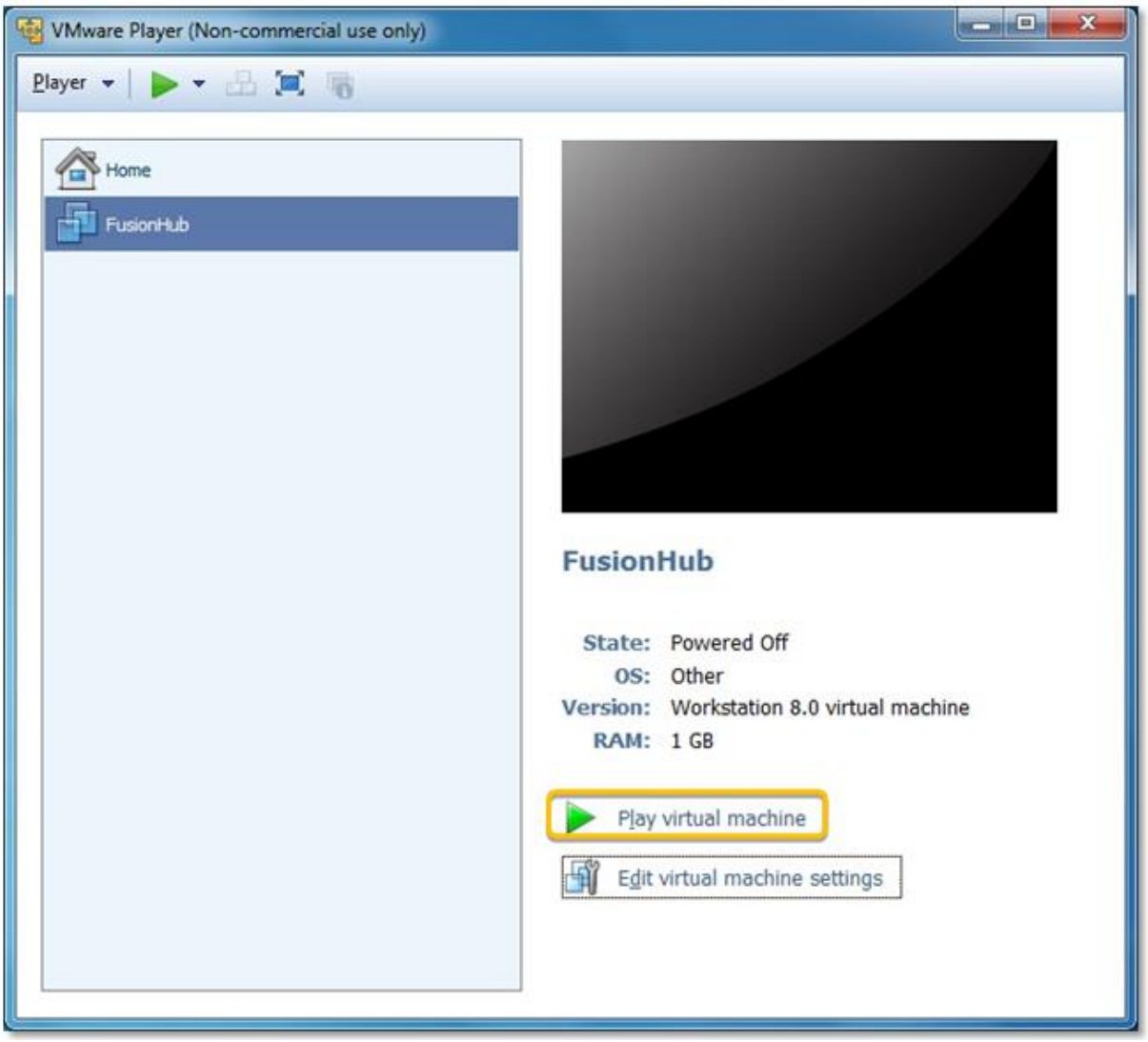
10. Click **Configure Adapters** to select the host network adapter.



11. On the **Automatic Bridging Settings** dialog, select the host network which you want to automatically bridge. Click **OK** to finish adding hardware.



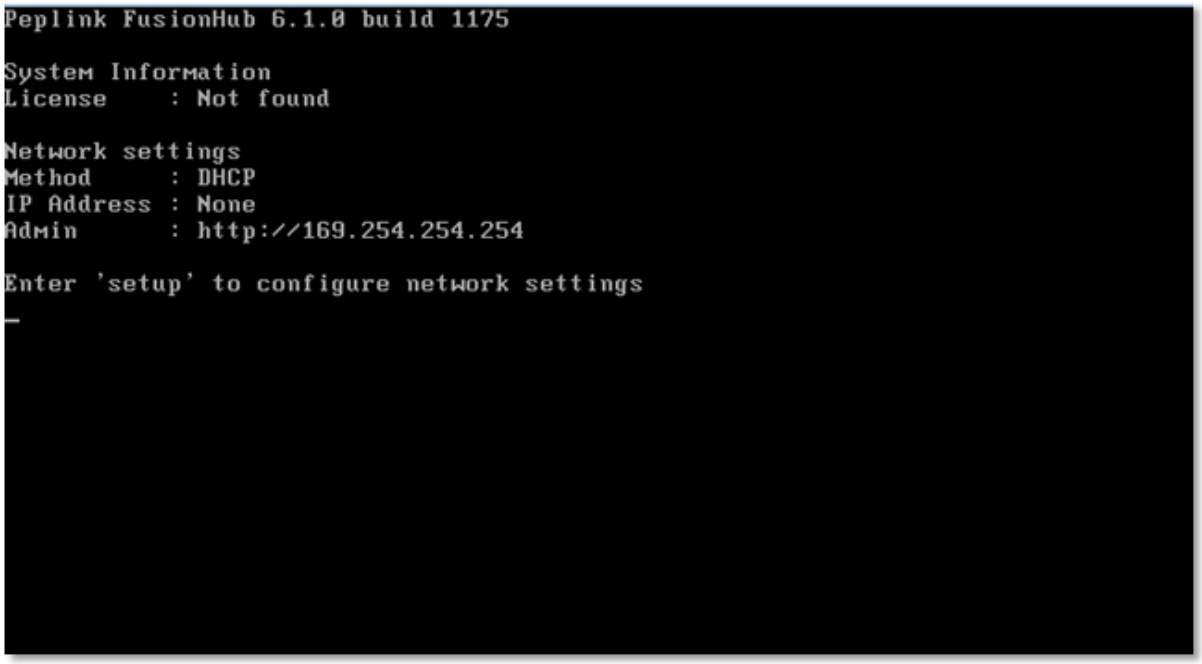
12. Click **Play virtual machine** to run FusionHub.



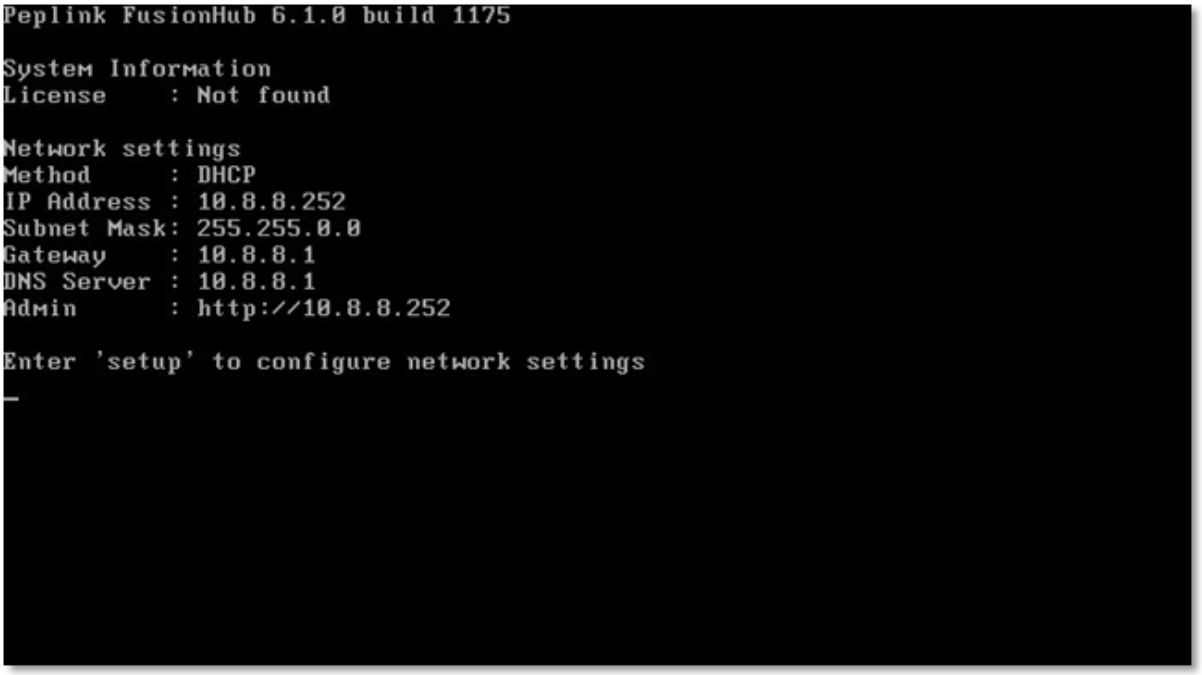
13. The FusionHub console opens automatically and displays the following general information about FusionHub:

- FusionHub version
- System information
- Network settings:

Method: DHCP
IP Address: None
Admin: http://169.254.254.254



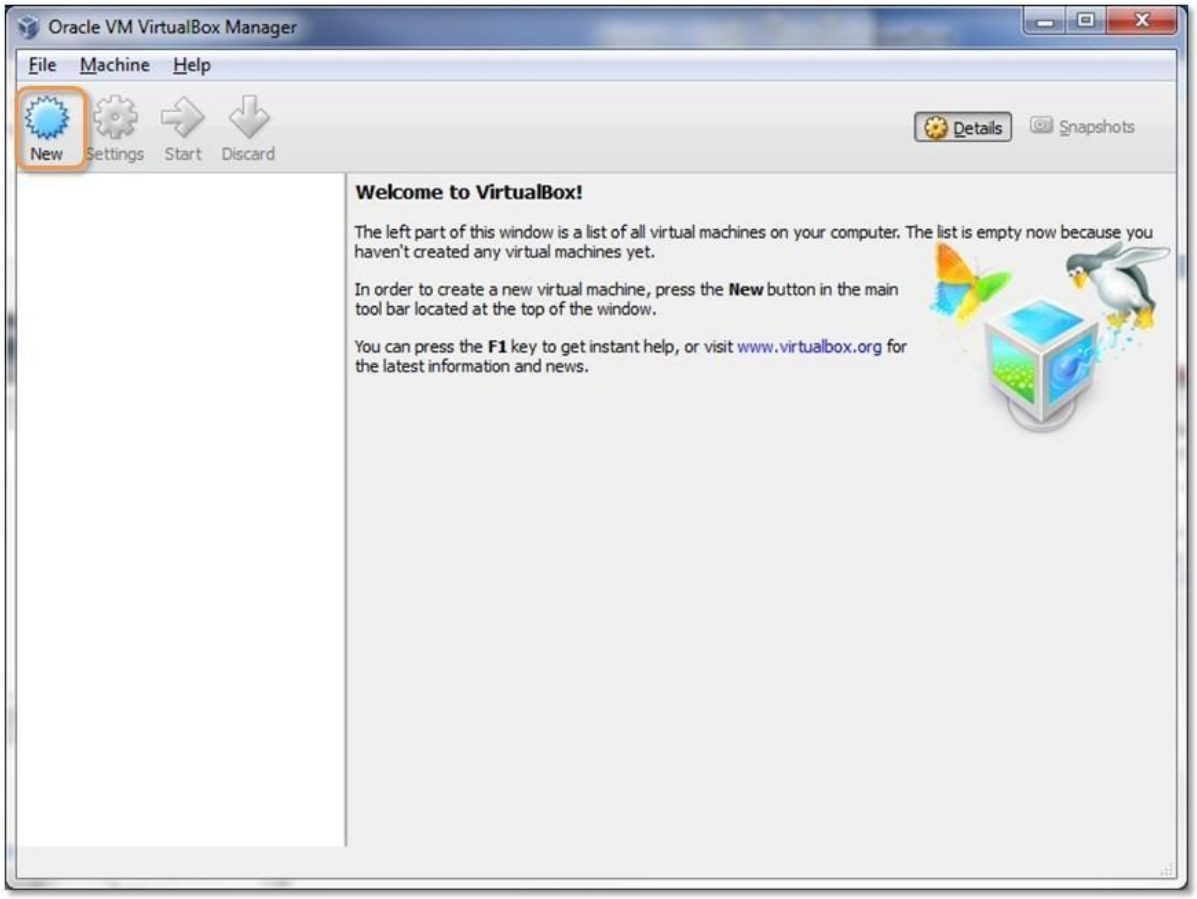
14. The default WAN connection method is DHCP. If the DHCP server is available on your network, the FusionHub IP address will be automatically obtained by the DHCP server. In this case, the console looks similar to the following:



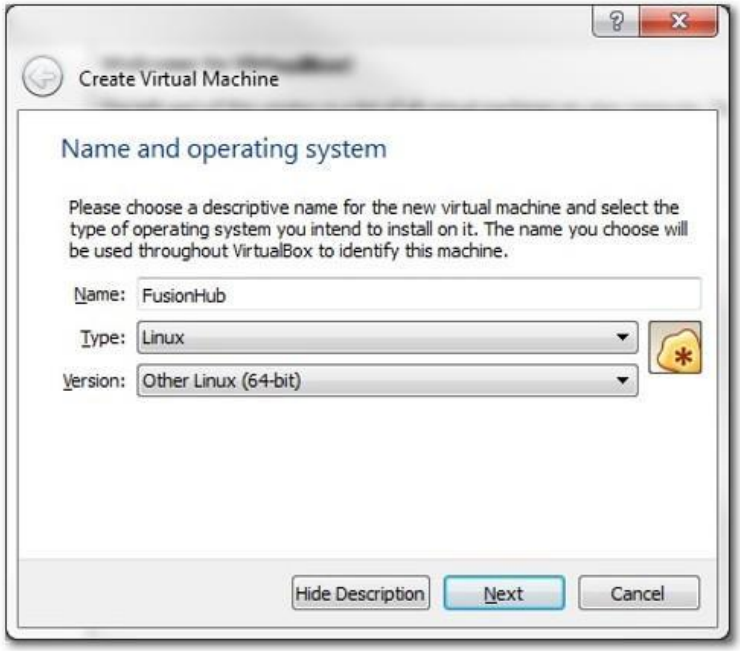
Please navigate to **FusionHub Interface Configuration** to continue your installation.

4.4 Oracle VirtualBox

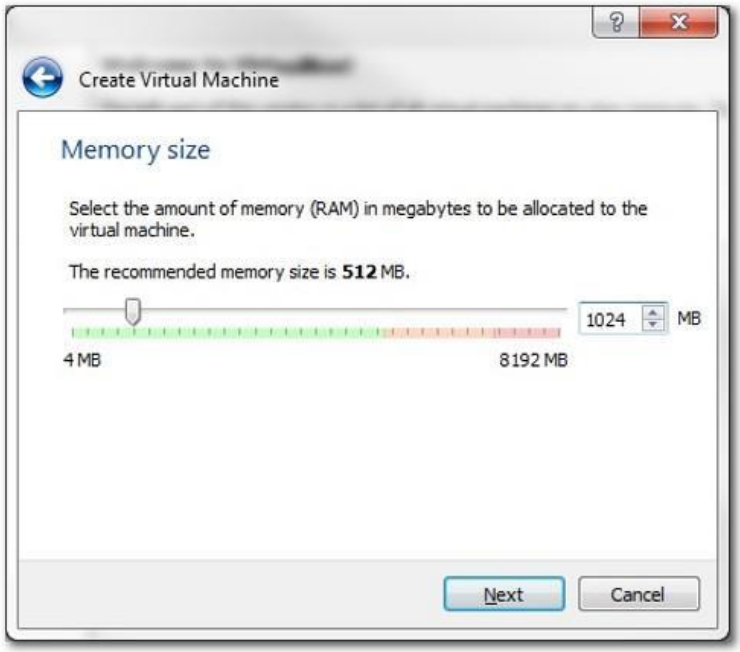
1. Download VirtualBox from **https://www.virtualbox.org/wiki/Downloads** and install it.
2. Open **VirtualBox**. Click **New** to create a virtual machine for FusionHub.



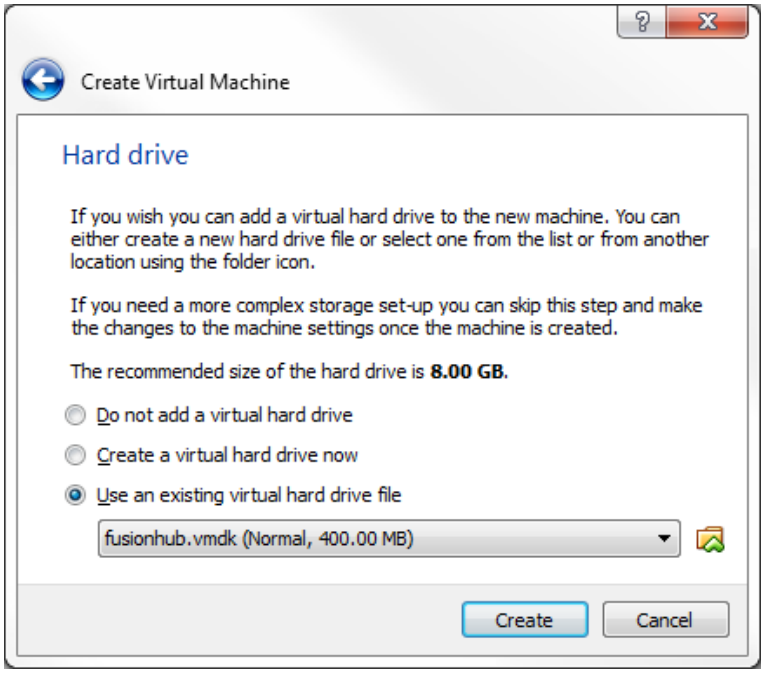
3. On the **Create Virtual Machine** dialog, specify a **Name** for the virtual machine. Select **Linux** from the **Type** drop-down menu. Select **Other Linux (64-bit)** from the **Version** drop-down menu. Click **Next** to continue.



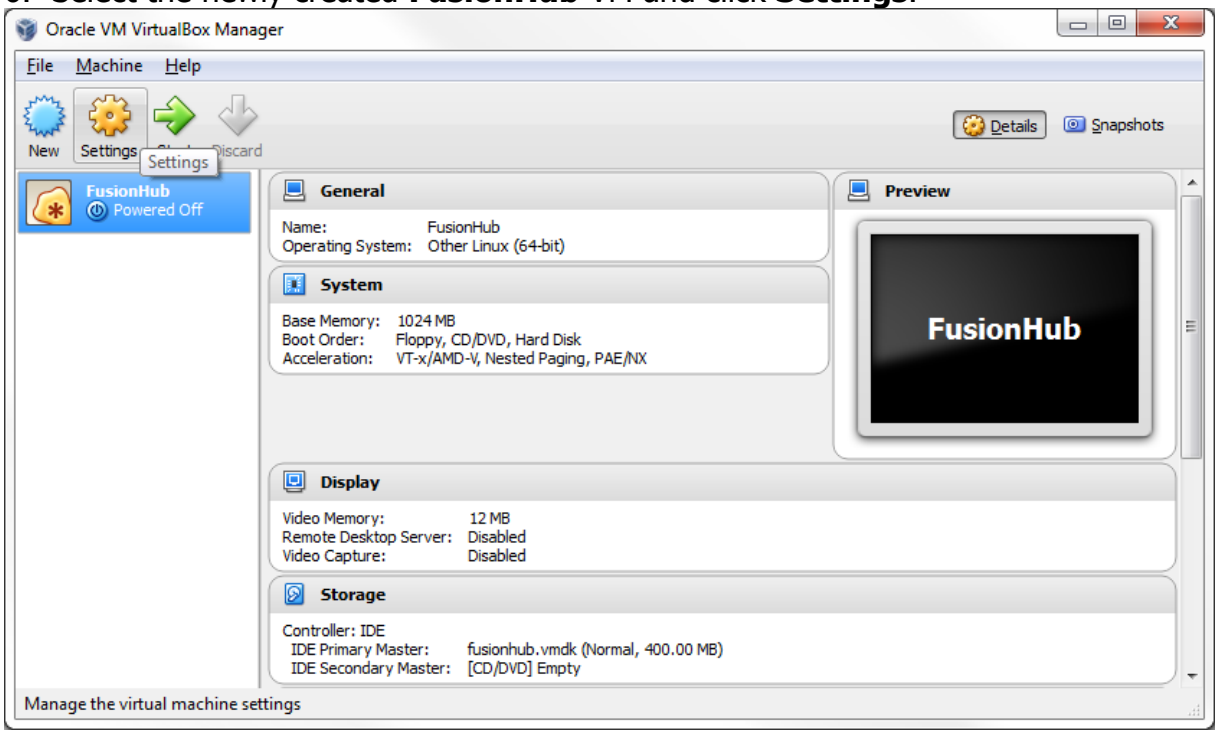
4. Set the memory size to **1024MB**. Click **Next**.



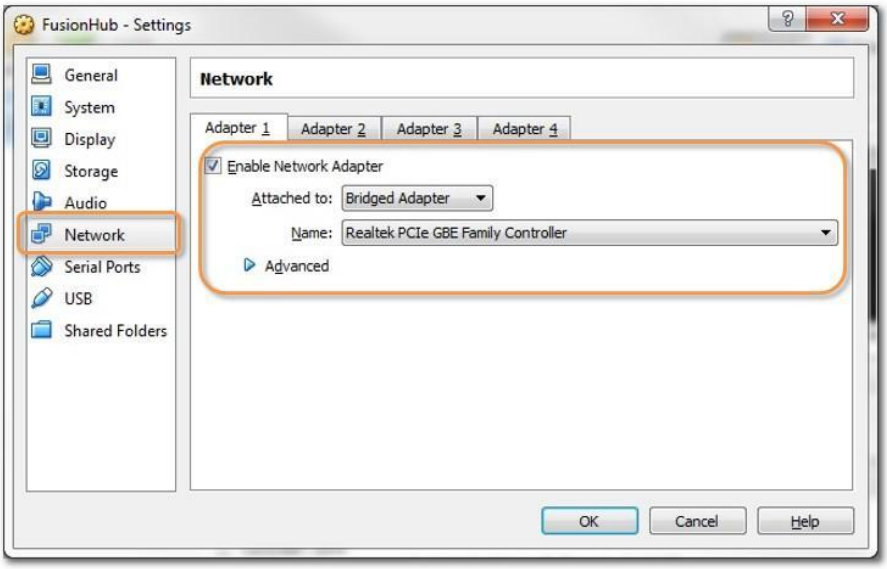
5. Click **Use an existing virtual hard drive file**. Select the **fusionhub.vmdk** file downloaded from InControl 2. Click **Create** to create a virtual machine.



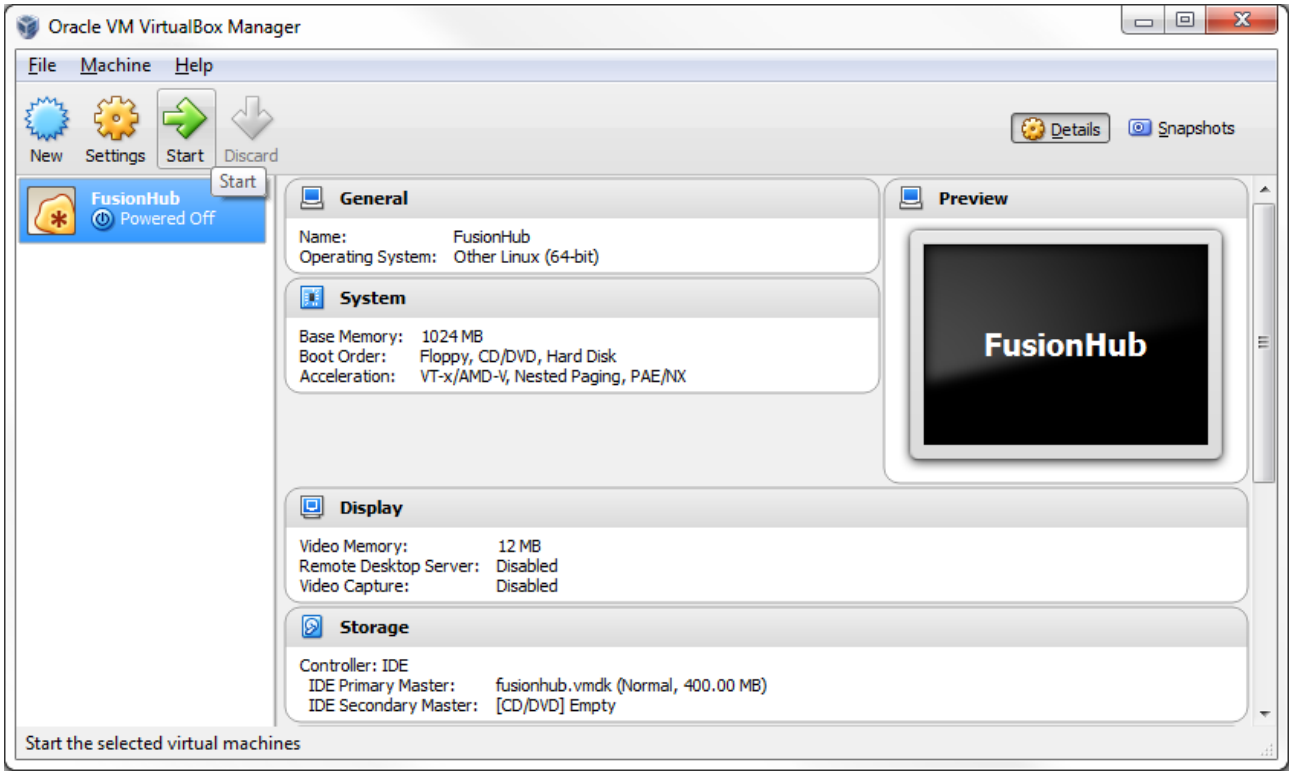
6. Select the newly created **FusionHub** VM and click **Settings**.



7. On the **FusionHub - Settings** dialog, click **Network**. Select the **Adapter 1** tab. Click **Enable Network Adapter** and select **Bridged Adapter** from the **Attached to:** drop-down menu. Select a proper adapter from the **Name** drop-down menu. Click **OK** to continue.



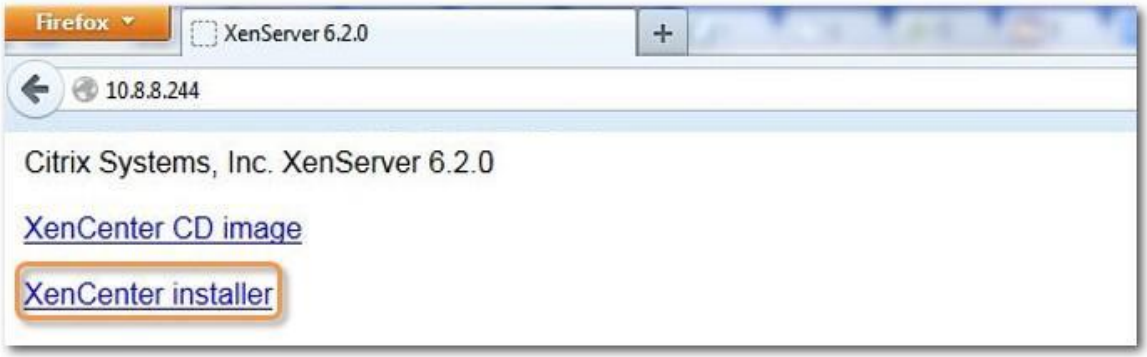
8. Select the **FusionHub** VM. Click **Start** to run FusionHub.



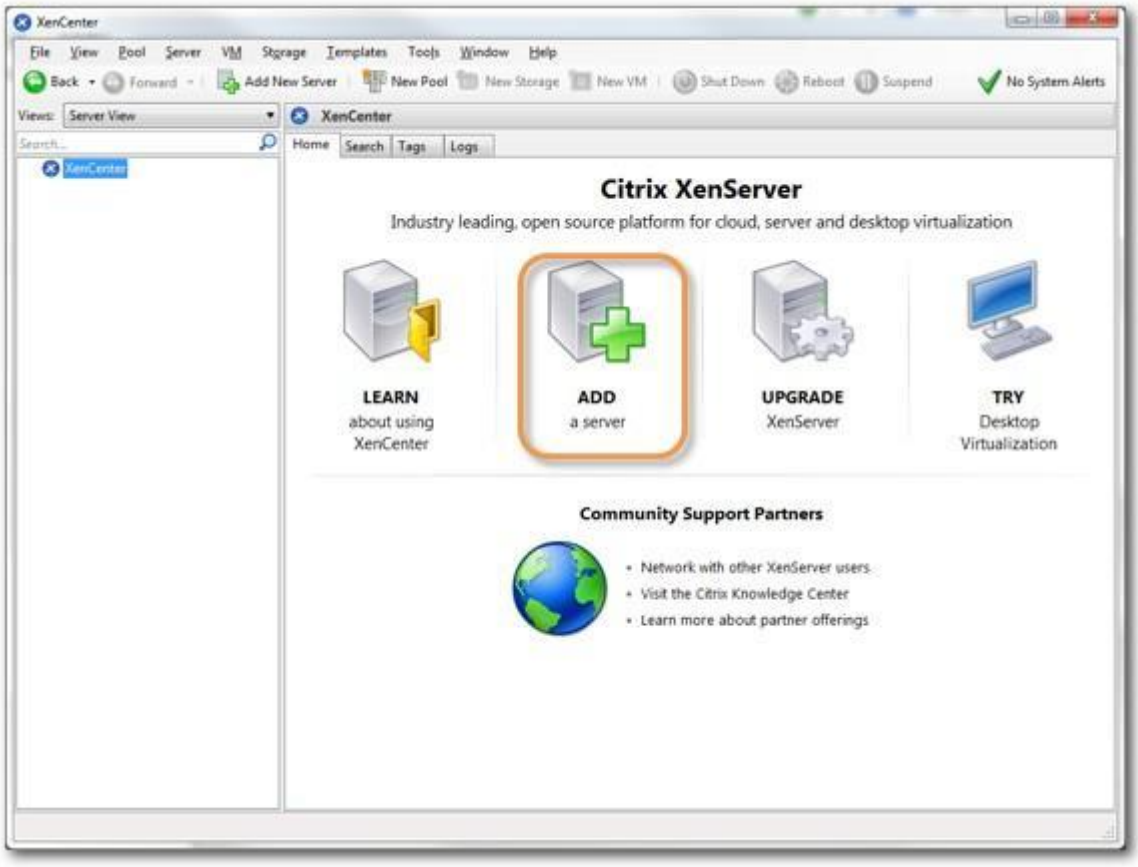
Please navigate to **FusionHub Interface Configuration** to continue your installation.

4.5 Citrix XenServer

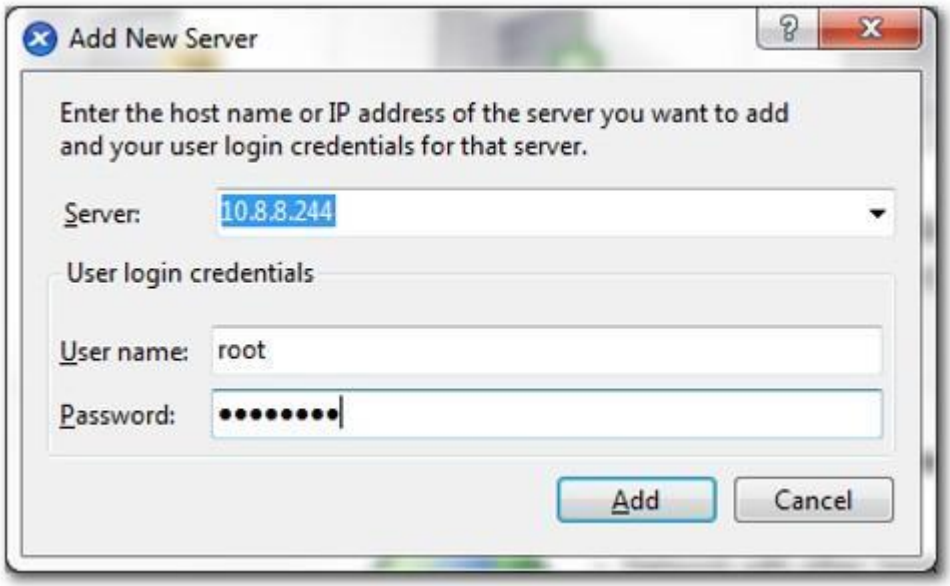
1. Download and install the **XenCenter installer** from your XenCenter server.



2. Open XenCenter. Click ADD a server.

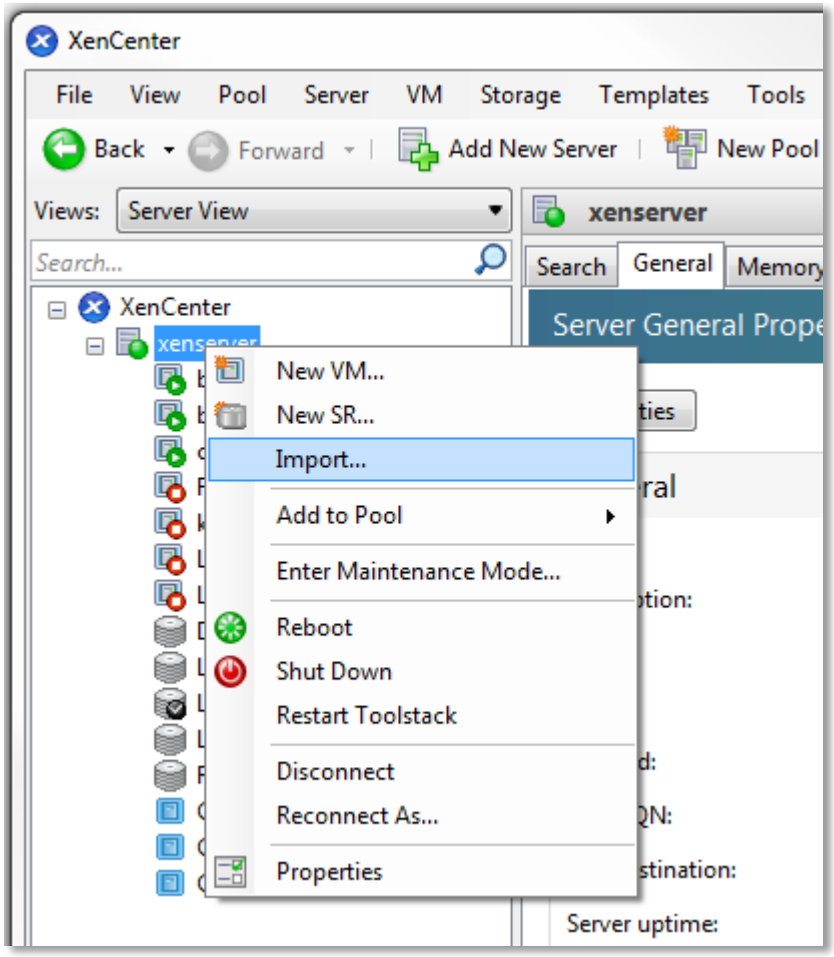


3. On the **Add New Server** dialog, enter the appropriate **Server** IP address/name, **User name**, and **Password**. Click **Add** to add the XenServer.

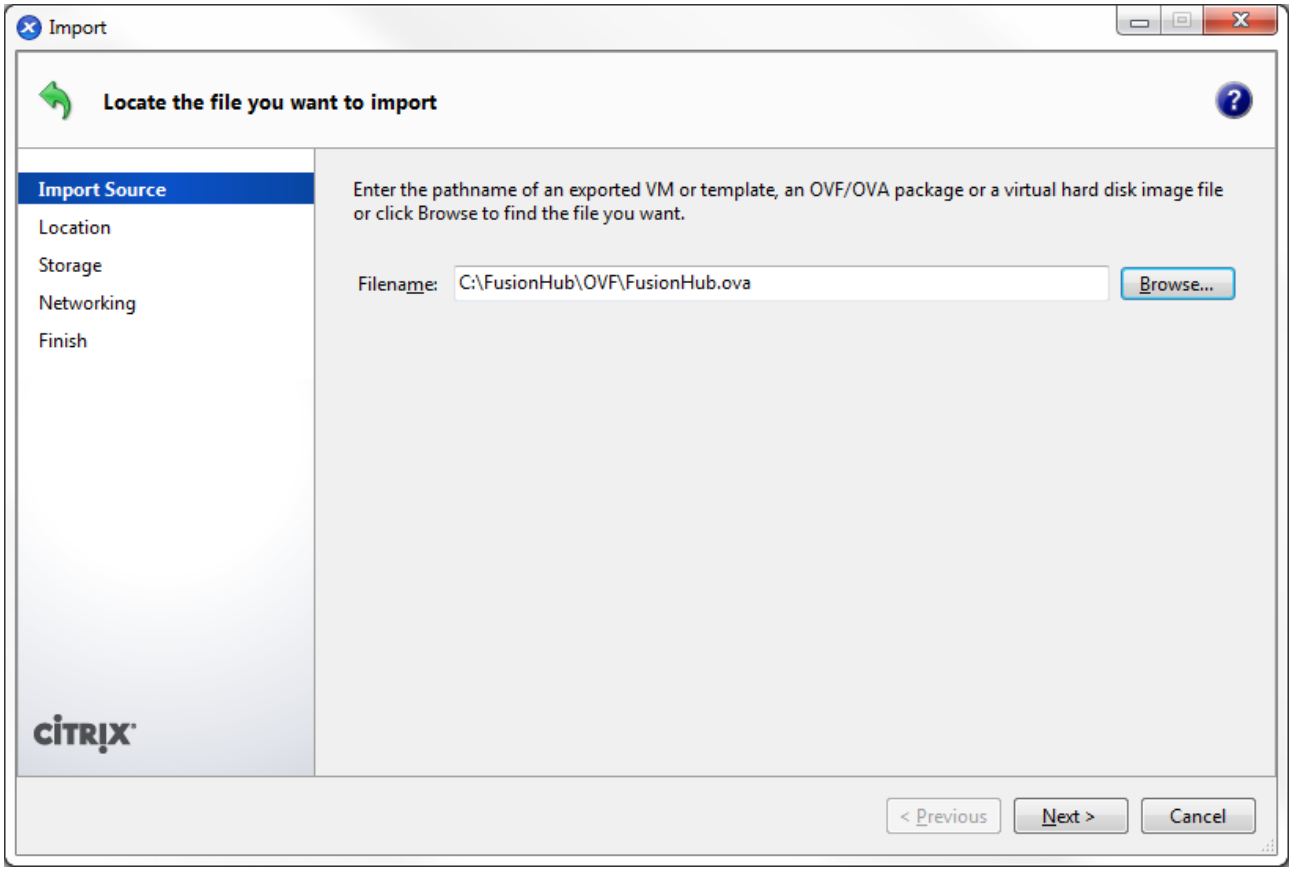


4. Enable E1000 gigabit device emulation in Citrix XenServer to take advantage of FusionHub's support for E1000 gigabit devices. For details, please refer to: http://www.netservers.co.uk/articles/open-source-howtos/citrix_e1000_gigabit

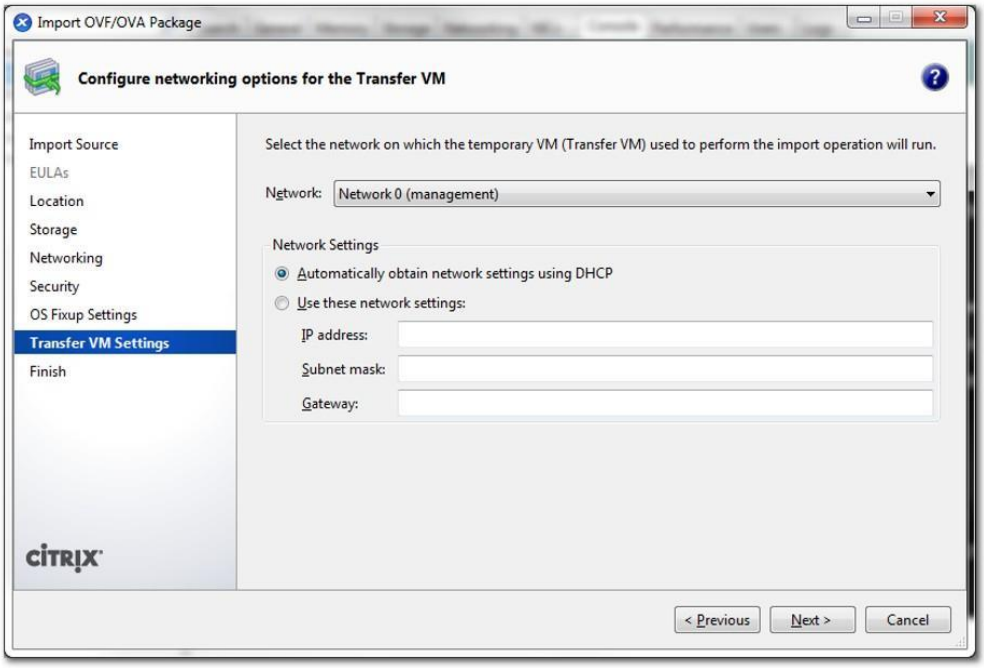
5. Right-click the XenServer and select **Import** to begin importing the OVA file to this XenServer.



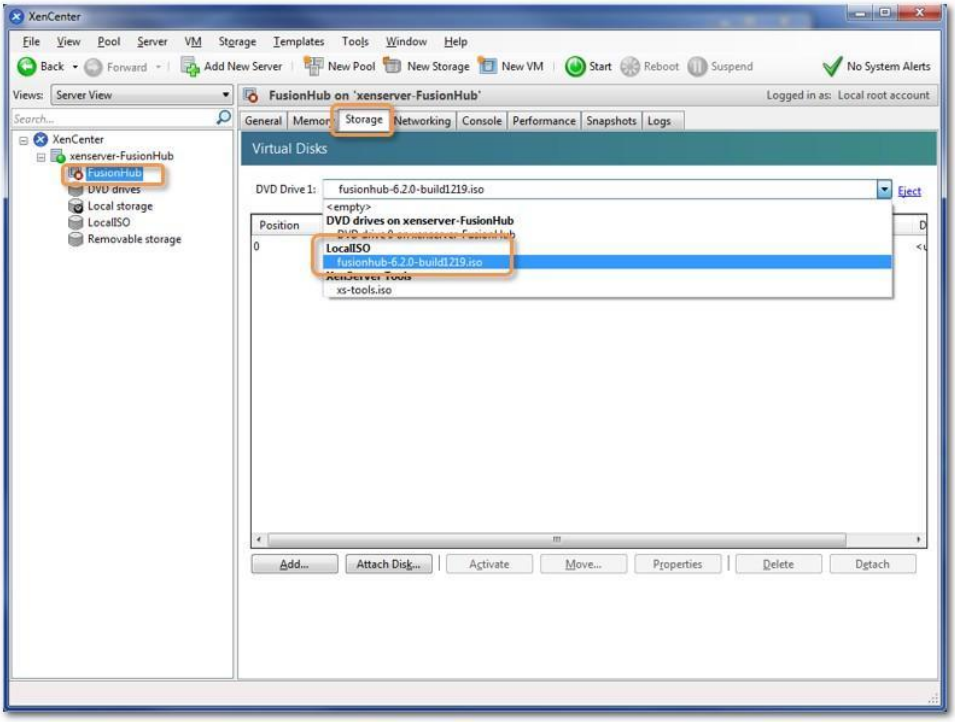
6. On the **Import** dialog, select the **FusionHub.ova** file downloaded from InControl 2.



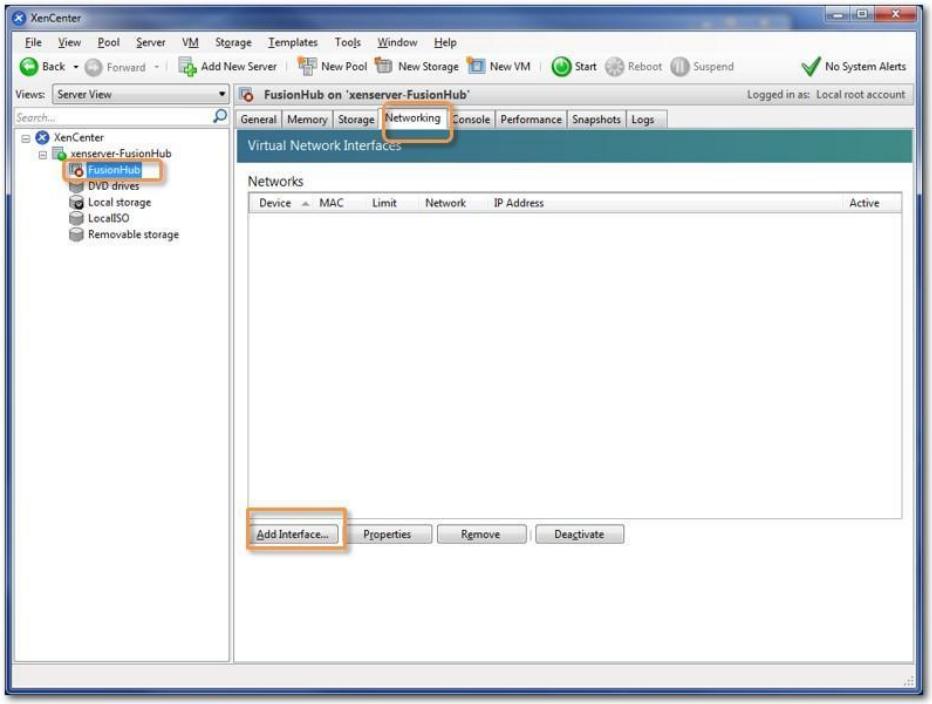
7. Click **Next** to keep the default settings and display the **Configure networking options for the Transfer VM** dialog. Select an appropriate network on which the temporary VM used to perform the import operation will run. Click **Next**. Click **Finish** to import the OVF file.



8. Click **FusionHub -> Networking -> Add Interface** to add a network interface.

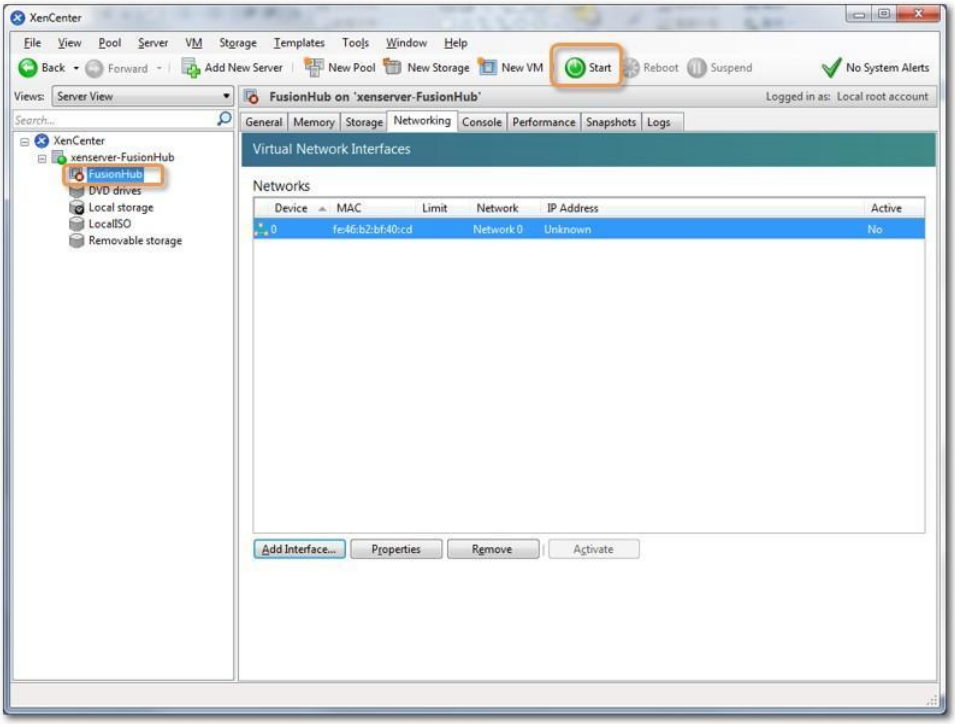


8. Click **FusionHub** -> **Networking** -> **Add Interface** to add a network interface.

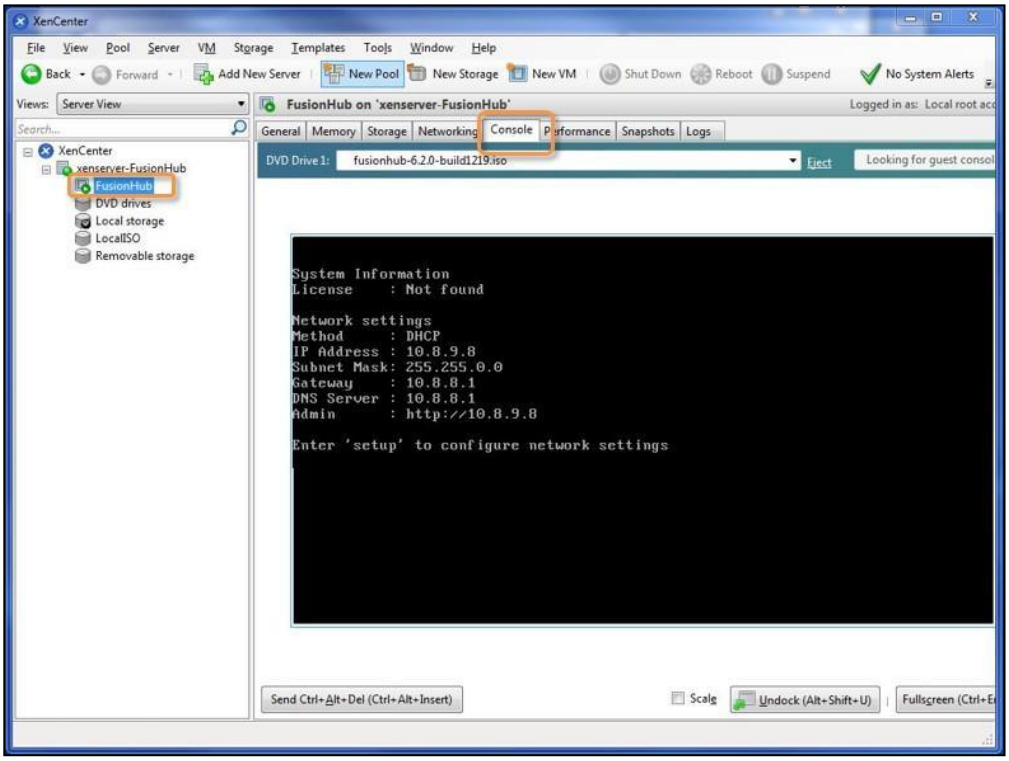


9. On the **Add Virtual Interface** dialog, select the network and click **Add**.

10. Click **FusionHub** -> **Start** to run this FusionHub virtual machine.



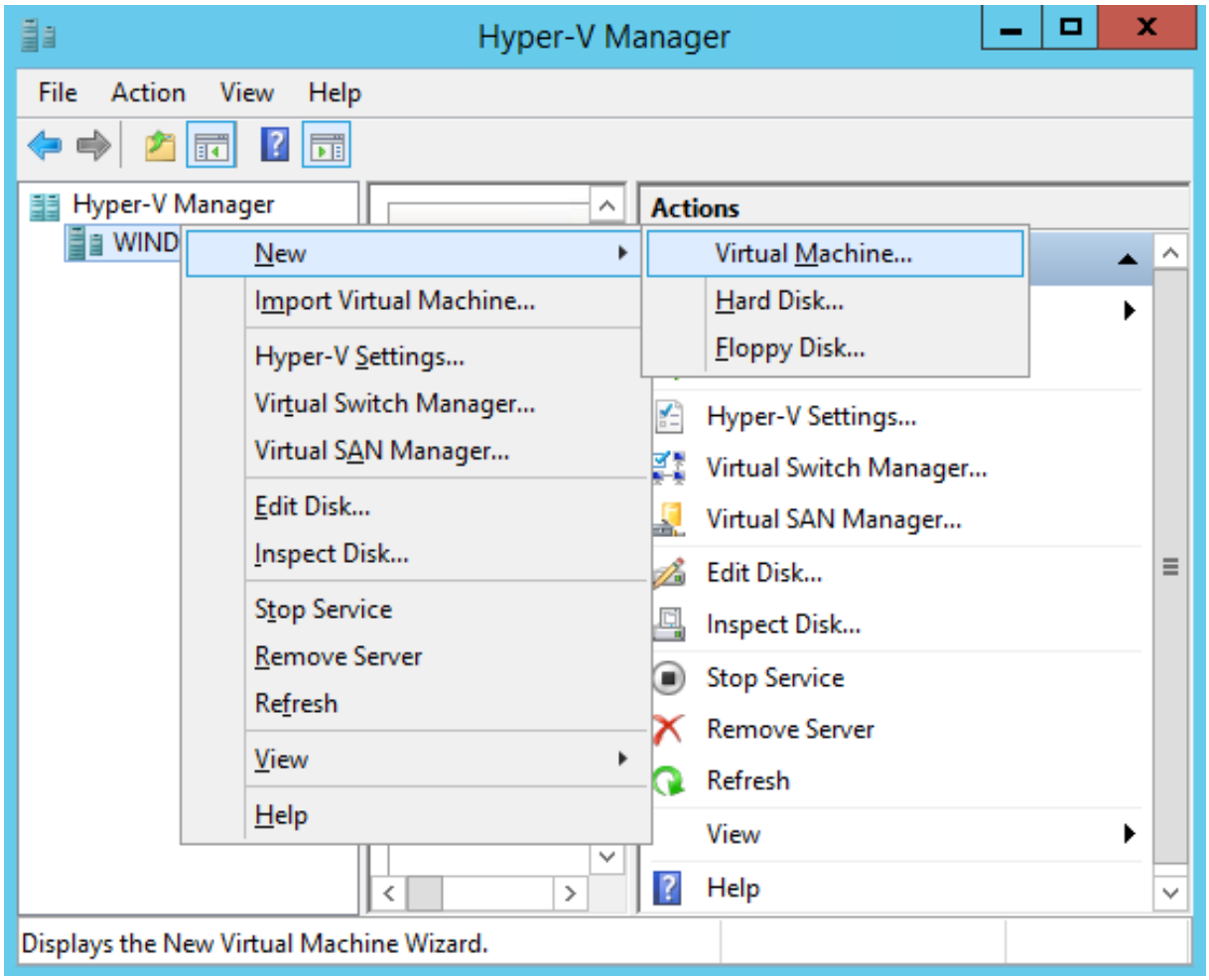
11. Click **FusionHub** -> **Console** to open the console.



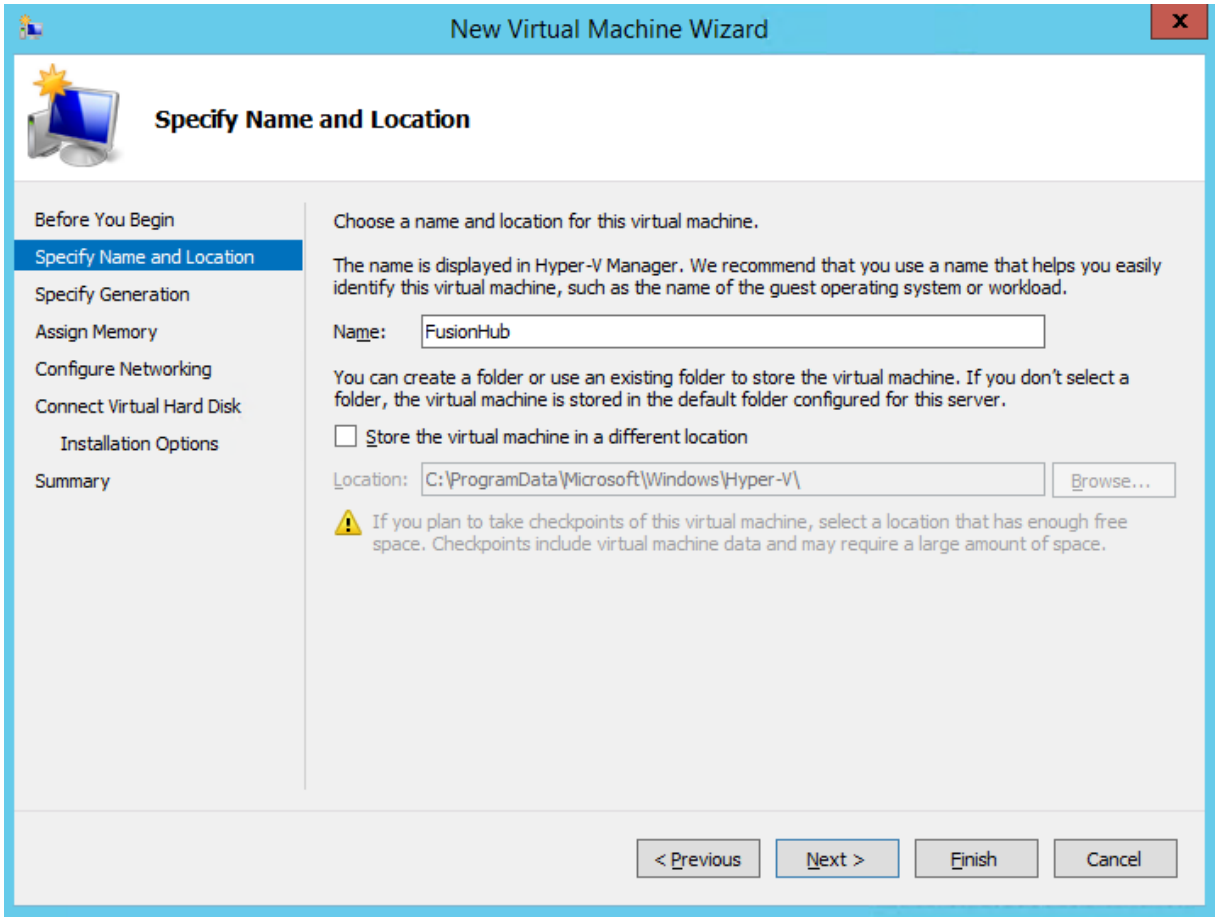
Please navigate to **FusionHub Interface Configuration** to continue your installation.

4.6 Microsoft Hyper-V

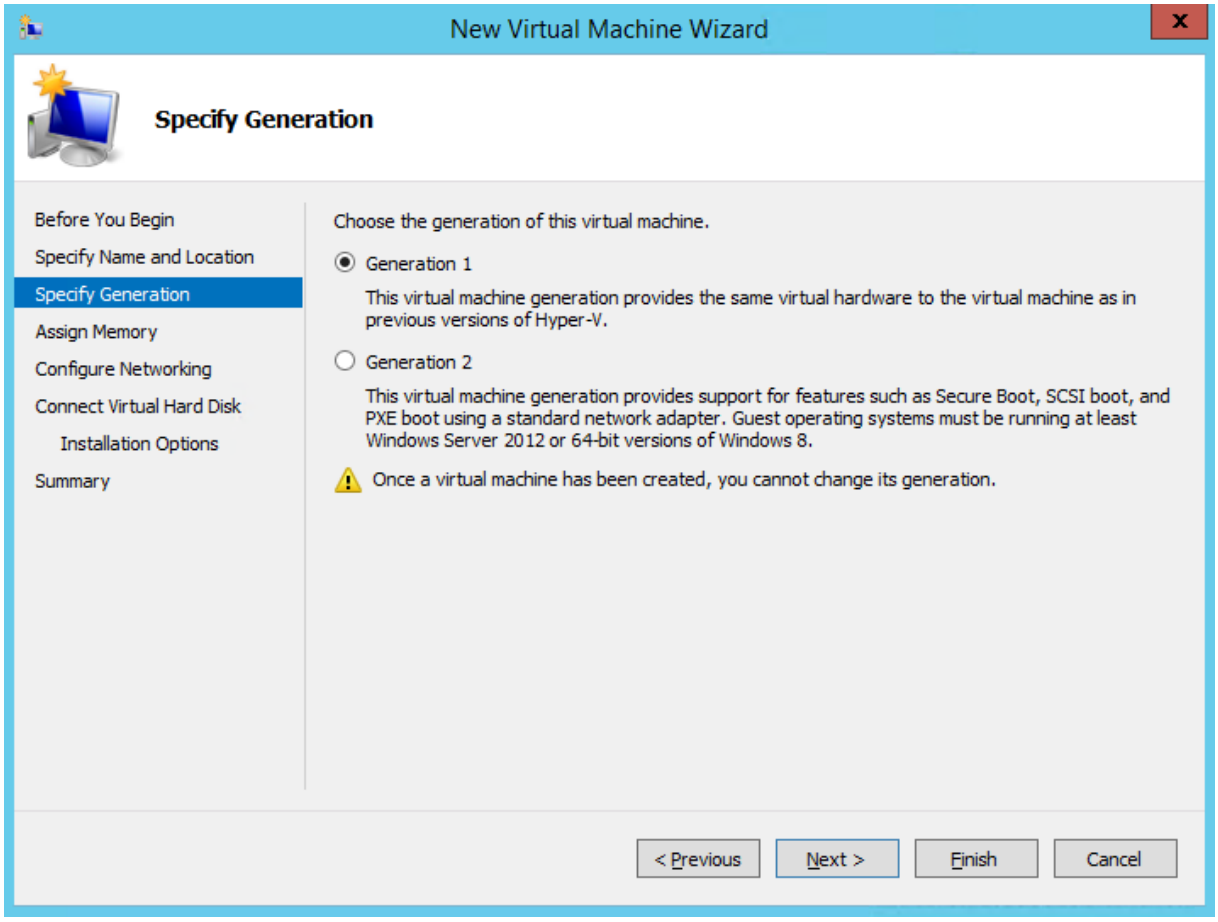
1. Open Hyper-V and install FusionHub, click **New** -> **Virtual Machine** to create a virtual machine for FusionHub.



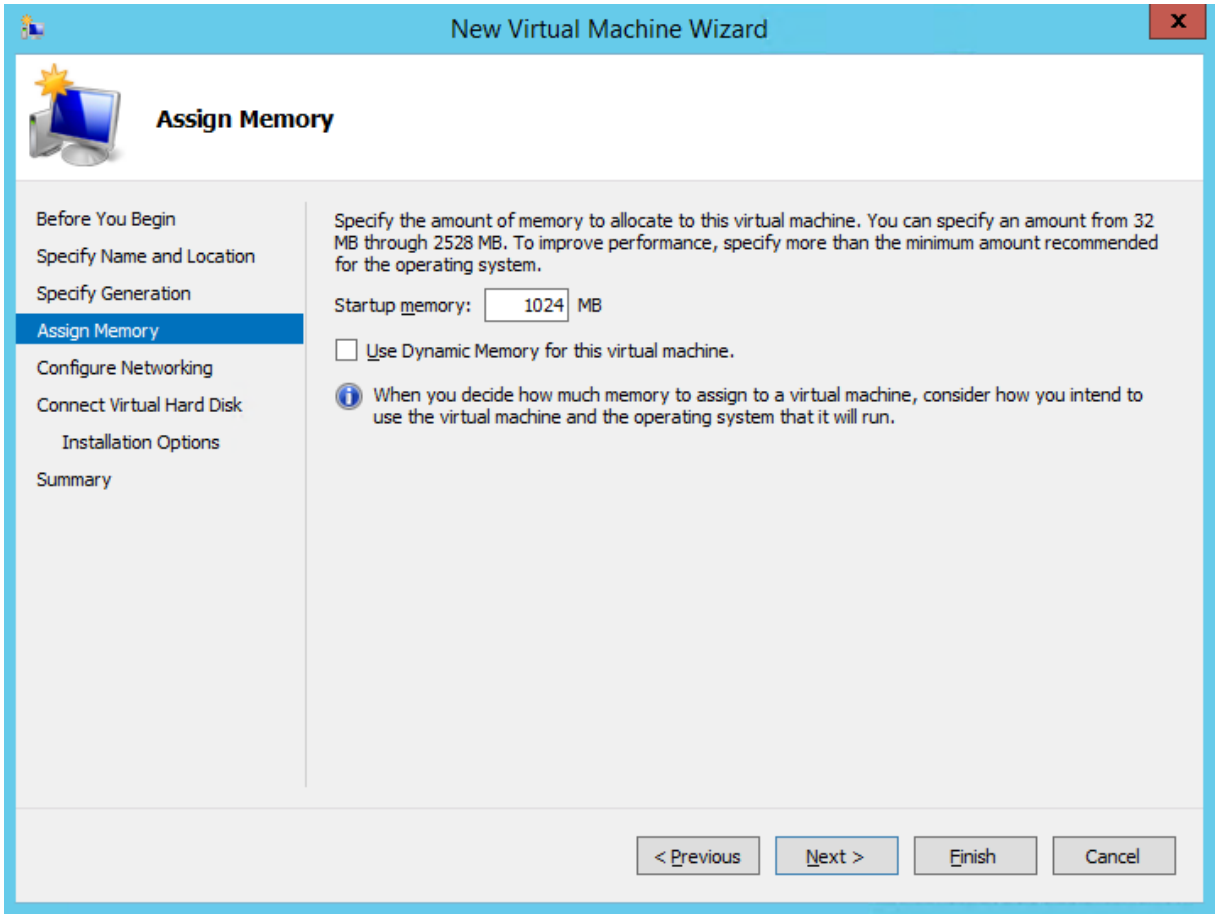
2. On the **Specify Name and Location** dialog, specify a name for the virtual machine. Click **Next**.



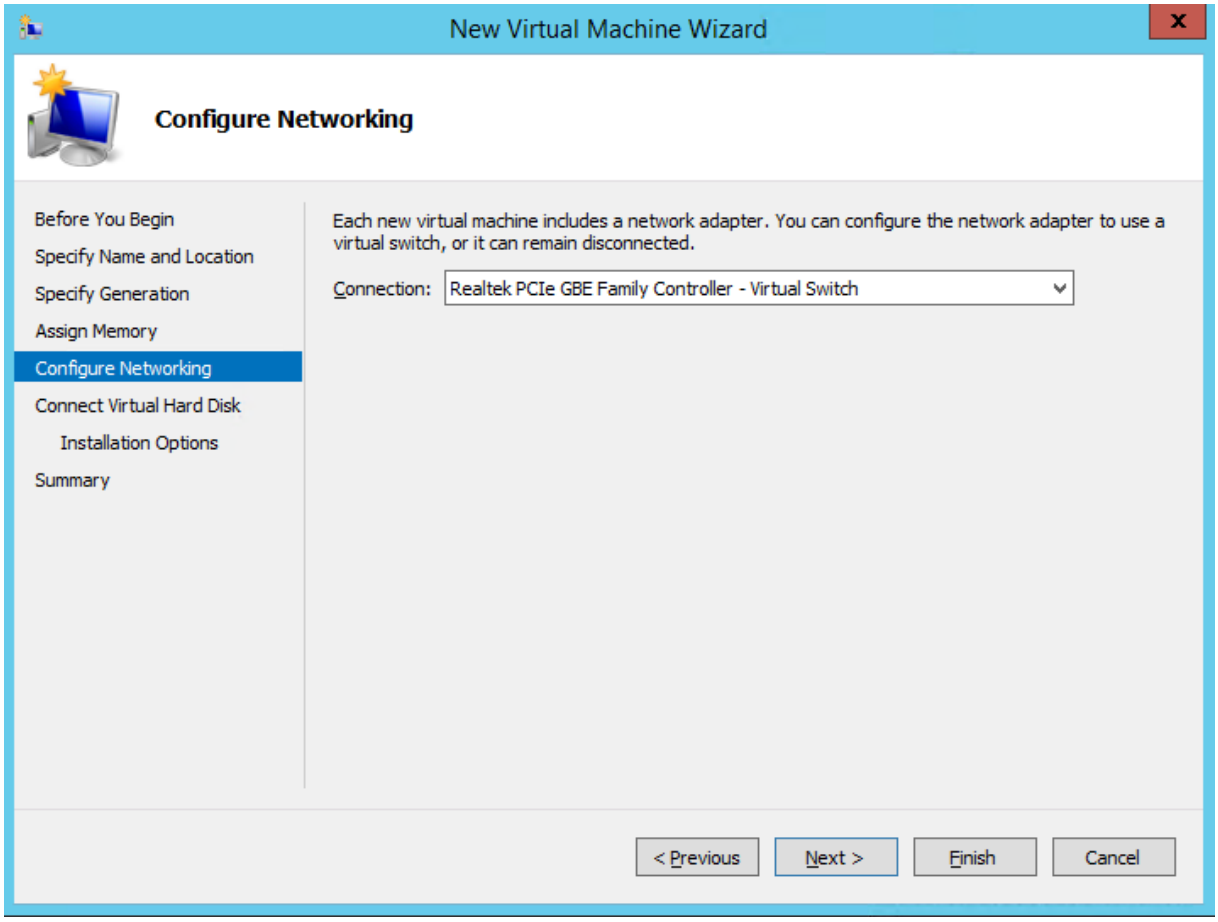
3. On the **Specify Generation** dialog, choose **Generation 1**. Click **Next**.



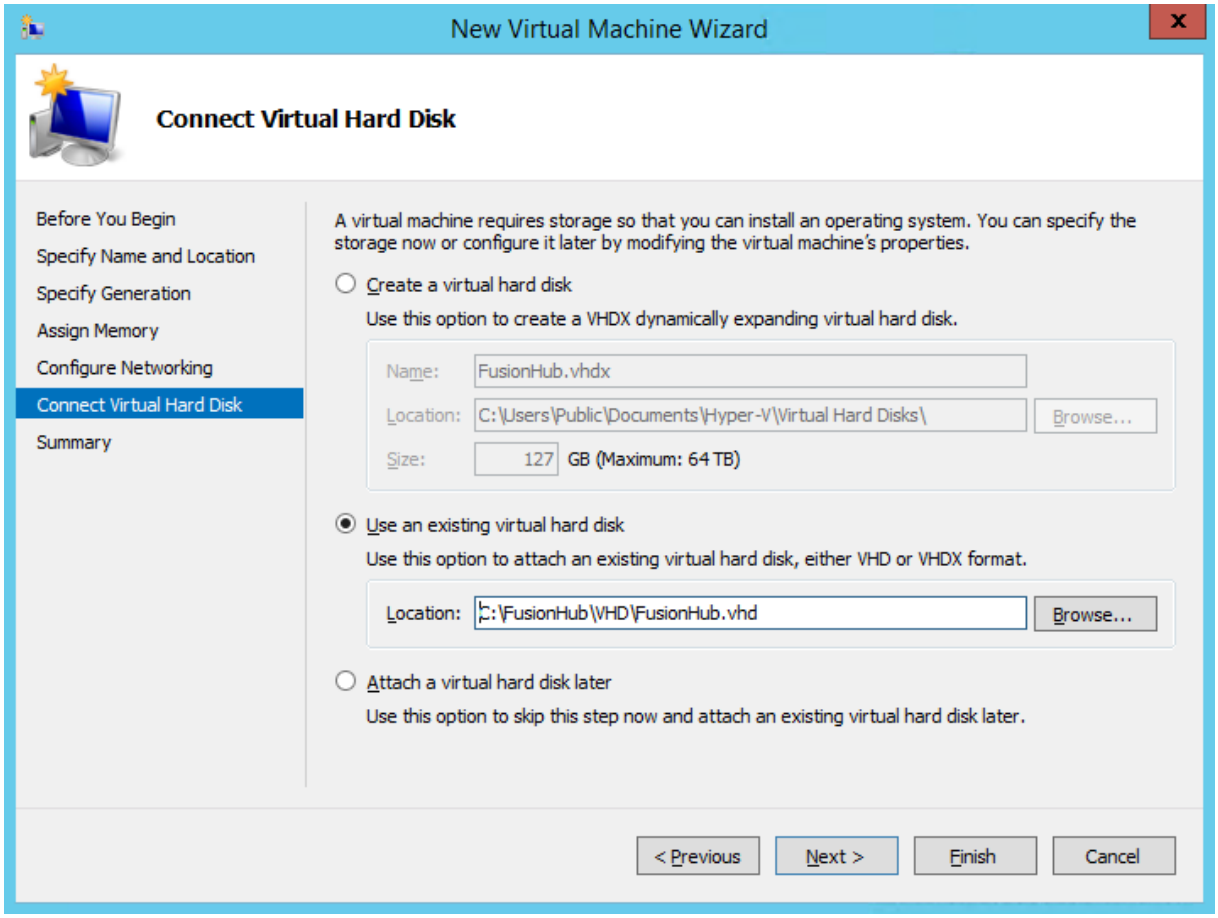
4. On the **Assign Memory** dialog, set the memory size to **1024MB**. Click **Next.**



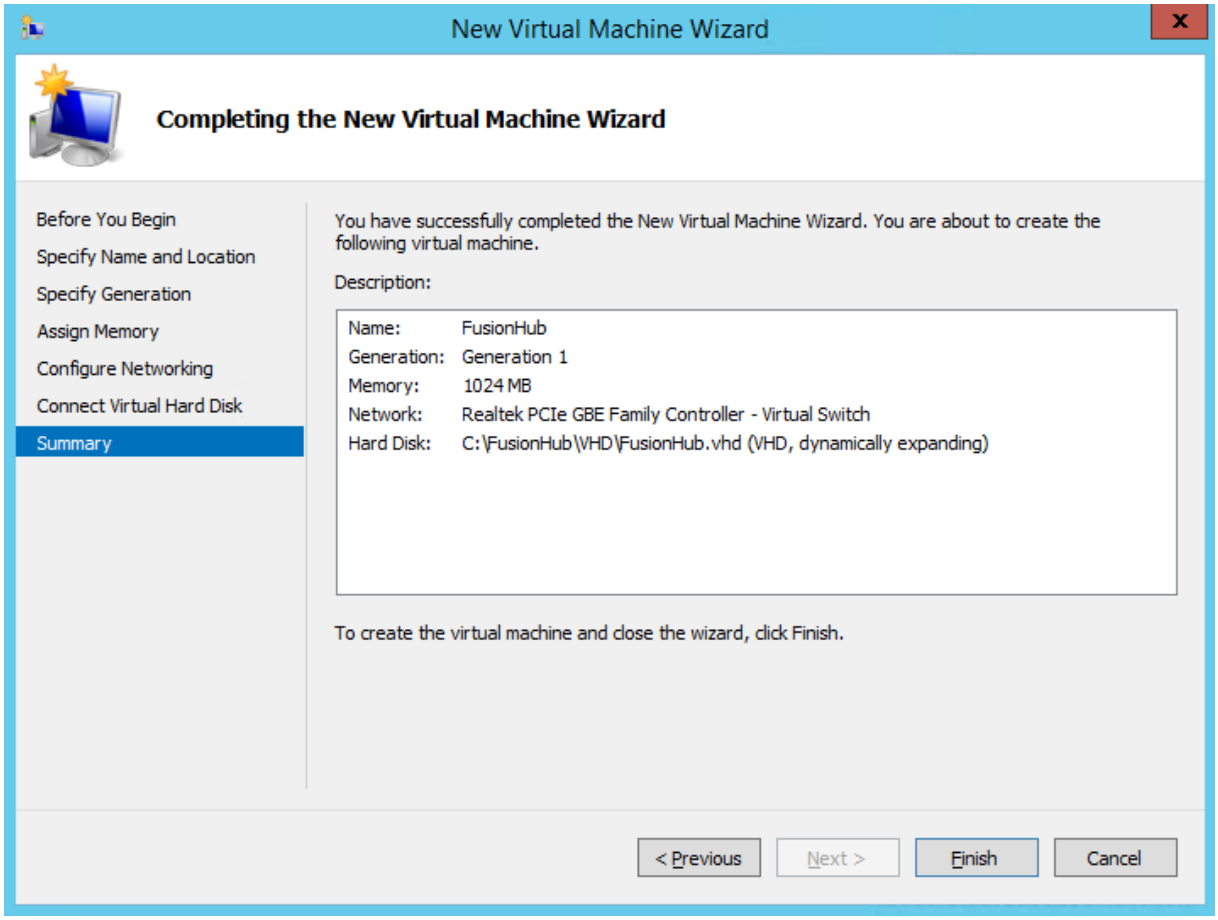
5. On the **Configure Networking** dialog, select a network adapter and click **Next**



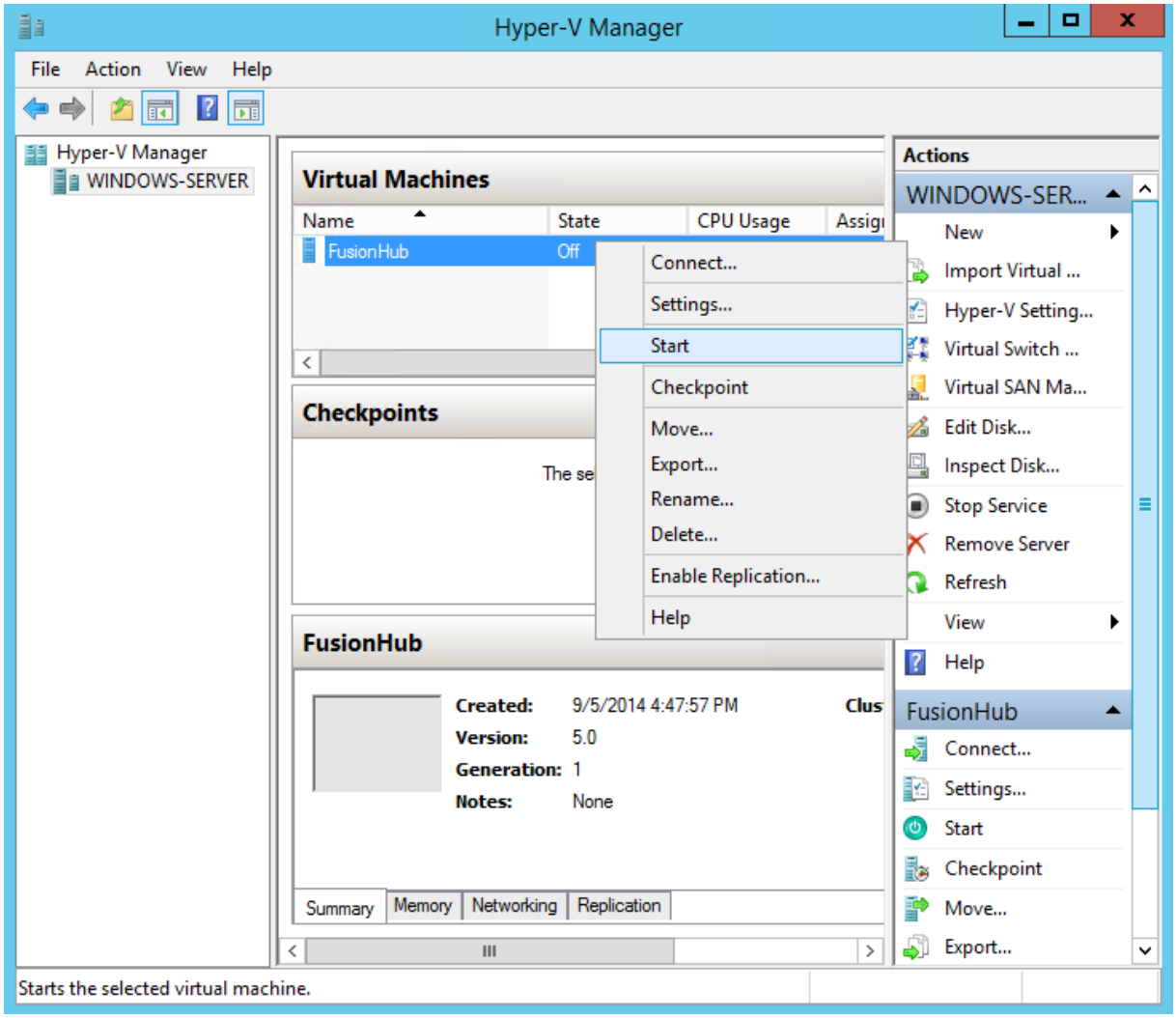
6. On the **Connect Virtual Hard Disk** dialog, select "**Use an existing virtual hard disk**" and select FusionHub.vhd from the location you downloaded FusionHub. Click **Next**.



7. Click **Finish** to complete virtual machine configuration.



8. Click **Start** to to run this FusionHub virtual machine.



Please navigate to **FusionHub Interface Configuration** to continue your installation.

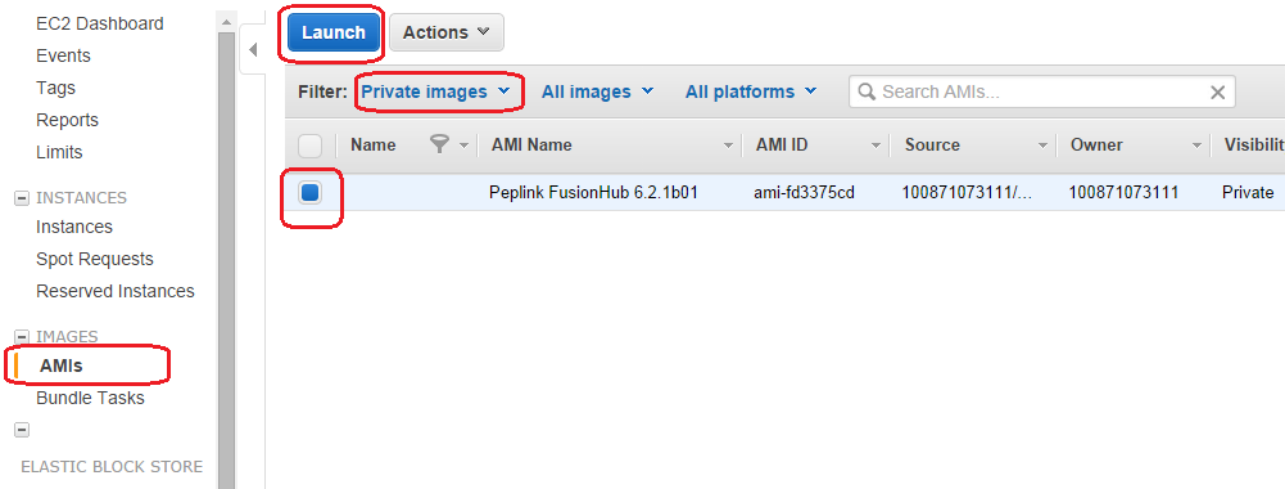
4.7 Amazon Web Services

Acquiring FusionHub for AWS

1. Currently, the only means to acquiring FusionHub for AWS is through private sharing. You would need to provide the following information to trial@peplink.com. Peplink will then share the AMI image to your account:

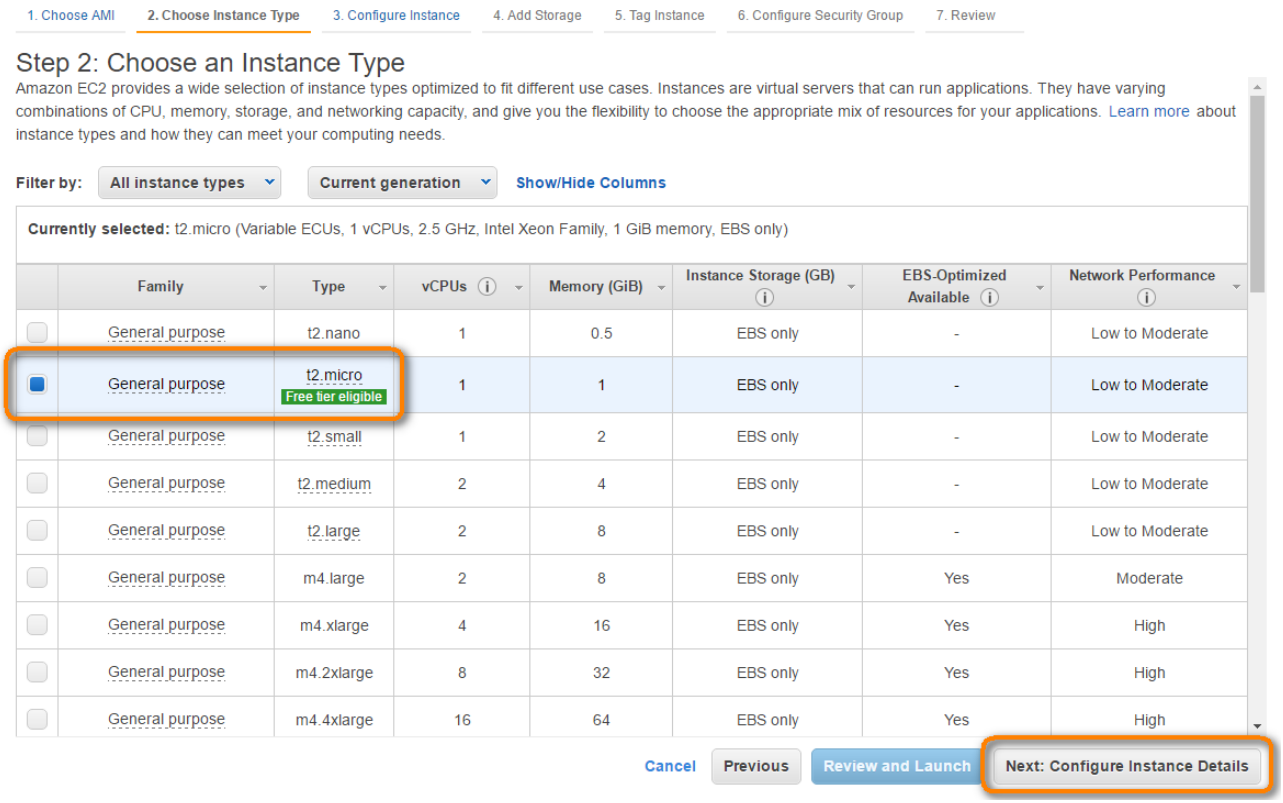
    - InControl2 account username
    - Amazon EC2 region (e.g. Oregon)
    - 12-digit Amazon ID

2. Login to your AWS Management Console
3. In the left hand panel, expand "Images", select "**AMIs**".
4. At the top, locate "Filter:" and pick "**Private images**".
5. Click on "**Peplink FusionHub**" to highlight it. A blue dot will appear to show that it is currently highlighted.
6. Click on the "**Launch**" button at the top.



Setting the Instance type

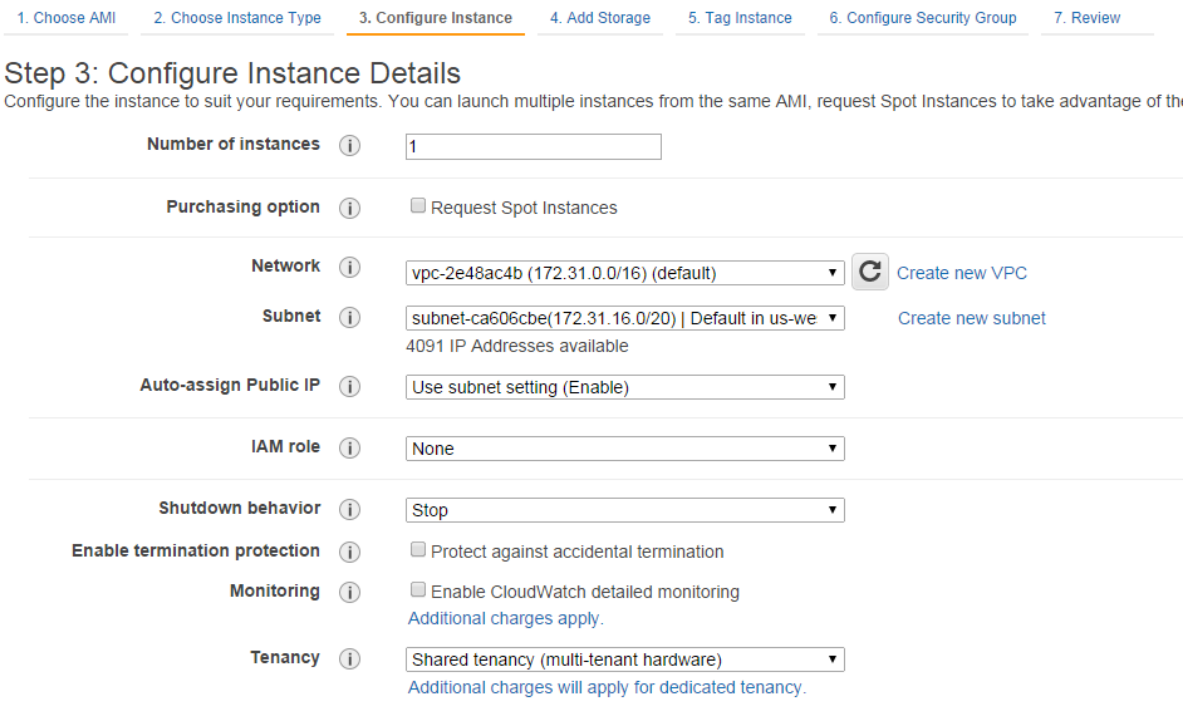
1. In the next screen "Choose an Instance Type, click to highlight "**t2.micro**"
2. Then click "**Configure Instance Details**" at the bottom right of the page.



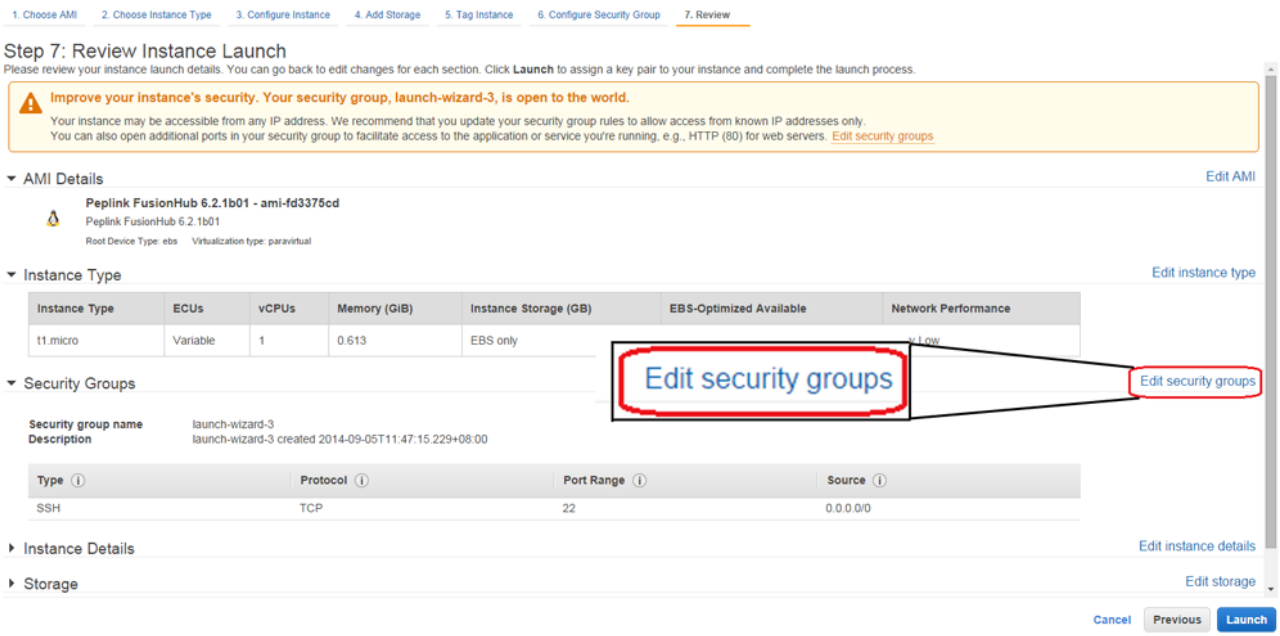
Configuring the Instance

1. The “Configure Instance Details” page allows you to make changes to the Instance details and network interfaces. If you’re unsure what these should be, then please skip this step.

2. Click “**Review and Launch**” at the bottom right



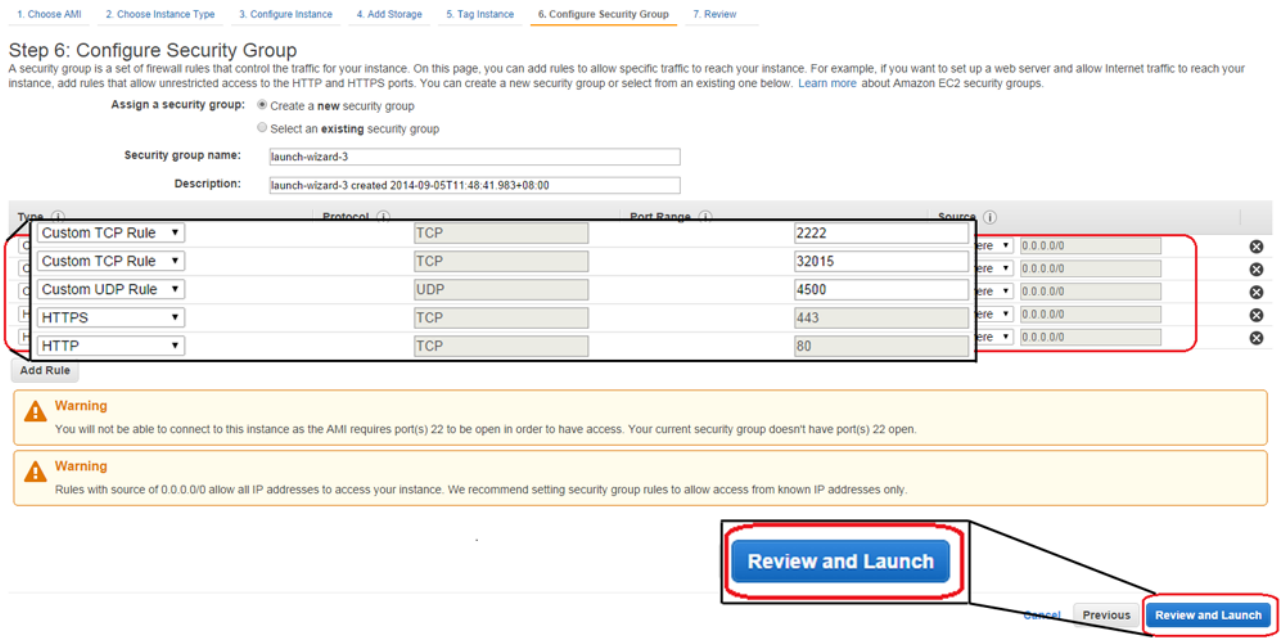
3. In the next page “Review Instance Launch”, click on “**Edit security groups**”.



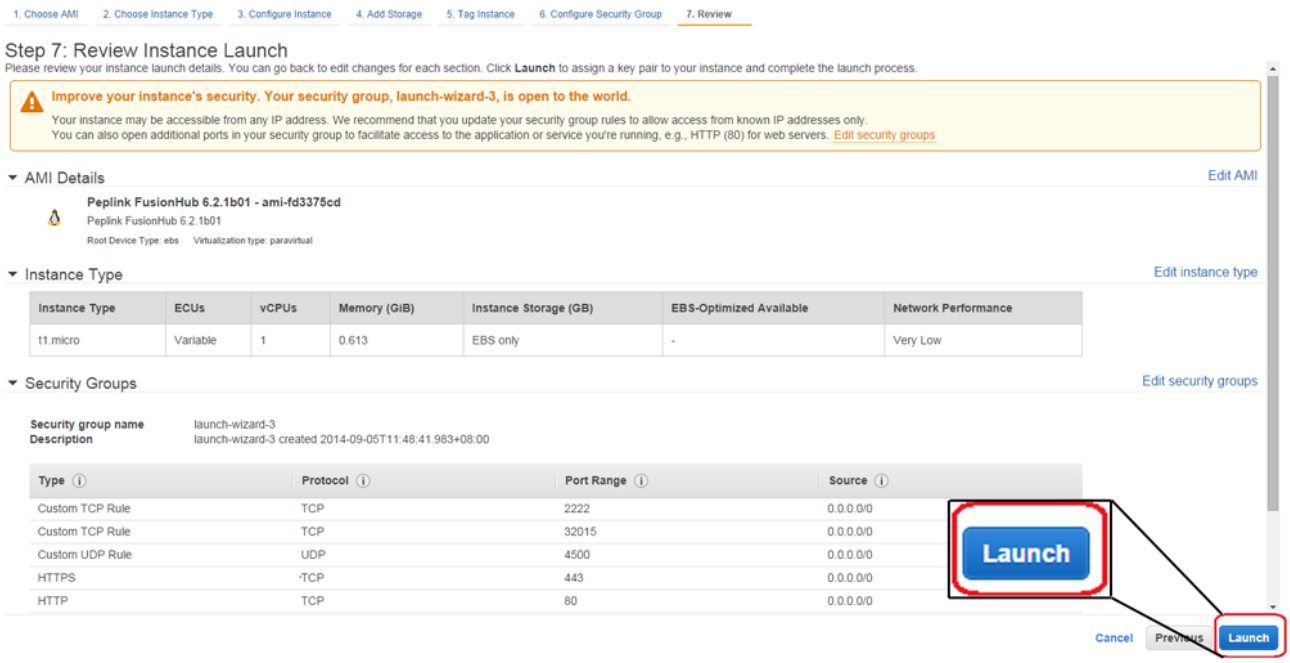
4. **Configure** the security group settings as follows:

- Remove SSH
- Add TCP 2222/32015
- Add UDP 4500
- Add HTTP/HTTPS

5. Click "**Review and Launch**"



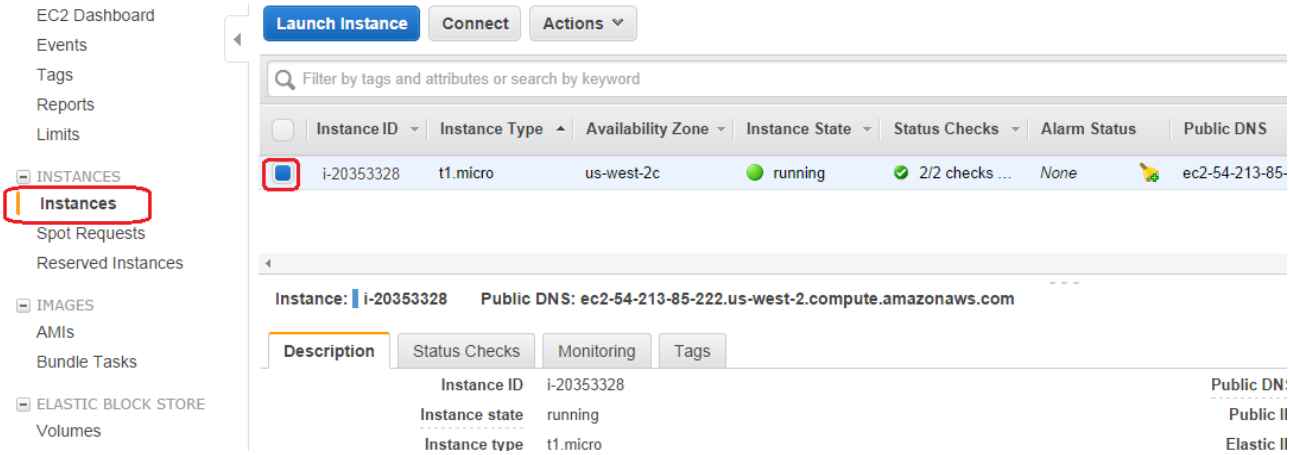
6. Confirm that the details are correct, and then click "**Launch**".



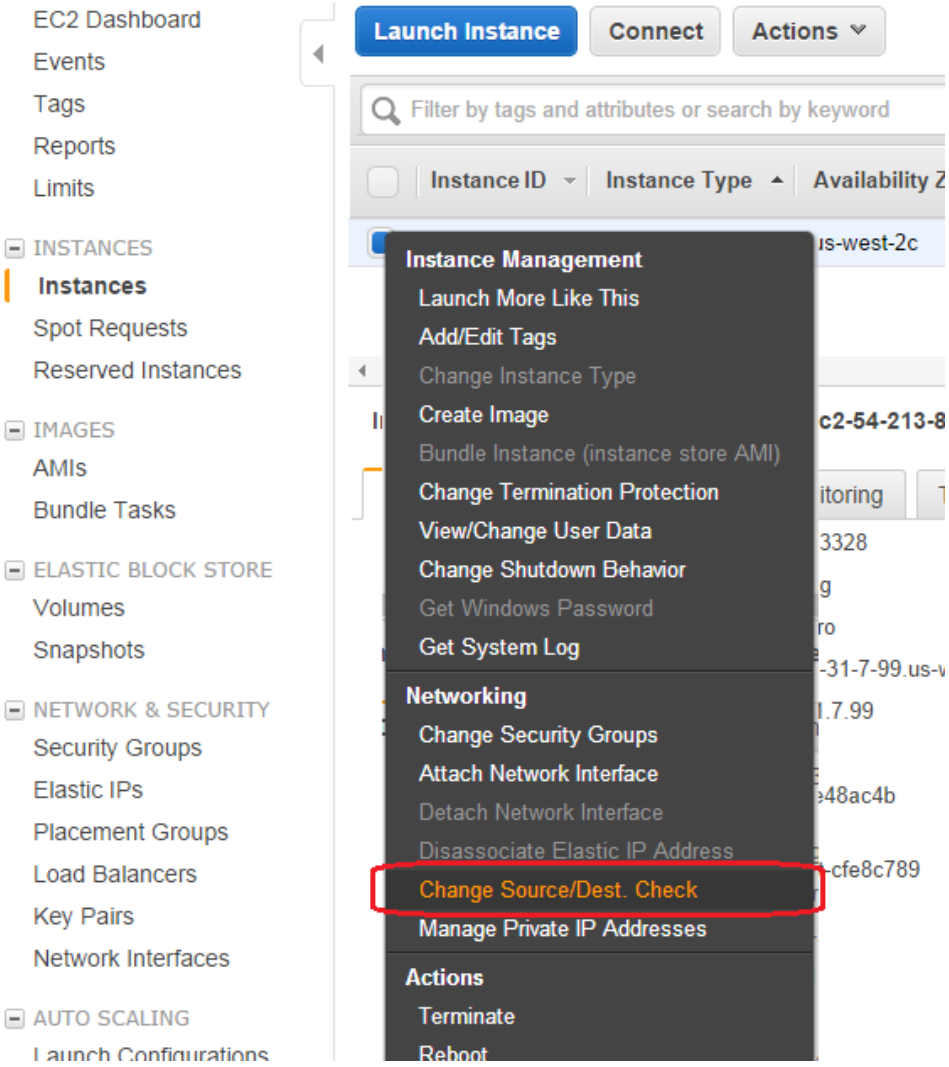
Tweak the running Instance

1. In the left hand panel, expand "Instances" and click on "**Instances**".

2. Select FusionHub's **running instance** by clicking on it once.



3. After highlighting the running instance, right-click to bring up the **context menu**.
4. Click on "**Change Source/Des. Check**" in the context menu
5. Select "**Disable Source/Dest. Check**".


EC2 Dashboard
Events
Tags
Reports
Limits
INSTANCES
Instances
Spot Requests
Reserved Instances
IMAGES
AMIs
Bundle Tasks
ELASTIC BLOCK STORE
Volumes
Snapshots
NETWORK & SECURITY
Security Groups
Elastic IPs
Placement Groups
Load Balancers
Key Pairs
Network Interfaces
AUTO SCALING
Launch Configurations
Launch Instance
Connect
Actions
Filter by tags and attributes or search by keyword
Instance ID
Instance Type
Availability Z
us-west-2c
Instance Management
Launch More Like This
Add/Edit Tags
Change Instance Type
Create Image
Bundle Instance (instance store AMI)
Change Termination Protection
View/Change User Data
Change Shutdown Behavior
Get Windows Password
Get System Log
Networking
Change Security Groups
Attach Network Interface
Detach Network Interface
Disassociate Elastic IP Address
Change Source/Dest. Check
Manage Private IP Addresses
Actions
Terminate
Reboot

Accessing FusionHub

1. Note down FusionHub's public **IP address**.

2. In your web browser, type in "**http://[FusionHub.instance.public.ip.address]**" in order to access FusionHub's administration interface. In our example, the line to type into the web browser would be: http://54.213.85.2/

3. Follow Section 5 to continue.

5. FusionHub Interface Configuration

5.1 Connecting to FusionHub's Web Admin Interface

1. Open a Web browser on the computer hosting your Peplink FusionHub virtual machine.

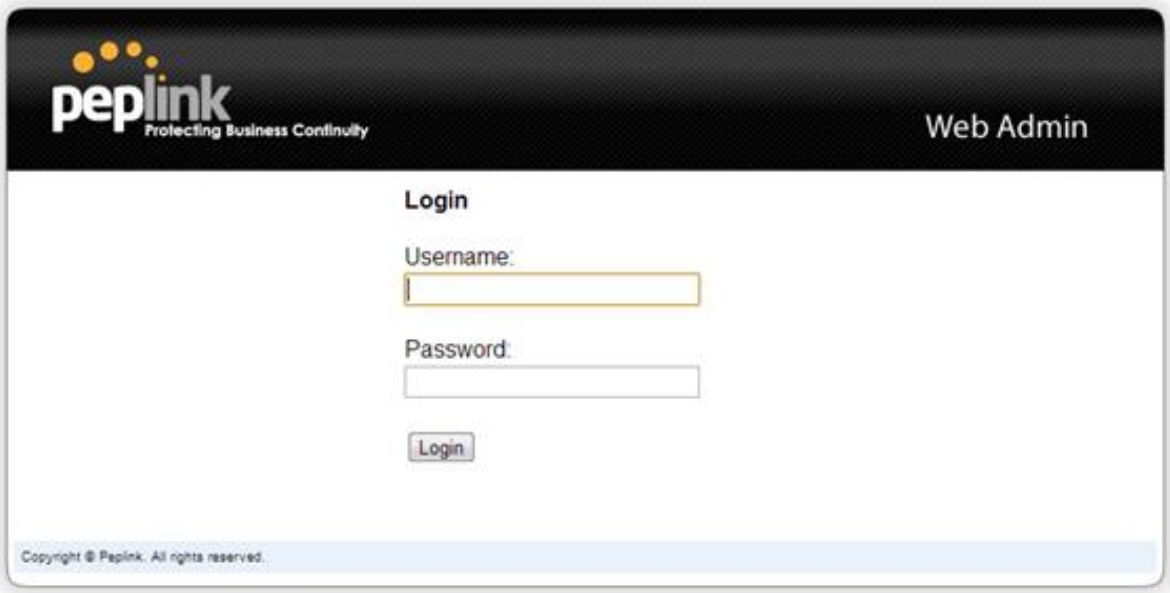
2. To access FusionHub's Web admin interface, connect your computer to the network on which FusionHub is running. The default WAN connection method for FusionHub is DHCP.

3. If the DHCP server is available in your network, the FusionHub IP address will be automatically obtained by the DHCP server. The Web admin address will appear on the FusionHub console automatically (i.e., Admin: http://10.8.8.252). Enter the Web admin address (i.e., http://10.8.8.252) in your Web browser's address field.

4. If there is no DHCP server in your network, set your computer's IP address to 169.254.x.x (*x* denotes any integer from 2 to 253), using a subnet mask of 255.255.0.0.

5. After successfully changing these settings, enter **http://169.254.254.254** in your Web browser's address field.

6. Next, access the Web admin interface by entering **admin** for both the user name and password. The default admin and read-only user passwords can be changed after logging into the Web admin interface at **System > Admin Security**.



7. Once you have successfully logged in, the **Setup Wizard** will be displayed.

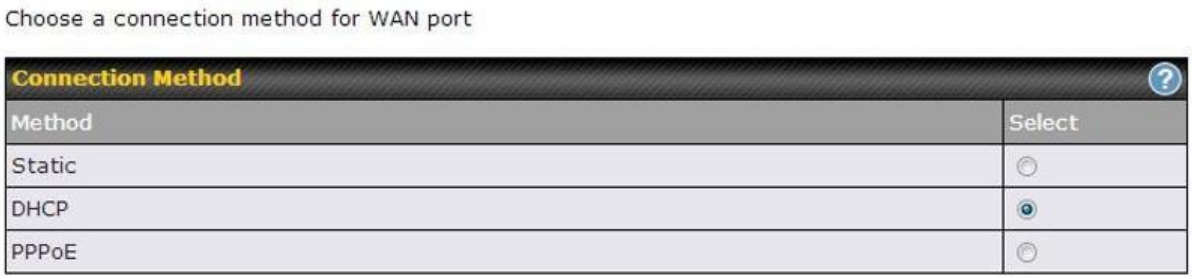
5.2 Configuration Using the Setup Wizard

FusionHub's **Setup Wizard** leads you step-by-step through the process of configuring your WAN connection.

1. Click **Setup Wizard** after connecting to the Web admin interface.

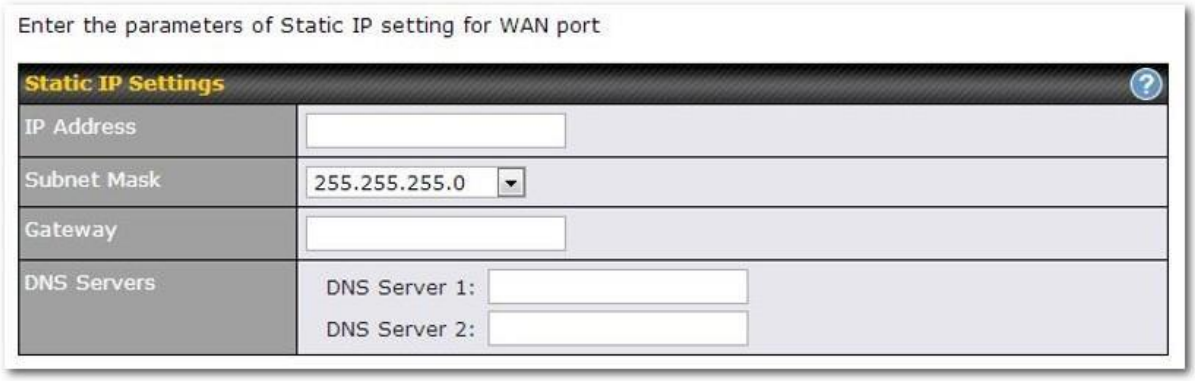
2. Click **Next** to begin.

3. Click **Next** to configure the WAN connection. Select the WAN connection method from the following screen. The default selection is **DHCP**.



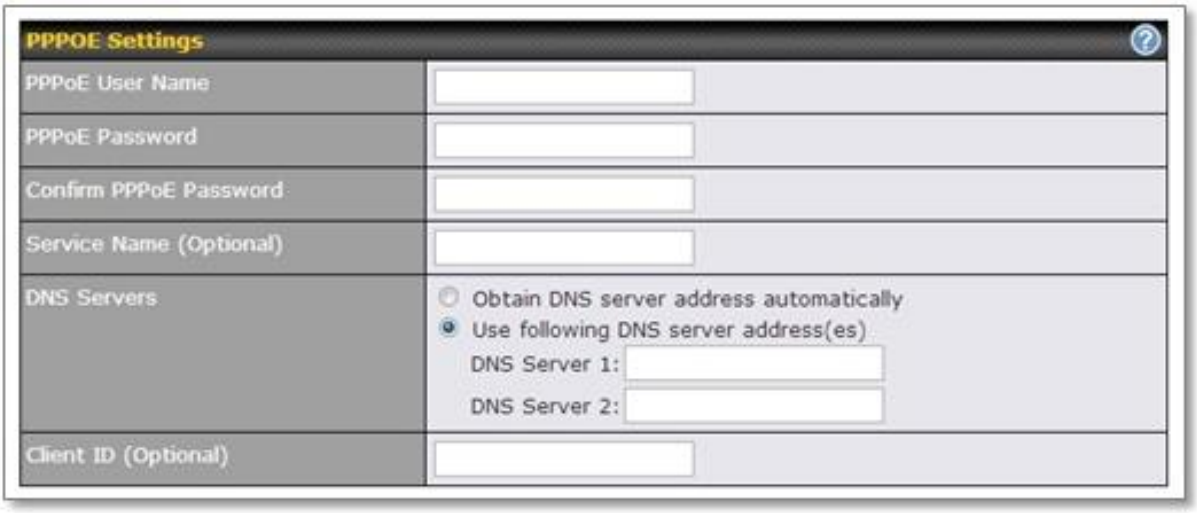
4. Depending on the selected connection type, further configuration may be needed:

- If **Static** is selected, the Setup Wizard will display **Static IP Settings**.



- If **DHCP** is selected, the Setup Wizard will display **DHCP Settings**.

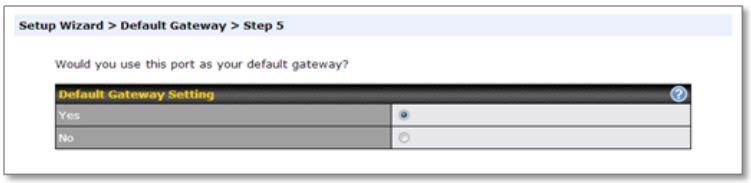
- If **PPPoE** is selected, the Setup Wizard will display **PPPoE Settings**.



During this step, make sure the FusionHub and ESXi servers are on the same network if **Static** is selected. For example:

If the ESXi server's IP settings are:
IP address: **10.8.9.124**
Subnet mask: **255.255.0.0**
Default gateway: **10.8.8.1**

Configure port settings as follows:
IP address: **10.8.x.x** (x denotes any integer from 2 to 254)
Subnet mask: **255.255.0.0**
Default gateway: **10.8.8.1**



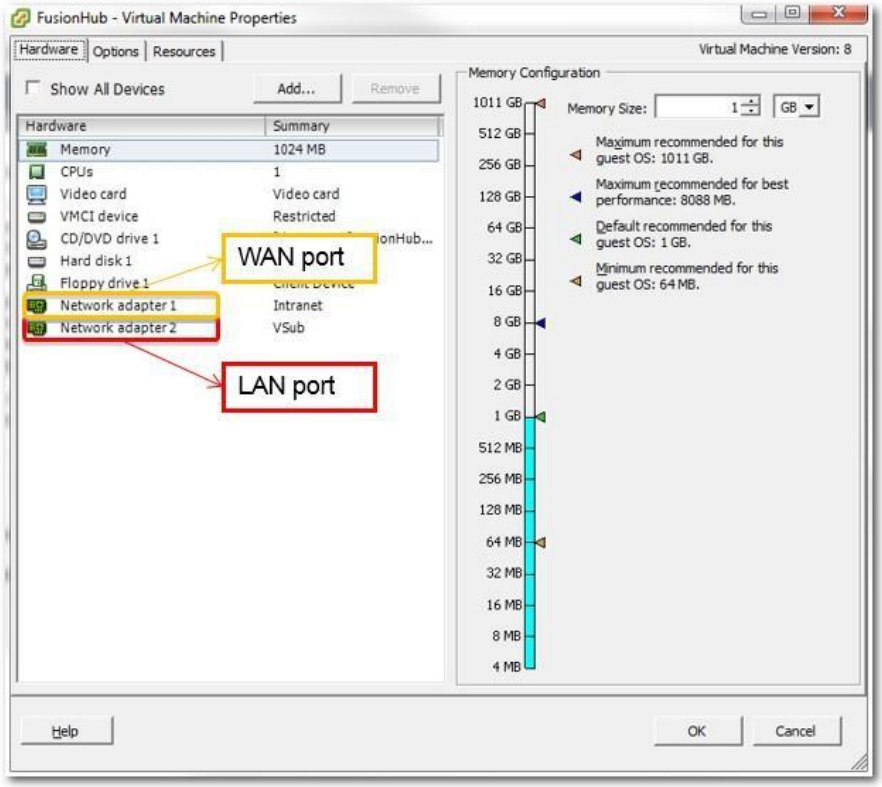
5. If there is more than one port on the ESXi server and you have assigned two network adapters to this FusionHub virtual machine, the LAN port configuration dialog will be open. The default selection is **Static**.

- If **Static** is selected, the Setup Wizard will display **Static IP Setting**s.

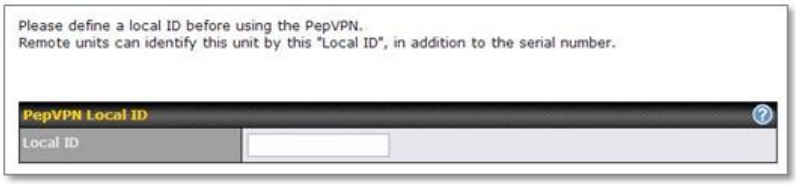
- If **DHCP** is selected, the Setup Wizard will display **DHCP Settings**.

- If **Disable** is selected, the Setup Wizard will move to the next step.

Note: FusionHub virtual machines support a maximum number of two network adapters. By default, **Network adapter 1** is set as the WAN port, and **Network adapter 2** is set as the LAN port.

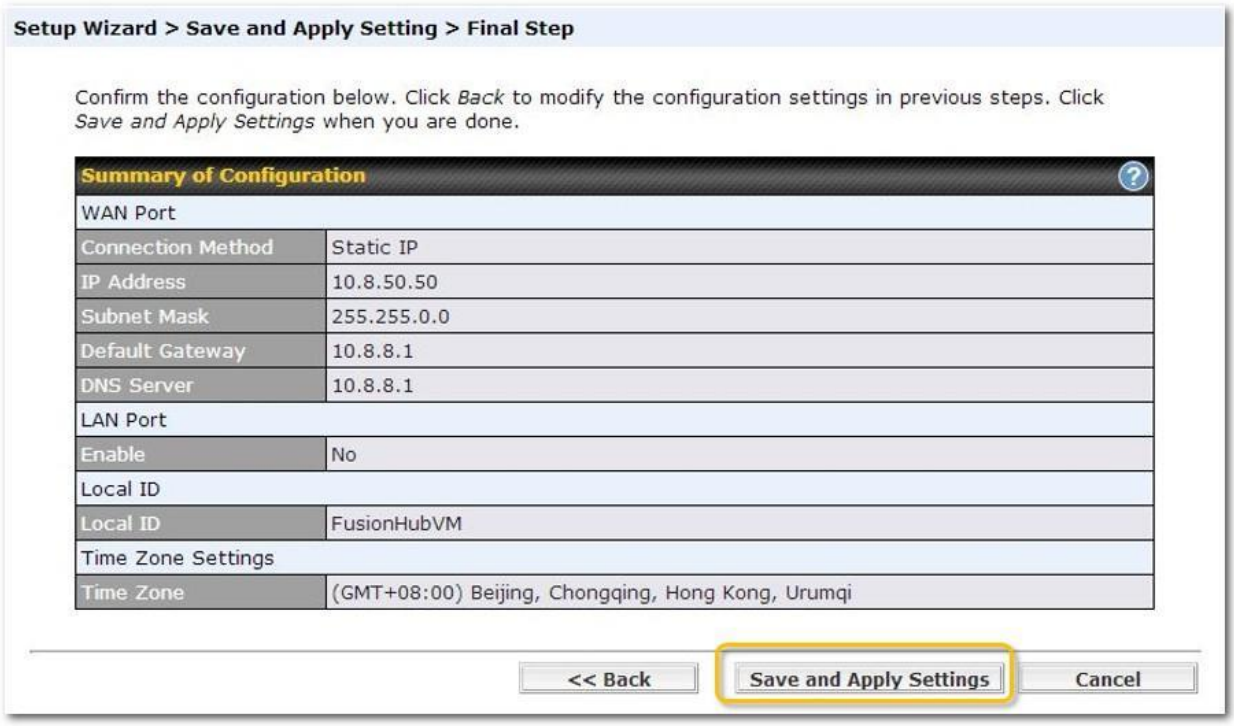


6. Click **Next** to define a **Local ID** before using PepVPN. The local ID is a text string that identifies this local unit when establishing a VPN connection. Remote units can identify this unit using the local ID, as well as by serial number. When creating a profile on a remote unit, this unit's local ID must be entered into the remote unit's **Remote ID** field.



7. Click **Next** to choose the time zone of your country/region. Check **Show all** to display all time zone options.

8. Check to make sure all settings have been configured correctly, and then click **Save and Apply Settings** to confirm.



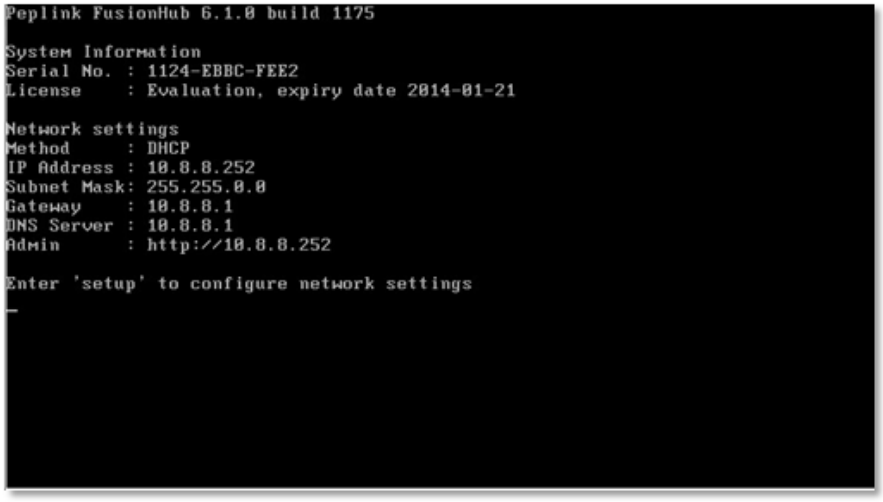
9. You will be redirected to the **License Information** dialog. The default selection for **Virtual Machine Model** is **VMware ESXi.** The default **License Information** dialog looks similar to the following:

If you are **not** using VMware ESXi, please select **Other** for the **Virtual Machine \Model**. In that case, the license activation dialog will look similar to this:

- **License Key** is the FusionHub license key obtained from the InControl2 webpage. Please refer to **FusionHub License Generation** for details on creating this license key.
- **Virtual Machine Model** is the virtual machine platform on which FusionHub is implemented. If FusionHub is implemented on a VMware ESXi Server, please select **VMware ESXi**. If it is implemented on a VMware Workstation or VMware Player, please select **Other.**
- **ESXi Server address** is the ESXi server's hostname or IP address. Note: this column is shown only when **VMware ESXi** is selected.
- Click **Submit** after filling the form.

10. When the license is successfully activated, you will see the following screen:

The information shown on the FusionHub console will change to the following:



If you have changed your computer's IP to 169.254.x.x, please change the computer's IP settings so that they're the same as your FusionHub network settings, and then connect to FusionHub's Web admin again.

6. PepVPN with SpeedFusion Settings

This section will describe how to set up PepVPN with SpeedFusion.

6.1 Background

Peplink FusionHub securely connects one or more branch offices to your company's main datacenter or to other branches. Data, voice, and video communications between these locations are kept confidential across the public Internet.

FusionHub's SpeedFusion Bandwidth Bonding feature, enabled by default, is specifically designed for multi-WAN environments. FusionHub can bond all WAN bandwidth for routing SpeedFusion traffic, and unless all of one site's WAN connections are down, the Peplink Balance can keep your VPN up and running.

When supporting multiple VPN connections, FusionHub can act as a central hub that connects branch offices. For example, if Branch Office A and Branch Office B make VPN connections to Headquarters C, both branch office LAN subnets and the subnets behind them (e.g., static routes) will also be advertised to Headquarters C and the other branches. In this example, Branch Office A will be able to access Branch Office B via Headquarters C.

The local LAN subnet and subnets behind the LAN will be advertised to the VPN. All VPN members (branch offices and the datacenter) will be able to route to local subnets. Note that all LAN subnets and subnets behind them must be unique. Otherwise, VPN members will not be able to access each other.

All data can be routed over the VPN using the 256-bit AES encryption standard.
In the following sections, three FusionHub application examples illustrate how to set up your devices.

6.2 Example One

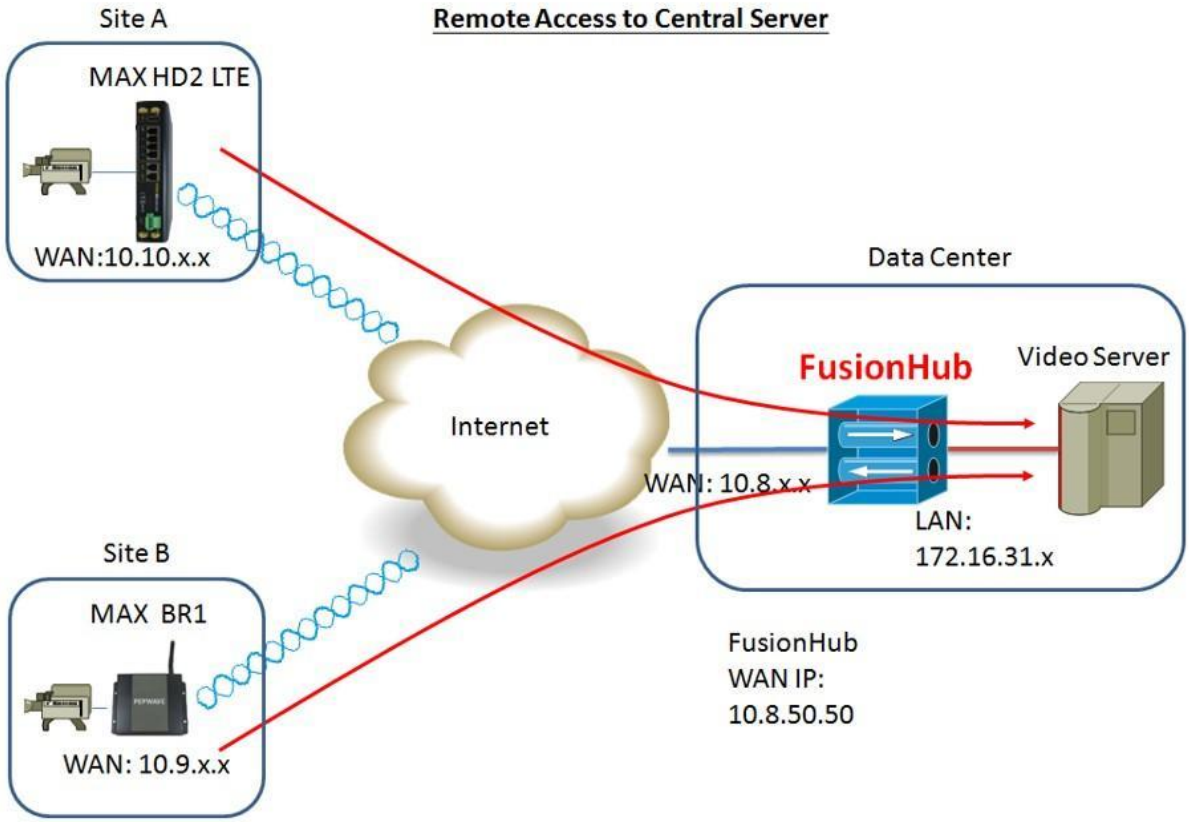
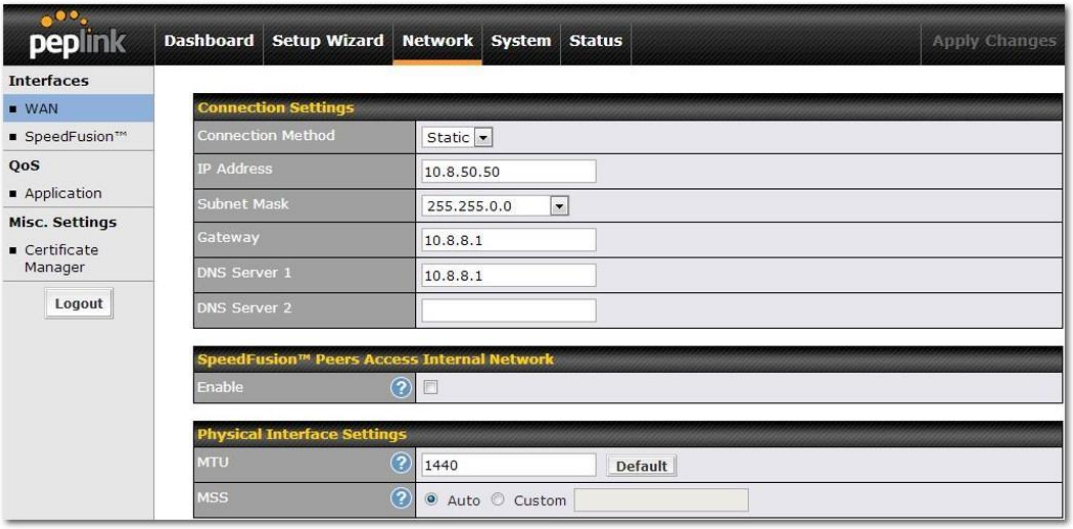


Figure 5.1 Remote Access to Central Server

To set up the scenario shown in Figure 5.1, we need to configure a MAX HD2 at Site A, a MAX BR1 at Site B, and FusionHub (two network adapters are needed) at the Datacenter.

In our case, FusionHub settings (refer to **Configuration Using the Setup Wizard**) are as follows:

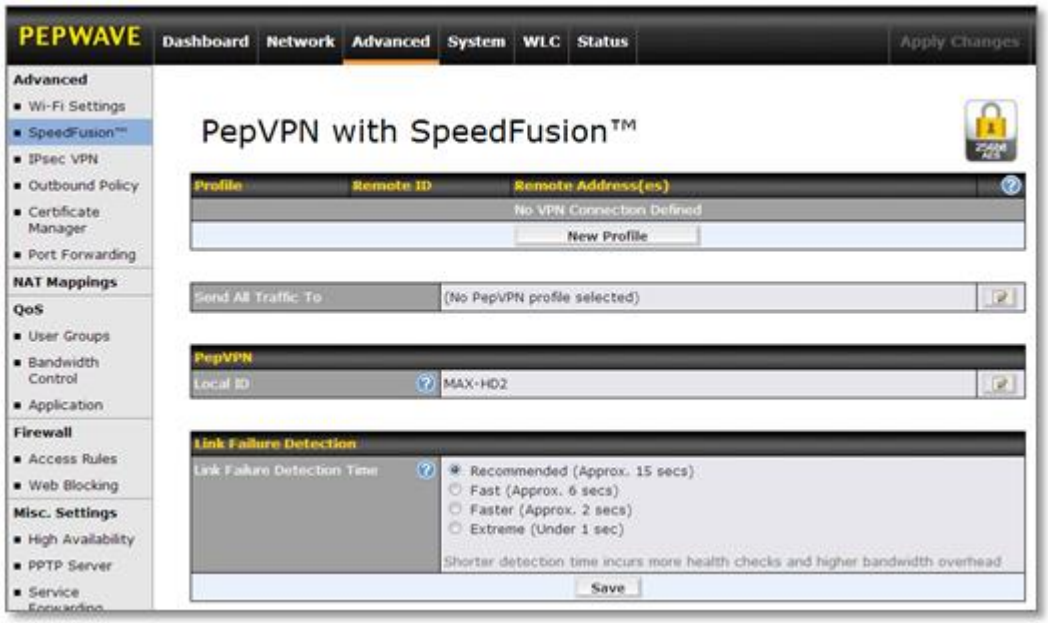
IP address: **10.8.50.50** (static IP)
Netmask: 255.255.0.0
Default gateway: **10.8.8.1**
Local ID: FusionHubVM



MAX HD2 LTE configuration (Site A)
Suppose that the MAX HD2 in Figure 5.1 is configured with the following IP settings:

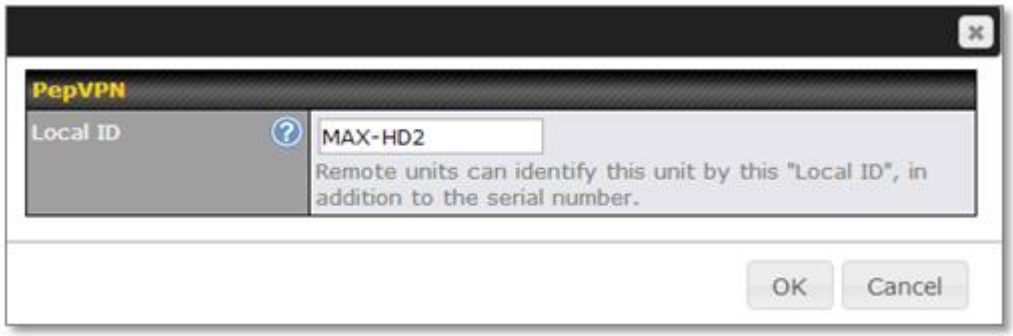
WAN 1 IP address: **10.10.13.49**
WAN 2 IP address: **10.10.13.50**
LAN IP address: **192.168.150.1**

1. To configure, connect to the Web admin interface of the MAX HD2, and then navigate to **Advanced > SpeedFusion**.



2. Next, click  under **PepVPN**.

3. Enter a **Local ID**, such as **MAX-HD2**, for this MAX HD2, and then click **OK**.



4. Click **New Profile** under **Profile** to add a new profile.

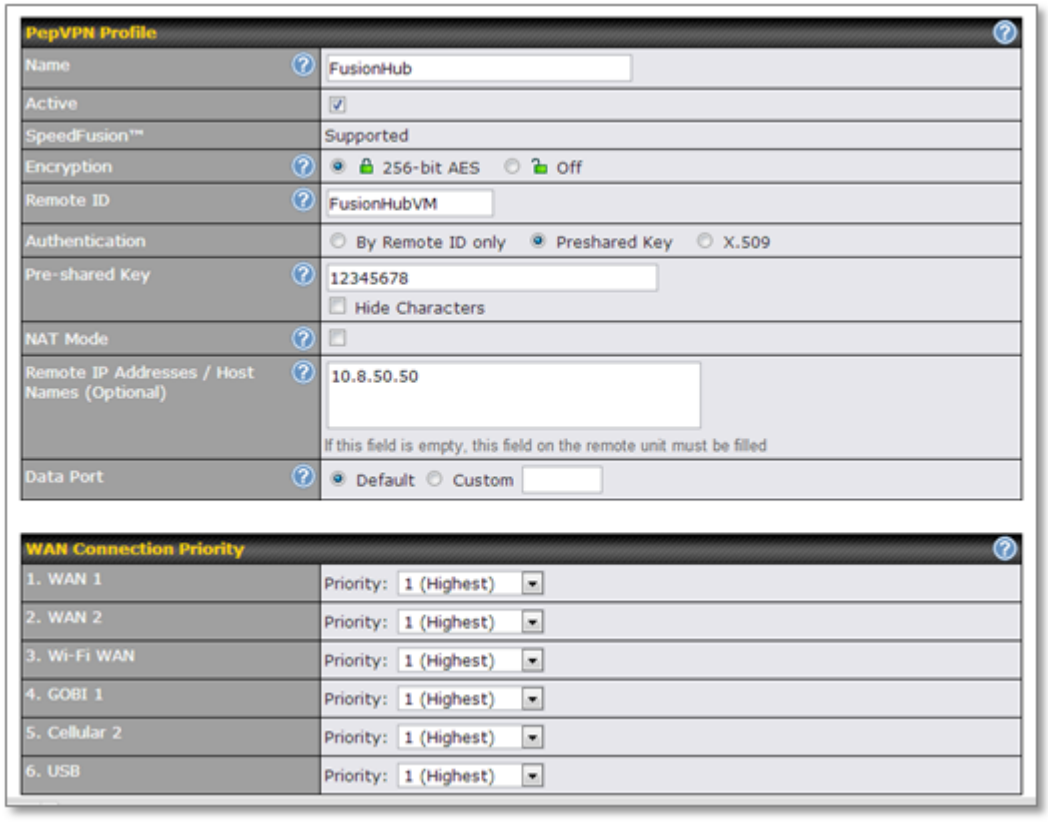
5. On the dialog displayed next, fill the form as follows:

Name – Enter a name to represent this profile. In this case, we chose **FusionHub**.

Remote ID – **Remote ID** should be the same as FusionHub's **Local ID**. In our case, the FusionHub local ID is **FusionHubVM**.

Click **Preshared Key** and create a pre-shared key, which is **12345678** in our example.

Remote IP addresses – Here, we've entered **10.8.50.50**, the FusionHub IP address.



6. After completing the form, click **Save** and then **Apply Changes**.

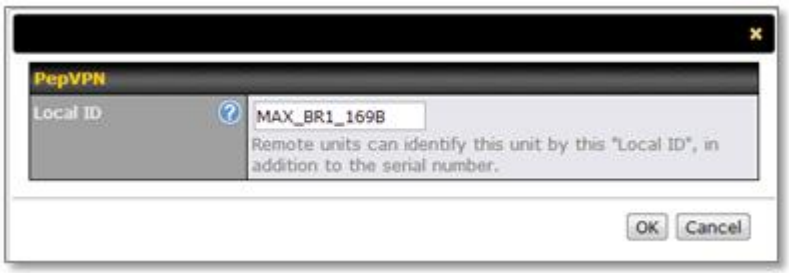
MAX BR1 configuration (Site B)
Assume the MAX BR1's IP settings are:

WAN IP address: **10.9.3.167**
LAN IP address: **192.168.71.1**

1. To configure the MAX BR1, connect to the MAX BR1's Web admin interface (in our case, the Web admin interface address is **http://192.168.71.1**), and then navigate to **Advanced >PepVPN**.

2. Click  under **PepVPN**.

3. Enter a **Local ID**, such as **MAX_BR1_169B**, for this MAX BR1, and then click **OK**.



4. Click **New Profile** under **Profile** to add a new profile.

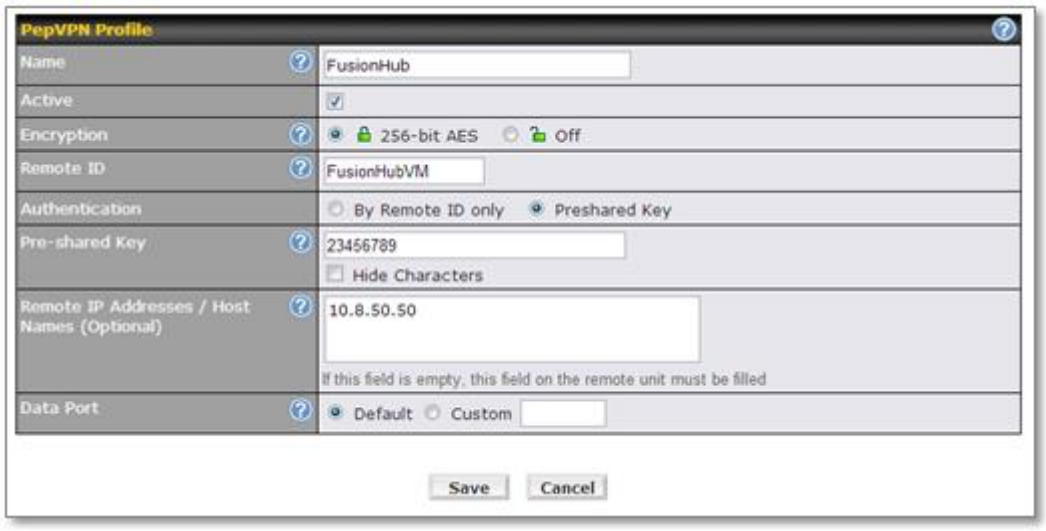
5. On the dialog displayed next, fill the form as follows:

Name – Enter a name to represent this profile. In this case, we chose **FusionHub**.

Remote ID – **Remote ID** should be the same as FusionHub's **Local ID**. In our case, the FusionHub local ID is **FusionHubVM**.

Click **Preshared Key** and create a pre-shared key, which is **23456789** in our example.

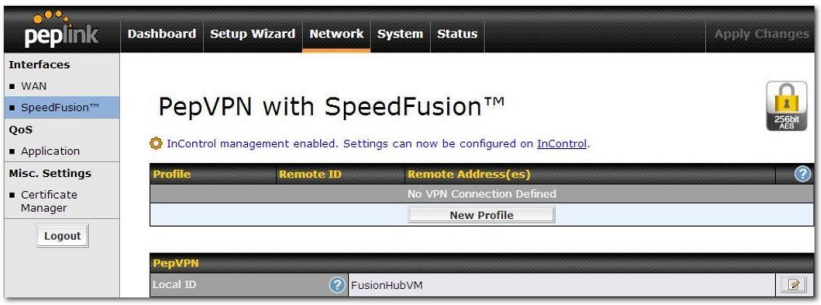
Remote IP addresses – Here, we've entered **10.8.50.50**, the FusionHub IP address.



6. After completing the form, click **Save** and then **Apply Changes**.

C. FusionHub configuration (Datacenter)
In our example, the IP address of the ESXi server is **10.8.9.24/16**, and the FusionHub IP address is **10.8.50.50/16**.

1. To configure FusionHub, connect to the FusionHub Web admin interface (**http://10.8.50.50**) again. Then, navigate to **Network > SpeedFusion**.

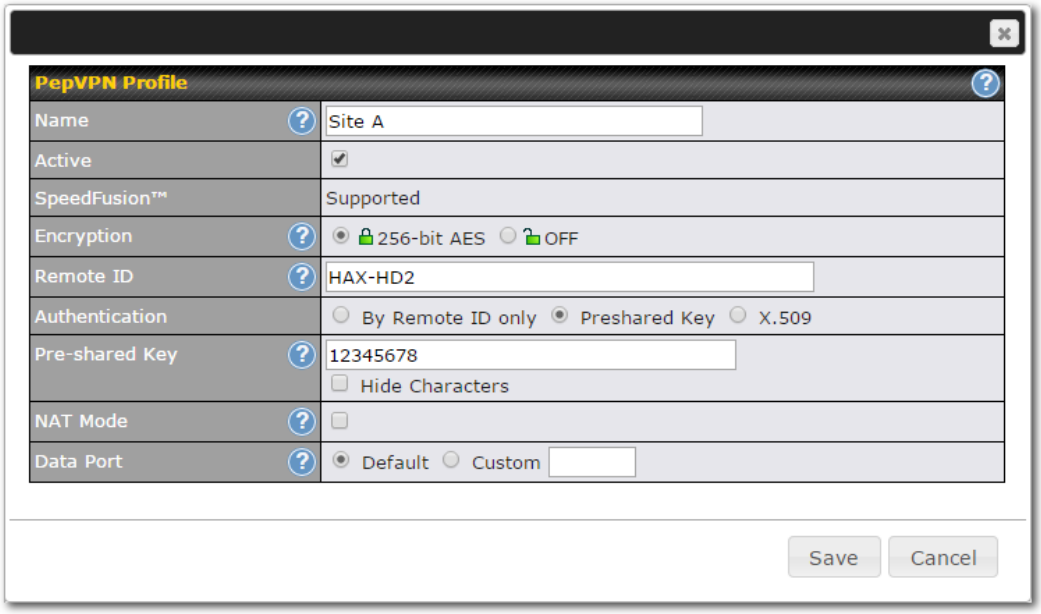


2. To add a new profile, click the **New Profile** button. On the dialog displayed next, fill the form as follows:

Name – Enter a name to represent this profile. In this case, since we're adding the MAX HD2 to Site A, we chose **Site A**.

Remote ID – **Remote ID** should be the same as the MAX HD2's **Local ID**. In our case, the MAX HD2's local ID is **MAX-HD2**.

Click **Preshared Key**, and then enter the same pre-shared key used with the MAX HD2, **12345678** in our example.



3. After completing the form, click **Save** and then **Apply Changes**.

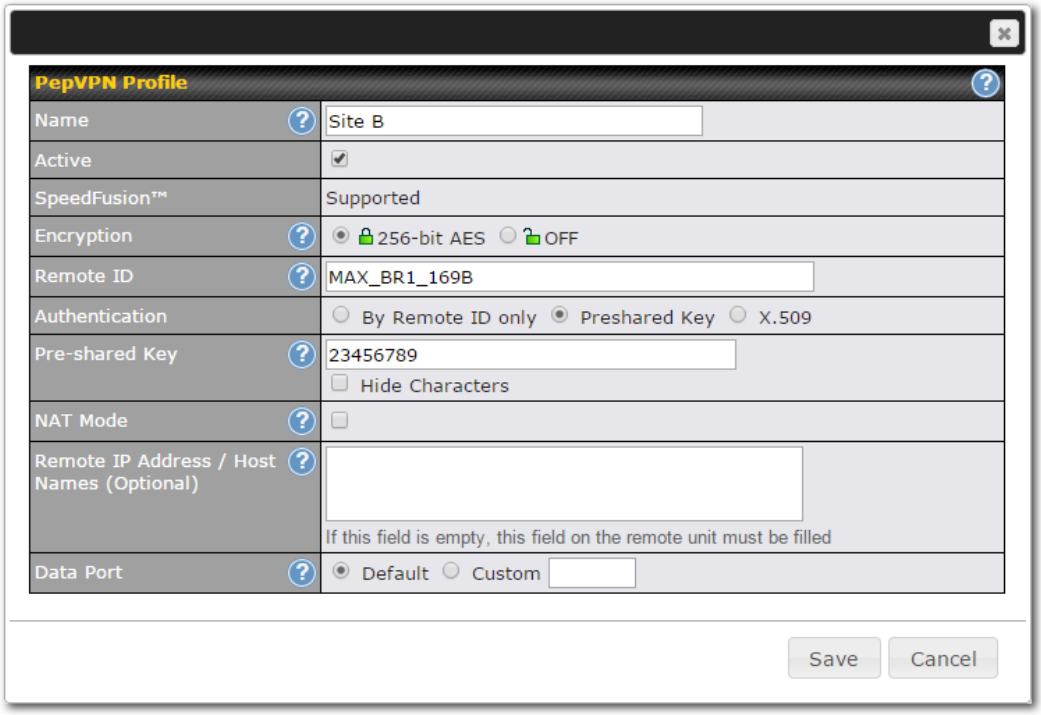
4. Click **New Profile** again to add the MAX BR1 to Site B.

Name – Enter a name to represent this profile. In this case, since we're adding the MAX BR1 to Site B, we chose **Site B**.

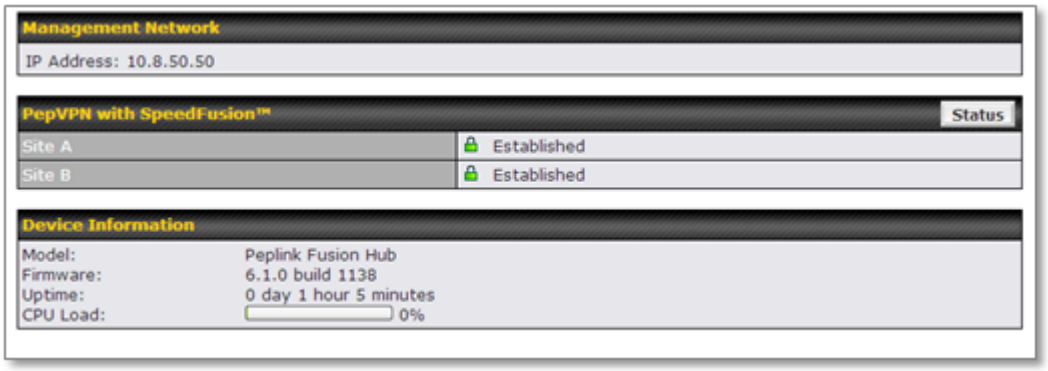
Remote ID – **Remote ID** should be the same as the MAX BR1's **Local ID**. In our case, the local ID is **MAX-BR1-169B**.

Click **Preshared Key** and enter the same pre-shared key used with the MAX BR1, **23456789** in our example.

5. After completing the form, click **Save** and then **Apply Changes**.



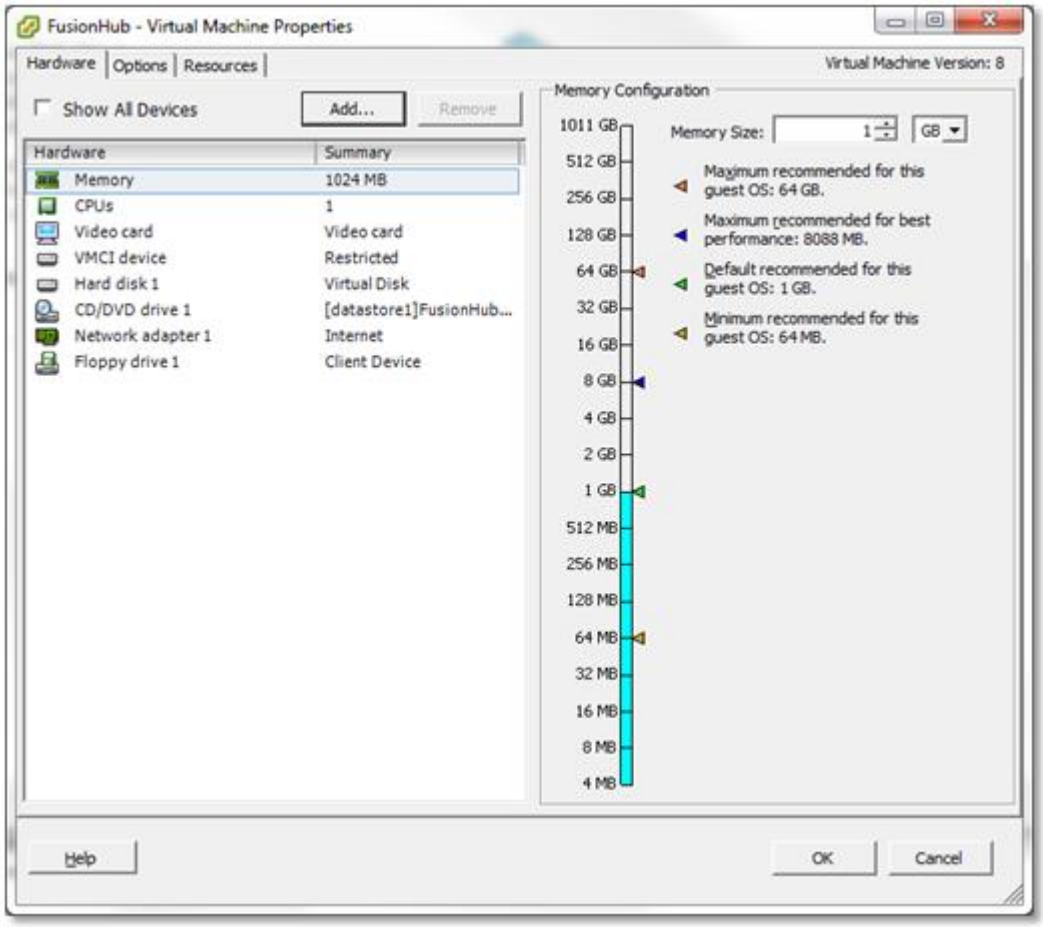
6. On the **Dashboard**, we see that PepVPN with SpeedFusion has been established for Site A and B.



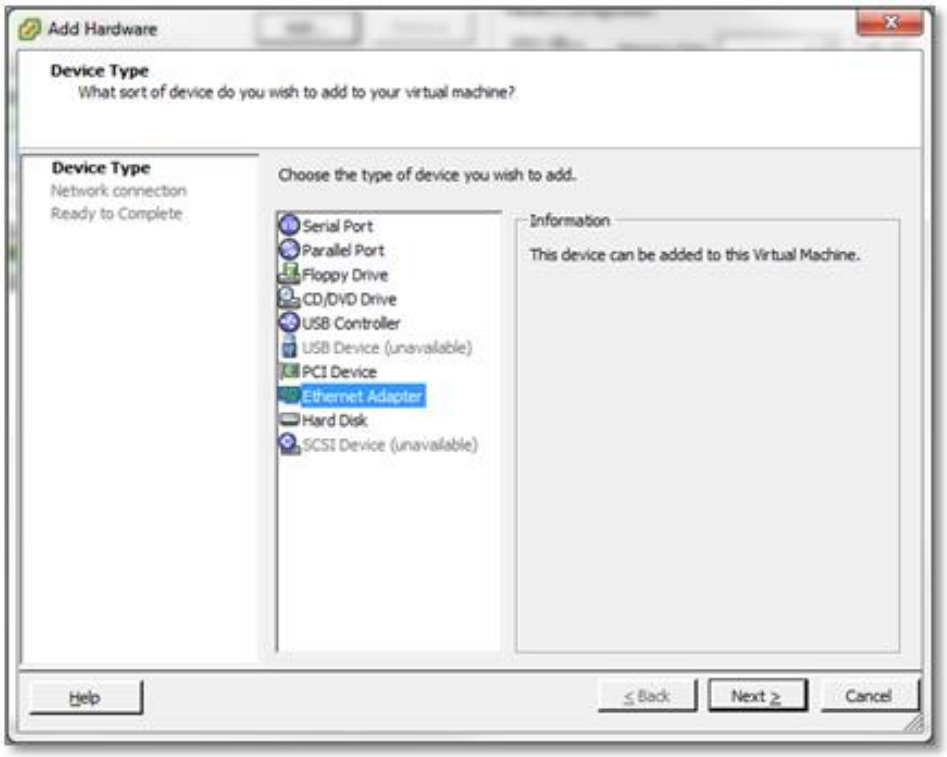
7. In order to make a direct link between FusionHub and the video server shown on the right-hand side of Figure 5.1, we need to add one more port (a network adapter) to FusionHub's virtual machine.

Adding a network adapter when using ESXi server

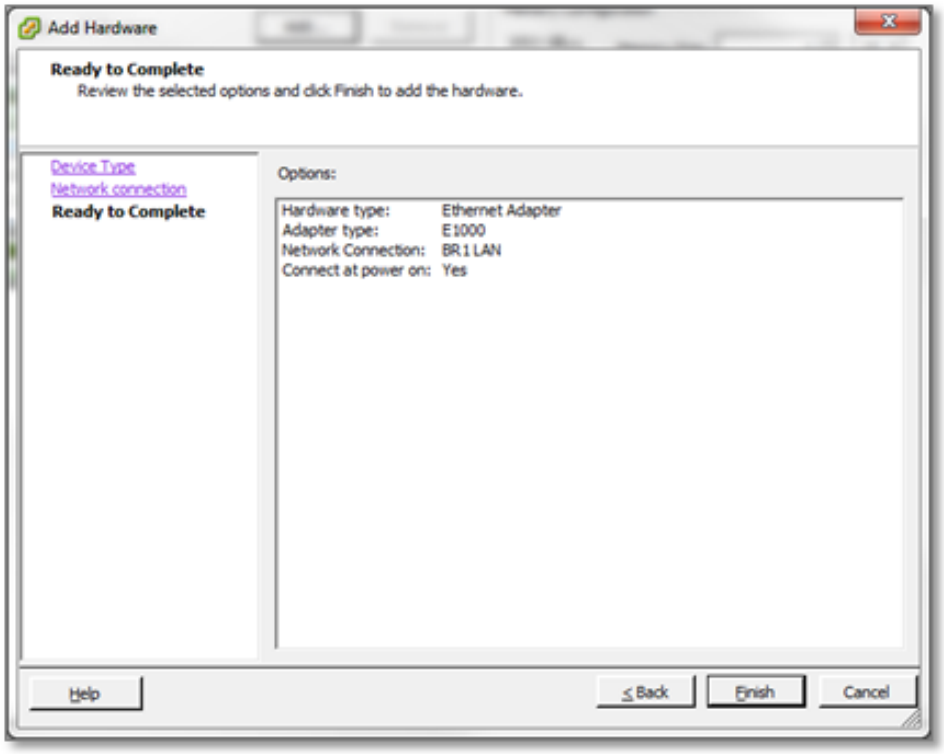
a. Login to the ESXi server again, and then power off the FusionHub virtual machine. Next, click **Edit virtual machine settings**. On the **FusionHub – Virtual Machine Properties** dialog, click **Add** to add another network adapter.



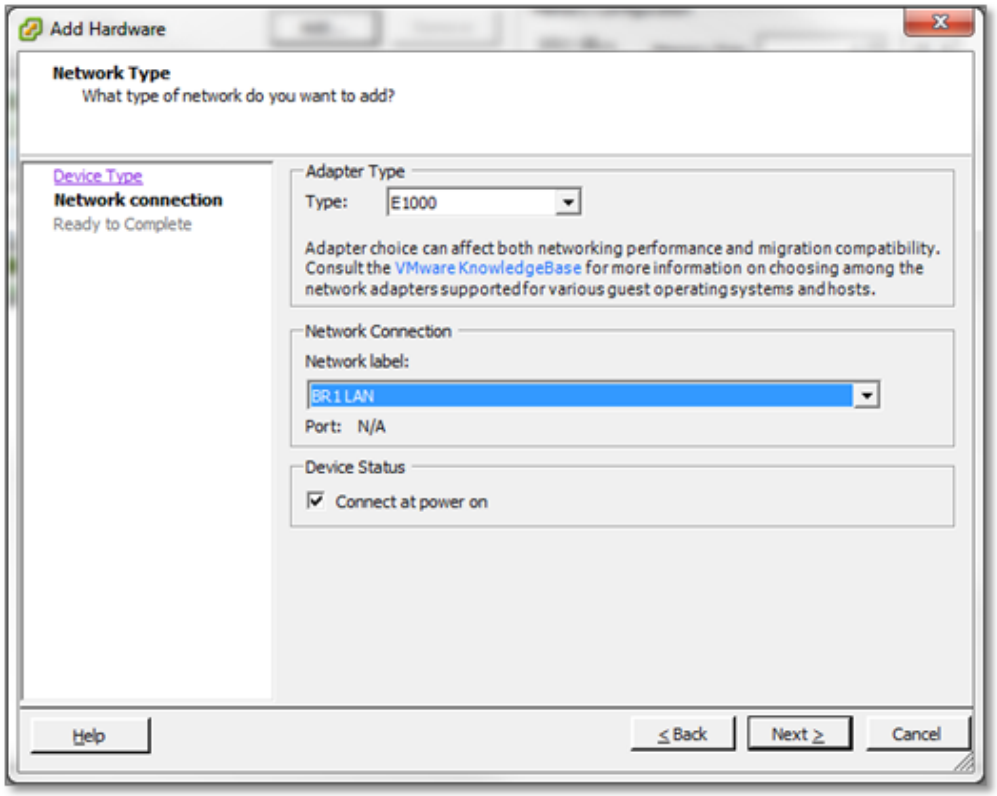
b. Select **Ethernet Adapter**, and then click **Next.**



c. Select a network and adapter from the drop-down menus, and then click **Next**.

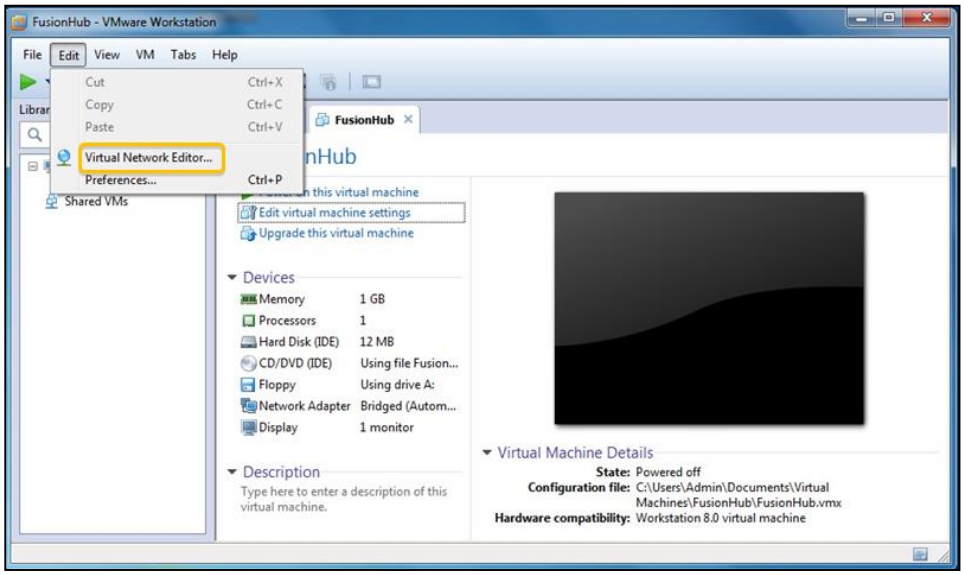


d. Click **Finish** and then **OK** to save your settings.

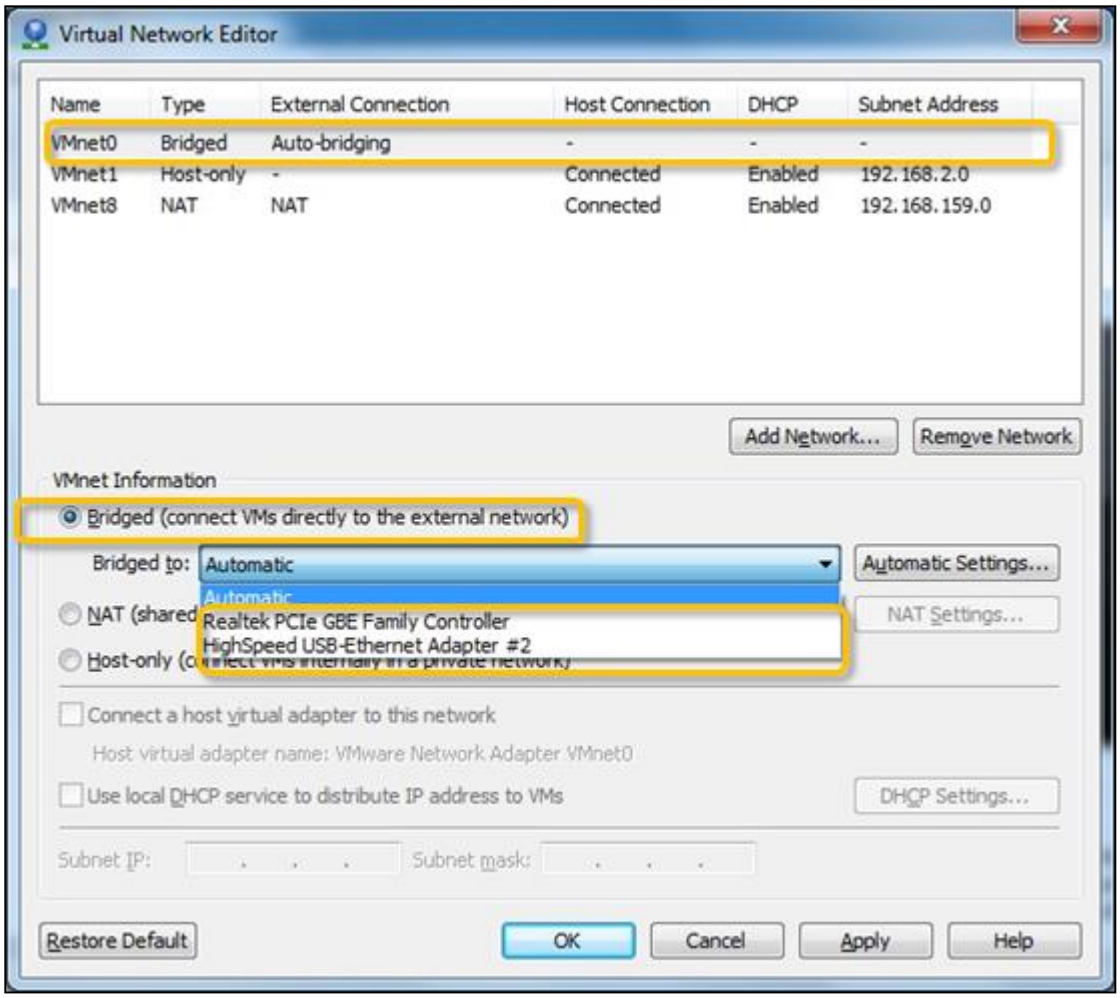


Adding a network adapter when using VMware Workstation

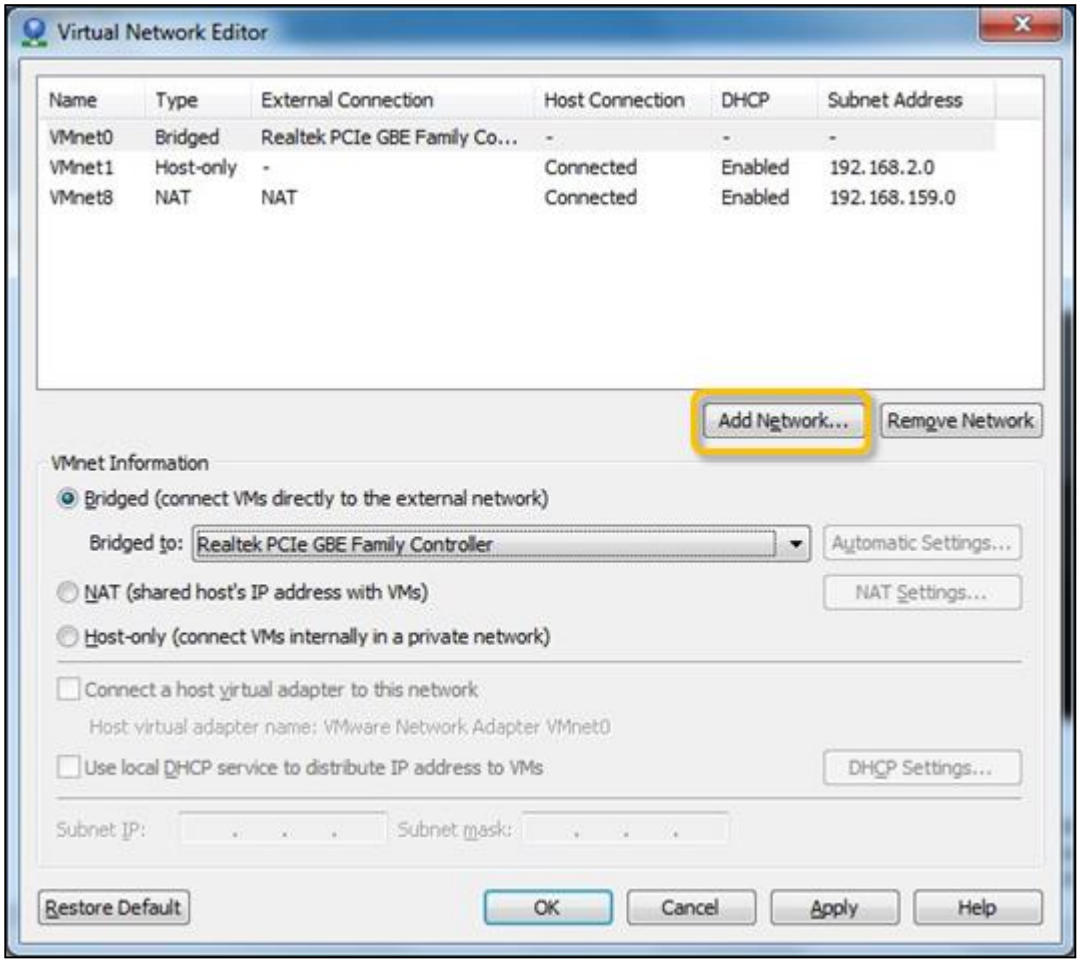
a. Power off the FusionHub virtual machine and select **Edit > Virtual Network Editor**



b. Under VMnet Information, select **VMnet0** and check **Bridged (connect VMs directly to the external network)**. Select the appropriate network adapter from the drop-down menu and click **OK**.

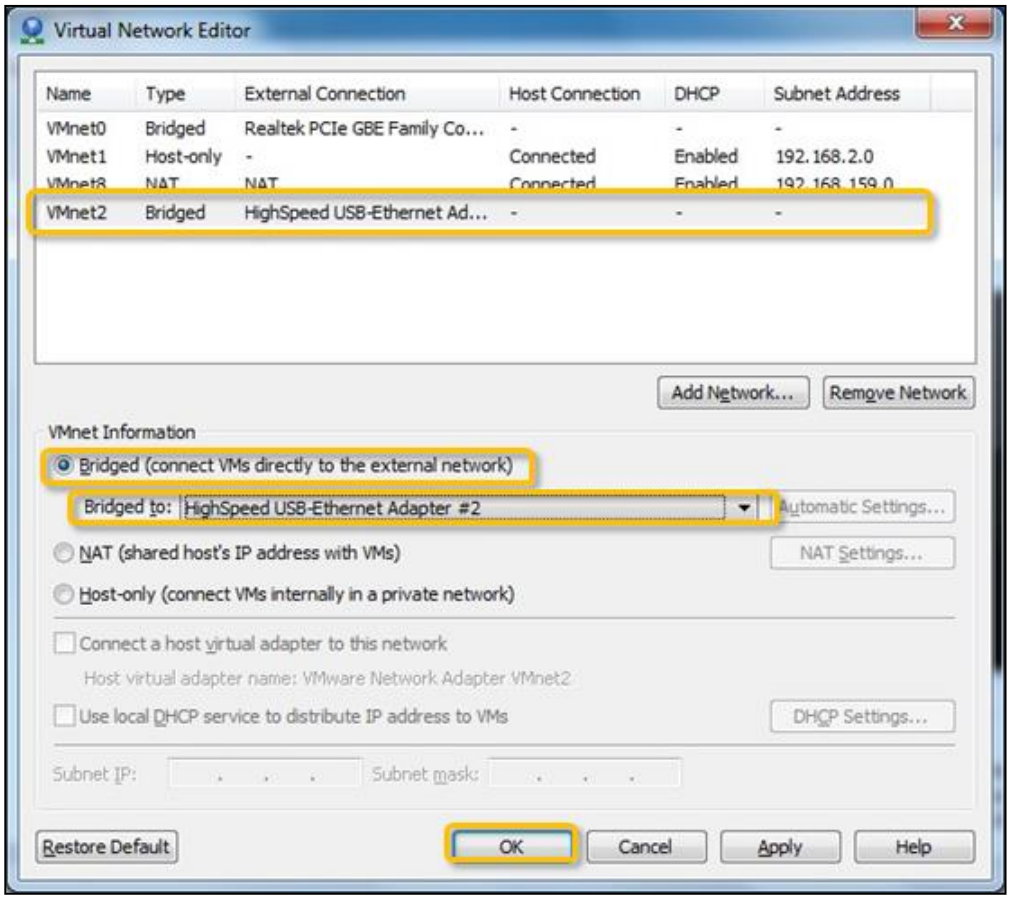


c. Click Add Network.

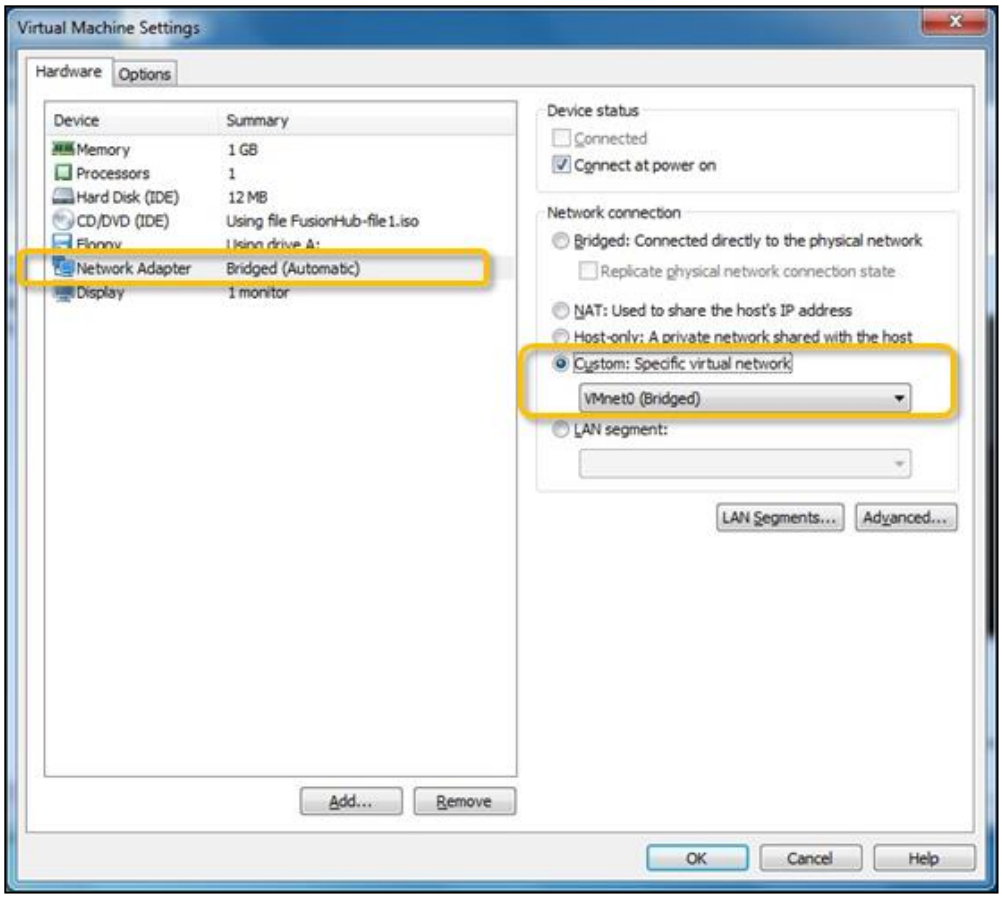


d. On the **Add a Virtual Network** dialog, select a network to add from the drop-down menu and click OK. In this example, we selected **VMnet2.**

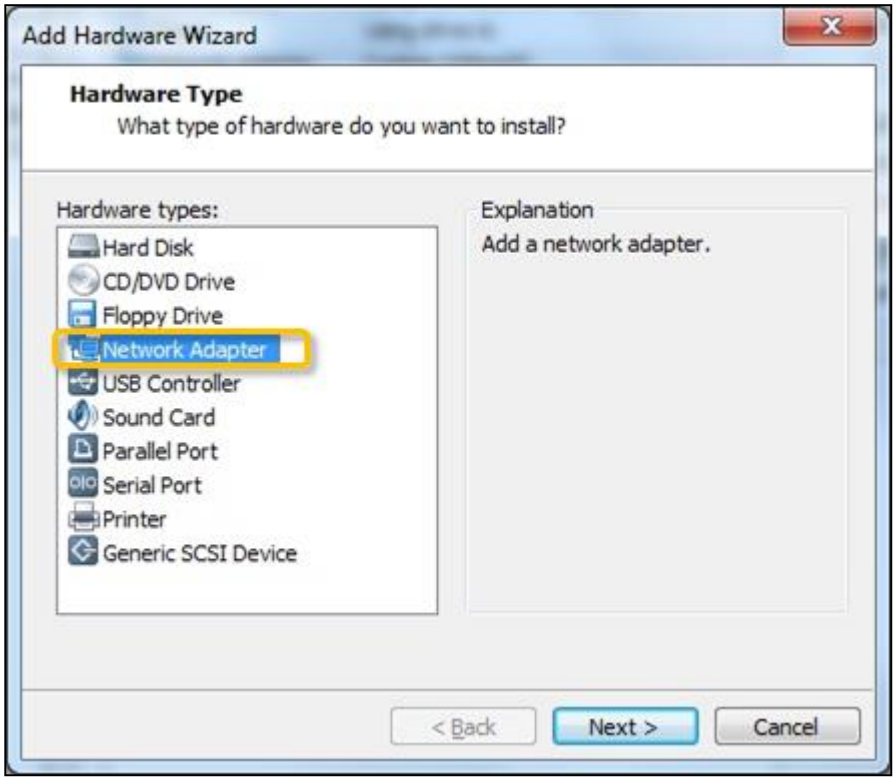
e. Select the **VMnet2** network added in the previous step and check **Bridged (connect VMs directly to the external network)**. Click **OK** to apply changes.



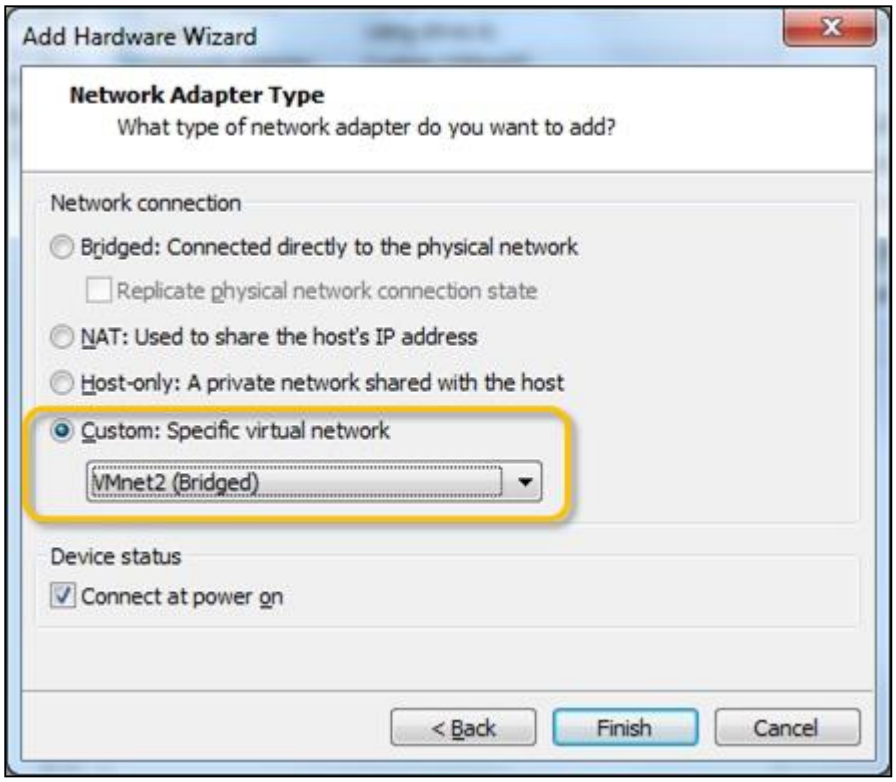
f. Click FusionHub and select Edit virtual machine settings. On the Virtual Machine Settings dialog, select Network adapter. Check Custom: Specific virtual network and select VMnet0 (Bridged). Then click Add to add another network adapter.



g. Select Network Adapter and click Next.



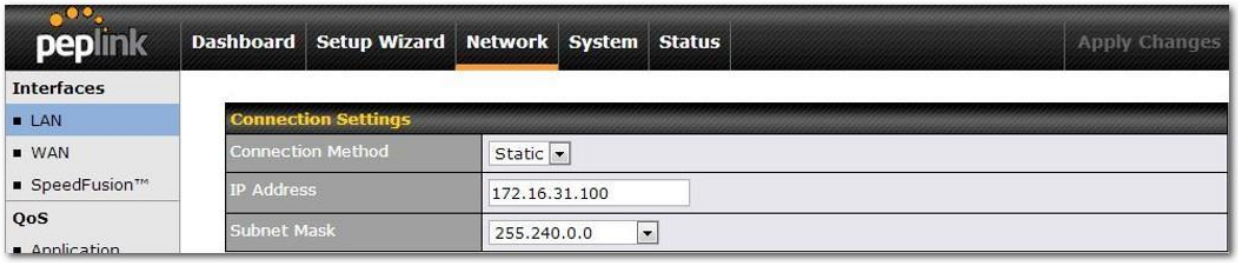
h. Check **Custom: Specific virtual network** and select **VMnet2 (Bridged)** from the drop-down menu. Click **Finish** to complete the network adapter addition process.



Adding a network adapter when using VMware Player
The **Virtual Network Editor** is not available in **VMware Player**. If you want to test this example with VMware Player, first add a virtual network editor to VMware Player. Then follow the steps described in **VMware Workstation** to modify and add network adapters. For details on adding a virtual network editor to VMware Player, refer to http://www.eightforums.com/virtualization/5137-how-add-virtual-network-editor-vmware-player-2.html#post275406

8. After adding one or more network adapters to the FusionHub virtual machine, select **FusionHub** again. Click **Power on the virtual machine**, and then reconnect to the FusionHub Web admin interface. Navigate to **Network > LAN**.

9. Once you've set up the LAN port, click **Save** and then **Apply Changes**. In this case, the IP address of Port 2 is **172.16.31.100**.



10. To set up the video server as shown in Figure 5.1, enter **172.16.31.x** as its IP address, and then set the default gateway so that it is the same as the IP address of FusionHub's port (in this example, the video server's default gateway address is **172.16.31.100**). Finally, directly link the video server and FusionHub Port 2 with one network cable.

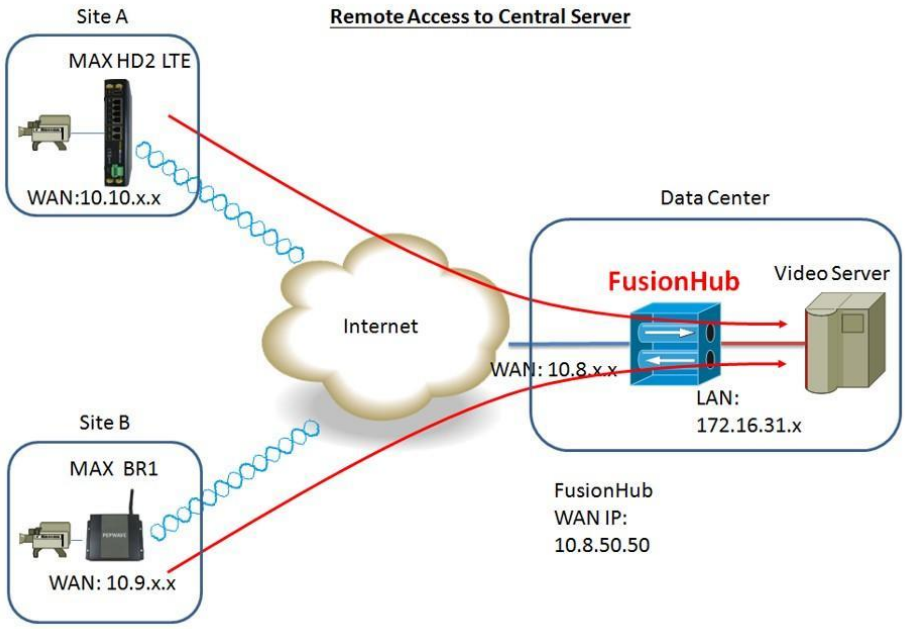


Figure 5.1 Remote access to central server

6.3 Example Two

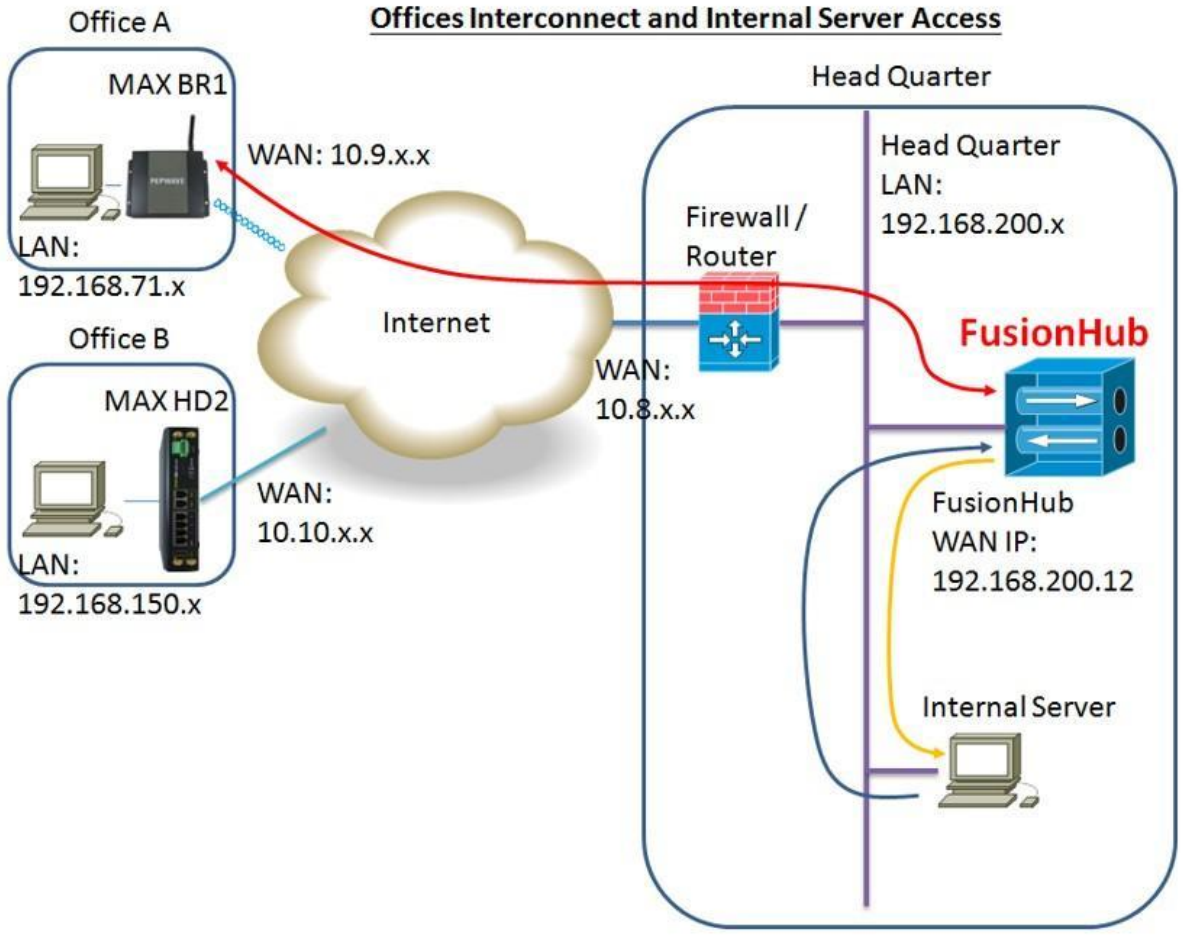


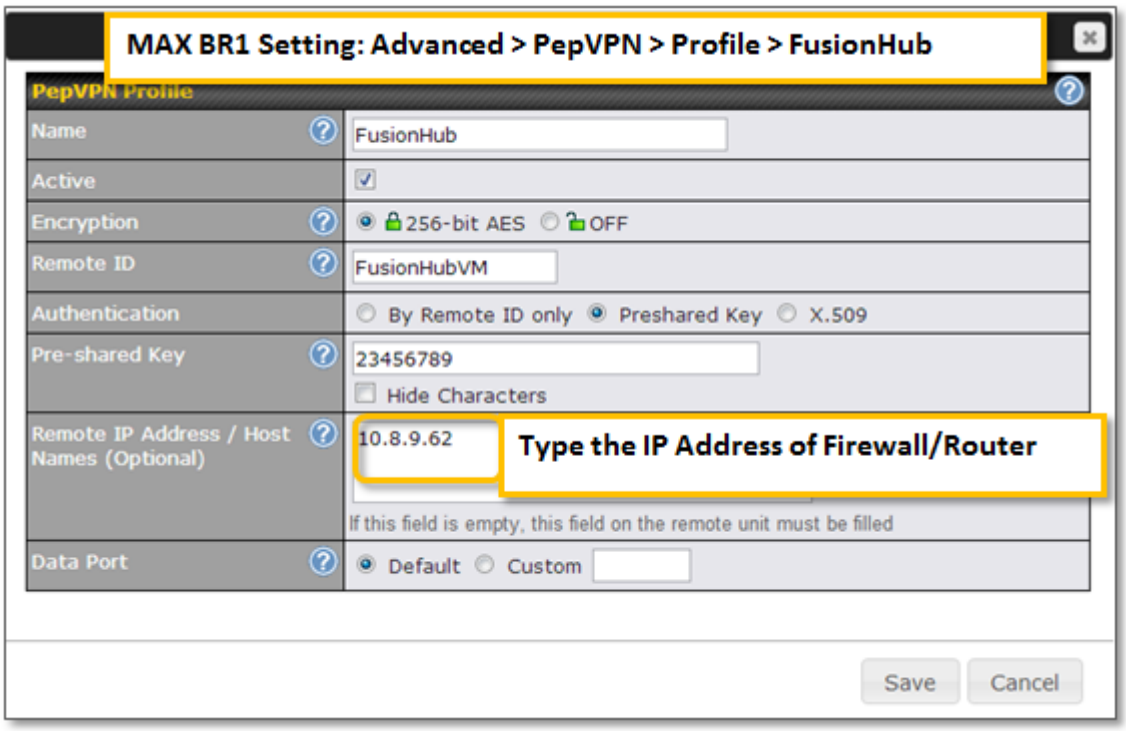
Figure 5.2 Offices interconnect

In this example, the hosts located at Office A want to communicate with the host located at Headquarters.

Case one: Supposing that network access is always made from Office A to Headquarters, setup your devices as follows:

MAX BR1 Settings

The settings for the MAX BR1 in Office A are the same as those in the first example, except that the **Remote IP Address/Host Names Optional** item in the PepVPN profile for FusionHub should be changed to the IP address of the firewall/router .

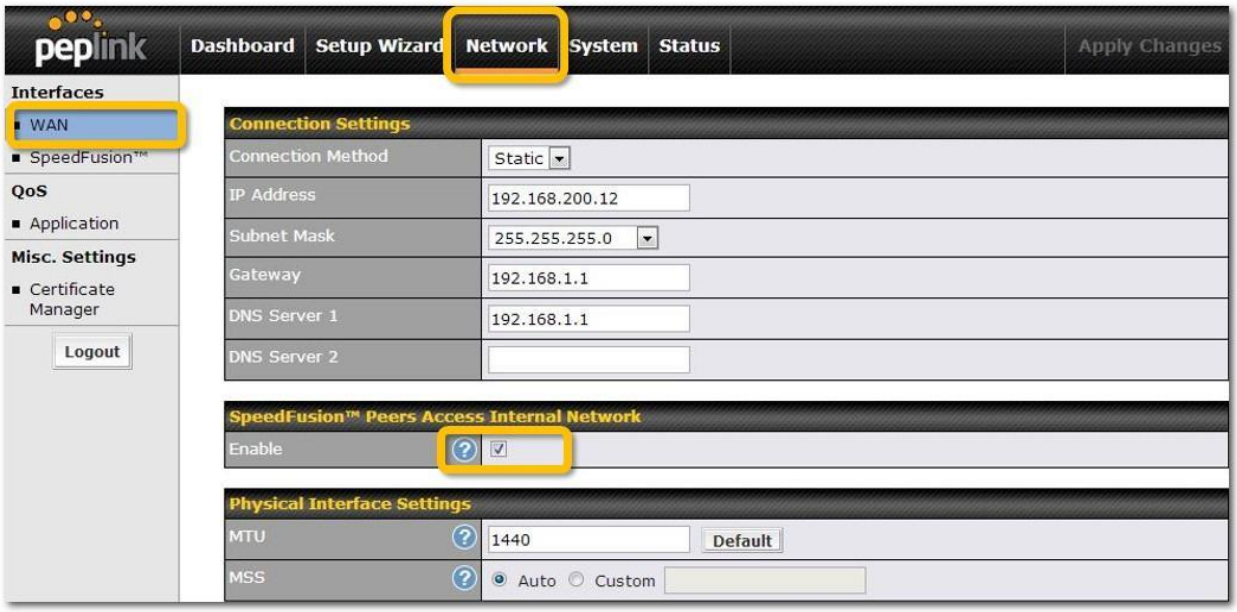


FusionHub Settings

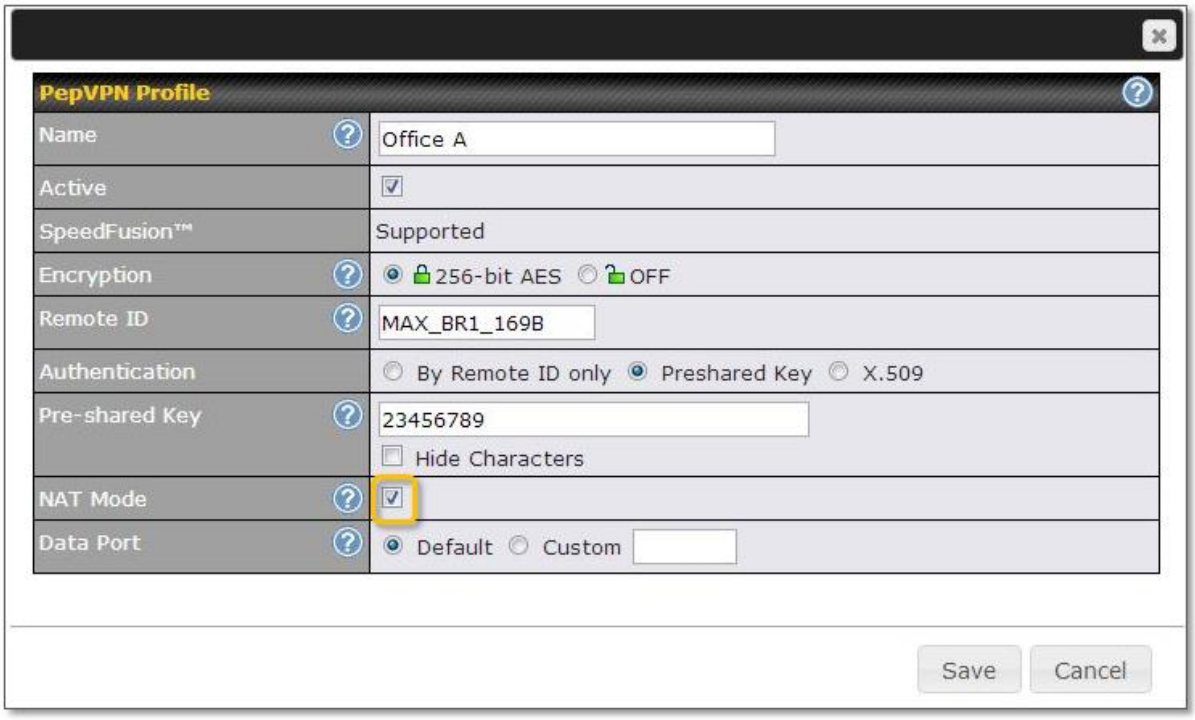
The FusionHub settings are also the same as those used in the first example, except that we need only one FusionHub port in this example. Therefore, if you have added a second port during Example One, please complete the following steps to remove one port:

1. Power off the FusionHub
2. Remove the network adapter added in Example One
3. Power on the FusionHub

Next, connect to the FusionHub Web admin interface. Navigate to **Network > WAN**. Check the box under **SpeedFusion Peers Access Internal Network** to enable it. To save your changes, click **OK** and then **Apply Changes**.



Check **NAT Mode** in the PepVPN profile for FusionHub.



Firewall/Router settings
Forward **UDP port 4500** to FusionHub (192.168.200.12, in our example). Then forward **TCP port 32015** to FusionHub (192.168.200.12, in our example).

Case two: Supposing that network access needs to be available on both sides:
Follow the same steps in case one except in Step 2 do not check **NAT Mode** in the PepVPN profile for FusionHub.

Configuring the hosts located on the Headquarters LAN
In Figure 5.2, the host located on the Headquarters LAN is a PC named **Internal Server**. In this example, you would need to add a static return route on this PC. For a PC running Windows, the command to add a static route is *route add -p* <MAX BR1 LAN's network> <MAX BR1's netmask> <FusionHub's local IP address>.

Example: *> route add -p 192.168.71.0 mask 255.255.255.0 192.168.200.12* (assuming FusionHub's local IP is 192.168.200.12). Here, *-p* makes the added route persistent across system reboots. This option is not supported in Windows 95.

NOTE: If you use a Peplink product as your firewall/router in this example, you will need to disable all PepVPN with SpeedFusion profiles.

6.4 Example Three

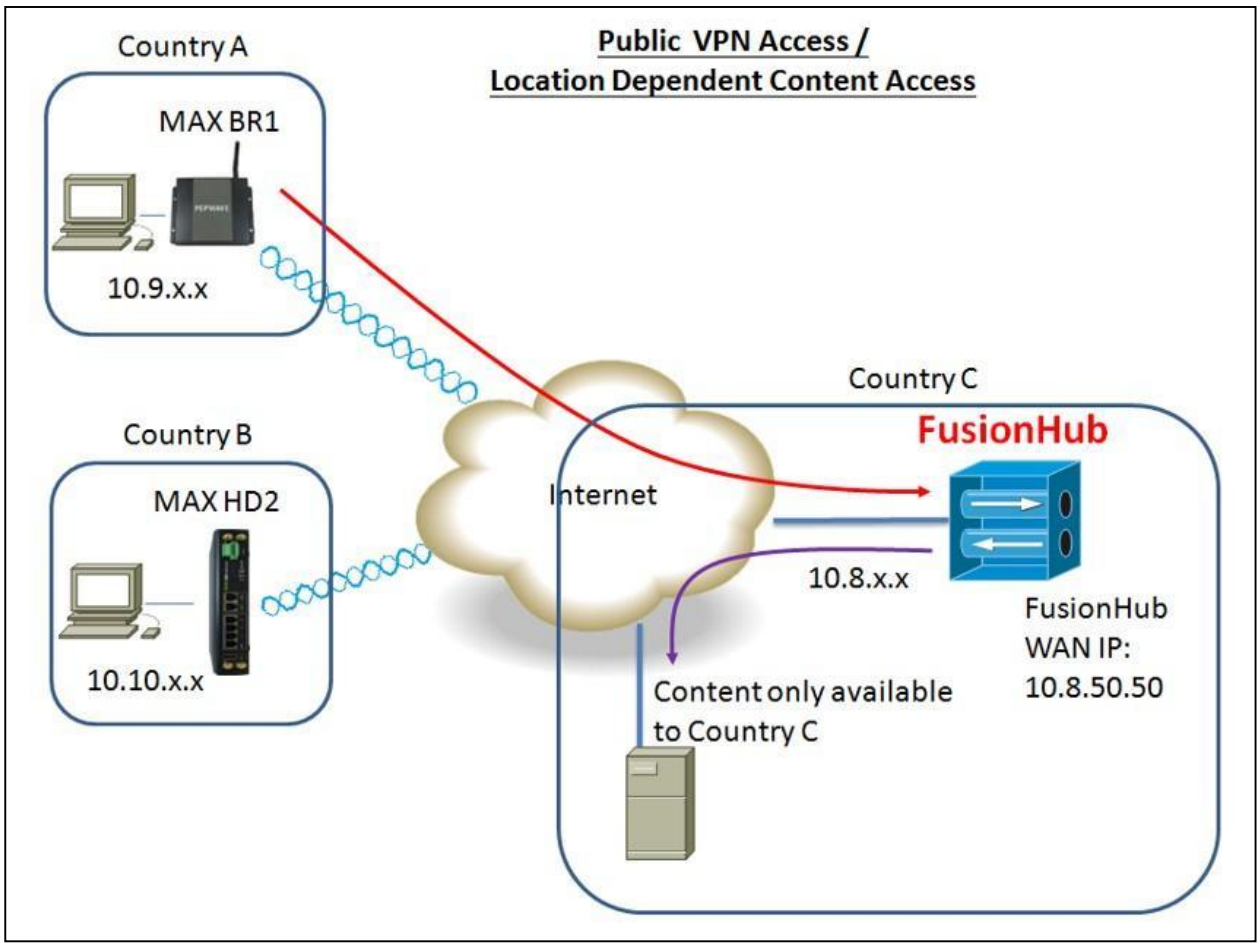
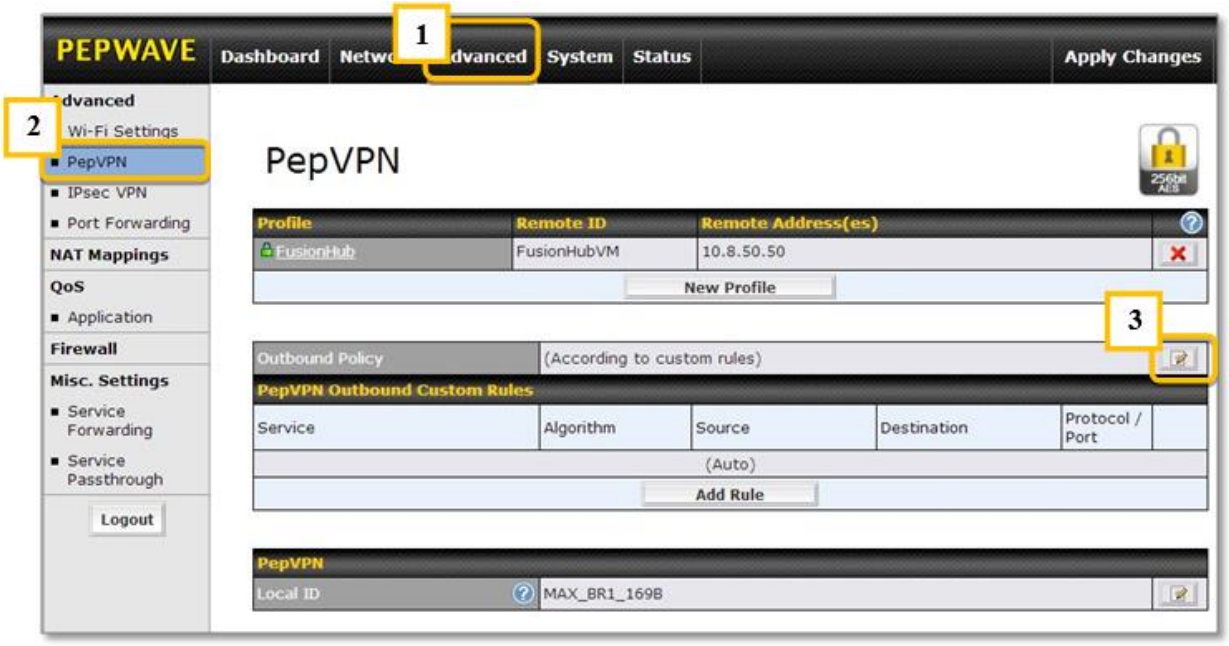


Figure 5.3 Public VPN Access / Location Dependent Content Access

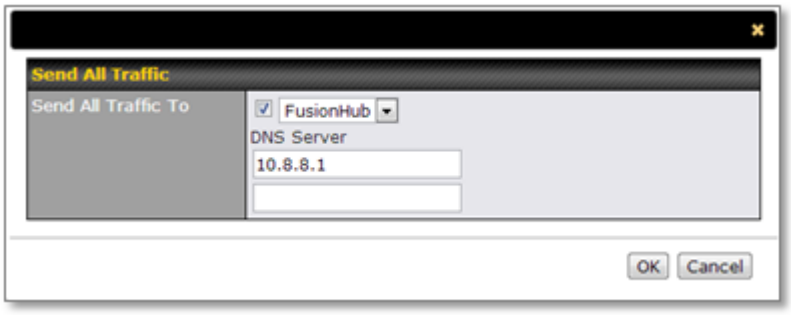
In this case, the settings of the MAX BR1 in Country A and the MAX HD2 in Country B are similar to those settings in the first example. However, the following changes must be made:

MAX BR1 Settings

1. Navigate to **Advanced > PepVPN**, and then click  under **Outbound Policy**.

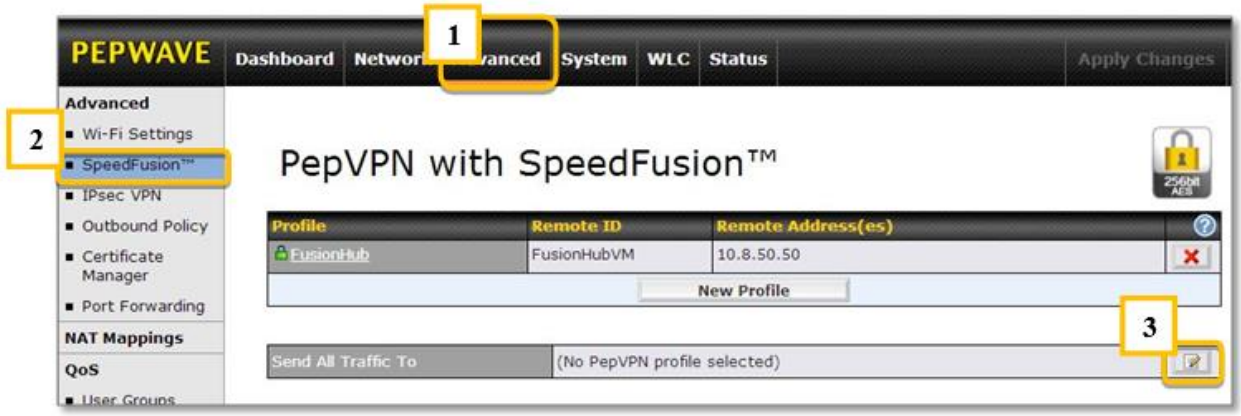


2. On the dialog displayed next, check the box under **Send All Traffic To**. Select **FusionHub** from the drop-down menu. Here, **FusionHub** is the profile name. Next, set **DNS server** to the same address used by FusionHub's DNS server, which is **10.8.8.1** in this example. To save your changes, click **OK** and then **Apply Changes**.

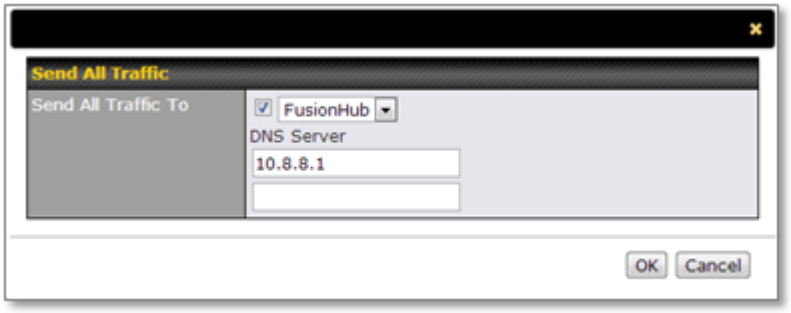


MAX HD2 Settings

1. Navigate to Advanced > SpeedFusion, and then click  under Send All Traffic To.



2. On the dialog displayed next, check the box under **Send All Traffic To**. Select **FusionHub** from the drop-down menu. Here, **FusionHub** is the profile name. Next, set **DNS Server** to the same address used by FusionHub's DNS server, which is **10.8.8.1** in this example. To save your changes, click **OK** and then **Apply Changes**.



The FusionHub settings are also similar to those settings in the first example, except that we need only one FusionHub port in this example. Enabling **SpeedFusion Peers Access Internal Network** is not needed here, so we've left the box unchecked.