# The Perfect Xen Setup For Debian And Ubuntu - Page 4



### 4 Create A Virtual Machine (*domU*)

Next we create an image of a virtual machine. It will be a basic Debian system. This image will be the template for all our virtual machines. Whenever we want to create a new virtual machine, we just copy this image, create a new Xen configuration file and boot the copy, and then we can go on and configure the copy to our needs (e.g install a mail server, web server, DNS server, etc. on it). All our images will be on the `/vserver` partition which should be the largest one we have.

```
mkdir /vserver/vm_base
mkdir /vserver/images
```

Now we create a 1 GB image file and a 500 MB swap image. In the end the virtual machines will have 1 GB space and 500 MB swap. These are just example values, in the real world you might want to have more space for your virtual machines (e.g. between 5 and 30 GB), so just increase the value of `count` to create larger images.

```
dd if=/dev/zero of=/vserver/images
/vm_base.img bs=1024k count=1000
dd if=/dev/zero of=/vserver/images/vm_base-
swap.img bs=1024k count=500
```

Then we format `/vserver/images/vm_base.img` with

*ext3* and *vm_base-swap.img* with *swap*:

```
mkfs.ext3 /vserver/images/vm_base.img
```

When you see the following, answer with *y*:

```
/vserver/images/mail.img is not a block
special device.
Proceed anyway? (y,n) <-- y
```

```
mkswap /vserver/images/vm_base-swap.img
```

**4.1 Install A Basic Debian In The Image**

In order to install a basic Debian system in our image, we mount the image, run *debootstrap* and a few other commands:

```
mount -o loop /vserver/images/vm_base.img
/vserver/vm_base
debootstrap --arch i386 sarge /vserver
/vm_base/ http://ftp2.de.debian.org/debian
```

```
chroot /vserver/vm_base
apt-setup
```

You are asked the following question:

```
Archive access method for apt: <-- http
```

Then select a mirror close to you.

Afterwards, edit */etc/apt/sources.list* and replace *testing* with *stable*. That's how my */etc/apt/sources.list* looks:

```
deb http://ftp2.de.debian.org/debian/
 stable main
deb-src http://ftp2.de.debian.org/deb
ian/ stable main

deb http://security.debian.org/ stabl
e/updates main
```

Then run

```
apt-get update
```

Now we set up our *locales*. If we do not do this now, we will see some ugly warnings during *base-config* like these:

```
perl: warning: Setting locale failed.
perl: warning: Please check that your
 locale settings:
        LANGUAGE = "en_DE:en_US:en_GB
:en",
        LC_ALL = (unset),
        LANG = "en_US"
    are supported and installed on yo
ur system.
perl: warning: Falling back to the st
andard locale ("C").
locale: Cannot set LC_CTYPE to defaul
t locale: No such file or directory
locale: Cannot set LC_MESSAGES to def
ault locale: No such file or director
y
locale: Cannot set LC_ALL to default
locale: No such file or directory
```

They are not serious, but ugly... So we run

*apt-get install localeconf*

Select *locales* to install (e.g. *en_US ISO-8859-1*) and select the standard *locale* (e.g. *en_US*).

You will be asked a few questions:

*Manage locale configuration files with debconf? <-- Yes*
*Environment settings that should override the default locale: <-- do not select anything*
*Replace existing locale configuration files? <-- Yes*
*Default system locale: <-- e.g. en_US ISO-8859-1*

Next run

*base-config*

You will see a menu with installation options. This is what we do:

- *Configure timezone*
- *Set up users and passwords*
- *Select and install packages* (when it comes to *Choose software to install:*, you can choose

whatever you like; I, however, choose nothing because I want to install a basic system.)
- *Finish configuring the base system*

Don't deal with the other menu items, you don't need them. Then we remove *nfs-common* and delete */etc/hostname*:

```
apt-get remove nfs-common
rm -f /etc/hostname
```

Then edit */etc/fstab*. It should look like this:

```
/dev/hda1               /
   ext3    defaults        1       2
/dev/hda2               none
   swap    sw             0       0
/dev/pts                devpts
   gid=5,mode=620    0       0
none                    /dev/shm
   tmpfs   defaults     0       0
```

Change */etc/network/interfaces* to look like this:

```
auto lo
iface lo inet loopback
        address 127.0.0.1
        netmask 255.0.0.0
```

Then create */etc/hosts*:

```
127.0.0.1       localhost.localdomain
   localhost

# The following lines are desirable f
or IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
ff02::3 ip6-allhosts
```

Now we leave the chroot environment:

```
exit
```

Then we copy over the kernel modules to our virtual machine image and unmount the image:

```
cp -dpR /lib/modules/2.6.11.12-xenU /vserver
/vm_base/lib/modules/
```

```
mv /vserver/vm_base/lib/tls /vserver/vm_base
/lib/tls.disabled
umount /vserver/vm_base
```

If you get a warning like this: `umount: /vserver /vm_base: device is busy` don't worry about it, it's not important.

Now our virtual machine image template is ready!

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## Comments

**From:** Anonymous Reply

I had to make the ptmx device as well to get it up and running...
Issue the following command before mounting it:
mknod --mode=666 /dev/ptmx c 5 2

**From:** Anonymous Reply

Great document! Everything worked like a charm... except for one thing...
I recieved an error while running the base-config command. It constantly stopped with "Terminated" being output to the terminal. I ran strace against the command and I found that /dev/pts is not actually mounted in that file system, so it could not open the device (weird how that works). So, make sure to run the following command before running base-config to remedy this issue:
mount -t devpts -o rw,gid=5,mode=620 none /dev/pts
Also, FYI: Xen running a virtual machine inside of a VMWare GSX server does not work so well.
Thanks for the great write-up!

**From:** Anonymous Reply

Under Ubuntu 5.10 (breezy) instead of doing 'apt-get install localeconf' which will fail anyway unless you add the universe repository, just issue this command:
`dpkg-reconfigure locales`
*Then you can select:*
`en_US ISO-8859-1`
-j

**From:** Anonymous Reply

Some annotation to the last sentence of this page:
if you get a warning like this: `umount: /vserver /vm_base: device is busy` it probably means that you accidentally started some daemon out of your chroot. At least it happened to me. I chrooted into the vserver disk, installed ssh and it immediately stopped my regulary ssh daemon and started that of the chroot instead. That was the cause of the error message.
Otherwise thanks for this document!