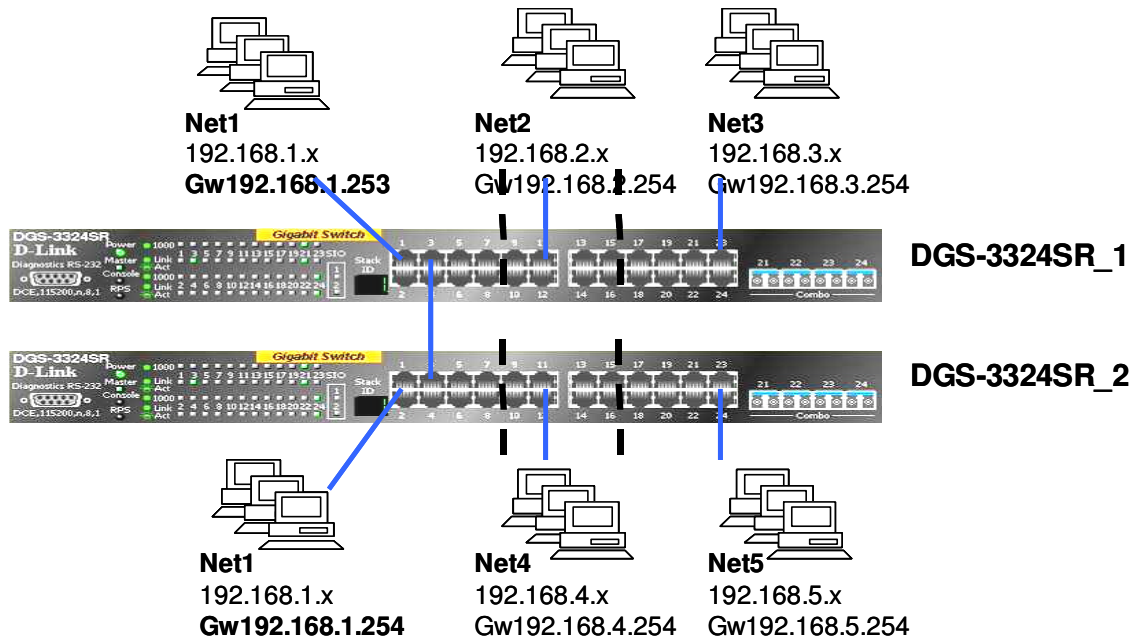# How do I setup a Layer 3 network with RIP with my DGS-3324SR/DGS-3324SRi/DXS-3350SR, and DXS-3326GSR?

Warning:
The example configuration below was created from a factory default configuration on the DGS-3324SR/DGS-3324SRi/DXS-3350SR/DXS-3326GSR switches. We recommend saving your current configuration if necessary.

Scenario:
This example shows a Layer 3 configuration on two DGS-3324SR switches. The routing between different subnets on each switch will be based on the routing information exchanged between the switches using RIP. Once RIP is configured on both switches, the DGS-3324SR_1 switch will be able to learn the Net4 and Net5 networks found on the DGS-3324SR_2 switch. In the same way, the DGS-3324SR_2 switch will be able to learn the Net2 and Net3 networks found on the DGS-3324SR_1 switch.

Using static routes is only suitable for small networks where there are only a few subnets. If there are many subnets in the Network, using static routes will require a lot of configuration on the switches. By using RIP, the Layer 3 switches will exchange routing information allowing them to learn each other's routing table automatically.

Switch CLI Configuration:

Step 1   Connect to the DGS-3324SR_1 switch using the console connection with your preferred Terminal emulation software.

Step 2   Once connected to the CLI, login at the username and password prompt (The default is username is <blank> and password is <blank>).

Step 3   At the prompt, enter the following command:

```
reset system
```

Enter 'y' when prompted to confirm the factory reset. The switch will now reboot with the factory default settings.

Step 4   Login to the switch again.

Step 5   In the DGS-3324SR_1 switch CLI, enter the following commands to create the switch VLANs and related IP interfaces for Net1, Net2 and Net3 on the DGS-3324SR_1 switch.

```
config vlan default delete 1:1-1:24
create vlan v101 tag 101
config vlan v101 add untagged 1:1-1:8
create ipif net1 192.168.1.253/24 v101 state enabled

create vlan v102 tag 102
config vlan v102 add untagged 1:9-1:16
create ipif net2 192.168.2.254/24 v102 state enabled

create vlan v103 tag 103
config vlan v103 add untagged 1:17-1:24
create ipif net3 192.168.3.254/24 v103 state enabled
save
```

Step 6   Enable RIP on the DGS-3324SR_1 switch using the following command.

```
enable rip
```

Step 7   Configure RIP for all interfaces using the following command:

```
config rip all tx_mode v2_only rx_mode v2_only state enable
save
```

Alternatively, you can configure RIP for each IP interface that you need RIP on using the following command:

```
config rip ipif net1 tx_mode v2_only rx_mode v2_only state enabled
config rip ipif net2 tx_mode v2_only rx_mode v2_only state enabled
config rip ipif net3 tx_mode v2_only rx_mode v2_only state enabled
save
```

Step 8   Repeat **Step 1** to **Step 4** for the DGS-3324SR_2 switch to reset the unit.

Step 9   Once logged into the DGS-3324SR_2 switch CLI, enter the following commands to create the switch VLANs and related IP interfaces for Net1, Net4 and Net5 on the DGS-3324SR_2 switch.

```
config vlan default delete 1:1-1:24
create vlan v101 tag 101
config vlan v101 add untagged 1:1-1:8
create ipif net1 192.168.1.254/24 v101 state enabled

create vlan v104 tag 104
config vlan v104 add untagged 1:9-1:16
create ipif net4 192.168.4.254/24 v104 state enabled

create vlan v105 tag 105
config vlan v105 add untagged 1:17-1:24
create ipif net5 192.168.5.254/24 v105 state enabled
save
```

Step 10 Configure RIP for each IP interface:

Step 11 Configure RIP for all interfaces using the following command:

```
config rip all tx_mode v2_only rx_mode v2_only state enable
save
```

Alternatively, you can configure RIP for each IP interface that you need RIP on using the following command:

```
config rip ipif net1 tx_mode v2_only rx_mode v2_only state enabled
config rip ipif net4 tx_mode v2_only rx_mode v2_only state enabled
config rip ipif net5 tx_mode v2_only rx_mode v2_only state enabled
save
```

Testing the Configuration:

1. Perform a ping test from a Net2 PC to a Net5 PC at the remote switch.
2. Perform a ping test from a Net3 PC to a Net4 PC at the remote switch.

Verifying the Configuration:

Below is a list of commands that can be used to verify the configuration and are useful for diagnostics:

```
show iproute
```

Below are the screen outputs for the above commands in this example. For more related CLI commands please refer to the CLI reference manual for your switch model.

```
DGS-3324SR:4#show iproute
Command: show iproute


Routing Table

IP Address/Netmask  Gateway          Interface    Cost     Protocol
------------------  ---------------  ------------ -------- --------
192.168.1.0/24      0.0.0.0          net1         1        Local
192.168.2.0/24      0.0.0.0          net2         1        Local
192.168.5.0/24      192.168.1.254    net1         2        RIP

Total Entries : 3
```