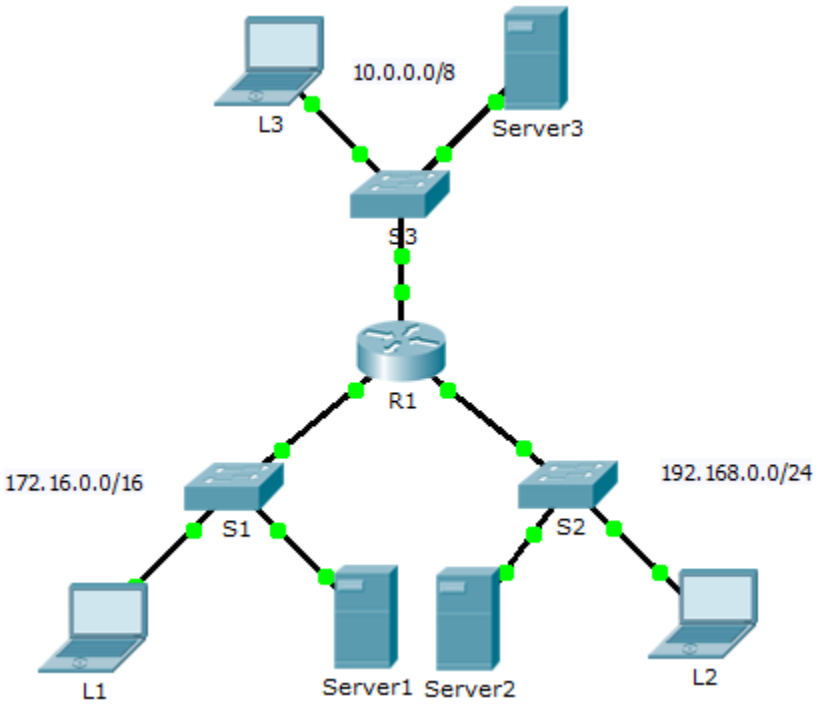
# Packet Tracer - Troubleshooting IPv4 ACLs

## Topology




## Addressing Table

| Device | Interface | IP Address | Subnet Mask | Default Gateway |
|---|---|---|---|---|
| R1 | G0/0 | 10.0.0.1 | 255.0.0.0 | N/A |
| | G0/1 | 172.16.0.1 | 255.255.0.0 | N/A |
| | G0/2 | 192.168.0.1 | 255.255.255.0 | N/A |
| Server1 | NIC | 172.16.255.254 | 255.255.0.0 | 172.16.0.1 |
| Server2 | NIC | 192.168.0.254 | 255.255.255.0 | 192.168.0.1 |
| Server3 | NIC | 10.255.255.254 | 255.0.0.0 | 10.0.0.1 |
| L1 | NIC | 172.16.0.2 | 255.255.0.0 | 172.16.0.1 |
| L2 | NIC | 192.168.0.2 | 255.255.255.0 | 192.168.0.1 |
| L3 | NIC | 10.0.0.2 | 255.0.0.0 | 10.0.0.1 |

## Objectives

**Part 1: Troubleshoot ACL Issue 1**

**Part 2: Troubleshoot ACL Issue 2**

**Part 3: Troubleshoot ACL Issue 3**

## Scenario

This network is meant to have the following three policies implemented:

- Hosts from the 192.168.0.0/24 network are unable to access any TCP service of **Server3**.
- Hosts from the 10.0.0.0/8 network are unable to access the HTTP service of **Server1**.
- Hosts from the 172.16.0.0/16 network are unable to access the FTP service of **Server2**.

**Note**: All FTP usernames and passwords are "**cisco**".

No other restrictions should be in place. Unfortunately, the rules that have been implemented are not working correctly. Your task is to find and fix the errors related to the access lists on **R1**.

# Part 1: Troubleshoot ACL Issue 1

Hosts from the 192.168.0.0/24 network are intentionally unable to access any TCP service of **Server3**, but should not be otherwise restricted.

### Step 1: Determine the ACL problem.

As you perform the following tasks, compare the results to what you would expect from the ACL.

a. Using **L2**, attempt to access FTP and HTTP services of **Server1**, **Server2**, and **Server3**.

b. Using **L2**, ping **Server1**, **Server2**, and **Server3**.

c. Using **L2**, ping **G0/2** of **R1**.

d. View the running configuration on **R1**. Examine access list **192_to_10** and its placement on the interfaces. Is the access list placed on the correct interface and in the correct direction? Is there any statement in the list that permits or denies traffic to other networks? Are the statements in the correct order?

e. Perform other tests, as necessary.

### Step 2: Implement a solution.

Make an adjustment to access list **192_to_10** to fix the problem.

### Step 3: Verify that the problem is resolved and document the solution.

If the problem is resolved, document the solution: otherwise return to Step 1.

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No traffic is getting through because of the implicit deny any. Added a **permit ip any any** to the ACL

# Part 2: Troubleshoot ACL Issue 2

Hosts from the 10.0.0.0/8 network are intentionally unable to access the HTTP service of **Server1**, but should not be otherwise restricted.

### Step 1: Determine the ACL problem.

As you perform the following tasks, compare the results to what you would expect from the ACL.

a. Using **L3**, attempt to access FTP and HTTP services of **Server1**, **Server2**, and **Server3**.

b. Using **L3**, ping **Server1**, **Server2**, and **Server3**.

c. View the running configuration on **R1**. Examine access list **10_to_172** and its placement on the interfaces. Is the access list placed on the correct interface and in the correct direction? Is there any statement in the list that permits or denies traffic to other networks? Are the statements in the correct order?

d. Run other tests as necessary.

### Step 2: Implement a solution.

Make an adjustment to access list **10_to_172** to fix the problem.

### Step 3: Verify the problem is resolved and document the solution.

If the problem is resolved, document the solution; otherwise return to Step 1.

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ACL was applied outbound on G0/0. Removed as outbound and applied as inbound on G0/0.

## Part 3: Troubleshoot ACL Issue 3

Hosts from the 172.16.0.0/16 network are intentionally unable to access the FTP service of **Server2**, but should not be otherwise restricted.

### Step 1: Determine the ACL problem.

As you perform the following tasks, compare the results to the expectations of the ACL.

a. Using **L1**, attempt to access FTP and HTTP services of **Server1**, **Server2**, and **Server3**.

b. Using **L1**, ping **Server1**, **Server2**, and **Server3**.

c. View the running configuration on **R1**. Examine access list **172_to_192** and its placement on the interfaces. Is the access list placed on the correct port in the correct direction? Is there any statement in the list that permits or denies traffic to other networks? Are the statements in the correct order?

d. Run other tests as necessary.

### Step 2: Implement a solution.

Make an adjustment to access list **172_to_192** to fix the problem.

### Step 3: Verify the problem is resolved and document the solution.

If the problem is resolved, document the solution; otherwise return to Step 1.

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All traffic is allowed through because the order of the statements is wrong. Reorder the statements so that the **permit ip any any** is the second statement