
CHAPTER 12

VLAN/Rate Control

12.1 Introduction

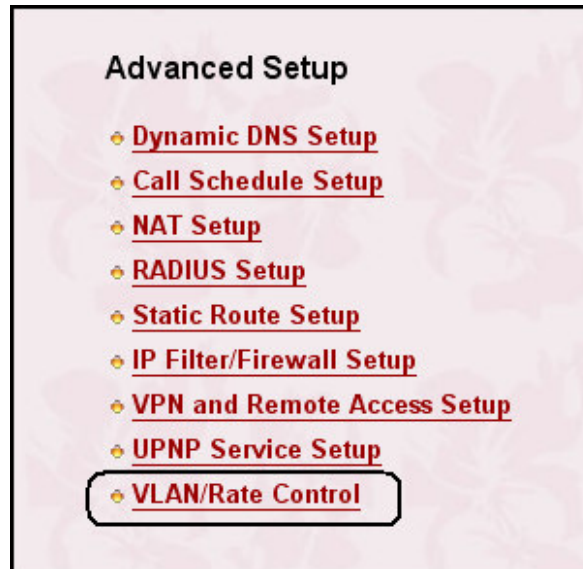
VLAN stands for **Virtual Local Area Network** and, conceptually, represents a broadcast domain. In the switched networks, a broadcast packet or a packet with an unknown destination MAC (Medium Access Control) address will be forwarded to all other ports in a broadcast fashion. This leads to significant reduction of the whole network performance. To increase the router performance and support stronger security, the Vigor 2900 router provide the **VLAN Control** facility. By grouping some ports into one VLAN, broadcast packets will only be sent to the ports within the same VLAN without affecting the traffic of other ports outside the VLAN. This is because the broadcast domains are independent for different VLANs. All packets from individual ports can't cross different VLANs. Further, any port can be grouped as one VLAN, and one port can be shared among different VLANs. Thus, the VLAN facility improves the efficiency of network resource usage and network security.

Rate Control facility allows you to set the upper bound of the port forwarding rate, also called “bandwidth throttling rate”. In other words, this facility allows you to set a maximum inbound and/or outbound bandwidth available for each LAN port. It will be of great value to minimize the impact on other users from one user who would otherwise monopolize the network transmission bandwidth (e.g. playing games or downloading large files).

The following sections describe the web configuration for setting up the VLAN/Rate Control facility, including specific configuration information and any limitation they

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have. One can find the entrance of this setting, named as **VLAN/Rate Control**, in the main menu, as depicted in the following figure.



12.2 VLAN Configuration

After clicking the VLAN/Rate Control in the main menu, the associated web configuration appears as shown below.

Enable: One checkbox appears giving the choice to activate the *VLAN function* or not. To enable it, click on the empty box image and, subsequently, the hook image () will appear.

In the Vigor 2900 router, there are 4 VLAN groups available for users. They are called **VLAN0**, **VLAN1**, **VLAN2**, and **VLAN3**, respectively. Select the ports that you want to cluster them in one VLAN group by clicking the appropriate checkboxes. Other unchecked ports will be automatically arranged as one VLAN, say non-visible VLAN group. It should be noticed that, if only one port is arranged as a VLAN, then this port only can communicate with WAN port.

VLAN/Rate Control

P1: Specify LAN port 1.

P2: Specify LAN port 2.

P3: Specify LAN port 3.

P4: Specify LAN port 4.

The screenshot shows the configuration interface for a DrayTek Vigor2900 series Broadband Security Router. The page is titled "VLAN/Rate Control" and is part of the "Advanced Setup" menu. It features two main sections: "VLAN Configuration" and "Rate Control".

VLAN Configuration: This section includes an "Enable" checkbox and a table for configuring VLANs. The table has columns for VLAN ID (VLAN0, VLAN1, VLAN2, VLAN3) and LAN ports (P1, P2, P3, P4). Each cell in the table contains a checkbox.

| | P1 | P2 | P3 | P4 |
|-------|--------------------------|--------------------------|--------------------------|--------------------------|
| VLAN0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| VLAN1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| VLAN2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| VLAN3 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Rate Control: This section includes an "Enable" checkbox and a table for configuring rate control. The table has columns for LAN ports (P1, P2, P3, P4) and sub-columns for "Out" and "In" traffic. Each cell contains an "Enable" checkbox and a "Rate (kbps)" input field. The input fields are currently set to 100000.

| | P1 | | P2 | | P3 | | P4 | |
|-------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | Out | In | Out | In | Out | In | Out | In |
| Enable | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Rate (kbps) | <input type="text" value="100000"/> | <input type="text" value="100000"/> | <input type="text" value="100000"/> | <input type="text" value="100000"/> | <input type="text" value="100000"/> | <input type="text" value="100000"/> | <input type="text" value="100000"/> | <input type="text" value="100000"/> |

Note : Rate must a multiple of 32. Rate Default : 100000 Rate range : 32 ~ 100000

Buttons: Cancel, Clear, OK

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12.3 Rate Control Configuration

Now, let us continue to introduce the **Rate Control** configuration. Again, we use the same figure shown above.

Enable: One checkbox is available to activate this function that will control the upper bound of the port forwarding rate. To enable it, click on the empty box image and, subsequently, the hook image () will appear.

For each LAN ports (named **P1**, **P2**, **P3** and **P4**), the Vigor 2900 router provides two options for users to limit the incoming and/or outgoing bandwidth. Simply click the checkbox “In” or “Out” under the appropriate LAN port index and then enter the rate under that “In” or “Out” checkbox. Accordingly, the **Rate Control** facility will apply on selected LAN ports. To turn off a Rate Control setting for a particular port, simply click on the appropriate checkbox to disable it.

Out: Click it to enable the outbound (upload) Rate Control for the selected LAN port.

In: Click it to enable the inbound (download) Rate Control for the selected LAN port.

Rate: Enter a number that is multiple of 32 (i.e. 32, 64, 96, 128...) and less than 100,000. This number indicates the maximum granted-rate (in kbps) for the selected LAN port in the selected direction .