VLAN Mux How To

For BCM963xx DSL Linux

Version 1.0

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REVISION HISTORY

Revision Number	Date	Change Description
V1.0	10/26/2006	Initial Release.

**Broadcom Corporation**

1.0   BACKGROUND

The most commonly used Virtual LAN is defined by 802.1Q tagging protocol, which expended the original Ethernet frame header to include VLAN ID (tag) and priority bits. With the support of network equipments, multiple virtual networks can coexist over the same physical network.

Ethernet frames are used to transfer data over ADSL line when bridging, MER or PPPoE mode is used. VLAN tag can be used to create multiple separate WAN connections within the same PVC. The VLAN Mux feature is designed for this purpose. This feature is especially important for VDSL as packet transfer mode will be widely used.

The VLAN Mux feature replaces VLAN tagging feature in the pervious release.

2.0   HOW TO CREATE A CONNECTION

Creating new connection with VLAN Mux is similar to creating ordinary connections. After clicking "Add" button from WAN Setup page, check "VLAN Mux - Enable Multiple Protocols Over a Single PVC", a textbox labeled "802.Q VLAN ID" will appear. VLAN ID can be entered.
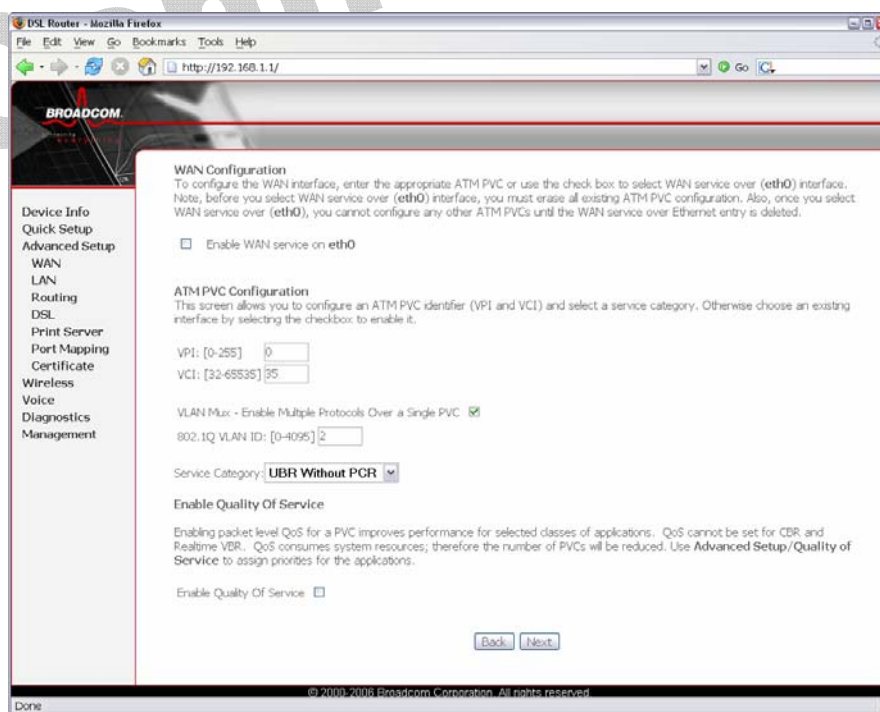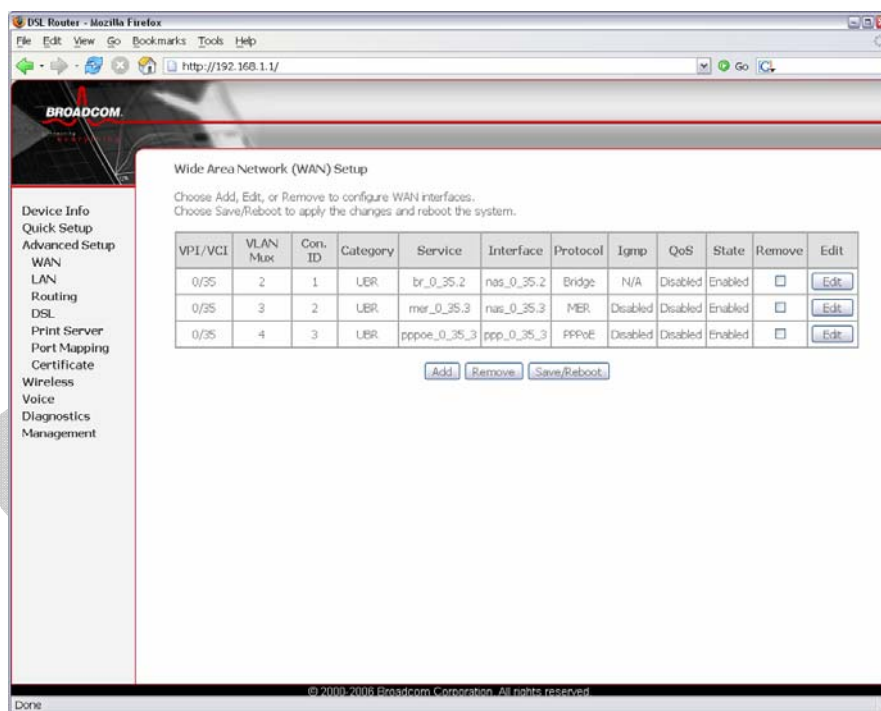

After the first screen, configuration is the same as connections without VLAN Mux feature. The Connection Type page is shown below.
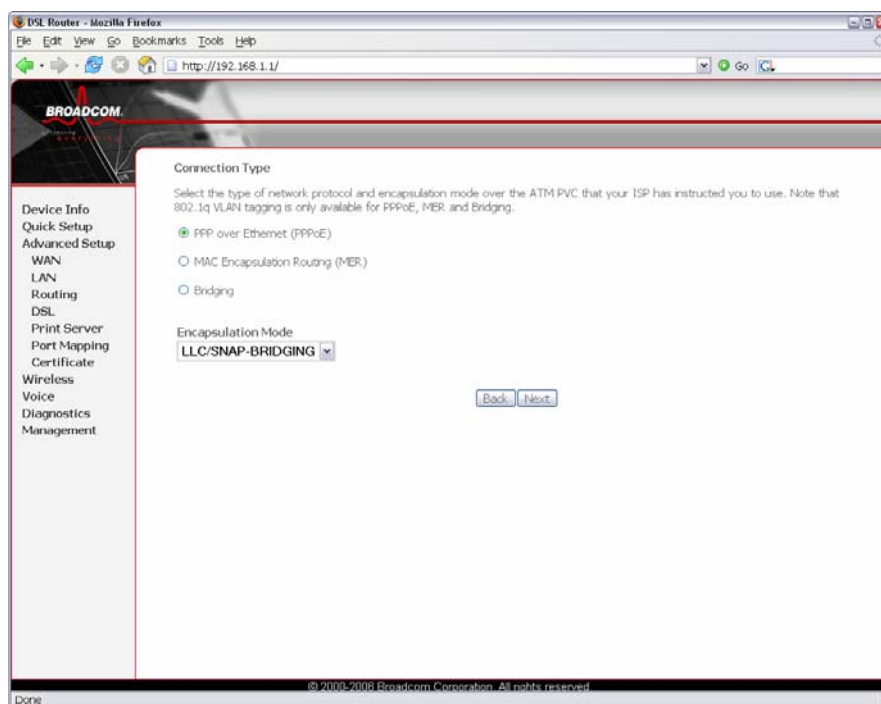
Note PPPoA and IPoA are not available - see next section.

Below is an example of the WAN setup page with three VLAN Mux enabled connections configured:

3.0   CONNECTION COMPATIBILITY AND RESTRICTIONS

PPPoA and IPoA do not use Ethernet frames for data transfer so they cannot work with VLAN Mux feature. Furthermore they cannot coexist with any VLAN Mux enabled connections over the same PVC. These rule checks also happen when editing a connection, so if VPI, VCI or protocol is changed you may see an error message or different protocol selections depending on connection compatibility.

VLAN Mux enabled connections and connections with VLAN Mux disabled can coexist over the same PVC if they are otherwise compatible. Packets in the latter type are sent without 802.1Q header, this is also called native VLAN.

4.0   INFORMATION ABOUT IMPLEMENTATION

VLAN Mux is build upon Linux VLAN implementation. Linux VLAN can be configured using the vconfig command. The basic concept is based on virtual interfaces. For example if we want to tag packets on WAN interface nas_0_35 with VLAN ID 2, we can use vconfig to create a virtual interface for that purpose, and the name of the interface will be nas_0_35.2.