

Configuration of IPv4 Based Class Map on WAP551 and WAP561 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 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 a higher priority. For typical internet applications like email and file transfer, a slight degradation in service is acceptable. 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 WAP551 and WAP561 Access Points.

Applicable Devices

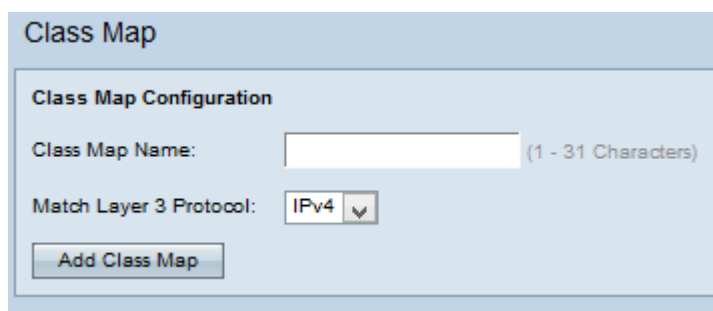
- WAP551
- WAP561

Software Version

- v1.0.4.2

Creation of IPv4 Class Map

Step 1. Log in to the web configuration utility and choose **Client QoS > Class Map**. The *Class Map* page opens:

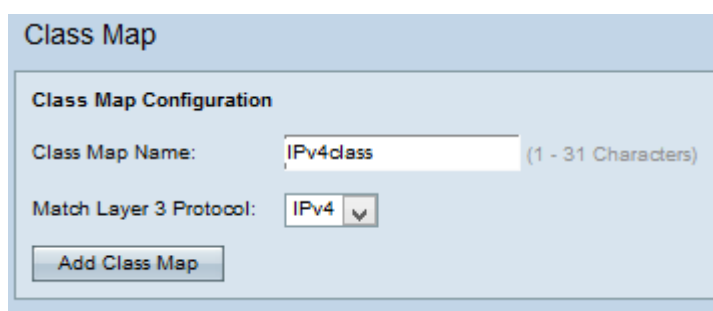


Class Map

Class Map Configuration

Class Map Name: (1 - 31 Characters)

Match Layer 3 Protocol: ▼



Class Map

Class Map Configuration

Class Map Name: (1 - 31 Characters)

Match Layer 3 Protocol: ▼

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. If IPv6 is chosen refer article [Configuration of IPv6 Based Class Map on WAP551 and WAP561 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.

The screenshot shows the 'Match Criteria Configuration' interface for an IPv4 Class Map. The 'Class Map Name' is set to 'IPv4class'. The 'Match Every Packet' checkbox is checked. The 'Protocol' is set to 'ip'. The 'Match to Value' field is empty. The 'Source IP Address' and 'Destination IP Address' fields are empty, with their respective masks also empty. The 'Source Port' and 'Destination Port' are set to 'ftp'. The 'Match to Port' fields are empty. The 'EtherType' is set to 'appletalk'. The 'Match to Value' field is empty. The 'Class Of Service' field is empty. The 'Source MAC Address' and 'Destination MAC Address' fields are empty, with their respective masks also empty. The 'VLAN ID' field is empty. The 'Service Type' section includes 'IP DSCP' set to 'af11', 'IP Precedence' set to 0, and 'IP TOS Bits' set to 0. The 'Delete Class Map' checkbox is unchecked.

Step 1. Choose the created class map from the Class Map Name drop-down list.

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 to match the class map for every frame or packet regardless of the content with the frame or packet. Uncheck the **Match Every Packet** check box to configure any additional match criteria.

Timesaver: If Match Every Packet is checked, skip to Step 12.

Protocol:	<input checked="" type="checkbox"/> <input checked="" type="radio"/> Select From List: <input type="text" value="ip"/> <input type="button" value="v"/> <input type="radio"/> Match to Value: <input type="text" value=""/> (Range: 0 - 255)
Source IP Address:	<input checked="" type="checkbox"/> <input type="text" value="192.168.1.100"/> (xxx.xxx.xxx.xxx) Source IP Mask: <input type="text" value="0.0.0.255"/> (xxx.xxx.xxx.xxx - "1s for matching, 0s for no matching")
Destination IP Address:	<input type="checkbox"/> <input type="text" value=""/> (xxx.xxx.xxx.xxx) Destination IP Mask: <input type="text" value=""/> (xxx.xxx.xxx.xxx - "1s for matching, 0s for no matching")
Source Port:	<input checked="" type="checkbox"/> <input checked="" type="radio"/> Select From List: <input type="text" value="snmp"/> <input type="button" value="v"/> <input type="radio"/> Match to Port: <input type="text" value=""/> (Range: 0 - 65535)
Destination Port:	<input type="checkbox"/> <input type="radio"/> Select From List: <input type="text" value="ftp"/> <input type="button" value="v"/> <input type="radio"/> Match to Port: <input type="text" value=""/> (Range: 0 - 65535)
EtherType:	<input checked="" type="checkbox"/> <input type="radio"/> Select From List: <input type="text" value="appletalk"/> <input type="button" value="v"/> <input type="radio"/> Match to Value: <input type="text" value="FFFE"/> (Range: 0800 - FFFF)
Class Of Service:	<input checked="" type="checkbox"/> <input type="text" value="4"/> (Range: 0 - 7)
Source MAC Address:	<input checked="" type="checkbox"/> <input type="text" value="48:FE:77:90:AC:33"/> (xxxxxxxxxxxx) Source MAC Mask: <input type="text" value="0:0:0:0:0:0"/> (xxxxxxxxxxxx - "1s for matching, 0s for no matching")
Destination MAC Address:	<input type="checkbox"/> <input type="text" value=""/> (xxxxxxxxxxxx) Destination MAC Mask: <input type="text" value=""/> (xxxxxxxxxxxx - "1s for matching, 0s for no matching")
VLAN ID:	<input checked="" type="checkbox"/> <input type="text" value="56"/> (Range: 0 - 4095)

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 following radio buttons:

- Select From List — Protocol to choose from the Select From List drop-down list.
- Match to Value — For 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. Enter the IP address and wild card mask of the source in the respective fields.

Step 5. Check the **Destination IP Address** check box to include the IP address of the destination in the match condition. Enter the IP address and wild card mask of the destination in the respective fields.

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 the following radio buttons:

- Select From List — Source port to choose from the Select From List drop-down list.
- Match to Port — For source ports 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.
 - 1024 to 49151 — Registered ports.
 - 49152 to 65535 — Dynamic and/or Private ports.

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 the following radio buttons:

- Select From List — Destination port to choose from the Select From List drop-down list.
- Match to Port — For destination ports 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.

– 1024 to 49151 — Registered Ports.

– 49152 to 65535 — Dynamic and/or Private Ports.

Step 8. Check the **EtherType** check box to compare the match criteria against the header of an Ethernet frame. If EtherType check box is checked, click one of the following radio buttons:

- Select From List — Protocol to choose 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 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. 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 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. 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.

Service Type

IP DSCP: Select From List: Match to Value: (Range: 0 - 63)

IP Precedence: (Range: 0 - 7)

IP TOS Bits: (Range: 00 - FF) IP TOS Mask: (Range: 00 - FF)

Delete Class Map:

Step 13. Check the **IP DSCP** check box to match the packets based on IP DSCP values. If the IP DSCP check box is checked, click one of the following radio buttons:

- Select From List — IP DSCP value to choose from the Select From List drop-down list.
- 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**.