IPv6 OSPF

Switch Stuff

- You will need to update your SDM on your 3560 and reboot in order to enable IPv6 routing:
  1. `sdm prefer dual-ipv4-and-ipv6 routing`
- Notes:
  - Use Process ID: 65535 when configuring OSPF.
  - Configure your VLAN uplink (VLAN1XX from equipment page) on: `2604:2c00:ffdf:<vlanid>::/64` using EUI-64, so your 3560 will auto-config its IP.
  - You should then be able to ping: `2604:2c00:ffdf:<vlanid>::1`, if you can not, you got a problem.

IPv4 Loopback Configuration:

- Pick one of your unused IPv4 /30's from the previous assignments.
- Split it into four unique /32 IPv4 single hosts.
- Configure three of those four as a /32 single IPv4 IP address on `interface Loopback0` on all three of your hosts. One unique IP per host.
- Make sure and document which IP is going where on your documentation text file you should already have saved from before.

IPv6 Address Stuff:

- Pick THREE of your different /56 IPv6 networks from the previous assignment.
- Using your first of your three /56 IPv6 networks configure them as follows:
  1. Using the first /64 in your first /56, configure your 3560 to 2800-1 on that /64 prefix. Use EUI-64 for both sides.
  2. Using the second /64 of your first /56, configure your 3560 to 2800-2 on that /64 prefix. Use EUI-64 for both sides.
  3. Using the third /64 of your first /56, configure your 2800-1 to 2800-2 sub-interface on that /64 prefix. Statically configure your routers using ::1 for your 2800-1 and ::2 for your 2800-2.
- Verify your IPv6 Router Configs:
  1. Verify you can ping from the 3560 to the 2800-1 on the IPv6 IP you assigned above (screen shot or copy text output).
  2. Verify you can ping from the 3560 to the 2800-2 on the IPv6 IP you assigned above (screen shot or copy text output).
  3. Verify you can ping from your 2800-1 to your 2800-2 over the third /64 from above (screen shot or copy text output).
- Using your SECOND /56, find the second /64 of that /56 for use on the 2800-1 and do the following:
  1. Statically Configure your 2800-1 on your VM VLAN to be ::1 /64 on your SECOND /64 from your second /56.
  2. Configure your VM to auto obtain an IP address (using EUI-64).
  3. Prove you can ping your 2800-1 on the ::1 /64 IP you statically configured it to (screen shot or copy text output)
- Repeat for the THIRD /56, on your 2800-2 facing your VM.
  1. Statically configure your 2800-2 on your VM#2 VLAN to be ::1 /64 on your SECOND /64 from your THIRD /56.
  2. Configure your VM to auto obtain an IP address (using EUI-64).
  3. Prove you can ping your 2800-2 on the ::1 /64 IP you statically configured it to (screen shot or copy text output)

IPv6 OSPF Setup:

- Setup OSPF on your 3560 using Area 0 on your Vlan1XX interface you have with me.
  1. Set your router-id in your IPv6 OSPF router config to be your Loopback0 IPv4 IP (yes, IPv4 IP)
  2. redistribute your connected and static routes in IPv6 using metric 1.
  3. Setup a summary address on your 3560 for your FULL IPv6 /48 block you are allocated.
  4. Make sure OSPF comes up (sho ipv6 ospf neighbor). Save a copy once it does for proof (see next step).
- don't forget to use `ipv6 ospf network point-to-point` and `ipv6 enable` on your interfaces.

- Repeat by setting up OSPF on your 3560 to 2800-1 and 3560 to 2800-2 and 2800-1 to 2800-2 using AREA 100

- Make sure you use the Loopback0 IPv4 IP on your 2800 routers IPv6 OSPF Router-Id.
- Redistribute your connected and static routes so your VM networks will get advertised up the chain.
- Make sure OSPF comes up on your 2800-1, 2800-2 and 3560 for all your sessions (you should have three on 3560, and two on each of your 2800s when done).
- Save the output of `show ipv6 ospf neighbor` from all three devices once they are all up for verification purposes.

**IPv6 Tests:**

- Prove that you can ping6 and traceroute6 www.google.com from your VM#1 and VM#2 using IPv6.
  - Make sure you set your DNS servers on your VMs to 204.17.177.11 / 204.17.177.21 as you probably still have ACLs blocking other DNS servers from a previous assignment.
  - Copy a screenshot or copy the text output from each VM for points.

**Pass off instructions:**

1. Upload the output of your verifications from above to Canvas by the due-date and time.
2. Copy the output of `show run` from each of your three devices to individual text files for uploading purposes.