

Chapter 4

Defining Code-Point Aliases

Behavior aggregate classifiers use class-of-service (CoS) values such as Differentiated Services code points (DSCPs), DSCP IPv6, IP precedence, IEEE 802.1 and MPLS experimental (EXP) bits to associate incoming packets with a particular CoS servicing level. On a Services Router, you can assign a meaningful name or alias to the CoS values and use this alias instead of bits when configuring CoS components. These aliases are not part of the specifications but are well-known through usage. For example, the alias for DSCP 101110 is widely accepted as *ef* (expedited forwarding).

When you configure classes and define classifiers, you can refer to the markers by alias names. You can configure user-defined classifiers in terms of alias names. If the value of an alias changes, it alters the behavior of any classifier that references it.

To configure class-of-service (CoS) code point aliases, you can include the following statements at the [edit class-of-service] hierarchy level of the configuration:

```
class-of-service {
  code-point-aliases {
    (dscp | dscp-ipv6 | exp | ieee-802.1 | inet-precedence) {
      alias-name bits;
    }
  }
}
```

This chapter discusses the following topics:

- Default Code Point Aliases on page 42
- Defining Aliases for Bits on page 43

Default Code Point Aliases

Table 8 shows the default mappings between the bit values and standard aliases. For example, it is widely accepted that the alias for DSCP 101110 is **ef** (expedited forwarding).

Table 8: Default CoS Values (1 of 2)

CoS Value Types	Mapping
DSCP and DSCP IPv6 CoS Values	
ef	101110
af11	001010
af12	001100
af13	001110
af21	010010
af22	010100
af23	010110
af31	011010
af32	011100
af33	011110
af41	100010
af42	100100
af43	100110
be	000000
cs1	001000
cs2	010000
cs3	011000
cs4	100000
cs5	101000
nc1/cs6	110000
nc2/cs7	111000
MPLS EXP CoS Values	
be	000
be1	001
ef	010
ef1	011
af11	100
af12	101
nc1/cs6	110
nc2/cs7	111
IEEE 802.1 CoS Values	
be	000
be1	001

Table 8: Default CoS Values (2 of 2)

CoS Value Types	Mapping
ef	010
ef1	011
af11	100
af12	101
nc1/cs6	110
nc2/cs7	111
Legacy IP Precedence CoS Values	
be	000
be1	001
ef	010
ef1	011
af11	100
af12	101
nc1/cs6	110
nc2/cs7	111

Defining Aliases for Bits

To define a code-point alias, include the `code-point-aliases` statement at the [edit class-of-service] hierarchy level:

```
[edit class-of-service]
code-point-aliases {
  (dscp | dscp-ipv6 | exp | ieee-802.1 | inet-precedence) {
    alias-name bits;
  }
}
```

The CoS marker types are as follows:

- `dscp`—Handles incoming IPv4 packets.
- `dscp-ipv6`—Handles incoming IPv6 packets. For more information, see “Applying DSCP IPv6 Classifiers” on page 56.
- `exp`—Handles MPLS packets using Layer 2 headers.
- `ieee-802.1`—Handles Layer 2 CoS.
- `inet-precedence`—Handles incoming IPv4 packets. IP precedence mapping requires only the upper three bits of the DSCP field.

For example, you might set up the following configuration:

```
[edit class-of-service]
code-point-aliases {
  dscp {
    my1 110001;
    my2 101110;
    be 000001;
    cs7 110000;
  }
}
```

The sample configuration produces this mapping:

```
user@host>show class-of-service code-point-aliases dscp
Code point type: dscp
Alias          Bit pattern
ef/my2        101110
af11          001010
af12          001100
af13          001110
af21          010010
af22          010100
af23          010110
af31          011010
af32          011100
af33          011110
af41          100010
af42          100100
af43          100110
be            000001
cs1           001000
cs2           010000
cs3           011000
cs4           100000
cs5           101000
nc1/cs6/cs7  110000
nc2           111000
my1           110001
```

The following notes explain certain results in the mapping:

- my1 110001:
 - 110001 was not mapped to anything before, and my1 is a new alias.
 - Nothing in the default mapping table is changed by this statement.
- my2 101110:
 - 101110 is now mapped to my2 as well as ef.

- **be 000001:**
 - **be** is now mapped to 000001.
 - The old value of **be**, 000000, is not associated with any alias. Packets with this DSCP value are now classified to the default forwarding class.
- **cs7 110000:**
 - **cs7** is now mapped to 110000, as well as **nc1** and **cs6**.
 - The old value of **cs7**, 111000, is still mapped to **nc2**.

