Installing a Virtual Machine

- Installation Process, on page 1
- Configuring the VM Host, on page 1
- Deploying OVA to Host Managed by vCenter, on page 2
- Configuring the VM Guest (vCenter), on page 12
- Deploying OVA to Standalone ESXi Host, on page 16
- Configuring the VM Guest (ESXi Host), on page 19
- Automating the Deployment Process, on page 20

Installation Process

This process guides you through installing the Expressway VM using vCenter or vSphere client. Before you start the installation, make sure all the system requirements are in place, as detailed in the chapter, System Requirements.

Configuring the VM Host

Before you begin

Ensure that the VM host is configured with a valid NTP server – the same NTP server that will be specified in Expressway.

Step 1 Select the host.

Step 2 Go to the **Configuration** tab.

Step 3 Select **Time configuration**.

Step 4 Select **Properties**.

If the date and time were red on the previous page, set the date and time manually to the current time.

Step 5 Click **Options**.

Step 6 Select **NTP Settings**.

Step 7 Click **Add**.

Step 8 Enter the IP address of the NTP server.

Step 9 Click **OK**.

Step 10 Select the **Restart NTP service to apply changes** check box.

Step 11 Click **OK**.

Step 12 Click **OK**.

What to do next

The following section describes how to deploy the ova to host using vCenter. If you are using vSphere, skip this section and go to Deploying OVA to Standalone ESXi Host.

Deploying OVA to Host Managed by vCenter

These instructions represent a typical installation. The Deploy OVF Template wizard dynamically changes to reflect host configuration.

Step 1 If the .ova file is already preloaded onto the ESXi Host datastore (for example, in Cisco Business Edition 6000 deployments):

a) Using a web browser, go to `https://folder` supplying any required credentials (typically the same username and password as used to log into vCenter).

b) Navigate through the index of datacenters to find the .ova file you want to deploy from the datastore.

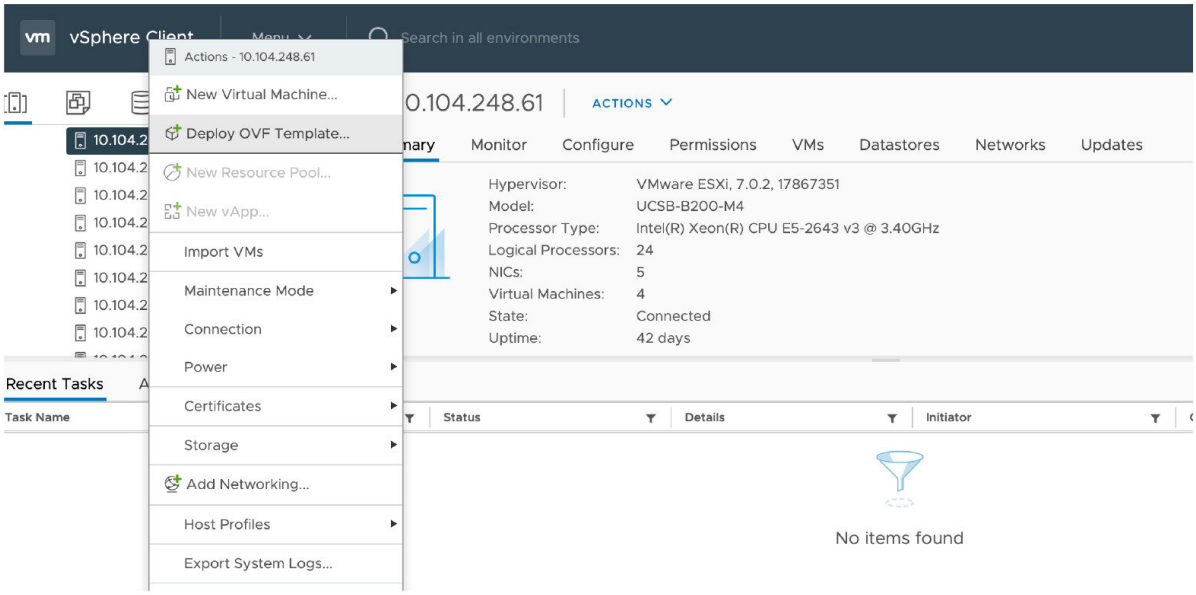
c) Right click on the .ova file and select **Copy Link Location**.

(If the .ova file is not preloaded on the datastore, you can select and upload it in the following steps.)

Step 2 Log in to vCenter to access the ESXi Host.

Step 3 Select **File** > **Deploy OVF Template.**

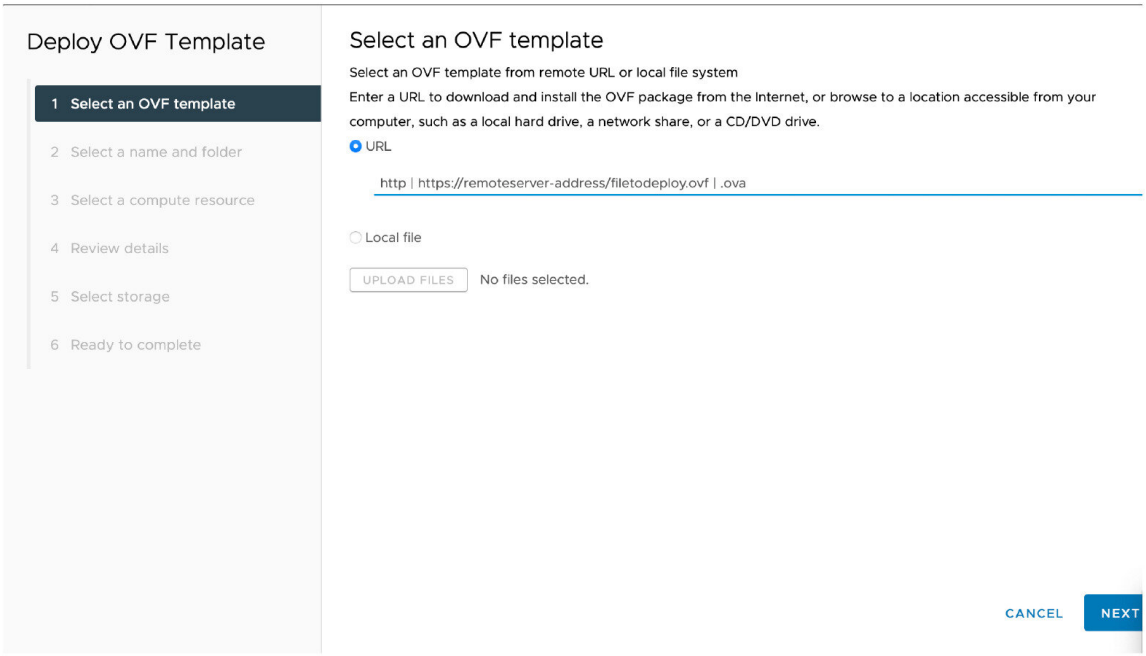
Figure 1: Deploy OVF Template



Step 4 On the **Source** page, identify where the .ova file is located, and then click **Next**.

- If the .ova file is already preloaded onto the ESXi Host datastore, paste the URL you copied from step 1 above. You may have to re-enter username and password credentials so that vCenter can access the web server.
- If the .ova file is not preloaded on the datastore, **Browse** to the location of the .ova file.

Figure 2: Browse .ova file



Step 5 On the **OVF Template Details** page, check that the Publisher certificate is valid and click **Next**.

Step 6 On the **End User License Agreement** page:

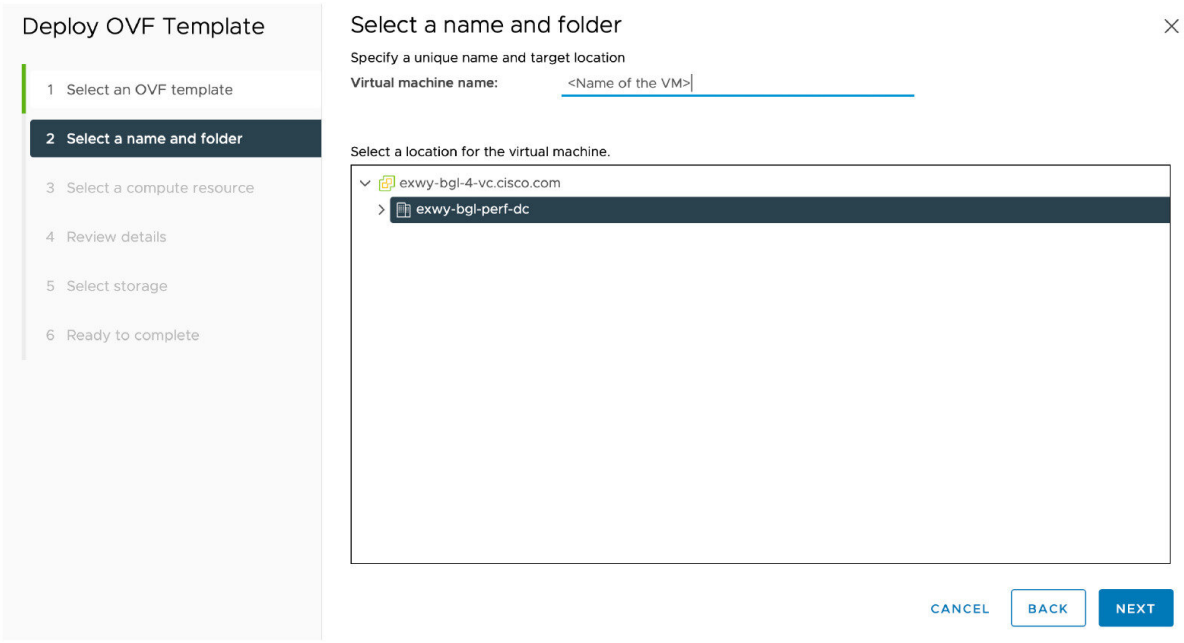
a) Read the EULA.

b) If you accept the EULA, click **Accept** then **Next**.

Step 7 On the **Name and Location** page enter a **Name** for this Expressway VM guest, for example "**`Virtual_Expressway`**" and click **Next**.

Important When deploying a VM to ESXi version 6.0 or later, you must not use a backslash or forward slash in the VM name as the characters are unsupported and it can cause errors during the deployment. You must remove the slash from the default name of Cisco Expressway/VCS Base.

Figure 3: Name and Location



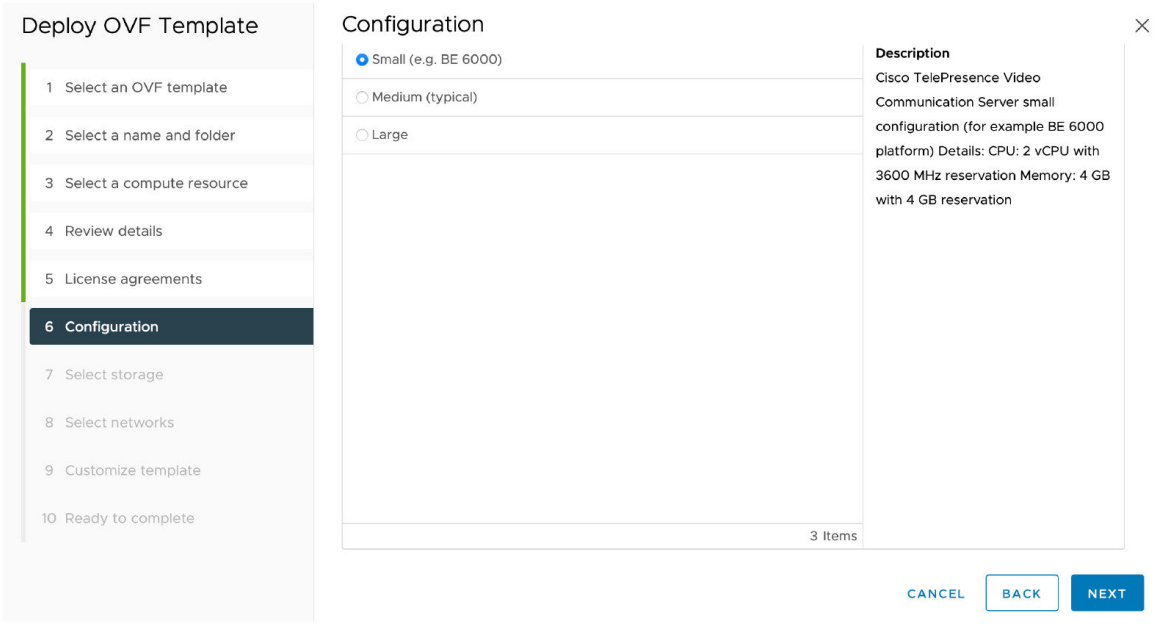
Step 8 On the **Deployment Configuration** page, select the appropriately sized deployment:

a) Select **`Small`**, **`Medium`** or **`Large`** depending on the capabilities of the VMware host.

The default is Medium. See System Requirements for details about resource requirements. If the VMware host has insufficient resources, the virtual Expressway will fail to power on / boot.

b) Click **Next**.

Figure 4: Select Deployment Size

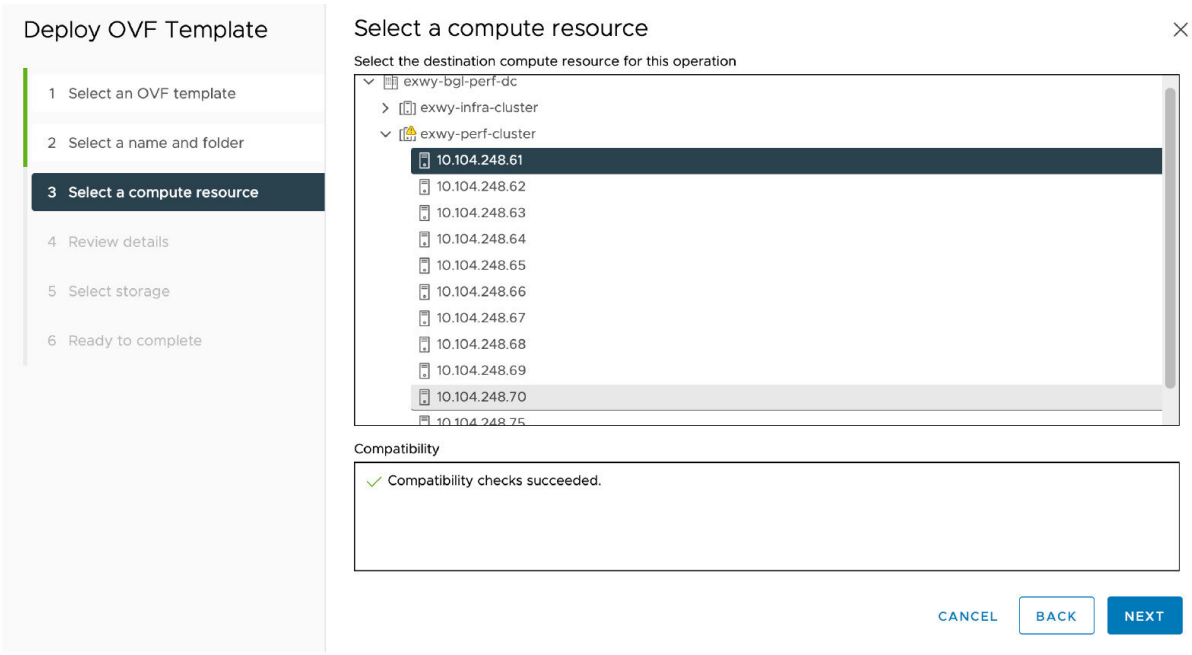


Step 9 On the **Host / Cluster** page, select where you want to run the virtual Expressway and click **Next**.

Figure 5: Select Host or Cluster

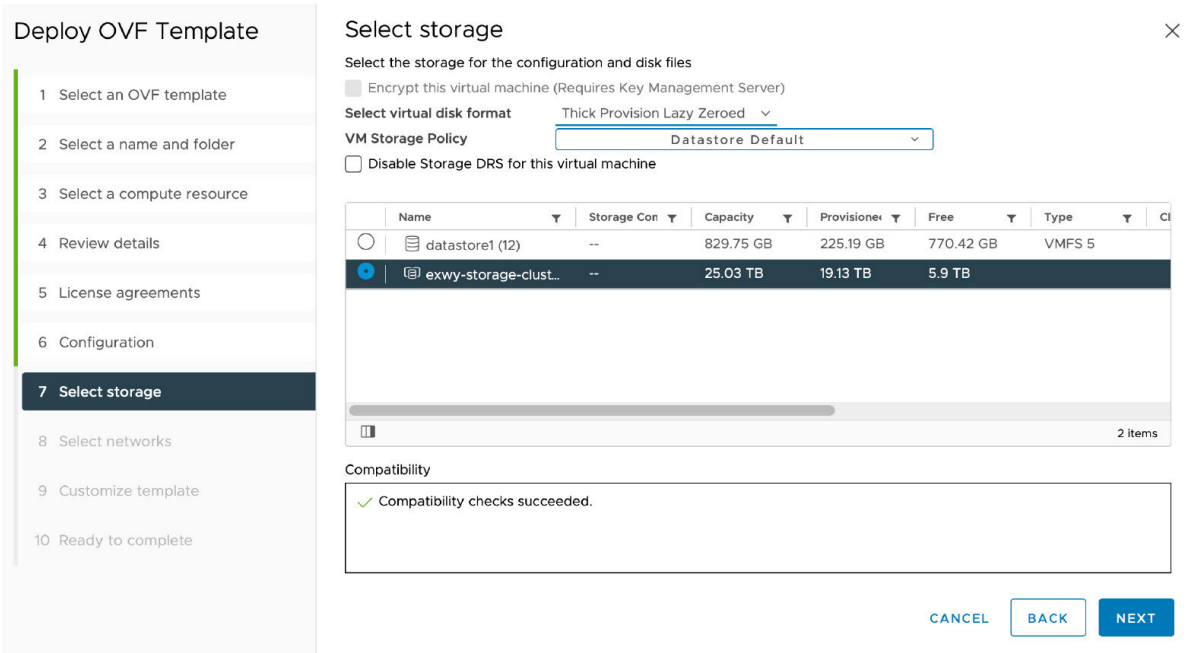
Step 10 On the **Resource Pool** page, select where you want to run the virtual Expressway and click **Next**.

Figure 6: Select Resource Pool



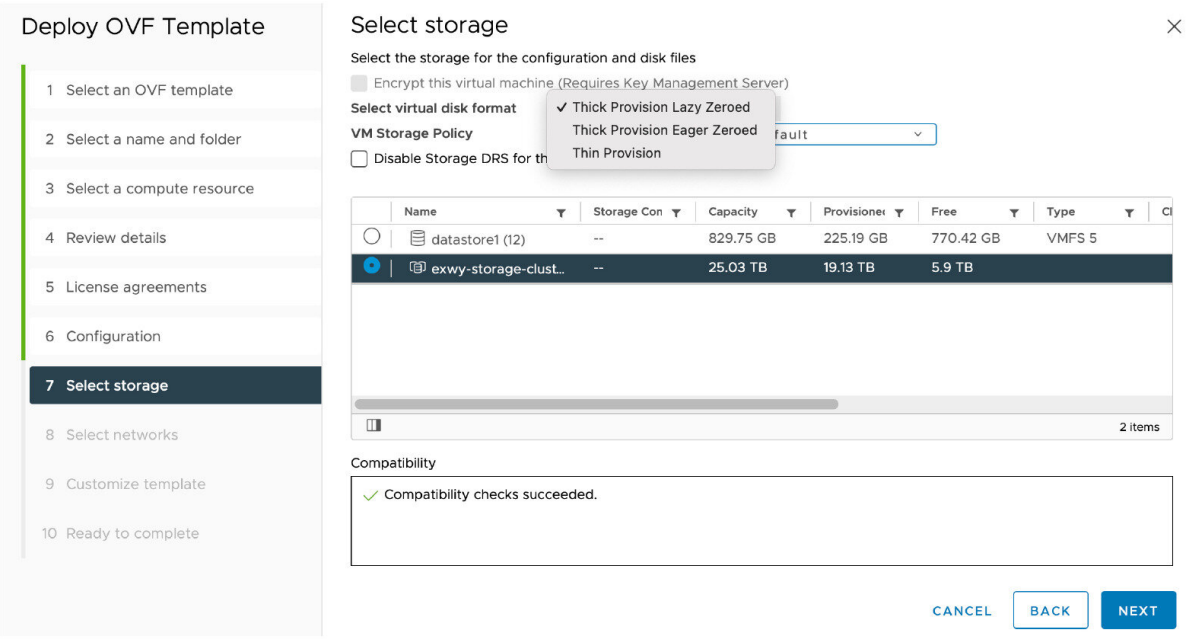
Step 11 On the **Storage** page, select the location onto which the virtual Expressway will be deployed and click **Next**.

Figure 7: Select Destination Storage



Step 12 On the **Disk Format** page, ensure that the default disk format of **Thick Provision Lazy Zeroed** is selected and then click **Next**.

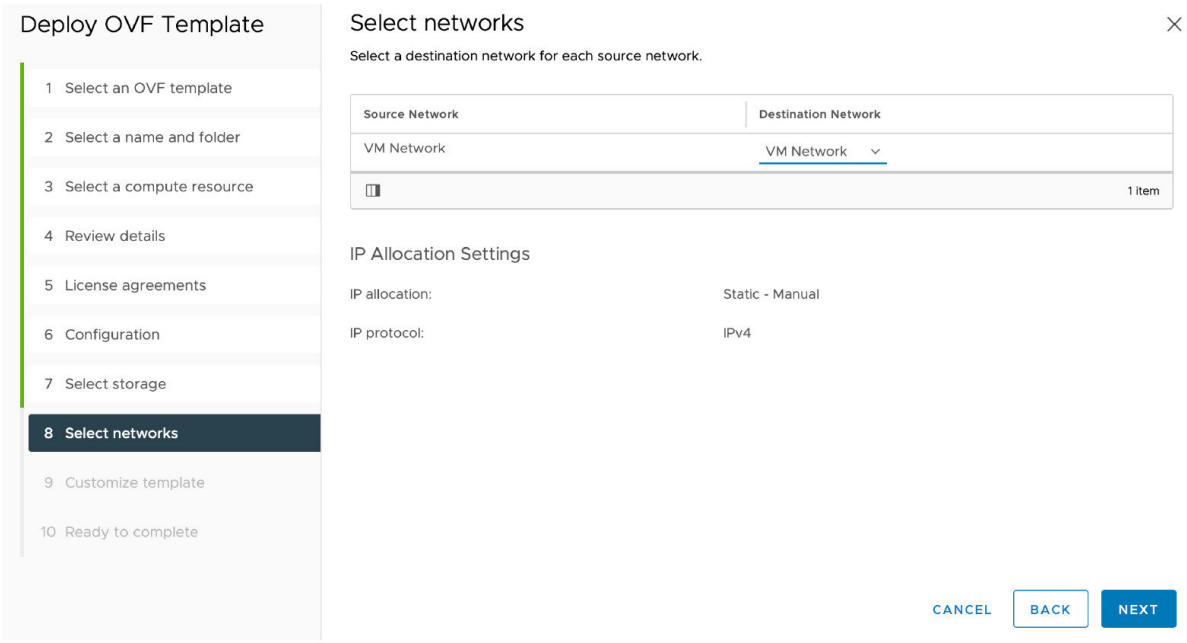
Figure 8: Select Disk Format



Step 13 On the **Network Mapping** page, select the network mapping that applies to your infrastructure (the default is **VM Network**) and then click **Next**.

Important In Expressway versions 12.5.3 and earlier, the network name must contain only ASCII characters. From 12.5.4 release, network name can also contain non-ASCII characters.

Figure 9: Select Network Mapping



Step 14 On the **Properties** page, configure the network properties of the virtual Expressway and click **Next**.

The properties you can set include the Expressway's IPv4 and IPv6 settings, option to enable DMI, and configure DMI Address and DMI Netmask, System, hostname and domain, up to five NTP servers, and up to five DNS servers. For automated deployments you can also enter an RSA SSH public key to securely set the root and admin passwords via SSH. If you do not enter a public key, you must set the passwords during the Install Wizard process.

Important The hostname and domain name must contain only ASCII characters.

Figure 10: Configure Network Properties

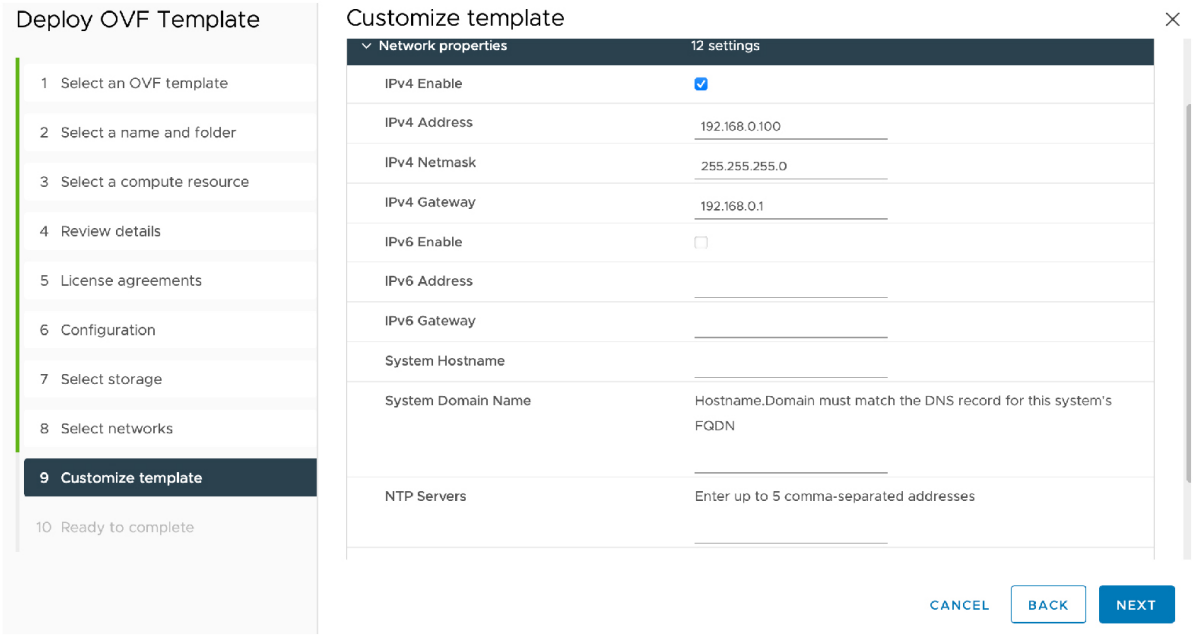
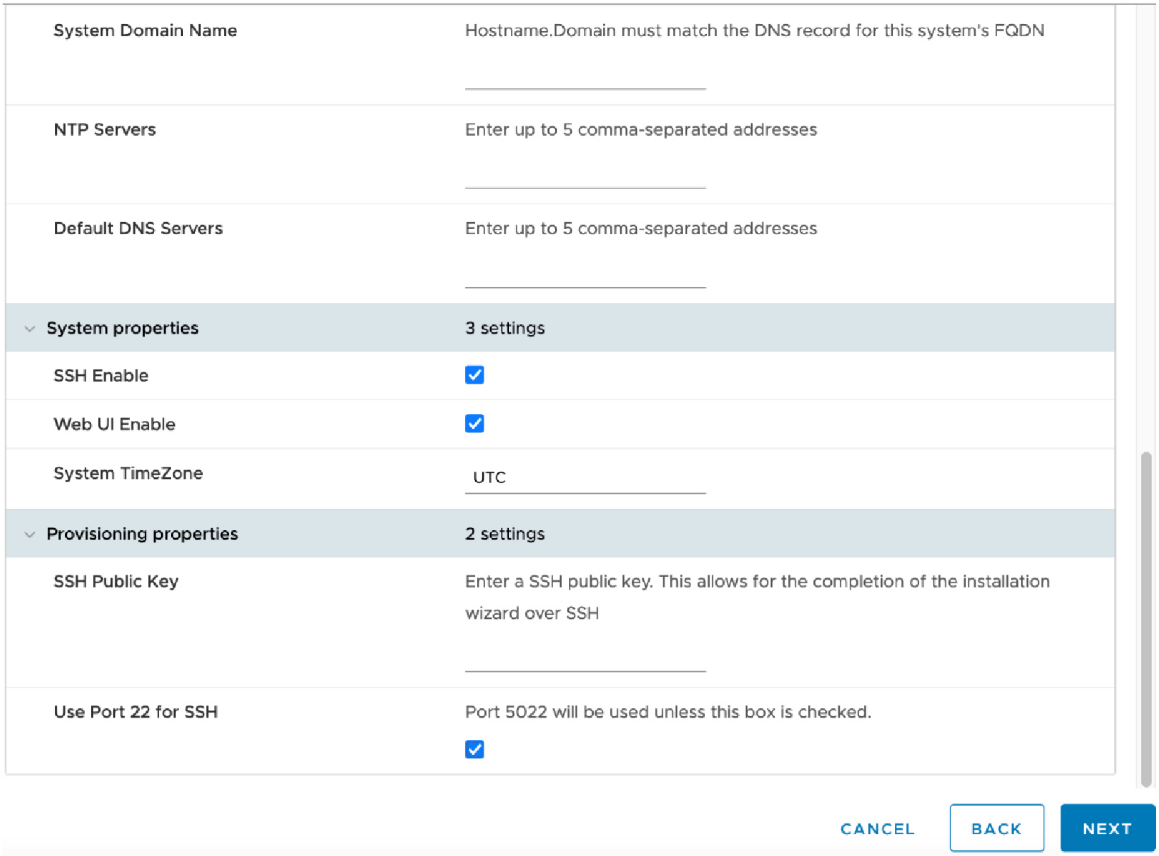


Figure 11: Configure Network Properties (Continued)



You can either configure the SSH port to listen on port 5022 (Default Port 5022) or port 22.

a) **SSH Public Key** - Enter the SSH Public Key.
b) **Use Port 22 for SSH** - Select the check box to listen on port 22 and override port 5022. Port 22 is a standard port for SSH.
c) Click **Next**.

Step 15 On the **Ready to Complete** page:

a) Confirm the deployment settings.
b) Select the **Power on after deployment** check box.
c) Click **Finish**.

The installation process will begin and a progress bar will be displayed.

The Expressway OVA is now deployed as a Guest on the VM Host.

Configuring the VM Guest (vCenter)

These instructions describe how to set the root and admin password over SSH if you entered an RSA SSH public key in the **VM Properties** page – used primarily for automated deployments - or using the Install Wizard.

Note You can ignore any floppy read errors that appear, as they are not relevant to this deployment mode.

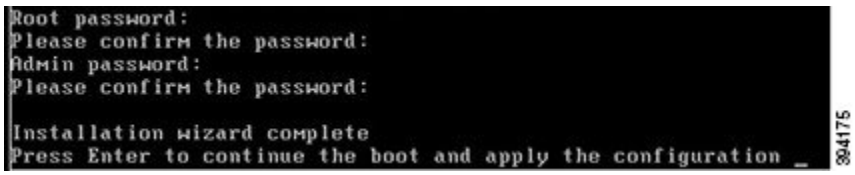
Set the Root and Admin Password Using the Install Wizard

Step 1 Select the VM guest and then select the **Console** tab.
You are taken to the Install Wizard.

Step 2 Enter and confirm your root and admin passwords. You will also be prompted to set any properties you did not set in VMware.

Note These passwords should be unique; do not use the same password for admin and root accounts.

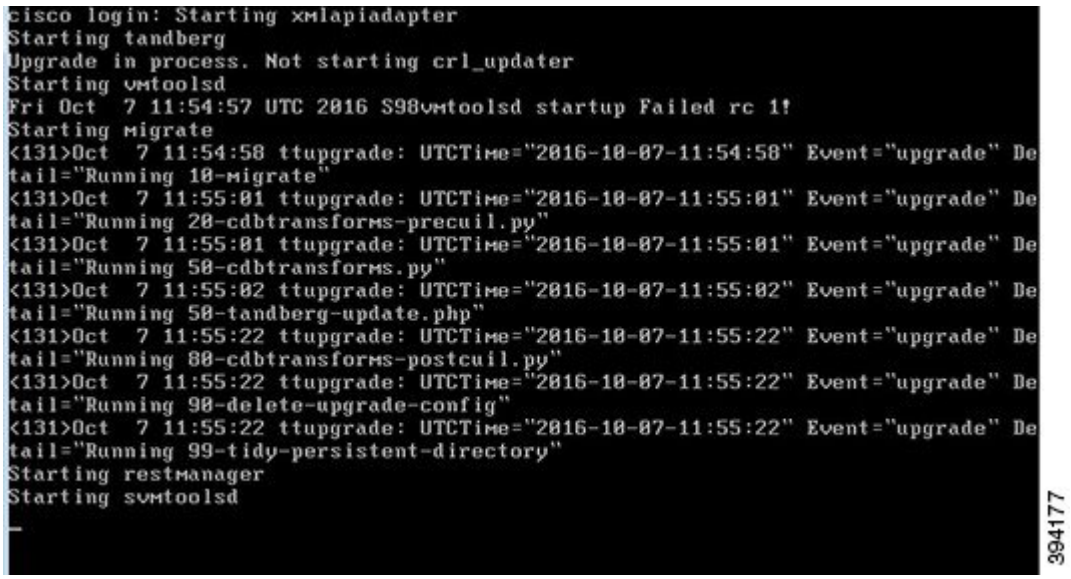
Figure 12: Enter Root and Admin Password



Step 3 Press Enter to apply the configuration.

Step 4 The Expressway will apply the configuration and reboot.

Figure 13: Configuration Applied



You should now be able to access the Expressway using a web browser.

You can now order your option keys; see Expressway Service Selection, Licenses, and Basic Configuration.

Set the Root and Admin Password Using SSH

The vSphere client or OVF Tool (for install Expressway) provides an interface to set the *root* and *admin* password.

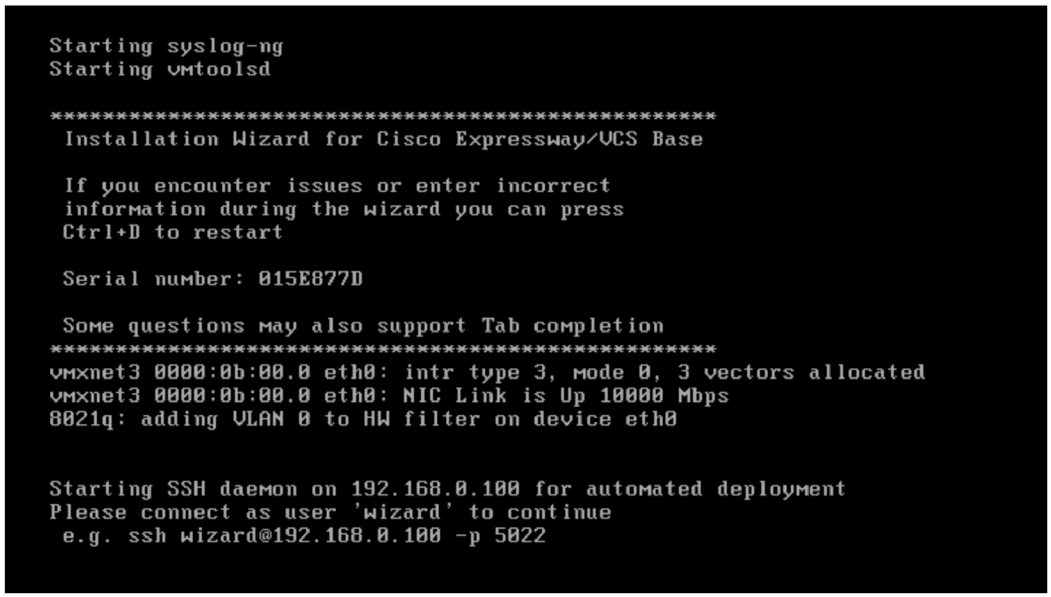
You can set the *root* and *admin* password using Secure Shell Protocol (SSH) on any one of the following ports.

- Port 5022
- Port 22

Port 5022

1. The Install Wizard starts an SSH daemon, listening on port 5022, to set the *root* and *admin* password.
2. Connect as user “wizard” using an SSH client on port 5022 (for example, `ssh wizard@192.168.0.100 -p 5022`).

Figure 14: Connect as User "wizard"



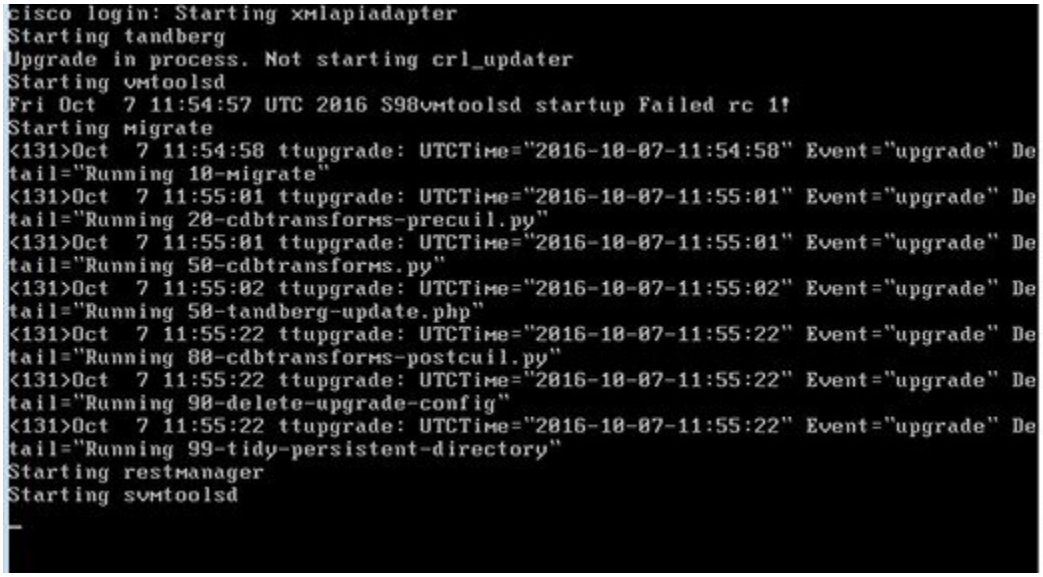
3. Follow the prompt to set `admin.password` and `root.password`.

Figure 15: Set Admin and Root Password

4. The Expressway will apply the configuration and reboot.

Result:

Figure 16: Configuration Applied



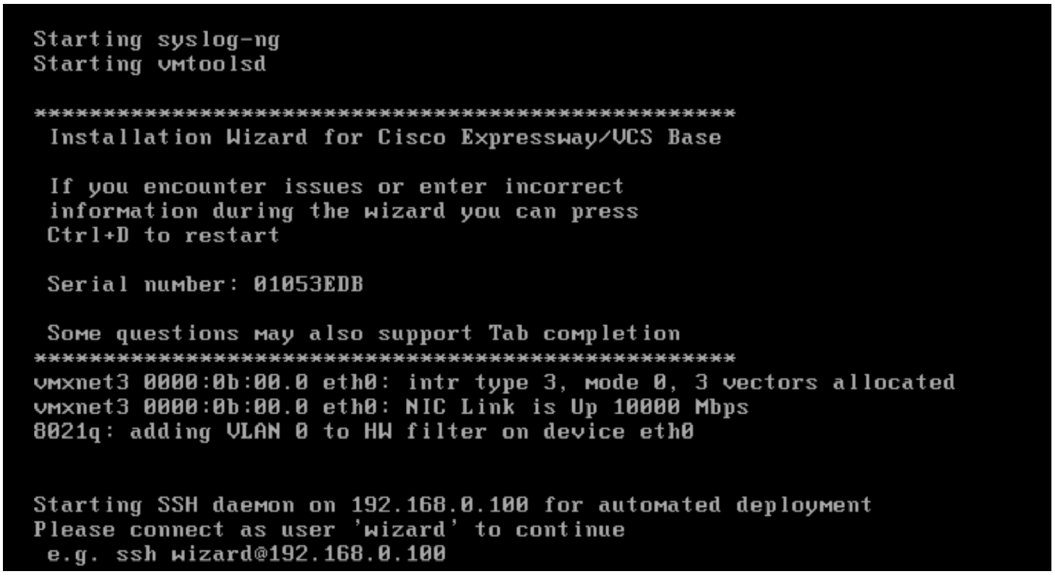
You should now be able to access the Expressway using a web browser.

You can now order your option keys; see Expressway Service Selection, Licenses, and Basic Configuration.

Port 22

1. The Install Wizard starts an SSH daemon, listening on port 22 (Standard SSH port), to set the *root* and *admin* password.
2. Connect as user "wizard" using an SSH client on port 22 (for example, `ssh wizard@192.168.0.100`).

   Figure 17: Connect as User "wizard"



3. Follow the prompt to set `admin.password` and `root.password`.
4. The Expressway will apply the configuration and reboot.

You should now be able to access the Expressway using a web browser.

You can now order your option keys; see Expressway Service Selection, Licenses, and Basic Configuration.

Deploying OVA to Standalone ESXi Host

These instructions represent a typical installation. The Deploy OVF Template wizard dynamically changes to reflect host configuration.

Note The desktop vSphere Client is not available from vSphere 6.5 and later.

Step 1 If the .ova file is already preloaded onto the ESXi Host datastore (for example, in Cisco Business Edition 6000 deployments):

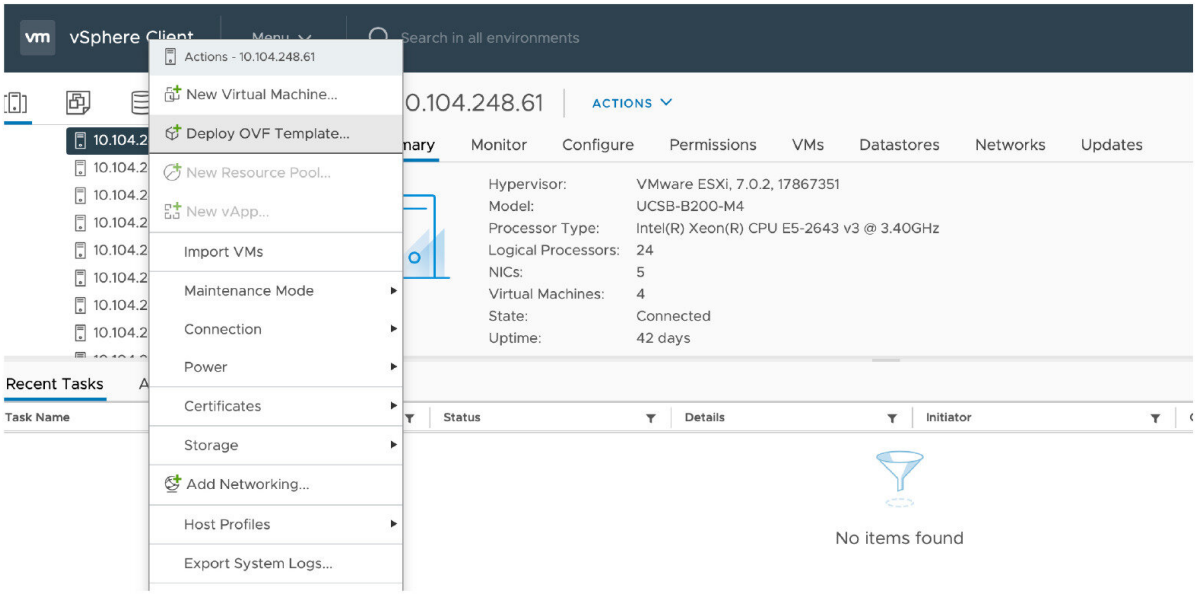
a) Using a web browser, go to `https://<VMwareHost>/folder` supplying any required credentials (typically the same username and password as used to log into the vSphere client).
b) Navigate through the index of datacenters to find the .ova file you want to deploy from the datastore.
c) Right click on the `.ova` file and select **Copy Link Location**.

(If the `.ova` file is not preloaded on the datastore, you can select and upload it in the following steps.)

Step 2 Log in to the vSphere client to access the ESXi Host.

Step 3 Select **File** > **Deploy OVF Template**.

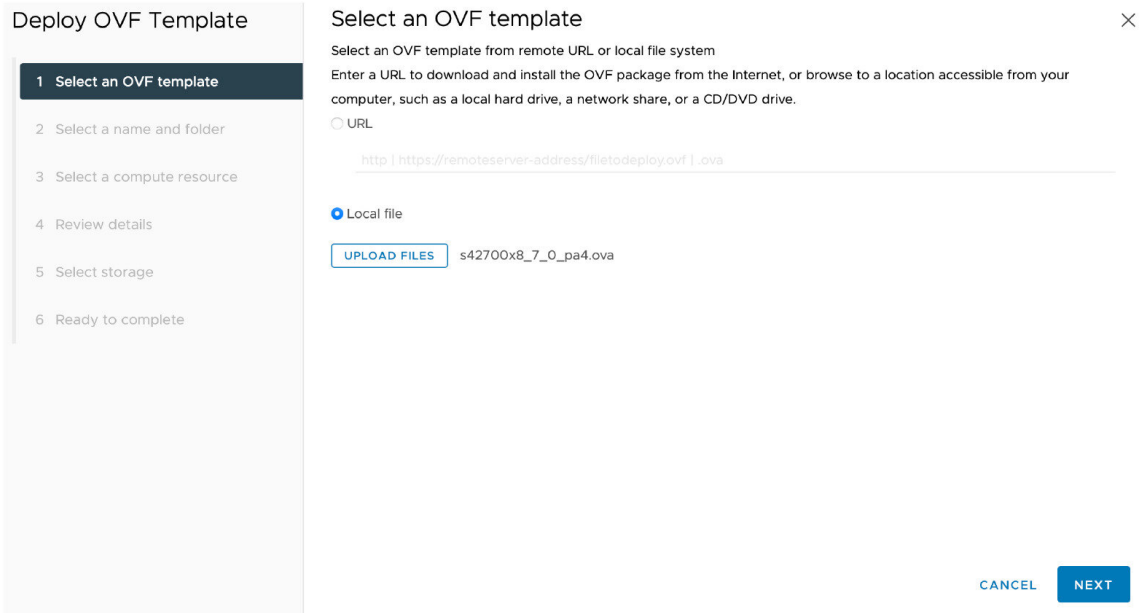
Figure 18: Deploy OVF Template



Step 4 On the **Source** page, identify where the .ova file is located, and then click **Next**.

- If the .ova file is already preloaded onto the ESXi Host datastore, paste the URL you copied from step 1 above. You may have to re-enter username and password credentials so that the vSphere client can access the web server.
- If the `.ova` file is not preloaded on the datastore, **Browse** to the location of the .ova file.

Figure 19: Browse .ova File



Step 5 On the **OVF Template Details** page, check that the Publisher certificate is valid and click **Next**.

Step 6 On the **End User License Agreement** page:

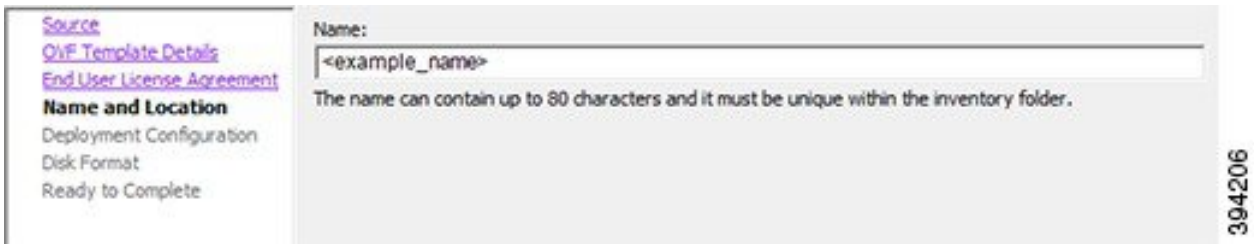
a. Read the EULA

b. If you accept the EULA, click **Accept** then **Next**.

Step 7 On the **Name and Location** page enter a **Name** for this Expressway VM guest, for example "Virtual_Expressway" and click **Next**.

Important When deploying a VM to ESXi version 6.0 or later, you must not use a backslash or forward slash in the VM name as the characters are unsupported and it can cause errors during the deployment. You must remove the slash from the default name of Cisco Expressway/VCS Base

Figure 20: Name and Location



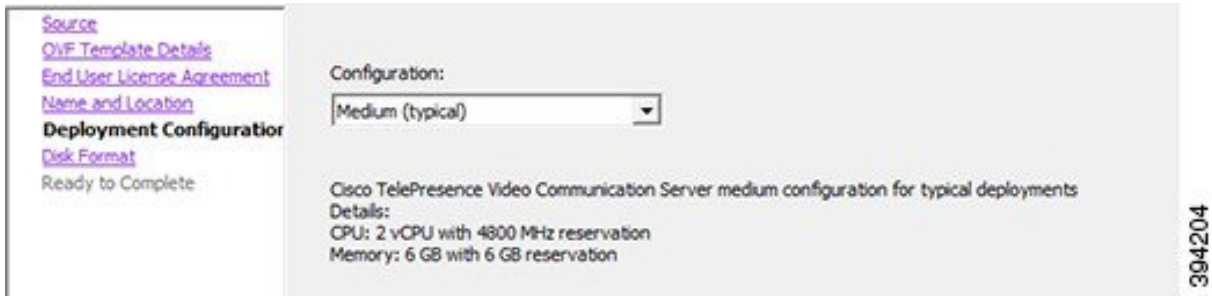
Step 8 On the **Deployment Configuration** page, select the appropriately sized deployment:

a) Select **`Small`**, **`Medium`** or **`Large`** depending on the capabilities of the VMware host.

The default is **`Medium`**. See System Requirements for details about resource requirements. If theVMware host has insufficient resources, the virtual Expressway will fail to power on / boot.

b) Click **Next**.

Figure 21: Deployment Configuration



Step 9 On the **Disk Format** page, ensure that the default disk format of **Thick Provision Lazy Zeroed** is selected and then click **Next**.

Thin Provision is not supported as VM performance may degrade during resizing of a partition.

Figure 22: Disk Format

Step 10 On the **Ready to Complete** page:

a) Confirm the deployment settings.
b) Select the **Power on after deployment** check box.
c) Click **Finish**.

The installation process will begin and a progress bar will be displayed.

The Expressway ova is now deployed as a guest on the VM Host.

Configuring the VM Guest (ESXi Host)

These instructions describe how to configure the VM Guest as a standalone host using the Install Wizard.

Note

- If you encounter issues or enter incorrect information during the wizard you can press Ctrl+D to restart.
- The pre-X8.9 default passwords of the admin and root accounts are well known. You must use strong passwords for these accounts. If your new system is on X8.9 or later, you must supply non-default passwords.
- The pre-X8.9 default passwords of the admin and root accounts are well known. You must use strong passwords for these accounts. If your new system is on X8.9 or later, you must supply non-default passwords.
- The default timezone is UTC but you can search for your desired timezone. You can also change it later in the web interface by going to **System** > **Time**.
- The default values support tab completion.

Step 1 Select the VM guest and then select the **Console** tab.

The VM guest will take some time to boot, create its second hard disk partition and then reboot to the Install Wizard.

Step 2 Follow the prompts given by the Install Wizard to specify the following:

- Whether you want to use IPv4, IPv6 or Both.
- The LAN 1 IPv4 subnet mask of the Expressway (if you have selected IPv4).
- The IP address of the default gateway of the Expressway.
- The root password. Should be unique, do not use the same password as for admin account.
- The admin password. Should be unique, do not use the same password as for root account.
- Whether you want to enable the web UI.
- Whether you want to use SSH to administer the Expressway.
- The timezone.

Step 3 After the wizard is finished the following message will appear:

```
Installation wizard complete

Press Enter to continue the boot and apply the configuration.
```

Press **Enter**.

Step 4 After it has applied the configuration and rebooted, the Expressway is ready to use. You should now be able to access the Expressway using a web browser.

What to do next

You can now manage the Expressway licensing and basic configuration; see Expressway Service Selection, Licenses, and Basic Configuration.

Automating the Deployment Process

We recommend deploying an Expressway VMWare OVA in an automated manner. To do this:

Step 1 Deploy the VM using VMWare's OVFTool:

```
Ovftool –acceptAllEulas -ds=<vsphere datastore> --powerOn –noSSLVerify
--name=<name of VM> --prop:ip4.address=<ip address> --prop:ip4.gateway=<gateway>
--prop:ip4.netmask=<subnet mask> --prop.dmi.enable=<enable>
--prop.dmi.ip4.address=<dmi ipv4 address> --prop.dmi.ip4.netmask=<dmi ipv4 netmask>
--prop.dmi.ip6.address=<dmi ipv6 address> --prop:default.dns=1.1.1.1 -nw=<vsphere network>
--X:waitForIp --prop:ssh.public.key='<public ssh key>' <OVA file>
```

For more details of the command syntax, including examples, see the OVFTool User's Guide.

Step 2 Configure the *root* and *admin* passwords using ssh on port 5022 or port 22. Refer the section Set the Root and Admin Password Using SSH.

Note This property `--prop:ssh.use.standard.port=True` can be used to install wizard to listen on port 22. Otherwise, the install wizard listens on port 5022.

Step 3 There are multiple ways to automate the deployment, for example, you can use Python Paramiko SSH library command:

```
{{command = '{"admin.password": "x", "root.password": "x"}\n'}}
```