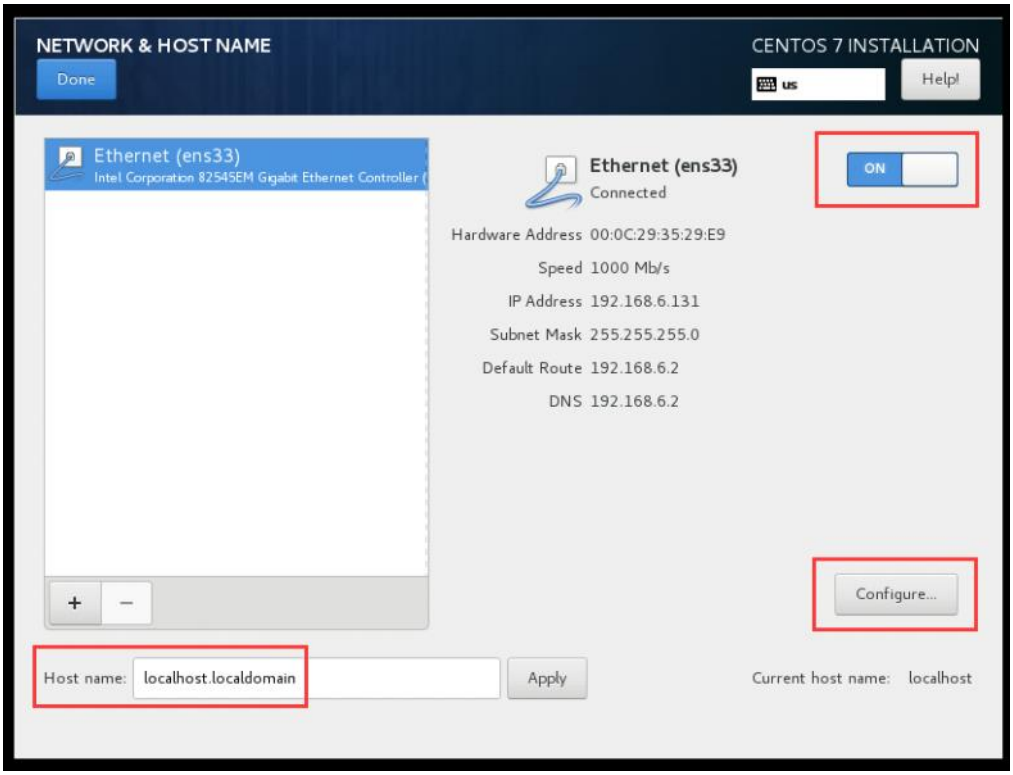
Basic Configuration on CentOS Minimal (latest version and system service enabled)

Friday, October 26, 2018 09:24

Enable the network

During installation you need to enable the network manually.

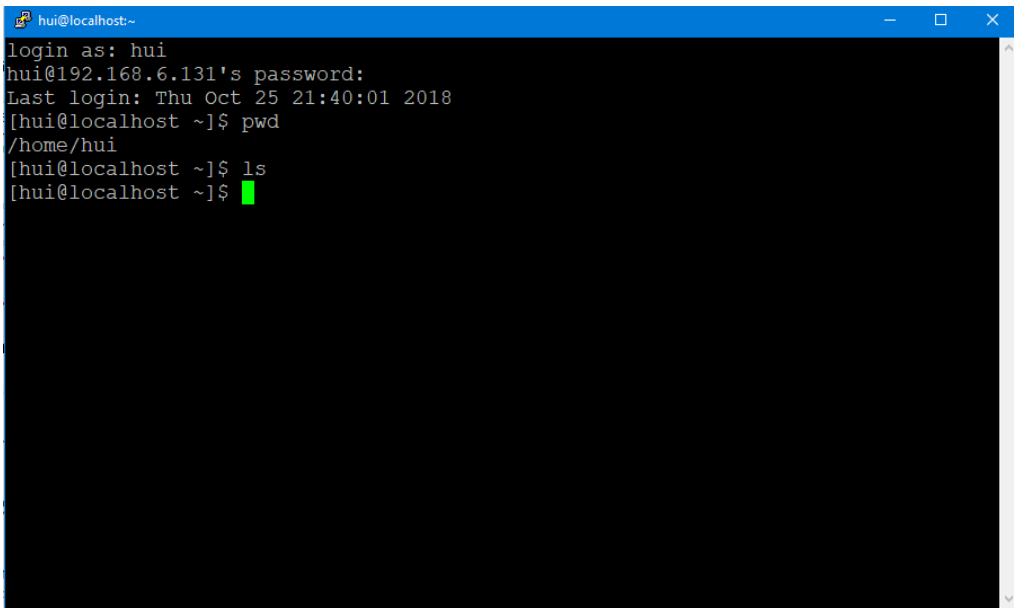


If you forgot to enable it during the installation you may follow below steps.

Remote connect

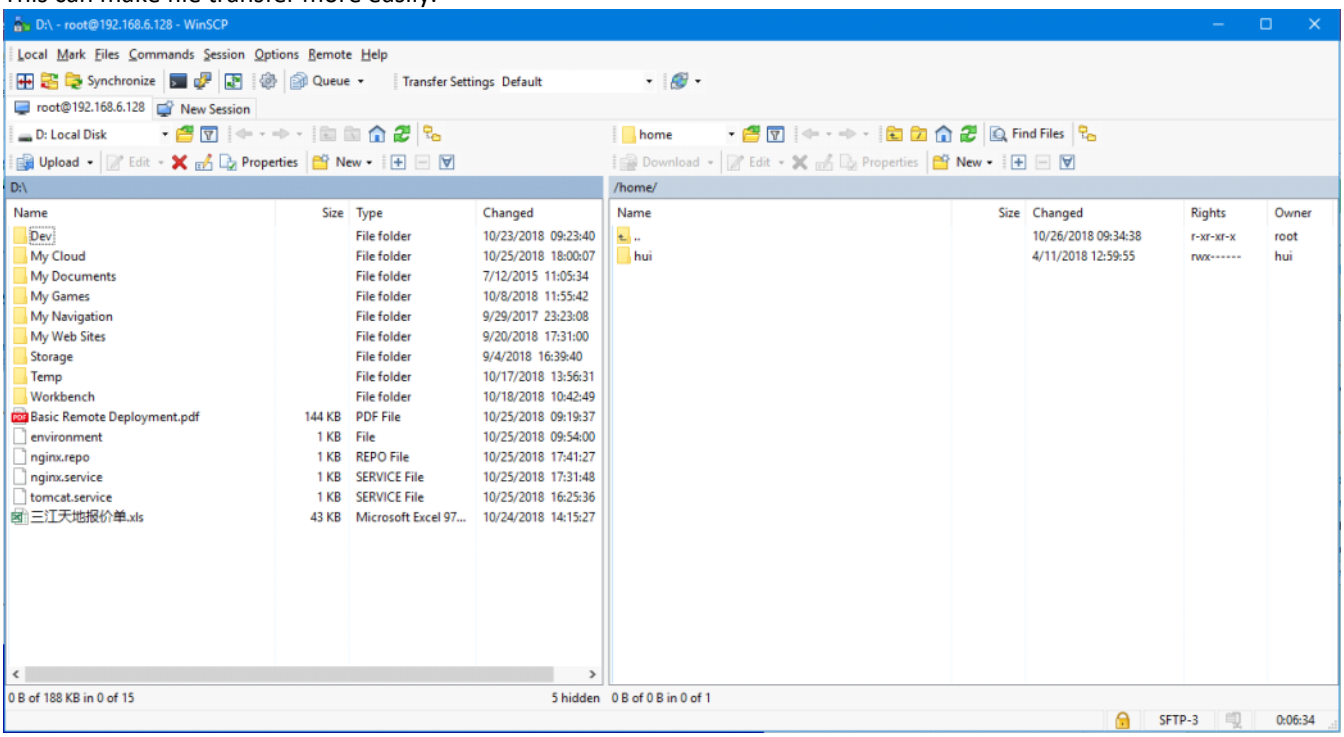
You can connect to the server via Putty which you can get from here.

Recommend to use **root** account to do the configuration



File transfer

After installation the SSH is enabled by default. You can connect to the server via WinSCP which you can get from here. This can make file transfer more easily.

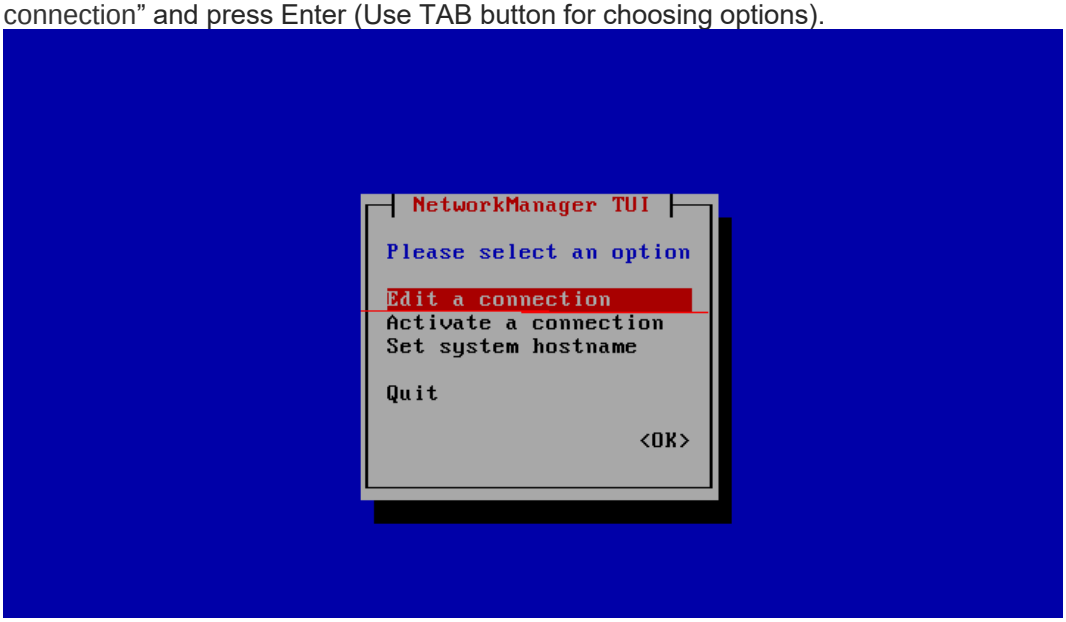


Setup network after minimal installation

First, type “nmcli d” command in your terminal for quick list ethernet card installed on your machine:

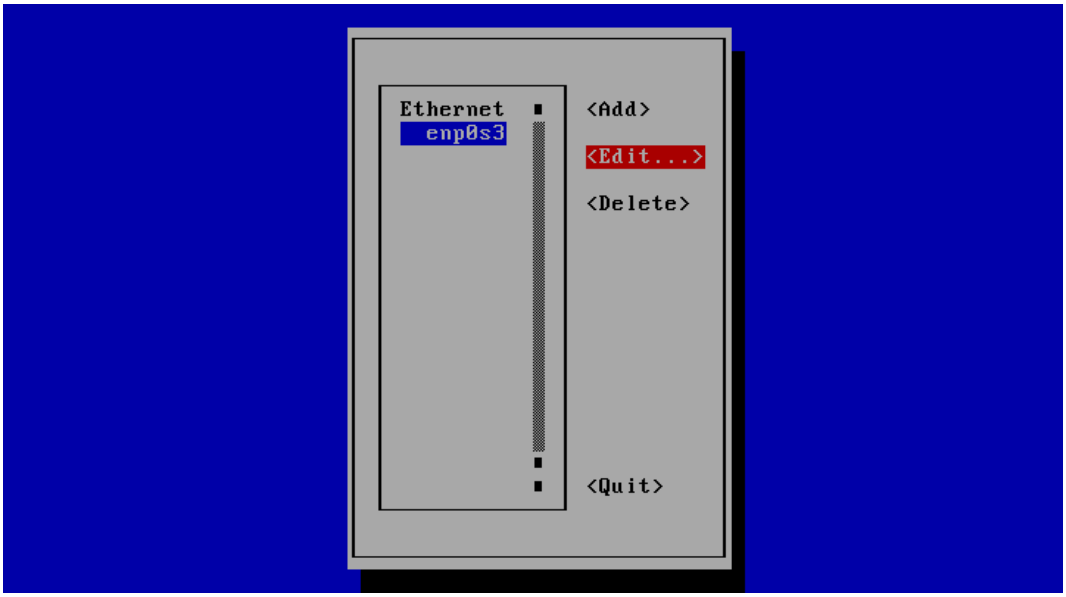
“nmcli d” command output

Type “nmtui” command in your terminal to open Network manager. After opening Network manager chose “Edit connection” and press Enter (Use TAB button for choosing options).



CentOS_7 Network manager screen

Now choose you network interfaces and click “Edit”



Edit your network interfaces

DHCP configuration

Choose “Automatic” in IPv4 CONFIGURATION and check Automatically connect check box and press OK and quit from Network manager.

Set ip adress using DHCP

Reset network services:

```
service network restart
```

Now your server will get IP Address from DHCP .

```
[root@localhost ~]# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
    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
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP
qlen 1000
    link/ether 08:00:27:ed:7c:42 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
       valid_lft 86393sec preferred_lft 86393sec
    inet6 fe80::a00:27ff:feed:7c42/64 scope link
       valid_lft forever preferred_lft forever
[root@localhost ~]# _
```

CentOS 7 check ip address

If you want to set a static IP address see **How to configure static ip address on CentOS 7**.

From <https://lintut.com/how-to-setup-network-after-rhelcentos-7-minimal-installation/>

Configure Network with Static IP Address

The first thing you need to do is to configure Static IP address, Route and DNS to your CentOS Server. We will be using ip command the replacement of ifconfig command. However, ifconfig command is still available for most of the Linux distributions and can be installed from default repository.

```
# yum install net-tools          [Provides ifconfig utility]
```

```
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
 * base: centosmirror.go4hosting.in
 * extras: centosmirror.go4hosting.in
 * updates: centosmirror.go4hosting.in
Resolving Dependencies
--> Running transaction check
---> Package net-tools.x86_64 0:2.0-0.17.20131004git.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================
 Package         Arch         Version                    Repository  Size
================================================================================
Installing:
 net-tools       x86_64       2.0-0.17.20131004git.el7   base       304 k

Transaction Summary
================================================================================
Install  1 Package

Total download size: 304 k
Installed size: 917 k
Is this ok [y/d/N]: _
```


But as I said we will be using ip command to configure static IP address. So, make sure you first check the current IP address.

```
# ip addr show
```

```
[tecmint@tecmint ~]$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
    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
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP
qlen 1000
    link/ether 08:00:27:f5:e6:dc brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global enp0s3
       valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fef5:e6dc/64 scope link
       valid_lft forever preferred_lft forever
[tecmint@tecmint ~]$ _
```


Now open and edit file /etc/sysconfig/network-scripts/ifcfg-enp0s3 using your choice of editor. Here, I'm using Vi editor and make sure you must be root user to make changes…

```
# vi /etc/sysconfig/network-scripts/ifcfg-enp0s3
```

Now we will be editing four fields in the file. Note the below four fields and leave everything else untouched. Also leave double quotes as it is and enter your data in between.

```
IPADDR = "[Enter your static IP here]"
GATEWAY = "[Enter your Default Gateway]"
DNS1 = "[Your Domain Name System 1]"
DNS2 = "[Your Domain Name System 2]"
```

Notice your IP, GATEWAY and DNS will vary, please confirm it with your ISP.
At the same time, modify "BOOTPROTO=none" as "BOOTPROTO=static".
Save and Exit.

After making the changes 'ifcfg-enp0s3', looks something like the image below. Notice your IP, GATEWAY and DNS will vary, please confirm it with your ISP. Save and Exit.

```
TYPE="Ethernet"
BOOTPROTO="none"
DEFROUTE="yes"
IPV4_FAILURE_FATAL="no"
IPV6INIT="yes"
IPV6_AUTOCONF="yes"
IPV6_DEFROUTE="yes"
IPV6_FAILURE_FATAL="no"
NAME="enp0s3"
UUID="2e558921-f3cb-4317-80b3-d44bcba74d49"
DEVICE="enp0s3"
ONBOOT="yes"
IPADDR="192.168.0.15"
PREFIX="24"
GATEWAY="192.168.0.1"
DNS1="202.88.131.90"
DNS2="202.88.131.89"
IPV6_PEERDNS="yes"
IPV6_PEERROUTES="yes"
IPV6_PRIVACY="no"
~
~
~
~
:wq!_
```

Network Details

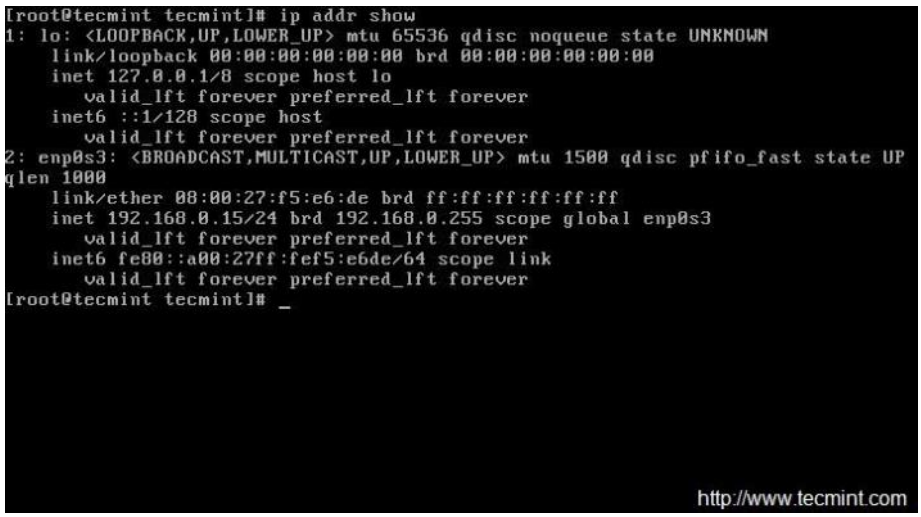
Restart service network and check the IP is correct or not, that was assigned. If everything is ok, Ping to see network status…

```
# service network restart
```

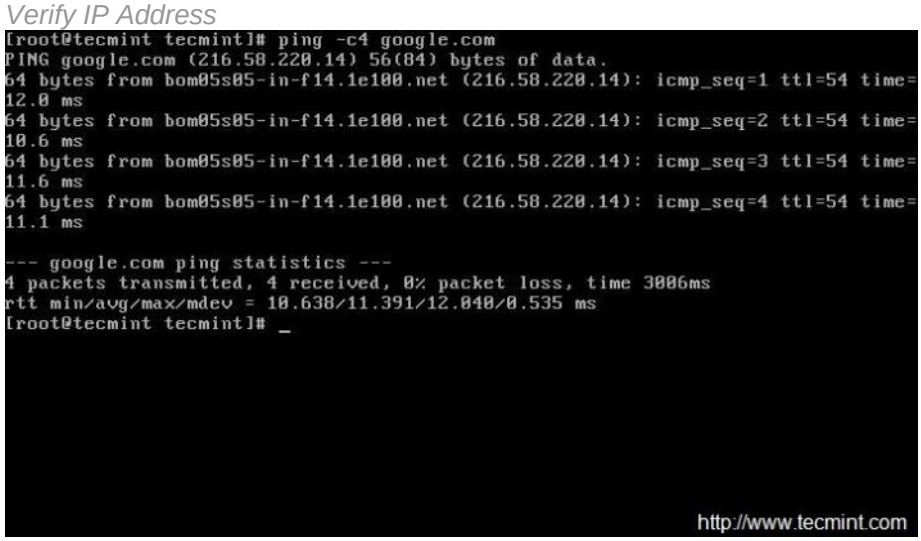
Restart Network Service

After restarting network, make sure to check the IP address and network status…

```
# ip addr show
# ping -c4 google.com
```



Verify IP Address



Set Hostname of Server

The next thing to do is to change the HOSTNAME of the CentOS sever. Check the currently assigned HOSTNAME.

```
# echo $HOSTNAME
```

Check System Hostname

To set new HOSTNAME we need to edit '/etc/hostsname' and replace old hostname with the desired one.

```
# vi /etc/hostname
```

Set System Hostname

After setting hostname, make sure to confirm hostname by logout and login again. After login check new hostname.

```
$ echo $HOSTNAME
```

Confirm New Hostname

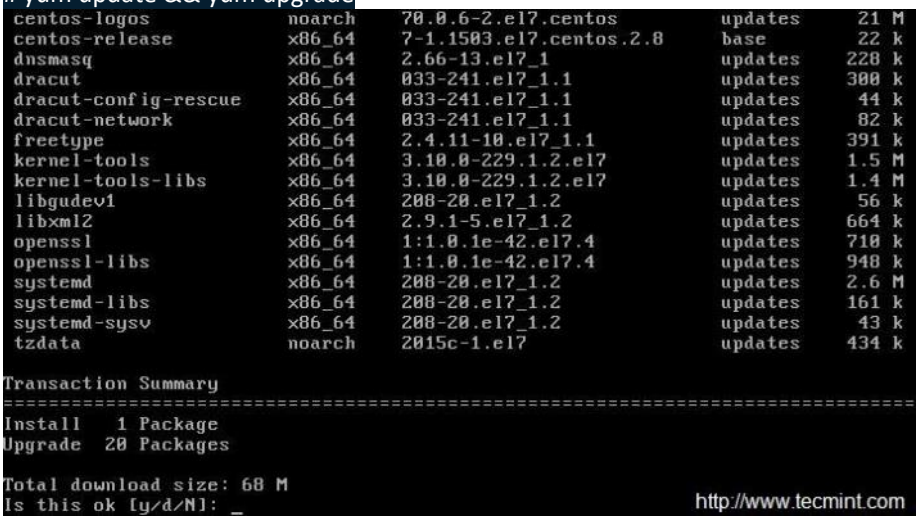
Alternatively you may use command 'hostname' command to view your current hotsname.

```
$ hostname
```

Update or Upgrade CentOS Minimal Install

This will not install any new packages other than updating and installing the latest version of installed packages and security updates. Moreover Update and Upgrade are pretty same except the fact that Upgrade = Update + enable obsoletes processing during updates.

```
# yum update && yum upgrade
```



Update Minimal CentOS Server

Important: You can also run the below command which will not prompt for the packages update and you do not need to type 'y' for accepting the changes.

However it is always a good idea to review the changes which is going to take place on the sever specially in production. Hence using the below command may automate the update and upgrade for you but it is not recommended.

```
# yum -y update && yum -y upgrade
```

Install Command Line Web Browser

In most cases, specially in production environment, we usually install CentOS as command line with no GUI, in this situation we must have a commandline browsing tool to check websites via terminal. For this, we going to install a most famous tool called 'links'.

```
# yum install links
```

Links: Commandline Web Browsing

For usage and examples to browse web sites u links tool, read our article Command Line Web Browsing with Links Tool
This simple use would be: links https://www.bing.com

Install nano (text editor)

```
# yum install nano
```

Install JDK

1. You can download JDK from here.
2. Transfer the tar file to the server via WinSCP.
3. Go to the /opt and create a new directory called java.
4. Extract the tar file to /opt/java by command (Change the path as you need): **tar -xf /home/hui/jdk-8u192-linux-x64.tar.gz**
5. Change the content of the file, /etc/environment.
   ```
   JAVA_HOME="/opt/java/jdk1.8.0_192"
   PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/opt/java/jdk1.8.0_192/bin:/opt/java/jdk1.8.0_192/jre/bin"
   ```
6. Make it effective now
   ```
   source /etc/environment
   java -version
   ```
8. Install with alternatives
   ```
   alternatives --install /usr/bin/java java /opt/java/jdk1.8.0_192/bin/java 2
   alternatives --config java
   ```

Install Apache Tomcat

Tomcat is a servlet container designed by Apache to run Java HTTP web server. Install tomcat as below but it is necessary to point out that you must have installed Java prior of installing tomcat. You can get the latest version from here.

Install Apache Tomcat
Go to the /opt and create a new directory called tomcat. Then extract the tar file here.

```
# /opt/tomcat/tar -xf /home/hui/apache-tomcat-9.0.12.tar.gz
```

Add user for tomcat and set its permission (This is for system service usage).

```
# useradd -M -s /bin/nologin -g tomcat -d /opt/tomcat tomcat (useradd -r tomcat -s /bin/false)
chown -R tomcat:tomcat /opt/tomcat/
```

Add service tomcat and default port (8080) through firewall and reload settings.

```
# firewall-cmd --zone=public --add-port=8080/tcp --permanent
# firewall-cmd --reload
```

Create new file, **/etc/systemd/system/tomcat.service,** with below content. Adjust the value as you need. For example, Xms512M -Xmx1G, /opt/tomcat/apache-tomcat-9.0.12.

```
[Unit]
Description=Apache Tomcat Web Application Container
Wants=network.target
After=network.target

[Service]
Type=forking

Environment=JAVA_HOME=/opt/java/jdk1.8.0_192
Environment=CATALINA_PID=/opt/tomcat/apache-tomcat-9.0.12/temp/tomcat.pid
Environment=CATALINA_HOME=/opt/tomcat/apache-tomcat-9.0.12
Environment='CATALINA_OPTS=-Xms512M -Xmx1G -Djava.net.preferIPv4Stack=true'
Environment='JAVA_OPTS=-Djava.awt.headless=true'

ExecStart=/opt/tomcat/apache-tomcat-9.0.12/bin/startup.sh
ExecStop=/opt/tomcat/apache-tomcat-9.0.12/bin/shutdown.sh
SuccessExitStatus=143

User=tomcat
Group=tomcat
RestartSec=10
Restart=always

[Install]
WantedBy=multi-user.target
```

Start and stop tomcat via service command.

```
# systemctl start tomcat
# systemctl stop tomcat
```

Start and stop tomcat via build-in command.

```
# /opt/tomcat/apache-tomcat-9.0.12/bin/startup.sh
# /opt/tomcat/apache-tomcat-9.0.12/bin/shutdown.sh
```

Enable tomcat service to start at system boot.

```
# systemctl enable tomcat
```

Since we set Restart=always in tomcat.service. Even we manually stop tomcat it will be auto restarted by system. If you want to void this you can try the other option value for 'Restart' or run `systemctl disable tomcat` to disable it.

War file deployment directory.

```
# /opt/tomcat/apache-tomcat-9.0.12/webapps
```

Install Nginx

Nginx is a high performance web server software. It is a much more flexible and lightweight program than Apache HTTP Server.

We can install the latest version of nginx via yum with little extra effort.
Create a new file, **/etc/yum.repos.d/nginx.repo**, with below content.

```
[nginx]
name=nginx repo
baseurl=http://nginx.org/packages/centos/$releasever/$basearch/
gpgcheck=0
enabled=1
```

Install via yum.

```
# yum install nginx
```

Update via yum.

```
# yum update nginx
```

If you cannot access the internet, then you can download the rpm package and transfer it to the host which you plan to install. The hightlighted content is the version you might need to change.
http://nginx.org/packages/centos/7/x86_64/RPMS/nginx-1.14.0-1.el7_4.ngx.x86_64.rpm

Then you just need to install the rpm package and follow the same config steps.

```
# npm install /home/hui/nginx-1.14.0-1.el7_4.ngx.x86_64.rpm
```

To allow web traffic on Nginx, update the system firewall rules to permit inbound packets on HTTP and HTTPS using the commands below.

```
# firewall-cmd --zone=public --permanent --add-service=http
# firewall-cmd --zone=public --permanent --add-service=https
# firewall-cmd --reload
```

Start, stop and reload nginx via service command.

```
# systemctl nginx
# systemctl nginx -s stop
# systemctl nginx -s reload
```

Start, stop and reload tomcat via build-in command.

```
# /usr/sbin/nginx
# /usr/sbin/nginx -s stop
# /usr/sbin/nginx -s reload
```

Enable nginx service to start at system boot.

```
# systemctl enable nginx
```

Nginx config file path.

```
# /etc/nginx/conf.d/default.conf
```

Nginx log file path.

```
# /var/log/nginx/
```

Nginx version.

```
# nginx -v
```

If you are seeing the error in the log file when you are configuring the proxy_pass then use below command.
Error:
connect() to 127.0.0.1:8080 failed (13: Permission denied) while connecting to upstream
Command:

```
# setsebool -P httpd_can_network_connect 1
```