1 Linux Kernel 3.x with Xen Virtualization Support (Dom0 and DomU)

In this installation document, we will build/compile Xen 4.1.3-rc1-pre and Linux kernel 3.3.0-rc7 from sources.

```bash
sudo apt-get install aria2

aria2c -x 5 http://www.kernel.org/pub/linux/kernel/v3.0/testing/linux-3.3-rc7.tar.bz2
tar xfvj linux-3.3-rc7.tar.bz2
cd linux-3.3-rc7
```

2 Configuring the Linux kernel

```bash
cp /boot/config-3.0.0-12-generic .config
make oldconfig
```

Accept the defaults for new kernel configuration options by pressing enter.

```bash
nano .config
```

3 Configuring the kernel for dom0 support

NOTE: Xen dom0 support depends on ACPI support. Make sure you enable ACPI support or you won't see Dom0 options at all.

In addition to the config options above you also need to enable:

```bash
CONFIG_X86_IO_APIC=y
CONFIG_ACPI=y
CONFIG_ACPI_PROCFS=y (optional)
CONFIG_XEN_DOM0=y
```
4 Configuring the kernel for domU support

1. If building 32 bit kernel make sure you have CONFIG_X86_PAE enabled (which is set by selecting CONFIG_HIGHMEM64G)
   non-PAE mode doesn't work in 2.6.25, and has been dropped altogether from 2.6.26 and newer kernel versions.
2. Enable these core options (Processor type and features| Paravirtualized guest support]
   CONFIG_PARAVIRT=y
   CONFIG_XEN=y
   CONFIG_PARAVIRT_GUEST=y
   CONFIG_PARAVIRT_SPINLOCKS=y
3. And Xen pv console device support (Device Drivers|Character devices
   CONFIG_HVC_DRIVER=y
   CONFIG_HVC_XEN=y
4. And Xen disk and network support (Device Drivers|Block devices and Device Drivers|Network device support)
   CONFIG_XEN_FBDEV_FRONTEND=y
   CONFIG_XEN_BLKDEV_FRONTEND=y
   CONFIG_XEN_NETDEV_FRONTEND=y
5. And the rest (Device Drivers|Xen driver support)
   CONFIG_XEN_PCIDEV_FRONTEND=y
   CONFIG_INPUT_XEN_KBDDEV_FRONTEND=y
   CONFIG_XEN_FBDEV_FRONTEND=y
   CONFIG_XEN_XENBUS_FRONTEND=y
   CONFIG_XEN_SAVE_RESTORE=y
   CONFIG_XEN_GRANT_DEV_ALLOC=m
6. And for tmem support:
   CONFIG_XEN_TMEM=y
   CONFIG_CLEANCACHE=y
   CONFIG_FRONTSWAP=y
   CONFIG_XEN_SELFBALLOONING=y
5  Building the Linux Kernel

```
sudo apt-get install git-core kernel-package fakeroot build-essential libncurses5-dev

| sed -rie 's/echo "\+"/#echo "\+"/' scripts/setlocalversion |
| make-kpkg clean CONCURRENCY_LEVEL=3 fakeroot make-kpkg --initrd \ |
| --append-to-version=-xen-teo.en.ming-sgp --revision=17.mar.2012 kernel_image kernel_headers |
| cd .. |
| sudo dpkg -i linux-image-3.3.0-rc7-xen-teo.en.ming-sgp_14.mar.2012_amd64.deb |
| sudo dpkg -i linux-headers-3.3.0-rc7-xen-teo.en.ming-sgp_14.mar.2012_amd64.deb |
| cd /lib/modules |
| ls |
| sudo update-initramfs -ck 3.3.0-rc7-xen-teo.en.ming-sgp |
| sudo update-grub |
| sudo nano /etc/modules |
| # /etc/modules: kernel modules to load at boot time. |
| # |
| # This file contains the names of kernel modules that should be loaded |
| # at boot time, one per line. Lines beginning with "#" are ignored. |
| lp |
| rtc |
| # Added these lines |
| xen-evtchn |
| xen-gntdev |
| xen-netback |
| xen-bkback |
| xenfs |
| blktap |
```

6  Building Xen 4.1.3-rc1-pre

```
sudo apt-get install ocaml-findlib

| sudo apt-get install bcc bin86 gawk bridge-utils iproute libcurl3 libcurl4-openssl-dev bzip2 |
| module-init-tools transfig tgif texinfo texlive-latex-base texlive-latex-recommended |
| texlive-fonts-extra texlive-fonts-recommended pciutils-dev mercurial build-essential make |
| gcc libc6-dev zlib1g-dev python python-dev python-twisted libncurses5-dev patch |
| libvncserver-dev libssl-dev libjpeg62-dev iasl libbz2-dev e2fslibs-dev git-core uuid-dev |
| ocaml libx11-dev bison flex |
| sudo apt-get install gcc-multilib |
```
<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sudo apt-get install xz-utils</td>
<td>Install xz-utils package</td>
</tr>
<tr>
<td>cd</td>
<td>Change directory</td>
</tr>
<tr>
<td>hg clone <a href="http://xenbits.xen.org/xen-4.1-testing.hg">http://xenbits.xen.org/xen-4.1-testing.hg</a></td>
<td>Clone Xen-4.1-testing hg repository</td>
</tr>
<tr>
<td>cd xen-4.1-testing.hg</td>
<td>Change directory</td>
</tr>
<tr>
<td>make xen</td>
<td>Build Xen</td>
</tr>
<tr>
<td>make tools</td>
<td>Build Xen tools</td>
</tr>
<tr>
<td>make stubdom</td>
<td>Build Stubdom</td>
</tr>
<tr>
<td>sudo make install-xen</td>
<td>Install Xen</td>
</tr>
<tr>
<td>sudo make install-tools</td>
<td>Install Xen tools</td>
</tr>
<tr>
<td>PYTHON_PREFIX_ARG=</td>
<td>Configure PYTHON_PREFIX_ARG argument</td>
</tr>
<tr>
<td>sudo make install-stubdom</td>
<td>Install Stubdom</td>
</tr>
<tr>
<td>sudo update-rc.d xencommons</td>
<td>Update Xen commons</td>
</tr>
<tr>
<td>defaults</td>
<td>Defaults</td>
</tr>
<tr>
<td>sudo update-rc.d xend</td>
<td>Update Xend</td>
</tr>
<tr>
<td>defaults</td>
<td>Defaults</td>
</tr>
<tr>
<td>sudo update-rc.d xendomains</td>
<td>Update Xendomains</td>
</tr>
<tr>
<td>defaults</td>
<td>Defaults</td>
</tr>
<tr>
<td>sudo update-rc.d xen-watchdog</td>
<td>Update Xen watchdog</td>
</tr>
<tr>
<td>defaults</td>
<td>Defaults</td>
</tr>
</tbody>
</table>

### Building Xen-4.2-unstable (currently changeset 25070)

If you wish to build and install from xen-unstable.hg instead,

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cd</td>
<td>Change directory</td>
</tr>
<tr>
<td>git clone git://github.com/lloyd/yajl</td>
<td>Clone Yajl repository</td>
</tr>
<tr>
<td>cd yajl</td>
<td>Change directory</td>
</tr>
<tr>
<td>sudo apt-get install ruby cmake</td>
<td>Install Ruby and cmake</td>
</tr>
<tr>
<td>./configure</td>
<td>Configure</td>
</tr>
<tr>
<td>make</td>
<td>Build</td>
</tr>
<tr>
<td>sudo make install</td>
<td>Install</td>
</tr>
<tr>
<td>cd</td>
<td>Change directory</td>
</tr>
<tr>
<td>hg clone <a href="http://xenbits.xensource.com/xen-unstable.hg">http://xenbits.xensource.com/xen-unstable.hg</a></td>
<td>Clone Xen-unstable hg repository</td>
</tr>
<tr>
<td>cd xen-unstable.hg</td>
<td>Change directory</td>
</tr>
<tr>
<td>./configure</td>
<td>Configure</td>
</tr>
<tr>
<td>make world</td>
<td>Build and install</td>
</tr>
<tr>
<td>sudo make install</td>
<td>Install</td>
</tr>
</tbody>
</table>
sudo nano /etc/grub.d/40_custom

#!/bin/sh
exec tail -n +3 $0
# This file provides an easy way to add custom menu entries. Simply type the
# menu entries you want to add after this comment. Be careful not to change
# the 'exec tail' line above.
menuentry 'Ubuntu 11.10 amd64 Release with Xen 4.2-unstable and Linux Kernel 3.3.0-rc7-xen-teo.en.ming-sgp' --class gnu-linux --class gnu --class os {
recordfail
insmod part_msdos
insmod ext2
search --no-floppy --fs-uuid --set=root fd1ee157-7822-4a08-8549-56f4ae96f0dc
set root='(/dev/sda,msdos1)'
search --no-floppy --fs-uuid --set=root fd1ee157-7822-4a08-8549-56f4ae96f0dc
multiboot /boot/xen.gz
module /boot/vmlinuz-3.3.0-rc7-xen-teo.en.ming-sgp placeholder root=UUID=fd1ee157-7822-4a08-8549-56f4ae96f0dc dom0_mem=1024 console=tt0 quiet splash vt.handoff=7
module /boot/initrd.img-3.3.0-rc7-xen-teo.en.ming-sgp
}

menuentry 'Ubuntu 11.10 amd64 Release with Xen 4.2-unstable and Linux Kernel 3.2.11-xen-teo.en.ming-sgp' --class gnu-linux --class gnu --class os {
recordfail
insmod part_msdos
insmod ext2
search --no-floppy --fs-uuid --set=root fd1ee157-7822-4a08-8549-56f4ae96f0dc
set root='(/dev/sda,msdos1)'
search --no-floppy --fs-uuid --set=root fd1ee157-7822-4a08-8549-56f4ae96f0dc
multiboot /boot/xen.gz
module /boot/vmlinuz-3.2.11-xen-teo.en.ming-sgp placeholder root=UUID=fd1ee157-7822-4a08-8549-56f4ae96f0dc dom0_mem=1024 console=tt0 quiet splash vt.handoff=7
module /boot/initrd.img-3.2.11-xen-teo.en.ming-sgp
}

menuentry 'Ubuntu 11.10 amd64 Release with Xen 4.2-unstable and Linux Kernel 3.3.0-xen-teo.en.ming-sgp' --class gnu-linux --class gnu --class os {
recordfail
insmod part_msdos
insmod ext2
search --no-floppy --fs-uuid --set=root fd1ee157-7822-4a08-8549-56f4ae96f0dc
set root='(/dev/sda,msdos1)'
search --no-floppy --fs-uuid --set=root fd1ee157-7822-4a08-8549-56f4ae96f0dc
multiboot /boot/xen.gz
module /boot/vmlinuz-3.3.0-xen-teo.en.ming-sgp placeholder root=UUID=fd1ee157-7822-4a08-8549-56f4ae96f0dc dom0_mem=1024 console=tt0 quiet splash vt.handoff=7
module /boot/initrd.img-3.3.0-xen-teo.en.ming-sgp
}

menuentry 'Ubuntu 11.10 amd64 Release with Xen 4.2-unstable and Linux Kernel 3.2.12-xen-teo.en.ming-sgp' --class gnu-linux --class gnu --class os {
recordfail
insmod part_msdos
insmod ext2
search --no-floppy --fs-uuid --set=root fd1ee157-7822-4a08-8549-56f4ae96f0dc
set root='(/dev/sda,msdos1)'
search --no-floppy --fs-uuid --set=root fd1ee157-7822-4a08-8549-56f4ae96f0dc
multiboot /boot/xen.gz
module /boot/vmlinuz-3.2.12-xen-teo.en.ming-sgp placeholder root=UUID=fd1ee157-7822-4a08-8549-56f4ae96f0dc dom0_mem=1024 console=tt0 quiet splash vt.handoff=7
module /boot/initrd.img-3.2.12-xen-teo.en.ming-sgp
}
teo.en.ming-sgp' --class gnu-linux --class gnu --class os {
  recordfail
  insmod part_msdos
  insmod ext2
  search --no-floppy --fs-uuid --set=root fd1ee157-7822-4a08-8549-56f4ae96f0dc
  set root='(/dev/sda,msdos1)'
  search --no-floppy --fs-uuid --set=root fd1ee157-7822-4a08-8549-56f4ae96f0dc
  multiboot /boot/xen.gz
  module /boot/vmlinux-3.2.12-xen-teo.en.ming-sgp placeholder root=UUID=fd1ee157-7822-4a08-8549-56f4ae96f0dc dom0_mem=1024 console=tty quiet splash vt.handoff=7
  module /boot/initrd.img-3.2.12-xen-teo.en.ming-sgp
}

menuentry 'Ubuntu 11.10 amd64 Release with Xen 4.2-unstable and Linux Kernel 3.2.13-xen-teo.en.ming-sgp' --class gnu-linux --class gnu --class os {
  recordfail
  insmod part_msdos
  insmod ext2
  search --no-floppy --fs-uuid --set=root fd1ee157-7822-4a08-8549-56f4ae96f0dc
  set root='(/dev/sda,msdos1)'
  search --no-floppy --fs-uuid --set=root fd1ee157-7822-4a08-8549-56f4ae96f0dc
  multiboot /boot/xen.gz
  module /boot/vmlinux-3.2.13-xen-teo.en.ming-sgp placeholder root=UUID=fd1ee157-7822-4a08-8549-56f4ae96f0dc dom0_mem=1024 console=tty quiet splash vt.handoff=7
  module /boot/initrd.img-3.2.13-xen-teo.en.ming-sgp
}

sudo nano /etc/default/grub

#GRUB_HIDDEN_TIMEOUT=0

sudo update-grub

sudo nano /etc/ld.so.conf

/usr/lib64

sudo ldconfig -v

sudo nano /etc/xen/xend-config.sxp

(xend-http-server yes)

sudo service xend restart
9 Installing Virtual Machine Manager

On the taskbar on the extreme left of the screen, click on “Ubuntu Software Center”. In the search bar, type “Virtual Machine Manager”. Click Install.

10 Shorewall Firewall Configuration Files

10.1 /etc/shorewall/zones

```
# Shorewall version 4.0 - Sample Zones File for two-interface configuration.
# Copyright (C) 2006 by the Shorewall Team
#
# This library is free software; you can redistribute it and/or
# modify it under the terms of the GNU Lesser General Public
# License as published by the Free Software Foundation; either
# version 2.1 of the License, or (at your option) any later version.
#
# See the file README.txt for further details.
#*******************************************************************************
# For information about entries in this file, type "man shorewall-zones"
#*******************************************************************************
#ZONE TYPE OPTIONS IN OUT OPTIONS
#fw firewall
#net ipv4
#loc ipv4
```

10.2 /etc/shorewall/interfaces

```
# Shorewall version 4.0 - Sample Interfaces File for two-interface configuration.
# Copyright (C) 2006 by the Shorewall Team
#
# This library is free software; you can redistribute it and/or
# modify it under the terms of the GNU Lesser General Public
# License as published by the Free Software Foundation; either
# version 2.1 of the License, or (at your option) any later version.
#
# See the file README.txt for further details.
#*******************************************************************************
# For information about entries in this file, type "man shorewall-interfaces"
#*******************************************************************************
#ZONE INTERFACE BROADCAST OPTIONS
#net eth0 detect dhcp,tcpflags,nosmurf,routefilter,logmartians
#loc virbr0 detect tcpflags,nosmurf,routefilter,logmartians,routeback
```
### 10.3 /etc/shorewall/policy

```plaintext
# Shorewall version 4.0 - Sample Policy File for two-interface configuration.
# Copyright (C) 2006 by the Shorewall Team
#
# This library is free software; you can redistribute it and/or
# modify it under the terms of the GNU Lesser General Public
# License as published by the Free Software Foundation; either
# version 2.1 of the License, or (at your option) any later version.
#
# See the file README.txt for further details.
# For information about entries in this file, type "man shorewall-policy"

#SOURCE DEST POLICY LOG LEVEL LIMIT:BURST
net all DROP info
loc net ACCEPT
$FW net ACCEPT

# THE FOLLOWING POLICY MUST BE LAST
all all REJECT info
```

### 10.4 /etc/shorewall/rules

```plaintext
# Shorewall version 4.0 - Sample Rules File for two-interface configuration.
# Copyright (C) 2006,2007 by the Shorewall Team
#
# This library is free software; you can redistribute it and/or
# modify it under the terms of the GNU Lesser General Public
# License as published by the Free Software Foundation; either
# version 2.1 of the License, or (at your option) any later version.
#
# See the file README.txt for further details.
# For information about entries in this file, type "man shorewall-rules"

# ACTION SOURCE DEST Proto DEST SOURCE
# ORI MARK PORT PORT(S) DEST
# LIMIT GROUP

# Allow DHCP requests from the local network to the firewall
ACCEPT:info loc $FW udp 67
ACCEPT:info $FW loc udp 68

# Allow DNS lookups from the local network to the firewall
DNS(ACCEPT) loc $FW

# Allows VNC viewer connection to VNC Server in dom0 for Xen VGA Passthrough (QEMU monitor only)
ACCEPT net $FW tcp 5900
```
10.5 /etc/shorewall/masq

# Shorewall version 4.0 - Sample Masq file for two-interface configuration.
# Copyright (C) 2006 by the Shorewall Team
# This library is free software; you can redistribute it and/or
# modify it under the terms of the GNU Lesser General Public
# License as published by the Free Software Foundation; either
# version 2.1 of the License, or (at your option) any later version.
# See the file README.txt for further details.
# For information about entries in this file, type "man shorewall-masq"

#INTERFACE MARK SOURCE ADDRESS PROTO PORT(S) IPSEC
eth0 virbr0

10.6 /etc/shorewall/shorewall.conf

STARTUP_ENABLED=Yes

10.7 /etc/default/shorewall

startup=1

11 XL Domain Configuration File for Windows 8 Consumer Preview 64-bit English HVM domU

The following commands create a 20 GB disk image file named windows8consumerpreview64-bitenglish.img.

cd /etc/xen
sudo mkdir images
cd images
sudo dd if=/dev/zero of=windows8consumerpreview64-bitenglish.img bs=1024k seek=20000 count=0

cd /etc/xen
sudo nano Windows8ConsumerPreview64bitEnglish

# XL domain configuration file for Windows 8 Consumer Preview 64-bit English HVM domU
# Please refer to "man xl.cfg" for further explanations.
# See also docs/misc/xl-network-configuration.markdown and
# docs/misc/xl-disk-configuration.txt

# Written by Teo En Ming (Zhang Enming)
# Email: teo.en.ming@gmail.com
# Mobile Phone: +65-8369-2618
# Country: Singapore
# Date: 18 Mar 2012 Sun

name="Windows8ConsumerPreview64bitEnglish"
# Product Key:  DNXJX-7XBW8-2378T-X22TX-BKG7J

builder="hvm"

vcpus=2

memory=2048

on_poweroff="destroy"
on_reboot="restart"
on_crash="destroy"

disk=[ 'format=raw, vdev=hda, access=rw, target=/etc/xen/images/windows8consumerpreview64bitenglish.img', 'format=raw, vdev=hdc, access=ro, devtype=cdrom, target=/home/teo-enming/Downloads/Windows8-ConsumerPreview-64bit-English.iso' ]

vif=[ 'bridge=virbr0, type=ioemu, model=e1000' ]

#boot=[c|d|n]
# Selects the emulated virtual device to boot from. Options are hard disk (c), cd-rom (d) or network/PXE (n).
# Multiple options can be given and will be attempted in the order they are given. e.g. to boot from cd-rom
# but fallback to the hard disk you can give dc. The default is cd.

boot="dc"

acpi=1

xen_platform_pci=1

viridian=1

stdvga=1

vnc=1
vnclisten="192.168.1.2"
vncdisplay=0
vnccurrent=1
vncclass=""
svga=0

usb=1
usbdevice="tablet"

# Enable Xen VGA Passthrough
gfx_passthru=1
# VGA Passthrough Palit NVIDIA Geforce 8400 GS PCI Express x16 VGA card.
pic = [ '01:00.0', '00:1b.0' ]

# PCI Passthrough Intel HD Audio Controller.
#pci = [ '00:1b.0' ]

# PCI Passthrough all the USB Controllers.
#pci = [ '00:1a.0', '00:1a.1', '00:1a.2', '00:1a.7', '00:1d.0', '00:1d.1', '00:1d.2', '00:1d.7' ]

sudo xl create -c Windows8ConsumerPreview64bitEnglish

sudo apt-get install xtightvncviewer
xtightvncviewer localhost

12 XL Domain Configuration File for Windows XP Home Edition SP3 HVM domU

```
# XL domain configuration file for Windows XP Home Edition SP3 HVM domU
# Please refer to "man xl.cfg" for further explanations.
# See also docs/misc/xl-network-configuration.markdown and
docs/misc/xl-disk-configuration.txt

# Written by Teo En Ming (Zhang Enming)
# Email: teo.en.ming@gmail.com
# Mobile Phone: +65-8369-2618
# Country: Singapore
# Date: 18 Mar 2012 Sun

name="WindowsXPHomeEditionSP3"
builder="hvm"
vcpus=2
memory=1024
on_poweroff="destroy"
on_reboot="restart"
on_crash="destroy"
disk=[ 'format=raw, vdev=hda, access=rw, target=/var/lib/libvirt/images/Windows-XP-Home-Edition.img' ]
vif=[ 'bridge=virbr0, type=ioemu, model=rtl8139' ]
#boot=[c|d|n]
# Selects the emulated virtual device to boot from. Options are hard disk (c), cd-rom (d) or
```
network/PXE (n).

# Multiple options can be given and will be attempted in the order they are given. e.g. to
# boot from cd-rom
# but fallback to the hard disk you can give dc. The default is cd.

boot="dc"
acpi=1
xen_platform_pci=1
viridian=1
stdvga=1
vnc=1
vnclisten="192.168.1.2"
vncdisplay=0
vncunused=1
vncpasswd=""
sdl=0
usb=1
usbdevice="tablet"

# Enable Xen VGA Passthrough
gfx_passthru=1

# VGA Passthrough Palit NVIDIA Geforce 8400 GS PCI Express x16 VGA card.
pci = [ '01:00.0', '00:1b.0' ]

# PCI Passthrough Intel HD Audio Controller.
#pci = [ '00:1b.0' ]

# PCI Passthrough all the USB Controllers.
#pci = [ '00:1a.0','00:1a.1','00:1a.2','00:1a.7','00:1d.0','00:1d.1','00:1d.2','00:1d.7' ]

13  XL Domain Configuration File for Fedora 16 x86_64 PV domU

NOTE: Paravirtualized (PV) guests will only work with Xen 4.1.3-rc1-pre and NOT Xen 4.2-
unstable changeset 25070.

NOT REQUIRED: You will need to install apache2 and create a local http mirror.

NOT REQUIRED:
sudo apt-get install apache2
sudo service apache2 start
cd /var/www
sudo ln -s /media/fedora/.
NOT REQUIRED: HTTP Installation URL: http://192.168.122.1/fedora/

```
cd /media
sudo mkdir fedora
cd ~/Downloads
sudo mount -o loop Fedora-16-x86_64-DVD.iso /media/fedora
cd
mkdir -p vms/f16
cd /media/fedora/images/pxeboot
cp vmlinuz initrd.img ~/vms/f16/
```

```
sudo nano /etc/xen/Fedora16x86_64
```

```
# Kernel image to boot
kernel = "/home/teo-en-ming/vms/f16/vmlinuz"

# Ramdisk (optional)
ramdisk = "/home/teo-en-ming/vms/f16/initrd.img"

bootloader="pygrub"
```

```
cd /etc/xen/images/
sudo dd if=/dev/zero of=fedora16x86_64.img bs=1024k seek=10000 count=0
```

To install Fedora 16 x86_64 as a paravirtualized guest domain,

```
sudo xl create -c Fedora16x86_64
```

After installing Fedora 16 x86_64 PV domU,

```
sudo nano /etc/xen/Fedora16x86_64
```

```
# Kernel image to boot
#kernel = "/home/teo-en-ming/vms/f16/vmlinuz"

# Ramdisk (optional)
#ramdisk = "/home/teo-en-ming/vms/f16/initrd.img"

bootloader="pygrub"
```

```
# NOTE: Paravirtualized guests will only work with Xen 4.1.3-rc1-pre
# and NOT Xen 4.2-unstable changeset 25070.
#
# XL domain configuration file for Fedora 16 x86_64 PV domU
# Please refer to "man xl.cfg" for further explanations.
# See also docs/misc/xl-network-configuration.markdown and
```
name="Fedora16x86_64"

builder="generic"

vcpus=2

# Minimum memory of 768 MB is required to install Fedora 16 x86_64
#memory=768
memory=512

on_poweroff="destroy"
on_reboot="restart"
on_crash="destroy"

# Format compatible with Xen 4.2-unstable
disk=[ 'format=raw, vdev=hda, access=rw, target=/etc/xen/images/fedora16x86_64.img' ]

# Format compatible with Xen 4.1.3-rc1-pre
disk=[ 'file:/etc/xen/images/fedora16x86_64.img,hda,w' ]

# Keywords type and model are reserved for HVM guests and NOT valid for PV guests
vfb=[ 'vnc=1,vnclisten=localhost,vncdisplay=2,vncunused=1,vncpasswd=,sdl=0' ]

gfx_passthru=0

# Step 1
# To install Fedora 16 x86_64 PV domU, configure the kernel, ramdisk, and extra keys below and
# comment out bootloader.

# Kernel image to boot
#kernel = "~/home/teo-en-ming/vms/f16/vmlinuz"

# Ramdisk (optional)
#ramdisk = "~/home/teo-en-ming/vms/f16/initrd.img"

# Kernel command line options
#extra = "root=/dev/xvda1"

# Step 2
To boot the already installed Fedora 16 x86_64 PV domU, comment out the parameters in Step 1 and uncomment bootloader below.

```plaintext
bootloader="pygrub"
```

After you login to Fedora 16 x86_64 PV domU in the text console, execute “startx” to start GNOME. Please note that GNOME3 cannot start due to poor graphics performance. Then execute `xtightvncviewer localhost:2`

### 14 XL Domain Configuration File for Ubuntu 12.04 Precise Pangolin Beta 1 amd64 HVM domU

**NOTE: Ubuntu 12.04 Beta 1 amd 64 HVM domU installation hanged while copying files.**

```plaintext
# This configuration file will only work with Xen 4.1.3-rc1-pre and NOT
# Xen 4.2-unstable due to the disk parameter.
#
# XL domain configuration file for Ubuntu 12.04 Precise Pangolin Beta 1 amd64 HVM domU
# Please refer to "man xl.cfg" for further explanations.
# See also docs/misc/xl-network-configuration.markdown and
# docs/misc/xl-disk-configuration.txt
#
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# Date: 20 Mar 2012 Tue

name="Ubuntu12.04Beta1amd64"

builder="hvm"

vcpus=2

memory=768

on_poweroff="destroy"

on_reboot="restart"

on_crash="destroy"

# Format compatible with Xen 4.2-unstable changeset 25070 only.
#disk=['format=raw, vdev=hda, access=rw, target=/var/lib/libvirt/images/Ubuntu-12.04-beta1-amd64.img', 'format=raw, vdev=hdc, access=ro, devtype=cdrom, target=/home/teo-en-ming/Downloads/ubuntu-12.04-beta1-dvd-amd64.iso']
# Format compatible with Xen 4.1.3-rc1-pre only.
disk=['file:/var/lib/libvirt/images/Ubuntu-12.04-beta1-amd64.img,hda,w', 'file:/home/teo-en-ming/Downloads/ubuntu-12.04-beta1-dvd-amd64.iso,hdc:cdrom,r']
```
vif=[ 'bridge=virbr0,type=ioemu,model=e1000' ]

#!/boot=[c|d|n]
#    Selects the emulated virtual device to boot from. Options are hard disk (c), cd-rom (d) or network/PXE (n).
#    Multiple options can be given and will be attempted in the order they are given. e.g. to boot from cd-rom
#    but fallback to the hard disk you can give dc. The default is cd.

boot="dc"
#boot="c"
acpi=0

#xen_platform_pci=1
#viridian=1
stdvga=0

vnc=1
vnclisten="localhost"
vncdisplay=3
vncunused=1
vncpasswd=""
sdl=0

usb=1
#usbdevice="tablet"
gfx_pass thru=0

15 Xen VGA Passthrough to HVM Guest Operating Systems

Please refer to David Techer's blog for his excellent How To/tutorial/documentation on patching Xen 4.2-unstable to support Xen VGA passthrough to HVM domU/virtual machines.

Hardware Requirements

Intel Processor with VT-x
Motherboard Chipset with VT-d
Motherboard BIOS with VT-d option
NVIDIA PCI-Express x16 VGA card

Article: Xen 4.2.unstable: Patches/Notes for VGA Pass Through and NVIDIA
16 Opening Firewall Port for VNC Server in dom0 for Xen VGA Passthrough

/etc/shorewall/rules

| # Allows VNC viewer connection to VNC Server in dom0 for Xen VGA Passthrough (QEMU monitor only) |
|----------------------------------|-----------|-------------|----------|---------|
| ACCEPT                           | net       | $FW        | tcp      | 5900    |