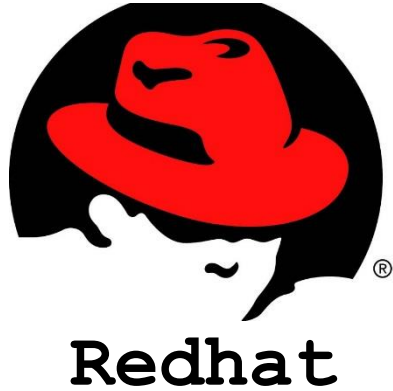


# Welcome to Section 12

## Linux Operating System Management

# Linux Distributions



# Download and Install Linux Server



- Create new VM on Oracle VirtualBox
- Download the Linux CentOS 7
- Install Linux

# Access to Linux System

Each operating system has a different protocol or client that is used to access the system

## Example:

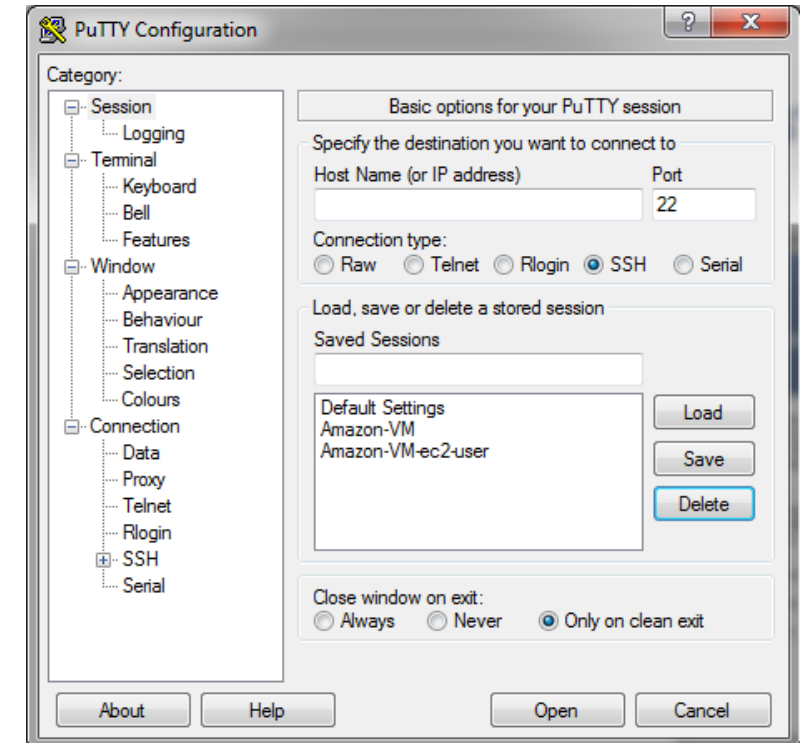
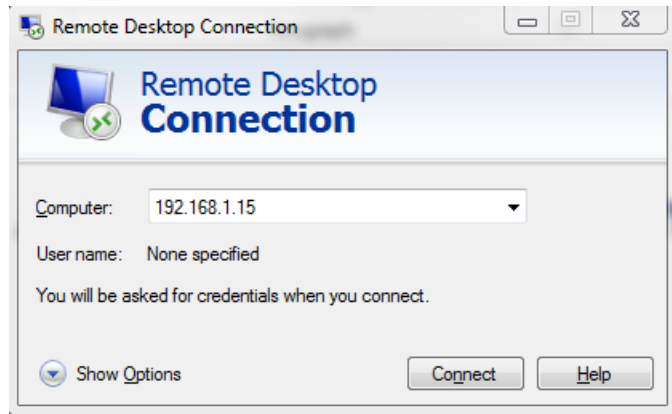
Windows = Remote Desktop (RDP)

VMware ESX = vSphere client

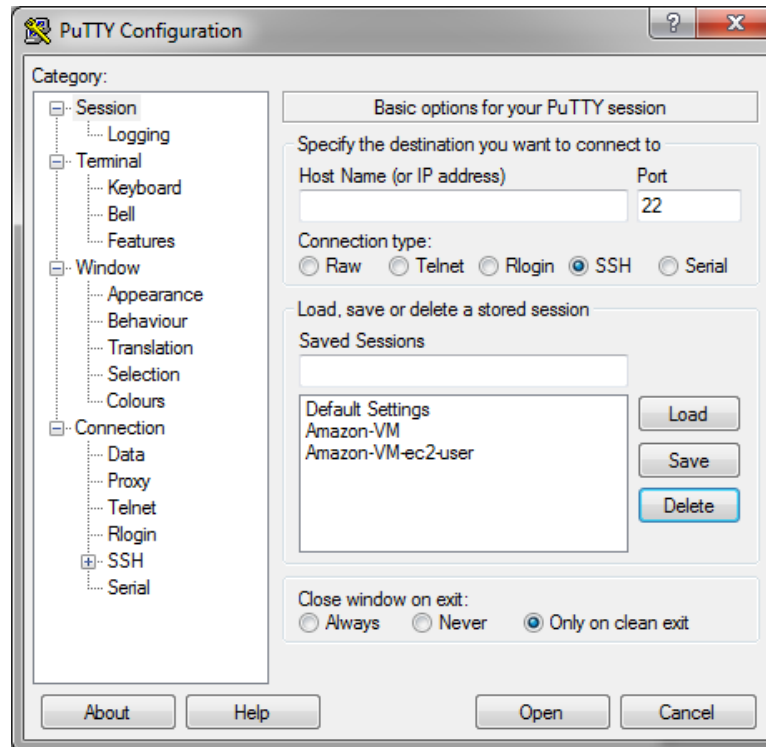
Linux = Putty, SecureCRT

SSH from Linux to Linux

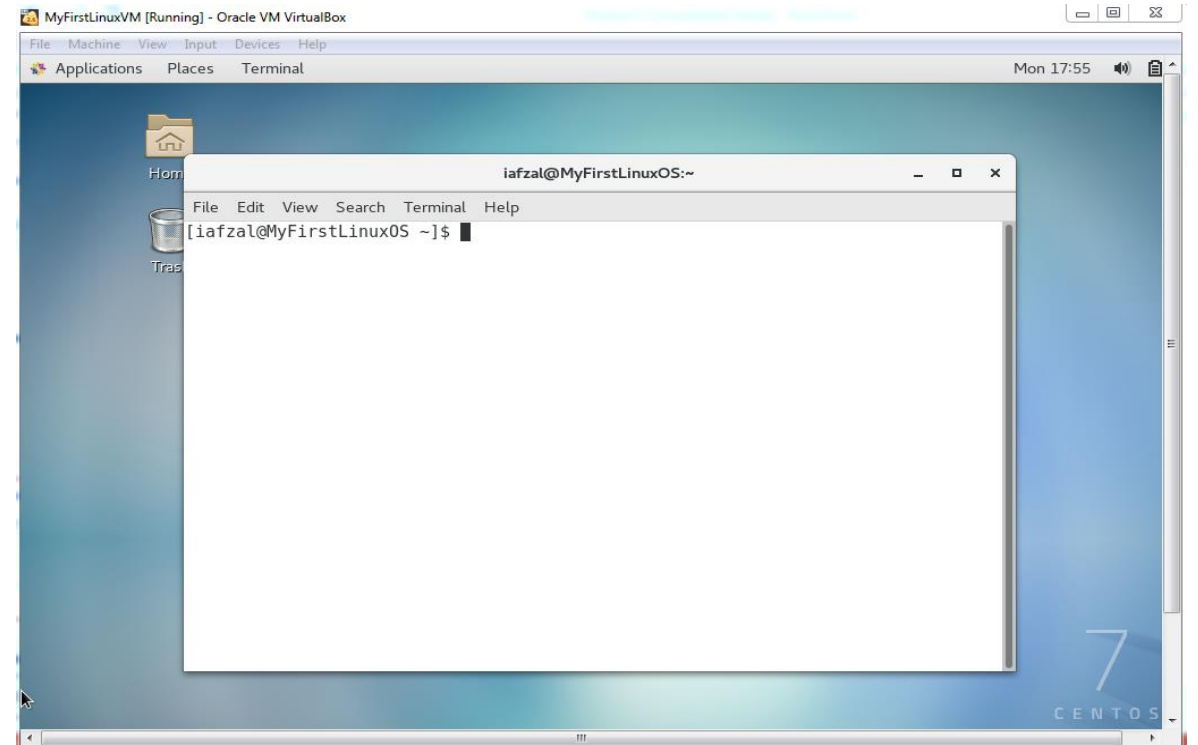
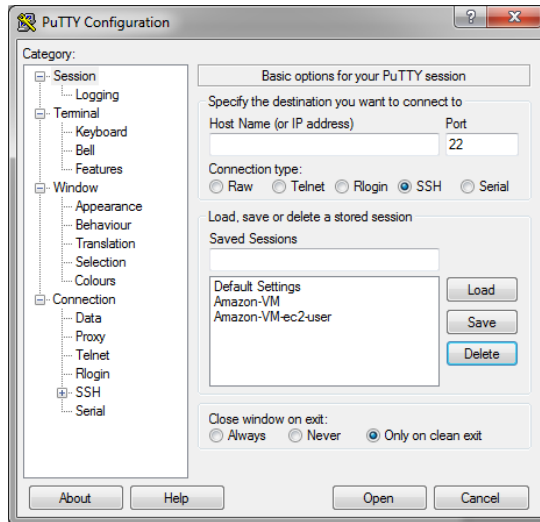
# Access to Linux System



# Download and Install Putty



# Access to Linux VM via Putty

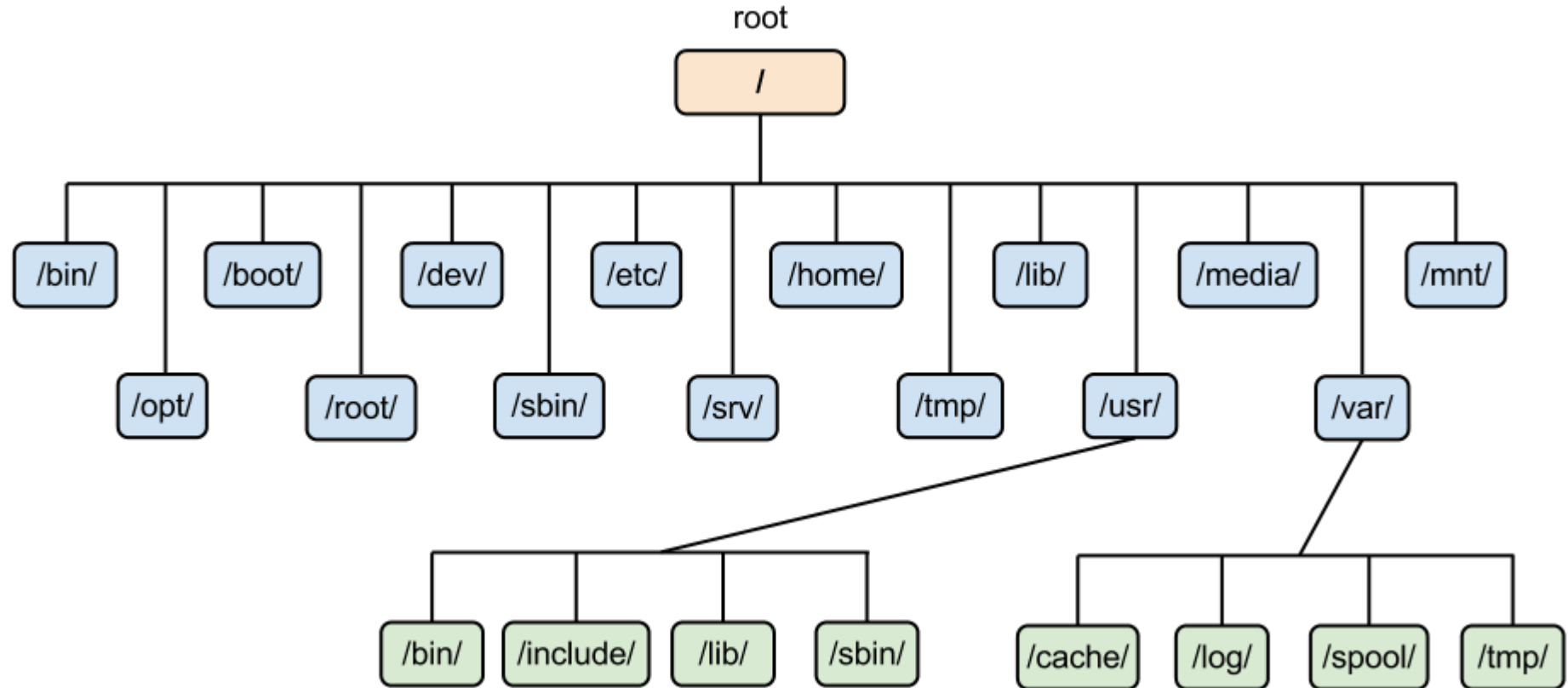


# Access to Linux from MAC

- Openup a terminal on your MAC
- Run the following command
  - **# ssh -l iafzal 192.168.56.101**



# File System Structure



# File System Structure and its Description

/boot	Contains file that is used by the boot loader (grub.cfg)
/root	root user home directory. It is not same as /
/dev	System devices (e.g. disk, cdrom, speakers, flashdrive, keyboard etc.)
/etc	Configuration files
/bin → /usr/bin	Everyday user commands
/sbin → /usr/sbin	System/filesystem commands
/opt	Optional add-on applications (Not part of OS apps)
/proc	Running processes (Only exist in Memory)
/lib → usr/lib	C programming library files needed by commands and apps
	<b>strace -e open pwd</b>
/tmp	Directory for temporary files
/home	Directory for user
/var	System logs
/run	System daemons that start very early (e.g. systemd and udev) to store temporary runtime files like PID files
/mnt	To mount external filesystem. (e.g. NFS)
/media	For cdrom mounts.

# Navigating File System

- When navigating a UNIX filesystem, there are a few important commands:

"cd"

"pwd"

"ls"

- "cd" stands for change directory. It is the primary command for moving you around the filesystem.
- "pwd" stands for print working directory. It tells you where you current location is.
- "ls" stands for list. It lists all the directories/files within a current working directory
- Using of TAB key to auto-complete

# Directory Listing Attributes

Total columns = 9

Type	# of Links	Owner	Group	Size	Month	Day	Time	Name
<code>drwxr-xr-x.</code>	21	root	root	4096	Feb	27	13:33	var
<code>lrwxrwxrwx.</code>	1	root	root	7	Feb	27	13:15	bin
<code>-rw-r-r--</code>	1	root	root	0	Mar	2	11:15	testfile



The second column is the number of hard links to the file. For a directory, the number of hard links is the number of immediate subdirectories it has plus its parent directory and itself

# Creating Files and Directories

- Creating Files
  - ✓ touch
  - ✓ cp
  - ✓ vi
- Creating Directories
  - ✓ mkdir

# System Utility Commands

- `date`
- `uptime`
- `hostname`
- `uname`
- `which`
- `cal`
- `bc`

# System Monitoring

- `top`
- `df`
- `dmesg`
- `iostat 1`
- `netstat`
- `free`
- `cat /proc/cpuinfo`
- `cat /proc/meminfo`

# System Maintenance Commands

- `shutdown`
- `init 0-7`
- `reboot`
- `halt`