

# CCIE R&S Troubleshooting 2.0

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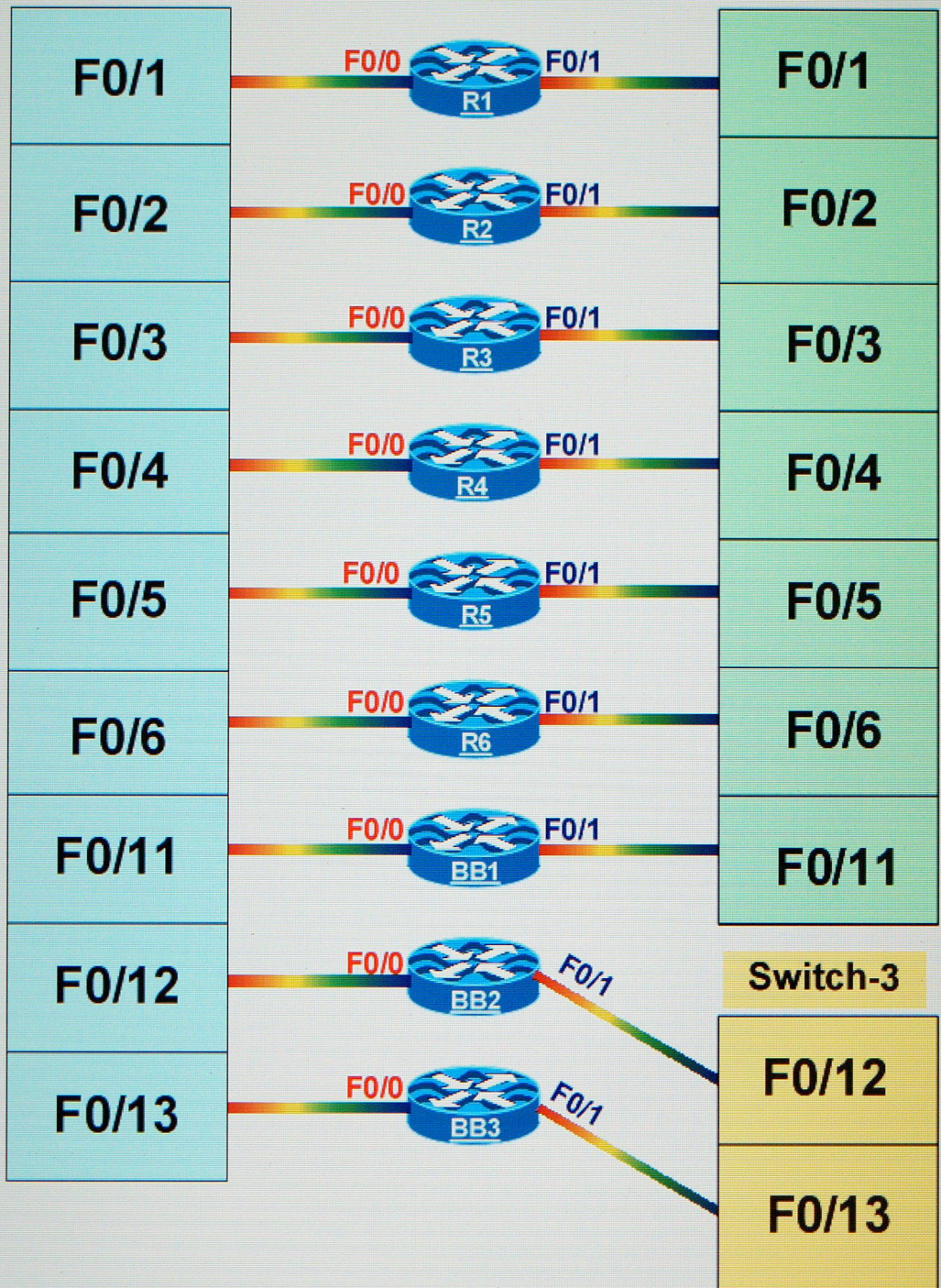
Troubleshooting

LAB 1

Questions ONLY

### Switch -1

### Switch-2



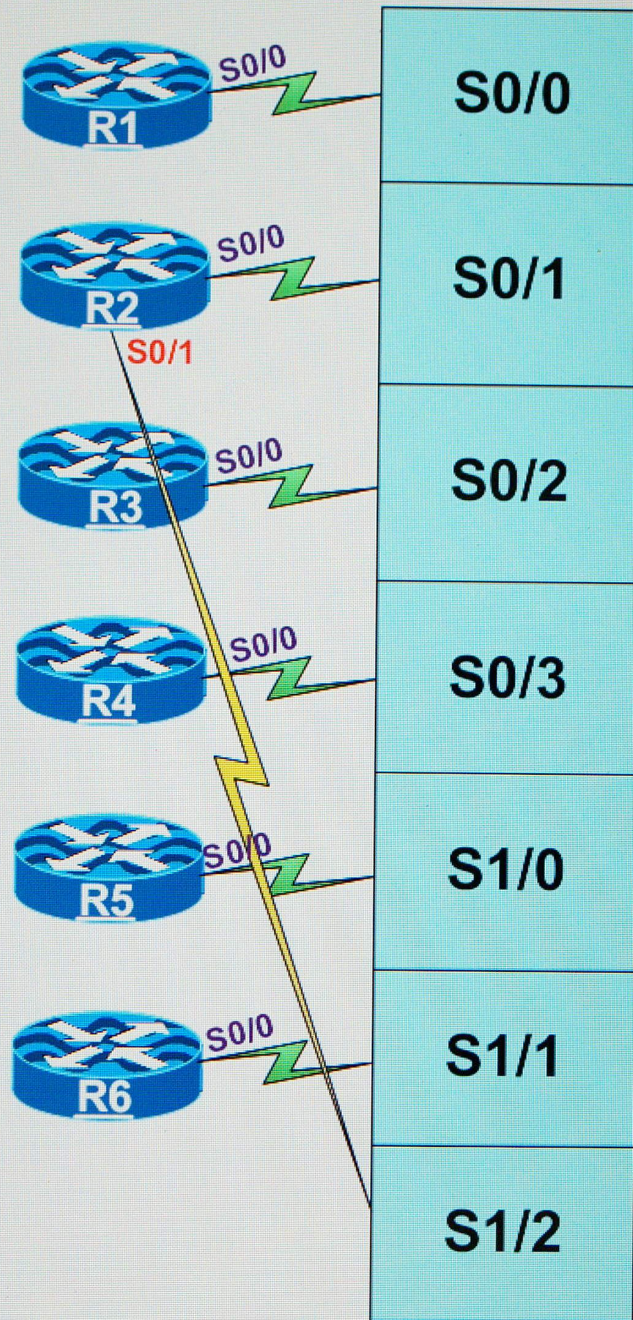
## The Serial connection between R1 and R3



## The Serial connection between R4 and R5

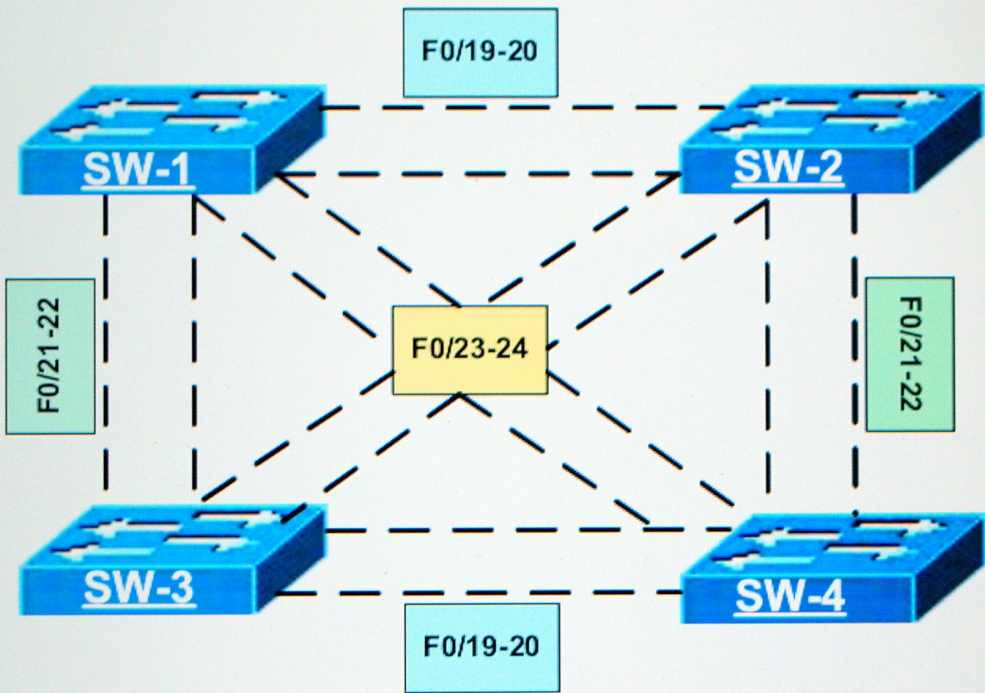


## Frame-relay Switch connections



## Frame-relay DLCI connections:

| Router | Local DLCI | Connecting to: |
|--------|------------|----------------|
| R1     | 102        | R2             |
|        | 112        | R2             |
|        | 103        | R3             |
|        | 104        | R4             |
|        | 105        | R5             |
|        | 106        | R6             |
| R2     | 201        | R1             |
|        | 211        | R1             |
|        | 203        | R3             |
|        | 204        | R4             |
|        | 205        | R5             |
|        | 206        | R6             |
| R3     | 301        | R1             |
|        | 302        | R2             |
|        | 304        | R4             |
|        | 305        | R5             |
|        | 306        | R6             |
|        | R4         | 401            |
| 402    |            | R2             |
| 403    |            | R3             |
| 405    |            | R5             |
| 406    |            | R6             |
| R5     |            | 501            |
|        | 502        | R2             |
|        | 503        | R3             |
|        | 504        | R4             |
|        | 506        | R6             |
|        | R6         | 601            |
| 602    |            | R2             |
| 603    |            | R3             |
| 604    |            | R4             |
| 605    |            | R5             |



## Lab Setup & Rules:

- Download the initial configuration file from the “Initial-config” folder
- No Static routes, No default routes, NO Policy Based Routing is allowed, unless otherwise specified.
- The default password is “CCIE”

## IP addressing chart for Backbone routers:

| Router | Interface / IP Address |
|--------|------------------------|
| BB1    | F0/1 = 3.7.31.21 /24   |
| BB2    | F0/1 = 4.9.62.22 /24   |
| BB3    | F0/0 = 3.7.43.23 /24   |

### Ticket 1

Fix the following problem:

The ether-channel link between SW1 and SW2 is not working. DO NOT change the ether-channel protocol.

### Ticket 2

R1 can't establish an OSPF session with R3. Do whatever it takes to fix the problem.

### Ticket 3

R1 can NOT establish an OSPF adjacency with R2. Fix the problem.

### Ticket 4

R5 is using it's FR link to R6 to reach R3's Lo0 interface, while it has a direct ethernet link to R3.

Fix this problem.

## Ticket 5

R4 can't reach the lo0 interface of SW1 or SW2. You should fix this problem while making sure that the reachability uses the most optimal path.

## Ticket 6

R6 should form EIGRP neighbor adjacency with BB2 but something prevents it from working. Fix this problem.

## Ticket 7

After correcting all the OSPF neighboring issues, users connected to R3 complain that some of the packets going to R2's Lo0 interface do not reach its destination. Fix the problem without changing any OSPF settings.

## Ticket 8

R3 and R4 are configured to establish an EBGP session, but for some unknown reason they can't. Fix this problem.

## Ticket 9

R3 should use the direct link to get to R6's Lo63 interface, and vice versa, but for some strange reason R3 prefers the indirect route via R5 and vice versa. You should fix this problem without changing the administrative distance.

## Ticket 10

R3 is unable to ping Multicast group 239.2.2.2, which have receivers on VLAN 102.

## Ticket 11

The administrator of R3 complains that he can NOT Ping R6's IPv6 Lo0 (FC00::6) from R3; Find the problem and fix it.



## Ticket 12

R1 and R2 are connected with VRF-lite configurations. R1's Lo44 is not reachable on R2. Fix the problem.

## Ticket 13

Whenever users on VLAN 102 try to connect to the web server on VLAN 62, they have to click on the "GO" button in their browser multiple times.

As part of the troubleshooting process, you entered a "Show Queue F0/1" command and the following is the output:

```
R2#show queue f0/1
```

```
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 2342
Queueing strategy: weighted fair
Output queue: 0/1000/64/2342 (size/max total/threshold/drops)
Conversations 45/256/256 (active/max active/max total)
Reserved Conversations 0/0 (allocated/max allocated)
Available Bandwidth 75000 kilobits/sec
```

Fix this problem.

## Ticket 14

R4 was configured to probe reachability to R1's Lo0. Pulling the RTR-MIB entries with community of "CCIE" shows no data. Fix the problem.

## Ticket 15

A worm is spreading on the network. The worm is spreading using ICMP vulnerability with DSCP value of AF12 coming from R4 to R1.

R1 was configured with ACL#101 on it's F0/0 interface to mitigate the problem by filtering all AF12 traffic. However it is not working. Fix the problem.

# Congratulations, you just completed lab 1.

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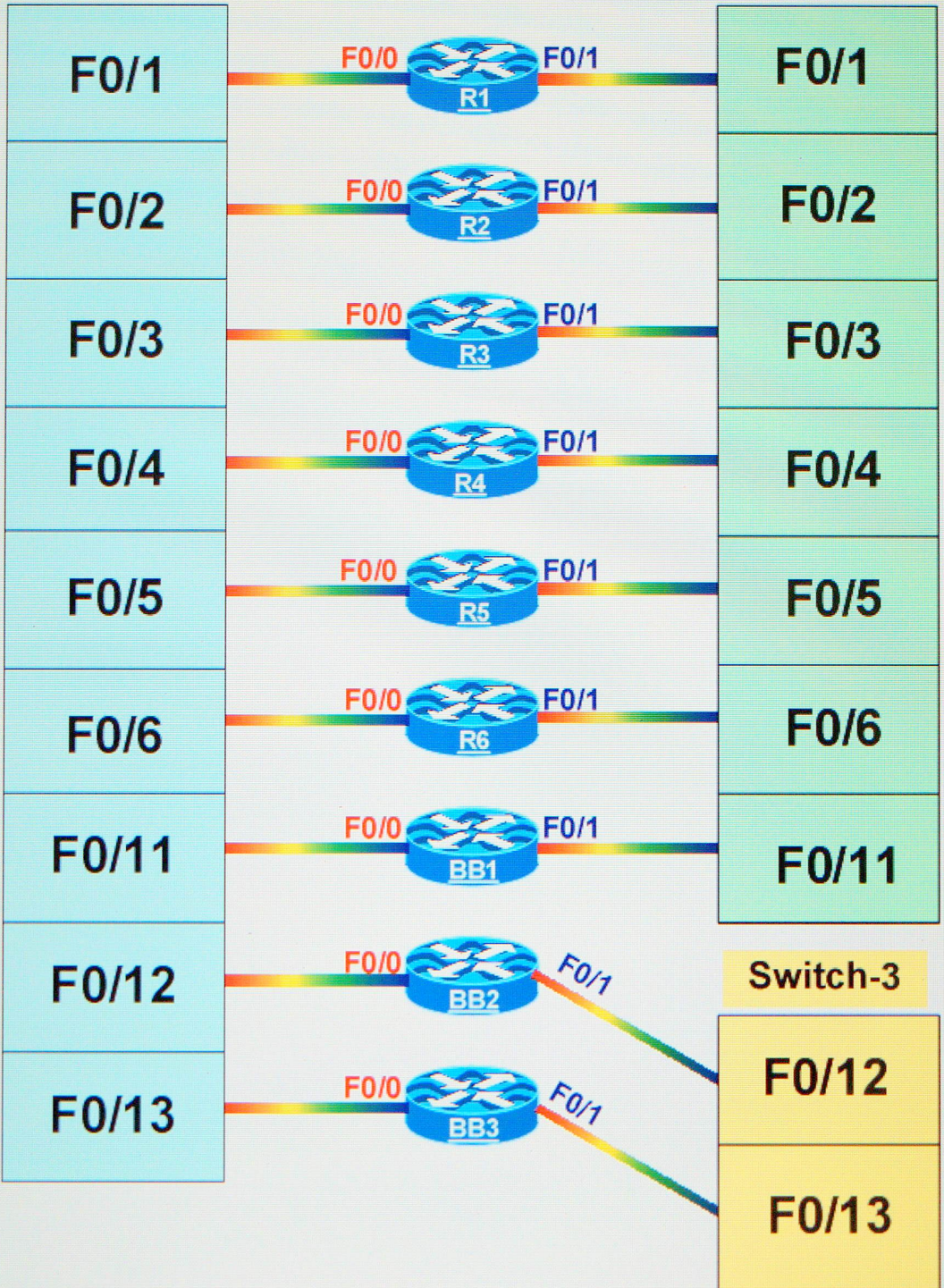
Troubleshooting

LAB 2

Questions ONLY

### Switch -1

### Switch-2



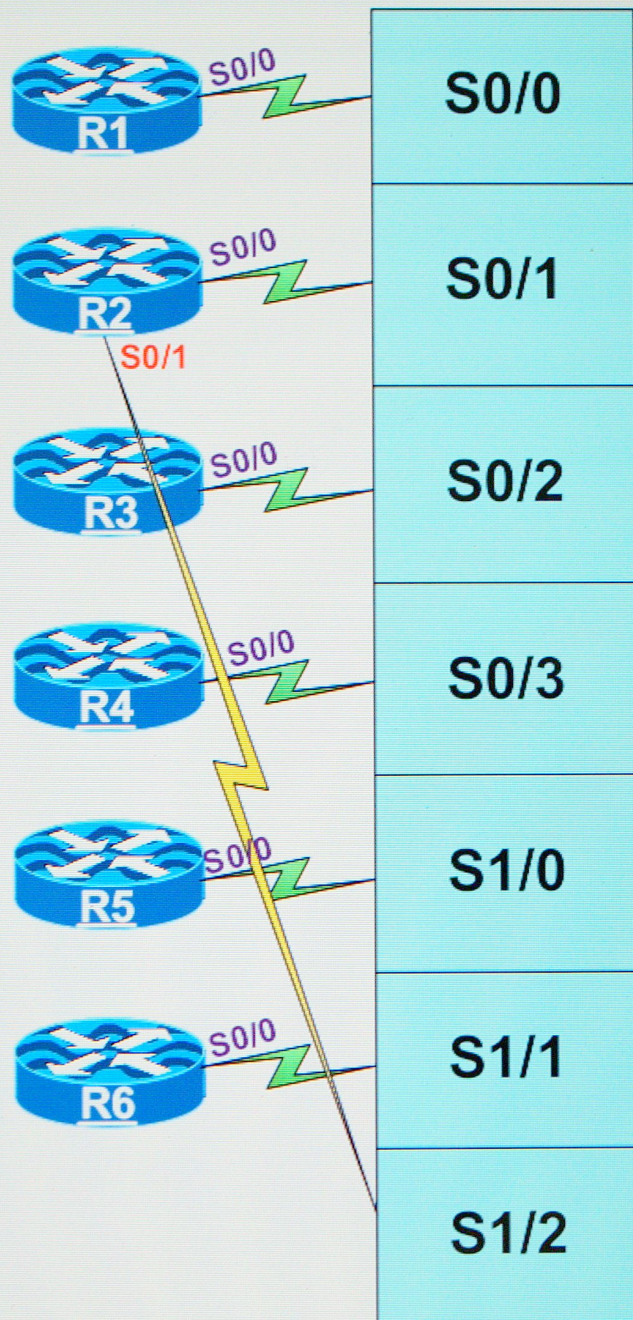
## The Serial connection between R1 and R3



## The Serial connection between R4 and R5

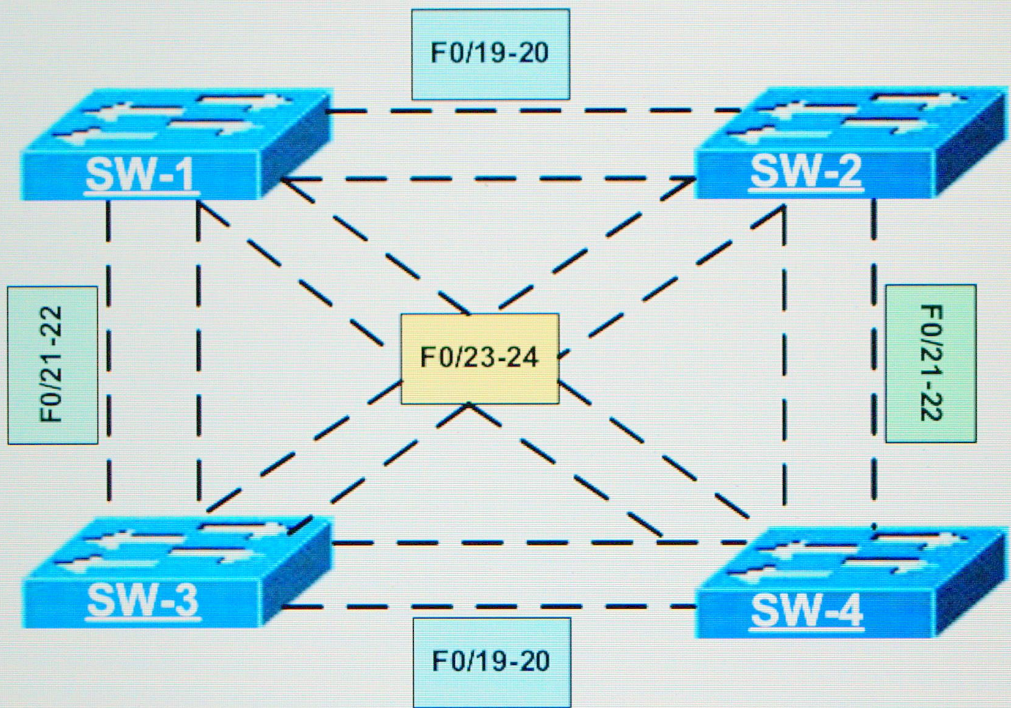


## Frame-relay Switch connections



## Frame-relay DLCI connections:

| Router | Local DLCI | Connecting to: |
|--------|------------|----------------|
| R1     | 102        | R2             |
|        | 112        | R2             |
|        | 103        | R3             |
|        | 104        | R4             |
|        | 105        | R5             |
|        | 106        | R6             |
| R2     | 201        | R1             |
|        | 211        | R1             |
|        | 203        | R3             |
|        | 204        | R4             |
|        | 205        | R5             |
|        | 206        | R6             |
| R3     | 301        | R1             |
|        | 302        | R2             |
|        | 304        | R4             |
|        | 305        | R5             |
|        | 306        | R6             |
| R4     | 401        | R1             |
|        | 402        | R2             |
|        | 403        | R3             |
|        | 405        | R5             |
|        | 406        | R6             |
| R5     | 501        | R1             |
|        | 502        | R2             |
|        | 503        | R3             |
|        | 504        | R4             |
|        | 506        | R6             |
| R6     | 601        | R1             |
|        | 602        | R2             |
|        | 603        | R3             |
|        | 604        | R4             |
|        | 605        | R5             |



## Lab Setup & Rules:

- Download the initial configuration file from the “Initial-config” folder
- No Static routes, No default routes, NO Policy Based Routing is allowed, unless otherwise specified.
- The default password is “CCIE”

### **IP addressing chart for the Backbone routers:**

| Router | Interface / IP address |
|--------|------------------------|
| BB1    | F0/0 = 15.8.21.21 /24  |
| BB2    | F0/1 = 27.12.22.22     |
| BB3    | F0/0 = 15.8.23.23      |

### Ticket 1

Your customer configured R5 as a transparent FW connecting their network to the outside world. They are complaining that R5's F0/0 interface keeps shutting down. Fix this problem.

### Ticket 2

Since the link between R1 and R6 is a low bandwidth link, it was configured to do TCP header compression to lower the TCP overhead over that link. After configuring the routers, you have noticed that there is no change in the bandwidth consumption. Fix this problem.

### Ticket 3

Your client complains that he can't assign an IP address of 130.4.0.1 /24 to R1's S0/1 interface. Fix this problem.

### Ticket 4

R6 was configured to filter R1's Lo0 from the RIP updates sent to SW1, but for some strange reason after configuring the filter on R6, SW1 does not see any RIP routes for the 130.4.X.X network. Fix the problem.



## Ticket 5

The traffic between Lo0 interface of R1 and R3 should be load balanced using their F0/0 and S0/1 interface. For some strange reason only the F0/0 link is used. Fix the problem while utilizing the links according the links real bandwidths.

## Ticket 6

The BGP routes from BB3 are not seen on the OSPF network. Fix the problem.

## Ticket 7

SW1 should have accepted only the following BGP routes from BB1:

- 58.21.36.0/24
- 58.21.38.0/24
- 58.21.52.0/24
- 58.21.54.0/24

SW2 should have expected only the following BGP routes from BB3:

- 58.21.164.0/24
- 58.21.166.0/24
- 58.21.180.0/24
- 58.21.182.0/24

How ever this is not happening. Fix the problem by changing ACLs, while keeping them at the same length.

## Ticket 8

There are routing loops in the network. Fix the problem and ensure that SW2 can ping SW1's Lo0 IP address.

## Ticket 9

R6 can't send traffic to 239.2.2.2, which is joined by R2. Configure R1 to fix the problem.

## Ticket 10

R1 and R6 can't form EIGRPv6 neighbor relationship. Fix the problem and make sure there is reachability between R1's Lo11 and R6's Lo66 IP addresses.

### **Ticket 11**

R6 was configured to give preference to ICMP packets on the Tun63 interface, but it was noticed that during heavy traffic, ICMP traffic does not receive its preference over other traffic. Fix the problem.

### **Ticket 12**

SW4's default route is pointing to an HSRP address of 130.4.224.111. Make sure it has reachability to all networks via R2.

### **Ticket 13**

R5 is a transparent FW connecting the network to the Internet. The Internet is not reachable. Fix the problem.

To check connectivity, try to connect to the WEB interface of BB2, with an IP address of 1.2.3.4.

### **Ticket 14**

R5 was configured to allow Telnet traffic to BB2 (1.2.3.4) and deny all other telnet traffic. This is NOT working. Fix the problem.

### **Ticket 15**

R1 can NOT be reloaded using the SNMP "reload" community. Fix the problem.

**Congratulations, you just completed lab 2.**

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Troubleshooting

LAB 3

Questions ONLY

## Lab Setup:

- Download the initial configuration file from the “Initial-config” folder
- No Static routes, No default routes, NO Policy Based Routing is allowed, unless otherwise specified.
- Use the following IP addressing chart for the BB routers:

| Router | Interface / IP address |
|--------|------------------------|
| BB1    | F0/0 – 9.9.16.21 /24   |
| BB2    | F0/0 – 14.7.225.22 /24 |
| BB3    | F0/0 – 9.9.31.23 /24   |

## Ticket 1

SW4 can't reach R1's Loopback 0 IP address. You should fix this problem WITHOUT changing the configuration on SW4, R1 or R2.

## Ticket 2

The serial connection between R1 and R3 is about to be converted from HDLC to Frame-relay. In order to prepare for the move, R1 and R3 were configured as if they are connected via a frame-relay switch, but the link between these two routers won't stay up. Fix this problem such that the link comes up without any problem.

## Ticket 3

R3 is configured to deny ingress telnet session. A route-map is configured to implement this policy. When testing this policy you realized that Telnet is still working. Fix this problem. You should configure a route-map to accomplish this task.

## Ticket 4

BB2 is configured to filter all incoming Eigrp routes. R5 can't get Eigrp routes from BB2. Fix this problem while ensuring that the routes received from BB2 are reachable by R5.

## Ticket 5

Routers R2 and R6 are NOT getting routes from BB2. These routes are important. Fix this problem.

## Ticket 6

When testing this network, you realized that R1 can NOT reach R6's Lo0 interface. Fix this problem using minimum number of commands.

## Ticket 7

R5 is NOT getting any BGP routes in it's routing table. Configure R5 to fix this problem, ensure that R6 sees valid BGP routes; R5 should also have these routes in its routing table.

## Ticket 8

You were given the following problem to fix:  
R3 is configured to receive multicast flow for 239.3.3.3 group destination. When testing this connection, they realized that R6 can NOT ping 239.3.3.3.

## Ticket 9

R4 and R6 are connected via the frame-relay cloud; R6 can NOT reach R4's Lo44 IPv6 address. Fix this problem.

## Ticket 10

SW1 and SW2 can NOT ping each other over the 14.7.111.0 /24 segment. Fix this problem.

## Ticket 11

You were called to fix a configuration problem that implements the following policy: SW1 should be configured to immediately transmit OSPF packets to R1 and R2's F0/0 interface, this policy should be implemented no matter what other traffic is accumulated on R1 and R2's interface's buffer. SW1 should also be configured to limit OSPF bandwidth to 33.3 Mbits/sec.

### Ticket 12

R2 is configured to be accessed via SSH, but the network administrator can ONLY access R2 via Telnet. Fix this problem. The username and the password is "CCIE".

### Ticket 13

R2 is configured to detect unreachable Telnet clients and once detected it should disconnect them. But your client is stating that it is NOT working, fix this problem.

### Ticket 14

The BGP network was configured to use MED such that R3 prefers R6 as a gateway to reach the prefixes in AS 9116. But for what ever reason R3 is using R1 as the preferred gateway. You should fix this problem such that R3 prefers R6 as its primary gateway, you should use MED to accomplish this task.

### Ticket 15

Your client is complaining that timezone can NOT be configured on R2. Fix this problem.

**Congratulations, you just completed lab 3.**

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Troubleshooting

LAB 4

Questions ONLY

## Lab Setup & Rules:

- Download the initial configuration file from the “Initial-config” folder
- No Static routes, No default routes, NO Policy Based Routing is allowed, unless otherwise specified.
- Use the following IP addressing chart for the BB routers:

| <b>Router</b> | <b>Interface / IP address</b> |
|---------------|-------------------------------|
| BB1           | F0/0 – 2.2.236.21 /24         |
| BB2           | F0/0 – 38.17.9.22 /24         |

### Ticket 1

Fix the following problem:

R3 and R6 can NOT establish an OSPF neighbor adjacency.

### Ticket 2

SW1 does NOT have any reachability to SW2 or R5’s Lo0. Fix this problem without breaking any of the lab’s rules.

### Ticket 3

Your client keeps on complaining about R6 losing the RIP routes that it receives from SW3. Fix this problem so R6 keeps the routes that it receives from SW3, unless SW3 or its interface to R6 is down.

### Ticket 4

R5 was configured to filter the default route it receives from SW2, but for some strange reason its still receiving the default route. Fix this problem.

### Ticket 5

R3 and R4 can NOT reach each other’s Lo0. Fix the problem.



## Ticket 6

Your company is about to change R1 and R4's F0/1 to a 1G link. To prepare for this transition, the BW parameter was configured to 1,000,000 Kb/sec, this was configured to force the traffic flow Via F0/1 interface and NOT F0/0 interface. But the routers (R1 and R4) are still load balancing between the two links. Fix this problem without using an interface configuration command.

## Ticket 7

R1 is configured to load balance traffic toward BBI using R3 and R6, but this is NOT working. Fix the problem.

## Ticket 8

R1's Lo0 interface is configured to join 239.1.1.1 using the "IP Igmp join-group" command. SW1 can NOT ping the group address. Fix the problem.

## Ticket 9

R6's Lo6 is configured with an IPv6 address but its NOT reachable from R5. Identify and fix the problem.

## Ticket 10

R1 was configured NOT to drop OSPF traffic to R6 across the Frame-relay cloud, but your client noticed that the OSPF traffic is being dropped during congestion. Fix this problem.

## Ticket 11

When trying to Telnet from R1 to 1.2.3.4 IP address, you notice the following message on R6:

```
*Jul 25 22:22:06.325: %IP-4-DUPADDR: Duplicate address  
2.2.236.100
```

Find the problem and fix it.

## **Ticket 12**

SW3 and SW4 are configured to exchange RIP routes, SW3 receives the RIP routes from SW4, but SW4 does NOT receive any RIP routes from SW3. Fix the problem.

## **Ticket 13**

R3 was configured to ONLY allow authenticated users to Telnet to BB2's IP address (4.3.2.1 /32). Users should first authenticate to R3, then, they should be able to Telnet to BB2. Users are authenticating to R3 successfully, but still can't Telnet to BB2.

## **Ticket 14**

The administrator of R5 complains that after a reload, all interfaces on MRTG/PRTG are messed up.

## **Ticket 15**

Users complain that telnet sessions from R4's Lo0 to BB1 are very slow. Using a sniffer you discover that packets are reaching BB1 out of sequence. Fix the problem, while ensuring that R1 continues to load Balance sessions between it's S0/0.16 and S0/1 interfaces.

**Congratulations, you just completed lab 4.**

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Troubleshooting

LAB 5

Questions ONLY

## Lab Setup & Rules:

- Download the initial configuration file from the “Initial-config” folder
- No Static routes, No default routes, NO Policy Based Routing is allowed, unless otherwise specified.
- The default password is “CCIE”

## IP addressing chart for Backbone routers:

| Router | Interface / IP Address |
|--------|------------------------|
| BB1    | F0/0 = 9.3.4.21 /24    |
| BB2    | F0/0 = DHCP            |

## **FIX THE FOLLOWING TICKETS:**

### Ticket 1

R4 and R5 can't establish an OSPF neighbor adjacency.

### Ticket 2

R3 is configured to authenticate the PPP session on its S0/1 interface. R1 does NOT need to authenticate R3; however, the PPP link between R1 and R3 is NOT operational.

### Ticket 3

SW1 can reach R2's Lo0 interface, but SW2 can NOT.

### Ticket 4

R2 and R3 can not establish an Eigrp neighbor adjacency.

### Ticket 5

Due to a flapping Frame-relay link R4 has experienced a high CPU utilization:

## Ticket 6

The tunnel 25 interface on R2 and R5 keeps on flapping, you should fix this problem without changing/removing OSPF area on any of the routers. The solution should be implemented such that R5 reaches R1's Lo0 interface via it's Tunnel25 interface.

## Ticket 7

R5 should ONLY allow the BGP routes with an AS path that starts with AS 4 and has their AS number prepended two or more times. However, the configured filter is NOT working.

## Ticket 8

R3 and R5 can't establish a BGP peer session. You should configure R5 to fix this problem; you should use a parameter and NOT a command to fix this problem.

## Ticket 9

R3 is listening for group 239.3.3.3 multicast group. SW3 can NOT ping that group address.

## Ticket 10

R5 should receive a BGP prefix for R6's Lo0 IPv6 address, but it does NOT.

## Ticket 11

R5 was configured to limit IPT traffic from BB1 toward R4 to a G.711 call. Once this router was configured, the client complains about the voice quality.

The following is the output of the policy-map interface command when the problem occurred:

```
R5#Show policy-map interface F0/0
FastEthernet0/0
Service-policy output: pmOUT
Class-map: cmRTP (match-all)
  74920 packets, 43453600 bytes
```

```
5 minute offered rate 64000 bps, drop rate 28500 bps
Match: protocol rtp
Police:
  Cir 64000 bps, bc 2000 bytes
  Conformed 52444 packets, 27270880 bytes; actions:
    Transmit
  Exceeded 25069 packets, 13036080 bytes; actions:
    Drop
  Conformed 0 bps, exceed 0 bps
```

```
Class-map: class-default (match-any)
  33096 packets, 3437992 bytes
  5 minute offered rate 0 bps, drop rate 0 bps
Match: any
```

## Ticket 12

The F0/0 interface of BB2 is configured to acquire an IP address from a DHCP server. R3 is configured to be the DHCP server; for some strange reason BB2 is NOT getting an IP address from R3.

## Ticket 13

R4 and R5 were configured to protect the traffic between R4's and R5's Lo0; the protection method used is IPSEC and it is NOT working.

## Ticket 14

R5 was configured to send netflow export traffic to a netflow server with an IP address of 188.1.119.9 using port 9008. However, the netflow server does NOT receive the netflow packets. Configure R5 to fix this problem.

## Ticket 15

The netflow collector is overwhelmed with flows; configure R5 to statically reduce the amount of the flows.

**Congratulations, you just completed lab 5.**

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Troubleshooting

LAB 6

Questions ONLY

## Lab Setup & Rules:

- Download the initial configuration file from the “Initial-config” folder
- No Static routes, No default routes, NO Policy Based Routing is allowed, unless otherwise specified.
- Use the following IP addressing chart for the BB routers:

| <b>Router</b> | <b>Interface / IP address</b> |
|---------------|-------------------------------|
| BB1           | F0/0 – 11.2.211.21 /24        |
| BB2           | F0/0 – 11.2.8.22 /24          |
| BB3           | F0/0 – 11.2.143.23            |

## **FIX THE FOLLOWING TICKETS**

### Ticket 1

SW2 can NOT reach R1's Lo0.

### Ticket 2

R6 can't establish an OSPF neighbor adjacency out of it's S0/0 interface.

### Ticket 3

SW1 is configured to point to R6's F0/1.116 as its gateway. SW1 can NOT reach R6's Lo0. You should fix this problem without enabling a dynamic routing protocol.

### Ticket 4

R1 was configured to protect itself from overlapping fragment attacks coming from BB1, which sends overlapping TCP header packets. You have noticed that R1 also drops legitimate fragmented traffic, like OSPF DBD packets.



## Ticket 5

R2 and R4 were configured such that traffic from BB2 to odd (Third octet) network of BB1 use R2 and routes to even third octet BB1 networks use R4. R2 and R4 were also configured to provide backup to each other for these networks. You have discovered that when R4 fails, R2 is not taking over as the route for the even BB1 routes and vice versa. Fix this problem in a different way for each router. You have no access to BB2's console.

## Ticket 6

R6 can't reach Lo0 interface of SW3 or SW4, which are 2.3.4.13 and 2.3.4.12 respectively.

## Ticket 7

Tunnel 56 interface on R5 and R6 is UP but no traffic is passing through.

## Ticket 8

R1 takes the long path to BB3's routes. Fix the problem by adding a single command to one of the routers.

## Ticket 9

R5 is the AUTO-RP mapping agent. R5 was configured to allow R2 to be the RP for 239.2.2.2 and R4 to be the RP for 239.4.4.4 and NO other router should be the RP for these groups or any other groups in this network.

For some strange reason R5 is ONLY getting R2's mapping and NOT R4's.

Fix the problem without changing R6's configurations.

## Ticket 10

R5 is listening to FF05::5, however R2 can't ping to that Mcast IPv6 group from its Lo0 interface.

## Ticket 11

R1's connection to the FR network is a 512K link with guaranteed BW of 256K. R1 was configured to ensure that voice calls that take 128K are run smoothly. When there is no voice traffic, R1 shouldn't limit the BW and try to reach the physical BW.

However there are two problems:

1. Traffic never reaches 512K, even when no voice packets are present
2. When traffic load is higher than 256 and the FR network is busy, Voice quality drops.

## Ticket 12

R3's Lo5 and Lo6 are connected via Layer 3 MPLS VPN to R5 and R6 respectively; however, there is no connectivity between the two Loopback interfaces.

## Ticket 13

R4 is configured to filter and log all ICMP traffic to its Lo0 from SW3 and SW4. However, its very hard to see which line of the ACL is rejecting the ICMP packets. Fix the problem to allow R4's administrators to know which ACL line is dropping the ICMP traffic. DO NOT use hit count to accomplish this task.

## Ticket 14

R4 was configured to enable accounting for ACL violation but it does not work.

## Ticket 15

SW1 was configured to send SNMP traps for any changes to its CAM table, however, nothing is sent to the NMS.

**Congratulations, you just completed lab 6.**

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Troubleshooting

LAB 7

Questions

## Lab Setup & Rules:

- Download the initial configuration file from the “Initial-config” folder
- No Static routes, No default routes, NO Policy Based Routing is allowed, unless otherwise specified.
- Use the following IP addressing chart for the BB routers:

| Router | Interface / IP address |
|--------|------------------------|
| BB1    | F0/0 – 4.21.21.21 /24  |
| BB2    | F0/0 – 4.22.22.22 /24  |
| BB3    | F0/0 – 4.23.23.23 /24  |

## **FIX THE FOLLOWING TICKETS**

### Ticket 1

The trunk interface (F0/20) connecting SW1 to SW2 is down.

### Ticket 2

R2 can NOT ping R5, you should fix this problem without changing any interface configuration.

### Ticket 3

R1 can NOT reach R3 over it's Frame-relay link, you should fix this problem without changing the encapsulation on these routers.

### Ticket 4

R4 can NOT reach BB1's Lo0 interface. You should fix this problem without changing R4's routing configuration. You should NOT access BB1 at all.

### Ticket 5

R2's Lo0 interface can NOT reach BB2's Lo0 (22.22.22.22).

## Ticket 6

R5 and R6 can NOT establish an OSPF neighbor adjacency. Do NOT reconfigure authentication, Timers or IP addressing to accomplish this task.

## Ticket 7

R1 and R3 are the distribution points of this network, connecting remote sites such as R4 to the network.

When R1's S0/0 interface goes down, R5 loses its reachability to R4. You should fix this problem such that the status of R4's Lo0 ip address remains unchanged, this means the routing table entry for that specific route should be the same before and after the solution is implemented.

## Ticket 8

R2 can NOT establish a BGP peer session with BB2.

## Ticket 9

R2 was configured to ONLY advertise the following BGP routes to R5:

22.4.69.0 /24, 22.4.71.0 /24, 22.12.69.0 /24 and 22.12.71.0 /24

R5 ONLY sees Network 22.12.71.0 /24.

## Ticket 10

BB2's BGP routes received on R5 are NOT reachable from R3. You should configure R5 with minimum configuration changes to fix this problem.

## Ticket 11

BB1's Lo0 is listening for 239.0.0.21 Mcast group. R2 can't ping that group.

## Ticket 12

R1 can't ping R2's Tunnel 26 IPv6 address (FC00:4:32::5EFE:420:1902).

### Ticket 13

R5 was configured to record packet statistics from its F0/0 interface. However R5 can't see any Telnet traffic.

### Ticket 14

R1 and R3 are configured with GLBP, however they can't sync.

### Ticket 15

R3 was configured to allow ONLY returning traffic for sessions initiated in the internal network on the interface facing BB3, and log any violations. However, R1 can't telnet to BB3.

**Congratulations, you just completed lab 7.**

# CCIE R&S Troubleshooting 2.0

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Troubleshooting

LAB 8

Questions

## Lab Setup & Rules:

- Download the initial configuration file from the “Initial-config” folder
- No Static routes, No default routes, NO Policy Based Routing is allowed, unless otherwise specified.
- Use the following IP addressing chart for the BB routers:

## **FIX THE FOLLOWING TICKETS**

### Ticket 1

SW2's console displays the following error messages:

```
SW_MATM-4-MACFLAP_NOTIF
```

You should configure SW1 to fix this problem.

### Ticket 2

SW1 was configured to isolate R1 and R6 from the rest of the ports in VLAN 16, however, R1 can NOT establish an Eigrp session with R6.

### Ticket 3

R6 can't ping 99.2.26.2.

### Ticket 4

R1 can't ping BB1's F0/0 interface using its Lo0 as the source.

### Ticket 5

R1 and R2 can't establish an Eigrp session; you should use an Eigrp command to fix this problem.



## Ticket 6

R2 was configured to filter SW1 and R3's Lo0 from being sent to SW2; however SW2 still sees SW1's Lo0.

## Ticket 7

R3 can't ping BB1's Lo0 (136.85.0.21).

## Ticket 8

R5 can't ping 22.22.1.1.

## Ticket 9

The following routes are sent from BB2 to R4:

22.22.1.0 /24, 22.22.2.0 /24, and 22.22.3.0 /24

R4 was configured with the following policy for routes coming from BB2:

- R5 should NOT advertise Network 22.22.1.0 /24 to BB3.
- Filter Network 22.22.2.0 /24 and allow the rest.

However, R4 doesn't see Network 22.22.3.0 /24 coming from BB2

## Ticket 10

R2 Lo0 is configured to join 239.2.2.2 Multicast group address. R6 can NOT reach this group address using pings sourced from its Lo0 interface. You should fix this problem without using a PIM command.

## Ticket 11

R4 can't ping R3's Lo0 IPv6 address from its Lo0.

## Ticket 12

Lo26 interface of R2 and R6 are connected to each other via MPLS L3 VPN. R2's Lo26 is NOT reachable from VRF V26 on R6.

## Ticket 13

R3 was configured to shape the traffic going to R4 and R5 10 512K each. However, when R4 is downloading movies from R2, R5's SKYPE video calls with R6 suffers.

## Ticket 14

R4 was configured to allow Telnet session to SW3, and block non-returning traffic from SW3. However, R3 can't Telnet to SW3.

## Ticket 15

R4's link to BB2 is 1Mb/sec download and 512Kb/sec upload. When R4 is downloading IOS images from BB2, OpenNMS reports a link utilization of %200. You should fix this problem while allowing OpenNMS to monitor the asymmetrical link.

**Congratulations, you just completed lab 8.**

# CCIE R&S Troubleshooting 2.0

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Troubleshooting

LAB 9

Questions

## Lab Setup & Rules:

- Download the initial configuration file from the “Initial-config” folder
- No Static routes, No default routes, NO Policy Based Routing is allowed, unless otherwise specified.
- Use the following IP addressing chart for the BB routers:

| Router | Interface / IP address  |
|--------|-------------------------|
| BB1    | F0/0 – 4.11.213.21 /24  |
| BB2    | F0/0 – 200.9.9.22 /24   |
| BB3    | F0/0 – 136.85.22.23 /24 |

## **FIX THE FOLLOWING TICKETS**

### Ticket 1

You see the following messages on SW2

```
%SW_MATM-4-MACFLAP_NOTIF: Host 000f.24bb.5661 in vlan 35 is flapping between  
port Po1 and port Fa0/5  
%SW_MATM-4-MACFLAP_NOTIF: Host 000f.24bb.5661 in vlan 35 is flapping between  
port Fa0/5 and port Po1
```

### Ticket 2

SW2's F0/6 is configured with “Storm-Control” to limit Broadcast traffic to 45Mb/sec. However, the client claims that he can NOT push more than 2 Mb/sec from R6.

### Ticket 3

R1 can NOT ping BB2 sourcing the Ping from its Lo0.

### Ticket 4

R1 can't ping R4's Lo0. You should configure R6 to fix this problem.

### Ticket 5

R4 can not establish an OSPF adjacency with R2 and R5. You should fix this problem by adding a single command to R4's configuration.

### Ticket 6

R4 can NOT ping R2's F0/1 interface. You should fix this problem without removing any configuration command.

### Ticket 7

R4 can't Ping R3's Lo0. You should an interface command to fix this problem.

### Ticket 8

R3 can't establish a BGP neighbor adjacency with BB1. Assume that you have NO access to BB1.

### Ticket 9

R2 is NOT receiving any BGP prefixes from AS 18677. You should configure BGP to fix this problem. DO NOT change R2's configuration to accomplish this task.

### Ticket 10

When R2 is reloaded, immediately after it stores it's OSPF database, it black holes R4's traffic to 186.77.21.21, until R2 establishes a peer session with R4 again. Configure R2 to fix this problem.

### Ticket 11

R2's Lo0 is configured to join 239.2.2.2, but R3 can NOT ping that group address.

## Ticket 12

R3's Lo0 is configured to join FF05::3 group address. R5 can NOT ping this group address using it's Lo0 as the source.

## Ticket 13

SW1 is configured to limit traffic from R1 to R6 to 20Mb/sec, however, R1 is able to send more than 20Mb/sec.

## Ticket 14

R2 is configured to allow ONLY the returning traffic from BB3 to R4's S0/0 interface, however, R4 can't Telnet to BB3.

## Ticket 15

Whenever an administrator is configuring R3, no other admin can configure R3. This is pretty good; however, sometimes one of the administrators forgets to exit the global configuration mode from the console, and as a result of that, no other administrator can make configuration changes, unless, someone gets on the console port and exits the global configuration mode.

**Congratulations, you just completed lab 9.**

# CCIE R&S Troubleshooting 2.0

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Troubleshooting

LAB 10

Questions & Answers

## Lab Setup & Rules:

- Download the initial configuration file from the “Initial-config” folder
- No Static routes, No default routes, NO Policy Based Routing is allowed, unless otherwise specified.
- Use the following IP addressing chart for the BB routers:

| Router | Interface / IP address   |
|--------|--|
| BB1    | F0/0 – 10.10.4.21 /24<br>Lo1 – 10.10.21.1 /24<br>Lo2 – 10.10.21.2 /24    |
| BB2    | F0/0 – 10.10.221.22 /24<br>Lo0 – 10.10.22.1 /24<br>Lo1 – 10.20.30.40 /24 |
| BB3    | F0/0 – 136.85.233.23 /24   |

## **FIX THE FOLLOWING TICKETS**

### Ticket 1

R2 can NOT ping R4 with its MAX MTU size, which is set to 1500 Bytes. You should fix this problem without using any interface configuration command.

### Ticket 2

SW1 can't ping R2's Lo0.

### Ticket 3

R3 can NOT ping R4's Lo0. DO NOT configure R4 to resolve this problem.

### Ticket 4

R2 is configured to filter the static routes redistributed into Eigrp on R4. However, its NOT working. You should configure R4 to resolve this problem, while ensuring R4's ability to telnet to BB1's Lo1 and Lo2 IP addresses. You are NOT allowed to remove an existing configuration or add a new configuration, but you are allowed to modify a given command to accomplish this task.



## Ticket 5

R3 is configured to summarize all the external routes coming from R5. However, its NOT working.

## Ticket 6

SW2 does NOT see R2's Lo0 in it's routing table.

## Ticket 7

When R2's Lo0 goes down, a Ping from R4 to this Lo0 goes into a routing loop between R2 and SW1.

## Ticket 8

R3 can NOT ping BB2's Lo0.

## Ticket 9

R1 is configured such that it instructs BB2 to filter its Lo1 interface from it's BGP updates.

The following shows the output from BB2;s Show command:

```
BB2#Show ip bgp neigh 10.10.221.1 received prefix-filter  
BB2#
```

## Ticket 10

R6's F0/1 interface is configured to join 239.6.6.6, but R3 can't Ping this group address.

## Ticket 11

R5 can't Ping R6's Lo0 IPv6 address.

### **Ticket 12**

SW3 can't Ping the IP address of R3's Lo3 interface.

### **Ticket 13**

R5 can NOT ping BB3 using it's Lo0 as the source.

### **Ticket 14**

R4 is configured with FW to protect the network from BB1 by ONLY allowing Telnet and ICMP traffic to BB1. However, R4 can NOT ping BB1. Fix this problem without changing the ACL.

### **Ticket 15**

R2 is configured to allow RSH commands from R5, however, R5 can't issue a "Show run" command via RSH.

**Congratulations, you just completed lab 10.**