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HiOS: HTML - How to Configure Virtual Router interfaces John M - 2019-06-27 - HiOS

This article describes the basic steps required to configure VLAN-Based (Virtual ) Router Interfaces on Hirschmann Platform V Layer 3 switches running the HiOS firmware version 07.0.00 or higher and the new HTMLv5 Graphical User Interface (GUI).

## HiOS-3S or 3A & Firmware 07.0.00

With the introduction of the HiOS firmware version 07.0.00, the switch agent's Graphical User Interface (GUI) has been changed from a Java based interface to a HTML v5 interface.

## **Configuration Tasks:**

The configuration of the routing function usually contains the following steps:

1. Draw a Network Plan

Create a picture of your network so that you can clearly see the division into subnetworks and the related distribution of the IP addresses.

This step is very important. Good planning of the subnetworks with the corresponding network masks makes the router configuration much easier.

2. Router Basic Settings

Along with enabling the global routing function, the router basic settings also contain the assignment of IP addresses and network masks to the router interfaces, and then enabling the routing function on that specific interface.

## VLAN-Based (Virtual) Router Interfaces:

A VLAN-based router interface is one or more physical ports that are combined using VLANs to build a virtual router interface.

If there are no active ports that are a part of the VLAN-based router interface, then the entry from the routing table is removed, because the router transmits exclusively to those ports for which the data transfer is likely to be successful. The entry in the interface configuration table remains.

Between devices attached to the same VLAN of the VLAN-based router interface, the switch

exchanges data packets on Layer 2.

Terminal devices address data packets with a destination address in another subnet to the router. The device then exchanges the data packets on Layer 3.

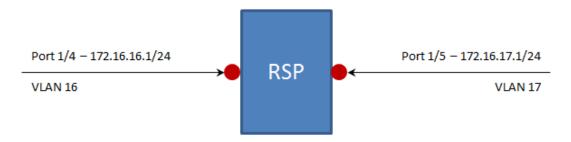
### Note:

When you assign the VLAN ID of the management VLAN to a router interface, the device deactivates the management IP address. You can then access the device via the IP address of the router interface. The management VLAN is the VLAN by means of which you access the management of all the devices.

## The Network Design:

In this article, we will use a RSP switch with Layer 3 Standard features to configure two VLAN-Based (Physical) Router Interfaces.

We will configure interface Port 1/4 and Port 1/5 as VLAN-Based (Virtual) Router interfaces using IP Address in separate subnets.



# The Configuration Steps:

Log into the switch's GUI with a user ID that has administrative privileges. In the switch's default configuration, this would be accomplished using the User ID of " admin " and a password of " public ".

HiOS-3S-07.0.07		
User	admin	
Password	•••••	<u> </u>
		Login

Navigate to the Routing – Global page of the GUI.

Enable the Routing Global operation by selecting the On Operation option radial button and

then click the Set button ( $\checkmark$ ).

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Navigate to the Routing – Interfaces – Configuration page of the GUI.

Click the Wizard button (

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	0 1/7		2	down	0.0.0.0	0.0.0.0				1,500	2	2			
Global	0 1/8		2	down	0.0.0.0	0.0.00				1,500	2	2			
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Enter 16 in the VLAN ID field and click the Next button ( $\bigcirc$ Next).

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Select the Member and Untagged checkboxes for Port 1/4.

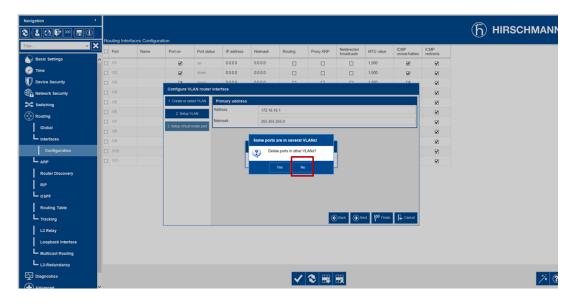
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Enter 16 for the Port-VLAN ID field for Port 1/4 and click the Next button ( $\bigcirc$ Next).

Enter 172.16.16.1 for the Primary Address and 255.255.255.0 for the Netmask, and then click the Finish button (

itor 👻	X	erfaces Configu							Netdirected		ICMP	ICMP	
Basic Settings	Port	Name	Port on	Port status	IP address	Netmask	Routing	Proxy ARP	broadcasts	MTU value	unreachables	redirects	
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Device Security	1/3		2	down	0.0.0.0	0.0.0.0				1,500	2	2	
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Routing	1/6		2. Setup	VLAN	idress	172.16.1	6.1					2	
	□ 1/7		3. Setup virtua		etmask	255.255	255.0					×	
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Configuration	1/10											×	
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Router Discovery													
RIP													
Routing Table										_			
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Loopback Interface													
Multicast Routing													
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Click No when asked to "Delete ports in other VLANs".



The newly created VLAN-Based Router Interface will appear in the Routing – Interfaces – Configuration page of the GUI as Port vlan/16.

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sic Settings	Port	Name	Port on	Port status	IP address	Netmask	Routing	Proxy ARP	Netdirected broadcasts	MTU value	ICMP unreachables	ICMP redirects	
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•	1/2		×	down	0.0.0.0	0.0.0.0				1,500	×	2	
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twork Security	1/4			up	0.0.0.0	0.0.0.0				1,500	×	2	
itching	1/5			up	0.0.0.0	0.0.0.0				1,500		2	
uting	1/6		×	down	0.0.0	0.0.0.0				1,500		2	
Global	0 1/7		×	down	0.0.0	0.0.0.0				1,500	8	×	
nterfaces	1/8		×	down	0.0.0	0.0.0.0				1,500	2	2	
	0 1/9		M	down	0.0.0	0.0.0.0				1,500	×	2	
Configuration	1/10		×	down	0.0.0	0.0.0.0				1,500	×	2	
ARP	0 1/11		×	down	0.0.0	0.0.0.0				1,500	2	2	
Router Discovery	vlan/16		×	down	172.16.16.1	255.255.255.0	×			1,500	×	2	
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Click the Wizard button (

Enter 17 in the VLAN ID field and click the Next button ( $\bigcirc$ ).

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Device Security	0 1/3			down	0.0.0.0	0000				1,500		2		
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Select the Member and Untagged checkboxes for Port 1/5.

Enter 17 for the Port-VLAN ID field for Port 1/5 and click the Next button ( $\bigcirc$ ).

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Enter 172.16.17.1 for the Primary Address and 255.255.255.0 for the Netmask, and then click the Finish button (

	Routing Interf	Name	Port on	Port status	IP address	Netmask	Routing	Proxy ARP	Netdirected	MTU value	ICMP	ICMP	
Basic Settings			E State	Up	0.0.0.0	0.0.0.0			broadcasts	1,500	unreachables		
Time	1/2		2	down	0.0.0.0	0.000				1,500	2	2	
Device Security	0 1/3			dawn	0000	0.000				1.600		2	
Network Security	1/4		Configure V	LAN router inte	rface							2	
Switching	1/5		1. Create or se	Hect VLAN P	rimary address							Ø	
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	1/7		3. Setup virtua		tmask	255.255.2	255.0					×	
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- Interfaces	1/9												
Configuration	1/10											×	
	1/11												
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L3 Relay				_				_					
Loopback Interface													
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Click No when asked to "Delete ports in other VLANs".

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Basic Settings	^ -	) 1/1	Tearing				0.0.0	0.0.0			broadcasts	1,500	unreachables	redirects			
Time				8			0.0.0	0.0.0.0				1,500	2 2	2			
Device Security							0.0.0	0.0.0.0				1,500	<b>N</b>	2			
Network Security		1/4		Config	ure VLAN rout	er interface								2			
Switching		] 1/5		1. Creat	e or select VLAN	Priman	y address							R			
		] 1/6		2	Setup VLAN	Address		172.16.17	31					R			
Routing						Netmask		255.255.2	55.0					×			
Global		] 1/8		3. Setup	virtual router port									Ø			
L Interfaces		] 1/9						Some ports a	are in several VL	ANSI				Ø			
								2 Delet	e ports in other VL	ANs?				Ø			
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Router Discovery		vlan/16					5		Yes No					2			
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Loopback Interface																	
L Multicast Routing																	
L L3-Redundancy																	
Diagnostics																	
Advanced									$\checkmark$	🎗 🖽 E	×						1

The newly created VLAN-Based Router Interface will appear in the Routing – Interfaces – Configuration page of the GUI as Port vlan/17.

		Port	aces Configura	Port on	Port status	IP address	Netmask	Routing	Proxy ARP	Netdirected broadcasts	MTU value	ICMP unreachables	ICMP redirects	
Basic Settings	^	1/1		×	up	0.0.0.0	0.0.0				1,500			
Time		1/2		2	down	0.0.0.0	0.0.0				1,500	2	2	
Device Security		1/3			down	0.0.0.0	0.0.0				1,500	2		
Network Security		1/4		×	up	0.0.0.0	0.0.0.0				1,500	×		
Switching		1/5			up	0.0.0.0	0.0.0				1,500	×		
Routing		1/6			dowm	0.0.0.0	0.0.0				1,500			
Global		1/7			down	0.0.0.0	0.0.0.0				1,500	×		
		1/8		×	down	0.0.0.0	0.0.0				1,500		×	
- Interfaces		1/9			down	0.0.0.0	0.0.0				1,500			
Configuration		1/10		V	down	0.0.0	0.0.0				1,500			
		1/11		×	down	0.0.0	0.0.0				1,500	×	×	
Router Discovery		vlan/16		×	down	172.16.16.1	255.255.255.0	2			1,500			
RIP		vlan/17			down	172.16.17.1	255.255.255.0	2			1,500			
Routing Table														
L Tracking														
L3 Relay														
Loopback Interface														
Loopback Interface														

This completes the steps required to configure VLAN-Based (Virtual) Router Interfaces for Ports 1/4 and 1/5.

## Verifying the Configuration:

Once we have completed the steps required to configure Ports 1/4 an 1/5 as VLAN-Based (Virtual) Router Interfaces, we should ensure that the ports are now capable of routing IP Packets.

Remember, if at least one of the ports that are configured as a member of the VLAN-Based (Virtual) Router Interface does not have an active Ethernet connection, it can/will not be able to do any routing. So, make sure that you have at least one active Ethernet connection for the ports associated with VLAN/16 and VLAN/17.

Navigate to the Routing – Routing Table page of the GUI.

Click the Reload button (

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C Time	Por	t Network address		Netmask	Next hop IP address	Туре	Protocol	Preference	Metric	Last update [s]	Track name	Active			
Device Security	🗆 vlar	v16 172.16.1	16.0	255.255.255.0	172.16.16.1	local	local	0	1	190		2			
Retwork Security	🗆 vlar	v17 172.16.1	17.0	255.255.255.0	172.16.17.1	local	local	0	1	22		2			
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Router Discovery															
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You should see the two ports listed as having active routes to the IP 172.16.16.0 and 172.16.17.0 networks. Because they are router interfaces configured on this switch, they will be listed as a Local Type.

This switch can now route IP Packets between the two IP networks.

## **Additional Information**

## **Command Line Interface (CLI) Commands:**

The following CLI commands can be used in lieu of the HTMLv5 GUI to configure the switch for Port-Based (Physical) Router Interfaces to meet the same configuration requirements.

Copyright (c) 2011-2019 Hirschmann Automation and Control GmbH All rights reserved RSP30 Release Hi05-35-07.0.07 (Build date 2019-05-27 15:32)

System Name : RSP-ECE555973398 Management IP : 192.168.1.22 subnet Mask : 255.255.255.0 1. Router IP : 0.0.0.0 Base MAC : EC:E5:55:97:33:98 System Time : 2019-01-02 05:03:03

User:admin Password:\*\*\*\*\*\*

NOTE: Enter '?' for Command Help. Command help displays all options that are valid for the particular mode. For the syntax of a particular command form, please consult the documentation. !\*(RSP)>enable !\*(RSP)(Config)#interface 1/4 !\*(RSP)#vlan database !\*(RSP)((Interface)1/4)#vlan participation include 16 !\*(RSP)(Vlan)#vlan add 16 !\*(RSP)((Interface)1/4)#vlan pvid 16 !\*(RSP)(Vlan)#name 16 VLAN\_16 !\*(RSP)((Interface)1/4)#exit !\*(RSP)(Vlan)#vlan add 17 !\*(RSP)(Config)#interface 1/5 !\*(RSP)(Vlan)#name 17 VLAN\_17 !\*(RSP)((Interface)1/5)#vlan participation include 17 !\*(RSP)(Vlan)#routing add 16 !\*(RSP)((Interface)1/5)#vlan pvid 17 !\*(RSP)(Vlan)#routing add 17 !\*(RSP)((Interface)1/5)#exit !\*(RSP)(Vlan)#exit !\*(RSP)(Config)#show ip route all !\*(RSP)#configure !\*(RSP)(Config)#interface vlan/16 !\*(RSP)((Interface)vlan/16)#ip address primary 172.16.16.1 255.255.255.0 !\*(RSP)(Config)# !\*(RSP)((Interface)vlan/16)#ip routing !\*(RSP)(Config)#exit !\*(RSP)((Interface)vlan/16)#exit !\*(RSP)# !\*(RSP)(Config)#interface vlan/17

!\*(RSP)((Interface)vlan/16)#ip address primary 172.16.17|1 255.255.255.0

!\*(RSP)((Interface)vlan/16)#ip routing

!\*(RSP)((Interface)vlan/16)#exit

 Network Address
 Protocol
 Next Hop IP
 Next Hop If
 Pref
 Metric
 Active

 172.16.16.0/24
 Local
 172.16.16.1
 vlan/16
 1
 [x]

 172.16.17.0/24
 Local
 172.16.17.1
 vlan/17
 0
 [x]

!\*(RSP)>logout