ExtremeWireless™ V2110 Virtual Appliance Installation Guide

VMware® Platform

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Preface

This section discusses the conventions used in this guide, ways to provide feedback, additional help, and other Extreme Networks® publications.

Conventions

This section discusses the conventions used in this guide.

Text Conventions

The following tables list text conventions that are used throughout this guide.

Table 1: Notice Icons

Icon	Notice Type	Alerts you to...
	General Notice	Helpful tips and notices for using the product.
	Note	Important features or instructions.
	Caution	Risk of personal injury, system damage, or loss of data.
	Warning	Risk of severe personal injury.
New!	New Content	Displayed next to new content. This is searchable text within the PDF.

Table 2: Text Conventions

Convention	Description
`Screen displays`	This typeface indicates command syntax, or represents information as it appears on the screen.
The words **enter** and **type**	When you see the word "enter" in this guide, you must type something, and then press the Return or Enter key. Do not press the Return or Enter key when an instruction simply says "type."
[Key] names	Key names are written with brackets, such as **[Return]** or **[Esc]**. If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press **[Ctrl]**+**[Alt]**+**[Del]**
Words in italicized type	Italics emphasize a point or denote new terms at the place where they are defined in the text. Italics are also used when referring to publication titles.

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- A description of any action(s) already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

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2 Complete the form with your information (all fields are required).
3 Select the products for which you would like to receive notifications.

Note
You can modify your product selections or unsubscribe at any time.

4 Click **Submit**.

1 V2110 Virtual Appliance Overview

This guide describes how to configure and deploy the ExtremeCloud™ Appliance V2110 Virtual Appliance. This guide is a reference for system administrators who install and manage the V2110 Virtual Appliance.

Note

Any administrator performing tasks described in this guide must have an account with administrative privileges.

2 Deploy the Virtual Appliance

This section provides a requirements overview for the ExtremeCloud™ Appliance Virtual Appliance V2110 deployment. It explains how to install the appliance on a VMware® vSphere™ server (ESXi™) and how to run the initial configuration wizard.

V2110 Deployment Requirements

V2110 is packaged in the .OVA file format defined by VMware. It must be deployed on a VMware ESX or ESXi host running vSphere. The minimum supported version of vSphere is 4.1 u1.

Note
You only need to install the ".ova" file when you first install the V2110. All subsequent upgrades can be performed using the standard controller upgrade procedure to apply a ".bge" file to V2110.

V2110 installation prerequisites:

- 20 GB of RAM
- 4 virtual CPUs (4 distinct physical cores or 2 cores with hyperthreading)
- 25 GB of disk space

In addition, the Virtual Appliance is configured with one Ethernet interface for administration and two data plane Ethernet interfaces for forwarding payload traffic.

V2110 Connectivity Requirements

The appliance has one management interface (Admin) and two data plane interfaces (Port1, Port2). If all three interfaces are used, connect them to separate virtual switches (vSwitches) in the ESXi host.

The data plane interfaces have additional requirements on the vSwitches to which they connect:

- The vSwitch must be configured to accept promiscuous mode connections.
- The vSwitch must be configured to accept any VLAN tag traffic and forward it without changing or removing the VLAN tags.

The best practice is to configure the vSwitches before installing the appliance.

See Configure vSwitches for the Virtual Appliance on page 26 for instructions on how to create and configure vSwitches that can be used by V2110 data plane ports.

Download a V2110 Image

You need a V2110 image file to deploy the virtual machine on your local machine. Download the V2110 software image to your local machine where you manage the vSphere.

1 Access V2110 download page at https://extremeportal.force.com/.
2 Log into the **Downloads Home** using your Extreme Portal login credentials.
3 Type V2110 in the search tab and click the search icon.

The image list is displayed.

4 Download the image from **Downloads > Downloads Home** tab.

Log into the vSphere Client

Use the VMware vSphere client application to log into the vSphere server.

1 Open the VMware vSphere client application.

The **VMware vSphere Client** login screen is displayed.

Figure 1: vSphere client application login screen

2 On the **VMware vSphere Client** login screen:

- Enter the IP address, name of the ESX or ESXi server.
- Enter the User name and Password of an account that has full administrative access to the vSphere (ESX or ESXi) server.

3 Select **Login**.

Install the Virtual Appliance Image

Install the V2110 virtual appliance image using the image file.

1 From the vSphere client **Getting Stated File** menu, select **Deploy OVF Template**.

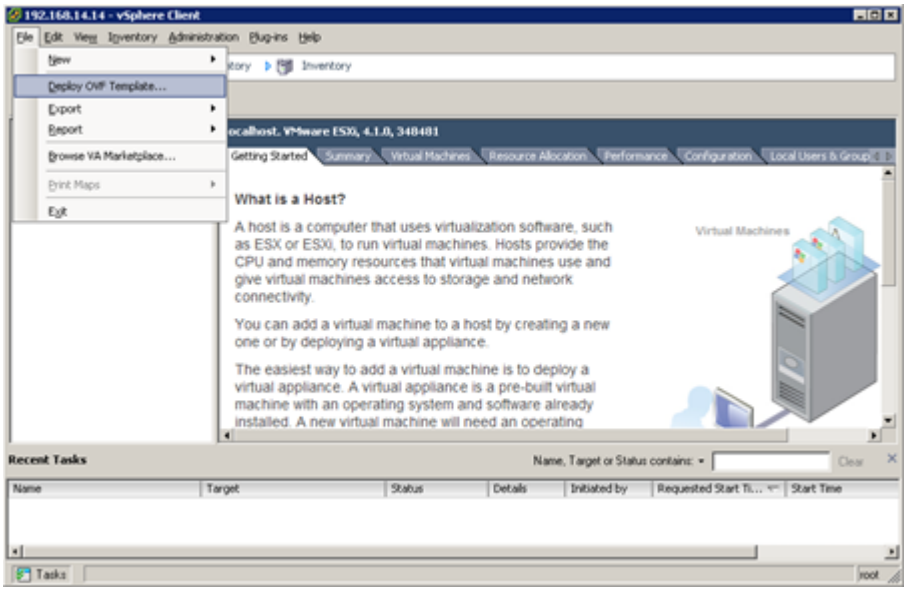


Figure 2: Deploy OVF Template selection option on the Getting Started File menu

Note

Even though the V2110 is distributed in the .OVA file format, the menu option refers to the alternate .OVF format.

2 Select **Browse** on the **Source** screen to select the V2110 image, and select **Next**.

The OVF Template Details screen displays information about the selected image file.

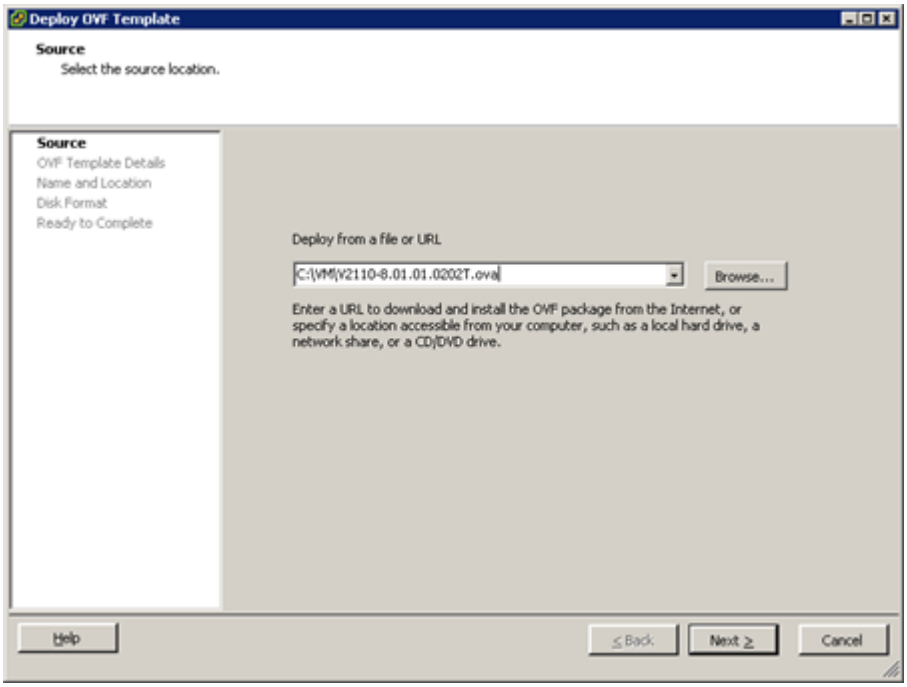


Figure 3: Deploy OVF Template screen

3 Select **Next** and verify the OVF template details.

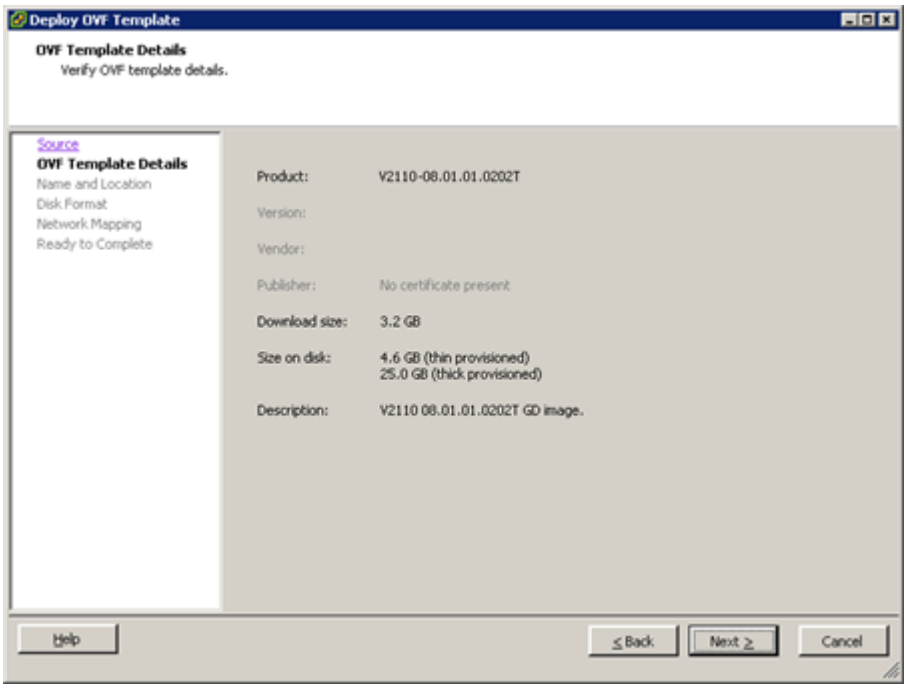


Figure 4: Verify OVF template details screen

4 Enter a name for the V2110 appliance on the Name and Location screen and select **Next**.

Note

The name you enter will be used in the vSphere client's inventory list. It does not have to be the same name as the hostname of the V2110.

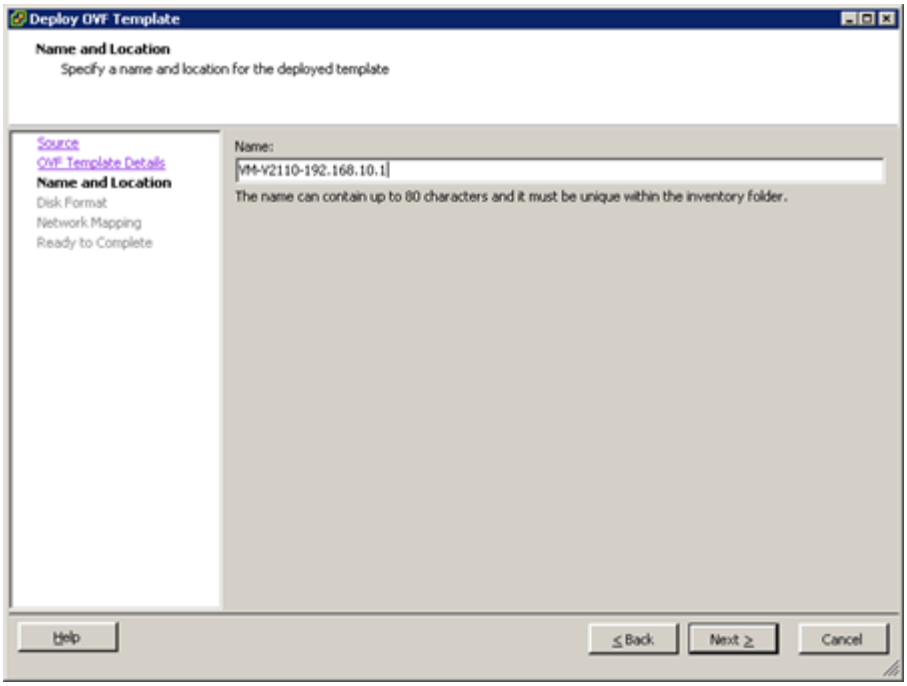


Figure 5: Name and location for the OVF template screen

5 Select **Thick provisioned format** on the Disk Format screen, and select **Next**.

Note

Thick provisioned format allocates storage immediately. Estimated disk usage is 25.0 GB.

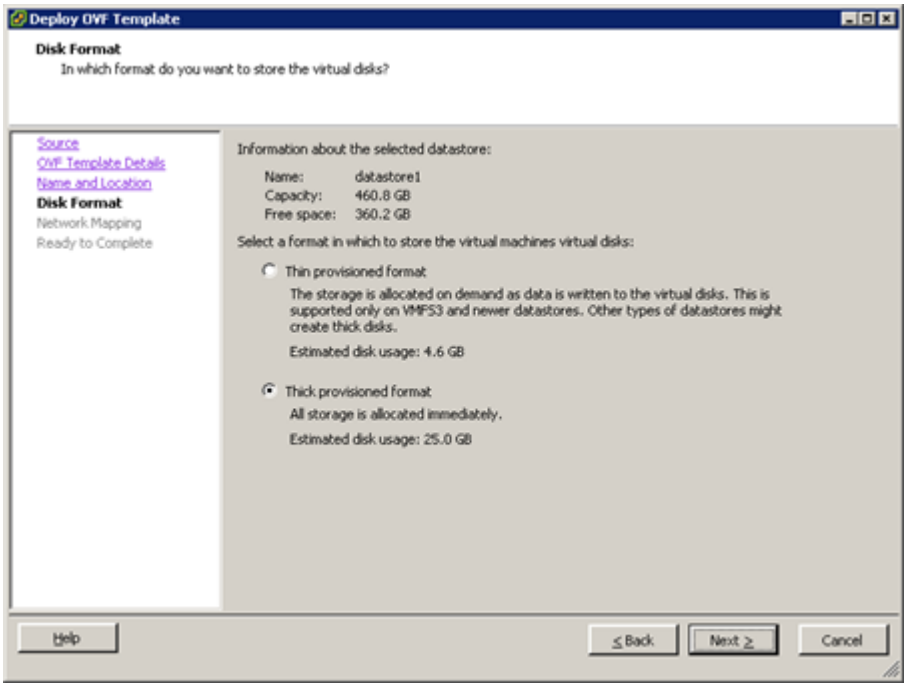


Figure 6: Disk Format information screen

Map the Virtual Appliance Ports to Virtual Networks

The Network Mapping dialog is used to map the V2110 ports to virtual networks deployed on the ESX or ESXi host.

- The "VM Network" Source Network is the network V2110 management port is expecting to connect to. That network should be mapped to a virtual switch that will be used for management traffic.
- The "esa0" Source Network is the network that the V2110 esa0 (data plane) port expects to use. That network should be mapped to a virtual switch on the ESX or ESXi host that will carry traffic between the V2110 and the access points.
- The "esa1" Source Network is the network that the V2110 esa1 (data plane) port expects to use. That network should be mapped to a virtual switch on the ESX/ESXi host that will carry traffic between the V2110 and the access points.

To map V2110 ports to virtual networks:

1 Select the Destination Networks (virtual switch defined on the ESX or ESXi host) on the Network Mapping screen by selecting the source network in the table.

2 Select the Destination Network for each port by selecting the destination network row in the table.

This step opens a drop-down list of virtual switches defined on the host.

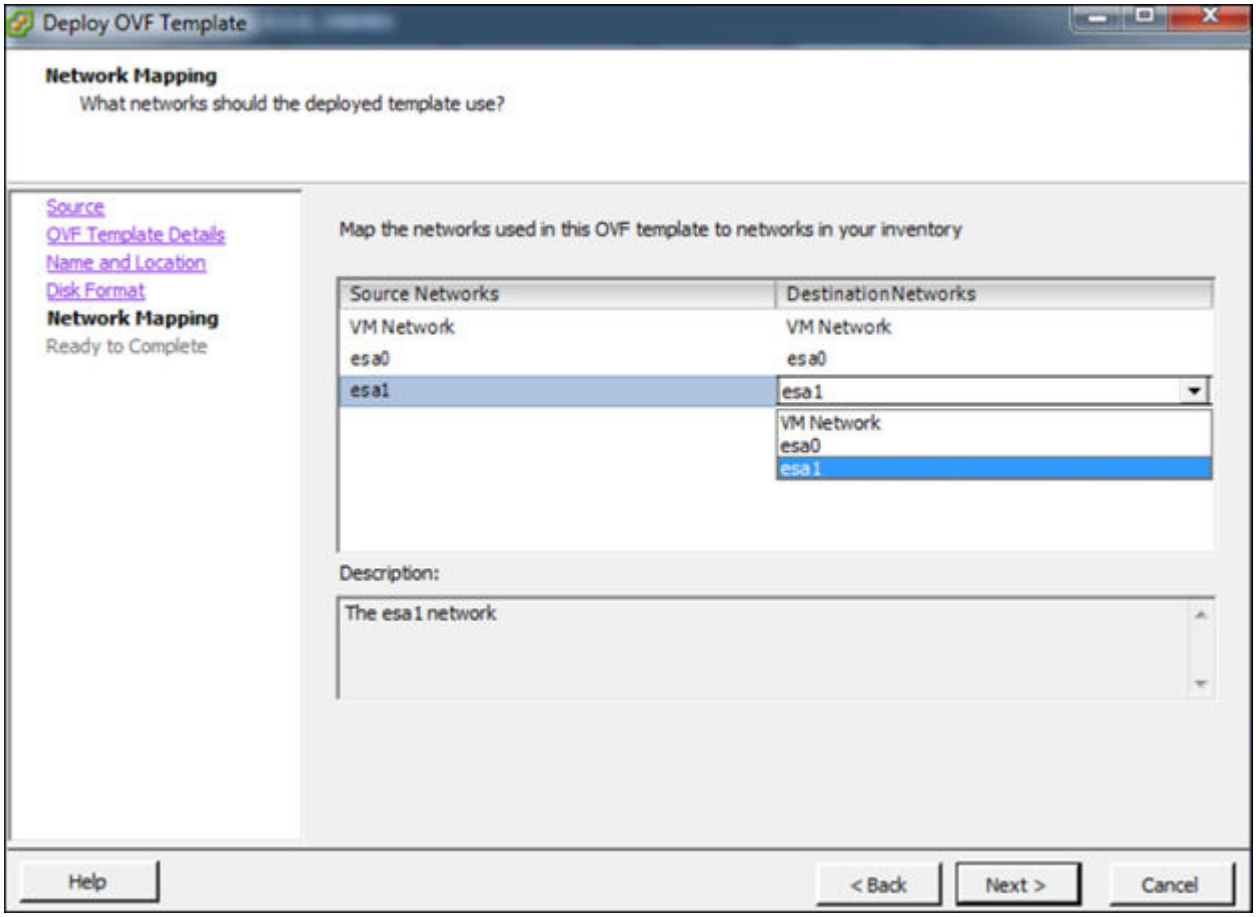


Figure 7: Network Mapping screen

Deploy the Virtual Appliance on the vSphere Client

After mapping all the ports to the networks, deploy the virtual appliance on the vSphere client.

1 Select **Next** on the Network Mapping screen.

The Ready to Complete screen displays a summary of your selections.

2 Review each setting.

Select **Back** to return to previous screens and make any required changes.

3 Select **Finish** to complete the deployment.

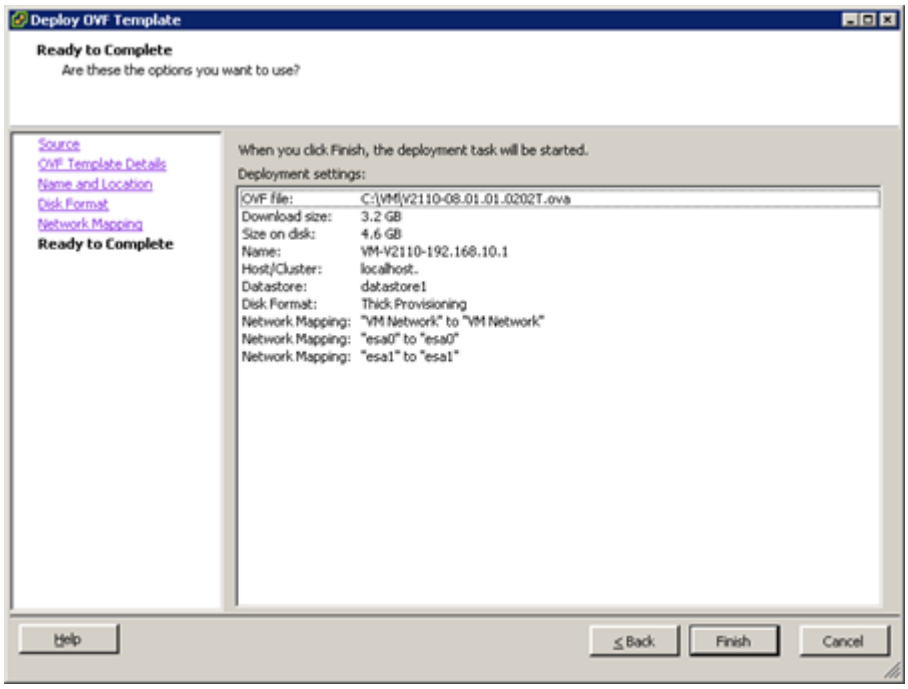


Figure 8: Ready to Complete screen

A progress bar reports deployment progress.

4 Select **Close** when the deployment has completed successfully.

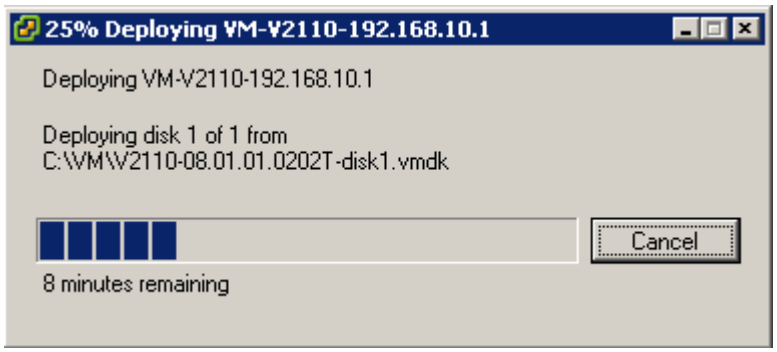


Figure 9: Deployment progress bar window

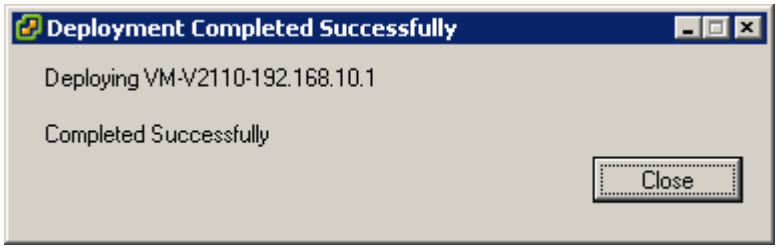


Figure 10: Successful deployment message window

You are now ready to login and configure the V2110, as described in Virtual Appliance Configuration.

Caution
After installing the V2110 on a vSphere server, the administrator must not install VMware tools into the virtual machine. This can cause problems for the operating system on the V2110.

3 Configure the Virtual Appliance

After you deploy the virtual appliance on a VMware ESXi server, you are ready to perform initial server configuration.

Access the Virtual Appliance Console

1 Log into the vSphere client.
2 Right-click the virtual appliance on the vSphere Client screen.
3 Select **Power and Power On**.

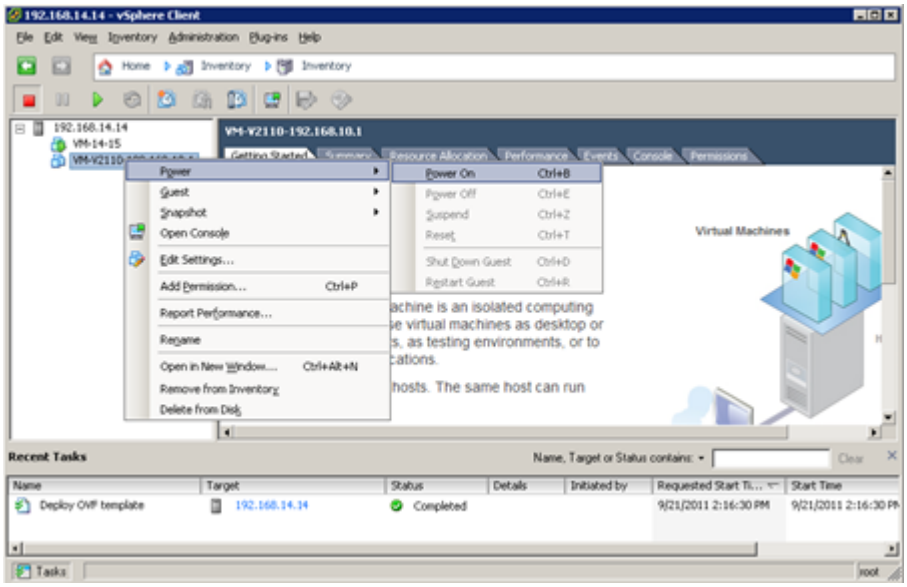


Figure 11: Virtual appliance power on option

Wait for the virtual appliance to start and complete the boot process.

4 Right-click the virtual appliance on the vSphere Client screen, and select **Open Console**.

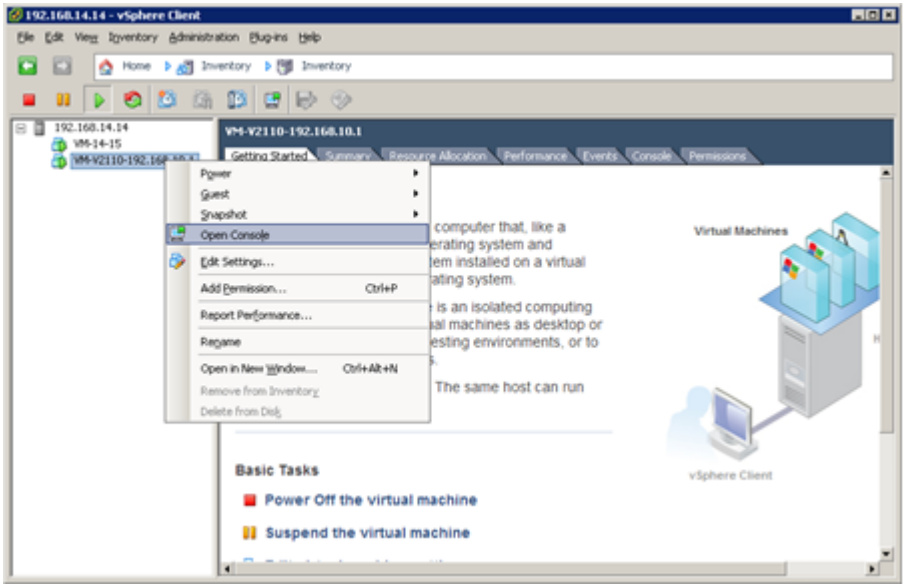


Figure 12: Virtual appliance open console option

The console will prompt for user credentials.

Note
Double-click inside the console window to make the window interactive. If the prompt is not visible, select the **Enter** key.

- For User Name, type `admin`.
- For Password, type `abc123`.

You now are working in the V2110 command line interface (CLI).

Change the Virtual Appliance Management Port IP Address and Appliance Using the CLI

In order to make the appliance accessible remotely, you must configure the Virtual Appliance admin interface IP address and appliance IP address for the virtual network inside the vSphere server. To configure the IP address, log in to the appliance CLI through the vSphere console. Then type the following commands:

1 At the root level, type the topology context: `EWC.extremenetworks.com# topology`
2 Type the Admin name topology context: `EWC.extremenetworks.com:topology# Admin`
3 Type the layer 3 context (note that the first character of the command is an “l”, as in “layer”): `EWC.extremenetworks.com:topology:Admin# l3`
4 Type the IP address for the admin interface with the `ip` command: `EWC.extremenetworks.com:topology:Admin:l3# ip <ipv4 address>/<CIDR>`
5 Type the appliance IP address with the `appliance` command: `EWC.extremenetworks.com:topology:Admin:l3# appliance <ipv4 address of appliance>`

6 Apply the `ip` and `appliance` command inputs with the `apply` command:
`EWC.extremenetworks.com:topology:Admin:l3# apply`

Configure V2110 Using the Basic Installation Wizard

The ExtremeCloud Appliance software provides a Basic Installation Wizard that can help administrators configure the minimum settings necessary to deploy a fully functioning V2110 appliance on a network.

Administrators can use the wizard to quickly configure the appliances for deployment, and then once the installation is complete, continue to revise the configuration accordingly.

The wizard is automatically launched when an administrator logs on to the V2110 CLI for the first time, including after the system has been reset to the factory default settings.

The wizard prompts with a set of **Yes** or **No** questions. The default value is indicated in parenthesis. To accept the default value, select **Enter**.

Set Up the Virtual Appliance to Accept USB Flash Drives

The Virtual Appliance has a (virtual) USB controller and can accept USB flash drives. The flash drive is used for backup, restore, upgrade, and collection of log information. A USB drive is inserted, assigned to a virtual appliance, and removed from the virtual appliance while the appliance is in service.

To enable the Virtual Appliance to use a USB flash drive:

1 Format the flash drive to FAT32.
2 Insert the flash drive into a USB port on the host (running vSphere 4.1 or later).

Note
The vSphere client application requires that a USB device be plugged in before it can be added to a virtual machine.

3 Log into the vSphere client using an account that grants full administrative access to V2110.
4 From the list of guest operating systems (virtual machines), right-click V2110.

5 In the vSphere client, right-click the name of the virtual appliance from the list of guest operating systems, select **Edit Settings**.

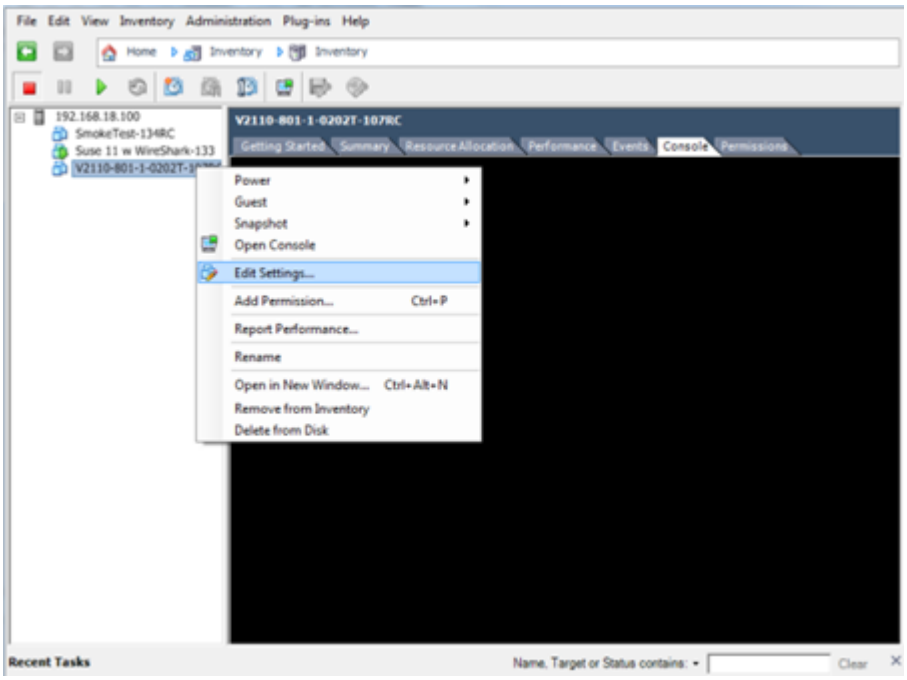


Figure 13: Edit Settings options in the vSphere client for adding USB flash drives

6 Select **Add** in the Virtual Properties dialog.

The Add Hardware dialog box appears. If running vSphere 4.1 or later and a USB device has been inserted and is not assigned to another guest, the USB Device option will be listed.

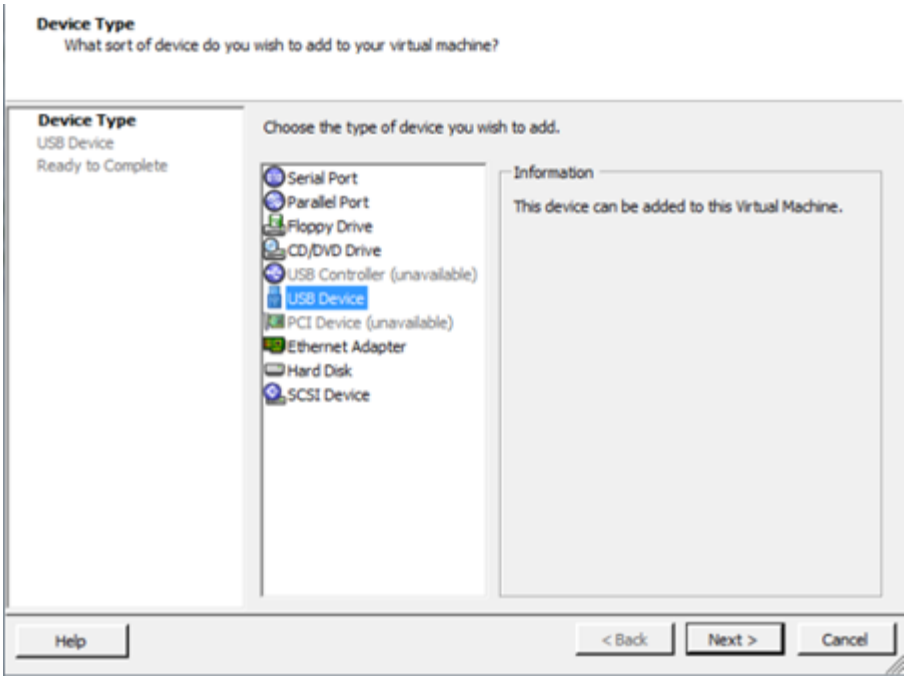


Figure 14: Add USB Device option

7 Select the **USB Device** option, and select **Next**.

The Select USB device dialog appears. The dialog lists all USB devices plugged into the host that are not assigned to guest operating systems.

8 Select a USB Flash drive (as other devices are not supported by V2110), and select **Next**.

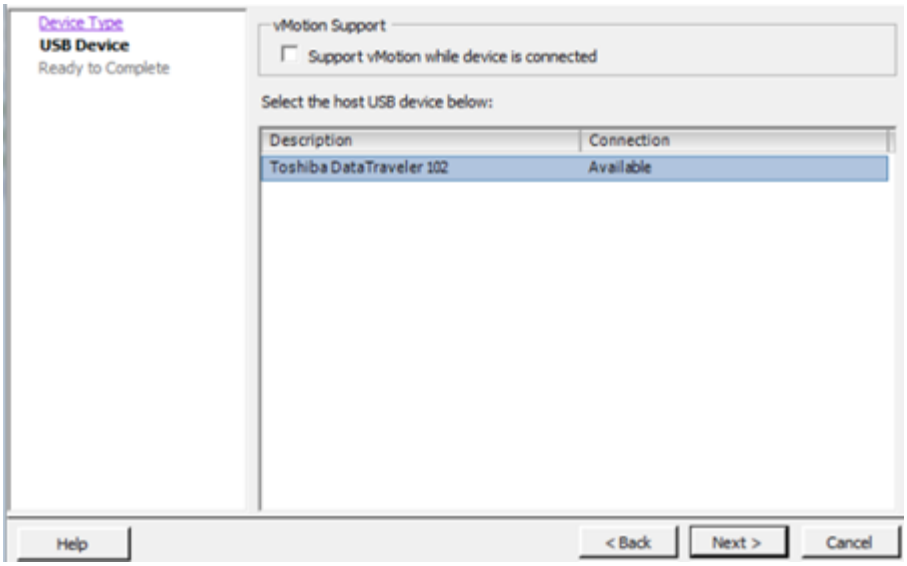


Figure 15: USB flash drive selection

The Ready to Complete dialog appears.

9 Review the settings and then select **Finish** to add the USB device to V2110 or select **Cancel** to abort the operation.

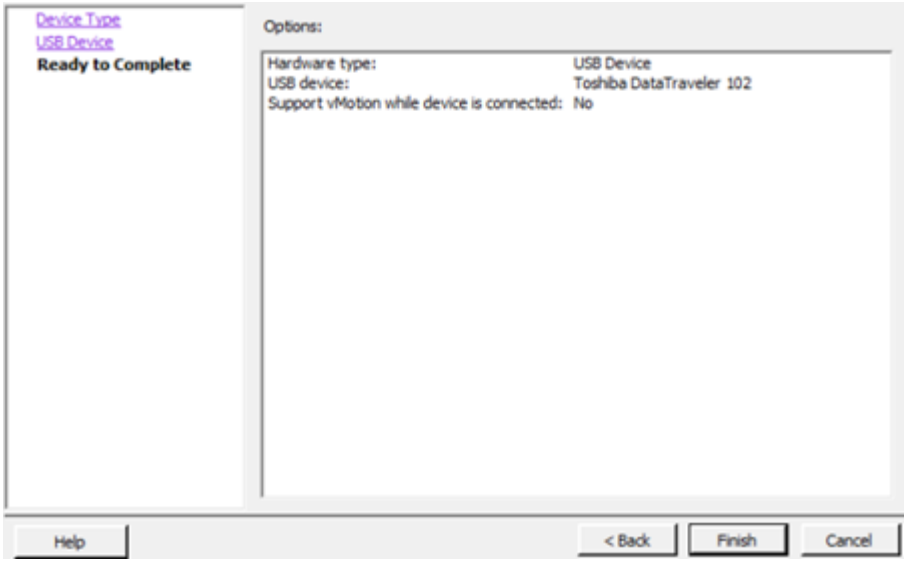
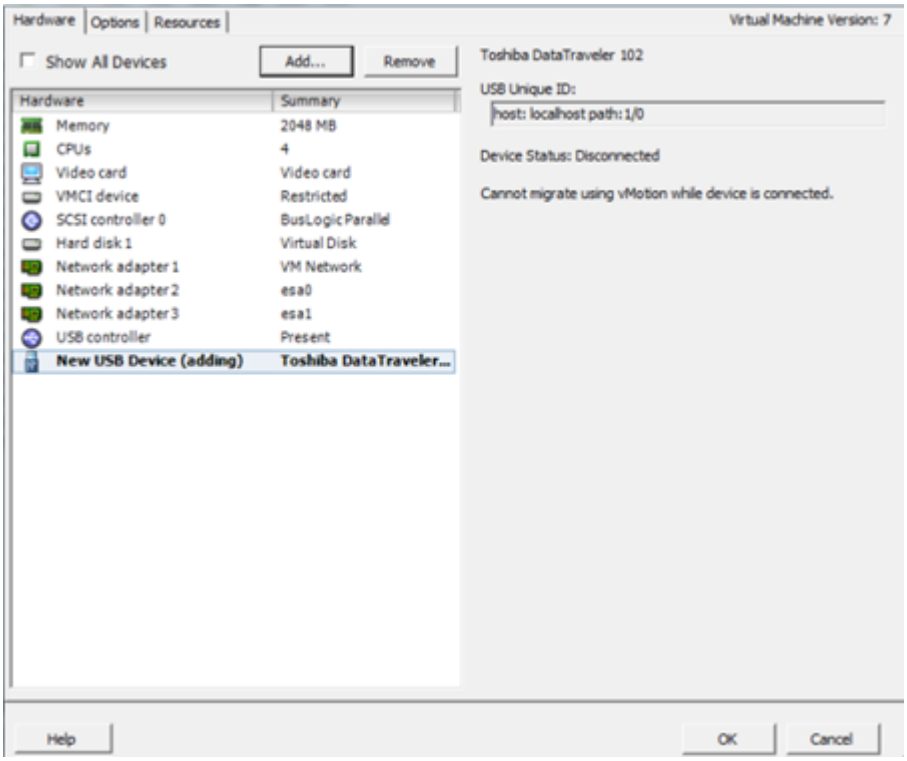


Figure 16: Finish or Cancel option for adding a USB flash drive

The Virtual Machine Properties dialog displays that the USB device is in the process of being added to the virtual machine. The new USB device will be shown in bold and the term “adding” appears after the USB device name.

10 Select Ok to save the configuration.



11 Open the V2110 Virtual Machine Properties dialog on the main vSphere Client screen and select the **Hardware** tab.

The USB device will be listed under Hardware.

You can now use the USB flash drive on V2110 just as you would on a physical controller.

Manage the Flash Memory

1 Right-click the name of the appliance, and select **Power**.
2 From the **Power** menu, select **Power On**.
3 From the Wireless Assistant menu, select **Wireless Controller**.

4 From the left-pane, select **Administration**, then select **Flash**.

The Flash Memory Configuration page is displayed.

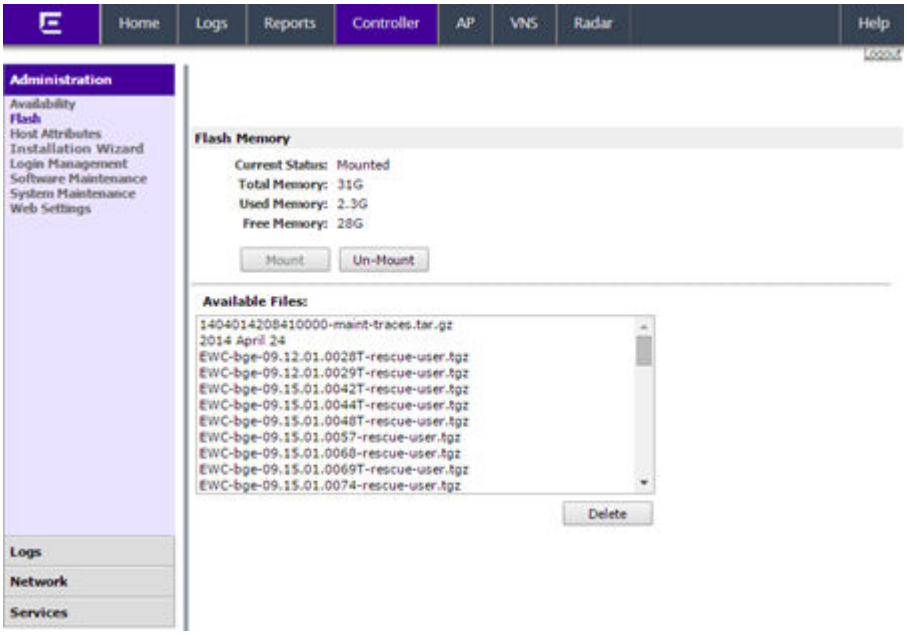


Figure 17: Flash Memory Confuguration page

Remove the Flash Drive

1 When you are ready to remove the USB flash drive, select **Un-Mount** from the Flash Memory dialog.

2 Remove the flash drive.

You can delete the USB flash drive from the Virtual Machine Properties dialog after unmounting it.

Note

The Virtual Appliance can be in service when the USB flash drive is assigned to it using the vSphere client. Within a few seconds of the USB flash drive being assigned to it, V2110 will detect the flash drive and mount it for use.

Obtain a MAC Address Manually from the vSphere Client

Obtain a license key from Extreme Networks Support to activate the Virtual Appliance. The activation key can be permanent or temporary depending on the license you have obtained. The license key requires a MAC address that is assigned automatically from the vSphere client. In some cases the administrator has to take manual control over the assignment of MAC addresses to the appliance physical ports. In that case, the administrator must obtain a MAC address manually. Once assigned, the MAC address is applied against the license key to activate the Virtual Appliance.

To obtain a MAC address manually from the vSphere client:

1 Log into the vSphere client.

2 Install the Virtual Appliance ova file.

For more information, see Deploy the Virtual Appliance.

3 Shut down the V2110 as described in the following steps:

1 In the vSphere Client screen, right-click V2110.

2 Select **Power**.

3 From the Power sub-menu, select **Shut Down Guest**.

Caution

Do not select **Power Off** as this will terminate the connection to V2110.

4 Right-click the virtual appliance from the list of guest operating systems on the vSphere client screen.

5 Select **Edit Settings**.

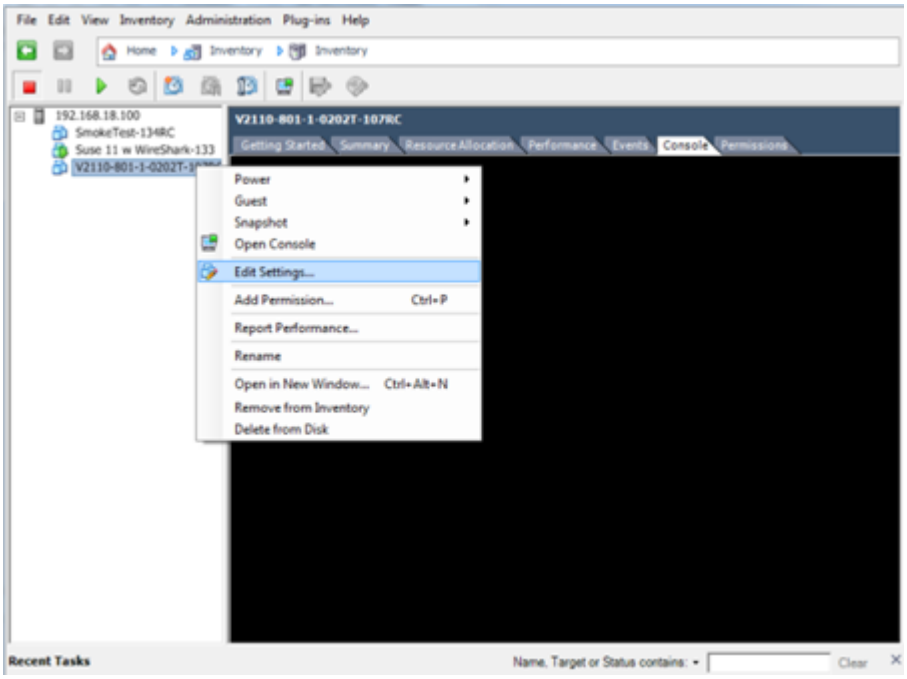


Figure 18: Edit Settings option

6 Under MAC Address, select **Manual**.

The MAC Address field becomes editable. The field will be initialized with the Organizational Unique Identifier (OUI) for VMware virtual MAC addresses. Although the field lets you delete this OUI, the field only accepts MAC addresses with this OUI.

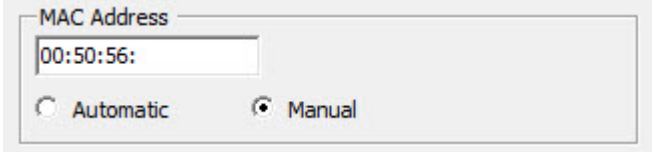


Figure 19: MAC address manual selection

7 Type the remainder of the MAC Address for the V2110 management interface, and select **Ok**.

8 Power on the V2110 from the vSphere client.

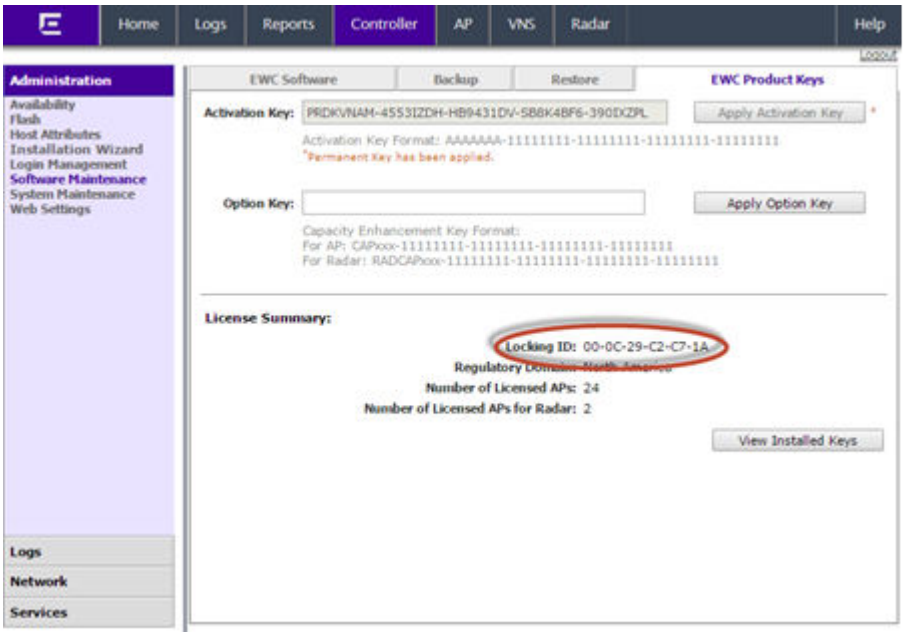
9 From the Wireless Assistant menu, select **Wireless Controller**.

10 Select **Administration** > **Software Maintenance** > **HWC Product Keys**.

The license summary is displayed.

11 Verify that the locking ID matches the manually assigned MAC address.

Figure 20: License Summary section



12 Redeem virtual appliance licenses, such as the Regulatory Domain key, using this MAC address.

4 Configure vSwitches for the Virtual Appliance

The Virtual Appliance has some specific requirements on the virtual switches (vSwitches) to which its data plane ports (esa0, esa1) are connected. This section explains how to create a vSwitch on an ESX or ESXi 4.1 U1 host that satisfies these requirements.

This section does not replace the vSphere ESX or ESXi documentation. The procedures described in this section assumes that you have already logged into the vSphere client using credentials that grant full administrative access to the vSphere ESX or ESXi host server.

Create a New Virtual Switch on the ESXi Server

This is an optional step since it is possible to reconfigure the virtual switch created by default when ESXi is installed to support VLANs or another acceptable custom vSwitch might be configured on the host. However, using separate vSwitches for the data plane traffic helps isolate that traffic from other virtual devices, and permits the switch to be configured specifically to meet the needs of V2110.

Note
Alternatively, it is also possible to define more than one network (Port Group) on a single vSwitch. All networks on the same vSwitch share the NICs assigned to the vSwitch.

1 Log into the vSphere client.
2 On the vSphere Client screen, select the vSphere server IP address or host name, then select the **Configuration** tab.
3 Select **Networking** from **Hardware**.
4 Select **Add Networking** on the Networking screen.

5 Set the following using the wizard:

- Set the connection type to Virtual Machine.
- Assign a physical NIC Name to the switch.
- Assign a VLAN ID.

Important

Select “All (4095)” for the VLAN ID. This setting enables VLAN trunking to virtual guest operating systems using the virtual switch. The VLAN ID can be changed later using the Virtual Switch property dialog.

Only one vSwitch is created in this example, but more can be created by repeating the steps 1 to 5 of this procedure.

The **vSphere Client** screen displays the results of the configuration.

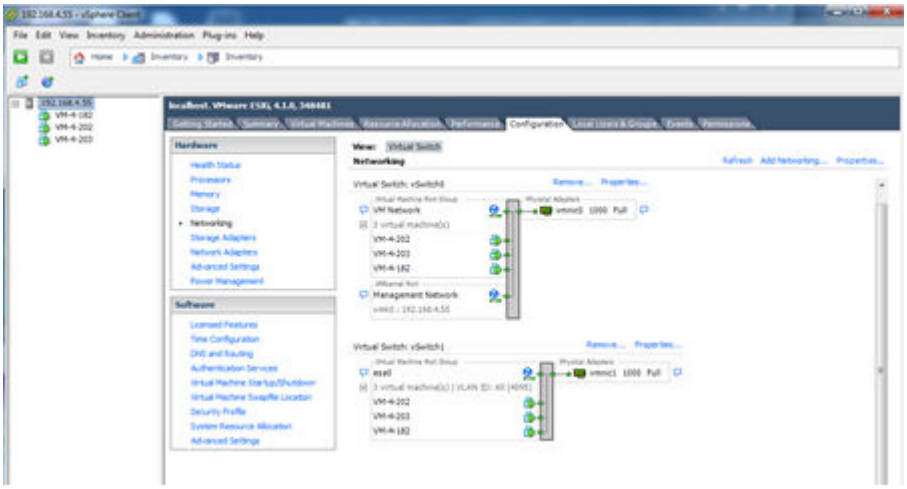


Figure 21: vSwitch configuration results screen

The virtual switch and port group that will be used by V2110 data plane connection must be configured to accept promiscuous mode connections and MAC address changes.

Configure the Virtual Switch for Promiscuous Connections

ESXi virtual switches collect ports into port groups. Every virtual switch must have at least one port group and one is created automatically by ESXi when the vSwitch is created. V2110 data plane ports always operate in promiscuous mode so, changing this default is mandatory. The new virtual switch and port group will be configured to accept MAC address changes and forged transmits.

To change the security settings of a virtual switch:

1 Log into the vSphere client host network.

2 On the vSphere Client Configuration screen, select the **Properties** link next to the virtual switch to be configured.

The vSwitch Properties screen is displayed.

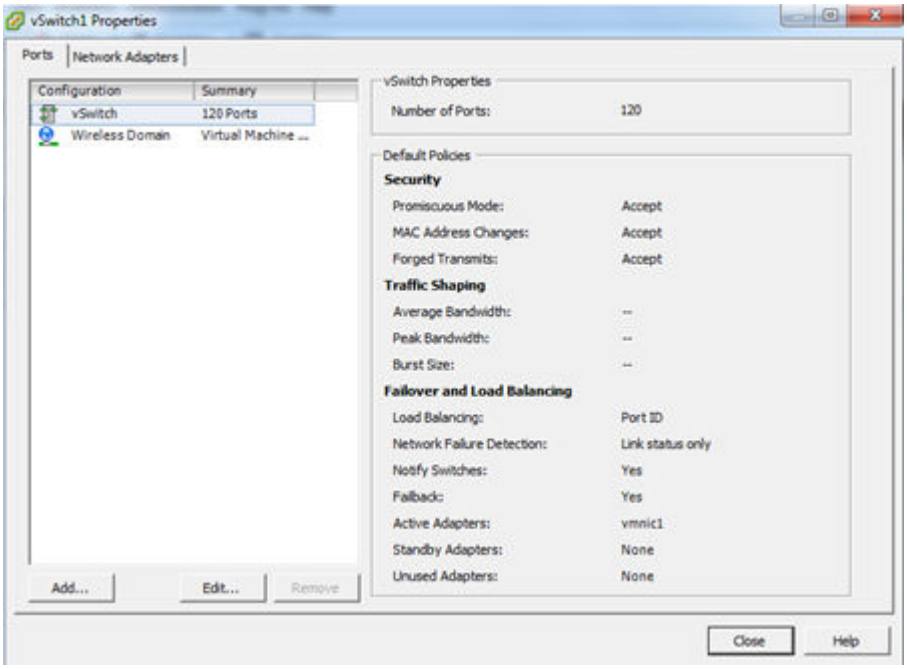


Figure 22: vSwitch properties screen

3 Select **Ports** tab on the vSwitch Properties window.

4 From the Ports list, double-click the **vSwitch** entry.

The vSwitch Properties dialog displays.

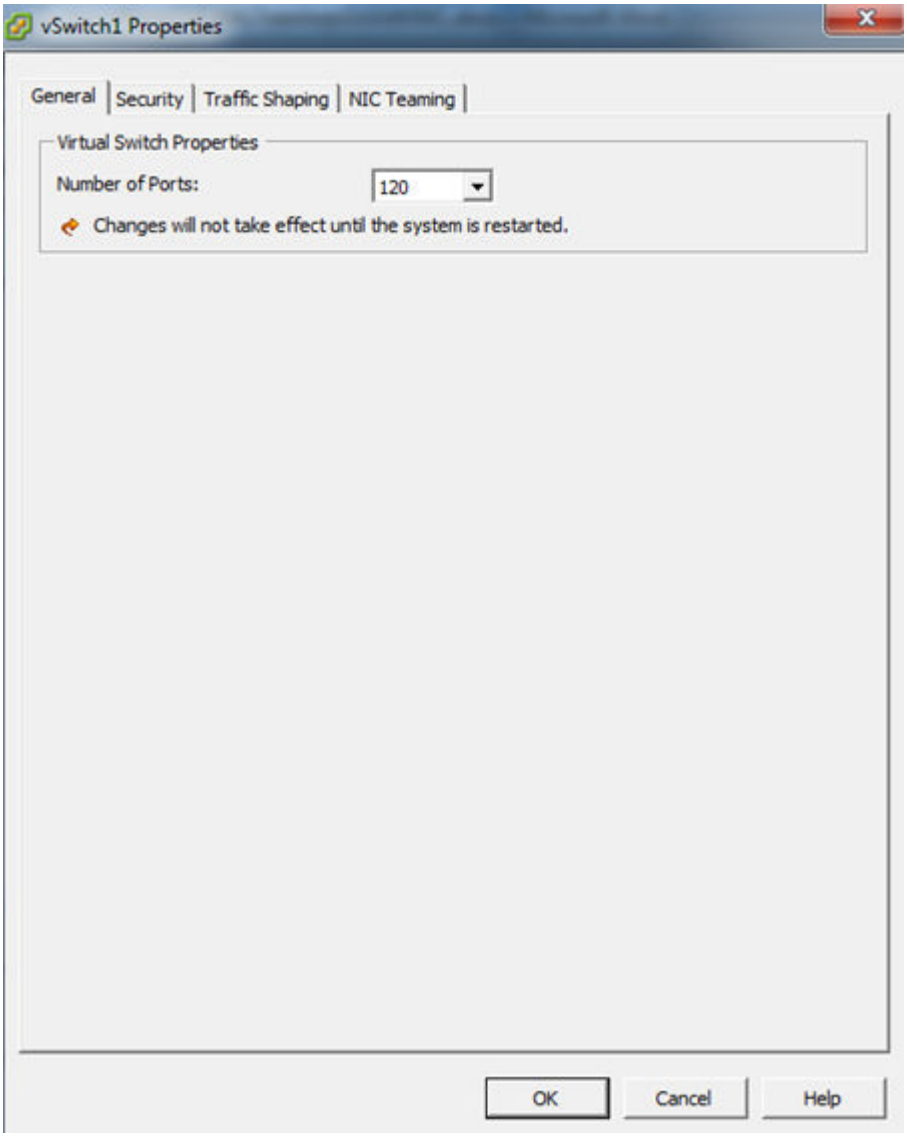


Figure 23: vSwitch properties information screen

5 Select the **Security** tab on the vSwitch Properties window.

6 Set all **Policy Exceptions** to **Accept** on the Security screen.

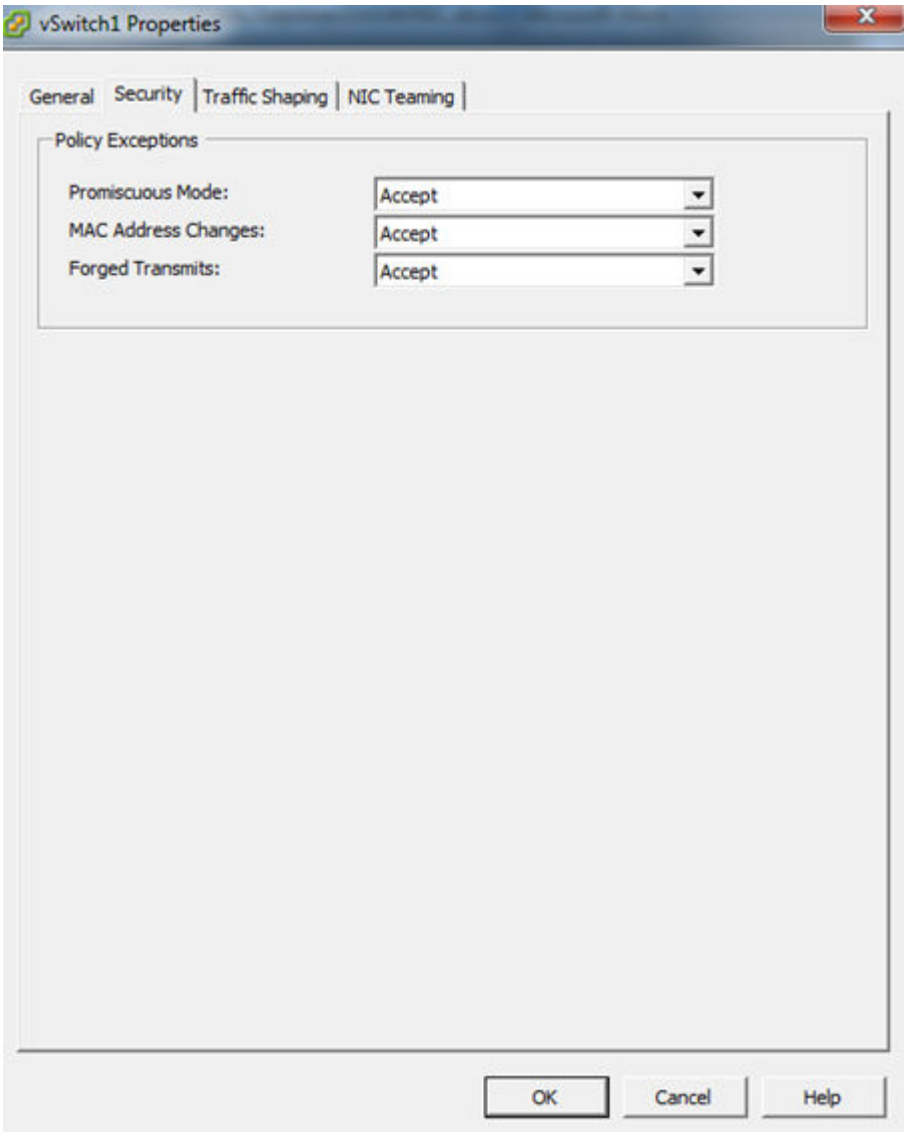


Figure 24: Policy exceptions selection screen

7 Select **Ok**.

8 On the vSwitch Properties dialog, double-click the name of the port group that will be used by V2110 data plane port.

9 On the Port Group Properties dialog, select the **General** tab, and set the VLANID (Optional) field to **All (4095)**.

10 Select **Ok**.

This causes the vSwitch and port group to trunk any VLANs received on its NICs to V2110 with the VLAN tag intact.

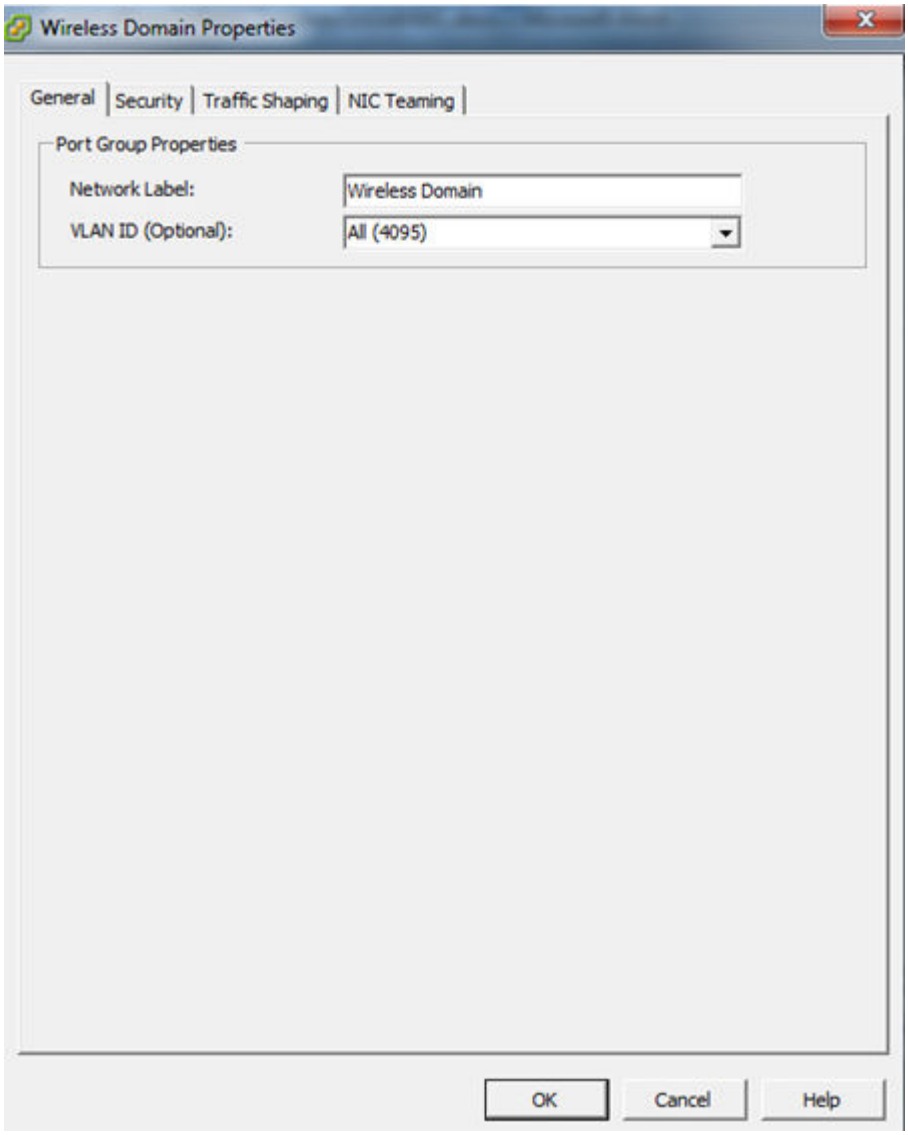


Figure 25: Port group properties selection screen

11 Select the Security tab on the Wireless Domain Properties window, and set all options to **Accept**.

12 Select **Ok** twice to close the vSwitch properties dialog.

Configure the Virtual Switch for Jumbo Frames Support

The Jumbo Frames feature allows the configuration of physical Maximum Transmission Unit (MTU) sizes larger than the standard 1500 bytes on the access point and the controller.

When Jumbo Frames is enabled, the maximum MTU is 1800 bytes. You need to configure the virtual switch to receive larger packets if Jumbo Frames support is enabled.

For information on how to enable Jumbo Frames support on your controller, refer to the ExtremeWireless User Guide.

To configure the vSwitch for Jumbo Frames support:

1 Log into the vSphere client host network.

2 On the vSphere Client Configuration screen, select the **Properties** link next to the virtual switch to be configured.

The vSwitch Properties screen is displayed.

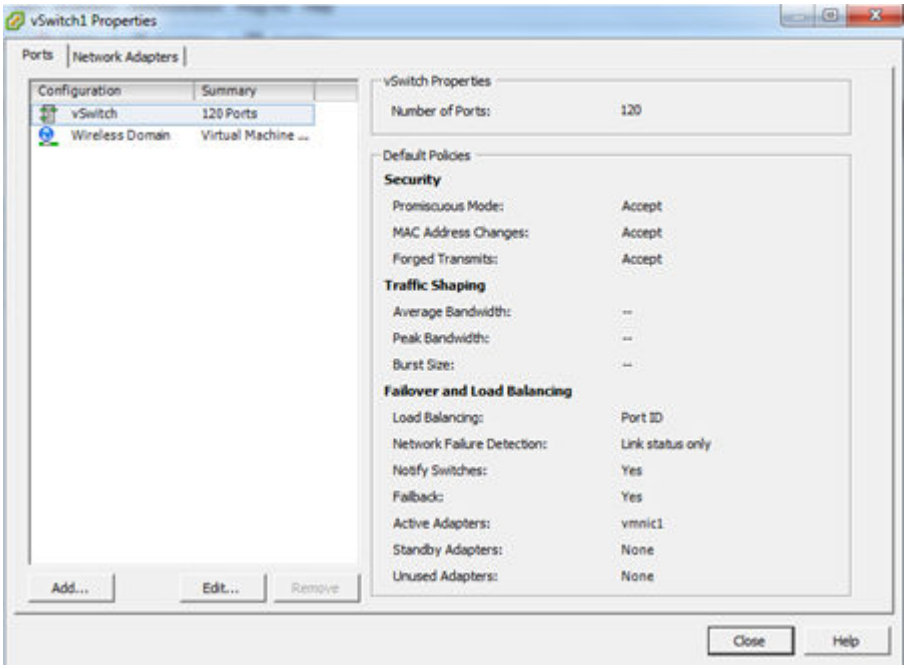


Figure 26: vSwitch properties screen

3 Select **Ports** tab on the vSwitch Properties window.

4 From the Ports list, double-click the **vSwitch** entry.

The vSwitch Properties dialog displays.

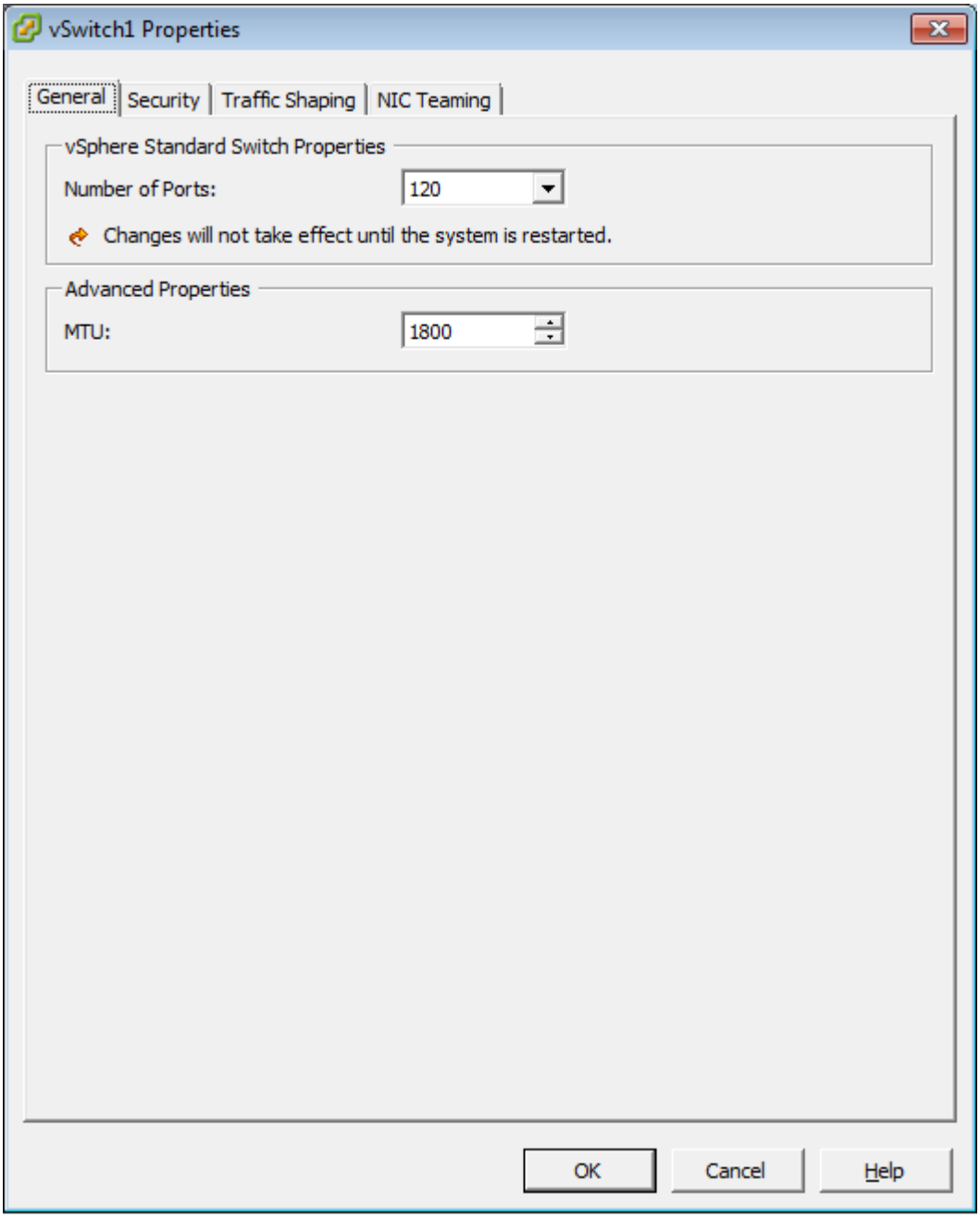


Figure 27: vSwitch properties MTU information screen

5 On the vSwitch Properties dialog, select the **General** tab.

6 In the Advanced Properties section, set the MTU to 1800.

7 Select **Ok**.

8 Select **Close** to close the vSwitch Properties dialog window.

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