Creation and Configuration of IPv4 Based Class Map on the WAP121 and WAP321 Access Points

Objective

The Client Quality of Service (QoS) feature contains Differentiated Services (DiffServ) support that allows you to classify and manage network traffic. The configuration of diffserv begins with configuration of a class map, which classifies traffic with respect to the IP protocol and other criteria. The configuration of class map is essential so that important traffic can be separated into different classes and can be given higher preference. For typical Internet applications like email and file transfer, a slight degradation in service is acceptable, but for applications like voice call and video stream, any degradation of service has undesirable effects.

This article explains how to create and configure a IPv4 Class Map on WAP121 and WAP321 Access Points (WAP).

Applicable Devices

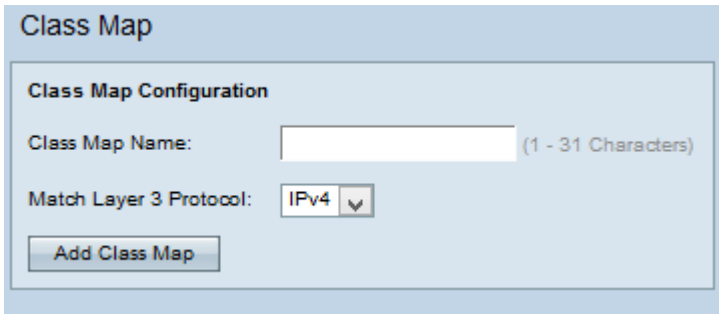
- WAP121
- WAP321

Software Version

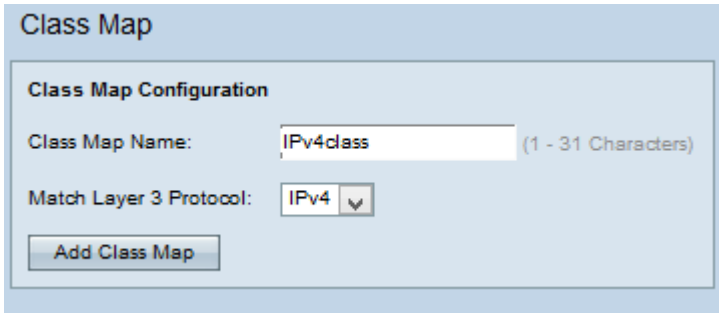
- v1.0.3.4

Creation of IPv4 Class Map

Step 1. Log in to the Access Point Configuration Utility and choose **Client QoS > Class Map** . The *Class Map* page opens:



Step 2. Enter the name of the class map in the *Class Map Name* field.



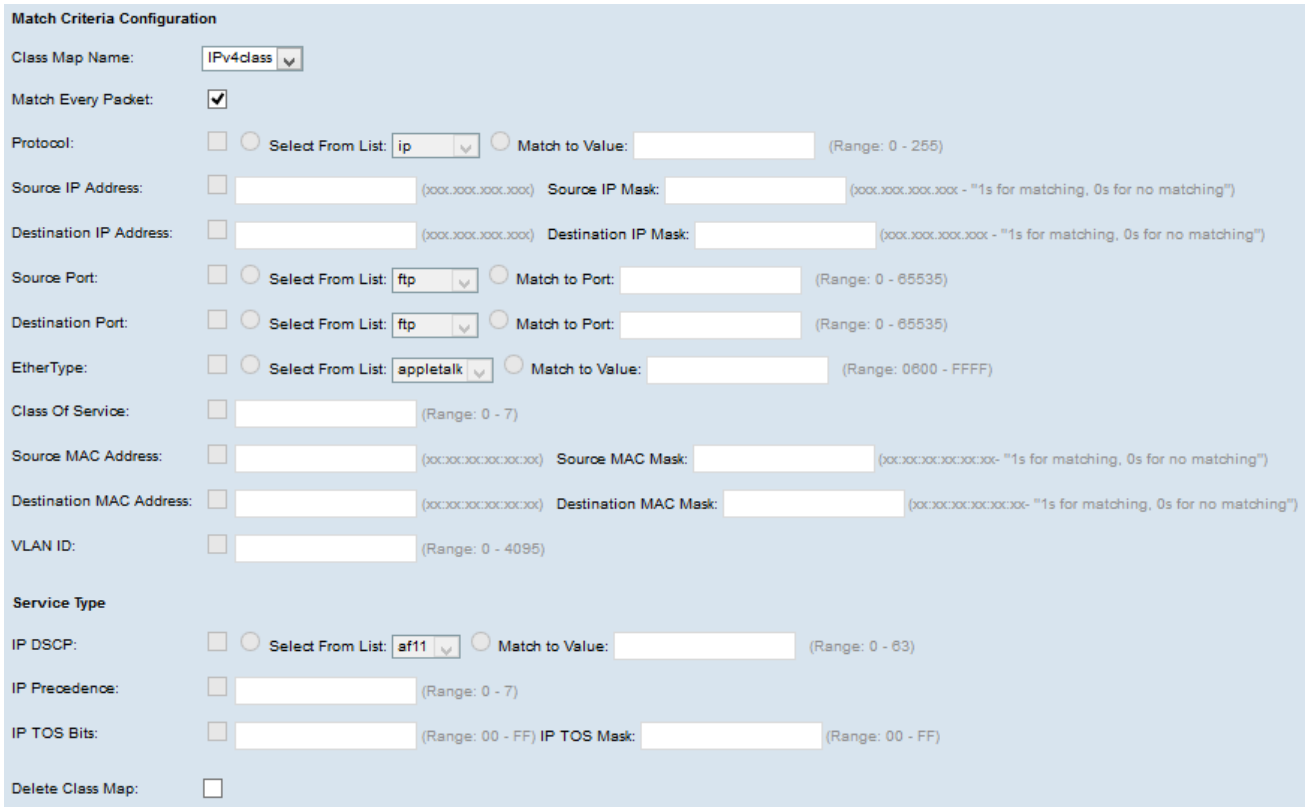
Step 3. Choose the desired layer 3 protocol from the *Match Layer 3 Protocol* drop-down list.

Note: If **IPv6** is chosen, refer article *Configuration of IPv6 Based Class Map on WAP121 and WAP321 Access Points*.

Step 4. Click **Add Class Map** to add a new class map.

IPv4 Class Map

Follow the steps given below to configure the parameters in the *Match Criteria Configuration* area.

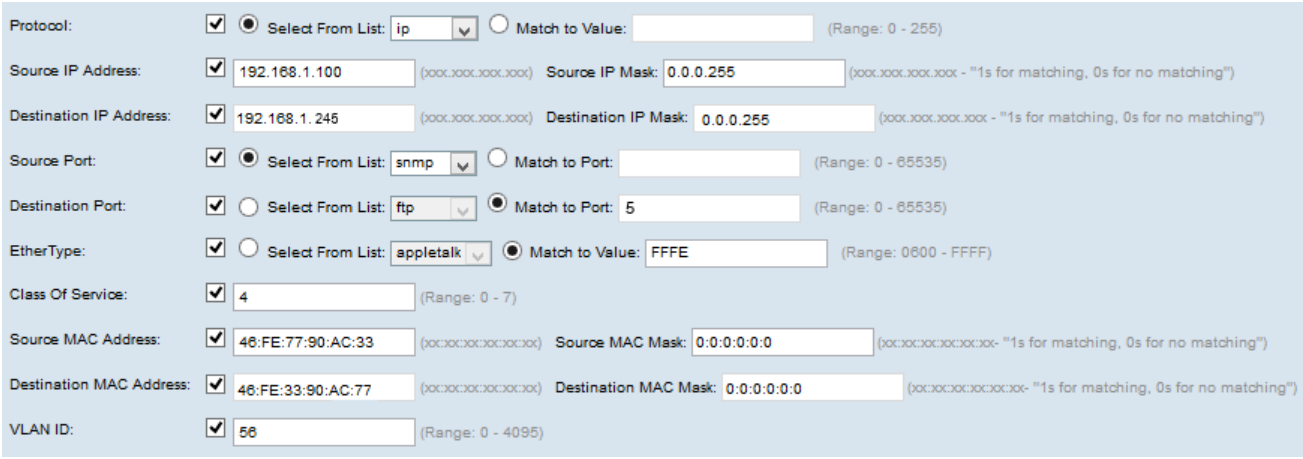


Step 1. Choose the class map from the *Class Map Name* drop-down list for which configuration must be done.

Note: All of the following steps are optional. Boxes that are checked will be enabled. Uncheck the box if you do not want to apply a specific rule.

Step 2. Check the **Match Every Packet** check box for all the IP packets to match the class map for every frame or packet regardless of the content of the frame or packet. Otherwise, uncheck the **Match Every Packet** check box.

Timesaver: If **Match Every Packet** is checked, skip to Step 16.



Step 3. Check the **Protocol** check box to use an L3 or L4 protocol match condition based on the value of the *IP Protocol* field in IPv4 packets. If the **Protocol** check box is checked, click one of the these radio buttons.

- Select From List — Choose a protocol from the *Select From List* drop-down list. The available options are IP, ICMP, IPv6, ICMPv6, IGMP, TCP and UDP.

- Match to Value — For a protocol not presented in the list. Enter a standard IANA-assigned protocol ID ranges from 0 to 255.

Step 4. Check the **Source IP Address** check box to include the IP address of the source in the match condition. If the **Source IP Address** check box is checked, enter the source IP address in the *Source IP Address* field and the mask in the *Source IP Mask* field.

Step 5. Check the **Destination IP Address** check box to include the IP address of the destination in the match condition. If the **Destination IP Address** check box is checked, enter the destination IP address in the *Destination IP Address* field and the mask in the *Destination IP Mask* field.

Step 6. Check the **Source Port** check box to include a source port in the match condition. If the **Source Port** check box is checked, click one of these radio buttons.

- Select From List — Choose a source port from the *Select From List* drop-down list. The available options are ftp, ftpdata, http, smtp, snmp, telnet, tftp and www.

- Match to Port — For source port not presented in the list. Enter the port number which ranges 0 to 65535 and includes three different types of ports.

  – 0 to 1023 — Well known ports. These ports are used widely in many types of network services.

  – 1024 to 49151 — Registered ports. These ports are used for specific services and can be obtained only by request to the Internet Assigned Numbers Authority (IANA).

  – 49152 to 65535 — Dynamic and/or Private ports. These ports are used for temporary purpose only.

Step 7. Check the **Destination Port** check box to include a destination port in the match condition. If the **Destination Port check** box is checked, click one of these radio buttons.

- Select From List — Choose a destination port from the *Select From List* drop-down list.

• Match to Port — For a destination port not presented in the list. Enter the port number which ranges from 0 to 65535 in the *Match to Port* field. The range includes three different types of ports.

– 0 to 1023 — Well Known Ports. These ports are used widely in many types of network services.

– 1024 to 49151 — Registered Ports. These ports are used for specific services and can be obtained only by request to the Internet Assigned Numbers Authority (IANA).

– 49152 to 65535 — Dynamic and/or Private Ports. These ports are used for temporary purpose only.

Step 8. Check the **EtherType** check box to compare the match criteria against the header of an Ethernet frame. An *EtherType* is a field in the frame that is used to indicate the protocols that are encapsulated in the frame. If the **EtherType** check box is checked, click one of these radio buttons.

• Select From List — Choose a protocol from the drop-down list. The drop-down list has appletalk, arp, ipv4, ipv6, ipx, netbios, pppoe.

• Match to Value — For the custom protocol identifier. Enter the identifier which ranges from 0600 to FFFF.

Step 9. Check the **Class of Service** check box to compare the 802.1p user priority against an Ethernet frame. Enter the priority which ranges from 0 to 7 in the *Class of Service* field.

• 0 — Best Effort.

• 1 — Background.

• 2 — Spare.

• 3 — Excellent Effort.

• 4 — Controlled Load.

• 5 — Video.

• 6 — Voice.

• 7 — Network Control.

Step 10. Check the **Source MAC Address** check box to compare the source MAC address against an Ethernet frame. If it is checked, enter the source MAC address in the *Source MAC Address* field and the source MAC mask in the *Source MAC Mask* field.

Note: Source MAC mask specifies which bits in the source MAC address are to be compared against an Ethernet frame.

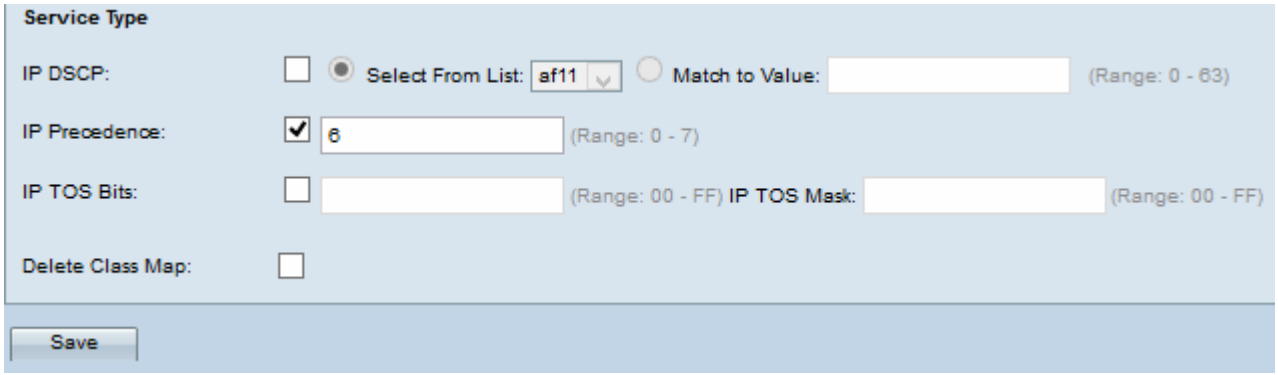
Step 11. Check the **Destination MAC Address** check box to compare the destination MAC address against an Ethernet frame, and enter the destination MAC address in the *Destination MAC Address* field and the destination MAC mask in the *Destination MAC Mask* field.

Note: Destination MAC mask specifies which bits in the destination MAC address are to be

compared against an Ethernet frame.

Step 12. Check the **VLAN ID** check box for the VLAN ID to be matched with IP packets. Enter the VLAN ID which ranges from 0 to 4095 in the *VLAN ID* field.

Note: Only one of the services can be selected from the *Service Type* area and can be added for the match condition.



Step 13. Check the **IP DSCP** check box to match the packets based on IP DSCP values. DSCP is used to specify the traffic priorities over the IP header of the frame. If the **IP DSCP** check box is checked, click one of these radio buttons.

- Select From List — Choose an IP DSCP value from the *Select From List* drop-down list. This categorizes all packets for the associated traffic stream with the IP DSCP value that you select from the list. For further details on DSCP, please refer here.

- Match to Value — To customize DSCP values. Enter the DSCP value which ranges from 0 to 63 in the *Match to Value* field.

Step 14. Check the **IP Precedence** check box to include a IP Precedence value in the match condition. If **IP Precedence** check box is checked, enter an IP precedence value which ranges from 0 to 7.

Step 15. Check the **IP TOS Bits** check box to use the packet's Type of Service bits in the IP header as match criteria. If the **IP TOS Bits** check box is checked, enter the IP TOS bits which ranges from 00-FF and IP TOS mask which ranges from 00-FF in the respective fields.

Step 16. To delete the class map, check the **Delete Class Map** check box.

Step 17. Click **Save**.