

CIPHERMAIL EMAIL ENCRYPTION

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# **CipherMail Gateway Virtual Appliance Guide**

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## 1 Introduction

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

## 2 Virtual machine requirements

- 2 GB memory (4 GB recommended)
- 1 vCPU ( $\geq$  2 vCPUs recommended)
- 32 GB disk space

## 3 VMWare Installation

### Supported VMware products<sup>1</sup>

- ESX & ESXi version 5 and higher
- VMware Workstation
- VMware Player

### 3.1 Import virtual appliance

1. Download the VMware virtual appliance from <http://www.ciphermail.com/downloads.html>.
2. Unzip the downloaded zip file.
3. import the virtual appliance using the tool that comes with your VMware product. For example with the vSphere client, select the menu option *Deploy OVF Template...* and select the ovf file to import.
4. Set memory reservation of the virtual machine<sup>2</sup>.

#### Note

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.

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<sup>1</sup>The VMware .vmdk file can also be used with VirtualBox. See Appendix A.

<sup>2</sup>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>

## 4 Microsoft Hyper-V installation

### 4.1 Supported Hyper-V products

- Microsoft Hyper-V 2008 R2.
- Microsoft Hyper-V 2012.

### 4.2 Import virtual appliance

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.ciphermail.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  $\geq 2$ GB.
5. Connect the network.
6. Select “Use an existing virtual hard disk” and select the virtual disk copied in step 2.
7. Optionally, select more than one “Virtual Processor”<sup>3</sup>.
8. Finish the “New Virtual Machine Wizard”.
9. The new Virtual Machine can now be started.

## 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, new SSH and SSL/TLS keys will be generated.

### Note

It's recommended to reboot the appliance after configuring the IP address and timezone to ensure that the gateway is configured with the correct time<sup>a</sup>

<sup>a</sup>the system time is synchronized with NTP, this requires a valid network connection

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<sup>3</sup>A Virtual Appliance with two virtual processors, can encrypt about twice as much emails/second as a Virtual Appliance with only one virtual processor.

```

CipherMail Gateway 4.1.0-0 - Copyright 2008-2018, www.ciphermail.com
File Config Backup Other

NETWORK INTERFACES:
Name Address Broadcast Mask DHCP
ens32 10.7.7.140 10.7.255.255 255.255.0.0 X

DNS SERVERS:
DNS Server
10.7.7.2

OTHER SETTINGS:
Setting Value
Hostname ciphermail
Default gateway 10.7.7.1
DNS search list ciphermail.net.

Use LEFT and RIGHT keys to select a menu item. Mon, May 7, 12:46

```

Figure 1: Virtual Appliance console

## 6 Virtual Appliance configuration

The CipherMail Virtual Appliance is a full installation of the CipherMail Email Encryption Gateway. After first boot, the Virtual Appliance must be configured<sup>4</sup> (IP address, DNS etc.) For security reasons, the gateway is not yet configured with an IP address. The IP address can be configured with the console application after logging into the console using the default credentials.

### Default login credentials:

```

username: sa
password: sa

```

After logging into the Virtual Appliance, a system configuration tool will be started (see Figure 1). The system configuration tool can be used to configure certain aspects of the gateway which cannot be configured from the WEB GUI. SSH login will be available after the network IP address is set.

The Virtual Appliance system configuration tool contains the following main menu items: *File*, *Config*, *Backup* and *Other*.

### 6.1 File menu

The File menu contains 4 items: *Open shell*, *Mount share*, *Unmount share* and *Exit*.

<sup>4</sup>By default the network connection of the Virtual Appliance is set to Bridged mode. If bridge mode does not work, try to use NAT mode.

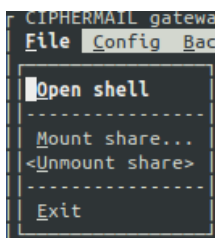


Figure 2: Virtual Appliance file menu

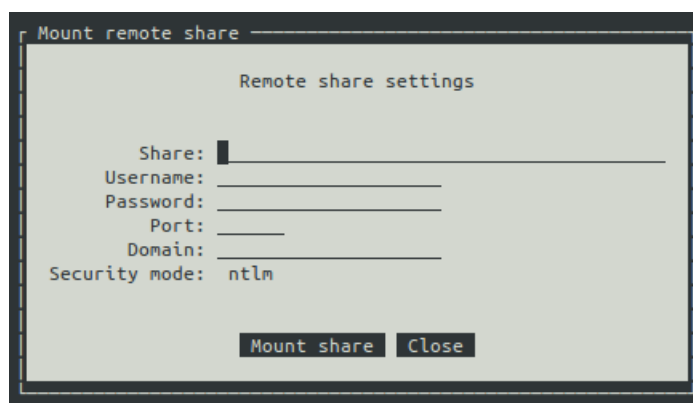


Figure 3: Virtual Appliance mount share

### 6.1.1 Open shell

This opens a command line shell. The command line shell can be used if the WEB GUI or the console configuration tool are not sufficient.

### 6.1.2 Mount share

This can be used to connect to an external SMB share (see figure 3). The external SMB share will be available from the share sub directory. The external share can for example be used to restore backups using the console configuration tool's built-in restore functionality. The *Share* parameter is the name of the external SMB server and the name of the share.

#### Examples:

1. \\192.168.1.2\share
2. \\example.com\backups

### 6.1.3 Unmount share

This can be used to disconnect the share which was mounted with *Mount share*.

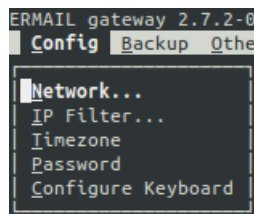


Figure 4: Virtual Appliance config menu

#### 6.1.4 Exit

This exits the system configuration tool.

## 6.2 Config menu

The config menu contains 5 items: *Network*, *IP Filter*, *Timezone*, *Password* and *Configure Keyboard* (see Figure 4).

### 6.2.1 Network

The network configuration can be used to configure a network interface (see Figure 5). The fields *address*, *gateway* and *netmask* are required when config-

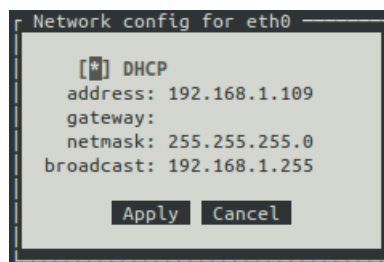


Figure 5: Virtual Appliance network

uring a static IP address. All settings should be valid IPv4 addresses. Applying the settings will reconfigure the network (this can take a few seconds).

### 6.2.2 IP Filter

The gateway contains a IP filter ((see figure 6)) which can be used to block access to the WEB Admin GUI from unauthorized IP addresses (only to the administration pages, not to the public portal). A list of authorised IP addresses can be configured with a comma separated list of IP addresses. An IP range can be specified either in CIDR format or with a wildcard (\*).

#### Examples:

1. 192.168.\*



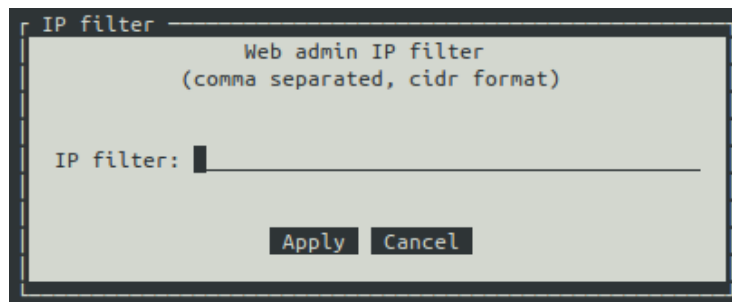


Figure 6: IP filter

2. 192.168.\*, 127.\*, 222.0.0.0/8

### 6.2.3 Timezone

This can be used to configure the correct timezone of the server. The default timezone of the gateway is set to *Europe/Amsterdam*.

### 6.2.4 Password

This can be used to change the password of the "sa" account.

### 6.2.5 Configure Keyboard

By default, the console is configured for a standard generic 105-key US keyboard. If a different keyboard layout is used (for example QWERTZ), a new keyboard layout can be selected with the *Configure Keyboard* option.

## 6.3 Backup

The *Backup* menu contains two items: *Backup* and *Restore*.

### 6.3.1 Backup

Normally a backup should be created from the WEB GUI. However, if the WEB GUI is unavailable, a direct backup can be created with this option. If a remote share is mounted (see the *Mount share* option above), the backup can be stored on the remote share. To create a backup, the backup location and filename should be specified (see figure 7). A backup can optionally be encrypted with a password.

### 6.3.2 Restore

Normally a backup should be restored from the WEB GUI. However, if the WEB GUI is unavailable, a backup can be restored with this option. If a remote share is mounted (see the *Mount share* option above), the backup can be restored from the remote share.

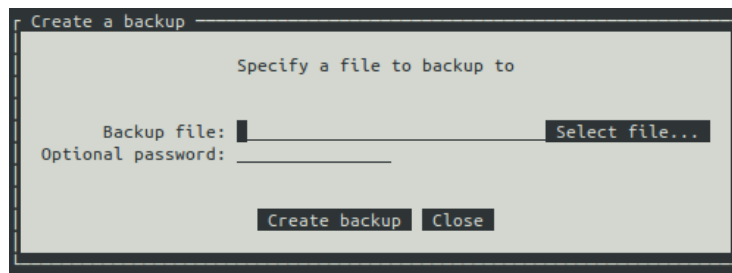


Figure 7: Backup

## 6.4 Other

The *Other* menu contains four items: *Reboot*, *Shutdown*, *Restart* and *Update* (see Figure 8).

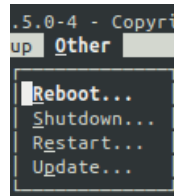


Figure 8: Virtual Appliance other

### 6.4.1 Reboot

Reboot will reboot the system.

### 6.4.2 Shutdown

Shutdown will shutdown and power-off the system.

### 6.4.3 Restart

This will restart the CipherMail 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). It is recommended to reboot the system after any packages are updated.

## 7 Finish

After the Virtual Appliance has been configured, further configuration, for example DNS and MTA, should be done with the WEB GUI. See the *CipherMail*

*Administration Guide* for more details.

## 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 RedHat 7.
4. Set base memory  $\geq$  1024 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](http://www.vmware.com/support/ws55/doc/ws_devices_keymap_linux.html).

### B.2 Network failure

By default the CipherMail Virtual Appliance is setup in Bridged mode. If Bridged mode fails, try NAT mode.

## C Port usage

CipherMail 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
389	LDAP	CRL download
443	HTTPS	CRL download
445	SMB/CIFS	remote backup and restore
11371	HKP	HTTP Keyserver Protocol