

Dell Power Connect Manual Switch Configuration



Before Starting

Important! If you have problems accessing the switch for configuration when connected to the Merging MassCore PCIe Ethernet card (NET-MSC-GBEX1) please connect it to the PC's on-board Ethernet port. When configuration is completed reconnect the switch to the MassCore Ethernet card.

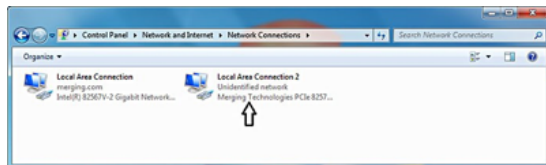
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Configure Network Addressing

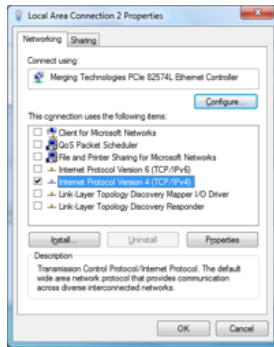
1. Right click on the Network icon in the Windows Taskbar.



2. Select: **Open Network and Sharing Center**
3. Click on: **Change Adapter Settings** on the left of the pane.



4. Right-click the **Merging Technologies PCIe 8257 RAVENNA** Network Card and select **Properties:** (same procedure applies with any other network adapter)



5. Select **Internet Protocol Version 4 (TCP/IP)** and Click on **Properties**:



6. Click on the **Use the following IP address**: radio button and enter **192.168.2.2** (the DELL PowerConnect 28xx switch has a factory default IP address of **192.168.2.1**).

Click on the **OK** button to accept the settings and close the dialog.

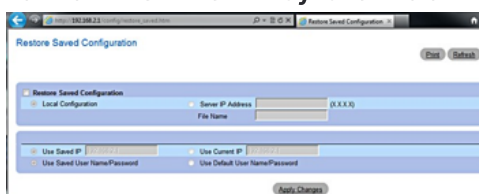
First access to the Switch

1. To access the switch with a browser, the switch needs to be in Managed Mode. If the Managed Mode LED on the front panel of the switch is not lit, use a paper clip to press the Managed Mode button through the small hole on the front right of the switch. Once the Managed Mode led is lit, the switch offers a web gui. It is also possible to configure the switch using the 9-pin serial connection at the back of the switch. If this is how you want to configure it, please refer to the switch's documentation.
2. Open a Web Browser (Internet Explorer is recommended for this configuration process.)
3. Enter <http://192.168.2.1> in the address bar and hit **Return** to access the Switch.
4. Login using the default credentials:

user: admin password: admin

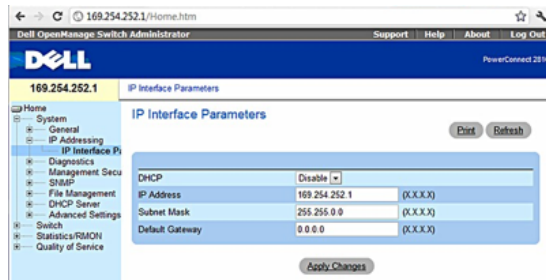
(Depending on the exact switch this field may need to be left blank. If in doubt consult the Dell 2816 Switch user guide.)

Note: If you cannot access the Switch remotely perform a reset to default factory settings. On the Dell Power Connect use a paper clip and press and hold for around ten seconds the button accessed via the small hole labeled Managed Mode to the right of the RJ-45 connectors. Afterwards make sure the indicator light Managed Mode to the left of the RJ-45 connectors is lit in order to access and configure the switch. (Press the button once again briefly if necessary.) Repeat the reset procedure in the future if remote access does not work first time. It may take two or three minutes for the switch to become available after a reset.

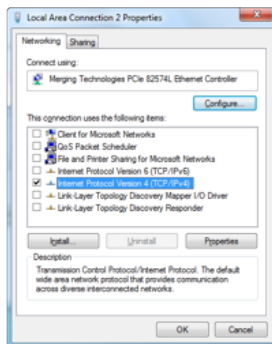


5. Click on **Apply Changes**
6. Once logged into the switch select **Change Configuration**.
Note: The switch will then reboot (taking 2-3 minutes to do so)

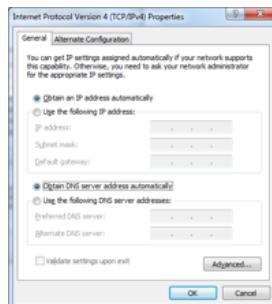
In the left-hand pane click on **System > IP addressing** to expand it and click on **IP Interface parameters**



7. Set the **IP Address** to **169.254.252.1** see screen shot above.
8. Click on **Apply Changes**. The connection to the switch will then be lost since the Merging Network card still has a fixed IP in a different range.
 Continue with points **9** to **12** to put the card back in IP auto-configure mode.
9. Open the **Windows Control Panel** and open the **Network and Sharing Center**.
10. Select **Change adapter settings**
11. Locate and select the Merging Technologies PCIe Ethernet card connection and Right-click on it
12. Select **properties** from the drop-down menu to open the **Local Area Connection Properties** dialog:



13. Select **Internet Protocol Version 4 (TCP/IPv4)** to select it and click on **Properties** to open the **properties** dialog:
14. This time choose the **Obtain an IP address automatically** radio button.



15. Click on **OK** to accept the settings and close the dialogue. Repeat to accept the settings and close the **Local Area Connection Properties** dialog.

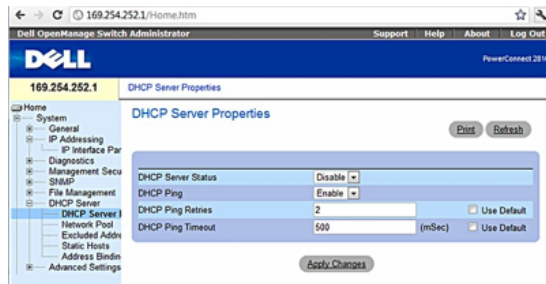
Configure the switch

Now you can log into the switch using **http://169.254.252.1**

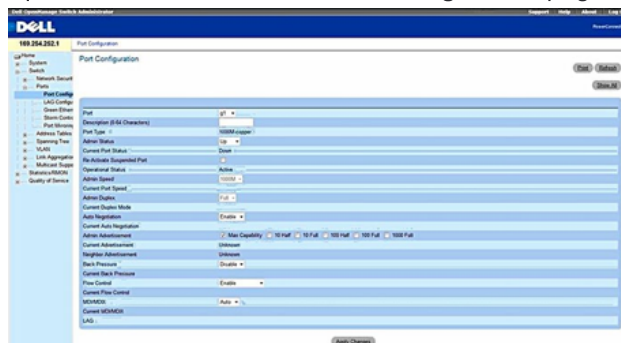
Note: If you cannot access the switch once it is set to **Obtain an IP address automatically** try setting the adaptor to **169.254.252.2** and retry. Ensure that after configuring the switch the setting is changed back to **Obtain an IP address automatically**.

The following steps will help you to configure the Switch for dedicated RAVENNA networking. First ensure you can access and log on to the Switch.

1. Open the **System > DHCP server > DHCP Server Properties**

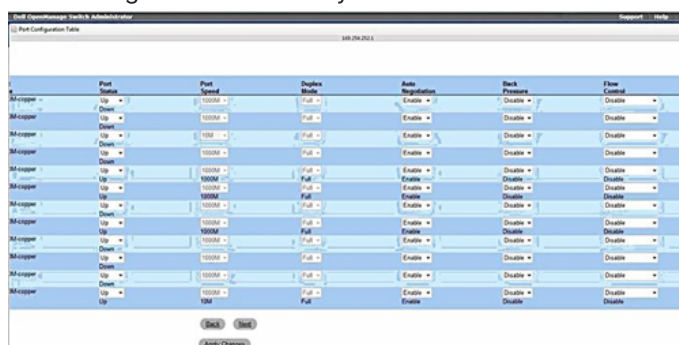


2. Set the parameters as in the screen shot above.
3. Click on **Apply Changes**.
4. Open the **Switch > Ports > Port Configuration** page and select **Show All**:



5. Set all the **Flow Control** entries to **Disable**:

This setting minimizes latency on the RAVENNA Network.



6. Open the **Switch > Ports > Spanning Tree > STP Port Settings** page:

STP Port Settings

Select a Port: g1

STP: Enable

Fast Link: ☒

Port State: Disabled

Speed: 1000M

Path Cost (1-200000000): 4

Default Path Cost: 0

Priority: 128

Designated Bridge ID: 32768-d5 67 a5 75 3a a2

Designated Port ID: 128-1

Designated Cost: 0

Forward Transitions: 1

LAG: None

Apply Changes

7. Click on **Show All**

STP Port Table

Port	STP	Fast Link	Port State	Speed	Path Cost	Default Path Cost	Priority	Designated Bridge ID	Designated Port ID
1 g1	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-1
2 g2	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-2
3 g3	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-3
4 g4	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-4
5 g5	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-5
6 g6	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-6
7 g7	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-7
8 g8	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-8
9 g9	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-9
10 g10	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-10
11 g11	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-11
12 g12	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-12
13 g13	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-13
14 g14	Enable	☒	Forwarding	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-14
15 g15	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-15
16 g16	Enable	☒	Disabled	1000M	4	0	128	32768-d5 67 a5 75 3a a2	128-16

Apply Changes

8. In the STP Port Table window, check all **Fast Link** check boxes as shown in the screen shot above.

Note: Please ignore the 4 numeric entries in the **Path Cost** column and the **Port State** entries since these are derived from your current connection so these values may vary.

9. Click on **Apply Changes**.

10. Open the **Switch > Ports > Green Ethernet** page:

11. Set both **Link Down Energy Detect Mode** and **Link Short-Reach Energy Detect Mode** to **off**.

12. Open the **Switch > Multicast Support > Global Parameters** page.

Multicast Global Parameters

Bridge Multicast Filtering: ☒

IGMP Snooping Status: ☒

Apply Changes

13. Set both drop-downs to **Enable** as in the screen shot above.

14. Open the **Switch > Multicast Support > IGMP Snooping** page:

IGMP Snooping

VLAN ID: 1

IGMP Snooping Status: ☒

Auto Learn: ☒

IGMP Querier Status: ☒

Querier IP Address: 169.254.252.1

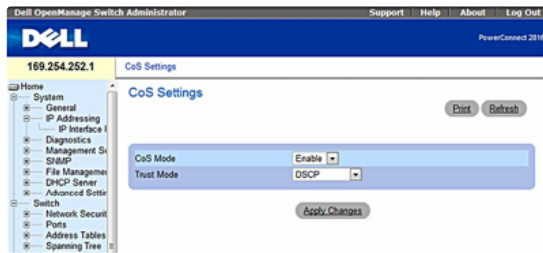
Host Timeout (0-2147483647): 200 (Sec)

Multicast Router Timeout (1-2147483647): 300 (Sec)

Leave Timeout (0-2147483647): 10 (Sec)

Apply Changes

15. Configure IGM Snooping as in the screen shot above. **Querier IP Address** needs to be the fixed IP address of the switch itself.
16. Click on **Apply Changes**.
17. Open the **Quality of Service > CoS Global Parameters > CoS Settings** page:



18. Configure CoS settings as in the screen shot above.
19. Click on **Apply Changes**.
20. Open the **Quality of Service > DSCP to Queue Mapping** page:

DSCP In	Queue	DSCP In	Queue	DSCP In	Queue
0	1	21	1	42	1
1	1	22	1	43	1
2	1	23	1	44	1
3	1	24	1	45	1
4	1	25	1	46	3
5	1	26	1	47	1
6	1	27	2	48	4
7	1	28	1	49	1
8	1	29	1	50	1
9	1	30	1	51	1
10	1	31	1	52	1
11	1	32	1	53	1
12	1	33	1	54	1
13	1	34	2	55	1
14	1	35	3	56	1
15	1	36	1	57	1
16	1	37	1	58	1
17	1	38	1	59	1
18	1	39	1	60	1
19	2	40	1	61	1
20	1	41	1	62	1
				63	1

21. Configure DSCP to Queue Mapping as in the screen shot above. (note that some DSCP cannot be modified on the switch)
22. Click on **Apply Changes**.
23. Log out of the switch which is now configured properly.

Important note on IP addresses range

The [Internet Engineering Task Force](https://www.ietf.org/) (IETF) has directed the [Internet Assigned Numbers Authority](https://www.iana.org/) (IANA) to reserve the following IPv4 address ranges for private networks:

192.168.0.0 to 192.168.255.255 / 172.16.0.0 to 172.31.255.255 / 10.0.0.0 to 10.255.255.255.

Private IPs should only be in these ranges (see https://en.wikipedia.org/wiki/Private_network)