DJIGZO EMAIL ENCRYPTION

DJIGZO Gateway Virtual Appliance Guide

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1 Introduction

The DJIGZO Virtual Appliance is a virtual machine for VMware and Microsoft Hyper-V with a full installation of the DJIGZO Email Encryption Gateway. This guide explains how to install and setup the DJIGZO Virtual Appliance.

2 Requirements

2.1 VMware requirements

VMware Infrastructure

- ESX & ESXi
- VMware vCenter Server

Other VMware[1]

- VMware Workstation
- VMware Player
- VMware Server

2.2 Hyper-V requirements

Microsoft Hyper-V 2008 R2.

3 VMWare Installation

The required Virtual Appliance distribution and installation procedure differs between VMware infrastructure (ESXi etc.) and other VMware virtual machines (VMware workstation etc.).

3.1 VMware infrastructure

This section will explain how to install the Virtual Appliance on the VMware Infrastructure (ESX server etc.).

3.1.1 download the Virtual Appliance

The Virtual Appliance can be downloaded from http://www.djigzo.com/downloads.html. The ESX version of the Virtual Appliance should be downloaded and unzipped.

[1] The VMware .vmdk file can also be used with VirtualBox. See Appendix A.

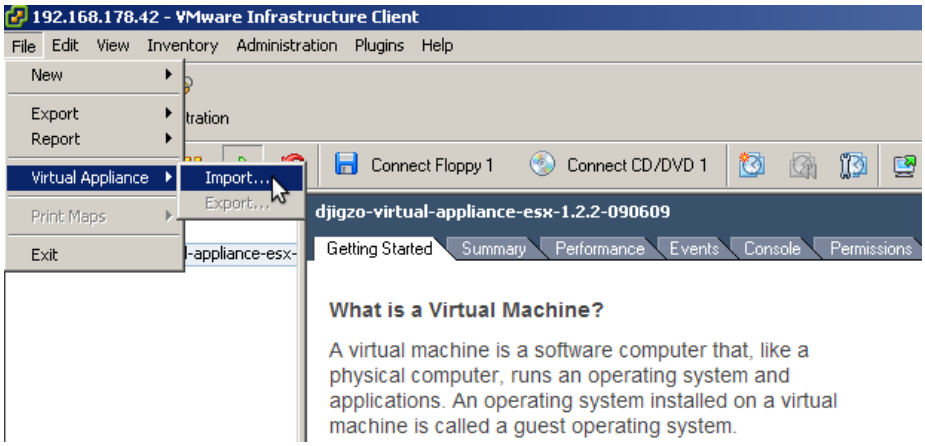

Figure 1: VMware Infrastructure Client

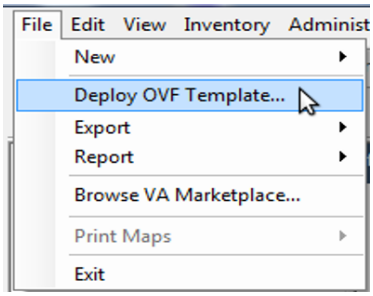

Figure 2: Deploy OVF

3.1.2 Import Virtual Appliance

The Virtual Appliance should be imported into VMware with the *VMware Infrastructure Client* or with the *VMware vCenter Converter*.

VMware Infrastructure Client The Virtual Appliance can be directly imported as a Virtual Appliance using the *VMware Infrastructure Client* (see Figure 1). Open the directory where the zip file has been unzipped and select the .ovf file.

Note: If importing a Virtual Appliance with the *VMware Infrastructure Client* fails, for example because the VMware client is not directly compatible with the Virtual Appliance, the Virtual Appliance should be imported with the *VMware vCenter Converter*[2].

vSphere client If the vSphere client is used, the Virtual Appliance should be imported using the *deploy ovf template* menu option (see figure 2)

[2]The *VMware vCenter Converter* can be freely downloaded from http://www.vmware.com/products/converter/

VMware vCenter Converter The *VMware vCenter Converter* can be used to convert and import Virtual Machines.

1. Start the *VMware vCenter Converter* and select *Convert Machine*. This opens the Conversion wizard (see Figure 3).
2. Click *Browse to virtual appliance file* and select the Virtual Appliance .ovf file from the directory where the zip file has been unzipped.
3. Click *Next*, *Next* and accept the EULA.
4. Now select the *VMware Infrastructure virtual machine* destination type and specify the destination of the VMware server (see Figure 4).
5. Click *Next* and specify the name for the new virtual machine and select the Datastore (see Figure 5).
6. Click *Next*. On the *View/Edit options* change virtual machine options like memory, number of virtual processors etc. if required or leave the defaults.
7. Click *Next* until the *Ready to complete page* is reached.
8. Now click *Finish* to start the import of the Virtual Appliance (see Figure 6). The import task can take a few minutes.

Important: To prevent swapping of the Virtual Appliance, make sure that the memory "Reservation" is set to the exact same size as the total memory of the virtual machine. The memory reservation can be set using the VMware Infrastructure Client[3].

3.2 VMware stand alone

This section will explain how to install the Virtual Appliance on VMware Workstation, VMware Player or any other stand alone VMware virtual machine.

3.2.1 download the Virtual Appliance

The Virtual Appliance can be downloaded from http://www.djigzo.com/downloads.html. The non-ESX version of the Virtual Appliance should be downloaded.

[3] memory reservation can be set using the following procedure: a) select settings of the virtual appliance, b) select resources tab and finally, c) select memory and set reservation to the limit based on parent resource pool or current host (the total memory of the virtual machine is denoted by the orange colored triangle). For more information on running a JVM on ESX see http://www.vmware.com/resources/techresources/1087

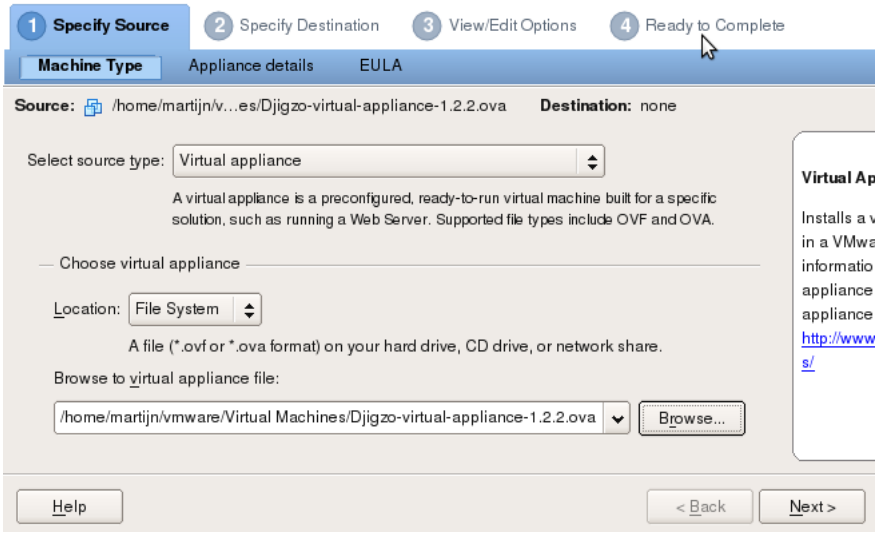

Figure 3: VMware vCenter Converter

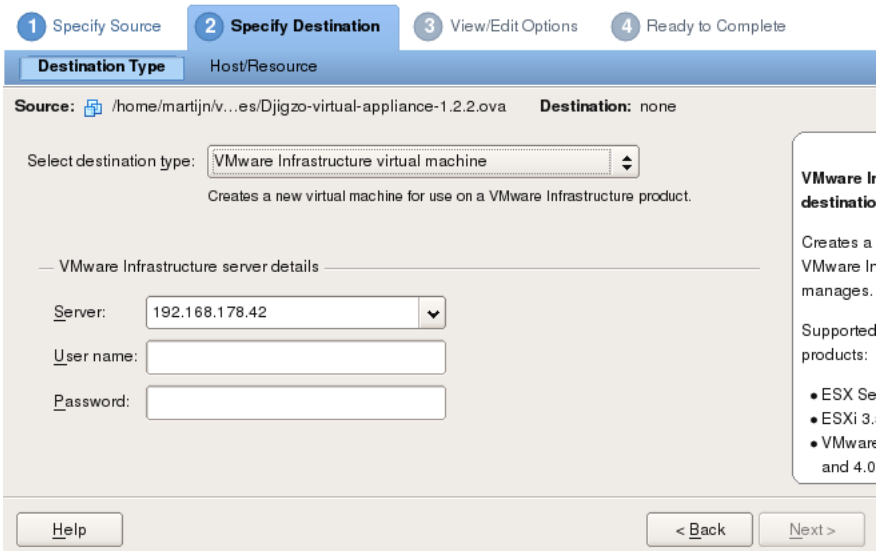

Figure 4: VMware vCenter Converter destination

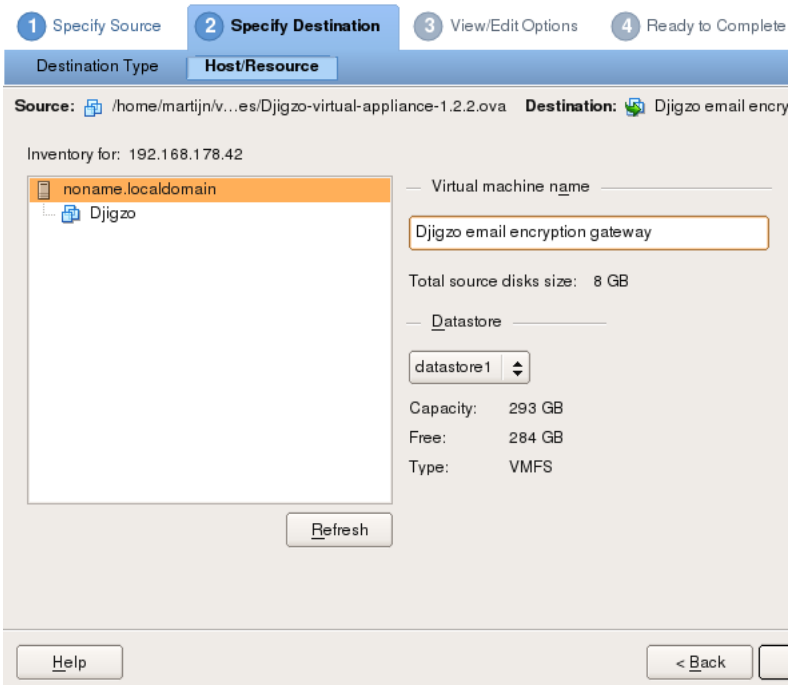

Figure 5: VMware vCenter Converter datastore

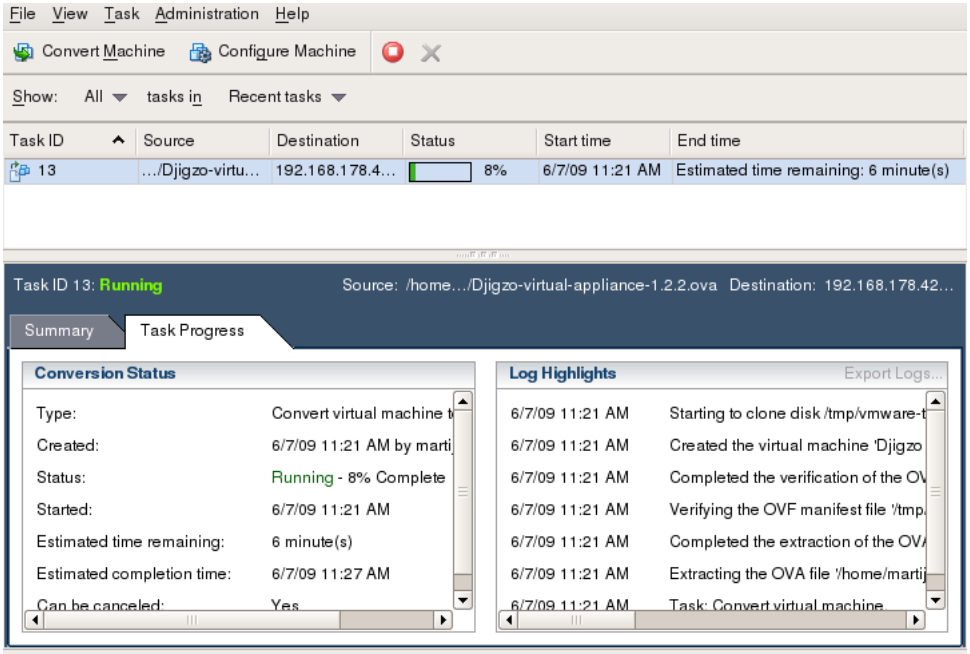

Figure 6: VMware vCenter Converter converting

3.2.2 Importing Virtual Appliance

1. Unzip the Virtual Appliance to the folder with the Virtual Machines.
2. Open the .vmx file with VMware.
3. Optionally, change Virtual Machine settings (like memory usage, etc.).

The Virtual Appliance has been built for VMware Player 2 and should be compatible with VMware workstation and VMware server. If the Virtual Appliance cannot be used directly, use VMware Converter to convert the virtual machine to another VMware version.

4 Microsoft Hyper-V installation

This section explains how to import the virtual appliance into Microsoft Hyper-V using the *Hyper-V manager*.

1. Download the Hyper-V virtual hard disk (*.vhd.zip) from http://www.djigzo.com/downloads.html.
2. Unzip the virtual hard disk file to the location where the virtual hard disks are stored.
3. Create a new virtual machine.
4. Set *Memory* to 1024 MB.
5. Skip connecting the network adapter (a legacy adapter must be added later).
6. Select “Use an existing virtual hard disk” and select the virtual disk copied in step 2.
7. Finish the “New Virtual Machine Wizard”.
8. Add a “Legacy Network Adapter” and connect the legacy adapter.
9. Remove the existing non-legacy Network Adapter.
10. Optionally, select more than one “Virtual Processor”[4].
11. The new Virtual Machine can now be started.

Note: The “normal” network adapter requires certain drivers to be available on the client system. Because the Hyper-V Kernel modules for Ubuntu 10.04 are not yet stable enough, the legacy network adapter should be used instead of the “normal” network adapter. For an email server, the legacy network adapter is fast enough to handle large loads of email.

[4] A Virtual Appliance with two virtual processors, can encrypt about twice as much emails/second as a Virtual Appliance with only one virtual processor.

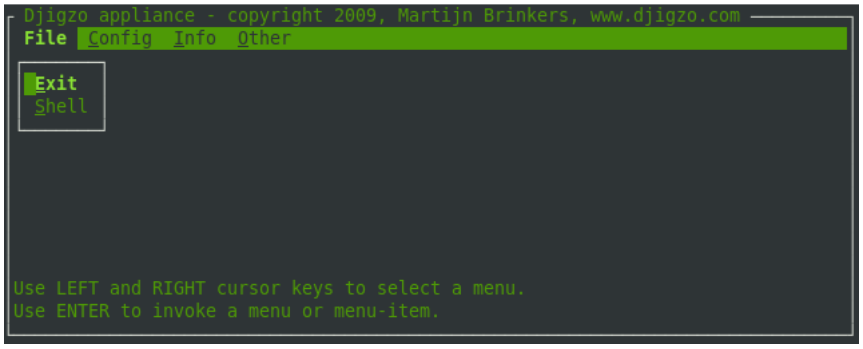

Figure 7: Virtual Appliance console

5 Starting the Virtual Appliance

After the Virtual Appliance has been imported, the virtual machine can be "Powered on". The first time the Virtual Appliance starts, a disk check is forced to make sure the disk was not corrupted by the import. During the initial startup process, new SSH keys will be generated.

6 Virtual Appliance configuration

The DJIGZO Virtual Appliance is a full installation of the DJIGZO Email Encryption Gateway. The Virtual Appliance therefore requires network access, DNS setup etc. By default the network connection of the Virtual Appliance is set to Bridged mode[5] and is configured to get it's network IP address from any available *DHCP* server. To see which IP address the gateway is using, the administrator should log into the Virtual Appliance console app.

Login credentials: Use the following default credentials:

username:	djigzo-admin
password:	djigzo

After logging into the Virtual Appliance, a system configuration tool will be started which can be used to configure the system (see Figure 7). SSH login will be available after the network has been setup. The system configuration tool contains four main menu items: *File*, *Config*, *Info* and *Other*.

6.1 File

The File menu contains two sub-items: *Exit* and *Shell*. *Exit* logs the administrator off. *Shell* opens a Bash shell from which lower level system administration can be done[6].

[5] If bridge mode does not work, try to use NAT.
[6] DJIGZO Virtual Appliance is based on Ubuntu 10.04.

Figure 8: Virtual Appliance config

6.2 Config

The config menu contains eight sub-items: *Network*, *DNS*, *Hostname*, *IP Filter*, *Timezone*, *Password*, *Fetchmail* and *Console setup* (see Figure 8).

6.2.1 Network

The network configuration is used for configuring a DHCP or static IP address (see Figure 9). The fields *address*, *gateway* and *netmask* are required when

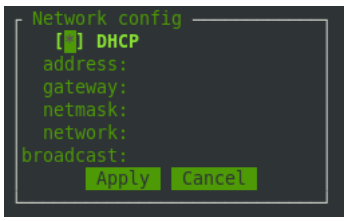

Figure 9: Virtual Appliance network

a static IP is used. All settings should be valid IPv4 addresses. If *broadcast* is specified, *network* has to be specified as well. Applying the settings will reconfigure the network (this can take a few seconds). If the network settings of the Virtual Machine Settings are incorrect, reconfiguring the network will fail.

6.2.2 DNS

The Virtual Appliance requires at least one DNS setting (see Figure 10). When

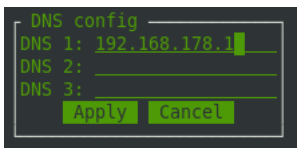

Figure 10: Virtual Appliance DNS

DHCP is used, the DNS settings are retrieved from the DHCP server and manual changes to the DNS settings are overwritten with the settings from the DHCP server. Setting the DNS is therefore not required when DHCP is used.

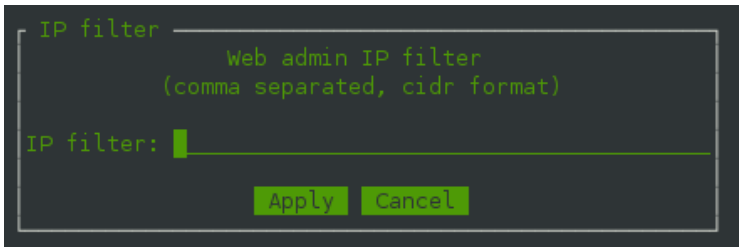

Figure 11: IP filter

6.2.3 Hostname

The *Hostname* should be the fully qualified name of the server.

6.2.4 IP Filter

The gateway contains a IP filter which can be used to block access to the Web admin pages from unauthorized IP addresses. To authorize IP addresses, open the DJIGZO Virtual Appliance console and select config → IP Filter.... On the IP filter dialog, a comma separated list of IP ranges can be specified which will be authorized to access the Web admin login page (see figure 11).

6.2.5 Timezone

Timezone starts a system tool which can be used to setup the correct timezone for the server.

6.2.6 Password

Password starts a system tool which can be used to change the password for the "djigzo-admin" account.

6.2.7 Fetchmail

Fetchmail is used for enabling or disabling fetchmail support. Fetchmail can be used to retrieve email from remote *POP3*, *IMAP* servers and forward the email to different email addresses via the DJIGZO gateway.

The Virtual Appliance fetchmail functionality is typically used in combination with DJIGZO for BlackBerry when the administrator does not want to install DJIGZO as a full email server (i.e., setup to allow incoming email from external sources).

6.2.8 Console setup

The console setup can be used if the keyboard model used for the console should be changed from the standard generic 105-key keyboard to a different model.

6.3 Info

The *Info* menu contains two sub-items: *Network* and *DNS*. *Network* can be used to view the current network settings and *DNS* can be used to view the current DNS settings.

6.4 Other

The *Other* menu contains four sub-items: *Reboot*, *Halt*, *Restart services* and *Update* (see Figure 12).

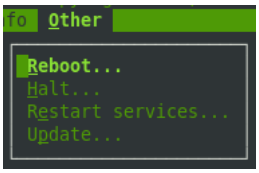

Figure 12: Virtual Appliance other

6.4.1 Reboot

Reboot will reboot the system.

6.4.2 Halt

Halt will shutdown and power-off the system.

6.4.3 Restart services

This will restart the DJIGZO services (the Mail Processing Agent, Postfix and the Web Application).

6.4.4 Update

Update will check for system updates (security updates and other updates)[7]. *Update* will only update existing packages and *Upgrade* will also install new packages if required. If the Linux Kernel is upgraded the system should be rebooted.

7 Finish

After the Virtual Appliance has been successfully setup, continue setting up the gateway by consulting the *DJIGZO Administration Guide*.

[7] Only Ubuntu is updated. DJIGZO is not automatically updated.

A VirtualBox

The VMWare Virtual Appliance can also be used with VirtualBox with the following procedure:

1. Open the Virtual Media Manager (File → Virtual Media Manager) and press *Add* to add an existing medium.
2. *Select a hard disk image file*. Select the Virtual Appliance .vmdk file and close the dialog.
3. Create a new Virtual Machine. Use Operating system Linux and version Ubuntu.
4. Set base memory $\geq$ 640 MB.
5. Select the .vmdk hard disk created in step 2.
6. Make sure the network is set to: *Attached to: Host Interface*.
7. Enable the advanced option PAE/NX.
8. Finish.

You can now start-up the Virtual Appliance.

B Troubleshooting

B.1 Incorrect keyboard mapping on a Linux Host

VMware Server 1 or 2 on a Linux host sometimes uses in incorrect keyboard mapping. Many function keys like CTRL, SHIFT, arrows keys etc. do nothing or map to the wrong key. This can be solved by adding the following line to the file /etc/vmware/config:

```
xkeymap.nokeycodeMap = true
```

For more information see http://www.vmware.com/support/ws55/doc/ws_devices_keymap_linux.html.

B.2 Network failure

By default the DJIGZO Virtual Appliance is setup for Bridged mode. If Bridged mode fails you should try NAT.

C Port usage

DJIGZO uses the following ports:

external → internal

Port	Service	Description
22	SSH	Console access
25	SMTP	Send/Receive email
80	HTTP	Web manager
443	HTTPS	Web manager

internal → external

Port	Service	Description
25	SMTP	Send/Receive email
80	HTTP	CRL download
139	SMB/CIFS	remote backup and restore
398	LDAP	CRL download
443	HTTPS	CRL download
445	SMB/CIFS	remote backup and restore