

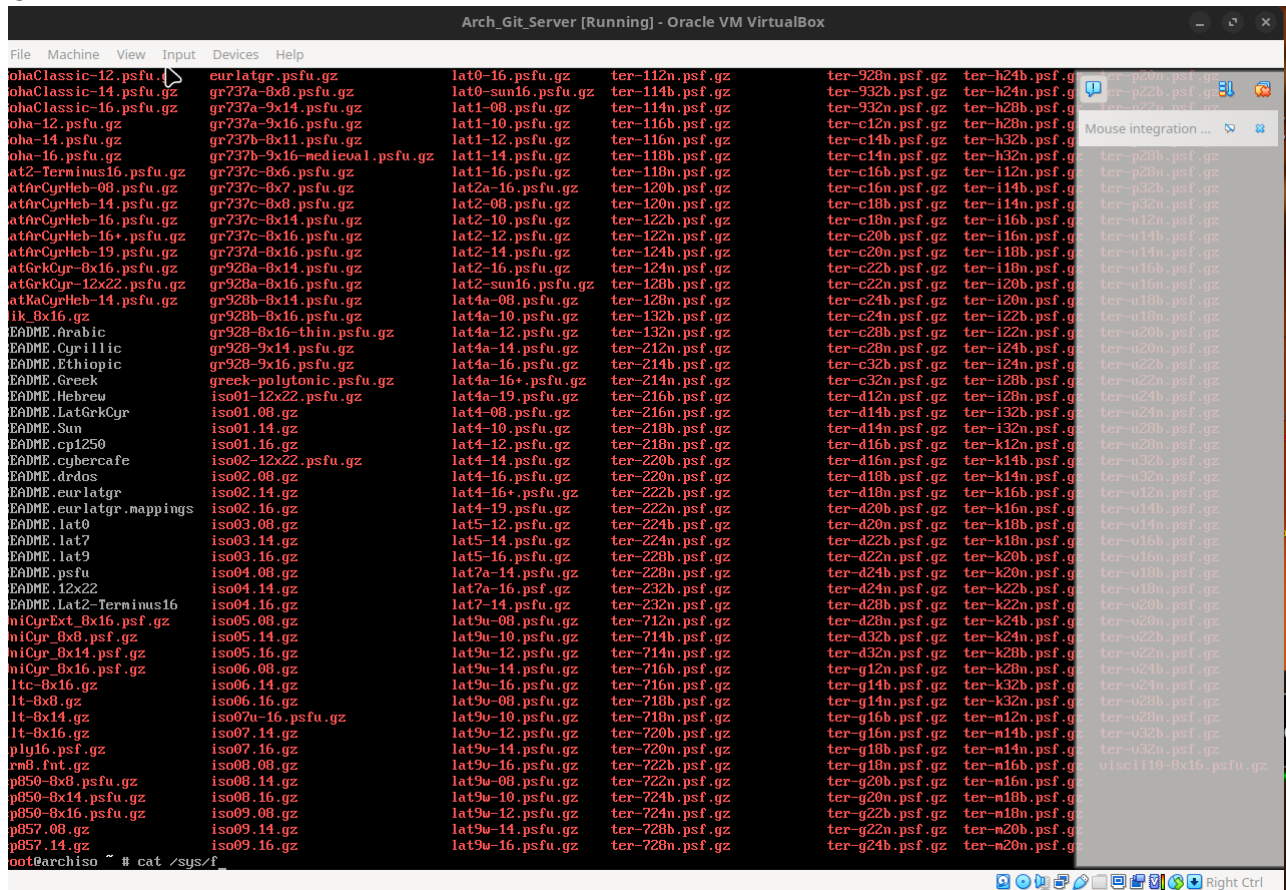
Arch Linux install/Git server setup

For my final project I set install/setup Arch Linux on a VM, I then set up a git server on that VM.

The projects parts will be listed out as steps some with pictures demonstrating what is happening in the step.

1. Install arch Linux ISO
2. Create VM and inject ISO in to the VM
3. Turn on VM
4. Load Arch live boot (From steps 4-21 I was referring to the Arch Linux installation guide https://wiki.archlinux.org/title/Installation_guide)
5. Configure language/font of the OS (pic 1)

Pic 1



6. Connect to the internet by running this command "ip link" (pic 2)
7. List the "disks" on the machine by running this command "fdisk -l"(pic 2)

Pic 2

```

File Machine View Input Devices Help
n1Cur 8x16.psf.gz      iso06.08.gz      lat9u-14.psfu.gz  ter-716b.psf.gz   ter-g12n.psf.gz   ter-k20n.psf.g
l1e-8x16.gz           iso06.14.gz      lat9u-16.psfu.gz  ter-716n.psf.gz   ter-g14b.psf.gz   ter-k32b.psf.g
l1t-8x8.gz            iso06.16.gz      lat9u-08.psfu.gz  ter-718b.psf.gz   ter-g14n.psf.gz   ter-k32n.psf.g
l1t-8x14.gz           iso07u-16.psfu.gz lat9u-10.psfu.gz  ter-718n.psf.gz   ter-g16n.psf.gz   ter-k12n.psf.g
l1t-8x16.gz           iso07.14.gz      lat9u-12.psfu.gz  ter-720b.psf.gz   ter-g16n.psf.gz   ter-n12n.psf.g
plu16.psf.gz          iso07.16.gz      lat9u-14.psfu.gz  ter-720n.psf.gz   ter-g18n.psf.gz   ter-n14b.psf.g
rw0.fnt.gz            iso08.08.gz      lat9u-16.psfu.gz  ter-722b.psf.gz   ter-g18n.psf.gz   ter-n14n.psf.g
p850-8x8.psfu.gz      iso08.14.gz      lat9u-08.psfu.gz  ter-722n.psf.gz   ter-g20n.psf.gz   ter-n16b.psf.g
p850-8x14.psfu.gz     iso08.16.gz      lat9u-10.psfu.gz  ter-724b.psf.gz   ter-g20n.psf.gz   ter-n16n.psf.g
p850-8x16.psfu.gz     iso09.08.gz      lat9u-12.psfu.gz  ter-724n.psf.gz   ter-g22n.psf.gz   ter-n18b.psf.g
p857.00.gz            iso09.14.gz      lat9u-14.psfu.gz  ter-728b.psf.gz   ter-g22n.psf.gz   ter-n18n.psf.g
p857.14.gz            iso09.16.gz      lat9u-16.psfu.gz  ter-728n.psf.gz   ter-g24b.psf.gz   ter-n20b.psf.g
oot@archiso ~ # ip link
lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:4c:c7:83 brd ff:ff:ff:ff:ff:ff
oot@archiso ~ # ping archlinux.org
PING archlinux.org (95.217.163.246) 56(94) bytes of data:
4 bytes from archlinux.org (95.217.163.246): icmp_seq=1 ttl=63 time=222 ms
4 bytes from archlinux.org (95.217.163.246): icmp_seq=2 ttl=63 time=247 ms
4 bytes from archlinux.org (95.217.163.246): icmp_seq=3 ttl=63 time=269 ms
C
-- archlinux.org ping statistics --
    packets transmitted, 3 received, 0% packet loss, time 2001ms
    tt min/avg/max/ndev = 221.960/246.110/269.195/19.298 ms
oot@archiso ~ # timedatectl
sh: correct 'timedatectl' to 'timedatectl' [maybe]? n
sh: command not found: timedatectl
27 root@archiso ~ # timedatectl
    Local time: Wed 2024-03-20 16:46:24 UTC
    Universal time: Wed 2024-03-20 16:46:24 UTC
    RTC time: Wed 2024-03-20 16:46:24
    Time zone: UTC (UTC, +0000)
system clock synchronized: yes
NTP service: active
RTC in local TZ: no
oot@archiso ~ # fdisk -l
Disk /dev/sda: 25.15 GiB, 27002175488 bytes, 52738624 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop0: 776.9 MiB, 814538752 bytes, 1590896 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
oot@archiso ~ #

```

8. Select the disk to partition by running this command “fdisk /dev/sda”
9. Using fdisk partition the disk into 2 separate partitions one for swap and the other for /mnt
10. Using fdisk format the swap to a swap type partition then write the changes (pic 3)

Pic 3

```

Arch_Git_Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Command (m for help): t
Partition number (1,2, default 2): 2
Hex code or alias (type L to list all): 1

00 Empty                27 Hidden NTFS Win    82 Linux swap / So    c1 DRDOS/sec (FAT-
01 FAT12                39 Plan 9             83 Linux              c4 DRDOS/sec (FAT-
02 XENIX root           3c PartitionMagic     84 OS/2 hidden or    c6 DRDOS/sec (FAT-
03 XENIX usr            40 Venix 80286        85 Linux extended    c7 Syrix
04 FAT16 <32M           41 PPC PReP Boot      86 NTFS volume set   da Non-FS data
05 Extended             42 SFS                87 NTFS volume set   db CP/M / CTOS / .
06 FAT16               44 QNX4.x             88 Linux plaintext   de Dell Utility
07 HPFS/NTFS/exFAT      4e QNX4.x 2nd part    8e Linux LVM         df BootIt
08 AIX                 4f QNX4.x 3rd part    93 Amoeba            e1 DOS access
09 AIX bootable        50 OnTrack DM         94 Amoeba BBT        e3 DOS R/O
0a OS/2 Boot Manag     51 OnTrack DM6 Aux    9f BSD/OS            e4 SpeedStor
0b W95 FAT32           52 CP/M              a0 IBM Thinkpad hi   ea Linux extended
0c W95 FAT32 (LBA)     53 OnTrack DM6 Aux    a5 FreeBSD           eb BeOS fs
0e W95 FAT16 (LBA)     54 OnTrackDM6         a6 OpenBSD           ee GPT
0f W95 Ext'd (LBA)     55 EZ-Drive           a7 NeXTSTEP          ef EFI (FAT-12/16/
10 OPU                 56 Golden Bow        a8 Darwin UFS        f0 Linux/PA-RISC b
11 Hidden FAT12        5c Priam Edisk        a9 NetBSD            f1 SpeedStor
12 Compaq diagnost     61 SpeedStor         ab Darwin boot       f4 SpeedStor
14 Hidden FAT16 <3     63 GNU HURD or Sys    af HFS / HFS+        f2 DOS secondary
16 Hidden FAT16        64 Novell Netware     b7 BSDI fs           f8 EBBR protective
17 Hidden HPFS/NTF     65 Novell Netware     b8 BSDI swap         fb VMware VMFS
18 ASt SmartSleep      70 DiskSecure Mult    bb Boot Wizard hid   fc VMware VMKCORE
1b Hidden W95 FAT3     75 PC/IX             bc Acronis FAT32 L   fd Linux raid auto
1c Hidden W95 FAT3     80 Old Minix          be Solaris boot      fe LANstep
1e Hidden W95 FAT1     81 Minix / old Lin    bf Solaris           ff BBT
24 NEC DOS

Aliases:
linux      - 83
swap       - 82
extended   - 05
uefi       - EF
raid       - FD
lvm        - 8E
linuxex    - 85

Hex code or alias (type L to list all): 82

Changed type of partition 'Linux' to 'Linux swap / Solaris'.

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.
root@archiso ~ #

```

11. Format the partitions. For the main partition run this command “mkfs.ext /dev/sda1” then for the swap run “mkswap /dev/sda2” (note that the dev directory may be different depending on device) (pic 4)

Pic 4

```

Arch_Git_Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

raid - FD
lom - 8E
linuxex - 85
Hex code or alias (type L to list all): 82

Changed type of partition 'Linux' to 'Linux swap / Solaris'.

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

root@archiso ~ # ls /dev
autofs      cuse        hwrng       nvram       sda         tty0        tty11      tty22      tty33      tty44      tty55      ttyS2      ttyS13     ttyS24     urandom     vcs6        vcsu3
block       disk        input       pktcdvd    sda1        tty1        tty12      tty23      tty34      tty45      tty56      ttyS3      ttyS14     ttyS25     userfaultfd vcsa        vcsu4
bsg         dma_heap    kmsg        port        sda2        tty2        tty13      tty24      tty35      tty46      tty57      ttyS4      ttyS15     ttyS26     serio       vcsa1      vcsu5
btrfs-control dri         log         ppp         shm          tty3        tty14      tty25      tty36      tty47      tty58      ttyS5      ttyS16     ttyS27     vboxguest   vcsa2      vcsu6
bus         fb0         loop0       psaux       snapshot    tty4        tty15      tty26      tty37      tty48      tty59      ttyS6      ttyS17     ttyS28     vboxuser    vcsa3      vcsu7
cdrom       fd          loop-control ptmx        snd          tty5        tty16      tty27      tty38      tty49      tty60      ttyS7      ttyS18     ttyS29     vcs         vcsa4      vcsu8
char        full        mapper      pts         sr0          tty6        tty17      tty28      tty39      tty50      tty61      ttyS8      ttyS19     ttyS30     vcs1       vcsa5      vcsu9
console     fuse        mem         random      stderr       tty7        tty18      tty29      tty40      tty51      tty62      ttyS9      ttyS20     ttyS31     vcs2       vcsa6      vcsu10
core        hidraw0     mqueue      rfkill      stdin        tty8        tty19      tty30      tty41      tty52      tty63      ttyS10     ttyS21     udmabuf     vcs3       vcsa7      vcsu11
cpu         hpet        net         rtc          stdout       tty9        tty20      tty31      tty42      tty53      tty64      ttyS11     ttyS22     uhid        vcs4       vcsa8      vcsu12
cpu_dma_latency hugepages   null        rtc0        tty          tty10       tty21      tty32      tty43      tty54      tty65      ttyS12     ttyS23     uinput      vcs5       vcsa9      vcsu13

root@archiso ~ # lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0       7:0      0  776.8M  1 loop /run/archiso/airootfs
sda         8:0      0   25.1G  0 disk
├─sda1      8:1      0   21.1G  0 part
├─sda2      8:2      0    4G    0 part
└─sr0       11:0     1  942.3M  0 rom  /run/archiso/bootmnt
root@archiso ~ # mkfs.ext4 /dev/sda1
mke2fs 1.47.0 (5-Feb-2023)
Creating filesystem with 5543424 4k blocks and 1387200 inodes
Filesystem UUID: 510d28f4-c440-48bc-b9d0-a32af4a8b9d3
Superblock backups stored on blocks:
32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
4096000

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

root@archiso ~ # mkswap /dev/sda2
Setting up swapspace version 1, size = 4 GiB (4295258112 bytes)
no label, UUID=4bc951ea-14f2-46f6-9d8b-5534c91dda89
root@archiso ~ # mount /dev/sda1 /mnt
root@archiso ~ # swapon /dev/sda2
root@archiso ~ #

```

12. Mount the newly created partition on the /mnt directory. This is done by running this command
“mount /dev/sda1 /mnt”
13. Enable the swap volume with this command “swapon /dev/sda2”
14. Install the base package, Linux kernel, and firmware to /mnt by running this command
“pacstrap -K /mnt base linux linux-firmware”(pic 5)

Pic 5

```

systemd-sysucompat: symlink package to provide sysvinit binaries [pending]
systemd-ukify: combine kernel and initrd into a signed Unified Kernel Image
polkit: allow administration as unprivileged user
curl: systemd-journal-upload, machinectl pull-tar and pull-raw [installed]
gnutils: systemd-journal-gatewayd and systemd-journal-remote [installed]
grencode: show QR codes
iptables: firewall features [pending]
libbpf: support BPF programs [pending]
libpwquality: check password quality
libfido2: unlocking LUKS2 volumes with FIDO2 token
libp11-kit: support PKCS#11 [installed]
tpm2-tss: unlocking LUKS2 volumes with TPM2 [installed]
(106/125) installing systemd-sysucompat [=====] 100%
(107/125) installing iputils [=====] 100%
(108/125) installing libmnl [=====] 100%
(109/125) installing libnftnl [=====] 100%
(110/125) installing libnl [=====] 100%
(111/125) installing libpcap [=====] 100%
(112/125) installing libnetfilter [=====] 100%
(113/125) installing libnetfilter_comtrack [=====] 100%
(114/125) installing iptables [=====] 100%
(115/125) installing libbpf [=====] 100%
(116/125) installing iproute2 [=====] 100%
Optional dependencies for iproute2
  db5.3: userspace arp daemon
  linux-atm: ATM support
  python: for route
(117/125) installing base [=====] 100%
Optional dependencies for base
  linux: bare metal support [pending]
(118/125) installing mkinitcpio-busybox [=====] 100%
(119/125) installing jansson [=====] 100%
(120/125) installing binutils [=====] 100%
Optional dependencies for binutils
  debuginfod: for debuginfod server/client functionality
(121/125) installing diffutils [=====] 100%
(122/125) installing mkinitcpio [=====] 100%
Optional dependencies for mkinitcpio
  gzip: Use gzip compression for the initramfs image [installed]
  xz: Use lzma or xz compression for the initramfs image [installed]
  bzip2: Use bzip2 compression for the initramfs image [installed]
  lzop: Use lzop compression for the initramfs image
  lz4: Use lz4 compression for the initramfs image [installed]
  mkinitcpio-nfs-utils: Support for root filesystem on NFS
(123/125) installing linux [=====] 100%
Optional dependencies for linux
  wireless-regdb: to set the correct wireless channels of your country
  linux-firmware: firmware images needed for some devices [pending]
(124/125) installing linux-firmware-whence [=====] 100%
(125/125) installing linux-firmware [=====] 100%

```

15. Generate a fstab file and place at /mnt/etc/fstab with this command “genfstab -U /mnt >> /mnt/etc/fstab” (The -U option means to create the fstab with uuids).
16. Change root into the new system via this command “arch-chroot /mnt”
17. Install network management software (dhcpcd) via this command “pacman -S dhcpcd”
18. Set the root password by running this command “passwd”
19. Install the Grub 2 package via this command “pacman -S grub”(pic 6)

Pic 6

```

File Machine View Input Devices Help
inet 10.0.2.15/24 metric 100 brd 10.0.2.255 scope global dynamic enp0s3
valid_lft 84420sec preferred_lft 84420sec
inet6 fe80::a00:27ff:fedc:c783/64 scope link proto kernel_l1
valid_lft forever preferred_lft forever
[root@archiso ~]# passwd
New password:
Retype new password:
Sorry, passwords do not match.
passwd: Failed preliminary check by password service
passwd: password unchanged
[root@archiso ~]# passwd
New password:
Retype new password:
passwd: password updated successfully
[root@archiso ~]# sudo pacman -S grub
bash: sudo: command not found
[root@archiso ~]# pacman -S grub
resolving dependencies...
looking for conflicting packages...

Packages (1) grub-2:2.12-2

Total Download Size: 6.84 MiB
Total Installed Size: 33.67 MiB

:: Proceed with installation? [Y/n] y
:: Retrieving packages...
grub-2:2.12-2-x86_64 6.8 MiB 6.63 MiB/s 00:01 [#####] 100%
(1/1) checking keys in keyring [#####] 100%
(1/1) checking package integrity [#####] 100%
(1/1) loading package files [#####] 100%
(1/1) checking for file conflicts [#####] 100%
(1/1) checking available disk space [#####] 100%
:: Processing package changes...
(1/1) installing grub [#####] 100%
:: Install your bootloader and generate configuration with:
# grub-install ...
# grub-mkconfig -o /boot/grub/grub.cfg
Optional dependencies for grub
freetype2: For grub-mkfont usage
fuse3: For grub-mount usage
dosfstools: For grub-mkrescue FAT FS and EFI support
lzop: For grub-mkrescue LZO support
efibootmgr: For grub-install EFI support
libisoburn: Provides xorriso for generating grub rescue iso using grub-mkrescue
os-prober: To detect other OSes when generating grub.cfg in BIOS systems
mttools: For grub-mkrescue FAT FS support
:: Running post-transaction hooks...
(1/1) Arming ConditionNeedsUpdate...
[root@archiso ~]#

```

20. Run this command “grub-install /dev/sda” this installs grub onto the sda device (pic 7)

Pic 7

```

File Machine View Input Devices Help
Installing for i386-pc platform.
grub-install: warning: File system 'ext2' doesn't support embedding.
grub-install: warning: Embedding is not possible. GRUB can only be installed in this setup by using blocklists. However, blocklists
se is discouraged..
grub-install: error: will not proceed with blocklists.
root@archiso /# lsblk
NAME        MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
loop0       7:0      0  776.8M  1 loop
sda         8:0      0   25.1G  0 disk
├─sda1      8:1      0   21.1G  0 part /
├─sda2      8:2      0    4G  0 part
sr0         11:0     1  942.3M  0 rom
root@archiso /# ls /boot/grub/
fonts  grubenv  i386-pc  locale  themes
root@archiso /# grub-install --target=x86_64-efi --efi-directory=esp --bootloader-id=GRUB
Installing for x86_64-efi platform.
grub-install: error: failed to get canonical path of 'esp'.
root@archiso /# mount
/dev/sda1 on / type ext4 (rw,relatime)
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
sys on /sys type sysfs (ro,nosuid,nodev,noexec,relatime)
udev on /dev type devtmpfs (rw,nosuid,relatime,size=943892k,nr_inodes=235973,mode=755,inode64)
depts on /dev/pts type devpts (rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000)
shm on /dev/shm type tmpfs (rw,nosuid,nodev,relatime,inode64)
run on /run type tmpfs (rw,nosuid,nodev,relatime,mode=755,inode64)
tmp on /tmp type tmpfs (rw,nosuid,nodev,inode64)
run on /etc/resolv.conf type tmpfs (rw,nosuid,nodev,relatime,mode=755,inode64)
root@archiso /# grub-install --target=i386-pc
Installing for i386-pc platform.
grub-install: error: install device isn't specified.
root@archiso /# grub-install --target=i386-pc /dev/sda1
Installing for i386-pc platform.
grub-install: warning: File system 'ext2' doesn't support embedding.
grub-install: warning: Embedding is not possible. GRUB can only be installed in this setup by using blocklists. However, blocklists are UNRELIABLE and their
se is discouraged..
grub-install: error: will not proceed with blocklists.
root@archiso /# grub-install /dev/sda
Installing for i386-pc platform.
Installation finished. No error reported.
root@archiso /# grub-mkconfig -o /boot/grub/grub.cfg
Generating grub configuration file ...
Found linux image: /boot/vmlinuz-linux
Found initrd image: /boot/initramfs-linux.img
Found fallback initrd image(s) in /boot: initramfs-linux-fallback.img
Warning: os-prober will not be executed to detect other bootable partitions.
Systems on them will not be added to the GRUB boot configuration.
Check GRUB_DISABLE_OS_PROBER documentation entry.
Adding boot menu entry for UEFI Firmware Settings ...
done
root@archiso /#

```

21. The system is now ready to be rebooted first run the command “exit” to exit the chroot environment then run the “reboot” command to reboot the machine.
22. Once the machine has booted into the OS install git via this command “pacman -S git” (pic 8)

Pic 8

```

Arch_Git_Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:4c:c7:83 brd ff:ff:ff:ff:ff:ff
    inet6 fe80::aec4:45cd:cdd:c2e2/64 scope link
        valid_lft forever preferred_lft forever
root@gitServer johnsmith# ping google.com
PING google.com (142.250.69.206) 56(84) bytes of data.
64 bytes from sea30s08-in-f14.1e100.net (142.250.69.206): icmp_seq=1 ttl=63 time=19.2 ms
64 bytes from sea30s08-in-f14.1e100.net (142.250.69.206): icmp_seq=2 ttl=63 time=23.2 ms
64 bytes from sea30s08-in-f14.1e100.net (142.250.69.206): icmp_seq=3 ttl=63 time=21.4 ms
^C
--- google.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2002ms
rtt min/avg/max/mdev = 19.171/21.254/23.165/1.635 ms
root@gitServer johnsmith# ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:4c:c7:83 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 86391sec preferred_lft 75591sec
    inet6 fe80::aec4:45cd:cdd:c2e2/64 scope link
        valid_lft forever preferred_lft forever
root@gitServer johnsmith# ping 10.0.0.193
PING 10.0.0.193 (10.0.0.193) 56(84) bytes of data.
64 bytes from 10.0.0.193: icmp_seq=1 ttl=63 time=0.222 ms
64 bytes from 10.0.0.193: icmp_seq=2 ttl=63 time=0.150 ms
64 bytes from 10.0.0.193: icmp_seq=3 ttl=63 time=0.162 ms
^C
--- 10.0.0.193 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2035ms
rtt min/avg/max/mdev = 0.150/0.178/0.222/0.031 ms
root@gitServer johnsmith# su sudo
su: user sudo does not exist or the user entry does not contain all the required fields
root@gitServer johnsmith# su root
root@gitServer johnsmith# pacman -S git sudo
resolving dependencies...
looking for conflicting packages...

Packages (7) db5.3-5.3.28-4 perl-5.38.2-1 perl-error-0.17029-5 perl-mailtools-2.21-7 perl-timedate-2.33-5 git-2.44.0-1 sudo-1.9.15.p5-1

Total Download Size:   28.82 MiB
Total Installed Size: 110.52 MiB

:: Proceed with installation? [Y/n]

```

23. Install openssh and ufw via this command “pacman -S openssh ufw” (pic 9)

Pic 9

```

[root@gitServer johnsmith]# sshhd -t
bash: sshhd: command not found
[root@gitServer johnsmith]# sshd -t
[root@gitServer johnsmith]# sudo ufw allow ssh
sudo: ufw: command not found
[root@gitServer johnsmith]# sudo pacman -S ufw
resolving dependencies...
looking for conflicting packages...

Packages (3) libnsl-2.0.1-1 python-3.11.8-1 ufw-0.36.2-2
Total Download Size: 14.09 MiB
Total Installed Size: 75.64 MiB

:: Proceed with installation? [Y/n] y
:: Retrieving packages...
python-3.11.8-1-x86_64           13.8 MiB   9.84 MiB/s  00:01 [#####] 100%
ufw-0.36.2-2-any                225.8 KiB   5.13 MiB/s  00:00 [#####] 100%
libnsl-2.0.1-1-x86_64          21.7 KiB   586 KiB/s  00:00 [#####] 100%
Total (3/3)                    14.1 MiB   8.84 MiB/s  00:02 [#####] 100%
(3/3) checking keys in keyring
(3/3) checking package integrity
(3/3) loading package files
(3/3) checking for file conflicts
(3/3) checking available disk space
:: Processing package changes...
(1/3) installing libnsl
(2/3) installing python
Optional dependencies for python
python-setuptools: for building Python packages using tooling that is usually bundled with Python
python-pip: for installing Python packages using tooling that is usually bundled with Python
python-pipx: for installing Python software not packaged on Arch Linux
sqlite: for a default database integration [installed]
mpdecimal: for decimal
xz: for lzma [installed]
tk: for tkinter
(3/3) installing ufw
:: Running post-transaction hooks...
(1/2) Reloading system manager configuration...
(2/2) Arming ConditionNeedsUpdate...
[root@gitServer johnsmith]# sudo ufw allow ssh
Rules updated
Rules updated (v6)
[root@gitServer johnsmith]#

```

24. Use ufw to open ssh port on the server via this command “sudo ufw allow ssh”
25. enable ssh server with this command “sudo systemctl enable sshd”
26. create user called git via this command “useradd -m -s /bin/bash git”
27. switch to the git user via this command “su git”
28. create a .ssh directory in the home directory via this command “mkdir .ssh” then create a file called authorize_keys with this command “touch .ssh/authorize_keys”
29. On the client generate a rsa pub and private key pair for the ssh via this command “ssh-keygen -t rsa”
30. Copy the public key to the server from the client via this command “ssh-copy-id -i ~/.ssh/id_rsa.pub git@10.0.0.231” (pic 10)(Do note that the user in pic 10 is johnsmith, but the same step applies to the git user)

```
Pic 10  
Mar 20 11:26  
johnsmith@gitserver--  
orcalord@orcalord-systemproductname:~$ exit  
logout  
Connection to 10.0.0.137 closed.  
➤ ~ $ ssh -C /usr/bin/copy-id -l johnsmith@10.0.2.15 -f  
usr/bin/sssh-copy-id: INFO: Source of key(s) to be installed: "/home/orcalord/.ssh/id_rsa.pub"  
usr/bin/sssh-copy-id: ERROR: Too many arguments. Expecting a target hostname, got:  
  
Usage: usr/bin/sssh-copy-id [-h] [-j] [-n] [-i] [-I [identity.file]] [-p port] [-- alternative_ssh_config_file] [-t target_path] [-- ssh-options ...] [user@hostname]  
-f force mode -- copy keys without trying to check if they are already installed  
-m dir name -- no keys are actually copied  
-s use sftp -- use sftp instead of executing remote-commands. Can be useful if the remote only allows sftp  
-x debug -- enables -x in this shell, for debugging  
-h|-? print this help  
➤ ~ $ ssh -C /usr/bin/copy-id -l johnsmith@10.0.2.15  
usr/bin/sssh-copy-id: INFO: Source of key(s) to be installed: "/home/orcalord/.ssh/id_rsa.pub"  
usr/bin/sssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed  
usr/bin/sssh-copy-id: line 196: /home/orcalord/.ssh/sssh-copy-id.04bf3b2d8f/popsis_tmp_id: No such file or directory  
usr/bin/sssh-copy-id: line 202: /home/orcalord/.ssh/sssh-copy-id.04bf3b2d8f/popsis_output: No such file or directory  
usr/bin/sssh-copy-id: line 208: /home/orcalord/.ssh/sssh-copy-id.04bf3b2d8f/popsis_output: No such file or directory  
usr/bin/sssh-copy-id: line 215: /home/orcalord/.ssh/sssh-copy-id.04bf3b2d8f/popsis_output: No such file or directory  
cat: /home/orcalord/.ssh/sssh-copy-id.04bf3b2d8f/popsis_tmp_id: No such file or directory  
  
usr/bin/sssh-copy-id: WARNING: All keys were skipped because they already exist on the remote system.  
(If you think this is a mistake, you may want to use -f option)  
  
➤ ~ $ ssh -C /usr/bin/copy-id -l johnsmith@10.0.2.31  
usr/bin/sssh-copy-id: INFO: Source of key(s) to be installed: "/home/orcalord/.ssh/id_rsa.pub"  
The authenticity of host '10.0.0.231 (10.0.0.231)' can't be established.  
ED25519 key fingerprint is SHA256:xkax7Tcc0omU4+8bx(P280du)/Q8JdP5w40SFTes.  
This key is not known by any other names.  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
usr/bin/sssh-copy-id: INFO: attempting to log in with the new key(s). To filter out any that are already installed  
usr/bin/sssh-copy-id: INFO: 1 key(s) remain to be installed -- If you are prompted now it is to install the new keys  
johnsmith@10.0.2.31's password:  
  
Number of key(s) added: 1  
  
Now try logging into the machine, with: "ssh 'johnsmith@10.0.2.31'"  
and check to make sure that only the key(s) you wanted were added.  
  
➤ ~ $ ssh -C /usr/bin/copy-id -l johnsmith@10.0.137  
orcalord@10.0.0.137's password:  
Linux raspberrypi 6.1.21-v8+ #1642 SMP PREEMPT Mon Apr 3 17:24:16 BST 2023 aarch64  
  
The programs included with the Debian GNU/Linux system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/copyright.  
  
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent  
permitted by applicable law.  
Last login: Wed Mar 20 11:15:16 2024 from 10.0.0.193  
orcalord@raspberrypi:~$ exit  
logout  
Connection to 10.0.0.137 closed.  
➤ ~ $ ssh -C /usr/bin/copy-id -l johnsmith@10.0.2.31  
orcalord@10.0.0.231's password:  
Permission denied, please try again.  
orcalord@10.0.0.231's password:  
Permission denied, please try again.  
orcalord@10.0.231's password:  
ssh: suspended  
ssh 10.0.0.231  
➤ ~ $ ssh -C /usr/bin/copy-id -l johnsmith@10.0.2.31  
Last login: Wed Mar 20 11:22:49 2024  
johnsmith@gitserver ~$ ls  
johnsmith@gitserver ~$
```

31. Confirm ssh connection to server from client (pic 11)

[illegible]

32. On the server create a folder at /srv/git with this command “mkdir /srv/git” then give the git user ownership of the file via this command “chown git /srv/git/” (From steps 32-35 I used this git documentation <https://git-scm.com/book/en/v2/Git-on-the-Server-Setting-Up-the-Server>)

33. Then run “cd /srv/git” after that create a directory call project.git via this command “mkdir project.git”

34. Run “cd project.git” then create a git repo via this command “git init –bare” (pic 12)

Pic 12

```

Arch_Git_Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
hint: git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint: git branch -m <name>
Initialized empty Git repository in /srv/git/project.git/
lgitegitServer project.git$ git branch -m main
lgitegitServer project.git$ ls
HEAD branches config description hooks info objects refs
lgitegitServer project.git$ ls
HEAD branches config description hooks info objects refs
lgitegitServer project.git$ cd ..
lgitegitServer git$ ls
project.git
lgitegitServer git$ cd project.git/
lgitegitServer project.git$ ls
HEAD branches config description hooks info objects refs
lgitegitServer project.git$ cd branches/
lgitegitServer branches$ ls
lgitegitServer branches$ cd ..
lgitegitServer project.git$ git log
error: cannot run less: No such file or directory
commit d1c704c66b2907b401b52d58e1e9ff68bc7be021 (HEAD -> main)
Author: msdosboss <jacobt0722@gmail.com>
Date: Wed Mar 20 12:46:20 2024 -0700

    first
lgitegitServer project.git$ cd ..
lgitegitServer git$ su root
Password:
lroutegitServer git$ rm -r project.git/
lroutegitServer git$ exit
exit
lgitegitServer git$ mkdir project.git
lgitegitServer git$ cd project.git/
lgitegitServer project.git$ git init --bare
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint: git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint: git branch -m <name>
Initialized empty Git repository in /srv/git/project.git/
lgitegitServer project.git$

```

35. Set up a git repo on the client and push it to server via these commands “git init”, “echo “first” >> README.md”, “git add ./”, “git commit -m ‘first’”, “git remote add origin git@10.0.0.231:/srv/git/project.git”, “git push -u origin master” (Note that github by default calls its branches main, but the git program does it as master) (pic 13)

```
orcalord@orcalord-systemproductname:~/Documents/localgit$ cd ..
Writing objects: 100% (3/3), 206 bytes | 206.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To 10.0.0.231:src/git/project.git/
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.
orcalord@orcalord-systemproductname:~/Documents/localgit$ git status
On branch main
nothing to commit, working tree clean
orcalord@orcalord-systemproductname:~/Documents/localgit$ cd ..
orcalord@orcalord-systemproductname:~/Documents$ ls
books  chatgptcode  cmake-3.29.0-rc1-tutorial-source  CS140w  CS240A  curseforge  godotGame  llama  Mission.txt  positest  SQL  todo  videoScrapper  www_client_tools
assignment1.txt  C15153  cmake-3.29.0-rc1-tutorial-source.zip  CS-101  C2404final  docker  Httpserver  localgit  monero_lofe  projecthacirma  stable-diffusion-webui  todo.save  Warcraft  wine-Lol-3.0-rc1-staging-amd64  WSW_custom_server  WSW_client_server
assignment2.txt  C15153  cmake-3.29.0-rc1-tutorial-source.zip  CS109  C2575  edplan.png  150s  Madden.NFL.00  mariadb-connector-c  New_C_Chess  S02.X  test-share  TV  www_client  WSW_client
assignment3.txt  C15276  cmake-3.29.0-rc1-tutorial-source.zip  CS223  C2384  fafabackup  kuboIdgp-rcn  mariadb-connector-c  New_C_Chess  S02.X  test-share  TV  www_client  WSW_client
orcalord@orcalord-systemproductname:~/Documents$ cd localgit
orcalord@orcalord-systemproductname:~/Documents/localgit$ git status
[detached HEAD 100644] password for orcalord:
orcalord@orcalord-systemproductname:~/Documents/localgit$ git checkout main
Note: checking out 'main'.
You are in 'detached HEAD' state. You can look around, make experimental
changes and commit them, and you can discard any commits you make in this
state without impacting any branches by switching back to a branch.
If you want to create a new branch, please use:
git checkout -b <new-branch-name>
orcalord@orcalord-systemproductname:~/Documents/localgit$ git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change, to configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint: git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint: git branch -m <new-name>
orcalord@orcalord-systemproductname:~/Documents/localgit$ git init
Initialized empty Git repository in /home/orcalord/Documents/localgit/.git/
orcalord@orcalord-systemproductname:~/Documents/localgit$ git add .
orcalord@orcalord-systemproductname:~/Documents/localgit$ git commit -m "First"
[master (root-commit) f021813] first
1 file changed, 1 insertion(+)
create mode 100644 orca
orcalord@orcalord-systemproductname:~/Documents/localgit$ git remote add origin git@10.0.0.231:src/git/project.git/
orcalord@orcalord-systemproductname:~/Documents/localgit$ git push -u master master
fatal: 'master' does not appear to be a git repository
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
orcalord@orcalord-systemproductname:~/Documents/localgit$ git push -u origin master
git@10.0.0.231:~$ password:
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 206 bytes | 206.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To 10.0.0.231:src/git/project.git/
 * [new branch]      master -> master
branch 'master' set up to track 'origin/master'.
orcalord@orcalord-systemproductname:~/Documents/localgit$ cd ..
orcalord@orcalord-systemproductname:~/Documents$ cd localgit
orcalord@orcalord-systemproductname:~/Documents/localgit$ git status
On branch master
nothing to commit, working tree clean
```

```
orcalord@orcalord-hppaviliongaminglaptop15ec1xxx:~/Docum...  
branches config description HEAD hooks info objects packed-refs refs  
~ /Doc/project/.git git P main cd branches ✓ base  
~ /Doc/project/.g/branches git P main ls ✓ base  
~ /Doc/project/.g/branches git P main cd , ✓ base  
cd: no such file or directory: ,  
~ /Doc/project/.g/branches git P main cd .. 1 x base  
~ /Doc/project/.git git P main cd .. ✓ base  
~ /Doc/project git P main ls ✓ base  
~ /Doc/project git P main cd .. ✓ base  
~ /Documents sudo rm -r project ✓ base  
[sudo] password for orcalord:  
~ /Documents git clone git@10.0.0.231:/srv/git/project.git  
Cloning into 'project'...  
git@10.0.0.231's password:  
remote: Enumerating objects: 3, done.  
remote: Counting objects: 100% (3/3), done.  
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
Receiving objects: 100% (3/3), 206 bytes | 1024 bytes/s, done.  
~ /Documents cd p ✓ 5s base  
cd: no such file or directory: p  
~ /Documents cd project 1 x base  
~ /Doc/project git P master ls ✓ base  
orca  
~ /Doc/project git P master
```