Networking

U3L1 Lab: IPv4 Address Configuration

Configuring IPv4 Addresses

Guiding Question: How does correctly configuring IPv4 addresses, subnet masks, and default gateways enable communication between devices on the same and different networks?

Students will:

- Set IPv4 address scheme in LANs according to Class type and Public/Private type.
- Correct IPv4 addressing errors in a provided WAN with 3 LANs.
- Confirm connectivity between devices using Ping command.

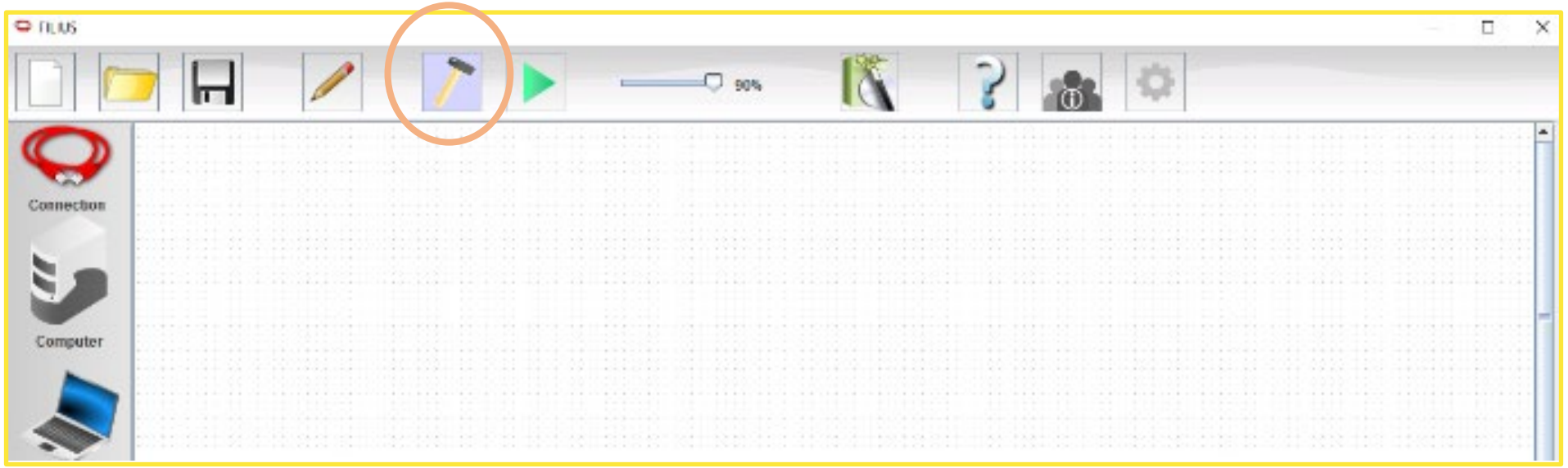
Configuring IPv4 Addresses Materials

- Materials Needed
  - Windows Server 2022 Machine
- Software Tools Used
  - Filius Network Simulator
- Filius File
  - ThreeLANsConfigureIP.fls

Required knowledge: How to configure addressing on devices and confirm connectivity in Filius. Refer to *U1L3 Lab Filius Simple Network Creation* if needed.

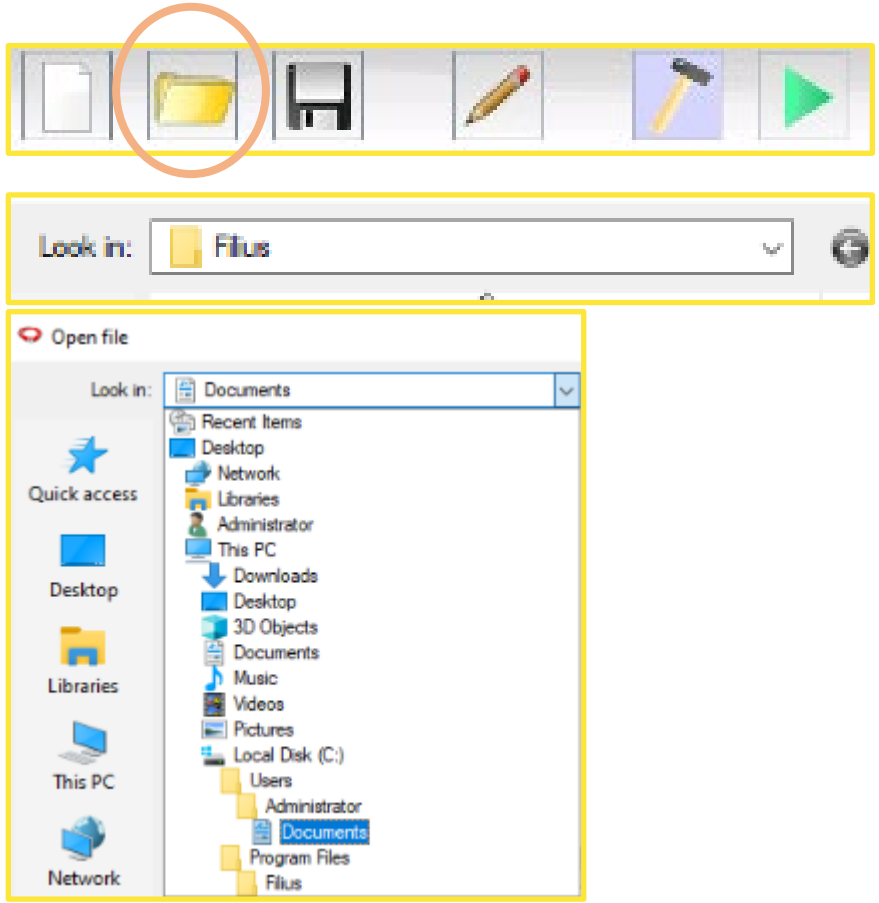
Opening Filius

- Connect to the WinServer 2022 machine and open Filius.
  - Click the Search bar, type "Filius," and select Filius
- Click the **“Design Mode”** button in the top toolbar (The hammer icon)



Opening Files in Filius

- Click the folder icon
- Click on the dropdown arrow next to *Look In*
- Navigate to *C:\Users\Administrator\Documents\Networking Files*
- ***Select*** *ThreeLANsConfigureIP.fls*

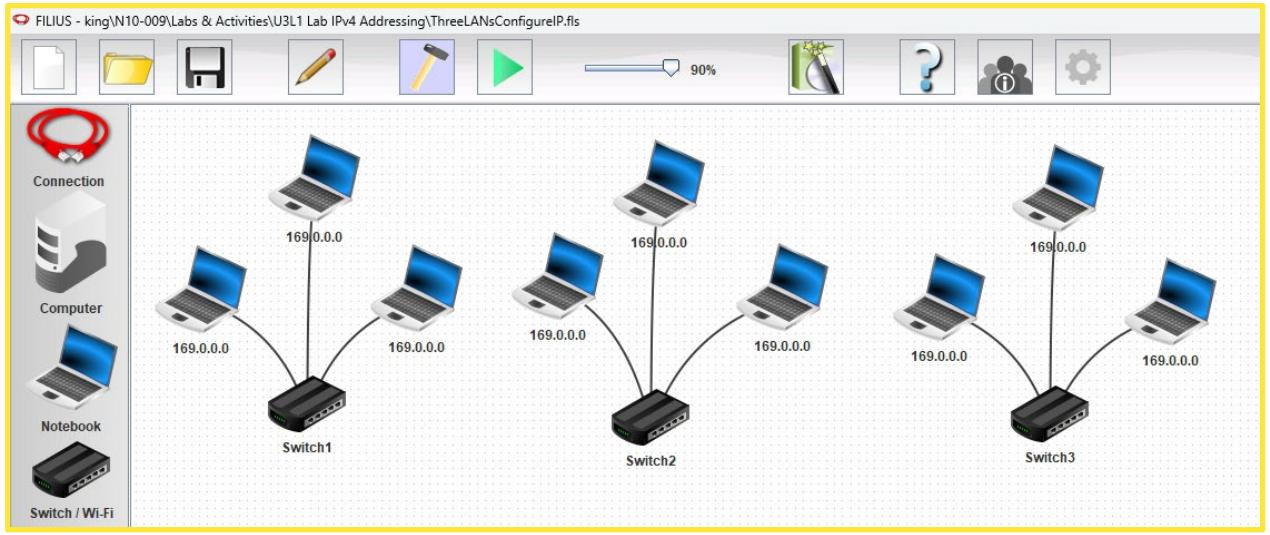


Configure IP addresses on laptops

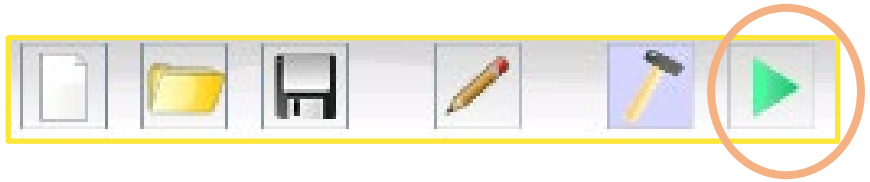
Configure **the IP address and subnet mask** on each laptop according to this criteria:

- Switch 1 devices – use a Public Class A IP address scheme.
- Switch 2 devices – use a Private Class B IP address scheme.
- Switch 3 devices – use a Public Class C IP address scheme.

** you may use any number in the correct scheme type.



Testing the LANs



Click “Simulation Mode” in the top toolbar.

1. Click on the first PC on Switch1, open the “Command Line” app.
2. Type **`ping`** and the `IP address` of the second PC on Switch1 to test communication, then click `Enter`.
   - Success = 4 replies. If this doesn’t work, go back into Design Mode to identify the configuration issue.
     - Are all the IP addresses on that Switch in the same network?
     - Is the subnet mask the same for all devices on that Switch?
3. Ping the third PC on Switch1 to test communication.

Testing the LANs

1. Ping between devices on Switch 2 to confirm communication.
2. Ping between devices on Switch 3 to confirm communication.
3. Troubleshoot and correct if there are issues.

- Once communication is confirmed in all LANS, hand in a screenshot of the Filius screen if required by instructor.