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Unix/Linux Date: _____

**Objectives**:

- Installation of software from source files
- Package Management
- Installing Package updates
- Installing software via the package manager.

**Procedures**:

## *Installing software from source*

1. Open a terminal, and at the command prompt, type the command:

   ps aux | grep httpd

What is the output of this command?

occc 15092 0.0 0.0 9040 720 pts/1 S+ 19:39 0:00 grep ==color=auto htppd

2. Issue the command:

   sudo netstat -pan | grep httpd

What is the output of this command?

3. Open your browser and go to the URL:

   http://localhost/

What is the response from your browser?

it refused to connect

4. Use your browser to go to the URL:

   http://www.apache.org

- Click on the "Download" tab on the upper right hand corner of the screen; click on *Distribution*.
- You should be redirected to a page listing the various projects of the Apache foundation.
- Select the "httpd" folder. You will be redirected to the Download page for the apache web server (httpd).

What is the most current version of the httpd listed there?

2.4.57

5. Download the tarred gzip file for the most current version of Apache. This file contains the source code for the Apache webserver. What is the name of the file you downloaded?

httpd-2.4.57.tar.gz

6. We will install the Apache httpd into the /usr/local/ directory. Change to the /usr/local/ directory. What files are directories can be found there?

There is the bin etc lib and more

7. What are the current contents of the /usr/local/bin directory? How did you determine this?

a file named intellij
i changed into bin and did ls

8. Change into the /usr/local/src directory. What does the "src" stand for?

What files are currently found there?

system resource controller
and there were no files in it

9. Copy the source *tarball* for the Apache webserver into the /usr/local/src directory. What command did you use to accomplish this?
i went to the directory that help the file and
i sudo mv (file name ) /etc/local/src

10. Uncompress the *tarball* file into this directory by issuing the command:

sudo tar xzvf *HTTP_TARBALL_FILE*

replacing *HTTP_TARBALL_FILE* with the name of the source file you downloaded from apache.org. Take a directory listing in the /usr/local/src/ directory. What has changed there?
I have a directory called httpd-2.4.57

11. Change into the httpd source directory. What is the absolute path of this directory?

/usr/local/src/httpd2.4.57

12. Apache needs some dependencies to build, particularly the Apache Portable Runtime Libraries. To install the dependencies, issue the following commands in your terminal:

```
sudo apt-get update
sudo apt-get install libapr1-dev
sudo apt-get install libaprutil1-dev
sudo apt-get install lynx
```

13. After the dependencies have been installed, issue the following command in the Apache source directory:

sudo ./configure --help

Examine the output of the command. What is the function of the configure script?

It configures a package to adapt to many kinds of systems

What are some of the options you can configure?

APR hook probes
DTrace probes
feature
modules

14. Configure the Apache source tree by issuing the command:

sudo ./configure --prefix=/usr/local

What does adding the "prefix" option do?
prefix installs architecture-independent files

15. Start the build process for the Apache web server by issuing the command:

sudo make

[Note: this may take a while!]
What does the "make" command do?

it compiles different program pieces and builds a final executable

16. Install your newly built Apache web server by issuing the command:

sudo make install

17. Examine the contents of the /usr/local/bin directory again. What has changed since the last time you listed that directory? List some of the new files found there:

Theres a bunch more files with intellij

18. Check the status of your Apache web server by issuing the command:

sudo /usr/local/bin/apachectl status

What is the output of this command?

to suppress a message about the “server name”

19. Start the Apache web server by issuing the command:
    sudo /usr/local/bin/apachectl start

20. Again issue the command:
    ps aux | grep httpd
What is the output of this command?

```
root     42014  0.0  0.0  6396     3984 ?  Ss   20:10  0:00 /usr/local/bin/httpd
daemon   42015  0.0  0.0  1211380  4528 ?  Sl   20:10  0:00 /usr/local/bin/httpd
daemon   42016  0.0  0.0  1211324  4076 ?  Sl   20:10  0:00 /usr/local/bin/httpd
daemon   42017  0.0  0.0  1211316   4076 ? Sl   20:10  0:00 /usr/local/bin/httpd
occc     42221  0.0  0.0  9040     724 pts S+   20:10  0:00 grep –color=auto httpd
```

21. Issue the command:
    sudo netstat -pan | grep httpd
What is the output of this command?

```
tcp6    0       0 :::80   :::*      LISTEN  42014/httpd
```

What port is the httpd running on?

Port 80

22. In your browser, return to the URL:
    http://localhost
What is now displayed in the browser?

It says “It Works!”

23. Examine the /usr/local/conf directory. What files are found there?

httpd.conf magic mime.types

24. Examine the /usr/local/conf/httpd.conf file. What items can you configure there?

The Server root, what port its listening in on, what modules to load.

25. Using the /usr/local/conf/httpd.conf file, determine what the "DocumentRoot" of your Apache web server is, and give the full path below:

/usr/local/htdocs

26. Change into the "DocumentRoot" directory of your web server. Edit the index.html file found there to display an "Under Construction" message, save the file, and refresh your browser. What message is printed in your browser?

It says “Under Construction”

27. Change to the /usr/local/logs directory. What files are found there?

The error logs, access logs, and the pid.

28. Explain the function of each of the log files, giving a line or two from each file below:

Error logs are self explanatory, the errors.
access logs are to show the requests

## *Installing software via the package manager*

29. At the command prompt, type the command:

man dpkg

What is the function of the dpkg program?

It is used to install, build, remove and manage Debian packages. aka a package manager.

30. Using the man page above, how would we retrieve a list of all the installed packages on our machine? List the command below.

sudo apt list –installed

31. At the command prompt, type the command:

man apt-get

What is the function of the apt-get utility?

To “get” a package to either update or install

32. Change to the /etc/apt directory. What files are found in this directory?

some directories and a file.

33. Examine the sources.list file. What is the function of this file?

it contains repository details

34. Update your package list by running the command:
    sudo apt-get update
What is the output of this command?

it ran 4 lines of code.

35. Determine if you have the ssh package installed on your machine. Use the command to list packages you developed above, and pipe it into a grep expression. What is the command you will use to check?

i did sudo apt list –installed | grep ssh

Is the sshd installed on your machine?
Yes

36. Type the command:
    ps aux | grep sshd
Is the sshd currently running on your machine?

Yes

37. Install the ssh daemon by issuing the command:
    sudo apt-get install ssh

38. Again issue the command:
    ps aux | grep sshd
Is the sshd running now? How can you tell?

Yes it still is

39. Issue the command:
    sudo netstat -pan | grep sshd
What port is the sshd running on?

Port 22

40. Examine the /etc/ssh/sshd_config file. What sort of options can you configure with this file?

This is the SSH system side config you can change connection timeout times checkiphost etc

41. Restart the sshd by issuing the command:
    /etc/init.d/ssh restart
What is the output of this command?

restarting ssh (via systemctl): ssh.service.