

HiOS: HTML - Rail Data Diode (RDD) Configuration

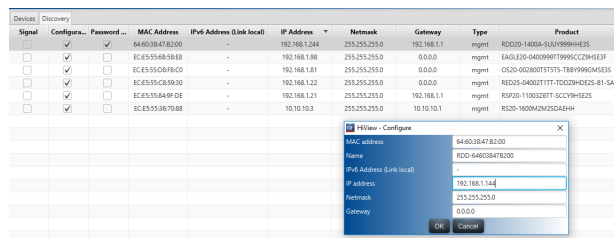
John M - 2024-09-02 - HiOS

This guide is designed to step you through the configuration of the RDD Hirschmann product. The RDD consists of 2 routers in the same enclosure, with traffic only being allowed from the IN router to the OUT, so UDP is the only protocol that is permitted.

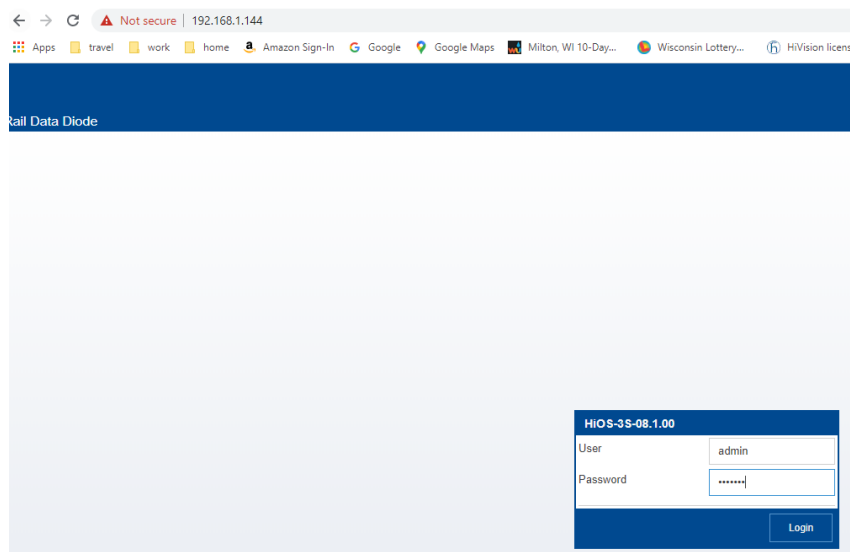
HiView/HiDiscovery will be needed to follow this guide along with 2 computers.

Configuring the IN Router

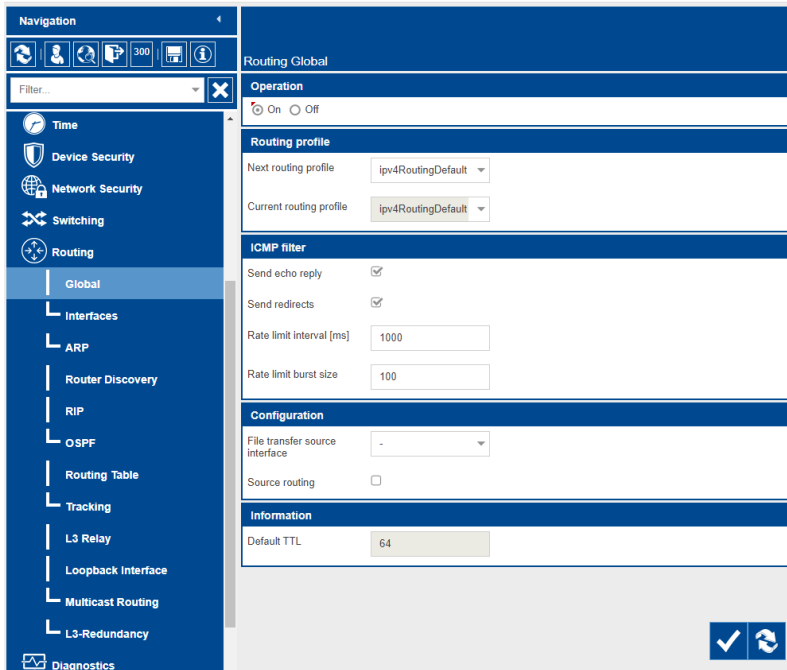
1. Give the IN side of the RDD an IP address with HiDiscovery.



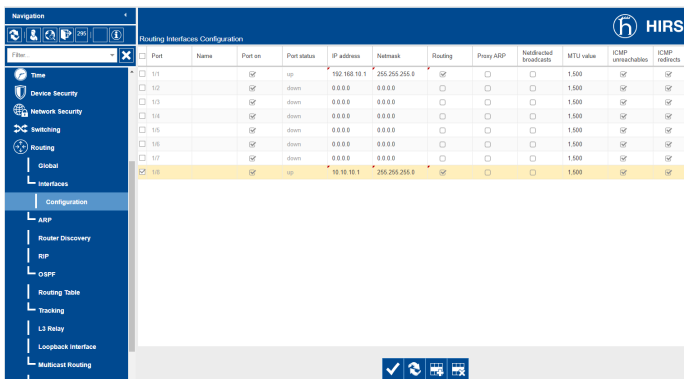
2. Login to the GUI of the switch.



3. Go to Routing/global and turn on routing then click the write button.



4. Go to routing/interfaces/configuration and assign the IP addresses to the interfaces used and click write. Refresh to make sure the settings are correct. If an IP address was assigned to the port currently used to communicate to the switch the computer IP will have to be changed to the same subnet of the IP that was assigned. This will also be the new IP address to login to the switch and the gateway IP of the computer. Note: Use the wizard to configure virtual interfaces/VLANs.



5. Go to Routing/ARP/current and write down the MAC for the IP address that will connect the 2 Routers in the RDD, this will be needed when configuring the out Router .

Port	IP address	MAC address	Last updated	Type
1/1	192.168.10.1	64:60:38:47:b2:05	3d 6h 35m 17s	local
1/1	192.168.10.10	e4:b9:7a:0c:4a:f5	3d 6h 29m 58s	dynamic
1/8	10.10.10.1	64:60:38:47:b2:0c	3d 6h 35m 17s	local

6. Go to Router/ARP/Static and add an entry click active and write. This step will have to be done after the MAC of the OUT interface connecting to routers is known.

ARP Static

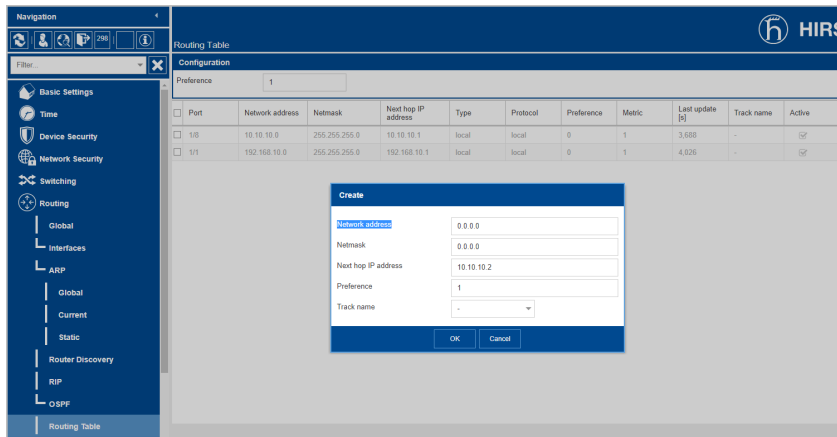
IP address	MAC address	Port	Active
10.10.10.2	64:60:38:47:b2:0c		

7. Make sure the new route shows up in the current tab which may need to be refreshed.

Port	IP address	MAC address	Last updated	Type
1/1	192.168.10.1	64:60:38:47:b2:05	3d 6h 52m 58s	local
1/1	192.168.10.10	e4:b9:7a:0c:4a:f5	3d 6h 49m 26s	dynamic
1/8	10.10.10.1	64:60:38:47:b2:0c	3d 6h 52m 59s	local
1/8	10.10.10.2	64:60:38:47:b2:4c	3d 6h 52m 59s	static

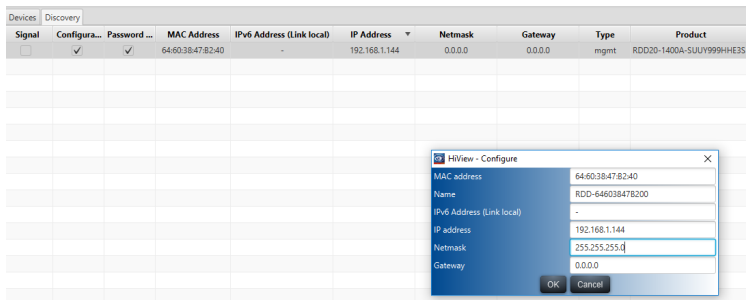
8. Add a static route 0.0.0.0/0 with the next hop IP of the OUT connecting interface click ok,

make sure it is active and click the write button.

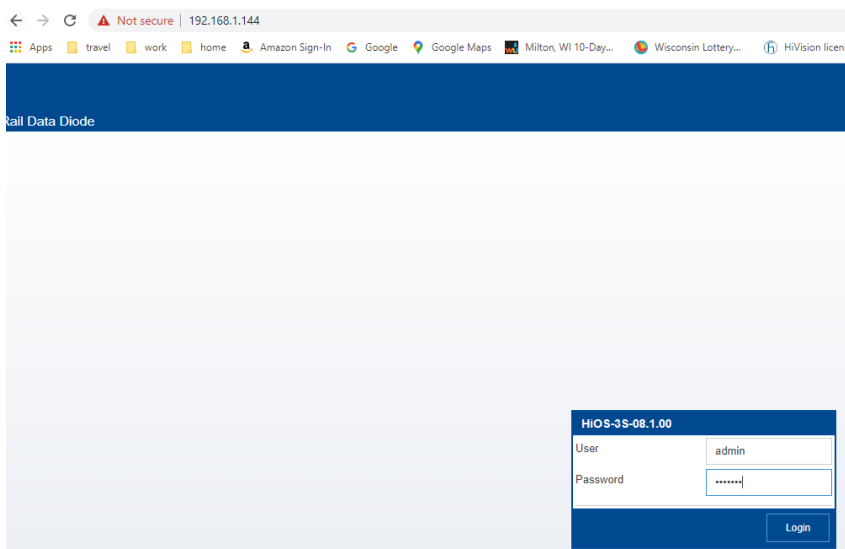


Configuring the OUT Router

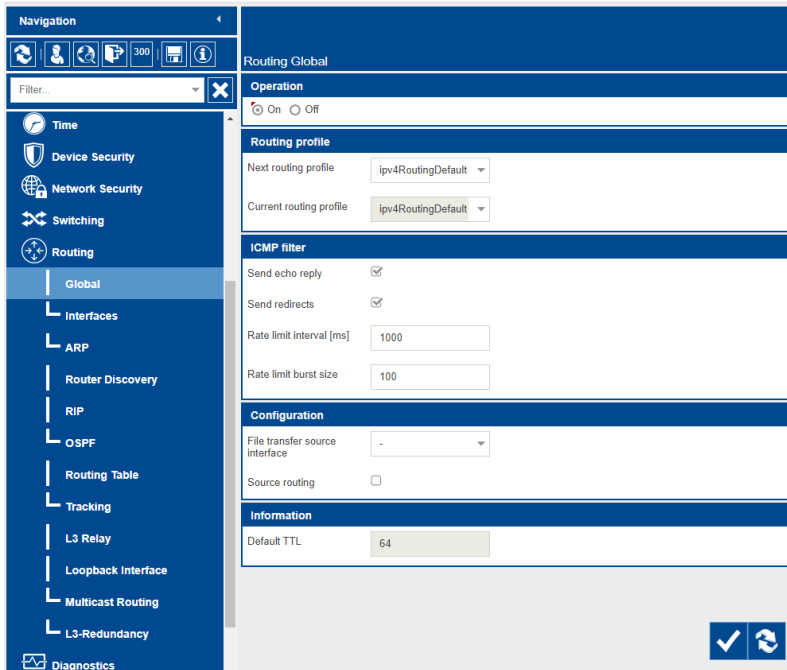
1. Give the OUT side of the RDD an IP address with HiDiscovery.



2. Login to the GUI of the switch.



3. Go to Routing/global and turn on routing then click the write button.



4. Go to routing/interfaces/configuration and assign the IP addresses to the interfaces used and click write. Refresh to make sure the settings are correct.

Port	Name	Port on	Port status	IP address	Netmask	Routing	Proxy ARP	Netdirected broadcasts	MTU value	ICMP unreachable	ICMP redirects
<input type="checkbox"/>	1/1	<input checked="" type="checkbox"/>	up	192.168.20.1	255.255.255.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1500	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	1/2	<input checked="" type="checkbox"/>	down	0.0.0.0	0.0.0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1500	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	1/3	<input checked="" type="checkbox"/>	down	0.0.0.0	0.0.0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1500	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	1/4	<input checked="" type="checkbox"/>	down	0.0.0.0	0.0.0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1500	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	1/5	<input checked="" type="checkbox"/>	down	0.0.0.0	0.0.0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1500	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	1/6	<input checked="" type="checkbox"/>	down	0.0.0.0	0.0.0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1500	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	1/7	<input checked="" type="checkbox"/>	down	0.0.0.0	0.0.0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1500	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	1/8	<input checked="" type="checkbox"/>	up	10.10.10.2	255.255.255.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1500	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

5. Go to Routing/ARP/current and write down the MAC for the IP address that will connect the 2 Routers in the RDD, this will be needed when configuring the IN Router.

The screenshot shows a network configuration interface with a navigation pane on the left and a main content area on the right. The navigation pane is expanded to 'ARP' > 'Current'. The main content area displays a table titled 'ARP Current' with the following data:

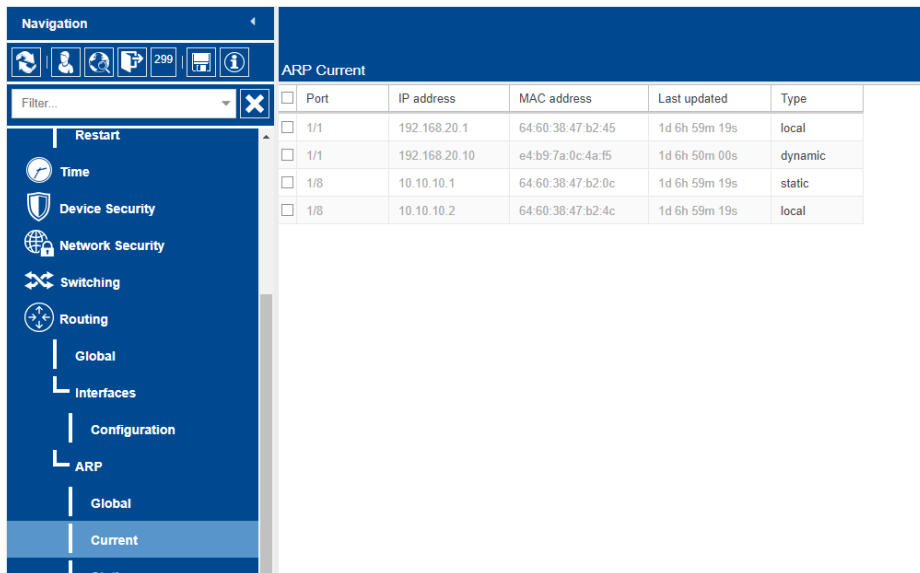
<input type="checkbox"/>	Port	IP address	MAC address	Last updated	Type
<input type="checkbox"/>	1/1	192.168.20.1	64:60:38:47:b2:45	1d 6h 55m 18s	local
<input type="checkbox"/>	1/1	192.168.20.10	e4:b9:7a:0c:4a:f5	1d 6h 50m 00s	dynamic
<input type="checkbox"/>	1/8	10.10.10.2	64:60:38:47:b2:4c	1d 6h 55m 18s	local

6. Go to Router/ARP/Static and add an entry click active and write.

The screenshot shows the same network configuration interface, but the navigation pane is expanded to 'ARP' > 'Static'. The main content area displays a table titled 'ARP Static' with the following data:

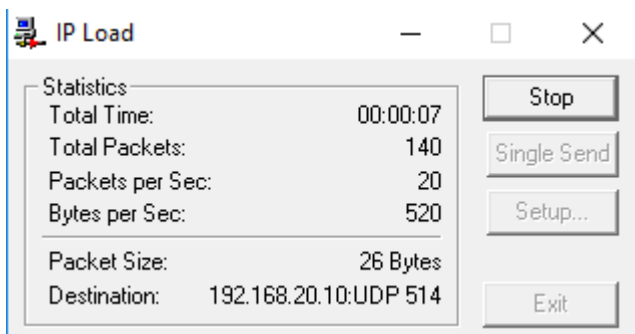
<input type="checkbox"/>	IP address	MAC address	Port	Active
<input type="checkbox"/>	10.10.10.1	64:60:38:47:b2:0c	1/8	<input checked="" type="checkbox"/>

7. Make sure the new route shows up in the current tab which may need to be refreshed.



Testing the configuration

1. Use a packet generator software to send UDP packets across the Router.



2. Use a computer connected to the OUT router running wireshark to capture the packets to make sure the traffic is being routed properly.

