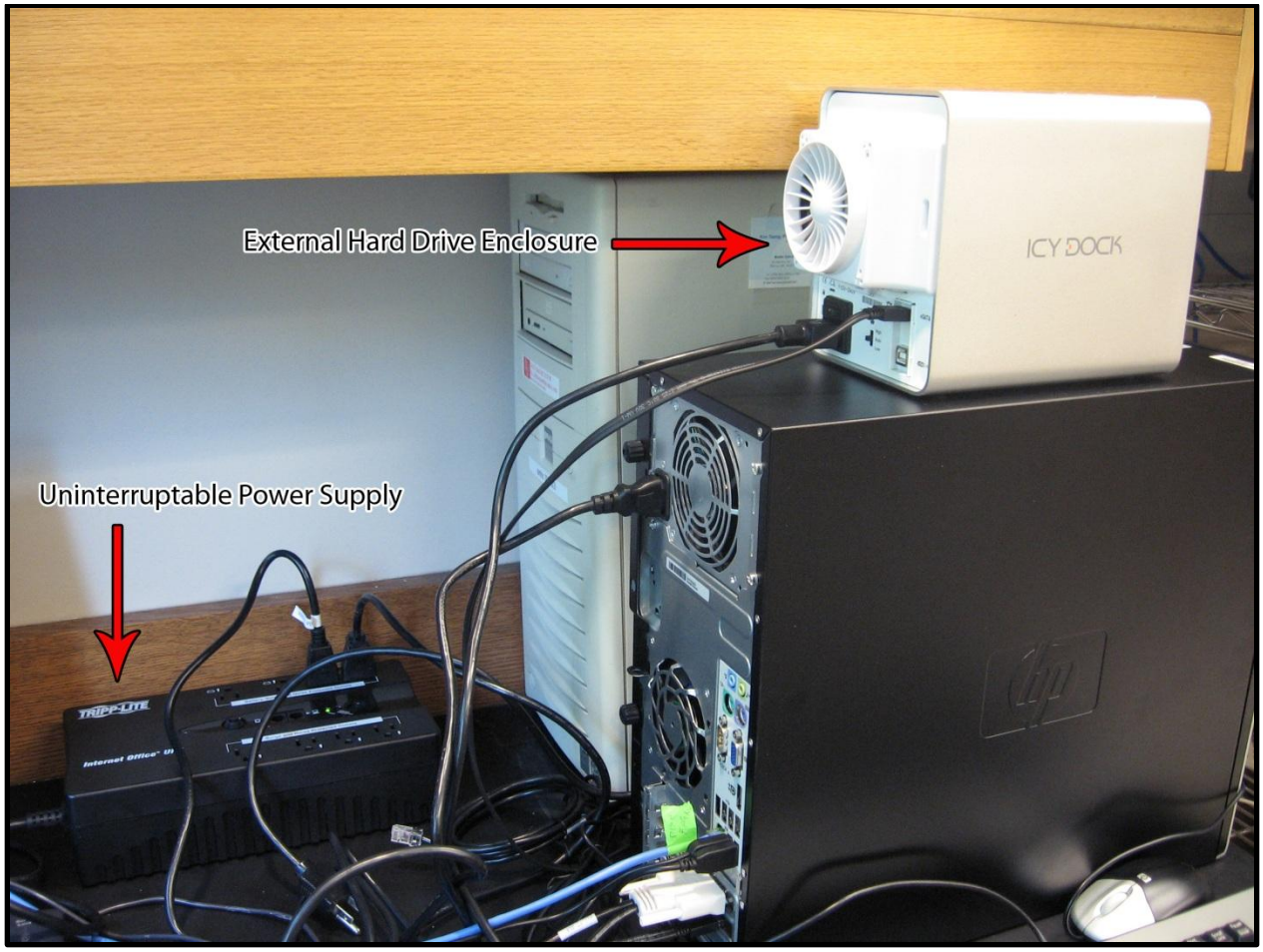

Figure 1: Current Backup Configuration.

Recently, a new disk farm as shown in **Figure 1** has been constructed and installed in the lab. The important parts are highlighted for illustrative purposes. The purpose of this document is to illustrate the methods that may be used to connect to the drive for data back-up and storage purposes. This drive is also connected to the IU MDSS[1] facility, allowing for simple and automatic data archiving. To save space on the tape drives at the facility, the backup procedures are performed on the **4th** and **18th** of every month with logs of all of the included files kept on drive.

Part I: Connecting to the Disk Farm from a Wired Campus Connection

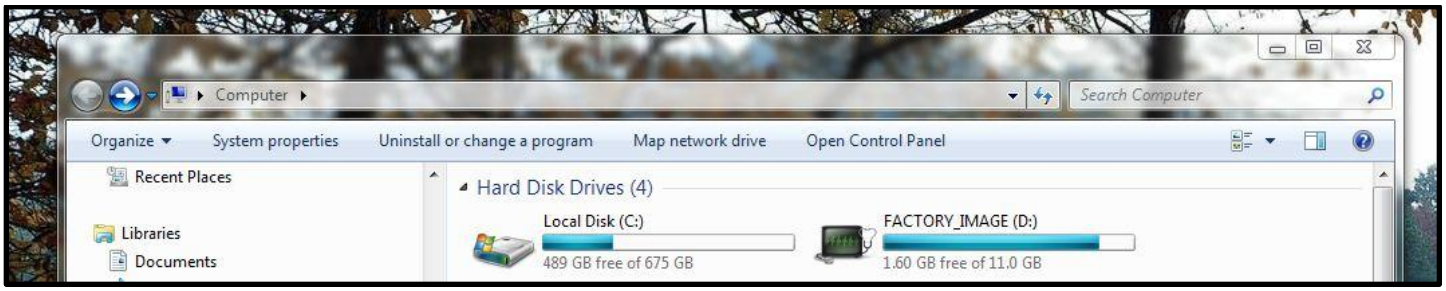

Figure 2: Computer/My Computer.

[1] The Massive Data Storage System (MDSS) Service is a distributed storage service offered by Indiana University to faculty, staff, and graduate students who need large scale archival or near-line data storage, arranged in large files, for their research projects. The MDSS at IU is delivered using a consortium developed product called the High Performance Storage System (HPSS). The words MDSS and HPSS are often used interchangeably to describe the same service. [For more information: http://storage.iu.edu/mdss.html]

1. From Computer/My Computer as shown in **Figure 2**, type the following text in the Address Bar exactly as it appears:

\\bl-chem-decmdss.chem.indiana.edu

This is slightly different than the rest of the shared drives and folders that already exist on the network due to the fact that the computer hosting the shared drive is running openSUSE instead of Windows.

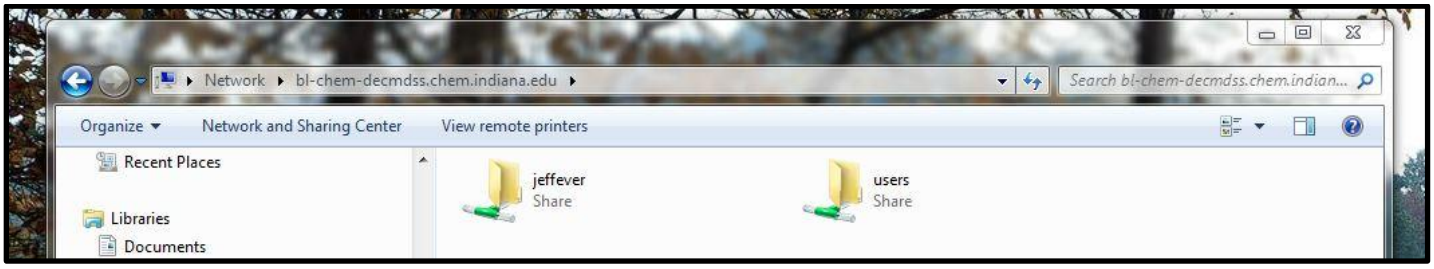

Figure 3: Shared Folders.

2. If everything is working correctly, a pair of folders should be visible as seen in **Figure 3**. However, the specific folder for **jeffever** will be replaced with that of the account accessing the network. The general **users** folder contains links to each individual folder, which may only be accessed by the specific owner and the system Administrators.
    a. To map the drive, right-click on the personal folder and then selecting **Map Network Drive…** as shown in **Figure 4**.

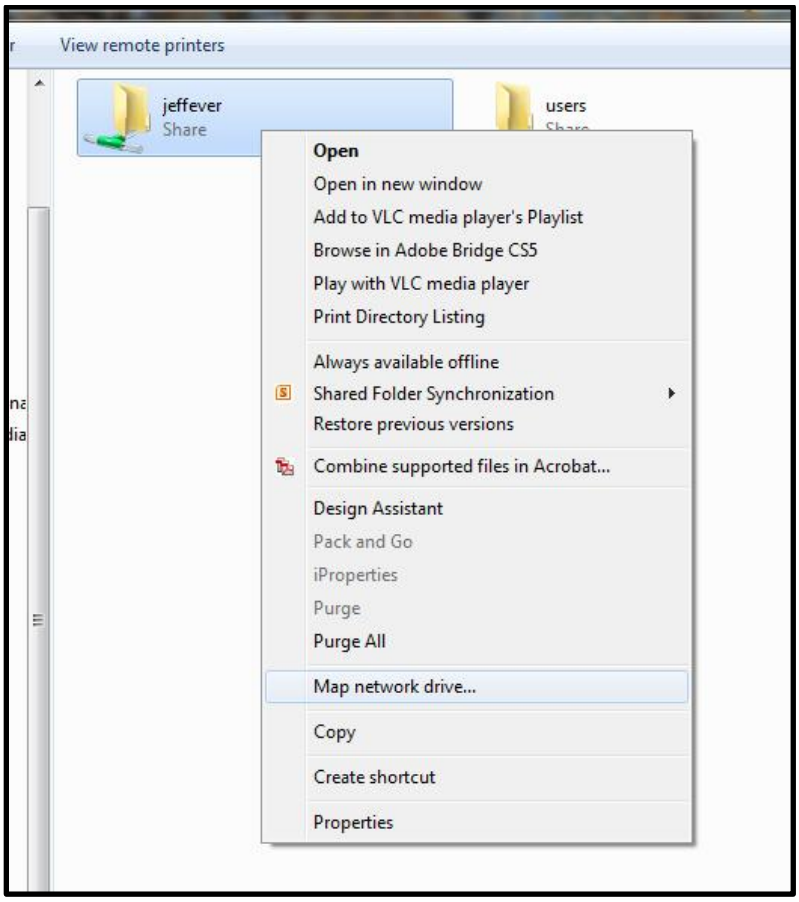

Figure 4: Map Network Drive...

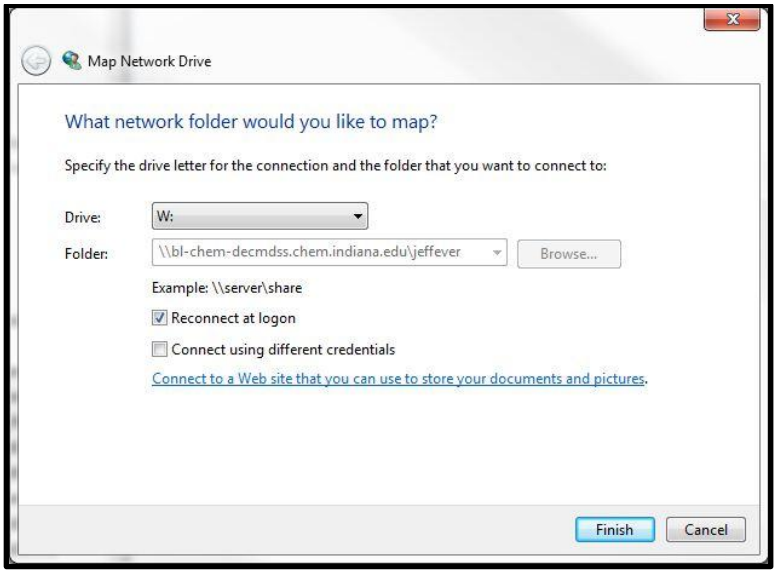

Figure 5: Select Drive Letter.

3. The drive may be mapped to any available drive letter in Windows as shown in **Figure 5**. If the computer is not connected to the ADS domain, check the box for **Connect using different credentials**. This will bring up a dialog box asking for a username and password as shown in **Figure 6**. Preface the username with **ADS** as shown below.

Figure 6: Log-in with Credentials.

Successful completion of the connection should result in something similar to that shown in **Figure 7** below.

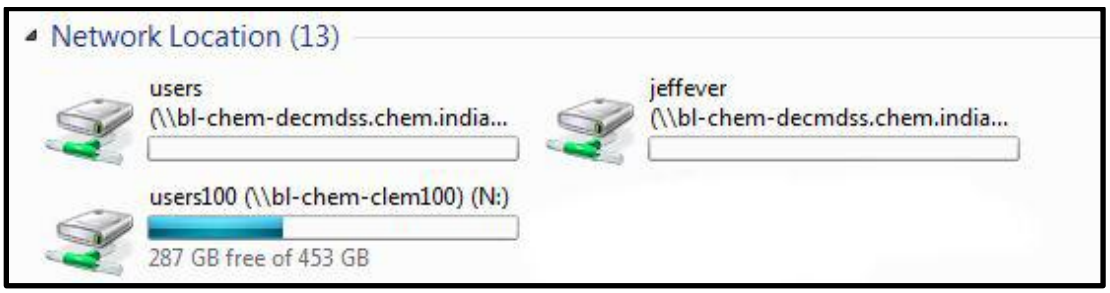

Figure 7: Final Product.

Part II: Connecting to the Disk Farm from a Wireless Campus Connection or Off-Campus Location

1. Download the **Windows VPN Installer for IUB** from IUware Online as shown in **Figure 8**. Log in with University credentials as necessary.

http://iuware.iu.edu/title.aspx?id=510

Figure 8: Download VPN Installer from IUware Online.

2. After successfully installing the VPN, a new internet connection should be available as shown in both **Figures 9** and **10**. Clicking either of them will bring up a log in window as shown in **Figure 11**. Type in a University username and associated password and click **Connect**. If the domain field is blank, type in **ADS**.

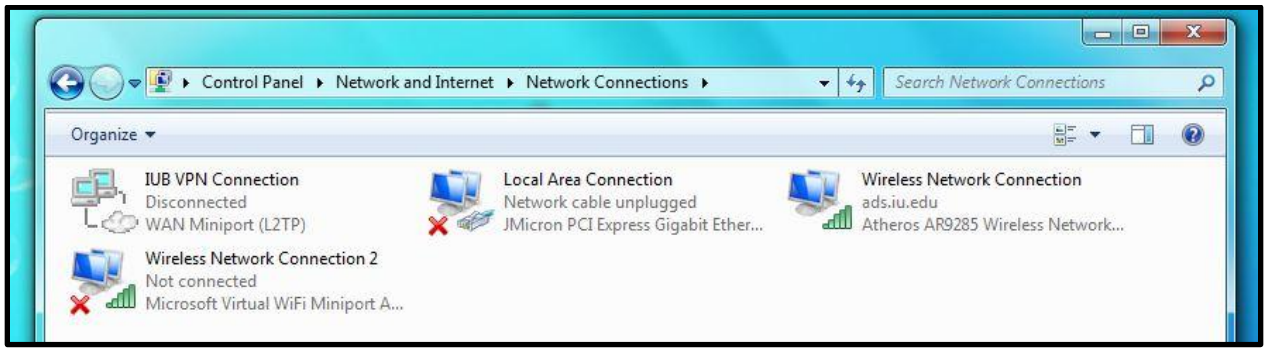

Figure 9: Internet Connections (1)

Figure 10: Internet Connections (2)

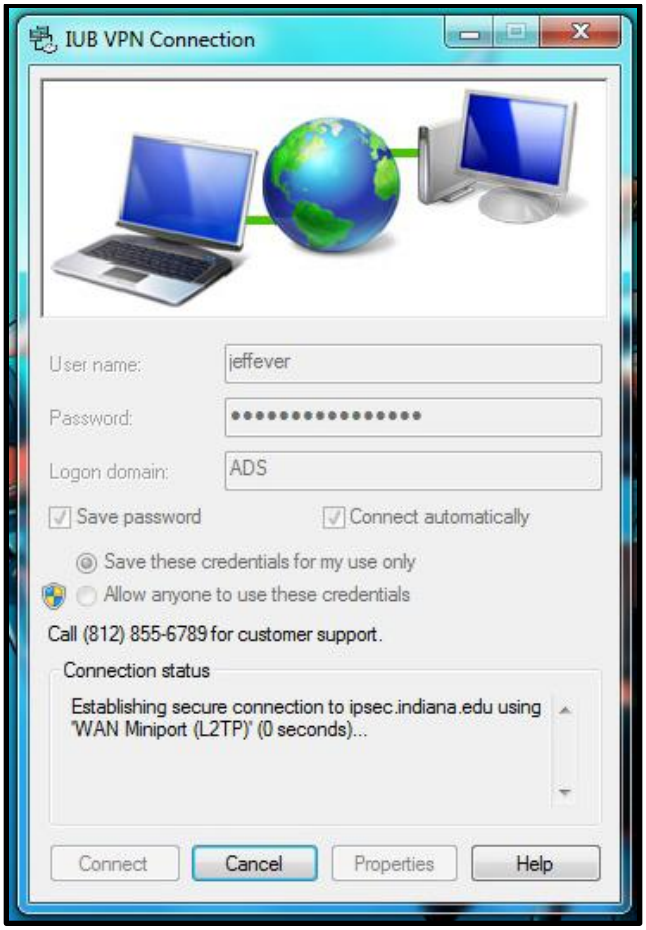

Figure 11: VPN Log-in Window.

3. At this point, the previous instructions for wired on-campus connections may be followed. Additionally, any of the shared network printers may also be used as necessary. **Appendix A** contains all of the necessary locations and network addresses for the commonly used shared drives and folders. Additionally, the locations and addresses of the two shared printers may be found in **Appendix B**.

Appendix A: Network Addresses.

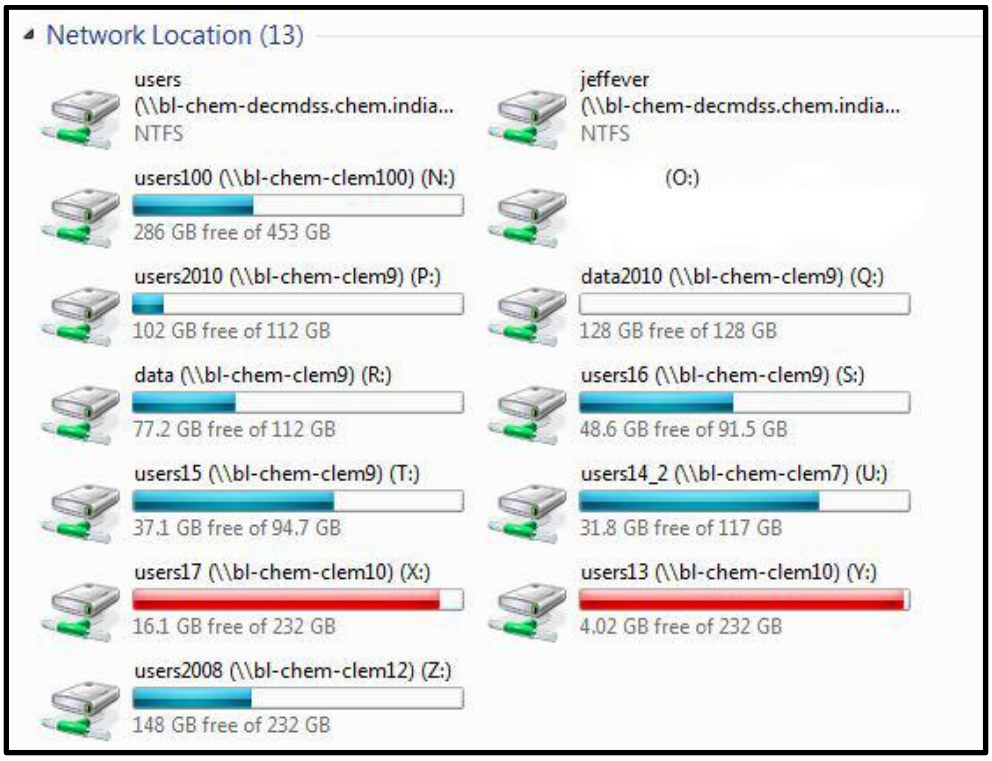

Figure 12: Commonly Used Network Locations.

The drive letters are arbitrary, and with the exception of the drive labeled (O:) in **Figure 12**, the remaining ten shared folders and two disk farm folders are commonly available to group members. The exact addresses are included below:

- \\bl-chem-clem100\users100
- \\bl-chem-clem9\users2010
- \\bl-chem-clem9\data2010
    - This folder is empty and may be used to decompress large archive files we may have to retrieve from the data backup facility.
- \\bl-chem-clem9\data
- \\bl-chem-clem9\users16
- \\bl-chem-clem9\users15
- \\bl-chem-clem7\users14_2
- \\bl-chem-clem10\users17
- \\bl-chem-clem10\users13
    - This drive is currently extremely overloaded with data. If you have important data in either of these folders (users17 or users13) please consider moving it to a less crowded drive.
- \\bl-chem-clem12\users2008
- \\bl-chem-decmdss.chem.indiana.edu\users
- \\bl-chem-decmdss.chem.indiana.edu*username*

There may also be some less commonly used network folders as well. These locations are listed below:

- \\bl-chem-clemora\users8
- \\bl-chem-clemora\users12
- \\bl-chem-clem7\users14_1
- \\bl-chem-clem9\users9

Appendix B: Network Printers.

Figure 13: Available Network Printers.

Shared printers on the network may be added and accessed using their individual IP addresses from either a direct wired on-campus network connection, or any wireless connection using the VPN as previously described. The IP addresses are listed below, with the name of the associated driver in parenthesis. This name is required in order to find the driver through Windows Update upon connecting to the printer before it may be used.

- HP Color LaserJet 4700 (HP 4700)
  - 10.79.60.86
- HP LaserJet 4250 PS (HP 4250)
  - 10.79.60.88

Appendix C: Troubleshooting.

1. Occasionally systems controlling the shared disks must be restarted or shut down completely. As a result, networked drives may become unavailable. In order to fix these issues, a user must simply log into the computer, allow it to regain network connectivity, and then log out again.
   a. As an exception, the system that controls the disk farm requires **Administrator** access. Although all users have access to the disk itself, the controlling system does not recognize normal **ADS** log-in credentials, therefore a separate **Administrator** account exists for this system.
   b. See **Figure 12** where the networked locations **users** and **jeffever** (both located on the shared disk farm) are inaccessible to the network. Logging in to the controlling system will correct this problem resulting in what is shown in **Figure 14**.

Figure 14: Working Disk Farm Connections

2. Currently Remote Desktop Connections are limited to **Administrators**. Any of them may allow specific users upon request. However, this limits direct access to the system for other users and must be limited. Connections from off-campus or wireless on-campus networks may be established using the procedures outlined above for connections to the shared disk space from non-wired University networks.

Appendix D: Using a Batch File (.bat) to Map Multiple Drives at Once.

Instead of repeatedly going through the processes described previously in **Parts I** and **II**, it is possible to map multiple drives in one step using a Batch File in Windows. Creating and editing the file can be done in any text editing program (Notepad, Notepad++, etc.) and the resulting file is portable, so it can be carried on a flash drive and used on any computer connected to a University network (wired, wireless, and VPN).

diskfarm.txt | diskfarm.bat

```
1  @echo on
2  net use A: \\bl-chem-decmdss.chem.indiana.edu\users password /USER: ADS\jeffever /persistent:no
3
4  net use B: \\bl-chem-decmdss.chem.indiana.edu\jeffever password /USER: ADS\jeffever /persistent:no
5
6  exit
```

Figure 15: Example Batch File Script

Creating the Batch File

1. Open Notepad, or any other plain text editor. The example in **Figure 15** uses Notepad++, but any other text editor will work just as well.
2. Using the commands from the example in **Figure 15**, and the list of shared folders and drives from **Appendix A**, create a custom script that will include all of the necessary mapped drives. The line numbers in the example are not necessary and should not be included in the file.
    a. The example script shown in Figure 15 will map both the general *Users* and the specific user folder *jeffever* located on the network disk farm. However, it can be modified to include all of the folders listed in **Appendix A**, as long as there are a sufficient number of available drive letters.
    b. The Drive Letter (A and B in the example) cannot conflict with any previously existing drives in Windows, including those that may be assigned to card readers and removable flash drives. For this reason, it is recommended that the letters A-N be ignored and instead replaced with the remaining letters O-Z unless otherwise noted.
        i. **Note**: Do not map more than one drive to a letter in Windows.
        ii. This only applies to hard-coded mounting scripts like this one. Windows will dynamically assign drive letters to removable drives as necessary in order to avoid conflicts.
3. Replace all instances of *password* and the userID *jeffever* with those specific to whoever will be using the script.
    a. **Note**: The password and userID will be hard-coded into the file, and easily accessible in plain text for anyone with access to read. For this reason, it is recommended to not leave the final batch file in a commonly accessible folder. It is also possible to omit the *password* and */USER:* fields. However, this will require that Windows ask for them upon connecting to the drive, but will provide additional security for the accounts in question.
    b. When entering the account name or userID, do not forget the **ADS** prefix.
4. When finished, save the document as a batch file with the .bat extension.
5. Double-click to run the script and mount the necessary drives.