The University of the West Indies, St. Augustine
INFO 2603 Platform Technologies 1
2018/2019 Semester 1
Lab 6 : 31 October - 1 November 2018

Ubuntu: Shared Folders

Learning Objectives
- Create a shared folder on the host machine that is accessible with read and write permissions on a virtual OS.
- Test the sharing of files between the host machine and virtual OS.
- Practice bash commands for diagnosing disk usage, examining running processes and retrieving cpu information.

Resources required
Your host machine should have VirtualBox installed and an Ubuntu virtual machine installed on VirtualBox.

Video link (describes steps below): https://www.youtube.com/watch?v=lI-HwfRZqqs

Activity 1

Create a folder with read/write access permissions on the host machine
‣ Create a folder called **INFO2603** on the Windows Desktop on the host machine.
‣ Right click the **INFO2603** folder and select Properties from the drop down menu
  ‣ Select the Sharing Tab in the Properties window -> Advanced Sharing
    ‣ Click on the Advanced Sharing button. Check the option to "Share this folder"
    ‣ Click on the Permissions button.
      ‣ Remove the Group or Username "Everyone"
      ‣ Add yourself as an allowed user by selecting your user account from the list.
    ‣ Enable Full control, Change and Read permissions. Click Apply, then OK.
‣ Open a command line interface on Windows
  ‣ Type **ipconfig**
  ‣ Write down (copy) the Ethernet adapter IPv4 address for your machine

Activity 2 - Link a shared folder with the folder on Ubuntu

Part 1: Install Ubuntu cif utilities and check the mounted status of folders on Ubuntu
‣ On the Ubuntu VM, open a Terminal window.
  ‣ Type **apt-cache search cifs**. This checks if the appropriate utility is installed.
  ‣ Install the cifs utils if no output is generated by typing **sudo apt-get install cifs-utils**
  ‣ Check the mounted status of the folders on Ubuntu. Type **df -h**

Part 2: Create a folder for mounting the host machine's shared folder.
- Type **`sudo mkdir /media/test.`**
    - This creates a folder called **`test`** in the **`media`** folder.
    - Verify that the folder exists using the File

Part 3: Mount the shared folder on Ubuntu
- The following command will mount the **`test`** folder with the **`INFO2603`** shared folder.

    `sudo mount.cifs-o username= window_username`

    `//window_ip_address/window_share_folder_name /media/test`

    - Replace **`window_username`** with your host machine username
    - Replace **`window_ip_address`** with the Ethernet adapter IPv4 address for your machine
    - Replace **`window_share_folder_name`** with **`INFO2603`**

Part 4: Verify sharing: put a file in the shared folder on the host machine
- Create a simple text file called **`hello.txt`** with a few lines in it and save it in the **`INFO2603`** folder on the host machine
- Verify that the file is shared by opening it on Ubuntu in the **`media`**/test folder.
- Try sharing a file from Ubuntu with the host machine.

Activity 3 - Troubleshooting Shared Folders

Sometimes sharing folders does not always work smoothly. Possible issues that may arise
- Share permissions were not set properly on the host machine.
    - Right click the folder/file on the host machine and verify permissions are correct.
- Folders are unmounted on the Ubuntu VM when the user logs off or reboots
    - Option 1: Repeat the steps in part 3 of Activity 2 every time the user logs after rebooting.
    - Option 2: Enable auto mounting on VirtualBox
        - To have access to the shared folders, users on the guest machine (Ubuntu) need to be a member of the group **`vboxsf`**.
        - Type **`sudo usermod -a -G vboxsf userName`**
            - Replace **`userName`** with your Ubuntu user name
        - You will need to log out and log back in to see your new group added.
- Folders are mounted but you can't see the shared folders or files
    - Add your username to the shared folder group for VirtualBox
        - Install the extension pack for VirtualBox.
        - Restart your virtual machine
        - Install *Guest Additions* in your guest Ubuntu and Reboot.
        - Try to access **`/media/test.`** If you still don't have access, that means you don't belong to the **`vboxsf`** group
            - Type sudo **`adduser your_username vboxsf`**
                Replace **`your_username`** with your Ubuntu username

Activity 4 - Explore Bash Commands for Monitoring System Resources:

Explore the following links and try the commands on your VM:

‣ Get CPU Information on Linux:
  ‣ https://www.tecmint.com/check-linux-cpu-information/

‣ Find Top Running Processes by Highest Memory and CPU Usage:
  ‣ https://www.tecmint.com/find-linux-processes-memory-ram-cpu-usage/

‣ Find Out Top Directories and Files (Disk Space)
  ‣ https://www.tecmint.com/check-linux-disk-usage-of-files-and-directories/

‣ Useful du (Disk Usage) Commands to Find Disk Usage of Files and Directories
  ‣ https://www.tecmint.com/find-top-large-directories-and-files-sizes-in-linux/

END OF LAB