Team members-
Max, David, Joseph, Ryan

Topic: JuiceFS (originally)

Use: 1 windows + 1 linux/ possibly 2 linux devices
30 GB of storage on each

Windows vm credentials:

CENSORED

On Davids MGMT01-

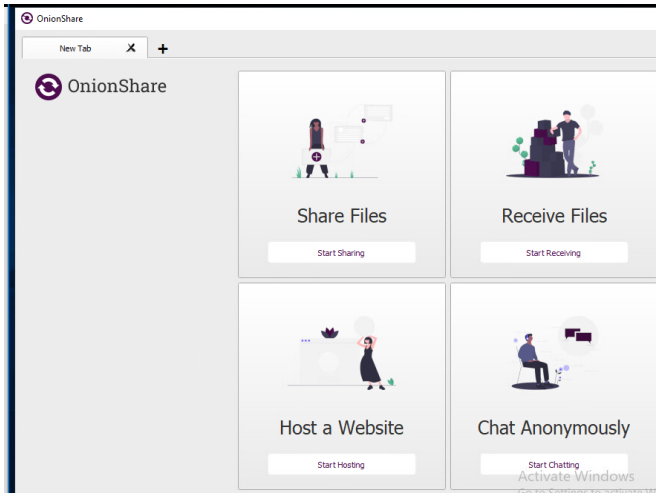
jfs-adm
Sys265!

OnionShare (only thing we got remotely working)

Video Link:
https://drive.google.com/file/d/1HlsQWSP-Y-it2LJyBpy8NJgNQ1ls-4pY/view?usp=sharing

NEED: OnionShare, multiple devices and Tor browser

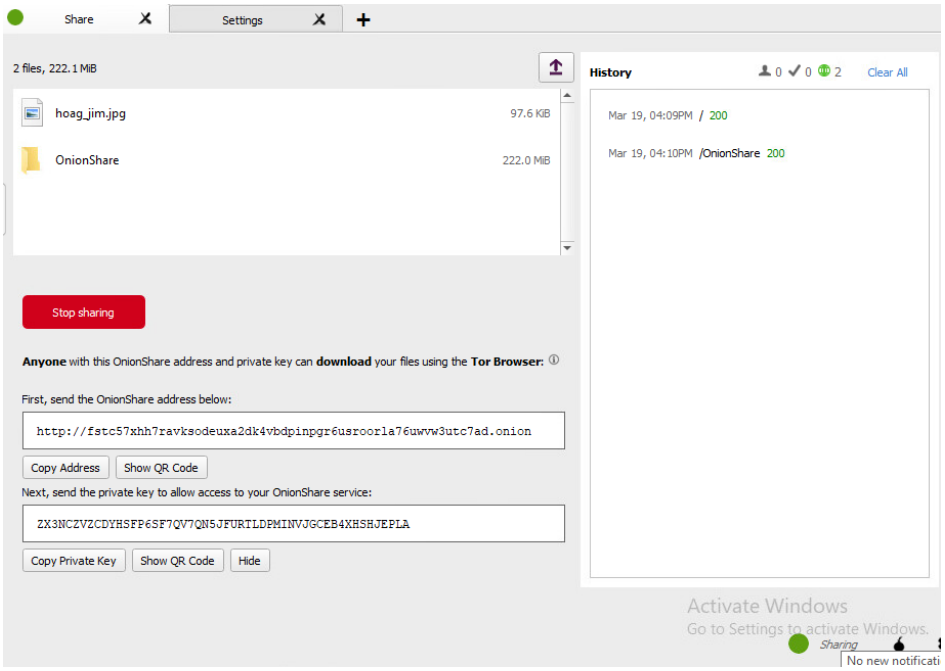
1. **Download Onionshare from: https://onionshare.org/**
   It works on all the main 3 subsets of operating systems.
2. **There are four options once you open up onion share:**



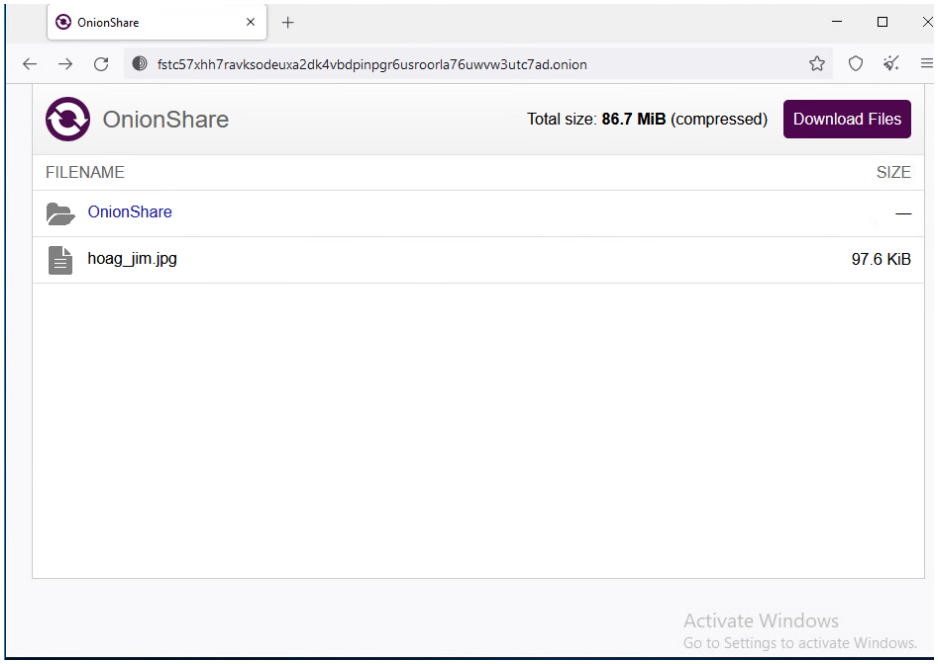
3. **To start we just clicked ‘share files’**

You have to just click and drag whatever you want to share, the files will by default be protected by a private key, but there is an option before you share it to make it a public share so it just removes the key and can be accessed by anyone on Tor.

4. **Once you start sharing the screen below will pop up, the two things to take note of here are the OnionShare address for tor and then also the private key if you made it a private share**



5. **Now let's say you have a coworker that needs these files, they can load up tor browser, enter the address and private key and will have the ability to download the two shared files straight from the browser**



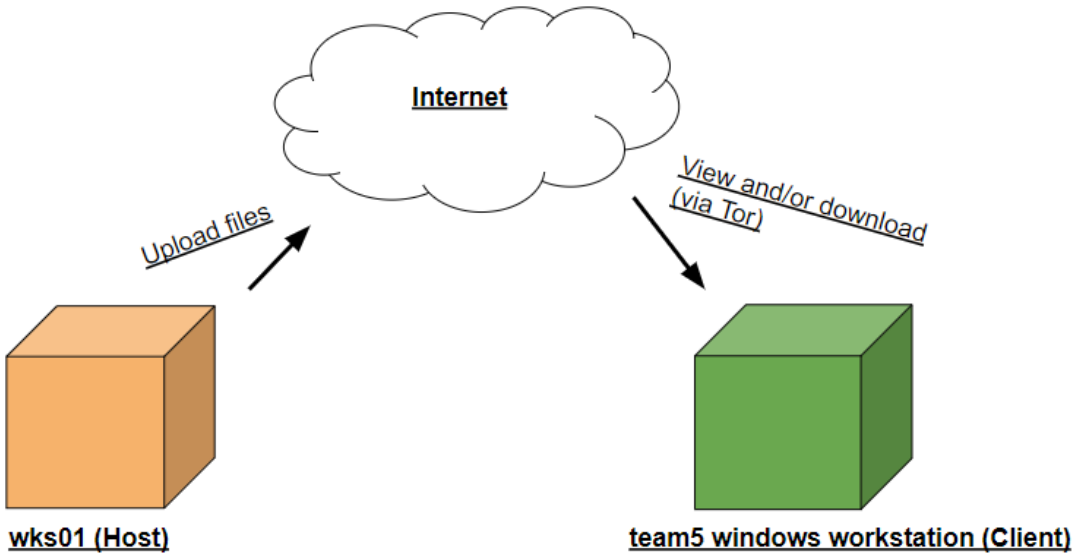
6. For the redundancy part of it, it's kind of like something like Google Drive where you're uploading your files into a cloud type of service. It is depending on only one device where you have one device starting the share and then other devices could access it. I'm sure there's some way where you could have some type of advanced share running with maybe a network location and then start OnionShare but I don't really know how to implement it.

Pros:
Easy to install
Lots of options (not just sharing files, you can host a website)
It's like Google Drive but on tor and password protected, and I don't see any type of limit or price anywhere.

Cons:
You can only start the share from one device so things like redundancy might be a vulnerability.

Uses:
There could be a lot of uses for this. This was definitely the most simple option and the one we got working. I see it being used for secure file sharing, if you have a vpn and a tor browser then you are pretty secure and using those things to actually share your files results in your file sharing being secure as well.

OnionShare High Level Architecture Diagram



JuiceFS Installation Guide (Windows Server 2019)

1. Install winfsp (https://winfsp.dev/rel/) onto the server. winfsp is a software component that allows for the creation of file systems.

2. Install 7zip (https://www.7-zip.org/) onto the server. This will be used to unpack the compressed file that JuiceFS comes packaged in.

3. Download the Windows version of JuiceFS from https://github.com/juicedata/juicefs/releases/tag/v1.0.0-beta2, and locate the *juicefs.exe* file.

4. Create a new folder in the root of the C: drive called *juicefs* (C:\juicefs), and extract *juicefs.exe* into that folder.

5. Navigate to “edit the system and environment variables” in the control panel, and then to the advanced tab within that page. Click on “environment variables” and add *C:\juicefs* as an environment variable on the system.

6. Restart the computer so the settings take effect.

7. Start Juicefs by running *juicefs mount* from PowerShell or Command Prompt. Juicefs can be shut off by typing *juicefs umount* in a PowerShell or Command Prompt.

Juicefs Troubleshooting (Windows Server 2019)

1. Got it up and running on the juicefs box, but was unable to access it on other machines
2. Went to properties and tried to change permissions, however was unable as both the named admin acct and the juice admin acct
3. Seemed to work as cloud storage for the juicefs box, rather than a file share system within the domain.
4. It gave us an error stating that the box was not properly joined to the domain even though it was in the DNS as well as was able to ping the other boxes.

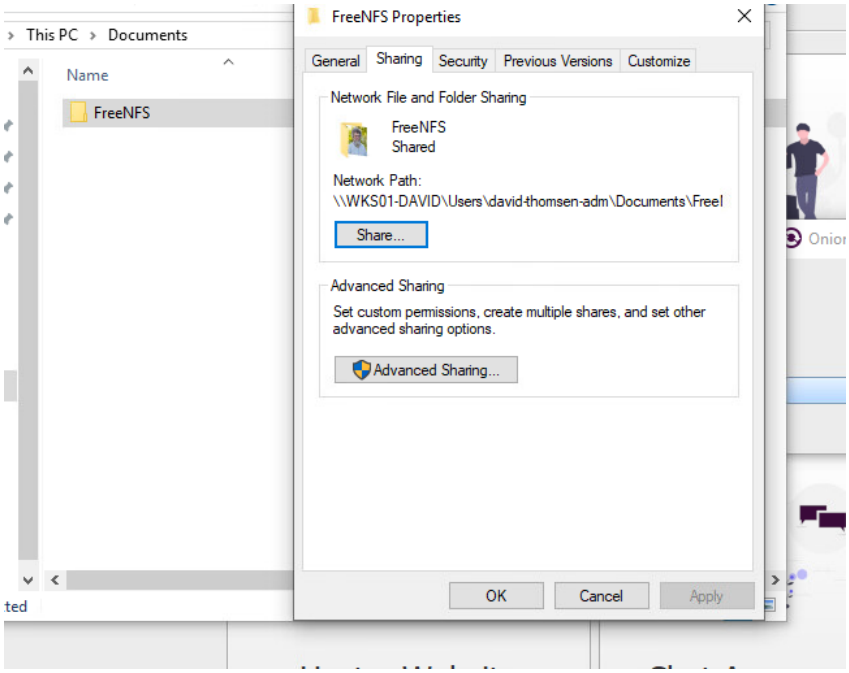
FreeNFS Installation Guide (Windows Server 2019)

1. Installed FreeNfs onto the windows box
2. Added the wks01 as a host to share with

FreeNFS Troubleshooting (Windows Server 2019)

We got FreeNFS working but it basically was too simple and was just a shared folder between two boxes. We added the network location on another computer and you could see the shared data, thats pretty much it.

1. Tried using both hostname and ip
2. Restarted the boxes
3. Uninstalled and reinstalled FreeNFS
4. Checked that the machines were networked properly.



LizardFS Installation Guide (CentOS 7)

1. Run the following command to create a : *curl http://packages.Lizardfs.com/yum/eL7/Lizardfs.repo > /etc/yum.repos.d/Lizardfs.repo*

2. We couldn't progress because we were unable to install the repo. The website redirects to an empty page when opened, so nothing could be downloaded.

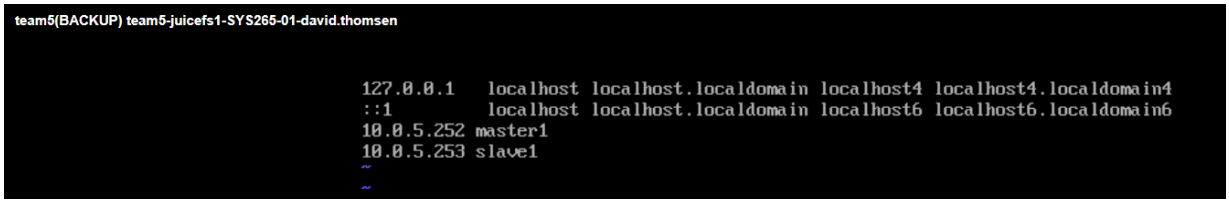
LizardFS Troubleshooting (CentOS 7)

1. Our first solution was to experiment with some of the options for curl, to see if we could force it to run. Initially, we were unaware that the page was blank and there was nothing to install. We tried a few options, none of them worked, and decided to just look at the webpage. We found that the webpage was completely blank.

BeeGFS Installation Guide (CentOS 7)

BeeGFS Documentation

1. Network, and domain join two CentOS hosts. Create admin user.
    a. Hostnames should be master1 and slave1
2. On master1, edit the hosts file. Add entries for IP of master1 and slave1



3. Disable firewalld
    a. **systemctl disable firewalld**
    b. **systemctl stop firewalld**
4. Run yum updates
    a. **sudo yum -y update**
    b. **sudo yum -u install wget mlocate git**
    c. **sudo sed -i 's/SELINUX=enforcing/SELINUX=disabled/g' /etc/sysconfig/selinux**
    d. **reboot**
5. Install ntp
    a. **sudo yum -y install ntp**
    b. For timezone:
    sudo timedatectl set-timezone America/New_York
    c. **systemctl enable ntp**
    d. **systemctl start ntp**
6. Install kernel header and devel

```
[administrator@master1 ~]$ sudo yum -y install kernel-devel kernel-headers
```

7. Create main config directory
    a. **mkdir /mnt/beegfs.conf.d**
8. Create directory for management service
    a. **mkdir /mnt/beegfs.conf.d/mgmtd**
9. Create disk and directory for meta service
    a. fdisk /dev/**vdb** (we do not have vdb, so I use sdb)
10. Create disk and directory for storage service
    a. fdisk /dev/sdc (we do not have sdc, need another disk from professor)
11. Stuck -_-

BeeGFS Troubleshooting (CentOS 7)

1. **The major problem I ran into was the discrepancy between the documentation using disks labeled vdb, while our disks are named as sdb. I believe that the setup would still work without disks labeled vd*x*. (Although I am not exactly sure what the difference is between vd*x* and sd*x* disks. I think it has something to do with virtual disks and physical disks [as recognized by the OS]).**
2. **We did not have the proper amount of drives to configure BeeGFS.**

Sources:

JUICEFS

- https://github.com/juicedata/juicefs/blob/main/docs/en/windows.md
  - This is the guide we used for the setup of juicefs on the windows machine.
- https://github.com/juicedata/juicefs-quickstart
  - This is the same guide but for linux
- https://juicefs.com/docs/community/installation/#pre-compiled-windows-client
  - Another windows guide after we had ran into difficulties, focuses on installation and updates
- https://winfsp.dev/rel/
  - Winfsp download
- https://github.com/juicedata/juicefs/releases/tag/v1.0.0-beta2
  - Juicefs install (windows-amd file)
- https://github.com/tporadowski/redis/releases
  - Redis download (windows)
- https://juicefs.com/docs/cloud/commands_reference/
  - Juicefs command documentation

FreeNFS

- http://freenfs.sourceforge.net/

LizardFS

- https://lizardfs-docs.readthedocs.io/en/latest/adminguide/installation.html
- https://jamesnbr.wordpress.com/2015/12/06/lizardfs-in-centos-7/
  - Install guide for Centos

BeeGFS

- https://youtu.be/ErZ_Jxf4Xys
  - Video for BeeGFS installation on Centos

OnionShare

- https://onionshare.org/
- https://www.torproject.org/download/