****

**IP address Table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Router/Machine** | **Interface** | **IPV6 Address** | **Link local address** | **IPV6 Gateway** |
| **R1** | **G 0/0** | **2001:DB8:1:10::1/64** | **FE80::1** | **-** |
| **G0/1** | **2001:DB8:1:11::1/64** | **FE80::1** | **-** |
| **S0/0/0** | **2001:DB8:1:1::1/64** | **-** | **-** |
| **R2** | **S0/0/0** | **2001:DB8:1:1::2/64** | **-** | **-** |
| **S0/0/1** | **2001:DB8:1:2::2/64** | **-** | **-** |
| **R3** | **G0/1** | **2001:DB8:30:2::1/64** | **FE80::3** | **-** |
| **S0/0/0** | **2001:DB8:1:2::1/64** | **-** | **-** |
| **PC1** | **FE 0/1** | **2001:DB8:1:10::10/64** | **-** | **FE80::1** |
| **PC2** | **FE 0/1** | **2001:DB8:1:11::11/64** | **-** | **FE80::1** |
| **SERVER** | **FE 0/1** | **2001:DB8:30:2::30/64** | **-** | **FE80::3** |

**IPV6 address configuration**

**Router (Config )# hostname R1**

**R1(config)#ipv6 unicast-routing**

**int g0/0**

**duplex auto**

**speed auto**

**ipv6 address 2001:DB8:1:10::1/64**

**no shut**

**ipv6 address address FE80::1 link-local**

**no shut**

**ipv6 rip riping enable**

**exit**

**do sh ipv6 int g0/0 (to check the link local address)**

**int g0/1**

**ipv6 unicast-routing**

**duplex auto**

**speed auto**

**ipv6 address 2001:DB8:1:11::1/64**

**no shut**

**ip6 address address FE80::1 link-local**

**no shut**

**ipv6 rip riping enable**

**exit**

**int s0/0/0**

**ipv6 unicast-routing**

**ipv6 address 2001:DB8:1:1::1/64**

**no shut**

**ipv6 rip ripng enable**

**Router R2**

**Router (Config )# hostname R2**

**R2(config)#ipv6 unicast-routing**

**int s0/0/0**

**no ip address**

**ipv6 address 2001:DB8:1:1::2/64**

**no shut**

**ipv6 rip ripng enable**

**exit**

**int s0/0/1**

**no ip address**

**ipv6 address 2001:DB8:1:2::2/64**

**no shut**

**ipv6 rip ripng enable**

**exit**

**R3**

**Router (Config )# hostname R3**

**R3(config)#ipv6 unicast-routing**

**int g0/0**

**duplex auto**

**speed auto**

**ipv6 address 2001:DB8:30:2::1/64**

**no shut**

**ipv6 address address FE80::3 link-local**

**no shut**

**ipv6 rip riping enable**

**exit**

**int s0/0/1**

**ipv6 unicast-routing**

**ipv6 address 2001:DB8:1:2::1/64**

**no shut**

**ipv6 rip ripng enable**

**Step 1: Configure an ACL that will block HTTP and HTTPS access.**

Block HTTP and HTTPS traffic from reaching **Server3**.

R1(config)# **deny tcp any host 2001:DB8:1:30::30 eq www**

R1(config)# **deny tcp any host 2001:DB8:1:30::30 eq 443**

b. Allow all other IPv6 traffic to pass.

R1(config)# **permit ipv6 any any**

**Step 2: Apply the ACL to the correct interface.** Apply the ACL on the

R1(config)# **interface GigabitEthernet0/1**

R1(config-if)# **ipv6 traffic-filter BLOCK\_HTTP in**

**Step 3: Verify the ACL implementation.**

Verify that the ACL is operating as intended by conducting the following tests:

• Open the **web browser** of **PC1** to http://2001:DB8:1:30::30 or https://2001:DB8:1:30::30. The website should appear.

• Open the **web browser** of **PC2** to http://2001:DB8:1:30::30 or https://2001:DB8:1:30::30. The website should be blocked.

• Ping from **PC2** to 2001:DB8:1:30::30. The ping should be successful.

**Configure, Apply, and Verify a Second IPv6 ACL**

The logs now indicate that your server is receiving pings from many different IPv6 addresses in a Distributed Denial of Service (DDoS) attack. You must filter ICMP ping requests to your server.

**Step 1: Create an access list to block ICMP.**

Configure an ACL named **BLOCK\_ICMP** on **R3** with the following statements:

a. Block all ICMP traffic from any hosts to any destination.

R3(config)# **deny icmp any any**

b. Allow all other IPv6 traffic to pass.

R3(config)# **permit ipv6 any any**

**Step 2: Apply the ACL to the correct interface.**

In this case, ICMP traffic can come from any source. To ensure that ICMP traffic is blocked, regardless of its source or any changes that occur to the network topology, apply the ACL closest to the destination.

R3(config)# **interface GigabitEthernet0/0**

R3(config-if)# **ipv6 traffic-filter BLOCK\_ICMP out**

**Step 3: Verify that the proper access list functions.**

1. a. Ping from **PC2** to 2001:DB8:1:30::30. The ping should fail.
2. b. Ping from **PC1** to 2001:DB8:1:30::30. The ping should fail.

Open the **web browser** of **PC1** to http://2001:DB8:1:30::30 or https://2001:DB8:1:30::30. The website should display.