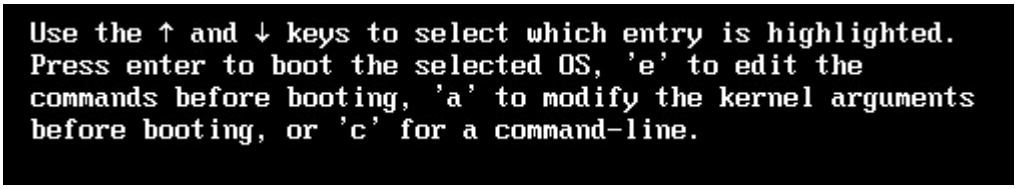
Chapter 1, Taming vi

```
[andrew@centos ~]$ alias | grep vi
alias vi='vim'
[andrew@centos ~]$
```

Chapter 2, Cold Starts

```
title CentOS (2.6.32-431.el6.x86_64)
        root (hd0,0)
        kernel /vmlinuz-2.6.32-431.el6.x86_64 ro root=/dev/mapper/vg_centos65-lv
_root rd_NO_LUKS  KEYBOARDTYPE=pc KEYTABLE=uk LANG=en_US.UTF-8 rd_NO_MD rd_LVM_L
V=vg_centos65/lv_swap SYSFONT=latarcyrheb-sun16 crashkernel=auto rd_LVM_LV=vg_ce
ntos65/lv_root rd_NO_DM rhgb quiet vga=0x340
        initrd /initramfs-2.6.32-431.el6.x86_64.img
```



Chapter 3, CentOS Filesystems – A Deeper Look

```
[andrew@centos ~]$ ls -a newdir/
```


```
[andrew@centos ~]$ ls -l $(tty)
crw-------. 1 andrew tty 136, 1 May  4 15:35 /dev/pts/1
[andrew@centos ~]$
```

```
[andrew@centos ~]$ mesg y; ls -l $(tty)
crw--w----. 1 andrew tty 136, 1 May  4 15:39 /dev/pts/1
[andrew@centos ~]$
```

```
[andrew@centos ~]$ stat my_newfile
  File: `my_newfile'
  Size: 125             Blocks: 8          IO Block: 4096   regular file
Device: fd00h/64768d    Inode: 536029      Links: 1
Access: (0664/-rw-rw-r--)  Uid: (  500/  andrew)   Gid: (  500/  andrew)
Access: 2014-05-06 10:12:15.895980644 +0100
Modify: 2014-05-06 10:12:15.902981826 +0100
Change: 2014-05-06 10:12:15.902981826 +0100
[andrew@centos ~]$
```

Chapter 4, YUM – Software Never Looked So Good


```
[user@centos65 ~]$ tree rpmbuild/
rpmbuild/
├── BUILD
├── RPMS
├── SOURCES
├── SPECS
└── SRPMS
```

```
[user@centos65 ~]$ tree rpmbuild/RPMS/
rpmbuild/RPMS/
└── noarch
    └── plymouth-theme-tup-1-0.noarch.rpm
```


```
# PUT YOUR REPOS HERE OR IN separate files named file.repo
# in /etc/yum.repos.d
```

Chapter 5, Herding Cats – Taking Control of Processes

```
#/etc/init/sample.conf
description "Simple Upstart script"
author "The Urban Penguin"
start on runlevel [35]
script
        logger -p local1.info "Starting upstart service"
end script
~
```

```
[root@centos65 event.d]# initctl version
init (upstart 0.6.5)
[root@centos65 event.d]#
```

```
[root@centos65 event.d]# pgrep httpd
3950
3953
3954
3955
```

```
[root@centos65 event.d]# pstree 3950
httpd───8*[httpd]
[root@centos65 event.d]#
```

```
  ├─gnome-screensav
  ├─gnome-settings-daem─{gnome-settings}
  ├─gnome-terminal─┬─bash───su───bash───pstree
  │                ├─gnome-pty-helpe
  │                └─{gnome-terminal}
```

```
  ├─httpd───8*[httpd]
  ├─im-settings-dae
  ├─login───bash
```

```
[user@centos65 Desktop]$ kill -l
 1) SIGHUP       2) SIGINT       3) SIGQUIT      4) SIGILL       5) SIGTRAP
 6) SIGABRT      7) SIGBUS       8) SIGFPE       9) SIGKILL     10) SIGUSR1
11) SIGSEGV     12) SIGUSR2     13) SIGPIPE     14) SIGALRM     15) SIGTERM
16) SIGSTKFLT   17) SIGCHLD     18) SIGCONT     19) SIGSTOP     20) SIGTSTP
21) SIGTTIN     22) SIGTTOU     23) SIGURG      24) SIGXCPU     25) SIGXFSZ
```

```
[user@centos65 Desktop]$ pmap $$
7259:   /bin/bash
0000000000400000    848K r-x--  /bin/bash
00000000006d3000     40K rw---  /bin/bash
00000000006dd000     20K rw---    [ anon ]
00000000008dc000     36K rw---  /bin/bash
```

Chapter 6, Users – Do We Really Want Them?

```
[andrew@centos65 ~]$ id
uid=504(andrew) gid=504(andrew) groups=504(andrew)
```

```
[user@centos65 etc]$ id u1
uid=501(u1) gid=501(u1) groups=501(u1),100(users)
[user@centos65 etc]$
```

```
[root@centos65 ~]# useradd -G users u4
[root@centos65 ~]# id u4
uid=505(u4) gid=505(u4) groups=505(u4),100(users)
[root@centos65 ~]#
```

```
[root@centos65 ~]# useradd -N u5
[root@centos65 ~]# id u5
uid=506(u5) gid=100(users) groups=100(users)
[root@centos65 ~]#
```

```
[root@centos65 ~]# grep passwd /etc/nsswitch.conf
#passwd:    db files nisplus nis
passwd:     files
[root@centos65 ~]#
```

```
[root@centos65 ~]# getent group | grep  '^u.:' | sort
u1:x:501:u1
u2:x:502:u1,u2
u3:x:503:
u4:x:505:
```

```
17 /dev/sdc1  /home  ext4 defaults,usrjquota=aquota.user,jqfmt=vfsv0 0 2
```

```
[root@centos65 ~]# repquota -uv /home
*** Report for user quotas on device /dev/sdc1
Block grace time: 7days; Inode grace time: 7days
                        Block limits                File limits
User            used    soft    hard  grace    used  soft  hard  grace
----------------------------------------------------------------------
root      --      20       0       0              2     0     0
user      --   31072       0       0            349     0     0
u1        --      36   20000   25000              9     0     0
u2        --      32       0       0              8     0     0
u3        --      32       0       0              8     0     0
andrew    --      36       0       0              9     0     0
u4        --      32       0       0              8     0     0
u5        --      32       0       0              8     0     0

Statistics:
Total blocks: 7
Data blocks: 1
Entries: 8
Used average: 8.000000
```

Chapter 7, LDAP – A Better Type of User

```
[andrew@ldap1 Desktop]$ host ldap1.tup.com
ldap1.tup.com has address 192.168.0.76
[andrew@ldap1 Desktop]$
```

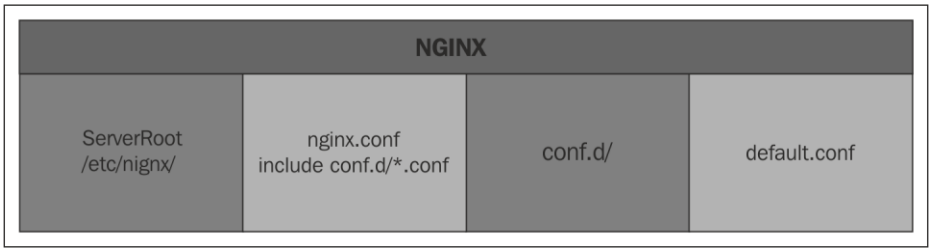
```
[root@ldap1 ~]# yum repolist
Loaded plugins: fastestmirror, refresh-packagekit, security
Loading mirror speeds from cached hostfile
 * base: www.mirrorservice.org
 * epel: ftp.nluug.nl
 * extras: centos.hyve.com
 * updates: mirror.sov.uk.goscomb.net
repo id           repo name
base              CentOS-6 - Base
c6-local          CentOS-6 - Media
epel              Extra Packages for Enterprise Linux 6 - x86_64
extras            CentOS-6 - Extras
updates           CentOS-6 - Updates
```

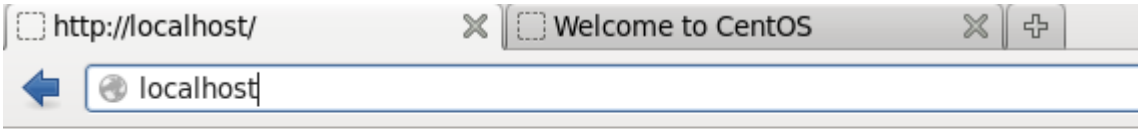
```
# HR Managers, Groups, tup.com
dn: cn=HR Managers,ou=Groups,dc=tup,dc=com
objectClass: top
objectClass: groupOfUniqueNames
cn: HR Managers
ou: groups
description: People who can manage HR entries
uniqueMember: cn=Directory Manager
```


```
[root@ldap1 ~]# ldapadd -x -D "cn=directory manager" -w Password1  -f user.ldif
adding new entry "uid=ssmith,ou=People,dc=tup,dc=com"
```

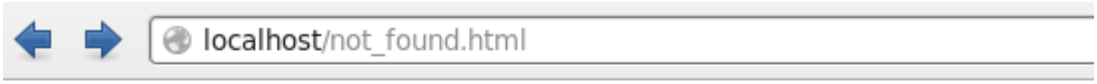
```
bblogs:*:5000:100:Bob Bloggs:/home/bblogs:/bin/bash
ssmith:*:5001:100:Sally Smith:/home/ssmith:/bin/bash
```

Chapter 8, Nginx – Deploying a Performance-centric Web Server



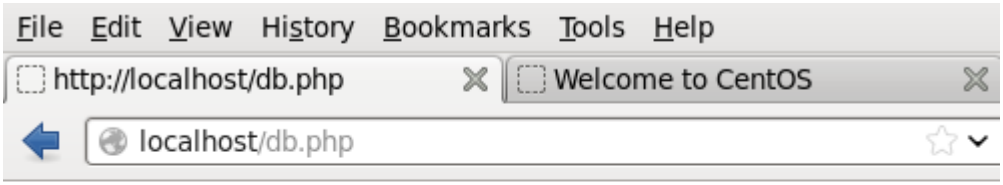


Welcome to NGINX



We could not locate the document

Home



Databases

information_schema
mysql

Chapter 9, Puppet – Now You Are the Puppet Master

```
[root@ldap1 init.d]# ping puppet
PING ldap1.tup.com (192.168.0.76) 56(84) bytes of data.
64 bytes from 192.168.0.76: icmp_seq=1 ttl=64 time=0.042 ms
64 bytes from 192.168.0.76: icmp_seq=2 ttl=64 time=0.036 ms
64 bytes from 192.168.0.76: icmp_seq=3 ttl=64 time=0.036 ms
64 bytes from 192.168.0.76: icmp_seq=4 ttl=64 time=0.036 ms
64 bytes from 192.168.0.76: icmp_seq=5 ttl=64 time=0.035 ms


[root@ldap1 init.d]# puppet resource Service puppetmaster
service { 'puppetmaster':
  ensure => 'running',
  enable => 'true',
}
```

example.pp

```
class ssh{
        file {'/etc/motd':
                content=>'Welcome to the Tup.com'
        }
        service {'ssh':
                enable=> true,
                ensure=> running,
        }
}
include ssh
```

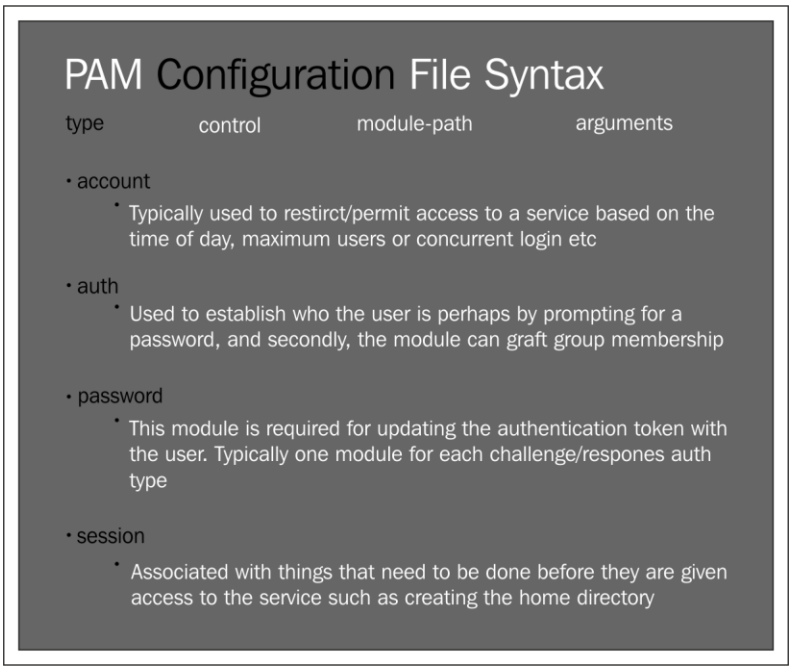
```
cat /etc/motd
Welcome to TUP
This is a CentOS 6.5 host with IP 192.168.0.76
[root@ldap1 motd]#
```

```
[root@ldap1 puppet]# puppet config print modulepath
/etc/puppet/modules:/usr/share/puppet/modules
[root@ldap1 puppet]#
```

```
Notice: /Stage[main]/Tup/Service[sshd]/ensure: ensure changed 'stopped' to 'runn
ing'
Notice: /Stage[main]/Tup/File[/etc/motd]/mode: mode changed '0777' to '0644'
Notice: Finished catalog run in 0.95 seconds
[root@ldap1 manifests]#
```

```
[root@centos65 Desktop]# cat /etc/motd
Welcome to TUP
This is a CentOS 6.5 host with IP 192.168.0.123
[root@centos65 Desktop]#
```

Chapter 10, Security Central




```
[user@ldap1 pam.d]$ sestatus
SELinux status:                 enabled
SELinuxfs mount:                /selinux
Current mode:                   permissive
Mode from config file:          permissive
Policy version:                 24
Policy from config file:        targeted
[user@ldap1 pam.d]$
```

```
[root@localhost ~]# getenforce
Enforcing
[root@localhost ~]# setenforce 0
setenforce:  setenforce() failed
[root@localhost ~]#
```

```
[root@ldap1 ~]# ls -Z /etc/hosts
-rw-r--r--. root root system_u:object_r:net_conf_t:s0  /etc/hosts
[root@ldap1 ~]#
```

```
[user@ldap1 pam.d]$ id -Z
unconfined_u:unconfined_r:unconfined_t:s0-s0:c0.c1023
[user@ldap1 pam.d]$
```

Forbidden

You don't have permission to access /ks/ on this server.

Apache/2.2.15 (CentOS) Server at localhost Port 80

```
time->Sat Feb  1 18:05:51 2014
type=SYSCALL msg=audit(1391277951.222:266): arch=c000003e syscall=2 success=no exit=-
13 a0=7f604d213e88 a1=90800 a2=7f604d212298 a3=7f604d210928 items=0 ppid=1720 pid=173
1 auid=4294967295 uid=48 gid=48 euid=48 suid=48 fsuid=48 egid=48 sgid=48 fsgid=48 tty
=(none) ses=4294967295 comm="httpd" exe="/usr/sbin/httpd" subj=system_u:system_r:http
d_t:s0 key=(null)
type=AVC msg=audit(1391277951.222:266): avc:  denied  { read } for  pid=1731 comm="ht
tpd" name="ks" dev=sda3 ino=22341 scontext=system_u:system_r:httpd_t:s0 tcontext=unco
nfined_u:object_r:default_t:s0 tclass=dir
```

Chapter 11, Graduation Day

```
[andrew@centos7 Desktop]$ localectl status
   System Locale: LANG=en_GB.UTF-8
       VC Keymap: uk
      X11 Layout: gb
[andrew@centos7 Desktop]$
```

```
[andrew@centos7 Desktop]$ timedatectl
      Local time: Sat 2014-07-19 20:26:30 BST
  Universal time: Sat 2014-07-19 19:26:30 UTC
        Timezone: Europe/London (BST, +0100)
     NTP enabled: yes
NTP synchronized: yes
 RTC in local TZ: no
      DST active: yes
 Last DST change: DST began at
                  Sun 2014-03-30 00:59:59 GMT
                  Sun 2014-03-30 02:00:00 BST
 Next DST change: DST ends (the clock jumps one hour backwards) at
                  Sun 2014-10-26 01:59:59 BST
                  Sun 2014-10-26 01:00:00 GMT
[andrew@centos7 Desktop]$
```

```
[root@centos7 ~]# systemctl status sshd
sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled)
   Active: active (running) since Sat 2014-07-19 19:13:17 BST; 2h 1min ago
  Process: 1089 ExecStartPre=/usr/sbin/sshd-keygen (code=exited, status=0/SUCCES
S)
 Main PID: 1123 (sshd)
   CGroup: /system.slice/sshd.service
           └─1123 /usr/sbin/sshd -D

Jul 19 19:13:17 centos7.tup.com systemd[1]: Started OpenSSH server daemon.
Jul 19 19:13:18 centos7.tup.com sshd[1123]: Server listening on 0.0.0.0 port 22.
Jul 19 19:13:18 centos7.tup.com sshd[1123]: Server listening on :: port 22.
Hint: Some lines were ellipsized, use -l to show in full.
[root@centos7 ~]#
```