



DSCP Marking

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Feature Summary and Revision History

Summary Data

Applicable Product(s) or Functional Area	SMF
Applicable Platform(s)	SMI
Feature Default Setting	Disabled – Configuration Required
Related Changes in this Release	Not Applicable
Related Documentation	Not Applicable

Revision History

Revision Details	Release
First introduced.	Pre-2020.02.0

Feature Description

DSCP Marking supports granular configuration. For Interactive Traffic Class (ITC), the SMF supports per-APN configurable DSCP marking for Uplink and Downlink direction that is based on 5QI and ARP-Priority level. This support allows the users to assign different DSCP values for flows with the same 5QI but different ARP priority values. For example, the ability to assign DSCP values that are based on 5QI+ARP can be used to meet compliance on priority and emergency calling via VoLTE.

DSCP Marking is a CLI-controlled feature, which enables to create and map 5QI and ARP values to enforceable QoS parameters.

How it Works

Allocation of different DSCP values for flows with the same 5QI, but different ARP values, works as follows:

- Allows DSCP marking of packets that is based on 5QI+ARP combination.
- 5QI+ARP configuration overrides any pre-entry of DSCP marking of packets that was based on 5QI+ARP combination.
- 5QI-only DSCP entry overrides all existing 5QI+ARP configuration.
- Allows implementation of associated DSCP marking for 5QI+ARP for Uplink and Downlink functionality.

Configuring 5QI-QoS Mapping

Use the following CLI commands to create and map 5QI values to enforceable QoS parameters.

```
configure
  profile qos qos_name
    dscp-map qi5 qi5_value [ arp-priority-level arp_value ] uplink
  user-datagram dscp-marking dscp_marking_value
    dscp-map qi5 5qi_value [ arp-priority-level arp_value ] downlink {
  encaps-header { copy-inner | dscp-marking dscp_marking_value } | user-datagram
    dscp-marking dscp_marking_value encaps-header { copy-inner | dscp-marking
dscp_marking_value } }
  commit
```

NOTES:

- **dscp-map**: Configures 5QI (referred as qi5 in the code) to DSCP-Marking mapping.
- **qi5 *5qi_value***: Identifier for the authorized QoS parameters. The *5qi_value* must be within the range of 0 through 255.
- **arp-priority-level *arp_value***: Configures the ARP Priority Level. The *arp_value* must be an integer from 1 through 15.
- **downlink**: Configures the downlink traffic.
- **uplink**: Configures the uplink traffic.
- **user-datagram**: Specifies the DSCP value to be applied to user datagram. Use this keyword to set the DSCP in the inner IP header in uplink or downlink direction.
- **dscp-marking**: Specifies the DSCP value to be applied to packets with this 5QI. The value of **dscp-marking** must be a hexadecimal number from 0x00 through 0x3F.
- **encaps-header**: Configures the DSCP value to be applied to encaps header. Use this keyword to set the DSCP in the outer-ip header in downlink direction.
- **copy-inner**: Copies the DSCP value from inner IP header to the outer IP header.

The following is a sample configuration.

```
profile qos test
  dscp-map qi5 1 downlink encaps-header copy-inner
  dscp-map qi5 1 downlink encaps-header dscp-marking 0x3b
  dscp-map qi5 2 downlink user-datagram dscp-marking 0x3b
  dscp-map qi5 3 downlink user-datagram dscp-marking 0x3b encaps-header copy-inner
  dscp-map qi5 4 downlink user-datagram dscp-marking 0x3b encaps-header dscp-marking 0x3f
  dscp-map qi5 2 uplink user-datagram dscp-marking 0x3b

  dscp-map qi5 1 arp-priority-level 1 downlink encaps-header copy-inner
  dscp-map qi5 2 arp-priority-level 2 downlink encaps-header dscp-marking 0x3b
  dscp-map qi5 4 arp-priority-level 3 downlink user-datagram dscp-marking 0x3b
  dscp-map qi5 2 arp-priority-level 4 downlink user-datagram dscp-marking 0x3b encaps-header
  copy-inner
  dscp-map qi5 4 arp-priority-level 5 downlink user-datagram dscp-marking 0x3b encaps-header
  dscp-marking 0x3f
  dscp-map qi5 4 arp-priority-level 5 uplink user-datagram dscp-marking 0x3b
```

