

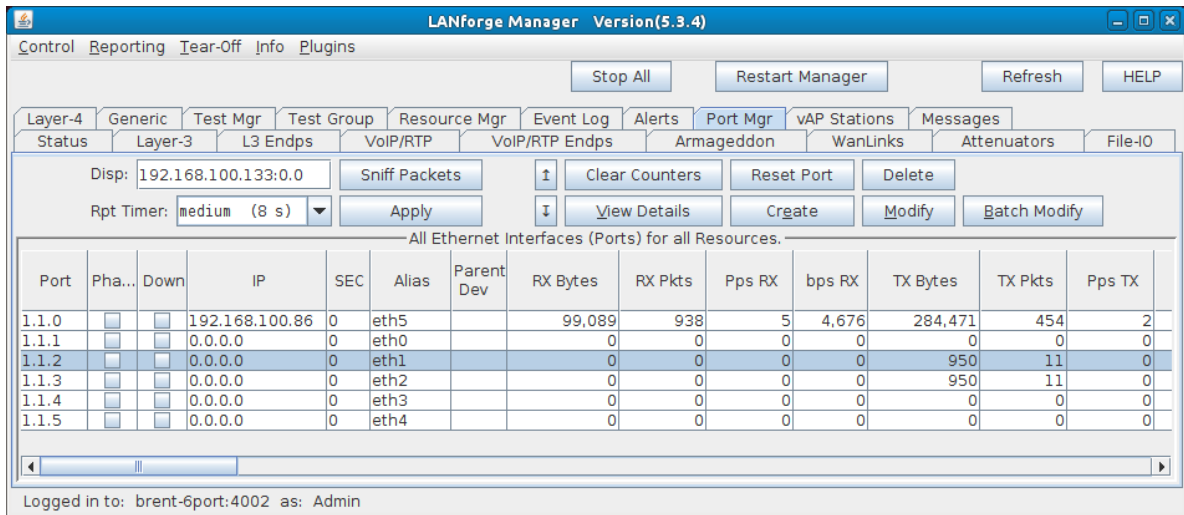
Generating FTP Traffic Between Two Physical ports

Goal: Allow LANforge to simulate a FTP connection within the same system.

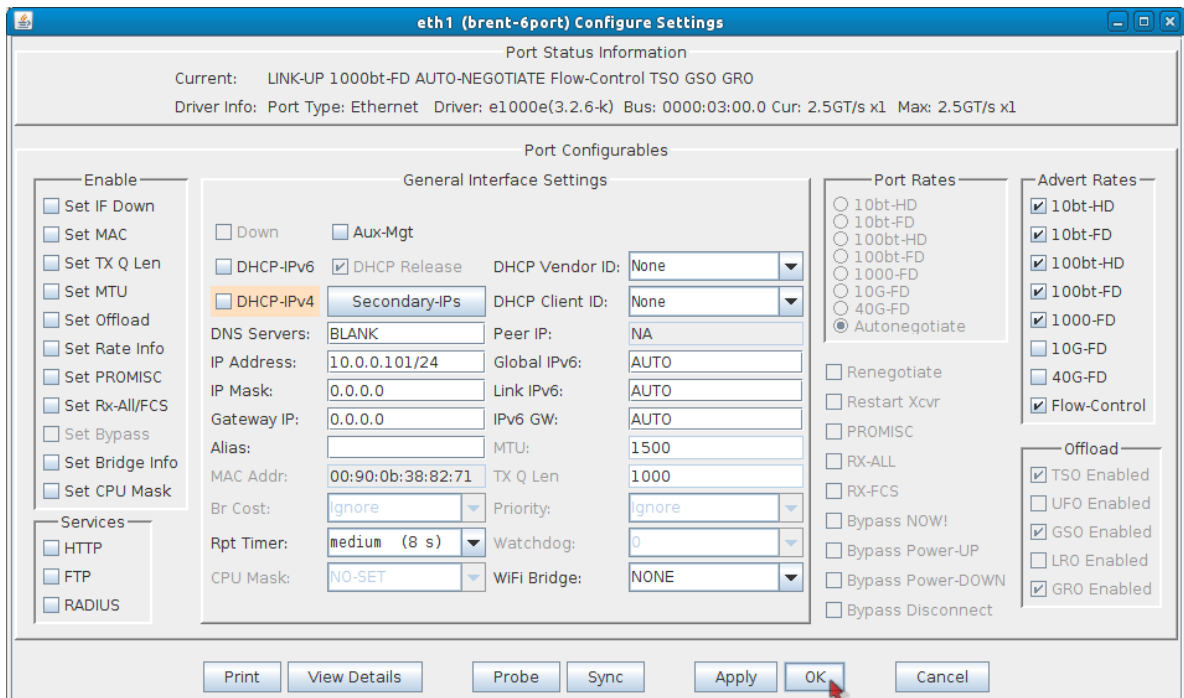
This scenario is useful if you wish to generate stateful FTP traffic between two physical ports using a single LANforge system. You will need two non-management physical ports connected to each other with a loopback cable or switch.

1. Configure the physical interfaces. We will set up eth1 as a client and eth2 as a FTP server.

A. Go to the **Port Mgr** tab and select eth1.



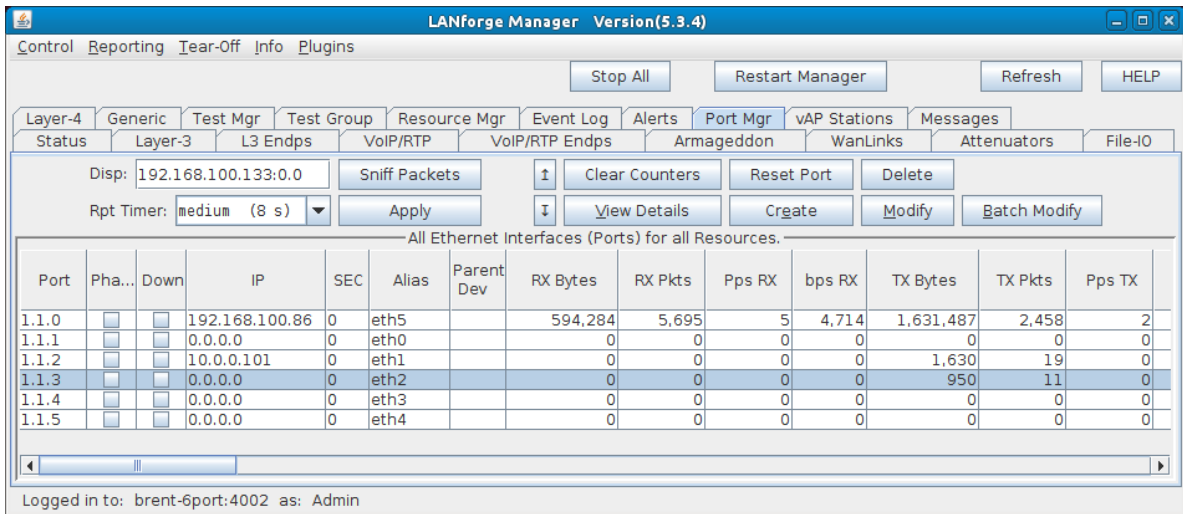
B. Click **Modify** to configure port eth1.



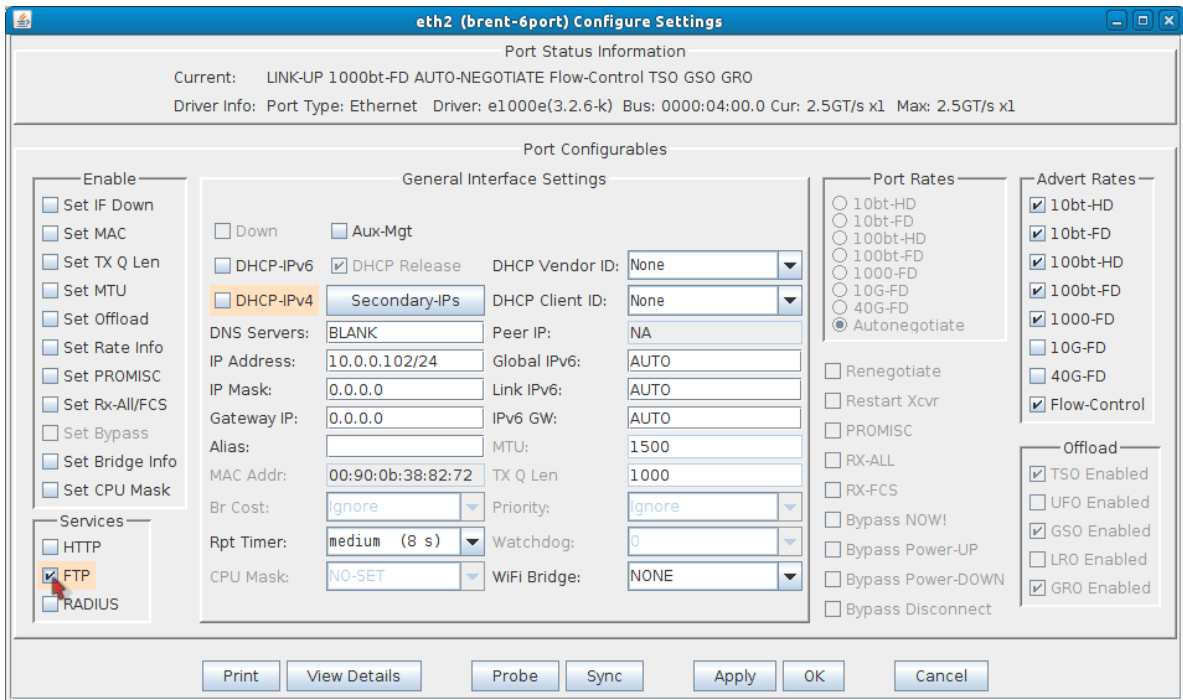
A. Set the IP Address to 10.0.0.101/24.

B. Click **OK**.

C. While still in the **Port Mgr** tab, select eth2.



D. Click **Modify** to configure port eth2.



- A. Set the IP Address to 10.0.0.102/24.
- B. Enable **FTP** under **Services**.
- C. Click **OK**.

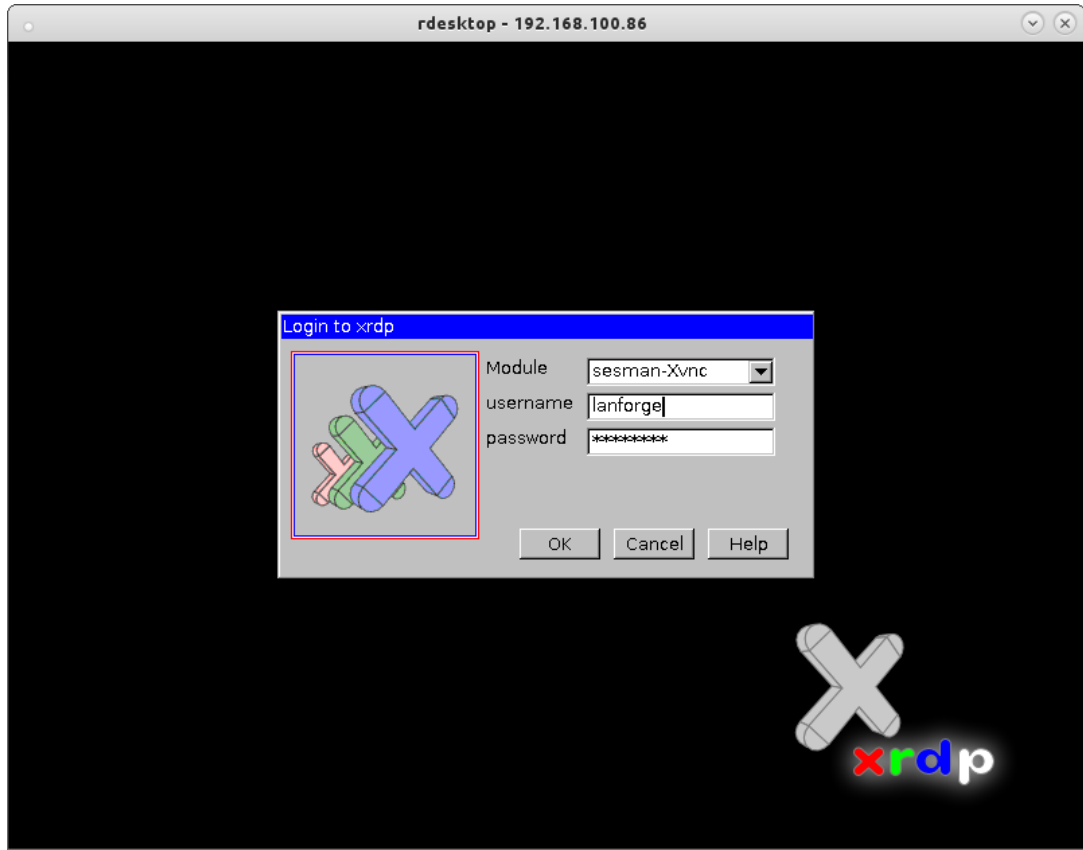
2. Create a file for the FTP client to download/upload. This is optional if you already have a file in mind to test with, just make sure the file is in `/home/lanforge` (the default directory for FTP). Step 3 explains how to upload a file from a Windows machine.

A. First, you'll need to open a console on the LANforge system.

A. Log into the machine **directly** or remotely through **rdesktop**. The user/password should be **lanforge/lanforge** for both.

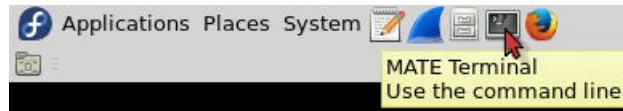
B. To log in via **rdesktop** type the following command into a console (replace LANforge-IP with the IP of your LANforge system):

```
rdesktop LANforge-IP
```



C. Log in with user/password **lanforge/lanforge**.

D. Once you are on the system, a console should already be open. If you don't see a console, go ahead and open one by clicking the console icon in the top menu bar (shown in the below screenshot).

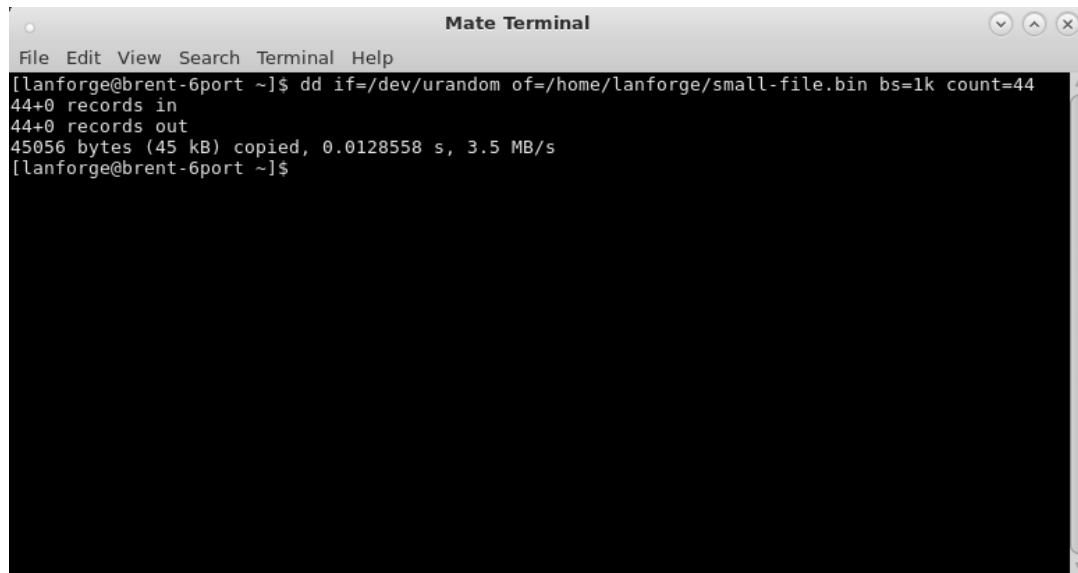


- B. Once you have a console ready, use the below commands to create a small or large file. These files will just contain random text.

Note: These files will be created in the `/home/lanforge` directory. This is the default directory used for FTP on LANforge.

- A. **Small file** (45 KB):

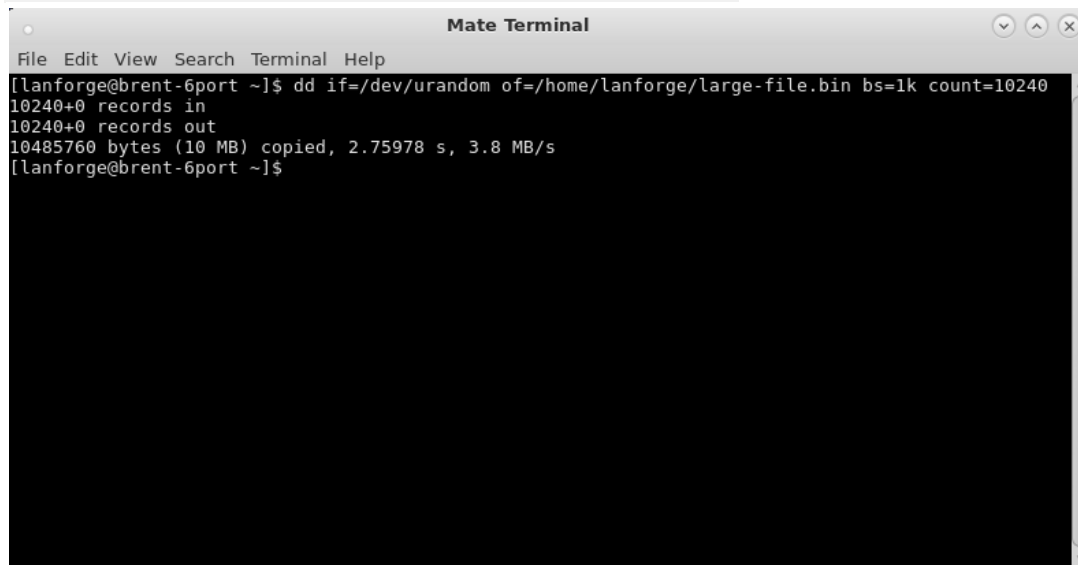
```
dd if=/dev/urandom of=/home/lanforge/small-file.bin bs=1k count=44
```



```
Mate Terminal
File Edit View Search Terminal Help
[lanforge@brent-6port ~]$ dd if=/dev/urandom of=/home/lanforge/small-file.bin bs=1k count=44
44+0 records in
44+0 records out
45056 bytes (45 kB) copied, 0.0128558 s, 3.5 MB/s
[lanforge@brent-6port ~]$
```

- B. **Large file** (10 MB):

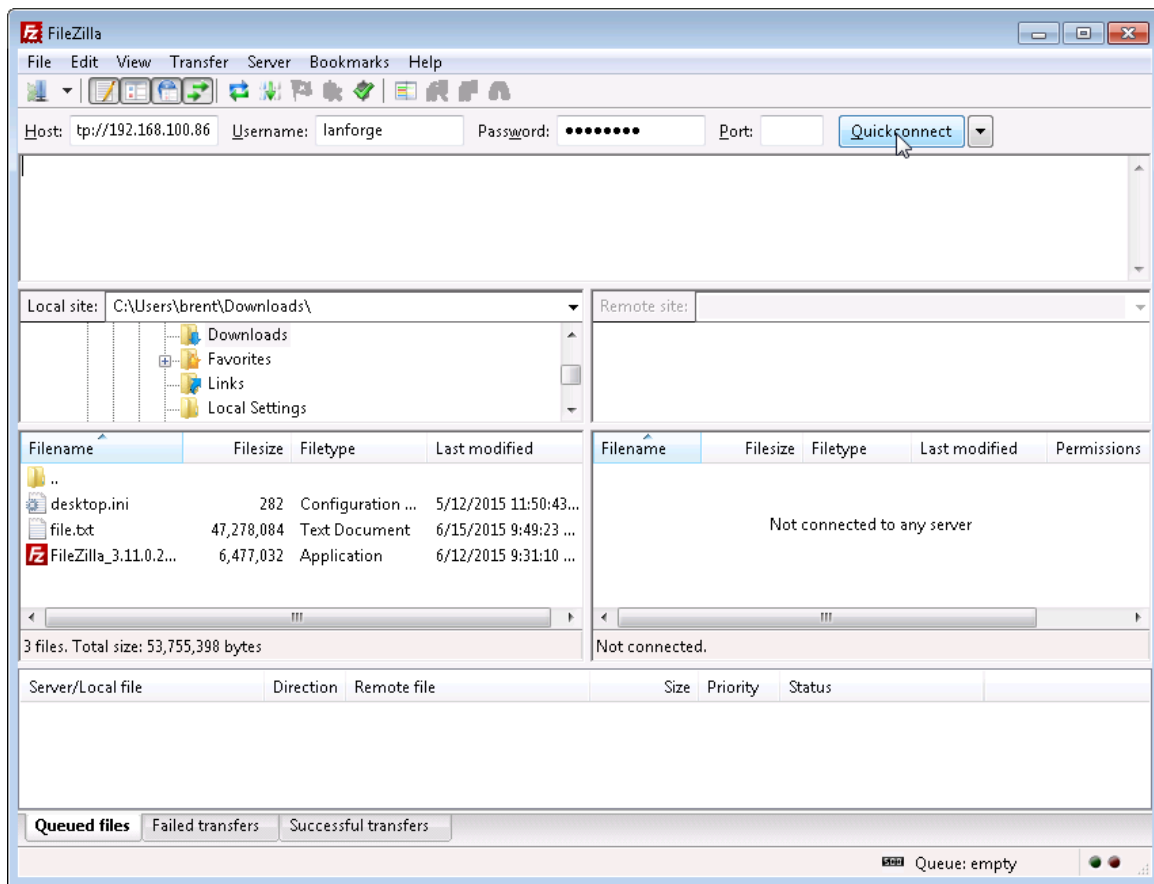
```
dd if=/dev/urandom of=/home/lanforge/large-file.bin bs=1k count=10240
```



```
Mate Terminal
File Edit View Search Terminal Help
[lanforge@brent-6port ~]$ dd if=/dev/urandom of=/home/lanforge/large-file.bin bs=1k count=10240
10240+0 records in
10240+0 records out
10485760 bytes (10 MB) copied, 2.75978 s, 3.8 MB/s
[lanforge@brent-6port ~]$
```

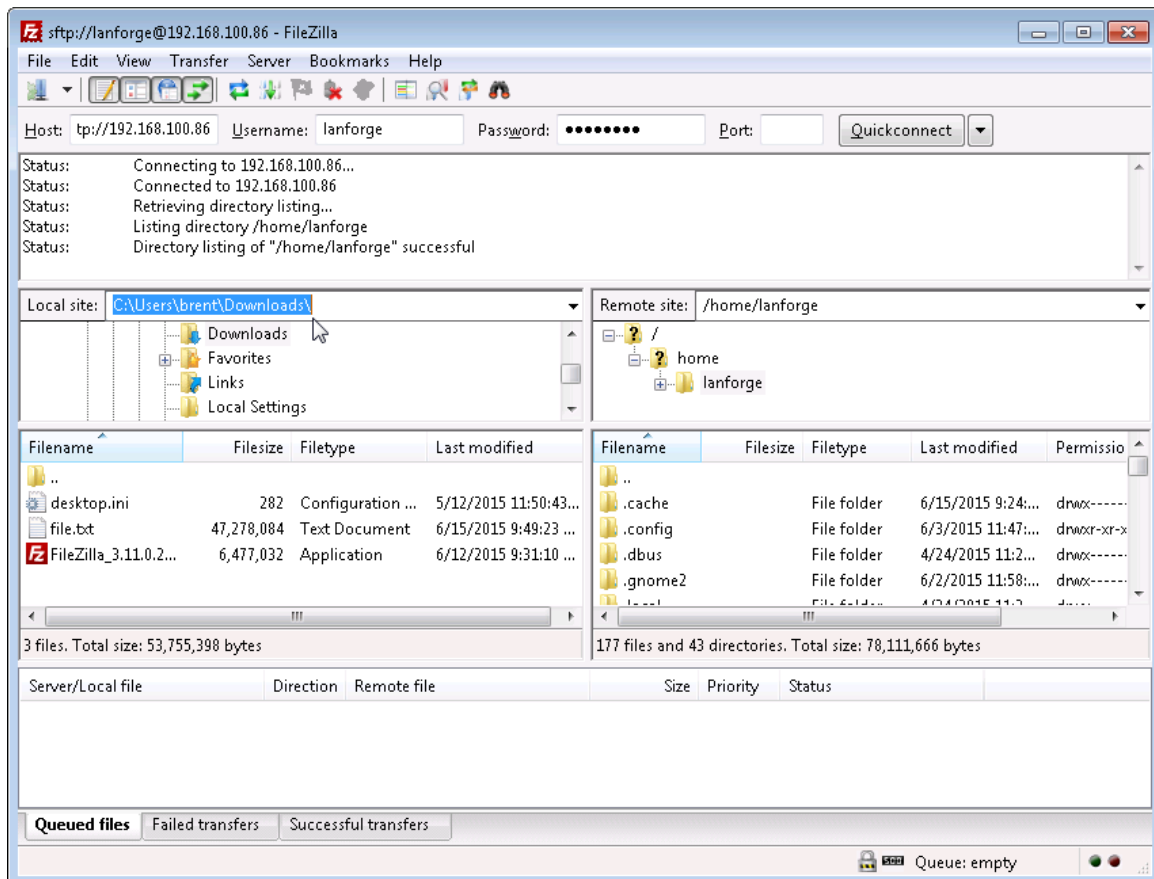
3. **Optional:** Upload a file to the LANforge system for the FTP client to download/upload. There are multiple ways to do this, this step will demonstrate the upload using a Windows machine with FileZilla.

- A. On your Windows machine, download and install FileZilla. You can download the FileZilla client here:
<https://filezilla-project.org/download.php>
- B. Open FileZilla.



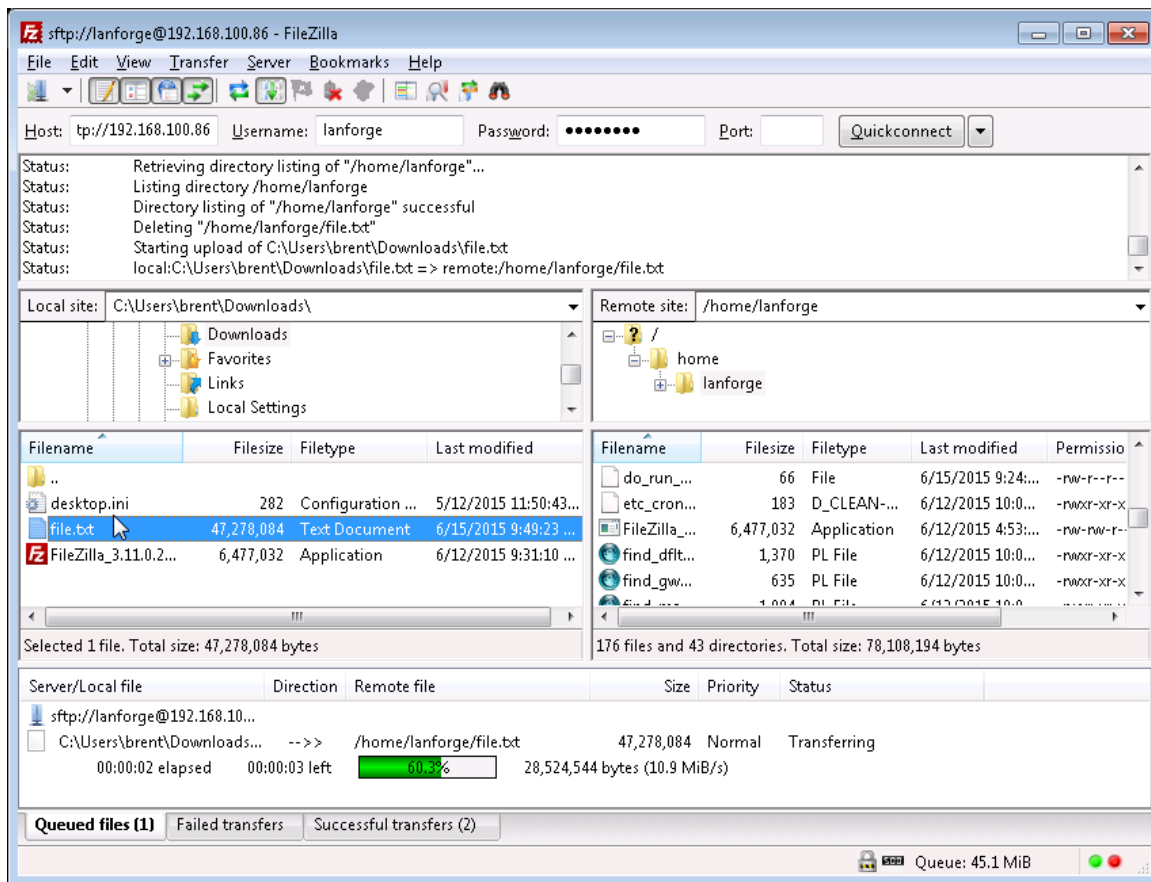
- A. Near the top left in the **Host** field, enter in the following: `sftp://LANforge-IP`
(`sftp://192.168.100.86` is used in this example).
- B. Username: **lanforge** Password: **lanforge**.
- C. Click **Quickconnect**.

C. In the **left column** navigate to your file's directory. Make sure the right column is set to `/home/lanforge`



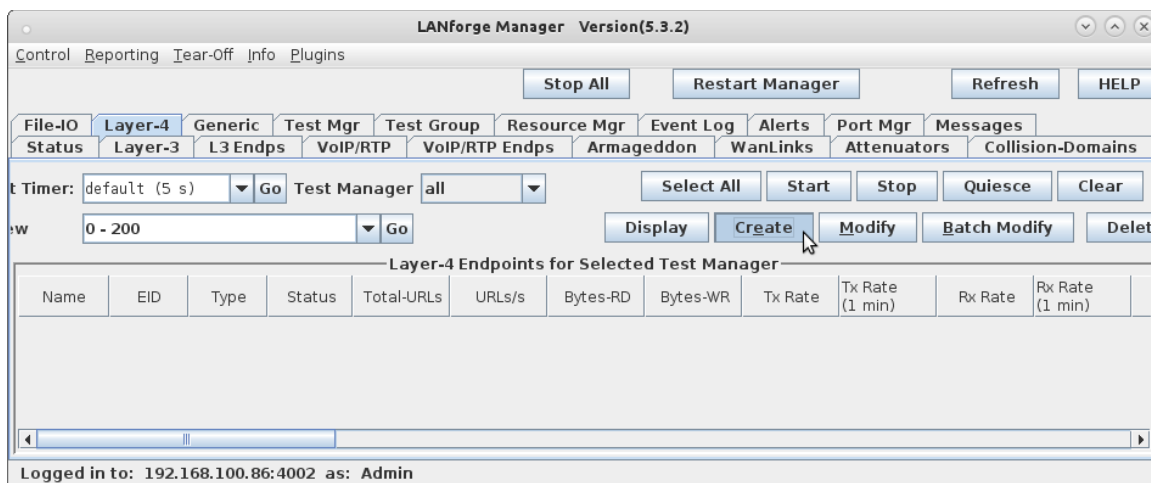
D. To start transferring your file, double click it in the left column. Once the transfer is complete make sure you

can find it within the right column under `/home/lanforge`. Your file is now on the LANforge machine!



4. Create the FTP endpoint.

- A. On the **Layer 4-7** tab, click **Create**.



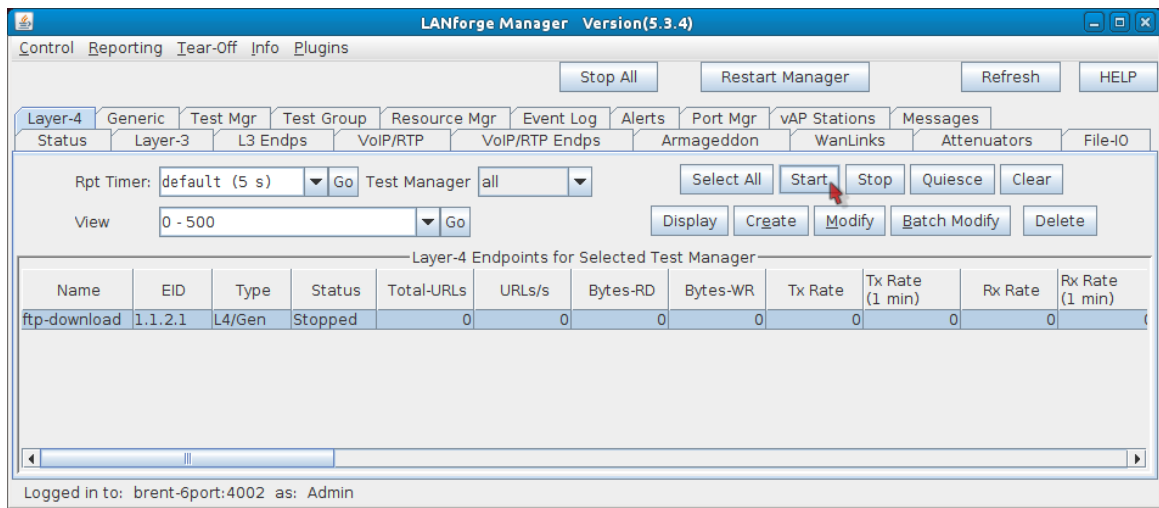
- B. Configure the FTP endpoint.

- A. Name your endpoint **ftp-download**.
- B. Set **Rpt Timer** to **fast (1 s)**.
- C. Set **Port** to **eth1**.
- D. Set **URLs per 10m** to **600 (1/sec)**.
 - I. Here is a list of common values used for **URLs per 10m**.

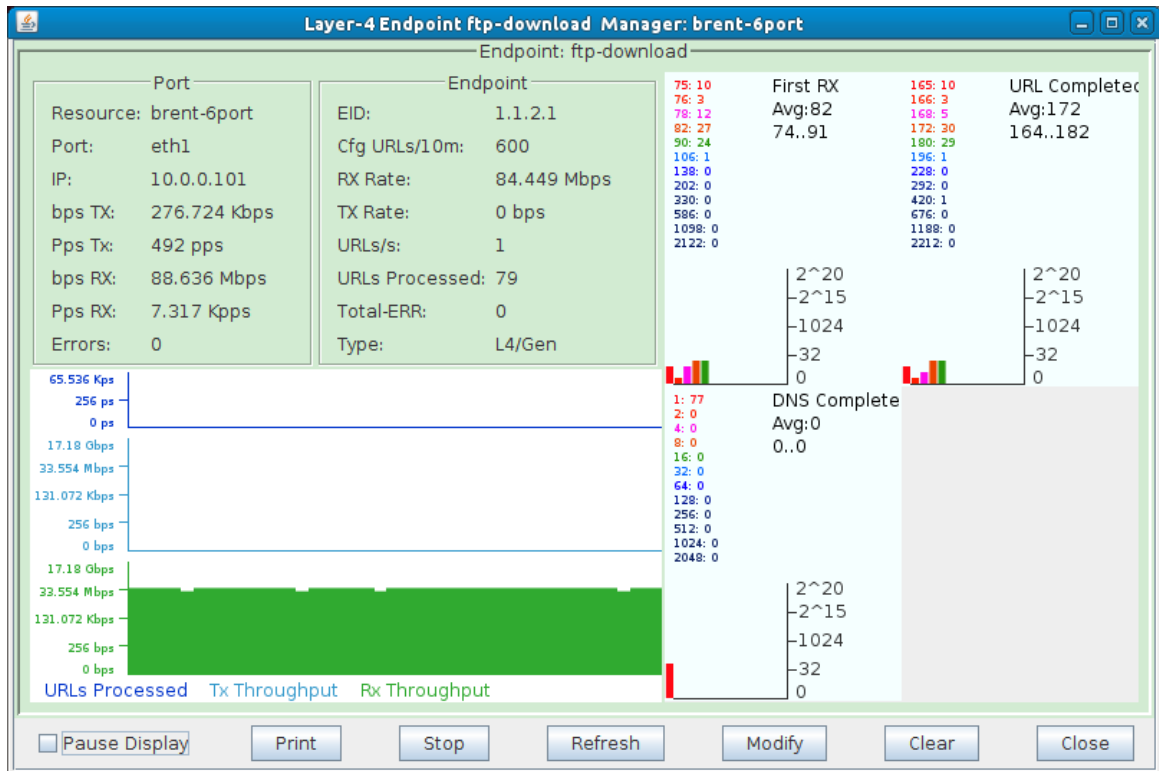
URLs per 10min	Converted
60	1/min
600	1/sec
6000	10/sec
60000	100/sec

- E. To download the small file (44KB) created earlier, set **URL** to:
ftp://lanforge:lanforge@10.0.0.102/small-file.bin
 To download the large file (10MB) created earlier, set **URL** to:
ftp://lanforge:lanforge@10.0.0.102/large-file.bin
Note: The default directory for FTP is **/home/lanforge** and the default username/password is **lanforge/lanforge**. All files downloaded/uploaded via FTP need to be in **/home/lanforge**.
- F. **Optional:** If you want to use another file in **/home/lanforge** you can just change the filename at the end of the URL.
 For example **ftp://lanforge:lanforge@10.0.0.102/large-file.bin** would be changed to
ftp://lanforge:lanforge@10.0.0.102/your-file-name
- G. Set **Source/Dest File** to **/dev/null**.
- H. Click **OK**.

5. Start the endpoint and display the graph.
 - A. In the **Layer 4-7** tab, select the connection called **ftp-download**.
 - B. Click **Start**.



C. Select **ftp-download** and click **Display** to see a graph similar to below.



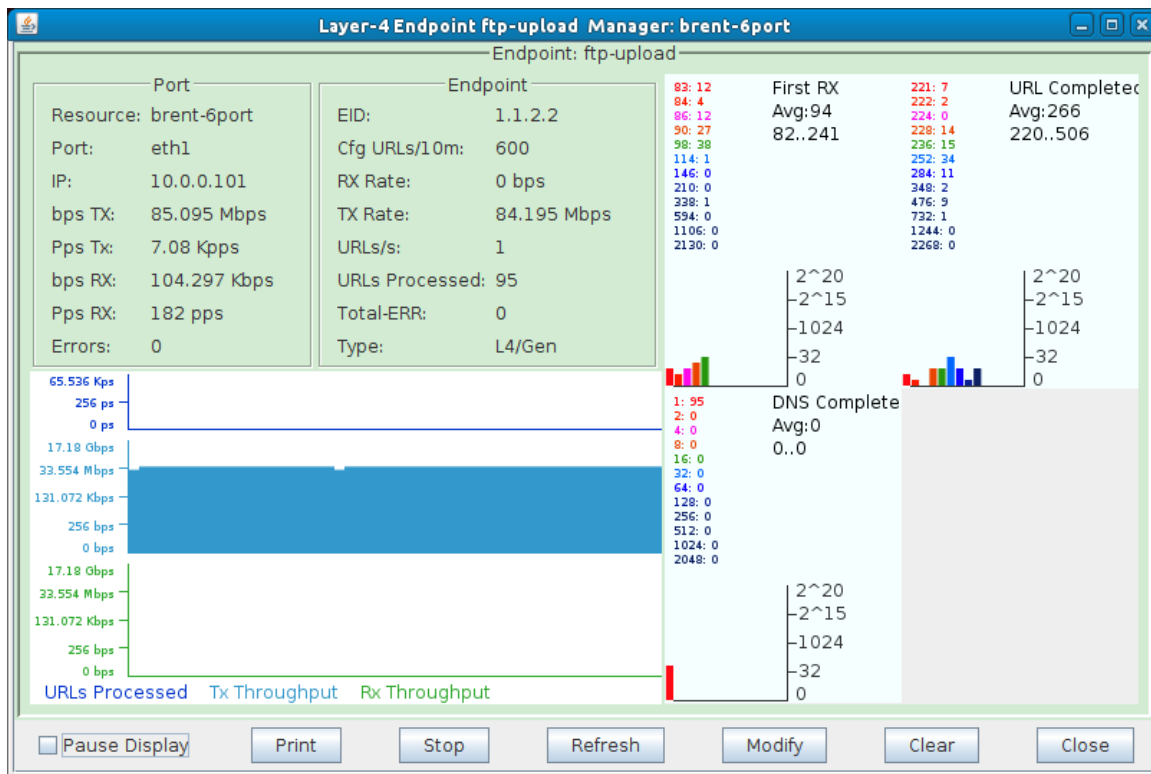
6. **Uploading** a file from the FTP client to the FTP server.

- A. Go to the **Layer 4-7** tab and modify the **ftp-download** endpoint. The below changes will need to be made:

The screenshot shows the 'Create/Modify L4Endpoint' dialog box with the following configuration:

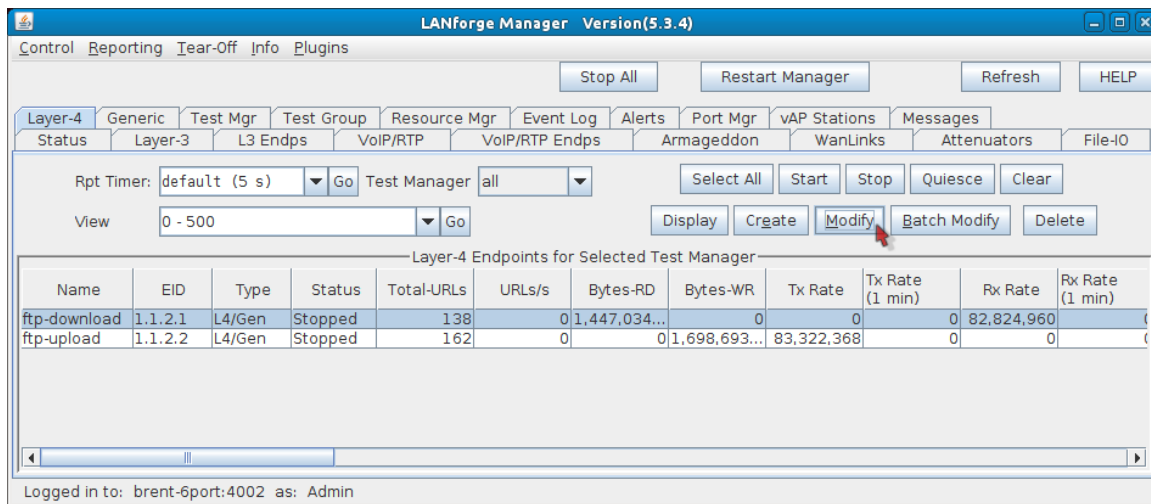
- Name: ftp-upload
- Rpt Timer: fast (1 s)
- Test Manager: default_tm
- Shelf: 1
- Resource: 1 (brent-6port)
- Port: 2 (eth1)
- IP Addr: AUTO
- Endp Name: 1
- URLs per 10m: 600
- Max Speed: Infinite
- Quiesce: 3 (3 sec)
- URL Timeout: 10000
- DNS Cache Timeout: 60
- TFTP Block Size: Default (512 B)
- Proxy Port: 0
- Proxy Server:
- Proxy Auth:
- Proxy Auth Types: Basic Digest NTLM
- HTTP Compression: Gzip Deflate
- HTTP Auth Types: Basic Digest GSS-Negotiate NTLM
- SSL Cert: ca-bundle.crt
- SMTP-From:
- Agent/RCPT-TO:
- UL/DL: Upload IPv4 IPv6
- URL: ftp://lanforge:lanforge@10.0.0.102/upload-file
- Source/Dest File: large-file.bin
- Get-URLs-From-File Authenticate Server Use-Proxy Allow-Reuse Allow-Cache Enable 4XX Show Headers
- Bind DNS FTP PASV FTP EPSV

- A. **Name** to **ftp-upload**.
- B. **UL/DL** to **Upload**.
- C. **URL** to **ftp://lanforge:lanforge@10.0.0.102/upload-file**. The 'upload-file' filename in this link can be changed if needed.
- D. **Source/Dest File** to **large-file.bin**. This can be changed to a preferred file as long as it is in `/home/lanforge` (the default FTP directory).
- E. Click **OK**.
- B. Select **ftp-upload** and click **Start**.
- C. This endpoint will now essentially upload the `large-file.bin` file in `/home/lanforge` to the same directory with a new file name (**upload-file** in this case). If you select **ftp-upload** in the **Layer 4-7** tab and click **Display**, the graph should look similar to the one below.



7. Using **SCP**, **SFTP**, and **TFTP**.

A. Go to the **Layer 4-7** tab and modify the **ftp-download** endpoint. The below changes will need to be made:



A. **Name** to **ftp-scp** for scp or **ftp-sftp** for sftp.

B. For **SCP**, set the **URL** to **scp://lanforge:lanforge@10.0.0.102/~small-file.bin**. The filename at the end of the link can be changed to another file in **/home/lanforge**.

The screenshot shows the 'Create/Modify L4Endpoint' dialog box for an endpoint named 'ftp-scp'. The configuration is as follows:

- Name: ftp-scp
- Rpt Timer: fast (1 s)
- Test Manager: default_tm
- Shelf: 1
- Resource: 1 (brent-6port)
- Port: 2 (eth1)
- IP Addr: AUTO
- Endp Name: 1
- URLs per 10m: 600
- Max Speed: Infinite
- Quiesce: 3 (3 sec)
- URL Timeout: 10000
- DNS Cache Timeout: 60
- TFTP Block Size: Default (512 B)
- Proxy Port: 0
- Proxy Server: (empty)
- Proxy Auth: (empty)
- Proxy Auth Types: Basic Digest NTLM
- HTTP Compression: Gzip Deflate
- HTTP Auth Types: Basic Digest GSS-Negotiate NTLM
- SSL Cert: ca-bundle.crt
- SMTP-From: (empty)
- Agent/RCPT-TO: (empty)
- UL/DL: Download
- IPv4 IPv6
- URL: scp://lanforge:lanforge@10.0.0.102/~small-file.bin
- Source/Dest File: /dev/null
- Options: Get-URLs-From-File Authenticate Server Use-Proxy Allow-Reuse Allow-Cache Enable 4XX Show Headers
- Options: Bind DNS FTP PASV FTP EPSV

Buttons at the bottom: Apply, OK, Batch-Create, Cancel.

C. Click **OK**.

D. For **SFTP**, set the **URL** to **sftp://lanforge:lanforge@10.0.0.102/~small-file.bin**. The filename at the end of the link can be changed to another file in `/home/lanforge`.

The screenshot shows the 'Create/Modify L4Endpoint' dialog box for an endpoint named 'ftp-sftp'. The configuration is as follows:

- Name: ftp-sftp
- Rpt Timer: fast (1 s)
- Test Manager: default_tm
- Shelf: 1
- Resource: 1 (brent-6port)
- Port: 2 (eth1)
- IP Addr: AUTO
- Endp Name: 1
- URLs per 10m: 600
- Max Speed: Infinite
- Quiesce: 3 (3 sec)
- URL Timeout: 10000
- DNS Cache Timeout: 60
- TFTP Block Size: Default (512 B)
- Proxy Port: 0
- Proxy Server: (empty)
- Proxy Auth: (empty)
- Proxy Auth Types: Basic Digest NTLM
- HTTP Compression: Gzip Deflate
- HTTP Auth Types: Basic Digest GSS-Negotiate NTLM
- SSL Cert: ca-bundle.crt
- SMTP-From: (empty)
- Agent/RCPT-TO: (empty)
- UL/DL: Download
- IPv4 IPv6
- URL: sftp://lanforge:lanforge@10.0.0.102/~small-file.bin
- Source/Dest File: /dev/null
- Options: Get-URLs-From-File Authenticate Server Use-Proxy Allow-Reuse Allow-Cache Enable 4XX Show Headers
- Options: Bind DNS FTP PASV FTP EPSV

Buttons at the bottom: Apply, OK, Batch-Create, Cancel.

E. Click **OK**.

B. Select the **ftp-scp** or **ftp-sftp** endpoint and click **Start**.

C. To use **TFTP**, you will first need to have a TFTP server set up and configured to serve the Layer 4-7 endpoint a file.

A. Once the server is set up, use the below configuration to set up a TFTP endpoint.

Note: You will need to provide your own server's IP and file name.

The screenshot shows the 'Create/Modify L4Endpoint' configuration window. The fields are as follows:

- Name: l4-tftp
- Rpt Timer: fast (1 s)
- Test Manager: default_tm
- Shelf: 1
- Resource: 1 (brent-6port)
- Port: 0 (eth5)(MGT)
- IP Addr: AUTO
- Endp Name: 21
- URLs per 10m: 100
- Max Speed: Infinite
- Quiesce: 3 (3 sec)
- URL Timeout: 10000
- DNS Cache Timeout: 60
- TFTP Block Size: Default (512 B)
- Proxy Port: 0
- Proxy Server: (empty)
- Proxy Auth: (empty)
- Proxy Auth Types: Basic Digest NTLM
- HTTP Compression: Gzip Deflate
- HTTP Auth Types: Basic Digest GSS-Negotiate NTLM
- SSL Cert: ca-bundle.crt
- SMTP-From: (empty)
- Agent/RCPT-TO: (empty)
- UL/DL: Download
- IP4 IP6
- URL: tftp://192.168.100.93/large-file.bin
- Source/Dest File: /dev/null
- Get-URLs-From-File Authenticate Server Use-Proxy Allow-Reuse Allow-Cache Enable 4XX Show Headers
- Bind DNS FTP PASV FTP EPSV

Buttons: Apply, OK, Batch-Create, Cancel

- I. Set the **Port** to a port that can talk to the TFTP server. In this case the server was on the management network so eth0 was used.
- II. **URLs per 10m** was left at the default **100**, this can be set higher or lower depending on how often the file should be downloaded.
- III. Set **URL** to **tftp://server-IP/filename**.
- IV. **Source/Dest File** can be **/dev/null**.