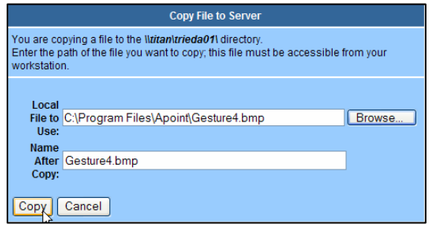
Network Drive Mapping for Tufts Faculty



Mounting With Different File Systems

What is SMB?

SMB (**Server Message Block**) is a protocol for sharing files, printers, serial ports, and applications between a computer and server communicating over a LAN. The enhanced implementation of the SMB protocol is the **Common Internet File System** (**CIFS**) protocol. CIFS allows users to access directories on remote servers and manipulate the files as if they were installed locally. SMB and CIFS are part of all Microsoft operating systems.

Unix-based operating systems, such as Linux, Free-BSD, and Mac X, utilize Network File Sharing (NSF) as their native file-sharing protocol. Therefore, a Unix-based computer that needs to mount a drive on a server whose file system uses SMB must load Samba, which is the shareware version of the SMB protocol. There are many additional UNIX vendor solutions, both commercial and open source. Samba, a popular open-source solution, is included with most versions of Linux and is also available as a free download.

When you request a share on BlueArc, the administrators, by default, will set it up for either CIFS or NFS access. If this share is intended for project use, you will need to specifically request that the share have both NFS and CIFS access. Windows-based users will be able to follow the drive mapping instructions for BlueArc listed above under the **Mapping Your Drives in Windows** section.

Linux and Unix users that would like to mount a CIFS share as a virtual drive will need to ask the administrator of BlueArc for NFS access to the share and provide them with the following information about the Linux/Unix account:

- IP address of the PC being used
- User's UTLN and computer login account name, if different from UTLN
- User ID
- Group name
- Group ID

To determine your name and ID, go to the shell command prompt, type **ID** and hit *<enter>*.

Example:

```
[tina@localhost tina]$ id <enter>

uid=502(tina) gid=502(tina) groups=502(tina)
```

Notice that, in the example above, the users Linux login name (*tina*) is different than her UTLN. The information she would submit to the administrator is as follows:

- IP Address = 130.64.206.217
- UTLN = trieda01
- Computer login account name = tina
- UID = 502
- Group name = tina
- GID = 502

Mounting Your Virtual Drive from BlueArc

Open a command console session and login to the root with either of the following commands:

`su -` *<enter> (gives a root shell using the root password)*
or
`sudo su -` *<enter> (gives a root shell using the user password)*

Note that the mapping command should be typed as one long line. The "*" *connotes a space. In addition, the /local_directory used must already exist on the local machine.*

To create a new directory, type mkdir *directoryname* *<enter>*

To mount a drive, use the following command:

mount*-o*proto=tcp,vers=3,wsize=32768,rsize=32768**server:/share***
***/local_directory** *<enter>*

In this example, a share named ***tccsdocs*** on BlueArc is mounted to a directory named ***maptest*** in the user's home directory:

mount*-o*proto=tcp,vers=3,wsize=32768,rsize=32768*
noah.tccs.tufts.edu:/tccsdoc*/home/tina/maptest *<enter>*

To unmount the share, type the following command:

umount*/local_directory *<enter>*

Example:
umount*/home/tina/maptest

You must exit from the root shell after using the ***mount*** or ***unmount*** commands. Additionally, you will need to remap your connections to BlueArc the next time you wish to connect. Mapping to your P: or Q: and R: drives on a Unix or Linux system is not supported at this time.

For questions or help accessing Tufts network services, contact your departmental IT Support organization. A complete listing of Tufts University IT resources are available at http://inside.tufts.edu/support/#tec .

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Network Shares

All Tufts University faculty and staff are assigned a Universal Tufts Login Name (UTLN). Typically, it is comprised of your first initial, the first five letters of your last name, and two digits, such as 01, 02, etc. *Example:*

jsmith01 jdoe02 jjohns01

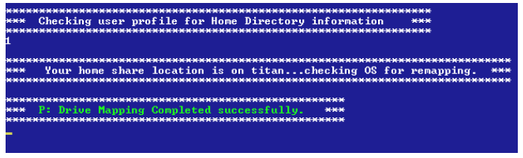
Logging in to the Tufts Local Area Network (LAN) with your UTLN and password "authenticate" you as a valid user and define what directory locations and services you may access. Available LAN services include printing, email, VPN access, network storage, and access to network shares.

The term "network share" refers to data storage space located on Tufts University servers. When you store files from your computer on a network share and login to the Tufts domain, your stored data is accessible, no matter where you are physically connected. In addition, the data you store on network shares is backed up nightly, providing data redundancy in the event that your local drive crashes. Finally, access to data stored on network shares is restricted by a user's network access rights, ensuring that only those who should have access to the data can see, copy, or edit it.

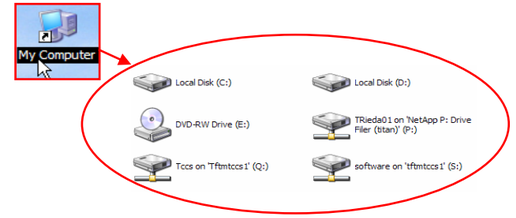
The P: and R: (or Q:) Drives

To access data stored in your directories on the remote server you must map or "mount" a drive. Mapping defines the LAN path to the server location, allowing you to treat your remote folders and data as you would any other drive (A:, C:, D:, etc.). This process creates a "virtual drive" on your computer. You can then copy, edit, and print your data as if it were located on your local system.

There are several network drives that map automatically for you when you login to the Tufts domain, two of which are your **P:** and **R:** (or **Q:**) drives*. These drive mappings are created for you when you login on a Windows-based system and should appear in the *My Computer* window. Although all home shares are mapped with the letter **P:** the Tufts login scripts use both **R:** and **Q:** to designate departmental shares.



*NOTE: Your login script may map other drives in addition to P: and R: or Q:



The **P:** drive, your "personal drive", is also called your "home share". No one except you may access this data. This is an excellent location for any documentation that needs to be edited or retrieved from multiple locations. Each faculty member is allotted 1 GB of space for their individual **P:** drive, but may request more space if needed. Contact your departmental IT Support provider for more information

The **R:** or **Q:** drive, your "departmental share", is an area with shared access by members of a particular project or department. Uses for **R:** drive storage include shared project files, databases, applications, and other departmental-specific documentation.

What is BlueArc Storage?

In addition to the storage available on **P:** and **R:**, faculty may also request space on ***BlueArc***. BlueArc is a scalable network storage option for faculty project servers and workgroups who have large amounts of project-related data that needs to be shared, backed-up, or stored for the duration of a project. Once your folder has been created and added to BlueArc by its administrators, you can map a connection to it from your PC, creating a virtual "volume" (drive) that can be shared with students, colleagues, and Tufts-affiliated project participants. By utilizing the drive mapping, mounting, and VPN solutions detailed in this tip sheet, your BlueArc storage area is accessible from all the major computer operating systems available.

The ***Mounting with Different File Systems*** section of this tip sheet provides details for mounting a drive to the BlueArc storage appliance from Linux. Contact your Frontline Support Provider or school IT support organization (*see end of tip sheet*) to discuss the nature of these services, your needs, and available options.

Mapping Your Drives in Windows

When you login to the Tufts LAN on a Windows-based system and are authenticated as a valid user, your login script maps your P: and Q: drives for you. To access the files stored at these remote locations, open *My Computer* and click on the respective drive letter.

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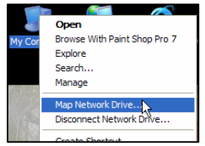
But on occasion, you may want or need to map your P: and Q: drives manually. In addition, your BlueArc storage space will not be mapped for you by your login script.

To create a drive mapping in Windows XP:

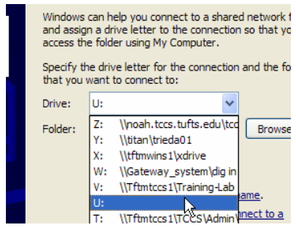
1. Ensure that you are logged into to the Tufts LAN and have an active connection to the Tufts LAN (130.64.*.*).

2. Right-click once on either your ***My Computer*** or ***My Network Places*** icon (***Network Neighborhood*** in *Windows 2000*) on your Desktop.

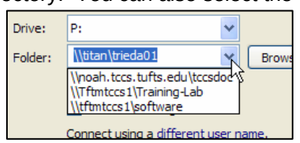


3. Select **Map Network Drive ….** The *Map Network Drive* dialog box will open.

4. Click the ***Drive:*** down-arrow and select a drive letter that isn't already being used. You may select anything that is free, but it's simplest to use **P:** for your Personal share and **Q:** or **R:** for your departmental share. *Note:* You can choose any free drive letter for BlueArc or other non-standard mapping.



5. Under ***Folder:***, type the path to the remote server location of your directory. You can also select the down-arrow to see if the path is cached. If so, select it.



P: drive path:
\\titan*your-UTLN*

Examples:
\\titan\jdoe03 **\\titan\pkeena01**

Q: drive path:
\\tftmas1*your-departments-name*

Examples:
Arts and Sciences -
\\tftmas1\sociology **\\tftmas1\physics**

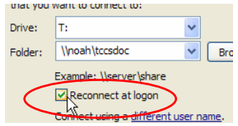
Fletcher:
\\tftmas1\faculty **\\tftmas1\Adjunct**

BlueArc Storage drive path:
\\noah*your-folder-name*

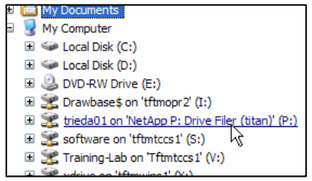
Examples:
\\noah\tccsdoc **\\noah\waltlab**

If this is a mapping that you will use daily, place a check mark in the ***Reconnect at logon*** box.

This will create a persistent drive mapping that will remain visible in My Computer (*see below*).



6. Click **Finish**. An *Explorer* window will open, displaying your files and folders. You should also see your new drive mapping listed when you browse:



VIRTUAL PRIVATE NETWORKING

Tufts VPN (*virtual private networking)* is a service that allows Tufts faculty and staff to securely access Tufts' LAN network folders and restricted Tufts web sites, from a remote computer such as a home PC. Once connected, you can copy documents and folders located on the Tufts LAN to your remote PC or transfer data from your local computer to your network folders.

Tufts offers two ways to utilize VPN services. The first method requires the installation of the Tufts VPN Client software. The second method involves no additional software installation. Each method has competing pros and cons.

To use the VPN client software, you must download and install it. You must also manually map your individual network drives if they are not preserved in *My Network Places* (or *Network Neighborhood* in Windows 2000). But once connected and mapped, the VPN Client software provides a much more robust solution to data and application transfers. You can transfer entire folders of data, as if you were at Tufts, connected directly to the LAN.

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WebVPN requires no software installation, can be accessed from any location or PC that has an Internet connection, and works the same no matter which operating system is installed on the PC used to connect. Your network drives are displayed for you in a clickable interface and you can browse any area of the network that you normally have access to. But WebVPN is less versatile and robust than the first option in that you can only transfer one file at a time.

TUFTS VPN CLIENT SOFTWARE

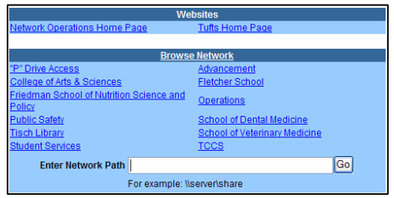
The Tufts VPN Client software is available for Windows and Mac systems*.Installation and connection instructions, have been customized for Tufts use and, along with the VPN Client software, are available for download at http://www.tufts.edu/tccs/r-facultyvpn.html.

Once you've installed the software and connected the Tufts VPN server, you will need to manually map your network drive connections. This process is detailed in the instructions, but you should prepare yourself by determining, in advance, the path to your network folders. A simple way to do this is by following the instructions for mapping a drive in the ***Mapping a Drive in Windows*** section above. Follow steps 2, 3, and 4. When you click the down arrow in step 4 to select a drive letter, you will see the path to your P: drive and any other network shares. Write down the network paths exactly as they appear and use this information when you follow the steps in the VPN Client software instructions to map your drives. If you are using a laptop that regularly connects to the Tufts LAN, your drive mapping may also be preserved in *My Network Places*. If so, there is no need to map them – clicking on them while the VPN connection is active will open the network folders.

WEBVPN

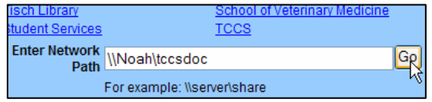
Tufts' WebVPN, short for *web-based virtual private network*, is a service that allows Tufts faculty and staff to securely access Tufts' LAN from any computer — anywhere — that has a connection to the Internet. There is no special software to install or settings to configure and Web VPN is compatible with most browsers, regardless of the operating system used. The only requirement is that you have a valid UTLN and LAN password. Remember, however, that WebVPN is not intended as a robust solution to file transfer and will only transfer one file at a time. Users who have a need to remotely transfer large amounts of data should consider the use of the Tufts VPN Client software.

To use WebVPN, open an Internet connection to https://webvpn.tufts.edu and enter your UTLN and LAN password. From the main screen, you can access your P: drive and departmental shares.



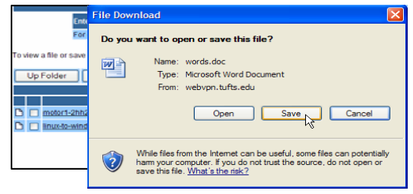
To access your BlueArc storage:

Enter the same path used to map a drive from Windows and click **Go**.
Example: ***\\Noah\tccsdoc***



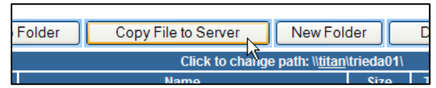
To copy a file from your network folders to your local hard drive:

Browse to the location of the individual file and double-click the file name. You'll be prompted to open or save the file.



To copy a file from your local hard drive to a network folder:

Start by browsing to the location on the network where you would like to place the copy of the local file. When you've browsed to the desired network location, click *Copy File to Server*.



Enter the path to the file or use the *Browse* button to locate it and click **Copy**. The file will be copied to network drive or volume that is listed at the top of the *Copy File to Server* dialog box. In the example below, that location is **\\titan\trieda01**.