



PerfectMail **XenServer Setup Guide**

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1 Copyright Notice

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2 Installing *PerfectMail™* under *Citrix™ Xen™ 5.x/6.x*

This is supplemental to the *PerfectMail Setup Guide*. Please refer to the *PerfectMail Setup Guide* for setup instructions and refer to this guide for instructions on how to *Build a XenServer™ VM for PerfectMail™*.

Note that the following procedure have been tested against Citrix XenServer 6.2 as of this writing, but should work for previous versions of Citrix XenServer. This guide can be used to install PerfectMail under Xen environments offered by other vendors, though the Xen-specific steps may vary. The supplied screenshots are for illustration purposes and may vary for your environment.

Installation is a two step process: 1) Create a VM and install PerfectMail in *HVM mode*, then 2) convert the newly installed VM from *HVM mode* to *PV mode*.

3 PerfectMail™ Setup Procedure

Congratulations and thank you for purchasing PerfectMail™. Setting up PerfectMail is fast and easy; it should take about 30 minutes. Before proceeding with the install, please read this entire document. The Setup process involves the following steps:

1. Learn about PerfectMail™
2. Build/Purchase either a Physical or Virtual Server
3. Install PerfectMail
4. Initial PerfectMail Configuration
5. PerfectMail Detailed Configuration
 - i. Update General Configuration Settings
 - ii. Configure Domains and Users
 - iii. Configure Filter Settings
6. Perform Post Install tasks
 - i. Redirect Incoming E-mail
 - ii. Redirect Outgoing E-mail
 - iii. Update firewall settings

3.1 Mail Server Compatibility

PerfectMail™ is **guaranteed** to be compatible with your mail server!

PerfectMail products are compatible with **all SMTP or ESMTP compliant mail servers** including:

- Microsoft Exchange™
- Lotus Domino™
- Novell GroupWise™
- IMail, QMail, Sendmail
- Communigate, Scalix
- MDAemon, eMailMan, MerakMail Server
- And about 1,000,000 other mail server products!

If your mail server program is not on our list, please Contact Us to verify compatibility.

3.2 PerfectMail Documentation

For detailed information on PerfectMail™ and its user interface, please refer to the *PerfectMail™ Administrator's Guide*. If you do have any questions or problems, please contact our PerfectMail™ support team <support@perfectmail.com>.

To download the latest install image and get up-to-date documentation please visit our download site at <http://www.perfectmail.com/download>

A selection of documents are available from the web interface under the *Documentation* menu. Administrators should read the *Admin Guide*. Current documents include:

- Setup Guide
- Admin Guide
- User Guide
- License Agreement

We're always interested in improving our product and documentation, so all your comments and requests are highly valued.

4 Important PerfectMail Setup Notes

The PerfectMail™ Edge Transport Server is a complete *Operating System* and *Application* bundle. PerfectMail includes a highly customized and secured version of Linux. However, knowledge of Linux is not required. All administrative duties can be performed using our *web based user interface*.

WARNING: The Installation CD performs a complete system install. It will erase all existing software on the existing machine. Be sure this is what you want before you install PerfectMail.

PerfectMail acts as an SMTP relay host

It makes filter or forward decisions by examining many aspects of an e-mail, including message structure, content, reputation and verification.

PerfectMail does not replace your mail server

PerfectMail filters and forwards e-mail, but is separate from and does not replace your existing mail server. You must run your own mail server; e.g. MS Exchange, Lotus Domino, GroupWise, Sendmail, QMail, etc.

PerfectMail must be your MX Host!

PerfectMail *must* be the first point of contact with the Internet. PerfectMail *must act as a mail exchanger* for your domains (i.e. your DNS MX records will be pointing directly to PerfectMail). If e-mail is relayed through a proxy or intermediate e-mail host, critical information will be lost and PerfectMail's effectiveness will be significantly impaired.

The Firewall must *not* act as an e-mail proxy

Some firewalls can act as e-mail proxies, applying rudimentary e-mail filtering. This option must be disabled. *Only use port forwarding rules to PerfectMail.*

Configure PerfectMail to filter your domains

PerfectMail will only accept traffic for configured e-mail domains. Make sure all your domains are setup using PerfectMail's Web Interface.

Does your mail server do SMTP Recipient Filtering?

SMTP Recipient Filtering occurs when your mail server rejects e-mails sent to accounts that *don't exist*. Some mail servers, notably MS Exchange, have this turned off by default. *SMTP Recipient Filtering* is an important method whereby PerfectMail is able to *automatically* validate the existence of an e-mail address. For MS Exchange servers, refer to the section on *Enabling SMTP Recipient Filtering for MS Exchange*.

Relay outgoing e-mail through PerfectMail

Our e-mail reputation engine is a major strength of PerfectMail. This adaptive engine self-trains by watching both in-bound and out-bound e-mail traffic. For maximum effectiveness, PerfectMail needs to see both in-bound and out-bound e-mail. For MS Exchange servers, refer to the section on *Configuring a SmartHost for MS Exchange*.

DNS resolution *must work!!!*

Domain Name Service resolution *must work* for your PerfectMail server to function. PerfectMail *will not accept e-mail from unresolvable domains!* Similarly, the hostname you assign to your PerfectMail server must be fully resolvable in DNS (Example: perfectmail.mydomain.net). This server will be *visible* to the Internet; **an unresolvable hostname name may cause other mail servers to reject your e-mail.**

5 Build the Server

The *PerfectMail Install Image* is a self-installing CD that includes the entire PerfectMail software base and underlying operating system, ready to install on your hardware. PerfectMail on CD supports most popular hardware platforms and, because it includes the operating system, there is nothing else to buy.

PerfectMail works in both physical and virtual environments. We don't recommend particular brands of hardware; choose your preferred hardware vendor or build a white box. The only hardware requirement is that it must be compatible with **Red Hat Enterprise Linux version 6.4**.

In general we recommend deploying a virtualized environment. PerfectMail does not put a lot of strain on the server it runs on, which makes it perfect for virtualization.

For *virtual* servers we recommend starting with the minimum sizing as specified for your *PerfectMail Edition*, and increase the virtual resources as needed.

(This document does not describe setting up a virtual environment.)

5.1 PerfectMail Sizing and Limits

Size your server to match your selected *PerfectMail Edition*, described below. PerfectMail does not put a lot of strain on the server it runs on. However, for physical servers it's best to over-buy hardware (1Gb memory minimum) to minimize downtime if hardware upgrades are required.

For *virtual* servers we recommend starting with the minimum sizing as specified for your *PerfectMail Edition*, and increase the virtual resources as needed.

Most PerfectMail server issues concern under-provisioned hardware. If you are experiencing server problems it's best to check your resource usage. If in doubt, increase memory.

5.1.1 Minimum System Requirements

PerfectMail™ can run as either a physical or virtual server. At minimum, you need:

- P4/Athlon CPU
- 1 GB of memory
- 10 GB of disk space
- 10/100 or GB NIC
- keyboard and display

The more e-mail traffic PerfectMail™ server sees, the more resources it will need to function effectively.

Note: Physical hardware can function with 512Mb of memory. However we've found this small amount of memory to be insufficient for most mail loads.

5.1.2 Memory Usage

PerfectMail uses approximately 250Mb + 10Mb/thread of virtual memory. This value varies between machines but gives a good estimate.

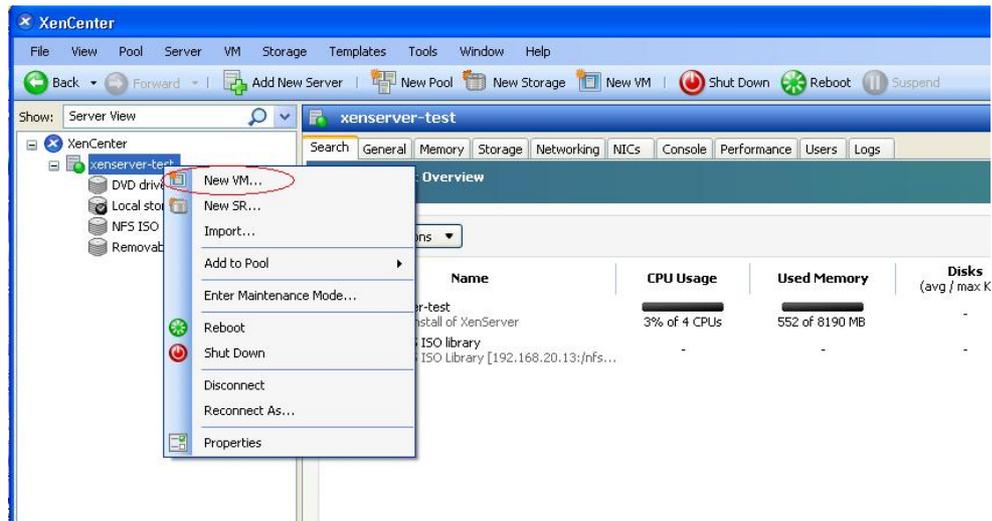
5.1.3 Resource Requirements

PerfectMail Edition	Small Business	Standard	Advanced	Enterprise
<i>Maximum recommended Users</i>	1-75	250	1,000	5,000
<i>Max disk space for message store</i>	20Gb	50Gb	200Gb	All available disk Dynamically grow message store space
<i>CPU</i>	Single Core	Single Core	Dual Core	Quad Core
<i>Memory</i>	1Gb	1.5Gb	2.5Gb	4Gb
<i>Maximum message store</i>	7 days	30 days	90 days	180 days
<i>Maximum concurrent messages</i>	32	64	128	256
<i>Maximum messages per day</i>	250,000	500,000	1,000,000	2,000,000

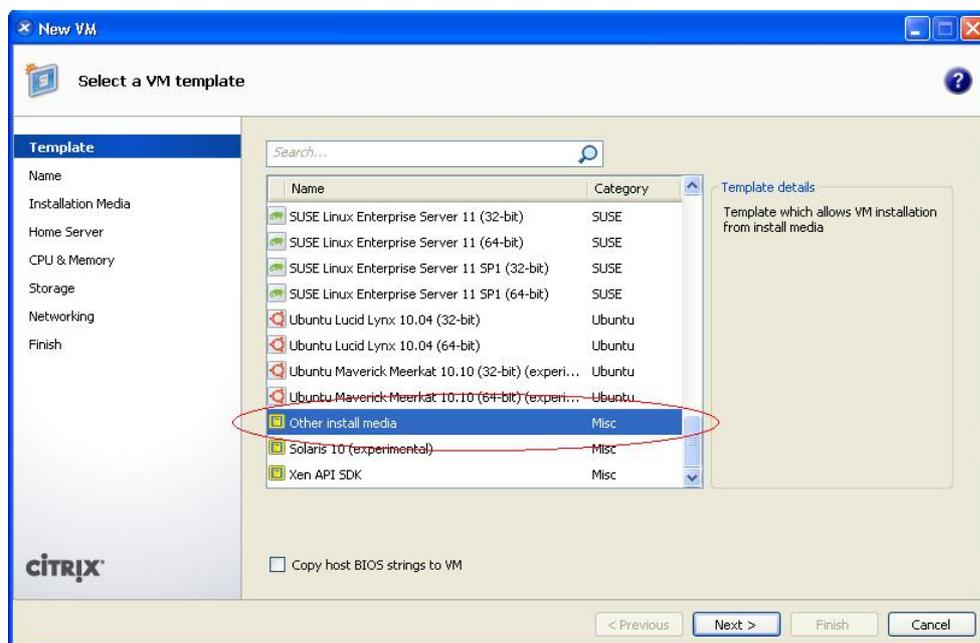
6 Section I: Install *PerfectMail* on Xen in HVM mode

Launch the XenCenter management application and connect to your *Citrix Xen™* Host using an administrator account defined on Xen (root is the default).

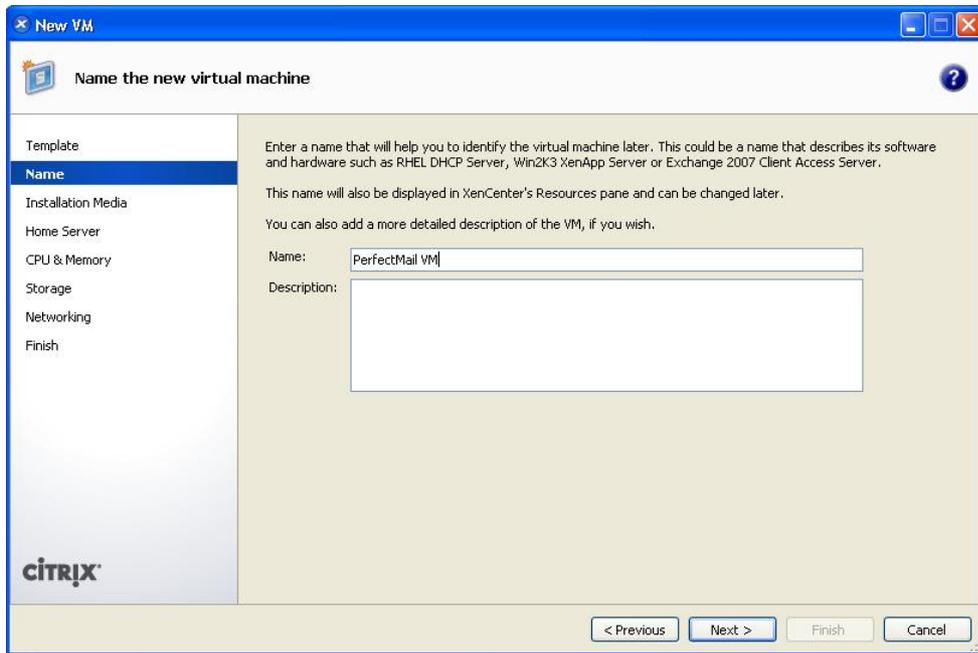
1. Create a new Virtual Machine.



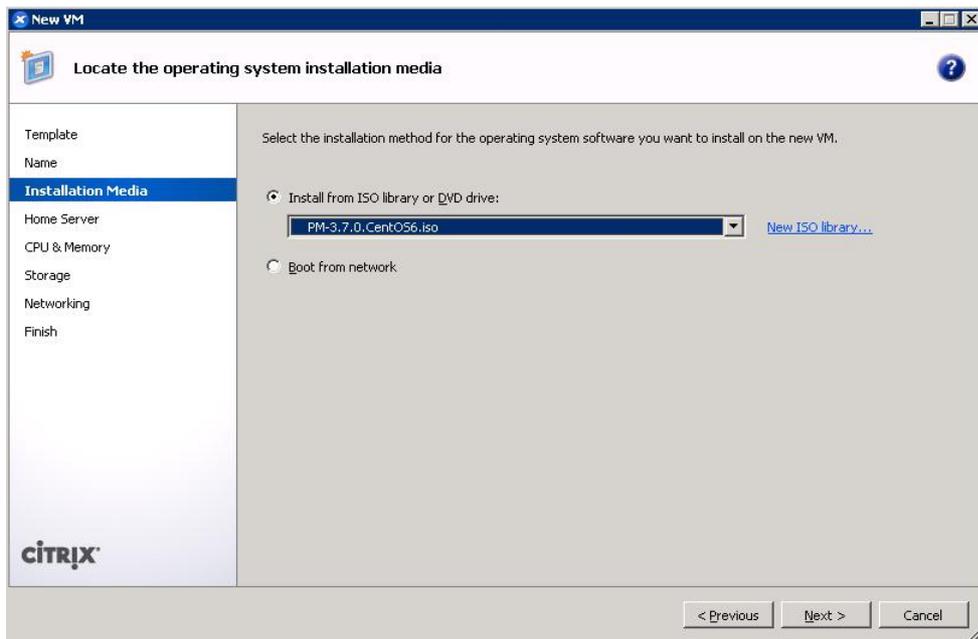
2. Select "*Other install media*" as the VM template. **Do not** select any of the CentOS VM templates as it will use PV mode by default and the PerfectMail automated installer will fail. Your PerfectMail VM will be converted to PV mode *after* installation.



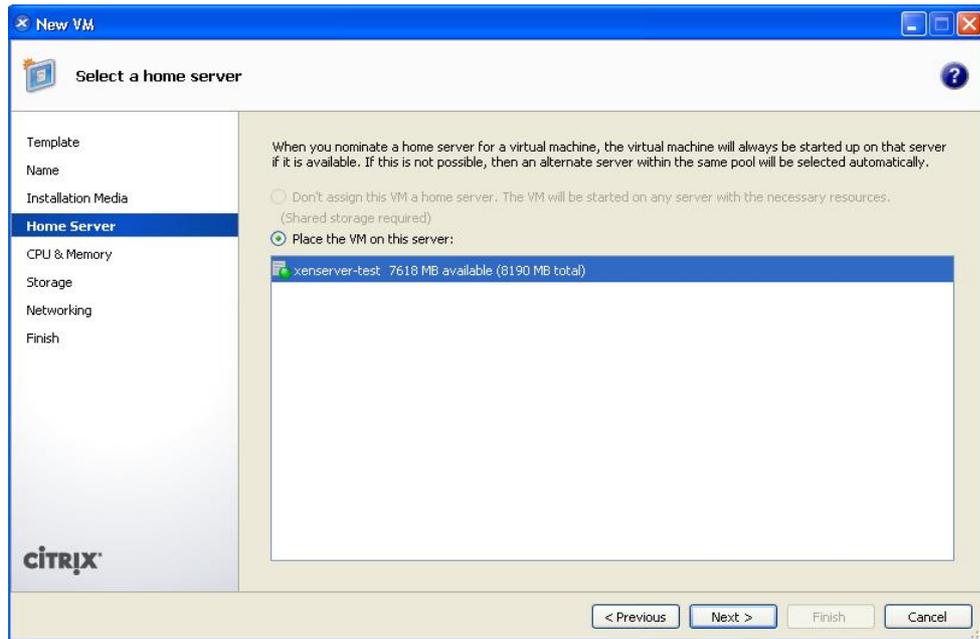
3. Provide a name for the *PerfectMail* VM (in this example, we'll use "PerfectMail VM"). The name can be anything you want although you will need to know it when converting the VM from *HVM mode* to *PV mode*.



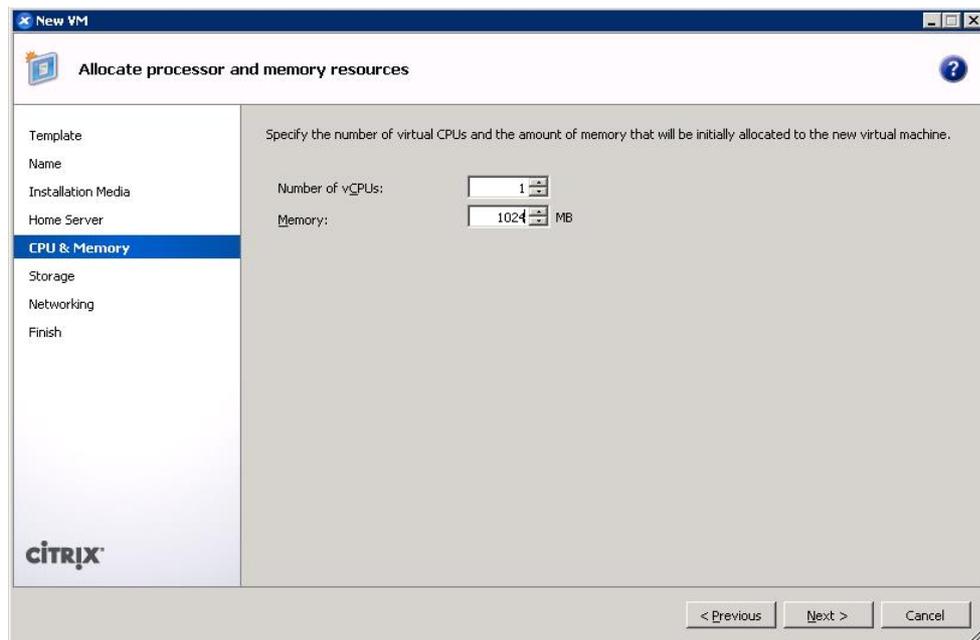
4. Select the PM ISO that you have downloaded and ensure that Xen can access it. Click *Next* to continue.



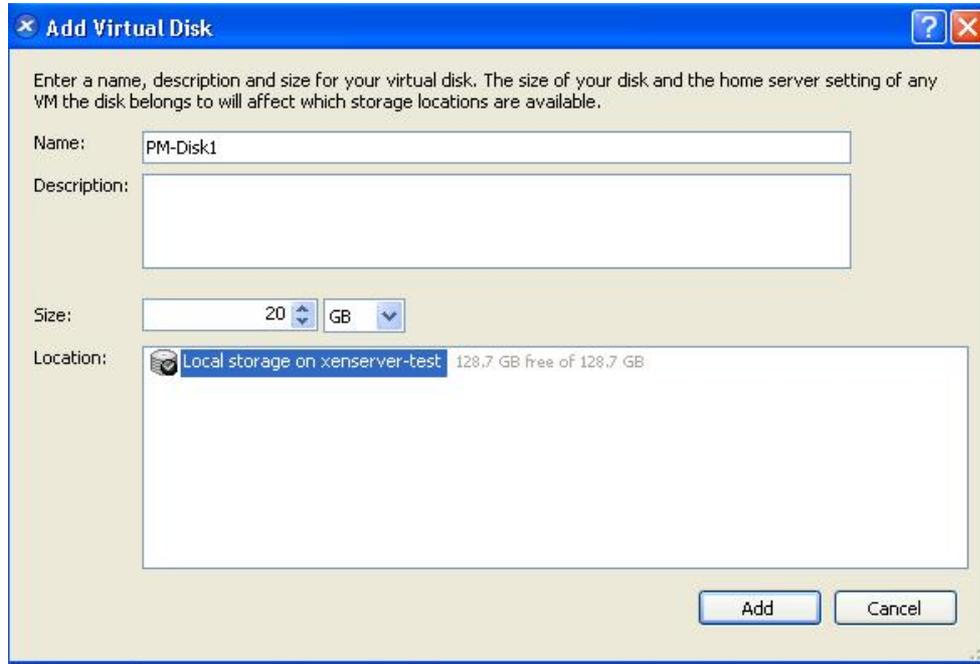
5. Select the Xen server where the VM will reside and click *Next*.



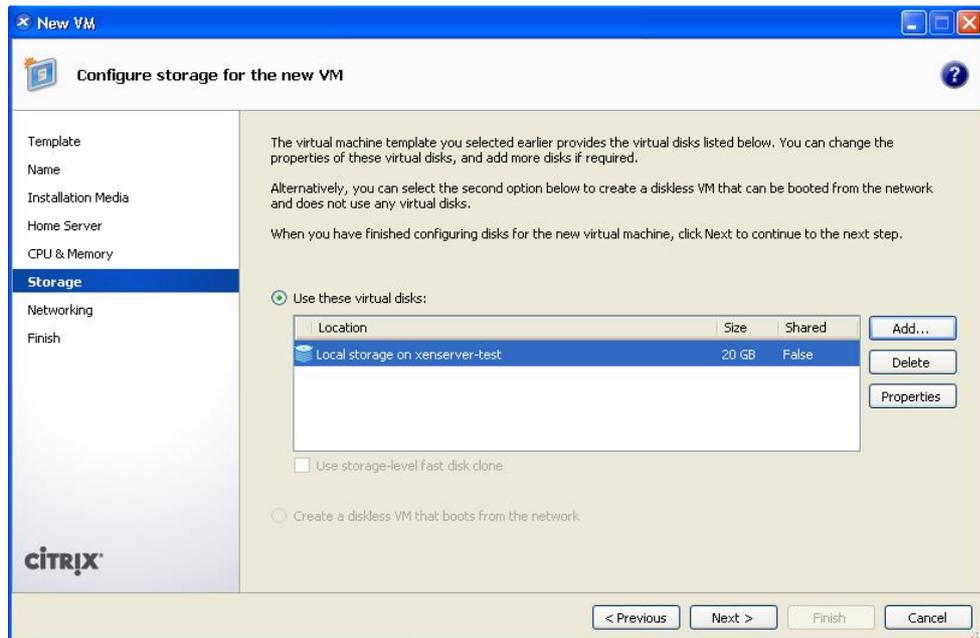
6. Select the CPU count and memory for the *PerfectMail* VM. A *PerfectMail* server should have a minimum of 1024Mb of memory, though larger values may be required for some installations. Resources can be added at a later time if needed.



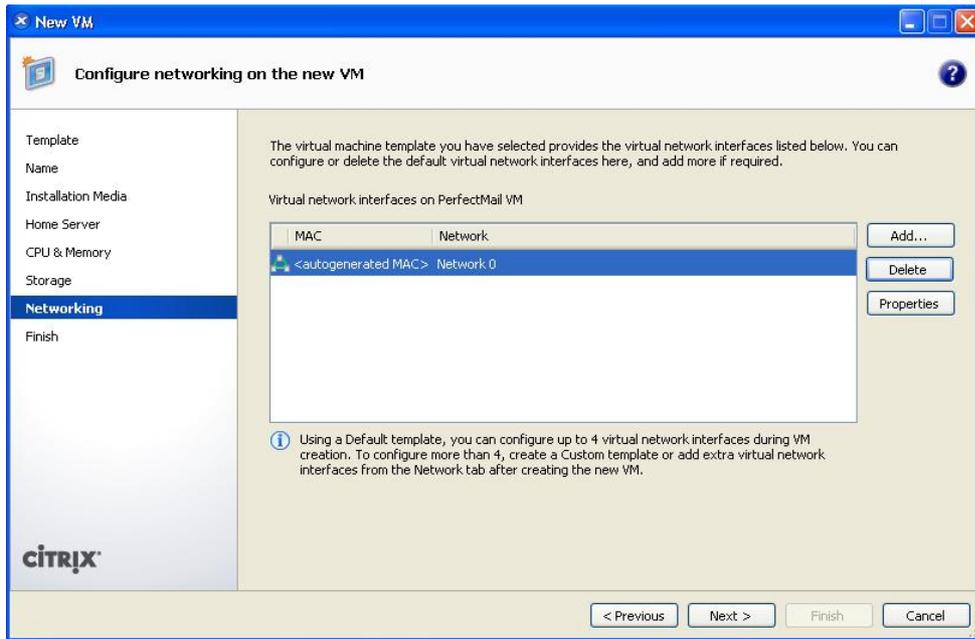
- Select the storage size for the VM. A *PerfectMail* server should have a minimum of 20Gb of disk, though larger values are required for most installations. 40Gb of disk is a good working start for most production servers. Resources can be added at a later time if needed.



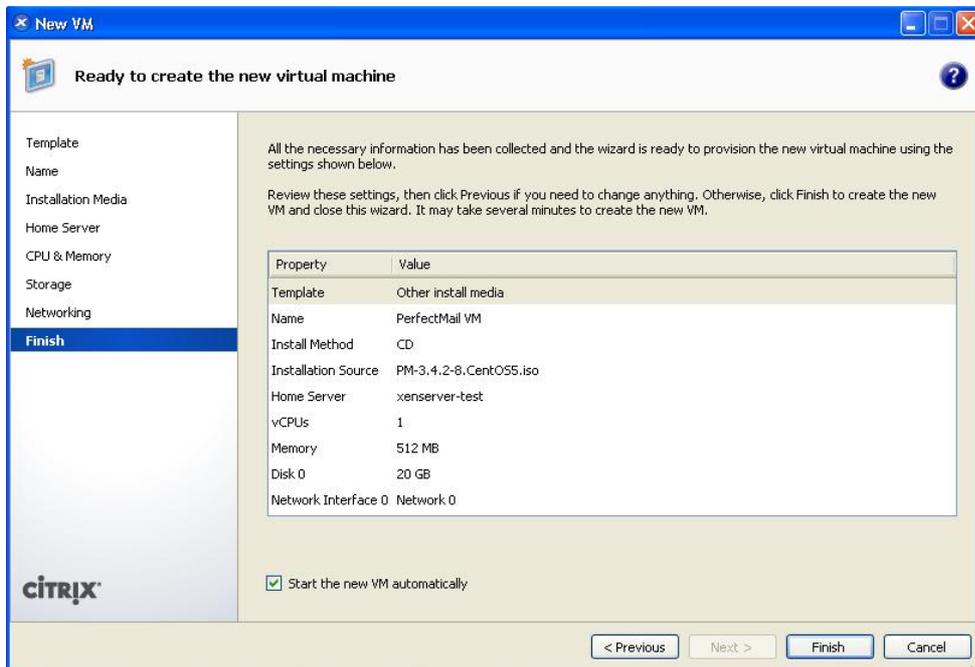
- Select the Storage area where the Virtual Machine will reside. This will vary in your environment.



9. Select the network interfaces appropriate for your environment.



10. Confirm the selections on the summary page and click *Finish*.



- Once the VM creation is complete, open up a console to your PerfectMail VM. You will be presented with a menu of various PerfectMail installation options. Since the installation is occurring under Citrix XenServer, it is very important that you type the command `pm clocksource=hpet` (case sensitive) at the boot prompt. *(With Citrix XenServer, it has been observed that the underlying linux kernel does not reliably detect the clocksource and as a result, the installation may hang indefinitely. Forcing the kernel to use the high precision event timer overcomes this issue.)*

```

Welcome to PerfectMail(TM). This installation will run under the following
environments:

* Installation on Linux-supported desktops/workstations/servers
* VMware vSphere/ESX 4.x, vSphere/ESXi 4.x, 5.x
* Microsoft Hyper-V 2008 / 2008 R2, 2012
* Citrix Xen 5.x, 6.x

WARNING: Please note that during the install process (after you have selected
your timezone and chosen a root password), the installation process will ERASE
ALL PARTITIONS on ALL detected drives.

To begin installation, please see the below instructions:

- To begin the PerfectMail installation, type pm <ENTER>.
- To install PerfectMail under Citrix Xen type pm clocksource=hpet <ENTER>.
- To perform a memory test of hardware, type: memtest86 <ENTER>.
- To bail out of this installation, please hit <ENTER>.

boot: pm clocksource=hpet_
  
```

- During the PerfectMail install, you may see the PerfectMail RPM software package installing and appear to stall or be unresponsive after it reaches 100%. This behavior is normal. It may take several minutes for the process to complete after the install reports to complete, especially if Internet connectivity is not available. Please be patient. On completion the VM will automatically reboot.

```

Starting system message bus: [ OK ]
Retrigger failed udev events [ OK ]
Adding udev persistent rules [ OK ]
Generating SSH1 RSA host key: [ OK ]
Generating SSH2 RSA host key: [ OK ]
Generating SSH2 DSA host key: [ OK ]
Starting sshd: [ OK ]
Starting ntpd: [ OK ]
Starting sendmail: [ OK ]
Starting sm-client: [ OK ]
Starting httpd: httpd: Could not reliably determine the server's fully qualified
domain name, using localhost.localdomain for ServerName [ OK ]
Starting crond: [ OK ]
Starting process accounting: [ OK ]
Starting atd: [ OK ]
Now installing PerfectMail...
Preparing... ##### [100%]
 1:perfectmail ##### [100%]
  
```

13. After the installation is successful, the first time the VM reboots, it will reboot off the ISO image. At this point, you should eject the ISO image from the VM. Once you eject the ISO image from your virtual machine, you can hit to boot off the local virtual hard disk.
14. You now have a running instance of PerfectMail under Xen in HVM mode. Section II will show how to convert your Virtual Machine to make use of the optimal features offered for Virtual Machines running in PV mode.

7 Section II: Convert the *PerfectMail* Xen VM from *HVM mode* to *PV mode*

NOTE: This procedure has been adapted from Citrix Knowledge Base Article CTX121875 (<http://support.citrix.com/article/CTX121875>).

The following procedures need to be carried out on the console of the Xen Server hosting the PerfectMail Virtual Machine. Continuing the example from Section I we will assume the Virtual Machine name is `PerfectMail VM`.

Open a console to the *PerfectMail* VM and log in as root when carrying out the below procedures.

1. Shut down the PerfectMail VM by issuing the `poweroff` command (without the quotes). Do not proceed to the next task until the VM is powered down.
2. Carry out the below `xe` tasks to identify the UUID of the *PerfectMail* Virtual Machine and set the bootloader to use `pygrub` and to clear the HVM boot policy defined.
 - a. Retrieve the UUID of the *PerfectMail* Virtual Machine

```
xe vm-list name-label="PerfectMail VM" params=uuid
```

- b. Clear the HVM boot mode (using the UUID identified above):

```
xe vm-param-set uuid=<vm uuid> HVM-boot-policy=""
```

- c. Set `pygrub` as the bootloader (using the UUID identified above):

```
xe vm-param-set uuid=<vm uuid> PV-bootloader=pygrub
```

- d. Set the display arguments (using the UUID identified above):

```
xe vm-param-set uuid=<vm uuid> PV-args=console="hvc0"
```

3. Find the UUID of the interface of the virtual disk:

```
xe vm-disk-list uuid=<vm uuid>
```

4. Set the disk device as bootable using the UUID identified.

```
xe vbd-param-set uuid=<vbd uuid> bootable=true
```

5. Find the UUID of the interface of the virtual CD/DVD drive:

```
xe vm-cd-list uuid=<vm uuid>
```

6. Set the CD/DVD bootable flag to false using UUID identified:

```
xe vbd-param-set uuid=<vbd uuid> bootable=false
```

```
[root@xenserver-test ~]# xe vm-list name-label="PerfectMail VM" params=uuid
uuid ( RO)      : 5a17becf-4a14-8918-6afe-e1fbeat6b9a3

[root@xenserver-test ~]# xe vm-param-set uuid=5a17becf-4a14-8918-6afe-e1fbeat6b9a3 HVM-boot-policy=""
[root@xenserver-test ~]# xe vm-param-set uuid=5a17becf-4a14-8918-6afe-e1fbeat6b9a3 PV-bootloader=pygrub
[root@xenserver-test ~]# xe vm-param-set uuid=5a17becf-4a14-8918-6afe-e1fbeat6b9a3 PV-args="console=hvc0"
[root@xenserver-test ~]# xe vm-disk-list uuid=5a17becf-4a14-8918-6afe-e1fbeat6b9a3
Disk 0 VBD:
uuid ( RO)      : 933c17b6-01fb-1b0c-6d7b-4c191df0c307
vm-name-label ( RO): PerfectMail VM
userdevice ( RW): 0

Disk 0 VDI:
uuid ( RO)      : ab929992-42be-4ce9-a1d0-ae149e623b5f
name-label ( RW): PM-Disk1
sr-name-label ( RO): Local storage
virtual-size ( RO): 21474836480

[root@xenserver-test ~]# xe vbd-param-set uuid=933c17b6-01fb-1b0c-6d7b-4c191df0c307 bootable=true
[root@xenserver-test ~]# xe vm-cd-list uuid=5a17becf-4a14-8918-6afe-e1fbeat6b9a3
CD 0 VBD:
uuid ( RO)      : 6bc010f7-6108-e144-6ad3-94f7a428d2c9
vm-name-label ( RO): PerfectMail VM
empty ( RO): true
userdevice ( RW): 3

[root@xenserver-test ~]# xe vbd-param-set uuid=6bc010f7-6108-e144-6ad3-94f7a428d2c9 bootable=false
[root@xenserver-test ~]#
```

7. The *PerfectMail* virtual machine should be able to boot in *PV mode*. Power on the *PerfectMail* virtual machine. If the VM successfully boots but there is no keyboard or mouse responses, then simply close down and restart XenCenter.
8. Install the XenServer tools on the *PerfectMail* VM:
 - a. Open up the console of the *PerfectMail* VM and ensure that it's powered on
 - b. Select *xs-tools.iso* in the DVD drive field
 - c. mount the ISO image as follows:

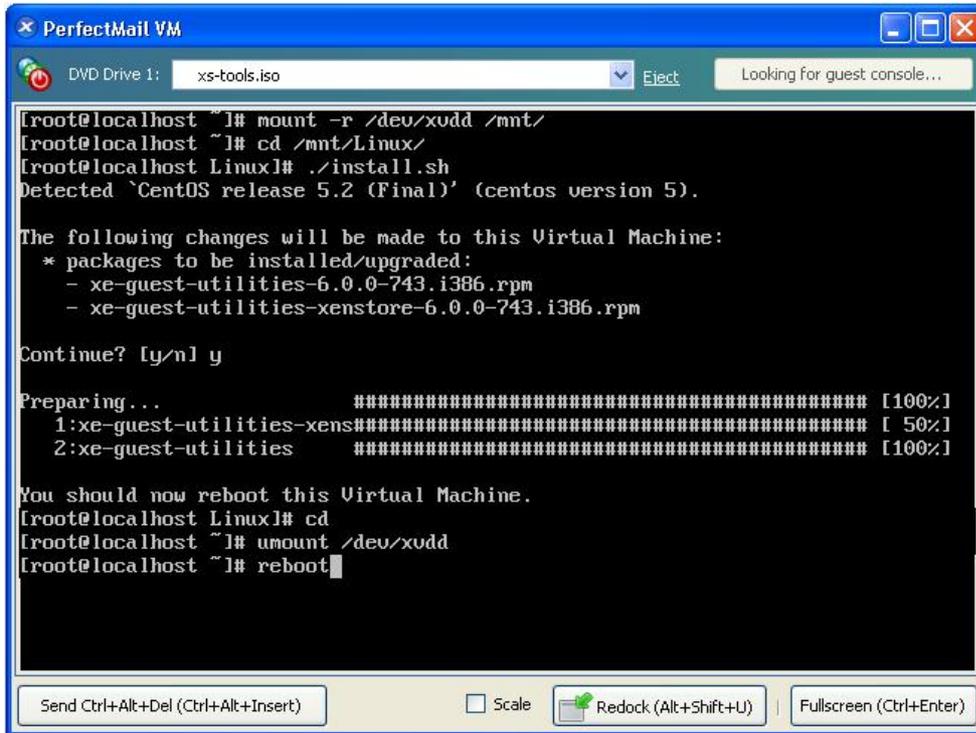
```
mount -r /dev/xvdd /mnt
```

- d. Install the XenServer tools:

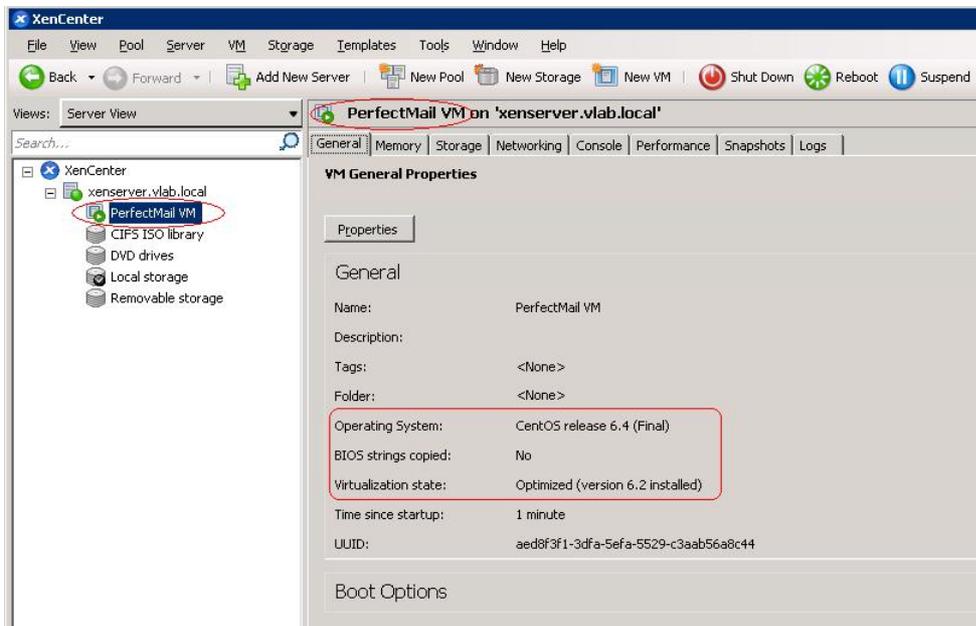
```
cd /mnt
cd Linux
./install.sh
cd
umount /dev/xvdd
```

e. Reboot the VM

reboot



9. Once the VM has rebooted, XenCenter should report the VM as being in an optimal state under the General Tab.



Now that your PerfectMail is running in PV mode under Citrix XenServer in an optimal state, you may now carry out the initial PerfectMail configuration via the Web-based User Interface. Please refer to the PerfectMail Setup Guide, Initial PerfectMail Configuration for more details.

8 Support

If you have any issues at all, please contact our support team. You can reach us between 9:00am and 6:00pm EST, Monday to Friday. The best way to get support is to file a Support Incident on our website:
<http://www.perfectmail.com/support>.

If you discover a PM bug, then your support incident incurs no charge. Support incidents are intended to help customers do things more quickly and effectively or to help gather information or identify e-mail issues.

Support incidents are included in the price of the product (excluding the free version). Support packs are also available to bump this if needed. With support, if the issue is with our software or some deficiency on our part, including unclear documentation, or for customer feedback support is free. For other issues we burn or charge for a support incident.

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