Lab #12: System Backup
CSC432: System Information and Security
Franklin Nuth
17 April 2017

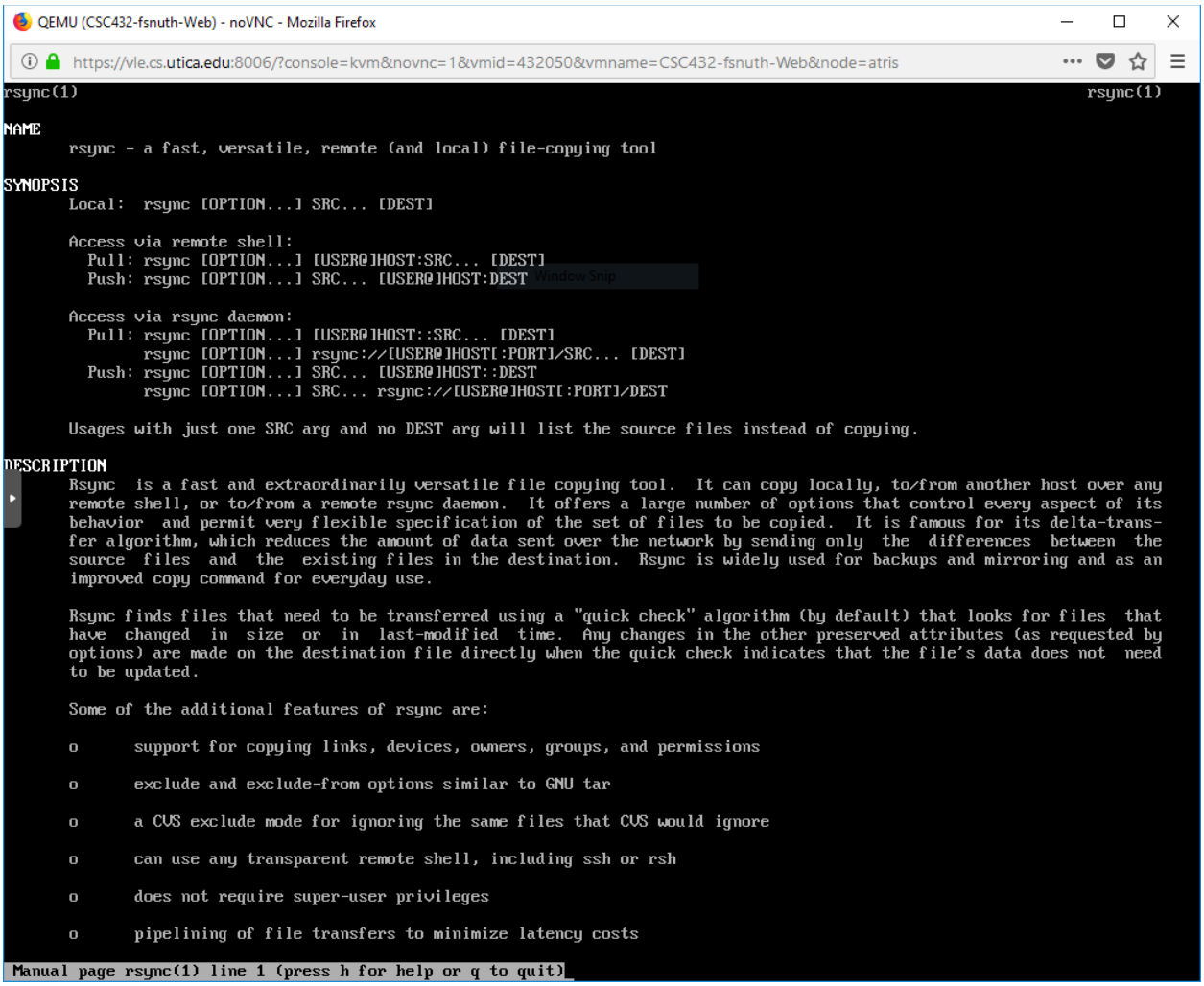
Abstract

The main goal of this lab is to learn how to do a backup on my network. The software that I will be using for that procedure is called Rsync, or Remote Synchronization. Rsync will first be used according to the manual to see how it works, along with a small demonstration with four flags of my choosing. We will also create a script where we will copy a directory from the web server and move it over to my Kali virtual machine. A 'cron' service will also be configured so that my web server will automatically backup certain documents to my Kali every night.

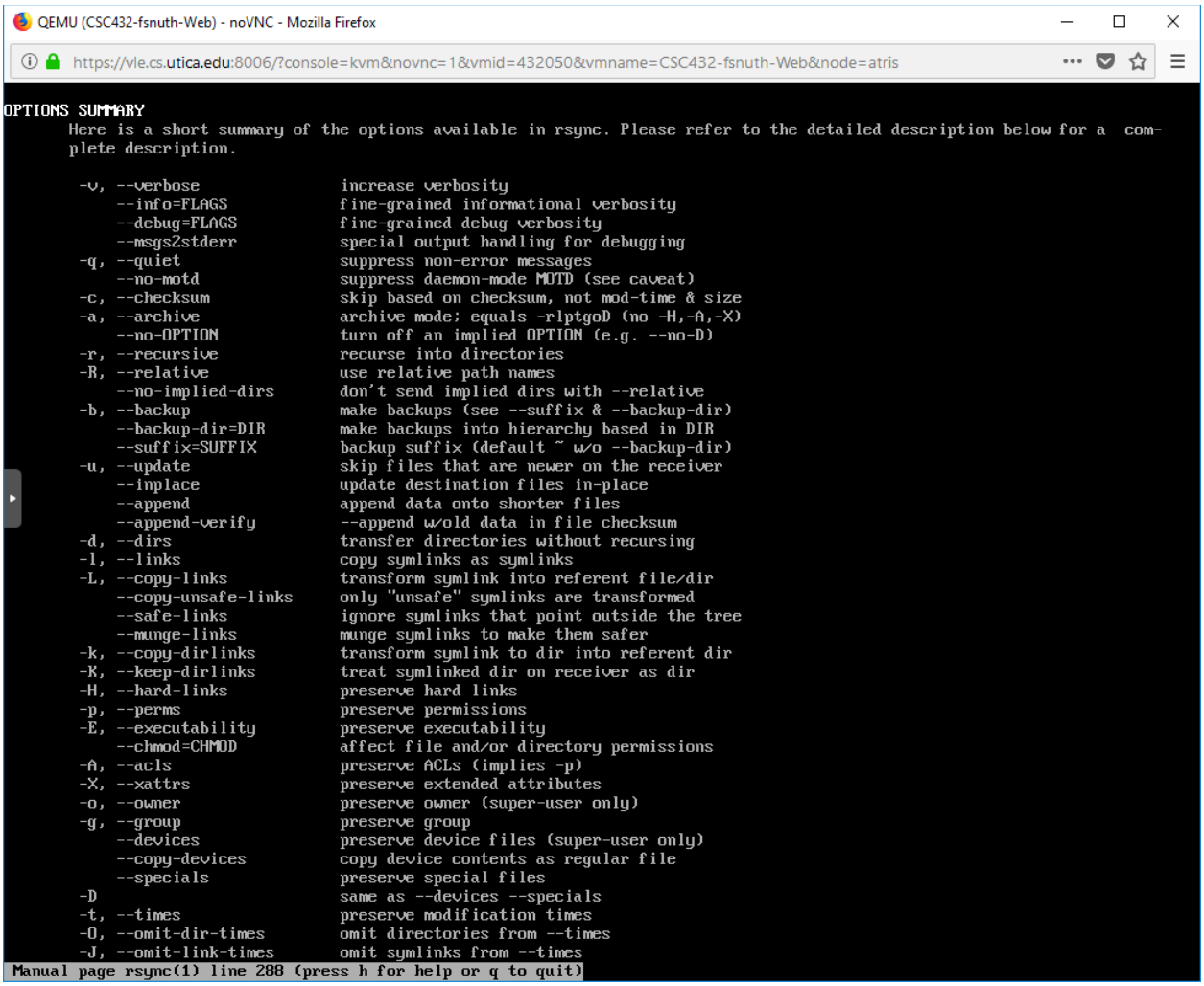
Introduction

At this point, my own network is fully secure with a variety of software monitoring it from various technical aspects. All there left to do now is to have a method for making backups for certain files in my web server. To demonstrate this, I will be backing up files from the web server to my Kali Linux virtual machine through the Rsync service. Rsync, which is short for Remote Synchronization, will be configured to send the files over to my Kali Linux via SSH. Because manual backups is a lot less efficient than automatic backups, I will work on setting that up as well.

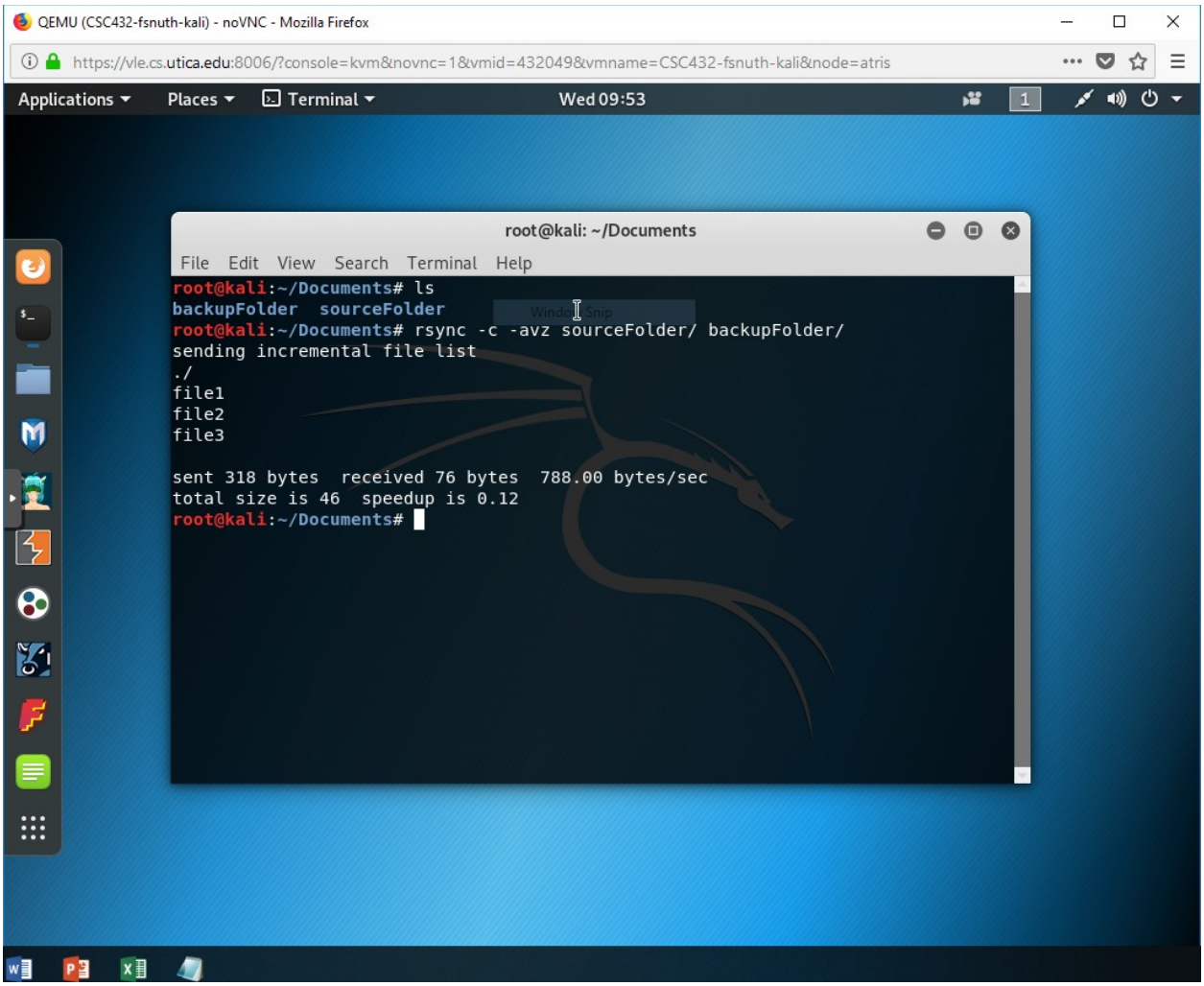
Processes & Screenshots



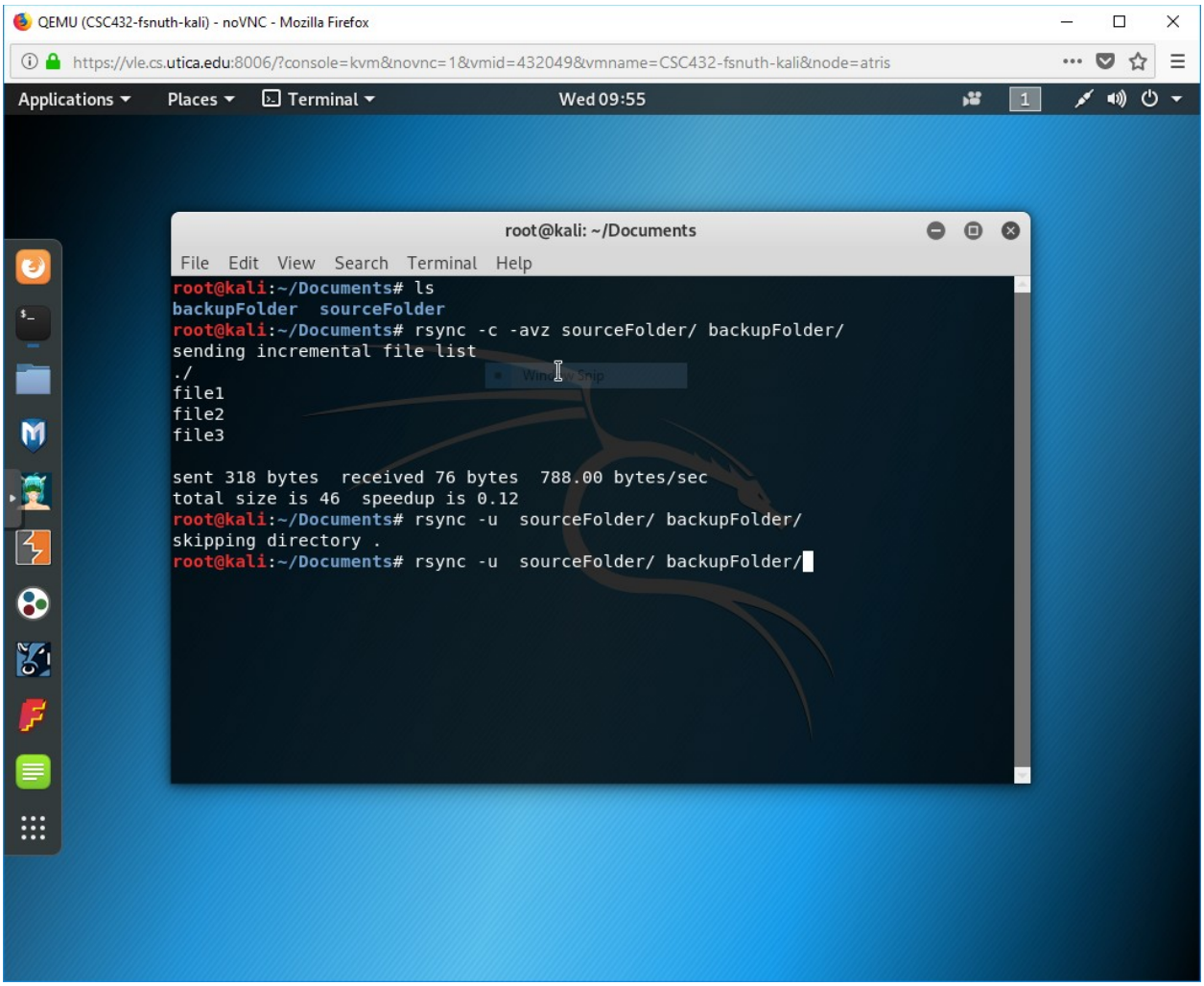
(In order to effectively use the Rsync service, I should read up the documentation on how to use it. Thankfully, Rsync comes with a manual coded into it. I can open up this manual by typing in 'man rsync'. Everything regarding Rsync from background information to syntax is displayed.)



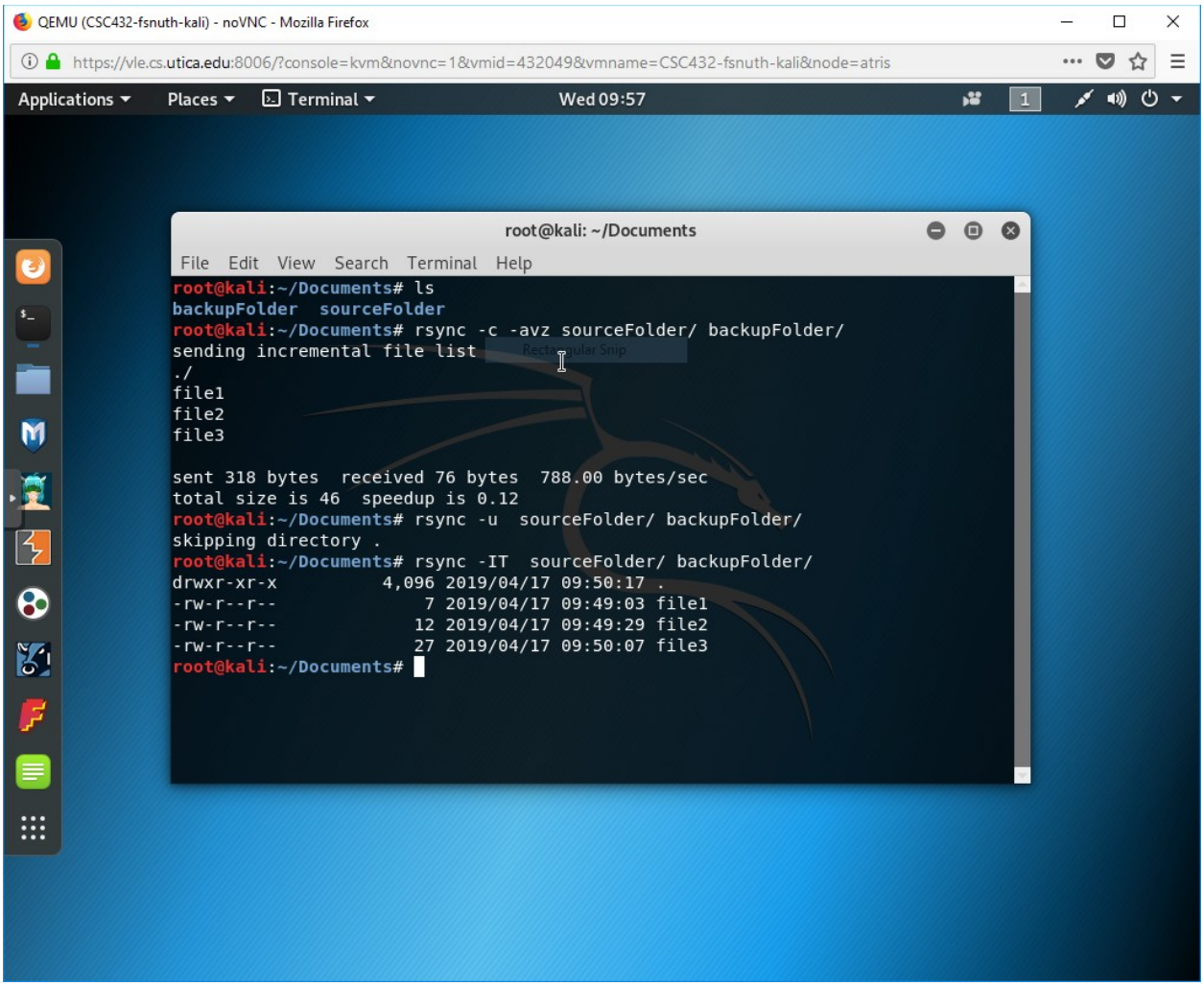
(The flags can be found when scrolling down into the section called 'Options Summary'. A long list of flags that can be used in the syntax for using Rsync. Each flag has their own capabilities, and most of them can be mixed up with each other for various functions.)



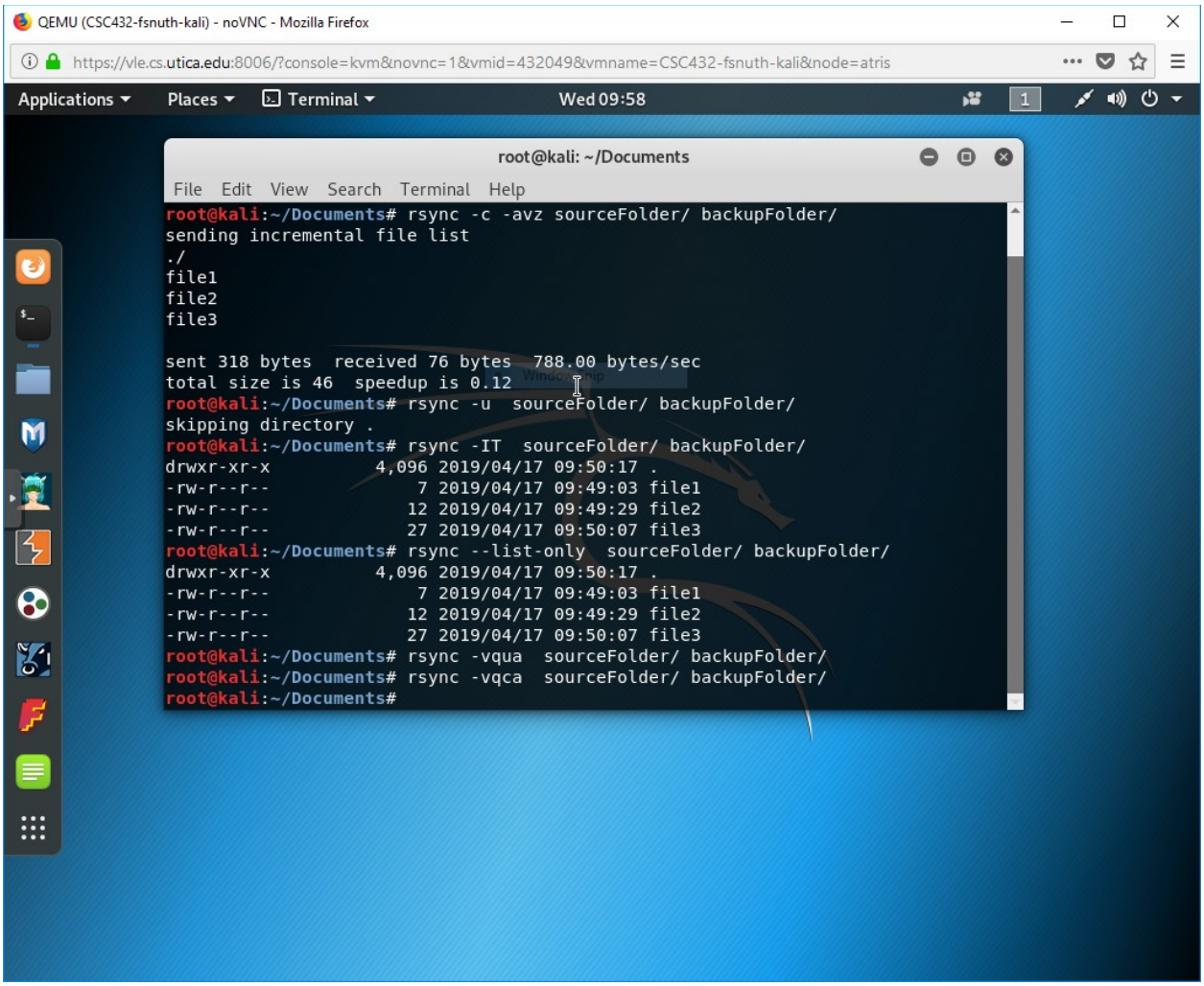
(We then go over to my Kali Linux machine and install the Rsync service with 'sudo apt-get install rsync'. In the Documents folder, we created two directories called 'backupFolder', and 'sourceFolder'. These are the directories that will be used for the backup procedure. This is part one of the four times where I will use different flags in Rsync for different purposes. The flag '-cavz' allows skips based on check-sums, activates archive mode, increase verbosity, and compress the data during transfer.)



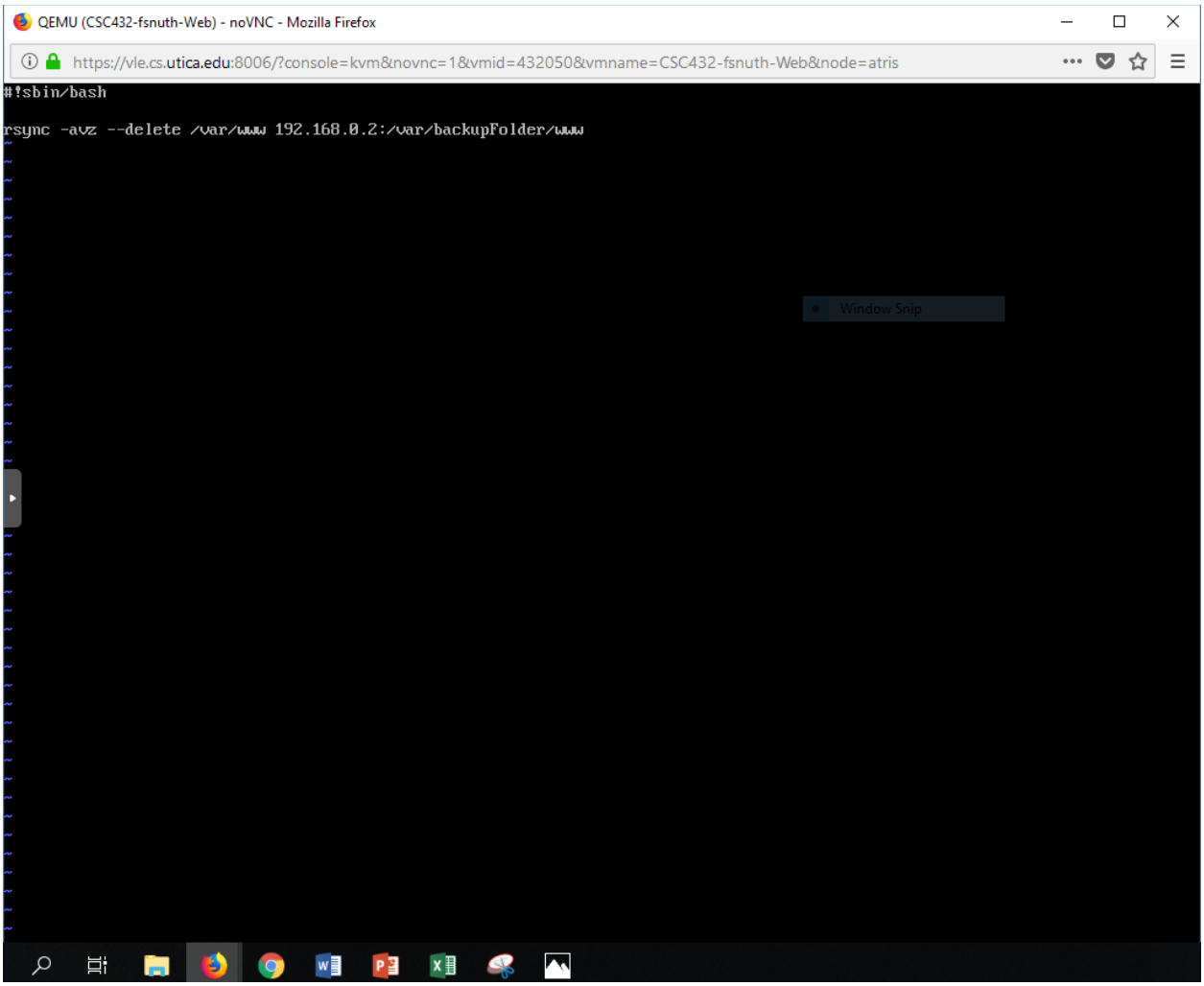
(The flag '-u' allows Rsync to skip over files in the destination folder that already exist.)



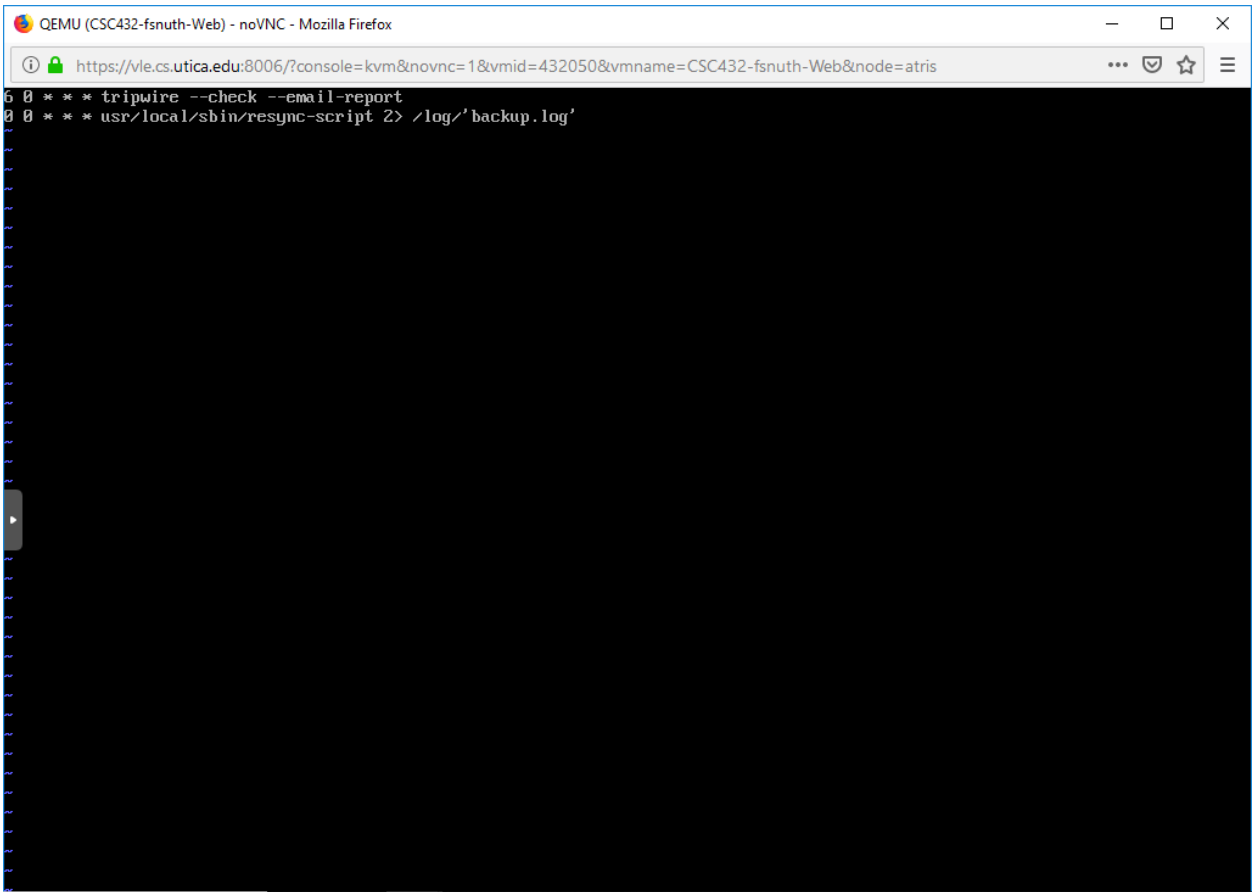
(The flag -'IT' allows files to be overridden regardless of timestamps and create a temporary directory in the destination folder.)



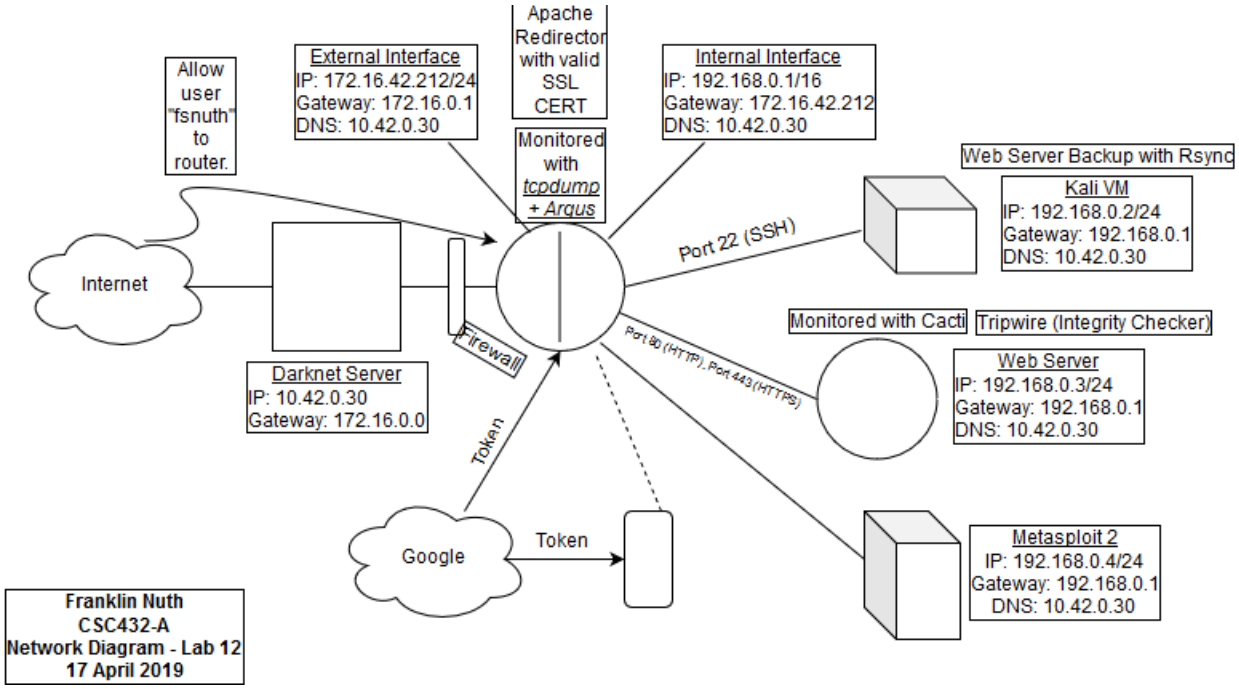
(The flags '-vqca' increases verbosity, does not display any message that indicates success, skip files based on check-sums, and activate archive mode.)



(This image shows the bash script needed to back up the contents in my web server's 'www' directory to the 'www' directory in my Kali Linux. Going through the 'var/www' directory, we go to a directory called 'usr/local/sbin'. We create a file called 'rsync-script' which will be used to backup files from the web server to the Kali. The image above shows the code I used. The flags here will be used to copy everything in the '/var/www' directory to the 'var/backupFolder/www' directory in my Kali Linus (its IP address is 192.168.0.2).)



(Editing the crontab file that we can access with 'crontab -e'. Here we get a message in the 'backup.log' file after every backup file is sent to the Kali machine.)



(The recently upgraded version of my network topology. My Kali and Web Server are now equipped with Rsync. I now have the ability to backup files in case anything goes wrong.)

Issues & Resolutions

The one issues I had upon doing this lab is that I had the wrong syntax for the bash script. The syntax in the bash script was that I had to specify what flags I wanted to use along with the '--delete' flag, type in a directory of my web server, and then type a directory of my Kali machine following the IP address of said machine. I typed in the IP for my web server instead, and went back to correct it as soon as I discovered the issue.

Conclusion

In this lab, I have learned how to perform backups on my network with the Rsync service. I now know how to operate the Rsync service with its flags and syntax for copying files. I have made a bash script in which the web server can upload to my Kali, and set up a crontab for the web server to perform backups automatically. Despite the ever-growing power of the modern

computer, it is not immune to the probability of sudden disasters that pervades many machine today. With knowledge on Rsync and its many functions, I am not worried about the unexpected destroying my files anymore.

References

Bhartiya, Swapnil. 2015, June 24. *How to Backup Files in Linux With Rsync on the Command Line.* Retrieved from: https://www.linux.com/learn/how-backup-files-linux-rsync-command-line

Frankel, Ryan. 2015, October 9. *How to Set Up Command Aliases in Linux/Ubuntu/Debian.* Retrieved from: https://www.hostingadvice.com/how-to/set-command-aliases-linuxubuntudebian/

Peppas, Noti. 2018, November 23. *Install Rsync and Lsync on CentOS, Fedora or Red Hat.* Retrieved from: https://www.liquidweb.com/kb/install-rsync-and-lsync-on-centos-fedora-or-red-hat/

Rascia, Tania. 2018, May 29. *How to Create and Use Bash Scripts.* Retrieved from: https://www.taniarascia.com/how-to-create-and-use-bash-scripts/

Shrivastava, Tarunika. 2013, September 17. *Rsync (Remote Sync): 10 Practical Examples of Rsync Command in Linux.* Retrieved from: https://www.tecmint.com/rsync-local-remote-file-synchronization-commands/

Techandme.com. 2015, May 20. *Rsync Backup Script.* Retrieved from: https://www.techandme.se/rsync-backup-script/