How to Build an ArchLinux virtual machine in VirtualBox UPDATED 1/16/2012

Mostly step-by-step instructions on how to install ArchLinux and get a graphical user interface (xfce) up and running inside of VirtualBox.

Tested Using VirtualBox 4.0.16 and archlinux-2011.08.19-core-x86_64.iso

Download archlinux-2011.08.19-core-x86_64.iso http://www.archlinux.org/download/

New VirtualBox machine
Arch Linux 64-Bit
1024 MB RAM
Create New Hard Drive: 10 GB (Dynamic)

Display | 32 MB

Storage | CD | archlinux-2011.08.19-core-x86_64.iso

Storage (On Linux Hosts)
SATA Controller
Use host I/O cache

System
Enable IO APIC
Processor
2 CPU

Network: Leave as NAT for now

Start the Virtual Machine

Boot Arch Linux

/arch/setup

Select Source | CD (core-local)
Set editor (vi or your favorite editor, http://www.vim.org/)
Set Clock
Prepare Hard Drives (Auto-Prepare works fine)
- /boot 100 MB
- swap 512 MB
- / 4096 MB
- /home 5532 MB

- /ext4

Packages
- Grub

base
base-devel

linux-headers
linux-docs
openssh
openssl
pacman-mirrorlist
sudo
zlib

inetutils
dhclient

Install Packages

Configure System

rc.conf

DAEMONS add sshd dbus
(will fix network later)

/etc/pacman.conf

Add:
[multilib]
Include = /etc/pacman.d/mirrorlist

/etc/pacman.d/mirrorlist

uncomment about 6 in United States (ftp is generally faster)

Root-Password (set password) CS460!!pac

Done

Install Boot Loader

Grub

accept text file
/dev/sda

Exit

reboot

Boot Existing OS

Boot Arch Linux

login as root

Post-Installation Configuration

When a link is given, jump to that link and follow the instructions. Other, more detailed instructions are provided in this document below the link.

https://wiki.archlinux.org/index.php/Beginners%27_Guide#Post-Installation

Make sure networking is enabled.
==========
Networking:
https://wiki.archlinux.org/index.php/Configuring_Network

Update and refesh the system
==========

You can find fast mirrors here:
http://www.archlinux.org/mirrorlist/

pacman -Syu
(may ask you to upgrade pacman first, follow on-screen instructions.
Evenutally re-run the above command.)

Bugs that need workarounds

https://bbs.archlinux.org/viewtopic.php?id=132225
pacman -S filesystem --force

https://bbs.archlinux.org/viewtopic.php?pid=1016415
cp /etc/profile.d/locale.sh /etc/profile.d/locale.sh.backup
rm /etc/profile.d/locale.sh

pacman -Syu

IF pacman.conf.pacnew is created:

cp /etc/pacman.conf /etc/pacman.conf.old
cp /etc/pacman.conf.pacnew /etc/pacman.conf
re-enable multilib in pacman.conf

IF mirrorlist.pacnew is created
cp /etc/pacman.d/mirrolist /etc/pacman.d/mirrolist.old
cp /etc/pacman.d/mirrolist.pacnew /etc/pacman.d/mirrolist
and uncomment some servers.

If prompted to run pacman-db-upgrade, do so

pacman -Syyu curl

cd /etc/pacman.d
cp mirrorlist mirrorlist.backup.forranking

rankmirrors -n 6 mirrorlist.backup.forranking > mirrorlist (takes a minute or two)

pacman -Syu
(answer Y to all if the seem reasonable)

Add user:
useradd -m -g users -G wheel,power -s /bin/bash cs460
passwd cs460 (cs460!!CS)

The groups power and wheel are important for sudo and running X and shutting down the computer. Not every user, necessarily, needs that.

pacman -S sudo

visudo
uncomment or add:
Defaults env_keep += "HOME"# probably not necessary!
%wheel ALL=(ALL) ALL

Only if you are installing inside of Virtual Box do you need the following:
https://wiki.archlinux.org/index.php/Arch_Linux_VirtualBox_Guest

pacman -S virtualbox-archlinux-additions

probably not strictly necessary to modify MODULES,
AUTOLOAD seems to take care of it.

Install the GUI
https://wiki.archlinux.org/index.php/Beginners%27_Guide#Graphical_User_Interface

Be sure to install a graphics card driver!

https://wiki.archlinux.org/index.php/Xorg#Graphics_card_and_driver

pacman -S xorg-server xorg-xinit xorg-utils xorg-server-utils xorg-xconsole

pacman -S xorg-twm xorg-xclock xterm
pacman -S dbus
rc.d restart dbus

File: /etc/rc.conf

DAEMONS=(... dbus ...)

pacman -Ss xf86-input

pacman -Ss xf86-input-keyboard
pacman -Ss xf86-input-mouse
pacman -S xf86-input-synaptics (laptop touchpad)

startx (to test)

pacman -S ttf-dejavu

https://wiki.archlinux.org/index.php/Display_Manager
pacman -S xorg-xdm

/etc/inittab
comment id:3:initdefault:
uncomment id:5:initdefault:

make sure /usr/bin/xdm line is uncommented at the bottom

https://wiki.archlinux.org/index.php/Xfce#Installation

pacman -S xfce4 (install ALL)
pacman -S xfce4-goodies (big & slow install. You could skip this)
pacman -S gamin

Test the GUI
startxfce4

Allow the GUI to start automatically. Edit ~/.xinitrc (for each user) to contain the following lines:

```
$!/bin/bash

VBoxClient-all & # ONLY IF RUNNING IN VB
exec ck-launch-session dbus-launch --exit-with-session startxfce4
```

Make the above file executable.
chmod o+x ~/.xinitrc

Software Packages

/etc/ssh/sshd_config
X11Forwarding yes

This helps speed up pacman.
https://wiki.archlinux.org/index.php/Improve_Pacman_Performance#Using_aria2

Add CCache to help kernel compilation
https://wiki.archlinux.org/index.php/Ccache

pacman -S ccache

pacman -S chromium

pacman -S geany

pacman -S gvim

pacman -S subversion

pacman -S dnsutils

pacman -S nscd (and add to rc.conf)
You may need to fix nscd:
https://wiki.archlinux.org/index.php/OpenLDAP_Authentication#Name_Service_Cache_Daemon
https://bbs.archlinux.org/viewtopic.php?id=9401

pacman -S hardinfo

Install Java JDK:

pacman -S jdk7-openjdk

==========
HOW TO BUILD THE KERNEL (TRADITIONAL)
==========

https://wiki.archlinux.org/index.php/Kernel_Compilation_From_Source

wget -c http://kernel.org/pub/linux/kernel/v3.0/linux-3.1.9.tar.bz2

tar xvjf linux-3.1.9.tar.bz2
make mrproper

zcat /proc/config.gz > .config
make oldconfig
in Makefile: EXTRAVERSION: -CS460-trad

ln -s /bin/lsmod /sbin/lsmod

make CC="ccache gcc" -j 3
make modules_install

cp -v arch/x86_64/boot/bzImage /boot/vmlinuz-3.1.9-CS460-trad
cp -v System.map /boot/System.map-3.1.9-CS460-trad
mkinitcpio -k 3.1.9-CS460-trad -g /boot/kernel-3.1.9-CS460-trad.img

Add your new kernel to /boot/grub/menu.lst
    You should be able to copy and past the first entry (entry 0) and change the
    vmlinuz pointer to the one created above and the initrd should point to
    kernel-3.1.9-CS460-trad.img

After reboot, reapply Guest Additions;
https://wiki.archlinux.org/index.php/Arch_Linux_VirtualBox_Guest (this needs the loop module!)

make CC="ccache gcc" -j 3 // 17 minutes with previous compile and no changes