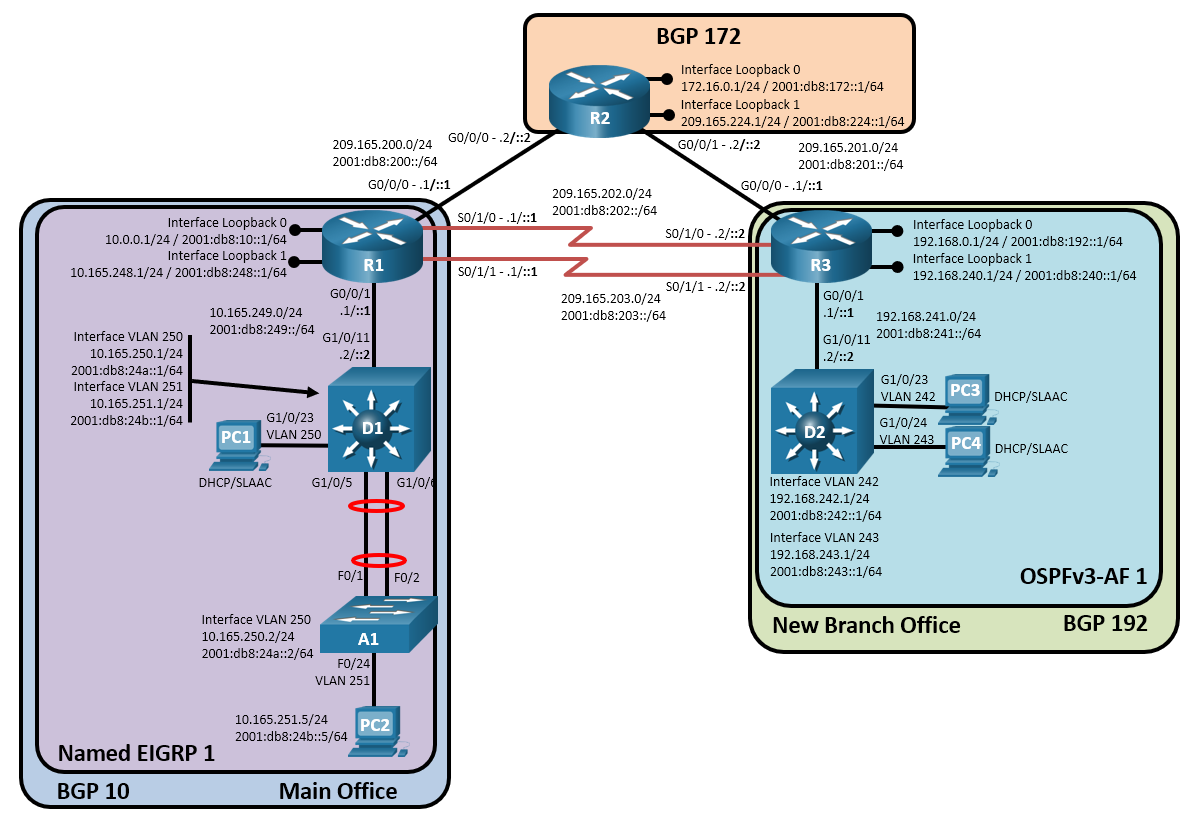
ENARSI Skills Assessment - Troubleshooting (Instructor Version)

**Instructor Note**: Red font color or gray highlights indicate text that appears in the instructor copy only.

# Topology



# Addressing Table

| Device | Interface | IPv4 Address/Mask | IPv6 Address/Prefix Length | Link-Local Address |
| --- | --- | --- | --- | --- |
| R1 | G0/0/0 | 209.165.200.1/24 | 2001:db8:200::1/64 | fe80::1:1 |
| R1 | G0/0/1 | 10.165.249.1/24 | 2001:db8:249::1/64 | fe80::1:2 |
| R1 | Loopback 0 | 10.0.0.1/24 | 2001:db8:10::1/64 | fe80::1:3 |
| R1 | Loopback 1 | 10.165.248.1/24 | 2001:db8:248::1/64 | fe80::1:4 |
| R2 | G0/0/0 | 209.165.200.2/24 | 2001:db8:200::2/64 | fe80::2:1 |
| R2 | G0/0/1 | 209.165.201.2/24 | 2001:db8:201::2/64 | fe80::2:2 |
| R2 | Loopback 0 | 172.16.0.1/24 | 2001:db8:172::1/64 | fe80::2:3 |
| R2 | Loopback 1 | 209.165.224.1/24 | 2001:db8:224::1/64 | fe80::2:4 |
| R3 | G0/0/0 | 209.165.201.1/24 | 2001:db8:201::1/64 | fe80::3:1 |
| R3 | G0/0/1 | 192.168.241.1/24 | 2001:db8:241::1/64 | fe80::3:2 |
| R3 | Loopback 0 | 192.168.0.1/24 | 2001:db8:192::1/64 | fe80::3:3 |
| R3 | Loopback 1 | 192.168.240.1/24 | 2001:db8:240::1/64 | fe80::3:4 |
| D1 | G1/0/11 | 10.165.249.2/25 | 2001:db8:249::2/64 | fe80::d1:1 |
| D1 | VLAN 250 | 10.165.250.1/24 | 2001:db8:24a::1/64 | fe80::d1:2 |
| D1 | VLAN 251 | 10.165.251.1/24 | 2001:db8:24b::1/64 | fe80::d1:3 |
| D2 | G1/0/11 | 192.168.241.2/24 | 2001:db8:241::2/64 | fe80::d2:1 |
| D2 | VLAN 242 | 192.168.242.1/24 | 2001:db8:242::1/64 | fe80::d2:2 |
| D2 | VLAN 243 | 192.168.243.1/24 | 2001:db8:243::1/64 | fe80::d2:3 |
| A1 | VLAN 250 | 10.165.250.2/24 | 2001:db8:24a::2/64 | fe80::a1:1 |
| PC1 | NIC | DHCP | SLAAC | EUI-64/CGA |
| PC2 | NIC | 10.165.251.5/24 | 2001:db8:24b::5/64 | EUI-64/CGA |
| PC3 | NIC | DHCP | SLAAC | EUI-64/CGA |
| PC4 | NIC | DHCP | SLAAC | EUI-64/CGA |

# Objectives

Troubleshoot network issues related to the configuration and operation of routing protocols.

# Background / Scenario

This is the same topology that you built in Part 1 of the ENARSI SA. In this topology, R1 and D1 are EIGRP neighbors and R3 and D2 are OSPF neighbors. R1, R2, and R3 are all speaking BGP for their respective ASNs. Switch A1 is supporting host access for a AAA server. You will be loading configurations with intentional errors onto the network. Your tasks are to FIND the error(s), document your findings and the command(s) or method(s) used to fix them, FIX the issue(s) presented here and then test the network to ensure both of the following conditions are met:

* + - * 1. the complaint received in the ticket is resolved
        2. full reachability is restored

**Note**: The routers used with CCNP hands-on labs are Cisco 4221 with Cisco IOS XE Release 16.9.4 (universalk9 image). The switches used in the labs are Cisco Catalyst 3650 with Cisco IOS XE Release 16.9.4 (universalk9 image) and Cisco Catalyst 2960 with Cisco IOS Release 15.2(2) (lanbasek9 image). Other routers, switches, and Cisco IOS versions can be used. Depending on the model and Cisco IOS version, the commands available and the output produced might vary from what is shown in the labs. Refer to the Router Interface Summary Table at the end of the lab for the correct interface identifiers.

**Note**: Make sure that the devices have been erased and have no startup configurations. If you are unsure, contact your instructor.

**Note**: The default Switch Database Manager (SDM) template on a Catalyst 2960 does not support IPv6. You must change the default SDM template to the dual-ipv4-and-ipv6 default template using the **sdm prefer dual-ipv4-and-ipv6 default** global configuration command. Changing the template will require a reboot.

**Instructor Note**: Refer to the Instructor Lab Manual for the procedures to initialize and reload devices.

# Required Resources

* 3 Routers (Cisco 4221 with Cisco IOS XE Release 16.9.4 universal image or comparable)
* 2 Switches (Cisco 3650 with Cisco IOS XE Release 16.9.4 universal image or comparable)
* 1 Switch (Cisco 2960 with Cisco IOS Release 15.2(2) lanbasek9 image or comparable)
* 3 PCs (Choice of operating system with terminal emulation program installed)
* 1 PC (Choice of operating system with a server running configured RADIUS (Optional))
* Console cables to configure the Cisco IOS devices via the console ports
* Ethernet and serial cables as shown in the topology

# Scenario

You had the network working to specifications and took a week off. While you were gone, a junior administrator and a security engineer were tasked to improve the network. The opposite occurred. Now you are tasked with fixing the network.

The instructions the junior administrator and security engineer were given were as follows:

1. Reduce the number of TCP sessions between R1 and R3.
2. Apply IPv4 and IPv6 filters to the outward-facing interfaces on R1 and R3 to ensure that inbound traffic sourced from their local networks is dropped.
3. Reduce the size of the EIGRP routing table on R1.
4. Reduce the number of route entries R1 is sending to R2.
5. Incorporate AAA using the AAA server at 209.165.251.5 to secure remote access to all devices in the AS 10 and AS 192 networks.

They did not document things as they were supposed to, so all you have been told is things are not working as they should be. You need to fix all of this as soon as possible!

Use the commands listed below to load the configuration files for this skills assessment:

**Instructor Note**: Commands for uploading the configuration are provided at the end of this document.

|  |  |
| --- | --- |
| Device | Command |
| R1 | **copy flash:/enarsi/sa-tshoot-r1-config.txt run** |
| R2 | **copy flash:/enarsi/sa-tshoot-r2-config.txt run** |
| R3 | **copy flash:/enarsi/sa-tshoot-r3-config.txt run** |
| D1 | **copy flash:/enarsi/sa-tshoot-d1-config.txt run** |
| D2 | **copy flash:/enarsi/sa-tshoot-d2-config.txt run** |
| A1 | **copy flash:/enarsi/sa-tshoot-a1-config.txt run** |

* Console Passwords on all devices are **cisco12345**. If a username is required, use **admin**.
* Remote access should be available using the username **raduser** and password **upass123**.

**Instructor Note**: If you are using a RADIUS server, update the RADIUS username and password as necessary.

* PC2 must be configured with static addresses as shown in the topology diagram/addressing table. PC1, PC3, and PC4 will dynamically acquire IPv4 and IPv6 addresses.
* When you have fixed the ticket, change the MOTD on EACH DEVICE using the following command:

**banner motd # This is $(hostname) FIXED Skills Assessment #**

* Save the configuration by issuing the **wri** command (on each device).
* Inform your instructor that you are finished.
* After the instructor approves your solution, issue the **reset.now** privileged EXEC command. This script will clear your configurations and reload the devices.

**Instructor Notes:**

This skills assessment contains several intentional errors. The list below is mapped to the tasks given the junior administrator and security engineer:

1. Reduce the number of TCP sessions between R1 and R3.

The junior administrator did not complete the configuration - at both R1 and R3, the ebgp-multihop command was excluded. The commands to fix this error are:

**Router R1**

conf t

router bgp 10

neighbor 192.168.0.1 ebgp-multihop 3

neighbor 2001:db8:192::1 ebgp-multihop 3

exit

end

**Router R3**

config t

router bgp 192

neighbor 10.0.0.1 ebgp-multihop 3

neighbor 2001:db8:10::1 ebgp-multihop 3

exit

end

1. Apply IPv4 and IPv6 filters to the outward-facing interfaces on R1 and R3 to ensure that inbound traffic sourced from their local networks is dropped.

R3 has the **default-information originate** command, but it does not seem to be working. D2 does not see the default route. R2 is sending it, as R1 has it. The issue is that the MY-*X*-NETWORKS filter at the G0/0/0 ingress is denying 0.0.0.0. *The filters configured on R1 are correct.* The commands to fix this on R3 are as follows:

config t

ip access-list standard MY-4-NETWORKS

no 30

exit

ipv6 access-list MY-6-NETWORKS

no permit ipv6 any any

exit

end

clear ip bgp \* soft

1. Reduce the size of the EIGRP routing table at R1.

The junior administrator used the wrong mask on the summary address at D1, so the networks from D1 are not all being advertised to R1. The commands to fix this on D1 are as follows:

conf t

router eigrp ENARSI-SA

address-family ipv4 unicast autonomous-system 1

af-interface g1/0/11

no summary-address 10.165.250.0 255.255.255.0

summary-address 10.165.250.0 255.255.254.0

exit-af-interface

exit-address-family

address-family ipv6 unicast autonomous-system 1

af-interface g1/0/11

no summary-address 2001:db8:240::/48

summary-address 2001:db8:240::/46

exit-af-interface

exit-address-family

end

1. Reduce the number of route entries R1 is sending to R2.

R1 is missing static routes for the summaries it is advertising into BGP; R2 and R3 only have routes to the 10.0.0.0 network in ASN 10. The commands to fix this on R1 are as follows:

conf t

ip route 10.165.248.0 255.255.252.0 null0

ipv6 route 2001:db8:248::/46 null0

end

1. Incorporate AAA using the AAA server at 209.165.251.5 to secure remote access to all devices in the AS 10 and AS 192 networks.

*The security engineer did this correctly*.

# Router Interface Summary Table

| Router Model | Ethernet Interface #1 | Ethernet Interface #2 | Serial Interface #1 | Serial Interface #2 |
| --- | --- | --- | --- | --- |
| 1800 | Fast Ethernet 0/0 (F0/0) | Fast Ethernet 0/1 (F0/1) | Serial 0/0/0 (S0/0/0) | Serial 0/0/1 (S0/0/1) |
| 1900 | Gigabit Ethernet 0/0 (G0/0) | Gigabit Ethernet 0/1 (G0/1) | Serial 0/0/0 (S0/0/0) | Serial 0/0/1 (S0/0/1) |
| 2801 | Fast Ethernet 0/0 (F0/0) | Fast Ethernet 0/1 (F0/1) | Serial 0/1/0 (S0/1/0) | Serial 0/1/1 (S0/1/1) |
| 2811 | Fast Ethernet 0/0 (F0/0) | Fast Ethernet 0/1 (F0/1) | Serial 0/0/0 (S0/0/0) | Serial 0/0/1 (S0/0/1) |
| 2900 | Gigabit Ethernet 0/0 (G0/0) | Gigabit Ethernet 0/1 (G0/1) | Serial 0/0/0 (S0/0/0) | Serial 0/0/1 (S0/0/1) |
| 4221 | Gigabit Ethernet 0/0/0 (G0/0/0) | Gigabit Ethernet 0/0/1 (G0/0/1) | Serial 0/1/0 (S0/1/0) | Serial 0/1/1 (S0/1/1) |
| 4300 | Gigabit Ethernet 0/0/0 (G0/0/0) | Gigabit Ethernet 0/0/1 (G0/0/1) | Serial 0/1/0 (S0/1/0) | Serial 0/1/1 (S0/1/1) |

**Note**: To find out how the router is configured, look at the interfaces to identify the type of router and how many interfaces the router has. There is no way to effectively list all the combinations of configurations for each router class. This table includes identifiers for the possible combinations of Ethernet and Serial interfaces in the device. The table does not include any other type of interface, even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in Cisco IOS commands to represent the interface.

End of document

**Uploading Configuration Files**

Use the commands below to create the configuration files on the lab devices for each trouble ticket in this lab. The TCL script commands help create and copy the configurations. However, the configuration commands could also be copied and pasted directly into global config mode on each device. Simply remove the TCL script commands, enter the enable and configure t commands on the device, and copy and paste the configuration commands.

Important: The device requires a folder in flash named enarsi. Use the dir command to verify. If the folder is missing, then create it using the **mkdir flash:/enarsi** privileged exec command.

Reset scripts

These TCL scripts will completely clear and reload the device in preparation for the next ticket. Copy and paste the appropriate script to the appropriate device.

Router Reset Script

tclsh

puts [ open "flash:/enarsi/reset.tcl" w+ ] {

typeahead "\n"

copy running-config startup-config

typeahead "\n"

erase startup-config

puts "Reloading the router"

typeahead "\n"

reload

}

tclquit

D1/D2 (Cisco 3650) Reset Script - The default 3650 SDM template supports IPv6, so it is not set by this script.

tclsh

puts [ open "flash:/enarsi/reset.tcl" w+ ] {

typeahead "\n"

copy running-config startup-config

typeahead "\n"

erase startup-config

delete /force vlan.dat

puts "Reloading the switch"

typeahead "\n"

reload

}

tclquit

A1 (Cisco 2960 Script) - The default 2960 SDM template does not support IPv6, so this script includes that setting.

tclsh

puts [ open "flash:reset.tcl" w+ ] {

typeahead "\n"

copy running-config startup-config

typeahead "\n"

erase startup-config

delete /force vlan.dat

delete /force multiple-fs

ios\_config "sdm prefer lanbase-routing"

typeahead "\n"

puts "Reloading the switch in 1 minute, type reload cancel to halt"

typeahead "\n"

reload

}

tclquit

**R1 Configuration File Scripts**

tclsh

puts [ open "flash:/enarsi/sa-tshoot-r1-config.txt" w+ ] {

hostname R1

no ip domain lookup

ipv6 unicast-routing

banner motd # This is R1, ENARSI SA Part 2 #

enable secret cisco12345

username admin privilege 15 algorithm-type scrypt secret cisco12345

interface g0/0/0

ip address 209.165.200.1 255.255.255.0

ipv6 address fe80::1:1 link-local

ipv6 address 2001:db8:200::1/64

no shutdown

exit

interface g0/0/1

ip address 10.165.249.1 255.255.255.0

ipv6 address fe80::1:2 link-local

ipv6 address 2001:db8:249::1/64

no shutdown

exit

interface s0/1/0

ip address 209.165.202.1 255.255.255.0

ipv6 address fe80::1:3 link-local

ipv6 address 2001:db8:202::1/64

no shutdown

exit

interface s0/1/1

ip address 209.165.203.1 255.255.255.0

ipv6 address fe80::1:4 link-local

ipv6 address 2001:db8:203::1/64

no shutdown

exit

interface loopback 0

ip address 10.0.0.1 255.255.255.0

ipv6 address fe80::1:5 link-local

ipv6 address 2001:db8:10::1/64

no shutdown

exit

interface loopback 1

ip address 10.165.248.1 255.255.255.0

ipv6 address fe80::1:6 link-local

ipv6 address 2001:db8:248::1/64

no shutdown

exit

ip route 192.168.0.1 255.255.255.255 s0/1/0 209.165.202.2

ip route 192.168.0.1 255.255.255.255 s0/1/1 209.165.203.2

ipv6 route 2001:db8:192::1/128 s0/1/0 2001:db8:202::2

ipv6 route 2001:db8:192::1/128 s0/1/1 2001:db8:203::2

ip access-list standard MY-4-NETWORKS

permit 10.0.0.0 0.0.0.255

permit 10.165.248.0 0.0.3.255

exit

route-map FILTER-MY-4-NETS deny 10

match ip address MY-4-NETWORKS

exit

route-map FILTER-MY-4-NETS permit 20

ipv6 access-list MY-6-NETWORKS

permit 2001:db8:248::/46 any

permit 2001:db8:10::/64 any

exit

route-map FILTER-MY-6-NETS deny 10

match ipv6 address MY-6-NETWORKS

exit

route-map FILTER-MY-6-NETS permit 20

router bgp 10

no bgp default ipv4-unicast

neighbor 209.165.200.2 remote-as 172

neighbor 192.168.0.1 remote-as 192

neighbor 192.168.0.1 update-source loopback 0

neighbor 2001:db8:200::2 remote-as 172

neighbor 2001:db8:192::1 remote-as 192

neighbor 2001:db8:192::1 update-source loopback 0

address-family ipv4 unicast

neighbor 209.165.200.2 activate

neighbor 192.168.0.1 activate

neighbor 192.168.0.1 route-map FILTER-MY-4-NETS in

neighbor 209.165.200.2 route-map FILTER-MY-4-NETS in

network 10.0.0.0 mask 255.255.255.0

network 10.165.248.0 mask 255.255.252.0

exit

address-family ipv6 unicast

neighbor 2001:db8:200::2 activate

neighbor 2001:db8:192::1 activate

neighbor 2001:db8:200::2 route-map FILTER-MY-6-NETS in

neighbor 2001:db8:192::1 route-map FILTER-MY-6-NETS in

network 2001:db8:10::/64

network 2001:db8:248::/46

exit

exit

router eigrp ENARSI-SA

address-family ipv4 unicast autonomous-system 1

eigrp router-id 0.4.10.1

network 10.0.0.0

network 10.165.248.0

network 10.165.249.0

topology base

redistribute bgp 10 metric 1000000 10 255 1 1500

exit

exit-address-family

address-family ipv6 unicast autonomous-system 1

eigrp router-id 0.6.10.1

topology base

redistribute bgp 10 metric 1000000 10 255 1 1500

exit

af-interface g0/0/0

shutdown

exit-af-interface

exit-address-family

exit

aaa new-model

radius server MY-RADIUS

address ipv4 10.165.251.5 auth-port 1812 acct-port 1813

key $trongPass

exit

aaa authentication login VTY-CONTROL group radius local

line con 0

logging synchronous

exec-timeout 0 0

exit

line vty 0 4

transport input telnet

exec-timeout 5 0

login authentication VTY-CONTROL

exit

alias exec reset.now tclsh flash:/enarsi/reset.tcl

end

}

tclquit

**R2 Configuration File Scripts**

tclsh

puts [ open "flash:/enarsi/sa-tshoot-r2-config.txt" w+ ] {

hostname R2

no ip domain lookup

ipv6 unicast-routing

banner motd # This is R2, ENARSI SA Part 2 #

enable secret cisco12345

username admin privilege 15 algorithm-type scrypt secret cisco12345

interface g0/0/0

ip address 209.165.200.2 255.255.255.0

ipv6 address fe80::2:1 link-local

ipv6 address 2001:db8:200::2/64

no shutdown

exit

interface g0/0/1

ip address 209.165.201.2 255.255.255.0

ipv6 address fe80::2:2 link-local

ipv6 address 2001:db8:201::2/64

no shutdown

exit

interface loopback 0

ip address 172.16.0.1 255.255.255.0

ipv6 address fe80::2:3 link-local

ipv6 address 2001:db8:172::1/64

no shutdown

exit

interface loopback 1

ip address 209.165.224.1 255.255.255.0

ipv6 address fe80::2:4 link-local

ipv6 address 2001:db8:224::1/64

no shutdown

exit

ip route 0.0.0.0 0.0.0.0 null0

ipv6 route ::/0 null0

router bgp 172

no bgp default ipv4-unicast

bgp router-id 4.6.172.2

neighbor 209.165.200.1 remote-as 10

neighbor 209.165.201.1 remote-as 192

neighbor 2001:db8:200::1 remote-as 10

neighbor 2001:db8:201::1 remote-as 192

address-family ipv4 unicast

neighbor 209.165.200.1 activate

neighbor 209.165.201.1 activate

network 172.16.0.0 mask 255.255.255.0

network 209.165.224.0

network 0.0.0.0 mask 0.0.0.0

exit

address-family ipv6 unicast

neighbor 2001:db8:200::1 activate

neighbor 2001:db8:201::1 activate

network 2001:db8:172::/64

network 2001:db8:224::/64

network ::/0

exit

exit

line con 0

logging synchronous

exec-timeout 0 0

exit

line vty 0 4

login local

transport input telnet

exec-timeout 5 0

exit

alias exec reset.now tclsh flash:/enarsi/reset.tcl

end

}

tclquit

**R3 Configuration File Scripts**

tclsh

puts [ open "flash:/enarsi/sa-tshoot-r3-config.txt" w+ ] {

hostname R3

no ip domain lookup

ipv6 unicast-routing

banner motd # This is R3, ENARSI SA Part 2 #

enable secret cisco12345

username admin privilege 15 algorithm-type scrypt secret cisco12345

interface g0/0/0

ip address 209.165.201.1 255.255.255.0

ipv6 address fe80::3:1 link-local

ipv6 address 2001:db8:201::1/64

no shutdown

exit

interface g0/0/1

ip address 192.168.241.1 255.255.255.0

ipv6 address fe80::3:2 link-local

ipv6 address 2001:db8:241::1/64

no shutdown

exit

interface s0/1/0

ip address 209.165.202.2 255.255.255.0

ipv6 address fe80::3:3 link-local

ipv6 address 2001:db8:202::2/64

no shutdown

exit

interface s0/1/1

ip address 209.165.203.2 255.255.255.0

ipv6 address fe80::3:4 link-local

ipv6 address 2001:db8:203::2/64

no shutdown

exit

interface loopback 0

ip address 192.168.0.1 255.255.255.0

ipv6 address fe80::3:5 link-local

ipv6 address 2001:db8:192::1/64

no shutdown

exit

interface loopback 1

ip address 192.168.240.1 255.255.255.0

ipv6 address fe80::3:6 link-local

ipv6 address 2001:db8:240::1/64

no shutdown

exit

ip access-list standard MY-4-NETWORKS

permit 192.168.0.0 0.0.0.255

permit 192.168.240.0 0.0.3.255

permit 0.0.0.0 0.0.0.0

exit

route-map FILTER-MY-4-NETS deny 10

match ip address MY-4-NETWORKS

exit

route-map FILTER-MY-4-NETS permit 20

ipv6 access-list MY-6-NETWORKS

permit any 2001:db8:240::/46

permit any 2001:db8:192::/64

permit any ::/0

exit

route-map FILTER-MY-6-NETS deny 10

match ipv6 address MY-6-NETWORKS

exit

route-map FILTER-MY-6-NETS permit 20

ip route 10.0.0.1 255.255.255.255 s0/1/0 209.165.202.1

ip route 10.0.0.1 255.255.255.255 s0/1/1 209.165.203.1

ipv6 route 2001:db8:10::1/128 s0/1/0 2001:db8:202::1

ipv6 route 2001:db8:10::1/128 s0/1/1 2001:db8:203::1

ip route 192.168.240.0 255.255.248.0 null0

ipv6 route 2001:db8:240::/46 null0

router bgp 192

neighbor 209.165.201.2 remote-as 172

neighbor 10.0.0.1 remote-as 10

neighbor 10.0.0.1 update-source loopback 0

neighbor 2001:db8:201::2 remote-as 172

neighbor 2001:db8:10::1 remote-as 10

neighbor 2001:db8:10::1 update-source loopback 0

address-family ipv4 unicast

neighbor 209.165.201.2 activate

neighbor 10.0.0.1 activate

neighbor 209.165.201.2 route-map FILTER-MY-4-NETS in

neighbor 10.0.0.1 route-map FILTER-MY-4-NETS in

network 192.168.240.0 mask 255.255.248.0

network 192.168.0.0

exit

address-family ipv6 unicast

neighbor 2001:db8:201::2 activate

neighbor 2001:db8:10::1 activate

neighbor 2001:db8:201::2 route-map FILTER-MY-6-NETS in

neighbor 2001:db8:10::1 route-map FILTER-MY-6-NETS in

network 2001:db8:240::/46

network 2001:db8:192::/64

exit

exit

router ospfv3 1

router-id 0.0.192.3

address-family ipv4 unicast

passive-interface default

no passive-interface g0/0/1

default-information originate

exit

address-family ipv6 unicast

passive-interface default

no passive-interface g0/0/1

default-information originate

exit

exit

interface g0/0/1

ospfv3 1 ipv4 area 0

ospfv3 1 ipv6 area 0

exit

interface loopback 0

ip ospf network point-to-point

ipv6 ospf network point-to-point

ospfv3 1 ipv4 area 0

ospfv3 1 ipv6 area 0

exit

interface loopback 1

ip ospf network point-to-point

ipv6 ospf network point-to-point

ospfv3 1 ipv4 area 0

ospfv3 1 ipv6 area 0

exit

aaa new-model

radius server MY-RADIUS

address ipv4 10.165.251.5 auth-port 1812 acct-port 1813

key $trongPass

exit

aaa authentication login VTY-CONTROL group radius local

line con 0

logging synchronous

exec-timeout 0 0

exit

line vty 0 4

transport input telnet

exec-timeout 5 0

login authentication VTY-CONTROL

exit

alias exec reset.now tclsh flash:/enarsi/reset.tcl

end

}

tclquit

**D1 Configuration File Scripts**

tclsh

puts [ open "flash:/enarsi/sa-tshoot-d1-config.txt" w+ ] {

hostname D1

no ip domain lookup

ip routing

ipv6 unicast-routing

banner motd # This is D1, ENARSI SA Part 2 #

enable secret cisco12345

username admin privilege 15 algorithm-type scrypt secret cisco12345

vlan 250

name Users

exit

vlan 251

name Servers

exit

interface range g1/0/1-24

switchport mode access

shutdown

interface g1/0/11

no switchport

ip address 10.165.249.2 255.255.255.0

ipv6 address fe80::d1:1 link-local

ipv6 address 2001:db8:249::2/64

no shutdown

exit

interface g1/0/23

switchport mode access

spanning-tree portfast

switchport access vlan 250

no shutdown

exit

interface vlan 250

ip address 10.165.250.1 255.255.255.0

ipv6 address fe80::d1:2 link-local

ipv6 address 2001:db8:24A::1/64

no shutdown

exit

interface vlan 251

ip address 10.165.251.1 255.255.255.0

ipv6 address fe80::d1:3 link-local

ipv6 address 2001:db8:24B::1/64

no shutdown

exit

interface range g1/0/5-6

switchport mode trunk

channel-group 1 mode active

no shutdown

exit

ip dhcp excluded-address 10.165.250.1 10.165.250.5

ip dhcp pool VLAN250DHCP

network 10.165.250.0 255.255.255.0

default-router 10.165.250.1

exit

router eigrp ENARSI-SA

address-family ipv4 unicast autonomous-system 1

eigrp router-id 0.4.10.2

network 10.165.249.0

network 10.165.250.0

network 10.165.251.0

af-interface vlan 250

passive-interface

exit

af-interface g1/0/11

summary-address 10.165.250.0 255.255.255.0

exit

af-interface vlan 251

passive-interface

exit

exit-address-family

address-family ipv6 unicast autonomous-system 1

eigrp router-id 0.6.10.2

af-interface g1/0/11

summary-address 2001:db8:240::/48

exit

af-interface vlan 250

passive-interface

exit

af-interface vlan 251

passive-interface

exit

exit-address-family

exit

aaa new-model

radius server MY-RADIUS

address ipv4 10.165.251.5 auth-port 1812 acct-port 1813

key $trongPass

exit

aaa authentication login VTY-CONTROL group radius local

line con 0

logging synchronous

exec-timeout 0 0

exit

line vty 0 4

transport input telnet

exec-timeout 5 0

login authentication VTY-CONTROL

exit

alias exec reset.now tclsh flash:/enarsi/reset.tcl

end

}

tclquit

**D2 Configuration File Scripts**

tclsh

puts [ open "flash:/enarsi/sa-tshoot-d2-config.txt" w+ ] {

hostname D2

no ip domain lookup

ip routing

ipv6 unicast-routing

banner motd # This is D2, ENARSI SA Part 2 #

enable secret cisco12345

username admin privilege 15 algorithm-type scrypt secret cisco12345

vlan 242

name Users

exit

interface range g1/0/1-24

switchport mode access

shutdown

interface g1/0/11

no switchport

ip address 209.165.241.2 255.255.255.0

ipv6 address fe80::d2:1 link-local

ipv6 address 2001:db8:241::2/64

no shutdown

exit

interface g1/0/23

switchport mode access

spanning-tree portfast

switchport access vlan 242

no shutdown

exit

interface g1/0/24

switchport mode access

spanning-tree portfast

switchport access vlan 243

no shutdown

exit

interface vlan 242

ip address 192.168.242.1 255.255.255.0

ipv6 address fe80::d2:2 link-local

ipv6 address 2001:db8:242::1/64

no shutdown

exit

interface vlan 243

ip address 192.168.243.1 255.255.255.0

ipv6 address fe80::d1:3 link-local

ipv6 address 2001:db8:243::1/64

no shutdown

exit

ip dhcp excluded-address 192.168.242.1 192.168.242.5

ip dhcp pool VLAN242DHCP

network 192.168.242.0 255.255.255.0

default-router 192.168.242.1

exit

ip dhcp excluded-address 192.168.243.1 192.168.243.5

ip dhcp pool VLAN243DHCP

network 192.168.243.0 255.255.255.0

default-router 192.168.243.1

exit

router ospfv3 1

router-id 0.0.192.2

address-family ipv4 unicast

passive-interface default

no passive-interface g1/0/11

exit

address-family ipv6 unicast

passive-interface default

no passive-interface g1/0/11

exit

exit

interface g1/0/11

ospfv3 1 ipv4 area 0

ospfv3 1 ipv6 area 0

exit

interface vlan 242

ospfv3 1 ipv4 area 0

ospfv3 1 ipv6 area 0

exit

interface vlan 243

ospfv3 1 ipv4 area 0

ospfv3 1 ipv6 area 0

exit

aaa new-model

radius server MY-RADIUS

address ipv4 10.165.251.5 auth-port 1812 acct-port 1813

key $trongPass

exit

aaa authentication login VTY-CONTROL group radius local

line con 0

logging synchronous

exec-timeout 0 0

exit

line vty 0 4

transport input telnet

exec-timeout 5 0

login authentication VTY-CONTROL

exit

alias exec reset.now tclsh flash:/enarsi/reset.tcl

end

}

tclquit

**A1 Configuration File Scripts**

tclsh

puts [ open "flash:/enarsi/sa-tshoot-a1-config.txt" w+ ] {

hostname A1

no ip domain lookup

banner motd # This is A1, ENARSI SA Part 2 #

enable secret cisco12345

username admin privilege 15 algorithm-type scrypt secret cisco12345

vlan 251

name Servers

exit

interface range f0/1-24

switchport mode access

shutdown

exit

interface f0/23

switchport mode access

switchport access vlan 250

spanning-tree portfast

no shutdown

exit

interface f0/24

switchport mode access

switchport access vlan 251

spanning-tree portfast

no shutdown

exit

interface vlan 250

ip address 10.165.250.2 255.255.255.0

ipv6 address fe80::a1:1 link-local

ipv6 address 2001:db8:24A::2/64

no shutdown

exit

ip default-gateway 10.165.250.1

interface f0/23

shutdown

exit

interface range f0/1-3

switchport mode trunk

channel-group 1 mode active

no shutdown

exit

line con 0

logging synchronous

exec-timeout 0 0

exit

aaa new-model

radius server MY-RADIUS

address ipv4 10.165.251.5 auth-port 1812 acct-port 1813

key $trongPass

exit

aaa authentication login VTY-CONTROL group radius local

line con 0

logging synchronous

exec-timeout 0 0

exit

line vty 0 4

transport input telnet

exec-timeout 5 0

login authentication VTY-CONTROL

exit

alias exec reset.now tclsh flash:/enarsi/reset.tcl

end

}

tclquit