

vWLAN Installation Using KVM

This configuration guide describes the installation of ADTRAN's Bluesocket virtual wireless local area network (vWLAN) on Kernel-based Virtual Machine (KVM). Included in this guide are an overview of the prerequisites for running vWLAN on KVM and the necessary steps to install vWLAN on KVM.

This guide includes the following sections:

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Overview

KVM can be used to install and deploy multiple vWLAN instances. This type of installation and deployment is achieved by deploying a number of vWLAN instances on commodity server hardware. These instances are deployed on a host system, using a variety of open source technologies, such as Linux, KVM, and others, to install, configure, and manage each vWLAN instance. Each vWLAN instance provides the software functionality of vWLAN, using virtual interfaces and relying on the host memory and central processing unit (CPU) allocation.

You should be familiar with the following technologies before attempting to configure and use vWLAN in a virtual environment:

- Linux
- KVM
- Quick Emulator (QEMU)
- LibVirt

This guide focuses on the necessary steps to configure KVM for vWLAN deployment, and assumes a familiarity with other technologies used in conjunction with KVM.

Hardware and Software Requirements and Limitations

The following sections detail requirements for support of vWLAN installation and management in a KVM environment. The listed requirements are for vWLAN instances using firmware version 3.0.1, and the use of vWLAN with KVM is currently in Beta testing.

Virtual Hardware Requirements

The minimum requirements for a single vWLAN instance include the following resources:

- 4 CPUs/cores
- 41 GB of free disk space
- 6 GB memory (RAM)

Software Requirements

Running vWLAN on KVM requires that the following prerequisites have been satisfied:

- KVM, LibVirt, and QEMU are installed and properly configured.
- A bridged network interface is available for use by vWLAN. Both Linux bridges and Open vSwitch (OVS) bridges are acceptable.
- Using Virtual Machine Manager (virt-manager) is optional, but it is used in this guide.

Refer to your operating system's documentation for guidance in meeting these requirements.

vWLAN Installation in a KVM Environment

Installing and using vWLAN in a virtual environment requires that the host system be configured to support each vWLAN instance, by proper allocation of CPU, RAM, and network interfaces. The following sections detail how to create, start, and access vWLAN instances on the host system.

To install vWLAN on KVM, follow these steps:

- 1. Upload the vWLAN qcow2 image to the desired location on the KVM host.
- 2. Start Virtual Machine Manager (virt-manager) on the KVM host.
- 3. Select File > New Virtual Machine in the virt-manager menu.
- 4. In the **Create a new virtual machine** window, select **Import existing disk image** and then select **Forward** to continue.

Kai New VM	
Create a new virtual machine Step 1 of 4	
C <u>o</u> nnection: QEMU/KVM	
Choose how you would like to install the operating system	
Local install media (ISO image or CDROM)	
Network Install (HTTP, FTP, or NFS)	
Network <u>B</u> oot (PXE)	_
Import <u>e</u> xisting disk image	
<u>C</u> ancel Back	Eorward

5. On the next screen, use the **Browse** button to select the vWLAN qcow2 image. Next, select **Linux** from the **OS type** drop-down menu, and select **Ubuntu 12.04 LTS** from the **Version** drop-down menu. Finally, select **Forward** to continue.

Ma New VM	Long Stations (Section Section 2014)	_ D X
	reate a new virtual machine ep 2 of 4	
Provide the e	existing storage path:	
/v/Ms/v/	/LAN-3-0-1.qcow2	Browse
Choose an o	perating system type and version	
US type:		
Version:	Ubuntu 12.04 LTS	
	C ancel Back	Forward

6. On the next screen, specify 6144 MiB in the Memory (RAM) field, and 4 in the CPUs field. Select Forward to continue.

New VM	-					x
Create Step 3 of	a new vi 4	irtual	mac	hine		
Choose Memory an	d CPU set	tings				
Memory (RAM):	6144	_	+	Мів		
	Up to 121	56 Mie	availa	able on the host	÷	
CPUs:	4	-	+]		
	Up to 4 av	ailabl	e			
[Cance	el		Back	Forward	d

7. On the next screen, specify the VM name in the **Name** field, select the **Customize configuration before install** check box. Next, select the appropriate bridged network interface from the **Network selection** drop-down menu. Finally, select **Finish** to create the new VM.

Max New VM		x
Cre Step	eate a new virtual machine	
Ready to begin	n the installation	
<u>N</u> ame:	vWLAN_Test_Environment	
OS: U	Ibuntu 12.04 LTS	
Install: In	mport existing OS image	
Memory: 6	144 MiB	
CPUs: 4		
Storage: A	/Ms/vWLAN-3-0-1.qcow2	
	Customize configuration before install	
	election	
Bridge b	or0.1099: Host device vnetl 💌	
		_
	<u>Cancel</u> <u>Back</u> <u>Finish</u>	

8. In the VM configuration window, select **CPUs** from the left-hand menu and select the **Copy host CPU configuration** check box. Next, select **Apply**.

WWLAN_Test_Environment or	n QEMU/KVM	x
🚽 Begin Installation	X Cancel Installation	
Overview CPUs Memory Boot Options VirtIO Disk 1 Image: NIC :e0:d2:8a Tablet Display VNC Console Controller USB	CPUs Logical host CPUs: 4 Current allocation: 4 - + Maximum allocation: 4 - + Configuration Copy host CPU configuration Topology	
Add Hardware	Cancel	y)

9. In the VM configuration window, select **Boot Options** from the left-hand menu and select the **Start virtual machine on host boot up** check box. This will cause the vWLAN instance to start automatically when the host boots. Next, select **Apply**.

Was vW	LAN_Test_Environment on	QEMU/KVM
1	Begin Installation	X Cancel Installation
	Overview CPUs Memory Boot Options VirtIO Disk 1 NIC :e0:d2:8a Tablet Display VNC Console Controller USB	Autostart Start virtual machine on host boot up Boot device order Cable boot menu Cable boot menu Cable boot NIC :e0:d2:8a Cable boot Direct kernel boot
	Add Hardware	Cancel

10. In the VM configuration window, select **VirtIO Disk 1** and expand the **Advanced options** drop-down menu to verify that **Disk bus** is set to **VirtIO**.

WWLAN_Test_Environment or	n QEMU/KVM	x
🥜 Begin Installation	X Cancel Installation	
Overview CPUs Memory Boot Options VirtIO Disk 1 I Tablet Display VNC Console Controller USB	Virtual Disk Source path: //Ms//WLAN-3-2-0.qcow2 Device type: VirtIO Disk 1 Storage size: 41.00 GiB Readonly: Shareable: VirtIO	
Add Hardware	Remove Cancel Apply	

11. Next, in the VM configuration window, select **NIC** from the left-hand menu. Verify the **Device model** is set to **virtio**. Once verified, select the **Begin Installation** check mark at the top left corner of the menu.

wi vWLAN_Test_Environment on QEMU/KVM				
Begin Installation	💥 Cancel Installatio	n		
 Begin Installation Overview CPUs Memory Boot Options VirtIO Disk 1 NIC :e0:d2:8a Tablet Display VNC Console Controller USB 	X Cancel Installation	nterface Bridge br0.1099: Host de virtio 52:54:00:e0:d2:8a	evice vnet2 🗸	
A <u>d</u> d Hardware			<u>R</u> emove Cancel	Apply

12. Once the VM is deployed, it will automatically start and launch the Virtual Machine Manager Guest Console (virt-viewer) window that displays the vWLAN console.

Access and Authentication Information

The following sections detail how to access and authenticate the vWLAN instance through both Virtual Machine Manager (virt-manager) and the Web-based administration console.

vWLAN Command Line Interface (CLI) via Virtual Machine Manager (virt-manager)

To login to the vWLAN instance using the CLI, select the vWLAN instance in Virtual Machine Manger (virt-manager), and double-click. The default user name is **vwlan** and the default password is **vwlan**.

vWLAN Secure Web-Based Administration Console

vWLAN has a built-in web server used for system administration. You can access the administrator web-based graphical user interface (GUI) by entering the following URL in your web browser:

https://<ip address>:3000

The IP address of the virtual machine is found by logging into the vWLAN CLI and selecting **option 2** (**ifconfig**). The IP address you should use is displayed on the **eth0** interface. If it is necessary to scroll up the page to see the **eth0** interface information, press **Shift + Page Up** to scroll up the page.

It can take several minutes for the GUI to become available after the vWLAN instance boots.

Once the administrator web GUI has loaded, log in using the default user name of **root@adtran.com** and the default password of **blueblue**. It is recommended you change the administrator user name and password once you have logged into the vWLAN instance.

Additional Resources

The following table lists references available online for additional information about many of the components used in vWLAN configurations.

Item	Reference Link
A library of additional vWLAN documentation	https://supportforums.adtran.com/community/bluesocket/blues ocket-vwlan/technical-document
vWLAN Administrator's Guide	https://supportforums.adtran.com/docs/DOC-5271
vWLAN Quick Deployment and Configuration Guide	https://supportforums.adtran.com/docs/DOC-7435
vWLAN General Deployment Guide	https://supportforums.adtran.com/docs/DOC-7066

Table 3. Additional Online References