

Getting Started with Bluesocket™ vWLAN® on VMware



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Overview

Virtual Wireless LAN (vWLAN[®]) architecture was designed on a concept of simplified scalability. vWLAN[®] removes the complexities of dealing with standalone Access Points by centralizing the management and control functions. Security and mobility are distributed at the edge of the network: the logical placement for networks that are designed for scalability and high availability. This is achieved through the use of smart 802.11n APs which can support user authentication and traffic forwarding decisions at the edge of the network.

Adding additional APs to the vWLAN[®] system is as easy as installing a Bluesocket software license and allocating more Virtual resources (CPU, memory) which extends coverage to thousands of APs without needing to worry about hardware capacity. Bluesocket's fully virtualized, software-based solution gives customers the flexibility to run vWLAN[®] on either a reference hardware or VMware platform.

Terminology

- vWLAN[®] – Virtual Wireless LAN – Bluesocket's distributed, secure wireless solution.
- BSAP – BlueSecure™ Access Points – dual radio 802.11n APs that provide wireless network connectivity, authentication, QoS, CoS, Airtime Fairness, and firewall to users

Sample use cases

vWLAN[®] is a flexible wireless solution which supports a mix of guests, students, staff, and corporate users, with web or 802.1x authentication, and supports a range of deployment sizes:

1. Multi-building campus – hundreds of BSAPs across several buildings.
2. Multi-locations – hundreds or thousands BSAPs deployed across sites or even countries.
3. Large campus, hotel, or corporate office – 50+ BSAPs per site.
4. Large branch or convention center – 10+ BSAPs per site.
5. Branch offices or small hotspots – 1-10 BSAPs per site.

A single VMware instance can support BSAPs that are connected from all the use cases. The central control and management plane scales vertically as data is handled at the BSAP. As desired, multiple VMware instances can be used across multiple location deployments.

VMware Compatibility

The Bluesocket™ vWLAN® virtual appliance has been tested and VMware Ready Certified on ESX/ESXi versions 4.0 and 4.1. All standard VMware tools are supported.

The virtual appliance has also been tested on ESX/ESXi version 3.5, but has not been certified under the VMware Ready program.

Resource Requirements

Regardless of the AP deployment size, the vWLAN® virtual appliance requires the following resources:

- 7 Gbytes of disk space for the Virtual Hard Disk (.vmdk)
- One Ethernet NIC for network connectivity (vmxnet)

Based on the AP deployment size, see table below for CPU and RAM amounts:

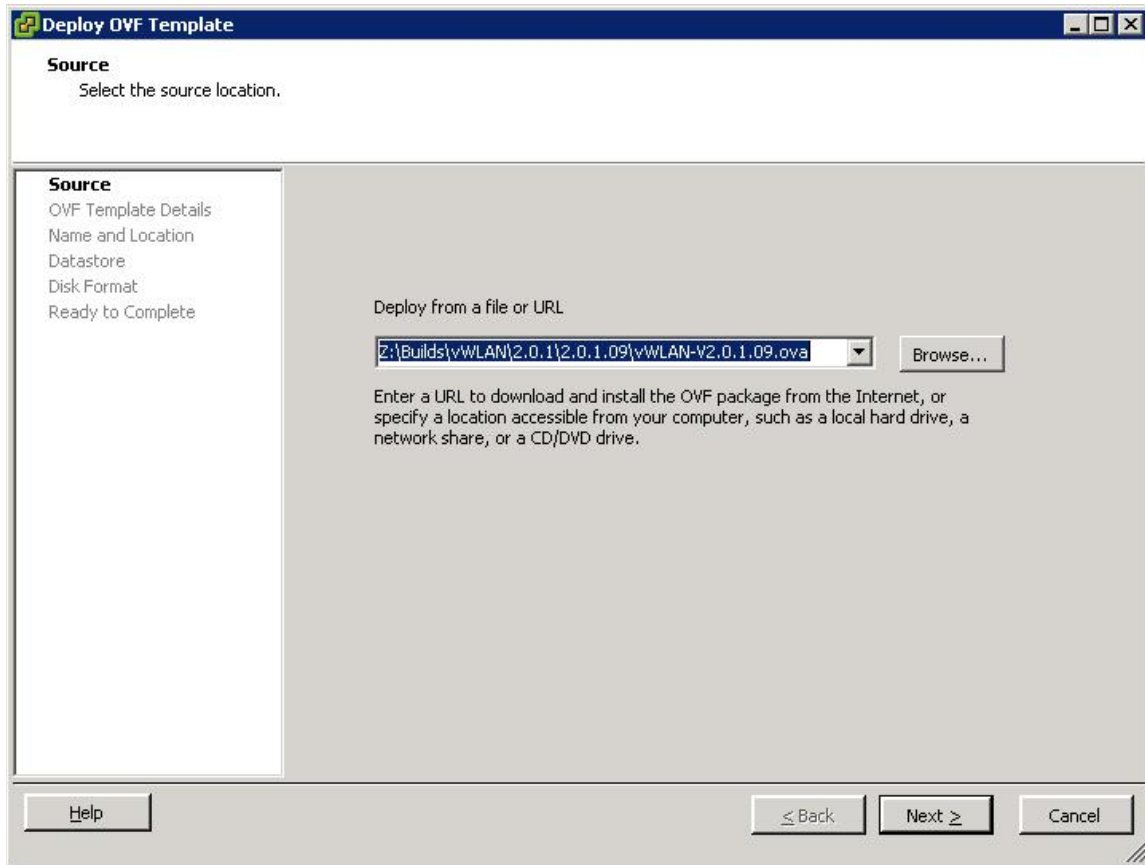
AP Count	CPUs/Cores	RAM (Gbytes)
0-50	2	2
> 50	4	4

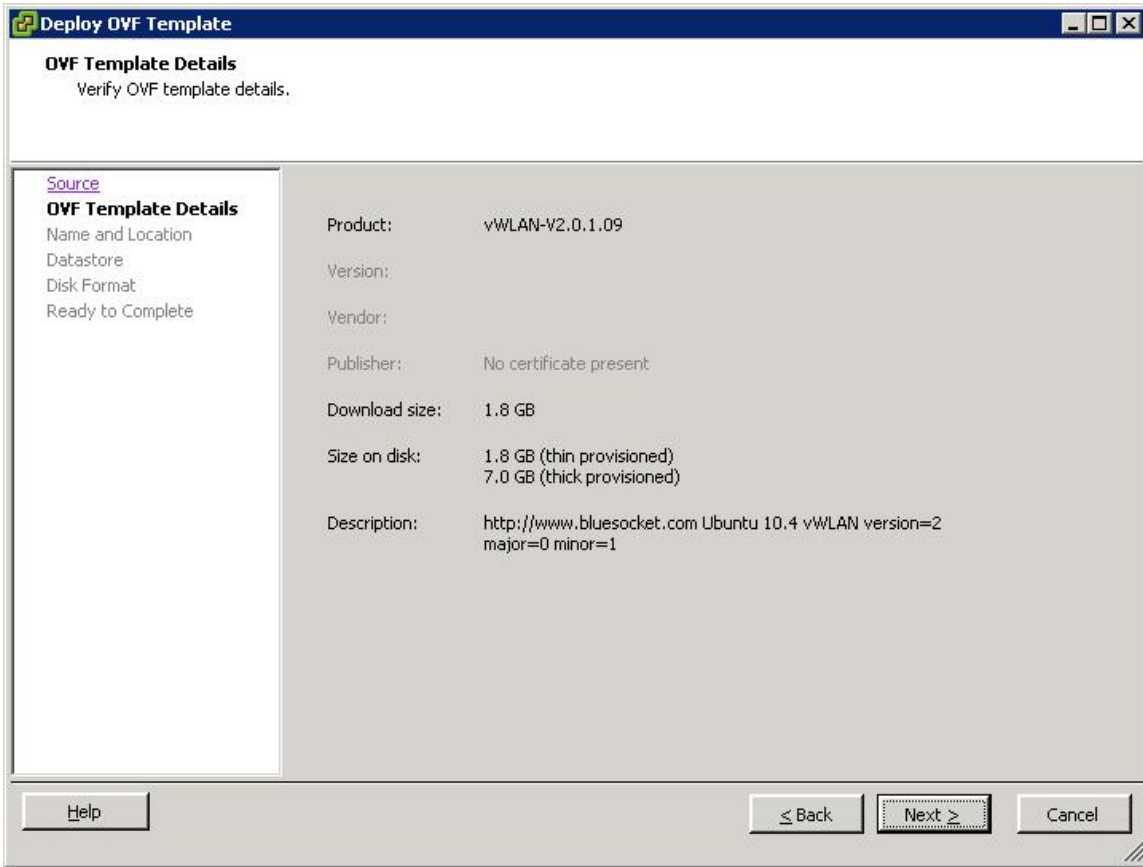
Installing the Virtual Appliance

There are two methods to install a vWLAN® virtual appliance. The recommended option is OVA (Open Virtualization Appliance), as this is a streamlined installation that only requires you to upload a compressed file. An OVA is a single file archive containing an OVF (Open Virtualization Format) virtual machine along with supporting files. The other option is using the vmdk/vmx VMware method. You should only use this option if you need to customize the .vmx file before creating the Virtual Machine. Based on the method you choose, you should download the file from Bluesocket support site. You should have already downloaded this manual “Getting Started-vWLAN-VMWare.pdf” as well.

Creating a Virtual Appliance using OVA

Download the vWLAN® OVA virtual appliance from the Bluesocket support site. Then from the File Menu in the vSphere Client, choose the option “Deploy OVF Template...”. This will launch a wizard to deploy the OVA – first point to the .ova file that you have downloaded, and then click Next through the rest of the wizard:





You may rename the vWLAN virtual appliance to what ever you wish, but it is recommend you keep it as shipped to display the version. However, if you do change the name you can view the original version name in the notes section of the virtual machine itself.

The screenshot shows a window titled "Deploy OVF Template" with a blue header bar. Below the header, the section "Name and Location" is active, with the instruction "Specify a name and location for the deployed template". On the left side, there is a vertical navigation pane with the following items: "Source" (a link), "OVF Template Details" (a link), "Name and Location" (the current step, bolded), "Datastore", "Disk Format", and "Ready to Complete". The main area of the window contains a "Name:" label above a text input field. The input field contains the text "vWLAN-V2.0.1.09". Below the input field, there is a note: "The name can contain up to 80 characters and it must be unique within the inventory folder." At the bottom of the window, there are three buttons: "Help" on the left, and "≤ Back", "Next ≥", and "Cancel" on the right.

Choose the datastore you wish to use to deploy the Virtual Machine:

Datastore
Where do you want to store the virtual machine files?

[Source](#)
[OVF Template Details](#)
[Name and Location](#)

Datastore
Disk Format:
Ready to Complete

Select a datastore in which to store the VM files:

Name	Capacity	Provisioned	Free	Type	Thin Provisioning	Access
[datastore1]	17.25 GB	9.13 GB	8.12 GB	VMFS	Supported	Single t
[datastore_3]	186.25 GB	46.14 GB	148.10 GB	VMFS	Supported	Single t
[datastore_2]	186.25 GB	165.28 GB	40.97 GB	VMFS	Supported	Single t

Help < Back Next > Cancel

Choose the Thick provisioned format:

The screenshot shows a Windows-style dialog box titled "Deploy OVF Template". The main heading is "Disk Format" with the question "In which format do you want to store the virtual disks?". On the left, a navigation pane lists "Source", "OVF Template Details", "Name and Location", "Datastore", "Disk Format" (which is selected), and "Ready to Complete". The main area displays "Information about the selected datastore:" with fields for Name (datastore_3), Capacity (186.3 GB), and Free space (148.1 GB). Below this, it asks to "Select a format in which to store the virtual machines virtual disks:" and offers two radio button options: "Thin provisioned format" (with a 1.8 GB estimated usage) and "Thick provisioned format" (with a 7.0 GB estimated usage). The "Thick provisioned format" option is selected. At the bottom, there are "Help", "Back", "Next", and "Cancel" buttons.

Deploy OVF Template

Disk Format
In which format do you want to store the virtual disks?

[Source](#)
[OVF Template Details](#)
[Name and Location](#)
[Datastore](#)
Disk Format
[Ready to Complete](#)

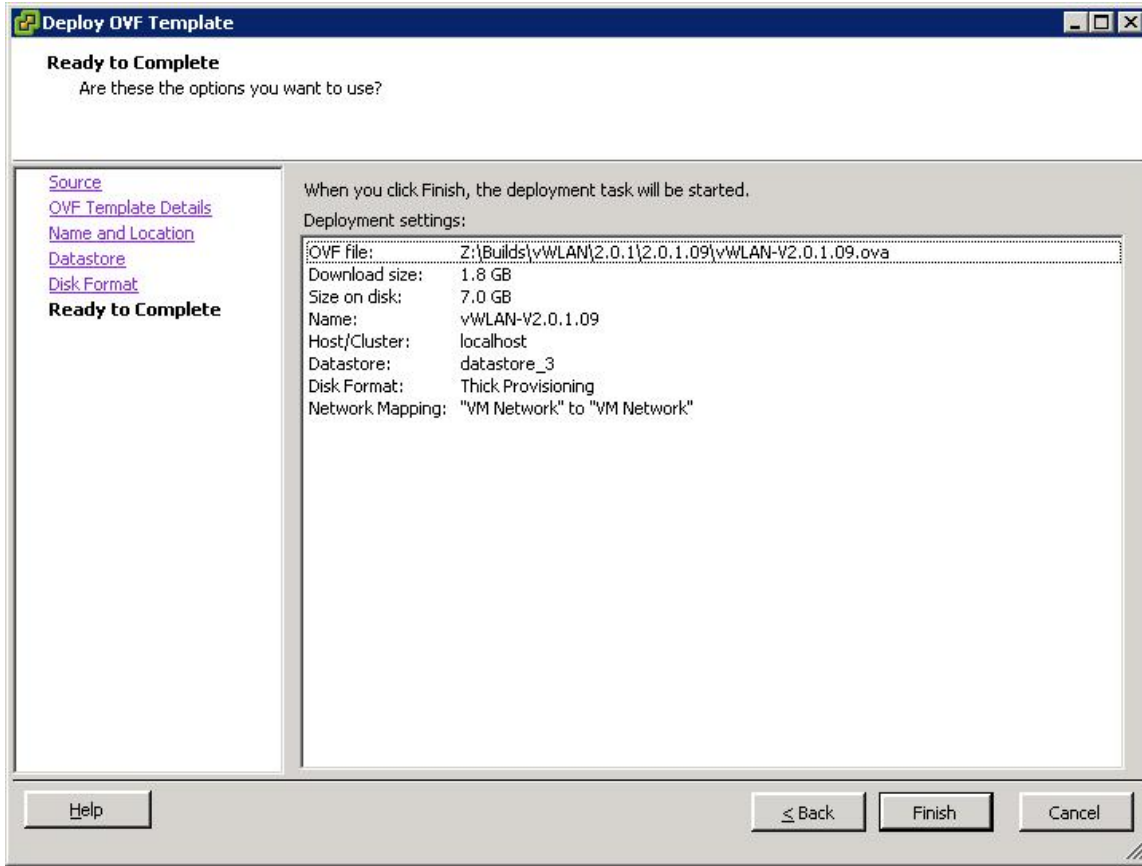
Information about the selected datastore:
Name: datastore_3
Capacity: 186.3 GB
Free space: 148.1 GB

Select a format in which to store the virtual machines virtual disks:

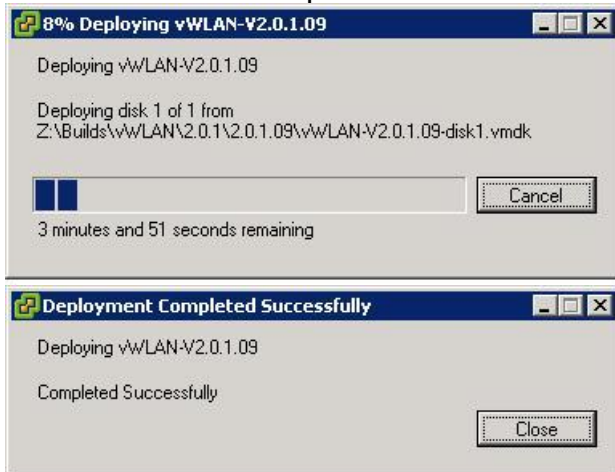
Thin provisioned format
The storage is allocated on demand as data is written to the virtual disks. This is supported only on VMFS3 and newer datastores. Other types of datastores might create thick disks.
Estimated disk usage: 1.8 GB

Thick provisioned format
All storage is allocated immediately.
Estimated disk usage: 7.0 GB

Help ≤ Back Next ≥ Cancel



Click Next and this will import the OVA, extract the OVF file and create the virtual machine. The entire process will take a few minutes:

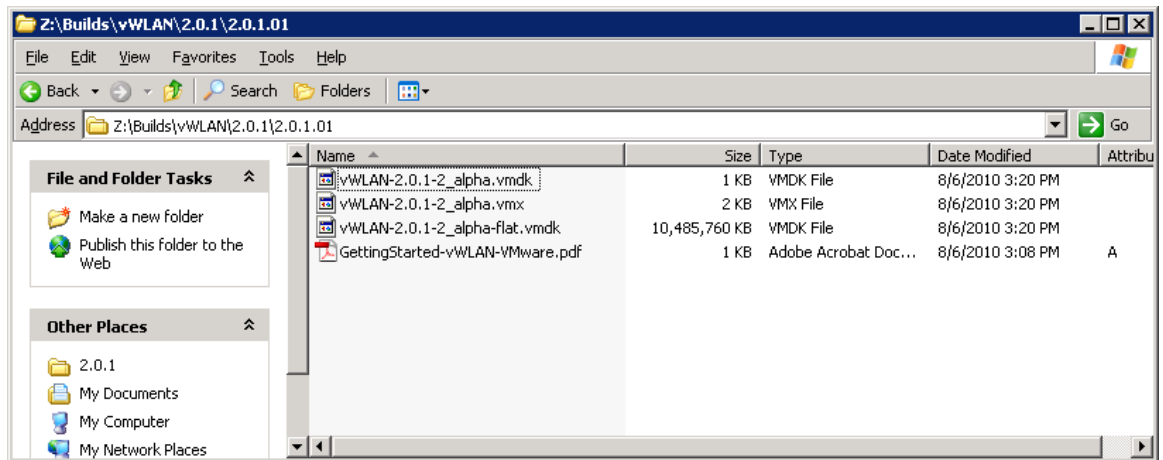


Creating a Virtual Appliance from vmdk

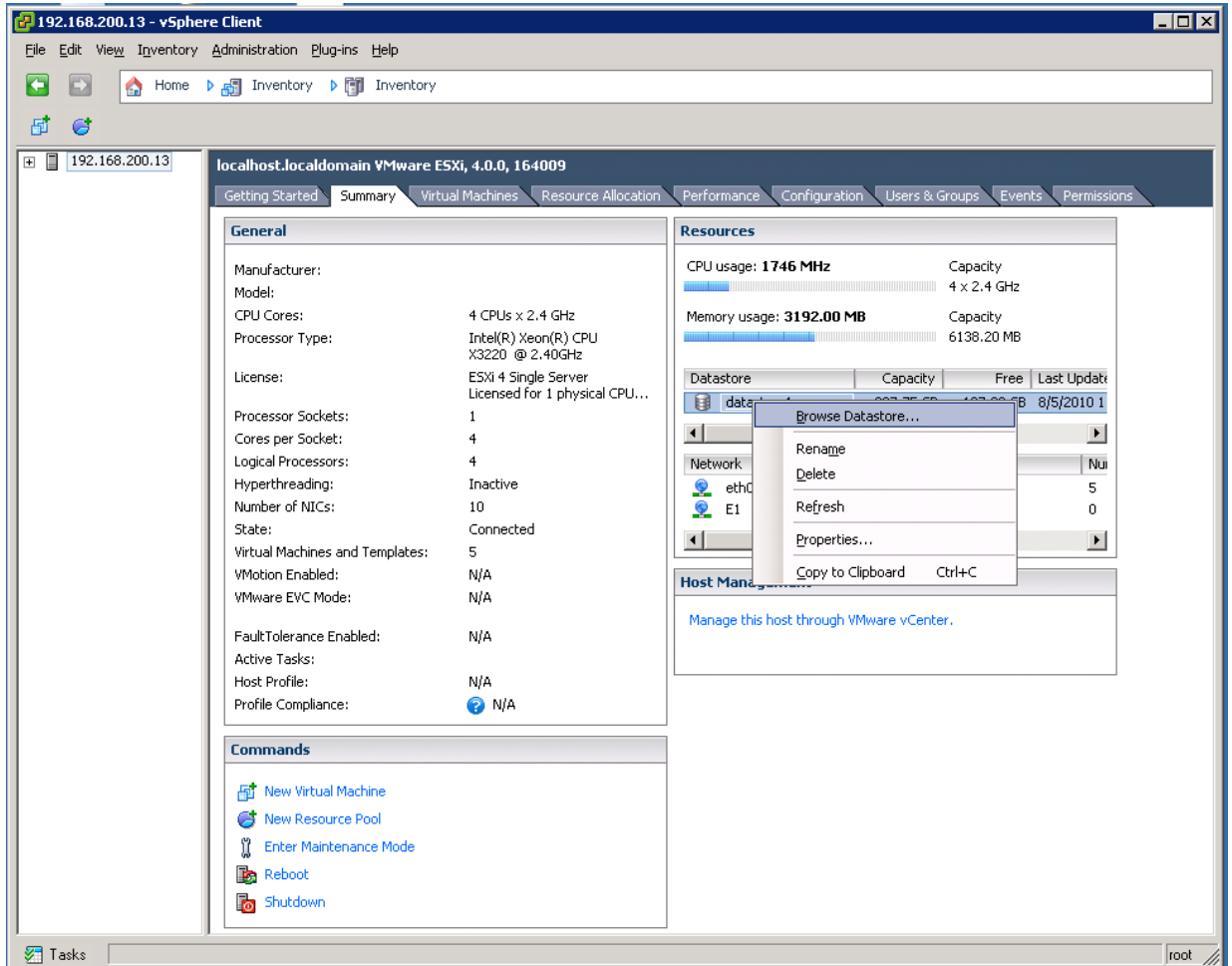
Download the vWLAN[®] virtual appliance from the Bluesocket support site and uncompress into a local directory. The directory should contain the following files:

- vWLAN-2.0.1-x.vmx – Virtual Appliance Configuration File
- vWLAN-2.0.1-x.vmdk – Virtual Disk Descriptor file
- vWLAN-2.0.1-x-flat.vmdk – Virtual Disk as a flat file

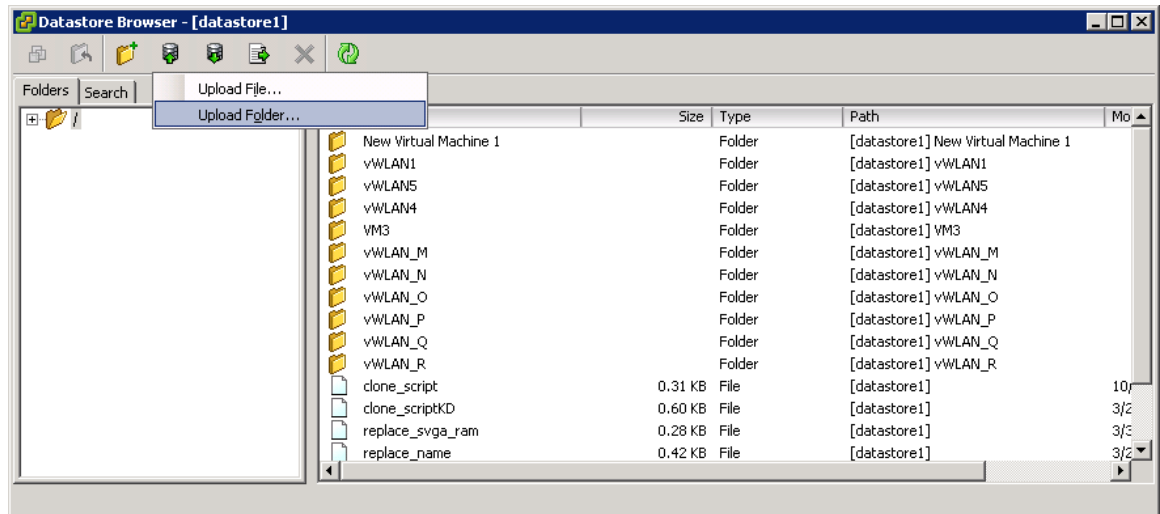
Verify the MD5 hash for each file against the values that are posted on the Bluesocket download site to confirm the images were properly uncompressed.



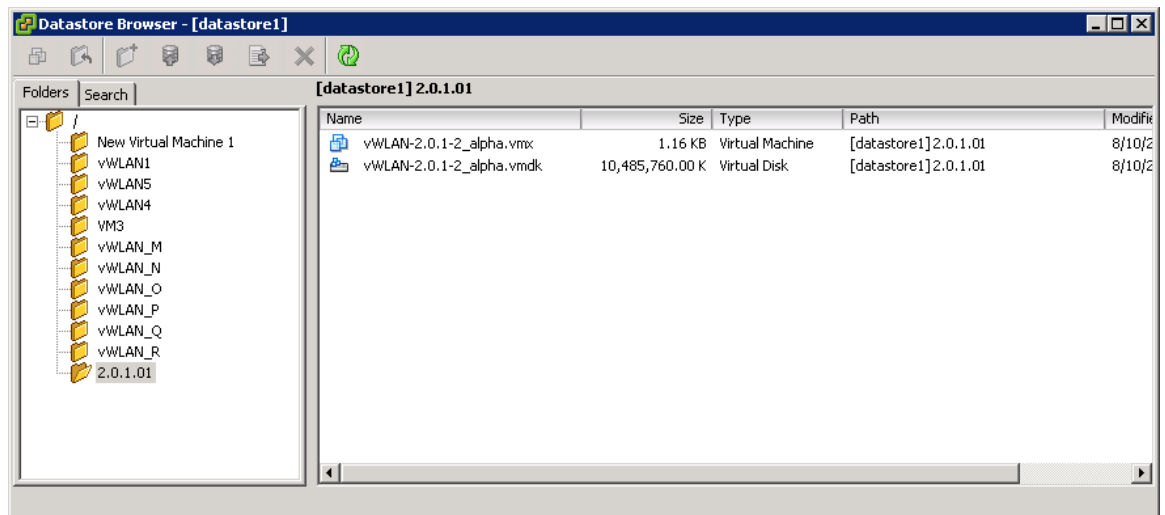
Within the vSphere client, navigate to the summary tab and right click the datastore where you would like to save your vWLAN virtual appliance.



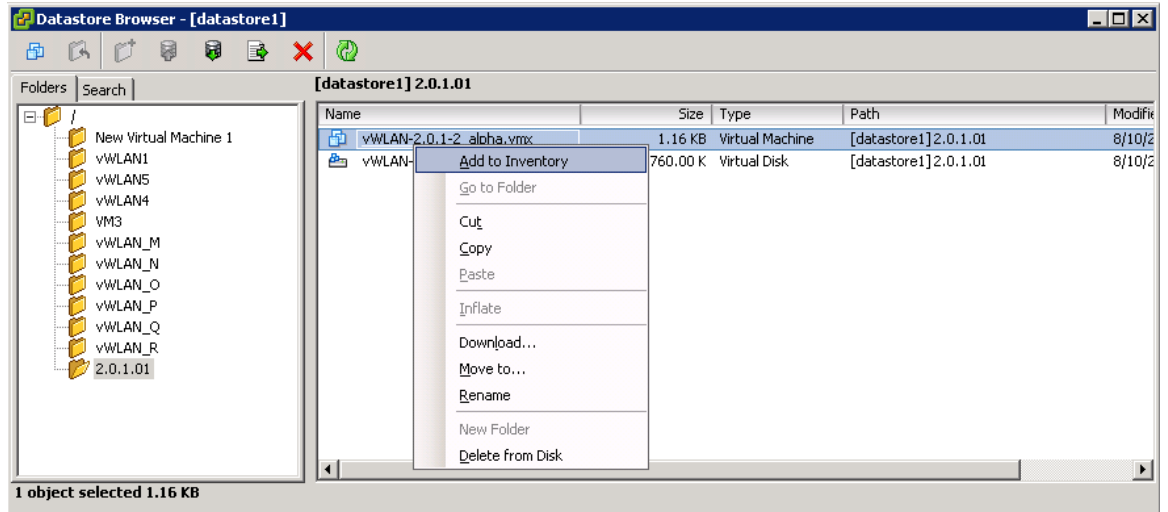
Select “Upload folder” and browse to where you have uncompressed your vWLAN virtual appliance on your local computer and upload the folder to the datastore.



When the upload is completed, you will see the .vmx and .vmdk files – note the .vmdk file doesn't show as a -flat.vmdk file since vSphere reads the virtual disk descriptor file and represents the disk accordingly. In this example, you can remove the GettingStarted-vWLAN-VMware.pdf file since it is not needed.



Select the .vmx file and right click to add to the ESX Inventory.



You may rename the vWLAN virtual appliance to what ever you wish, but it is recommend you keep it as shipped to display the version. However, if you do change the name you can view the original version name in the notes section of the virtual machine itself.

Add to Inventory

Name
Enter a name for this virtual machine

Name
[Resource Pool](#)
Ready to Complete

Name:
vWLAN-2.0.1.01

Virtual machine (VM) names may contain up to 80 characters and they must be unique within each vCenter Server VM folder.
VM folders are not viewable when connected directly to a host. To view VM folders and specify a location for this VM, connect to the vCenter Server.

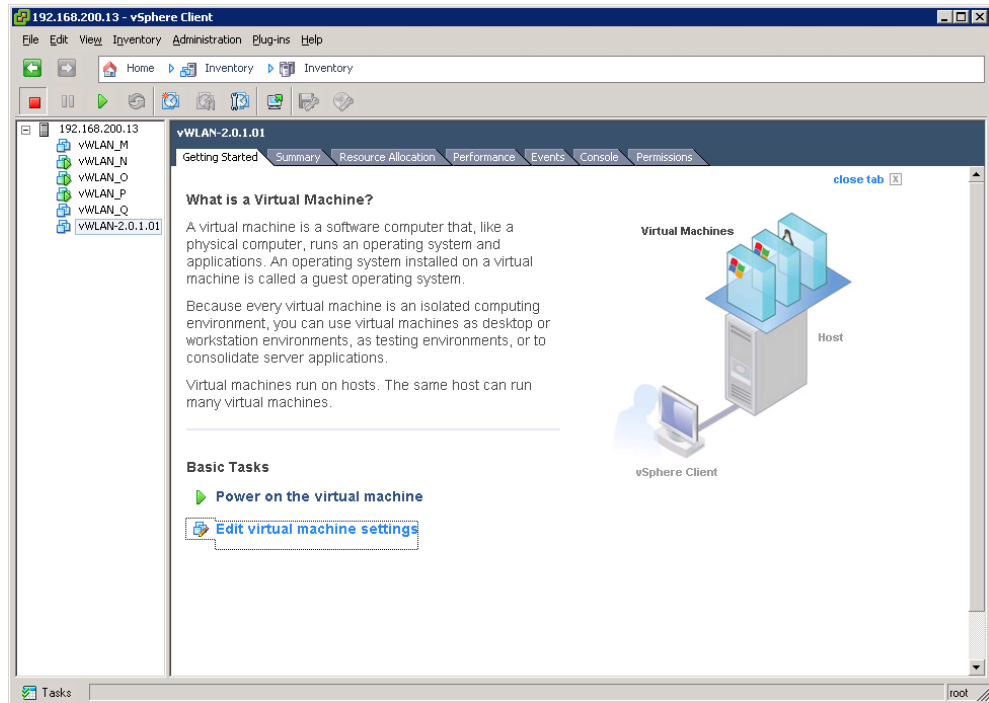
Help < Back Next > Cancel

Select the appropriate resource pool for your virtual machine and then hit next and then finish.

The screenshot shows a window titled "Add to Inventory" with a sub-header "Resource Pool" and the question "Within which resource pool do you want to run this virtual machine?". The main area is split into two panes. The left pane, titled "Name" and "Resource Pool", shows "Ready to Complete". The right pane contains instructions: "Select the resource pool within which you wish to run this virtual machine. Resource pools allow hierarchical management of computing resources within a host or cluster. Virtual machines and child pools share the resources of their parent pool." Below this is a list box containing one item: "192.168.200.13". A "Compatibility:" label is positioned above an empty text area. At the bottom, there are four buttons: "Help", "≤ Back", "Next ≥", and "Cancel".

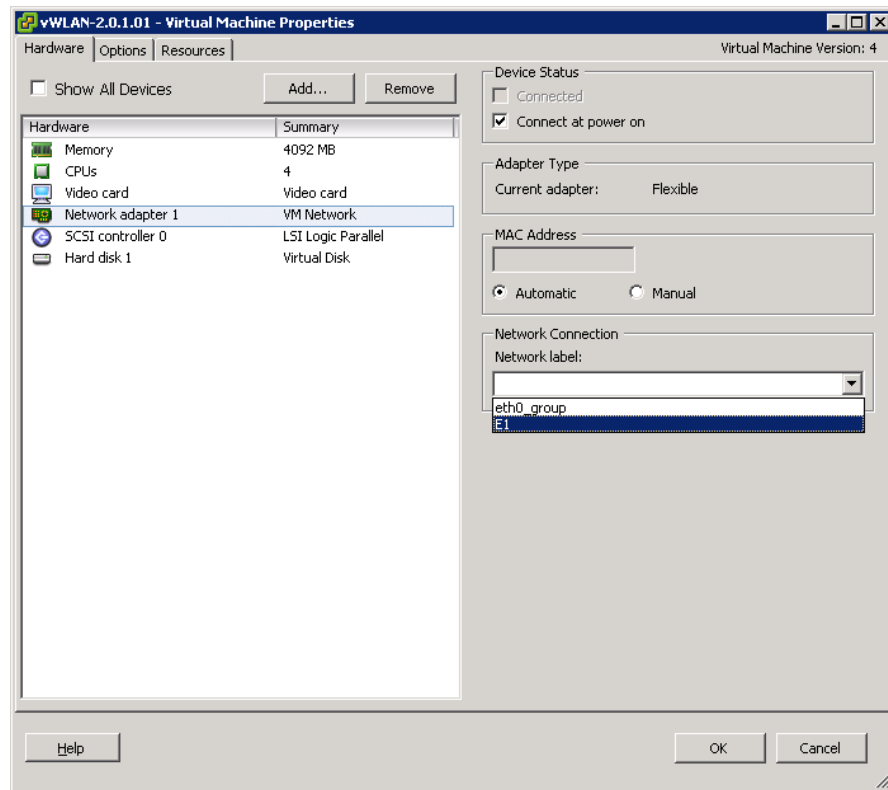
Editing Virtual Machine Settings

Whether you used OVA or vmdk method, now that the virtual machine is in your inventory, select the machine in the left-hand pane and under the “Getting Started” tab, select “Edit virtual machine settings”.



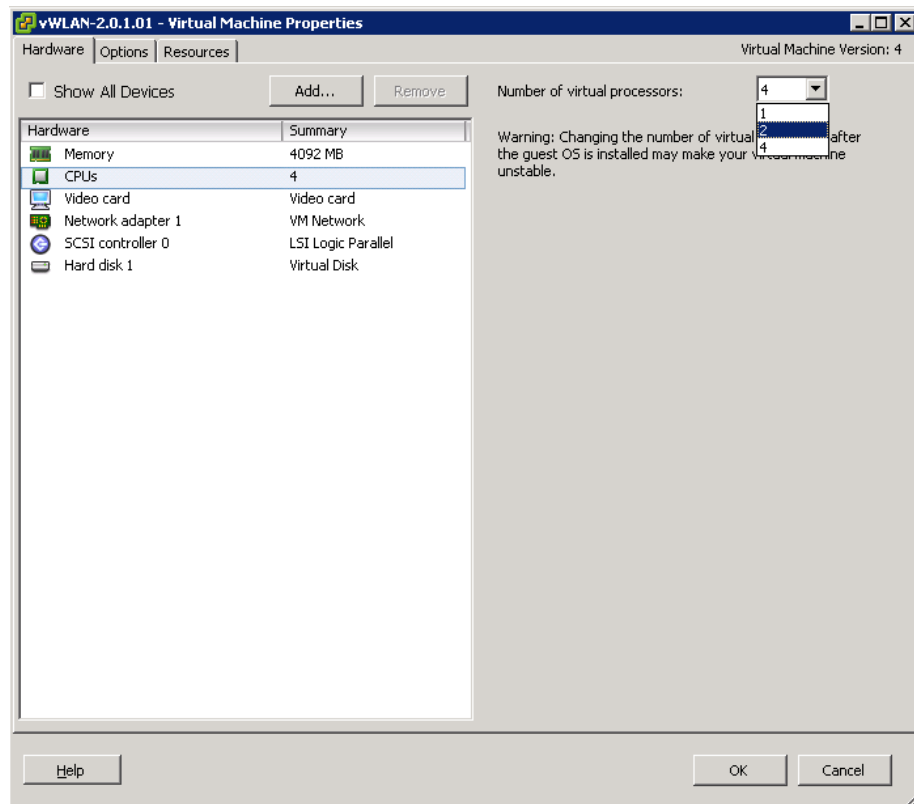
You now need to setup the Network Interface for the VM. Select Network Adapter 1 and configure the corresponding network switch where the interface should be associated. This interface needs network connectivity to DNS and the access points. In this example, the adapter is associated with the “E1” network label.

To see the network connections, navigate to ESX's Configuration->Networking tab for a list of available network switches.



The Virtual appliances are pre-configured to support the size of your deployment. For example, if you have more than 50 access points, you will need a virtual machine with 4 cores and 4 Gbytes of memory.

If you have a small AP deployment (i.e. fewer than 50 BSAPs) but downloaded a virtual machine that supports more than 50 BSAPs, you can edit the virtual machine specifications to adjust the CPU and memory limits (to 2 cores and 2 gig of RAM):

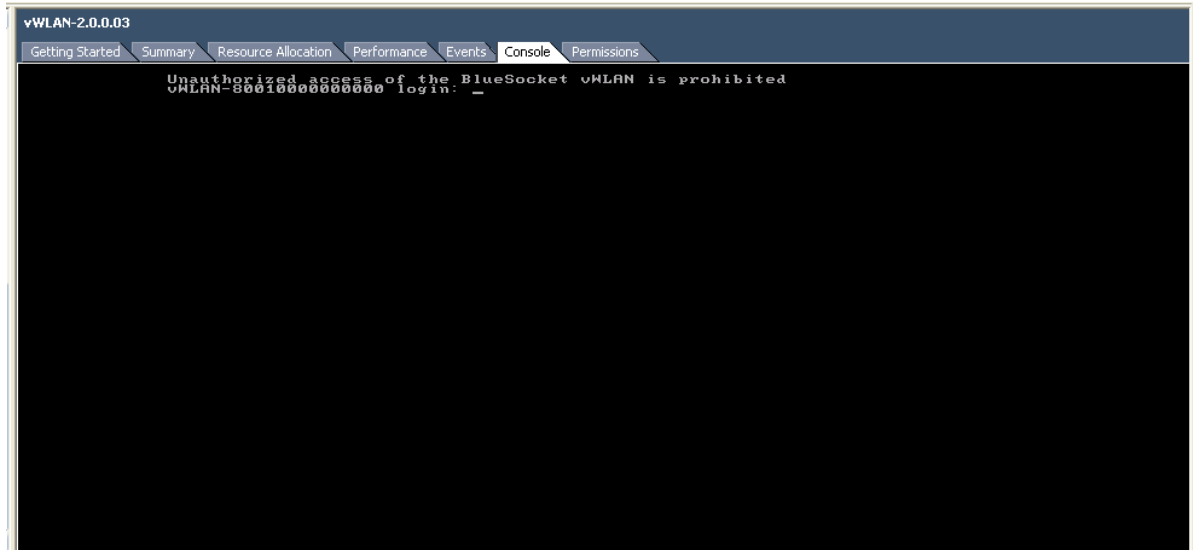


The virtual machine specifications were qualified through VMware, so it's recommended that you stay within the specifications outlined in the resources section above.

Access and Authentication Information

Command Line Interface via vSphere Console Tab

To login to the vWLAN[®] CLI, select the virtual machine and then navigate to the Console tab. The default username is “vwlan” and the password is “vwlan”.



Management Interface:

The vWLAN has a built-in web server for system management. Accessing the web server can be done using the following command in your browser:

`https://<ip address>/console`

The IP address of the virtual machine can be found under the Summary->General tab. The default username is “admin” and the default password is “blue”. After accepting the EULA, it is recommended that you change the administrator password.

External Resource Requirements for vWLAN virtual machine

vWLAN[®] should be placed on a network that has DNS access and IP connectivity to the Access Points.

vWLAN[®] can be setup to use DHCP or static IP address. If using DHCP, vWLAN[®] will obtain an IP address from the network. If there is no DHCP on the local network, vWLAN[®] will fall back to the following IP address: 192.168.130.1/255.255.255.0 .

The admin can login to this IP and then static the vWLAN[®] to another IP or the admin can change the IP address through the CLI menu. While the domain name is optional, specifying it is encouraged, so the vWLAN is addressed as hostname.domain - this avoids possible confusion in the network.

If you are using time-based licenses, the virtual machine must have DNS and HTTPS access to the internet to validate the date on the license.

First-Boot Configuration Procedures

- Power on the virtual machine
 - It might take 5 minutes to fully boot the appliance
 - You can watch the boot from the vSphere console
 - Find the IP address in vWLAN console using the vSphere client
- Log into the vWLAN Appliance web UI
 - [https:// <Appliance IP address>/console](https://<Appliance IP address>/console)
 - username: admin password: blue
 - Accept the License (ULA) agreement

You can navigate through the vWLAN[®] software to become familiar with the management interface. To operate BSAPs under the vWLAN virtual appliance, you will need to request an BSAP license file from the Bluesocket Sales team. Please refer to the installation and configuration through available on the Bluesocket support site.

For more Information and User Documentation

Refer to the *Bluesocket vWLAN[®] DocuWiki* for installation and configuration instructions. The DocuWiki is reached through the Bluesocket support site.

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Safe Computing statement

The vWLAN® Virtual Appliance does not contain malware, spyware, or viruses.