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# Network Design and Configuration for ABC and XYZ Location Preferences

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*Westerly, Easterly, and Southerly*

## I. OVERVIEW

This document describes the network configuration changes required to ensure that certain locations prefer ABC for the default route while others prefer XYZ. The configurations include IP SLA for reachability tracking, route maps for policy-based routing, and EIGRP redistribution of static routes with adjusted metrics to control route preferences.

### A. Pre-Requisite

- 1) Ensure backups are taken for all respective devices before applying configuration changes.
- 2) Confirm that static routes have been removed from both ISR and ASR routers.
- 3) Verify that the redistribute connected command is configured under EIGRP.

### B. ABC Location Configuration

The ABC location will prefer the default route when the specified conditions are met.

### C. IP SLA Configuration for ABC

Bash (Copy code)

```
ip sla 1
icmp-echo <IP_to_track> source-ip <IP_ADDRESS>
timeout 9000
frequency <Frequency>
!
ip sla schedule 1 life forever start-time now
!
track 1 ip sla 1 reachability
!
track 2 ip route 0.0.0.0 0.0.0.0 reachability
!
track 3 list Boolean and
    object 1
    object 2
```

### D. Default Route Configuration

bash

Copy code

```
ip route 0.0.0.0 0.0.0.0 <ABC_Next-hop_IP> tag 1 track 3
ip route 8.8.8.8 255.255.255.255 <Next-hop> tag 1 track 1
```

### E. Redistribution and Route Map for ABC

bash

Copy code

```
redistribute static metric 10000 1000 255 1 1500 route-map STATIC->EIGRP
!
```



```
route-map STATIC->EIGRP permit 10
  match tag 1
!
router eigrp <AS>
  redistribute static route-map STATIC->EIGRP
```

#### *F. XYZ Location Configuration*

The XYZ location will prefer the default route when the specified conditions are met.

IP SLA Configuration for XYZ:

```
bash
Copy code
ip sla 1
  icmp-echo <IP_to_track> source-ip <IP_ADDRESS>
  timeout 9000
  frequency <Frequency>
!
ip sla schedule 1 life forever start-time now
!
track 1 ip sla 1 reachability
!
track 2 ip route 0.0.0.0 0.0.0.0 reachability
!
track 3 list Boolean and
  object 1
  object 2
```

#### *G. Default Route Configuration*

```
bash
Copy code
ip route 8.8.8.8 255.255.255.255 <Next-hop> tag 9 track 1
ip route 0.0.0.0 0.0.0.0 <XYZ_Next-hop_IP> tag 9 track 3
```

#### *H. Redistribution and Route Map for XYZ*

```
bash
Copy code
redistribute static metric 10000 100 255 1 1500 route-map STATIC->EIGRP
!
route-map STATIC->EIGRP permit 10
  match tag 9
!
router eigrp <AS>
  redistribute static route-map STATIC->EIGRP
```

## **II. POLICY-BASED ROUTING AND ROUTE MAP FOR TAGGING AND REDISTRIBUTION**

### *A. Subnet-Based Routing Configuration*

```
bash
Copy code
ip prefix-list SUBNET-A seq 5 permit <Subnet-A_IP>/xx
ip prefix-list SUBNET-B seq 5 permit <Subnet-B_IP>/xx
```



```
!  
route-map ADV permit 10  
  match ip address prefix-list SUBNET-A  
  set tag 500  
!  
route-map ADV permit 20  
  match ip address prefix-list SUBNET-B  
  set tag 1000  
!  
router eigrp <AS>  
  redistribute connected route-map ADV
```

#### *B. ABC Side Route Map for Tagging*

```
bash  
Copy code  
route-map <NAME> permit 10  
  match tag 500  
!  
route-map <NAME> deny 20  
  match tag 1000  
!  
route-map <NAME> permit 30  
!  
router eigrp <AS>  
  distribute-list route-map <NAME> in
```

#### *C. XYZ Side Route Map for Tagging*

```
bash  
Copy code  
route-map <NAME> permit 10  
  match tag 1000  
!  
route-map <NAME> deny 20  
  match tag 500  
!  
route-map <NAME> permit 30  
!  
router eigrp <AS>  
  distribute-list route-map <NAME> in
```

#### *D. Testing and Monitoring*

For testing the configurations, use the following commands to verify the IP SLA and track status:

```
bash  
Copy code  
show track  
show ip sla statistics
```

This will help confirm that the routes are correctly preferred according to the SLA conditions and that tracking is functional.



### III. CONCLUSION

These configurations ensure that:

- 1) Subnet A accesses the internet through ABC.
- 2) Subnet B accesses the internet through XYZ.
- 3) The default route will be dynamically adjusted based on the availability of the monitored routes, allowing failover if one path goes down.
- 4) EIGRP and redistribution mechanisms are properly configured with route maps and appropriate metrics for optimal path selection.

Please proceed with applying the configurations as outlined. Make sure to validate the setup using the testing commands provided, and monitor the network to ensure the desired behavior.

End of Document.





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