LANforge File-IO with CIFS and NFS

**Goal**: Create a series of MAC-VLAN based clients to emulate CIFS and NFS traffic.

This cookbook connects a LANforge system to a file server with CIFS and NFS shares available. The file server in this example will be 10.26.1.3. It will be sharing `smb://10.26.1.3/fileio` and `10.26.1.3:/home/fileio`. We will create ten readers and ten writers for each file sharing protocol. This demonstrates using the **Batch Create** tool in the **FileIO** tab.

1. Create initial MAC VLANS for our emulated endpoints. In the **Port Mgr** tab, highlight a a **non-management** port on your LANforge FIRE system and click **Create**.
A. Create 40 MAC VLANs with IPs starting at 10.26.1.10.

B. Choose either :::::* or select a starting MAC address, like 00:26:*:*:*.*

C. Enter 10.26.1.10 and 255.255.255.0 for the IP and netmask.

D. Set Quantity to 40.

E. Click Apply to create the MAC VLANs.

F. Click Cancel to close the Create window.
B. See the 40 MAC VLANs in the **Ports** tab.

For more information see **GUI Users Guide**

2. Create your first FileIO NFS Endpoint. In the **FileIO** tab, click **Create**.
A. Use the following settings to create a NFS reader writer endpoint.

B. Enter nfs-writer for the name.

C. Select NFS for FS-Type

D. Select 2KB for the Min-RW Size

E. Choose 1MB for the Max-RW Size

F. For Min File Size choose 10KB

G. Then for Max File Size choose 25MB

H. The Min Write Rate is the minimum inbound line rate, start at 100Mbps

I. Then set the Max Write Rate at 1Gbps

J. Set the number of files written per connection: set File # to 2

K. Now we specify the NFS server: set Server to 10.26.1.3:/home/fileio

L. You can leave Directory and Mount-Dir at AUTO

M. Click OK to commit the settings.

3. In the File-I0 tab, select the endpoint you just created and click Modify
A. The **File-Io Details** dialog appears. Click the **Batch Create** button at the bottom of the screen.

![File-Io Batch Creator: nfs-writer](image)

- **Quantity**: 9  
- **Number of Digits**: 2
- **Zero Pad**: 
  - **Starting Name Suffix**: 1  
  - **Name Increment**: 1
- **Resource Increment A**: 0
- **Port Increment A**: 1
- **Directory Increment**: 1
- **Mount-Dir Increment**: 1
- **Prefix Increment**: 1
- **Volume Increment**: 1

![LANforge Manager Version 5.2.11](image)

B. Enter these values into the Batch Create dialog:

A. **Quantity** should be 9
B. **Number of Digits** should be 2
C. Click **Apply**

C. Close the Batch Create window. You will see the new endpoints.

4. Create initial endpoint for CIFS writer.
A. Name the endpoint cifs-writer

B. Set PS-Type to CIFS

C. Then set the Port to the next open MAC VLAN: plp1#10

D. Set the Min-RW Size and Max-RW Size to 2k and 1M

E. For the Min File Size and Max File Size enter 10KB and 100MB

F. The Min Write Rate and the Max Write Rate should be 10 Mbps and 100 Mbps

G. Enter //10.26.1.3/fileio for Server

H. Supply the credentials for the CIFS mount point in Options. For this example, our username and password are 'lanforge' and 'lanforge'. Write them as options to the mount command: user=lanforge,passwd=lanforge

I. Click Apply

5. Use Batch Create to create nine more CIFS endpoints. You do not actually need to close the Create/Modify window. Click on Batch Create directly.

A. In the Batch Create window, Enter:

- cifs-writer01, cifs-writer02 ... cifs-writer09
- Resources: 1, 1 ... 1
- Ports: plp1#11, plp1#12 ... plp1#19
- Quantity: 9
- Number of Digits: 2
- Zero Pad
- Starting Name Suffix: 1
- Name Increment: 1
- Resource Increment A: 0
- Port Increment A: 1
- Directory Increment: 1
- Mount-Dir Increment: 1
- Prefix Increment: 1
- Volume Increment: 1

B. In Create/Modify click Cancel
6. We will proceed to creating the same number of **NFS reader endpoints** by using a writer as a template for a reader:

7. Open the Modify window of the endpoint **nfs-writer**

A. Change the **Name** to **nfs-reader**

B. Set the **Port** to the next unused MAC VLAN, p1p1#20

C. Change **Read/Write** to **Read**

D. Set the **Min Read Rate** and **Max Read Rate** to 10 Mbps and 100 Mbps

E. To match this reader to a writer, set the **Prefix** field to nfs-writer

F. Click **Apply**

8. Before closing the Modify windows we can use Batch Create to create nine more NFS endpoints:

9. Click on the **Batch Create** window of the endpoint **nfs-reader**
A. Change the **Quantity** to 9.

B. Set the **Number of Digits** to 2.

C. Click **Apply**

D. Click **Close**

E. In the **Modify** window, click **Cancel**

10. And we now create the same number of **CIFS reader endpoints**. Start by using **cifs-writer** as a template:
A. Open the Modify window of the endpoint **cifs-writer**.

B. Change the **Name** to **cifs-reader**.

C. Set the **Port** to the next unused MAC VLAN, **pl1#30**.

D. Change **Read/Write** to **Read**.

E. Set the **Min Read Rate** and **Max Read Rate** to **10 Mbps** and **100 Mbps**.

F. To match this reader to a writer, set the **Prefix** field to **cifs-writer**.

G. Supply the credentials for the CIFS mount point in **Options**. For this example, our username and password are `lanforge` and `lanforge`. Write them as options to the mount command: `user=lanforge,password=lanforge`

H. Click **Apply**.

B. Before closing the Modify windows we can use Batch Create to create nine more CIFS reader endpoints:

C. Click on the **Batch Create** window of the endpoint **cifs-reader**.

A. Change the **Quantity** to **9**.

B. Set the **Number of Digits** to **2**.

C. Click **Apply**.

D. Click **Close**.

E. In the Modify window, click **Cancel**.

11. In the **File-IO** tab, we see our newly created reader endpoints.
12. Start the reader/writer testing.
   A. In the **File-IO** tab, begin by starting the NFS writers
A. Click on the **Name** column header to sort the rows of readers and writers.

B. You can use **control-left-click** and drag to select the group of writers.

C. Click the **Start** button at the top.
B. Next, start the CIFS writers

C. Then the NFS readers
13. We can inspect the traffic in the Dynamic Report window and the File-IO tab:

A. Select a group of endpoints and right click on them, select **Dynamic Report**
B. In the Dynamic Report window, select the checkbox Rx-Bps.

C. In the File-Io window, we can watch for Files Written and IO Errors: