



Sample Configurations

This appendix lists sample configurations and contains the following sections:

- [ISC-Generated Configlets, page A-1](#)
- [Device Configurations, page A-7](#)

ISC-Generated Configlets

The following are examples of configlets generated by Cisco IP Solution Center (ISC) for the network example used in [Chapter 5, “Provisioning Process for IP QoS.”](#)

Device enqospe4:

Configlet #1 (Created: 2003-04-24 16:44:57)

Job #124 Service Request #124

```
ip access-list extended
ISC_IN_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
permit ip any 10.10.10.0 0.0.0.255
!
ip access-list extended
ISC_IN_QOS_ACL_Customer-A_CustA-QoSPolicy_Business-Data-1
permit TCP any any eq www
permit TCP any any eq telnet
permit UDP any any eq tftp
permit TCP any any eq ftp
permit TCP any any eq smtp
!
ip access-list extended
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
permit UDP any any eq rip
permit TCP any any eq bgp
permit ospf any any
permit eigrp any any
!
ip access-list extended
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
permit ip 10.10.10.0 0.0.0.255 any
!
class-map match-any ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
match ip rtp 16384 16383
!
```

```

class-map match-any ISC_IN_Customer-A_Management
match access-group name
ISC_IN_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
!
class-map match-any ISC_IN_Customer-A_Business-Data-1
match access-group name
ISC_IN_QOS_ACL_Customer-A_CustA-QoSPolicy_Business-Data-1
!
class-map match-any ISC_IN_Customer-A_Best-Effort
match any
!
class-map match-any ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
match ip dscp 46
!
class-map match-any ISC_OUT_Customer-A_Routing_Protocol
match access-group name
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
!
class-map match-any ISC_OUT_Customer-A_Management
match access-group name
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
!
class-map match-any ISC_OUT_Customer-A_Business-Data-1
match ip dscp 34
!
class-map match-any ISC_OUT_Customer-A_Best-Effort
match ip dscp 0
!
policy-map ISC_IN_Customer-A_CustA-QoSPolicy
class ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
set ip dscp 46
class ISC_IN_Customer-A_Management
set ip dscp 34
class ISC_IN_Customer-A_Business-Data-1
set ip dscp 34
class ISC_IN_Customer-A_Best-Effort
set ip dscp 0
!
policy-map ISC_OUT_Customer-A_CustA-QoSPolicy
class ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
priority percent 10
class ISC_OUT_Customer-A_Routing_Protocol
bandwidth percent 1
class ISC_OUT_Customer-A_Management
bandwidth percent 1
class ISC_OUT_Customer-A_Business-Data-1
bandwidth percent 20
class ISC_OUT_Customer-A_Best-Effort
bandwidth percent 25
!
policy-map ISC_OUT_Customer-A_CustA-QoSPolicy_TOP
class class-default
shape average 128000
service-policy ISC_OUT_Customer-A_CustA-QoSPolicy
!
map-class frame-relay ISC_OUT_FR_MAP_CLASS_Customer-A_CustA-QoSPolicy
service-policy input ISC_IN_Customer-A_CustA-QoSPolicy
service-policy output ISC_OUT_Customer-A_CustA-QoSPolicy_TOP
frame-relay fragment
!
interface Hssi2/1/0.41 point-to-point
frame-relay ip rtp header-compression
frame-relay interface-dlci 41
class ISC_OUT_FR_MAP_CLASS_Customer-A_CustA-QoSPolicy

```

!

Device enqosce41:

Configlet #1 (Created: 2003-04-24 16:44:58)

Job #124 Service Request #124

```

ip access-list extended
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
permit UDP any any eq rip
permit TCP any any eq bgp
permit ospf any any
permit eigrp any any
!
ip access-list extended
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
permit ip any 10.10.10.0 0.0.0.255
!
class-map match-any ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
match ip rtp 16384 16383
!
class-map match-any ISC_IN_Customer-A_Business-Data-1
match protocol http
match protocol telnet
match protocol tftp
match protocol ftp
match protocol smtp
!
class-map match-any ISC_IN_Customer-A_Best-Effort
match any
!
class-map match-any ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
match ip dscp 46
!
class-map match-any ISC_OUT_Customer-A_Routing_Protocol
match access-group name
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
!
class-map match-any ISC_OUT_Customer-A_Management
match access-group name
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
!
class-map match-any ISC_OUT_Customer-A_Business-Data-1
match ip dscp 34
!
class-map match-any ISC_OUT_Customer-A_Best-Effort
match ip dscp 0
!
policy-map ISC_IN_Customer-A_CustA-QoSPolicy
class ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
set ip dscp 46
class ISC_IN_Customer-A_Business-Data-1
set ip dscp 34
class ISC_IN_Customer-A_Best-Effort
set ip dscp 0
!
policy-map ISC_OUT_Customer-A_CustA-QoSPolicy
class ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
priority percent 10
class ISC_OUT_Customer-A_Routing_Protocol

```

```

bandwidth percent 1
class ISC_OUT_Customer-A_Management
set ip dscp 34
bandwidth percent 1
class ISC_OUT_Customer-A_Business-Data-1
bandwidth percent 20
class ISC_OUT_Customer-A_Best-Effort
bandwidth percent 25
!
map-class frame-relay ISC_OUT_FR_MAP_CLASS_Customer-A_CustA-QoSPolicy
service-policy output ISC_OUT_Customer-A_CustA-QoSPolicy
frame-relay cir 128000
frame-relay mincir 64000
!
interface FastEthernet0/0
service-policy input ISC_IN_Customer-A_CustA-QoSPolicy
!
interface Hss1/0
frame-relay traffic-shaping
!
interface Hss1/0.41 point-to-point
frame-relay ip rtp header-compression
frame-relay interface-dlci 41
class ISC_OUT_FR_MAP_CLASS_Customer-A_CustA-QoSPolicy
!

```

Device enqospe5:

Configlet #1 (Created: 2003-04-24 16:44:58)

Job #124 Service Request #124

```

ip access-list extended
ISC_IN_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
permit ip any 10.10.10.0 0.0.0.255
!
ip access-list extended
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
permit UDP any any eq rip
permit TCP any any eq bgp
permit ospf any any
permit eigrp any any
!
ip access-list extended
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
permit ip 10.10.10.0 0.0.0.255 any
!
class-map match-any ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
match ip rtp 16384 16383
!
class-map match-any ISC_IN_Customer-A_Management
match access-group name
ISC_IN_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
!
class-map match-any ISC_IN_Customer-A_Business-Data-1
match protocol http
match protocol telnet
match protocol tftp
match protocol ftp
match protocol smtp

```

```

!
class-map match-any ISC_IN_Customer-A_Best-Effort
match any
!
class-map match-any ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
match ip dscp 46
!
class-map match-any ISC_OUT_Customer-A_Routing_Protocol
match access-group name
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
!
class-map match-any ISC_OUT_Customer-A_Management
match access-group name
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
!
class-map match-any ISC_OUT_Customer-A_Business-Data-1
match ip dscp 34
!
class-map match-any ISC_OUT_Customer-A_Best-Effort
match ip dscp 0
!
policy-map ISC_IN_Customer-A_CustA-QoSPolicy
class ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
set ip dscp 46
class ISC_IN_Customer-A_Management
set ip dscp 34
class ISC_IN_Customer-A_Business-Data-1
set ip dscp 34
class ISC_IN_Customer-A_Best-Effort
set ip dscp 0
!
policy-map ISC_OUT_Customer-A_CustA-QoSPolicy
class ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
priority percent 10
class ISC_OUT_Customer-A_Routing_Protocol
bandwidth percent 1
class ISC_OUT_Customer-A_Management
bandwidth percent 1
class ISC_OUT_Customer-A_Business-Data-1
bandwidth percent 20
class ISC_OUT_Customer-A_Best-Effort
bandwidth percent 25
!
interface ATM1/0.52 point-to-point
pvc 0/51
vbr-nrt 128 64 2000
service-policy input ISC_IN_Customer-A_CustA-QoSPolicy
service-policy output ISC_OUT_Customer-A_CustA-QoSPolicy
!

```

Device enqosce52:

Configlet #1 (Created: 2003-04-24 16:44:57)

Job #124 Service Request #124

```

ip access-list extended
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
permit UDP any any eq rip
permit TCP any any eq bgp
permit ospf any any

```

```

permit eigrp any any
!
ip access-list extended
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
permit ip any 10.10.10.0 0.0.0.255
!
class-map match-any ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
match ip rtp 16384 16383
!
class-map match-any ISC_IN_Customer-A_Business-Data-1
match protocol http
match protocol telnet
match protocol tftp
match protocol ftp
match protocol smtp
!
class-map match-any ISC_IN_Customer-A_Best-Effort
match any
!
class-map match-any ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
match ip dscp 46
!
class-map match-any ISC_OUT_Customer-A_Routing_Protocol
match access-group name
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
!
class-map match-any ISC_OUT_Customer-A_Management
match access-group name
ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
!
class-map match-any ISC_OUT_Customer-A_Business-Data-1
match ip dscp 34
!
class-map match-any ISC_OUT_Customer-A_Best-Effort
match ip dscp 0
!
policy-map ISC_IN_Customer-A_CustA-QoSPolicy
class ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
set ip dscp 46
class ISC_IN_Customer-A_Business-Data-1
set ip dscp 34
class ISC_IN_Customer-A_Best-Effort
set ip dscp 0
!
policy-map ISC_OUT_Customer-A_CustA-QoSPolicy
class ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
priority percent 10
class ISC_OUT_Customer-A_Routing_Protocol
bandwidth percent 1
class ISC_OUT_Customer-A_Management
set ip dscp 34
bandwidth percent 1
class ISC_OUT_Customer-A_Business-Data-1
bandwidth percent 20
class ISC_OUT_Customer-A_Best-Effort
bandwidth percent 25
!
interface FastEthernet0/0
service-policy input ISC_IN_Customer-A_CustA-QoSPolicy
!
interface ATM1/0.52 point-to-point
pvc 0/52
service-policy output ISC_OUT_Customer-A_CustA-QoSPolicy
!

```

Device Configurations

The following examples are full device configurations after a QoS Service Request deployment. The portions in bold are commands that represent the QoS configlets for the network example in [Chapter 5, “Provisioning Process for IP QoS.”](#)

Device enqospe4:

```

version 12.0
service timestamps debug datetime
service timestamps log datetime
no service password-encryption
no service single-slot-reload-enable
!
hostname enqospe4
!
boot system flash:rsp-pv-mz.120-24.S.bin
boot system flash rsp-pv-mz.122-4.T3.bin
redundancy
  no keepalive-enable
enable password 7 cisco
!
ip subnet-zero
ip cef distributed
ip tftp source-interface Loopback0
no ip domain-lookup
!
class-map match-any ISC_OUT_Customer-A_Best-Effort
  match ip dscp 0
class-map match-any ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
  match ip rtp 16384 16383
class-map match-any ISC_OUT_Customer-A_Business-Data-1
  match ip dscp 34
class-map match-any ISC_OUT_Customer-A_Management
  match access-group name ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
class-map match-any ISC_OUT_Customer-A_Routing_Protocol
  match access-group name ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
class-map match-any ISC_IN_Customer-A_Best-Effort
  match any
class-map match-any ISC_IN_Customer-A_Business-Data-1
  match access-group name ISC_IN_QOS_ACL_Customer-A_CustA-QoSPolicy_Business-Data-1
class-map match-any ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
  match ip dscp 46
class-map match-any ISC_IN_Customer-A_Management
  match access-group name ISC_IN_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
!
!
policy-map ISC_OUT_Customer-A_CustA-QoSPolicy
  class ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
    priority percent 10
  class ISC_OUT_Customer-A_Routing_Protocol
    bandwidth percent 1
  class ISC_OUT_Customer-A_Management
    bandwidth percent 1
  class ISC_OUT_Customer-A_Business-Data-1
    bandwidth percent 20

```

```

class ISC_OUT_Customer-A_Best-Effort
  bandwidth percent 25
policy-map ISC_OUT_Customer-A_CustA-QoSPolicy_TOP
  class class-default
    shape average 128000 512 512
    service-policy ISC_OUT_Customer-A_CustA-QoSPolicy
policy-map ISC_IN_Customer-A_CustA-QoSPolicy
  class ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
    set ip dscp 46
  class ISC_IN_Customer-A_Management
    set ip dscp 34
  class ISC_IN_Customer-A_Business-Data-1
    set ip dscp 34
  class ISC_IN_Customer-A_Best-Effort
    set ip dscp 0
!
mpls ldp logging neighbor-changes
no mpls traffic-eng auto-bw timers frequency 0
!
!
controller T1 1/1/0
  clock source internal
  channel-group 1 timeslots 1-24
!
controller T1 1/1/1
  clock source internal
  channel-group 1 timeslots 1-24
!
!
interface Loopback0
  description DNS entry for engospe4 ! DON'T MODIFY or REMOVE !
  ip address 192.168.114.4 255.255.255.255
  no ip directed-broadcast
!
interface ATM0/0/0
  no ip address
  no ip directed-broadcast
  no atm enable-ilmi-trap
  no atm ilmi-keepalive
!
interface ATM0/0/0.4 point-to-point
  description Link to engospe1 ! DON'T MODIFY OR REMOVE !
  ip address 12.12.12.14 255.255.255.252
  no ip directed-broadcast
  no atm enable-ilmi-trap
  pvc 0/6
    encapsulation aal5snap
  !
!
interface FastEthernet0/1/0
  description Access Link to engossw1 ! DON'T MODIFY or REMOVE !
  ip address 11.11.11.7 255.255.255.0
  no ip directed-broadcast
  speed auto
!
interface Serial1/1/0:1
  no ip address
  no ip directed-broadcast
  encapsulation frame-relay
  no keepalive
!
interface Serial1/1/1:1
  no ip address
  no ip directed-broadcast

```

```
encapsulation frame-relay
no keepalive
!
interface Hssi2/1/0
no ip address
no ip directed-broadcast
encapsulation frame-relay
no ip mroute-cache
no keepalive
hssi internal-clock
!
interface Hssi2/1/0.41 point-to-point
description QoS Link to engosce41 ! DON'T MODIFY or REMOVE !
ip address 141.141.141.1 255.255.255.252
no ip directed-broadcast
no ip mroute-cache
no cdp enable
frame-relay interface-dlci 41
class ISC_OUT_FR_MAP_CLASS_Customer-A_CustA-QoSPolicy
frame-relay ip rtp header-compression
!
router ospf 1
log-adjacency-changes
network 11.11.11.7 0.0.0.0 area 0
network 192.168.114.4 0.0.0.0 area 0
!
no ip classless
!
ip pim bidir-enable
!
!
ip access-list extended ISC_IN_QOS_ACL_Customer-A_CustA-QoSPolicy_Business-Data-1
permit tcp any any eq www
permit tcp any any eq telnet
permit udp any any eq tftp
permit tcp any any eq ftp
permit tcp any any eq smtp
ip access-list extended ISC_IN_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
permit ip any 10.10.10.0 0.0.0.255
ip access-list extended ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
permit ip 10.10.10.0 0.0.0.255 any
ip access-list extended ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
permit udp any any eq rip
permit tcp any any eq bgp
permit ospf any any
permit eigrp any any
!
!
map-class frame-relay ISC_OUT_FR_MAP_CLASS_Customer-A_CustA-QoSPolicy
no frame-relay adaptive-shaping
service-policy input ISC_IN_Customer-A_CustA-QoSPolicy
service-policy output ISC_OUT_Customer-A_CustA-QoSPolicy_TOP
frame-relay fragment 53
snmp-server community public RO
snmp-server community private RW
!
!
line con 0
exec-timeout 30 0
password 7 cisco
login
line aux 0
exec-timeout 30 0
password 7 cisco
```

```

login
line vty 0 4
  exec-timeout 60 0
  password 7 cisco
  login
!
end

```

Device enqosce41:

```

version 12.2
service timestamps debug datetime
service timestamps log datetime
no service password-encryption
!
hostname enqosce41
!
enable password 7 cisco
!
!
!
ip subnet-zero
!
!
ip tftp source-interface Loopback0
no ip domain-lookup
!
ip cef
!
class-map match-any ISC_OUT_Customer-A_Best-Effort
  match ip dscp 0
class-map match-any ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
  match ip rtp 16384 16383
class-map match-any ISC_OUT_Customer-A_Business-Data-1
  match ip dscp 34
class-map match-any ISC_OUT_Customer-A_Management
  match access-group name ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
class-map match-any ISC_OUT_Customer-A_Routing_Protocol
  match access-group name ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
class-map match-any ISC_IN_Customer-A_Best-Effort
  match any
class-map match-any ISC_IN_Customer-A_Business-Data-1
  match protocol http
  match protocol telnet
  match protocol tftp
  match protocol ftp
  match protocol smtp
class-map match-any ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
  match ip dscp 46
!
!
policy-map ISC_OUT_Customer-A_CustA-QoSPolicy
  class ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
    priority percent 10
  class ISC_OUT_Customer-A_Routing_Protocol
    bandwidth percent 1
  class ISC_OUT_Customer-A_Management
    set ip dscp 34
    bandwidth percent 1
  class ISC_OUT_Customer-A_Business-Data-1
    bandwidth percent 20
  class ISC_OUT_Customer-A_Best-Effort

```

```

    bandwidth percent 25
policy-map ISC_IN_Customer-A_CustA-QoSPolicy
  class ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
    set ip dscp 46
  class ISC_IN_Customer-A_Business-Data-1
    set ip dscp 34
  class ISC_IN_Customer-A_Best-Effort
    set ip dscp 0
!
!
!
interface Loopback0
  description DNS entry for engosce41 ! DON'T MODIFY or REMOVE !
  ip address 192.168.114.9 255.255.255.255
!
interface FastEthernet0/0
  description Access Link to engossw1 ! DON'T MODIFY or REMOVE !
  ip address 11.11.11.9 255.255.255.0
  duplex auto
  speed auto
  service-policy input ISC_IN_Customer-A_CustA-QoSPolicy
!
interface FastEthernet0/1
  no ip address
  shutdown
  duplex auto
  speed auto
!
interface Hssi1/0
  description QoS Link to engospe4 ! DON'T MODIFY or REMOVE !
  no ip address
  encapsulation frame-relay
  no keepalive
  hssi internal-clock
  clockrate 64158
  frame-relay traffic-shaping
!
interface Hssi1/0.41 point-to-point
  description QoS Link to engospe4 ! DON'T MODIFY or REMOVE !
  ip address 141.141.141.2 255.255.255.252
  frame-relay interface-dlci 41
  class ISC_OUT_FR_MAP_CLASS_Customer-A_CustA-QoSPolicy
  frame-relay ip rtp header-compression
!
router ospf 1
  log-adjacency-changes
  network 11.11.11.9 0.0.0.0 area 0
  network 192.168.114.9 0.0.0.0 area 0
!
!
no ip classless
ip http server
ip pim bidir-enable
!
!
ip access-list extended ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
  permit ip any 10.10.10.0 0.0.0.255
ip access-list extended ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
  permit udp any any eq rip
  permit tcp any any eq bgp
  permit ospf any any
  permit eigrp any any
!
map-class frame-relay ISC_OUT_FR_MAP_CLASS_Customer-A_CustA-QoSPolicy

```

```

frame-relay cir 128000
frame-relay mincir 64000
no frame-relay adaptive-shaping
service-policy output ISC_OUT_Customer-A_CustA-QoSPolicy
!
!
snmp-server community public RO
snmp-server community private RW
call rsvp-sync
!
!
mgcp profile default
!
dial-peer cor custom
!
!
!
!
line con 0
  exec-timeout 30 0
  password 7 cisco
  login
line aux 0
  exec-timeout 30 0
  password 7 cisco
  login
line vty 0 4
  exec-timeout 30 0
  password 7 cisco
  login
!
!
end

```

Device enqospe5:

```

version 12.2
service timestamps debug datetime
service timestamps log datetime
no service password-encryption
!
hostname enqospe5
!
enable password 7 cisco
!
ip subnet-zero
ip cef
!
!
ip tftp source-interface Loopback0
no ip domain-lookup
!
class-map match-any ISC_OUT_Customer-A_Best-Effort
  match ip dscp 0
class-map match-any ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
  match ip rtp 16384 16383
class-map match-any ISC_OUT_Customer-A_Business-Data-1
  match ip dscp 34
class-map match-any ISC_OUT_Customer-A_Management
  match access-group name ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
class-map match-any ISC_OUT_Customer-A_Routing_Protocol
  match access-group name ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol

```

```
class-map match-any ISC_IN_Customer-A_Best-Effort
  match any
class-map match-any ISC_IN_Customer-A_Business-Data-1
  match protocol http
  match protocol telnet
  match protocol tftp
  match protocol ftp
  match protocol smtp
class-map match-any ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
  match ip dscp 46
class-map match-any ISC_IN_Customer-A_Management
  match access-group name ISC_IN_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
!
!
policy-map ISC_OUT_Customer-A_CustA-QoSPolicy
  class ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
    priority percent 10
  class ISC_OUT_Customer-A_Routing_Protocol
    bandwidth percent 1
  class ISC_OUT_Customer-A_Management
    bandwidth percent 1
  class ISC_OUT_Customer-A_Business-Data-1
    bandwidth percent 20
  class ISC_OUT_Customer-A_Best-Effort
    bandwidth percent 25
policy-map ISC_IN_Customer-A_CustA-QoSPolicy
  class ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
    set ip dscp 46
  class ISC_IN_Customer-A_Management
    set ip dscp 34
  class ISC_IN_Customer-A_Business-Data-1
    set ip dscp 34
  class ISC_IN_Customer-A_Best-Effort
    set ip dscp 0
!
!
!
!
interface Loopback0
  description DNS entry for engospe5 ! DON'T MODIFY or REMOVE !
  ip address 192.168.114.5 255.255.255.255
!
interface Multilink100
  ip address 192.168.0.14 255.255.255.252
  no ip redirects
  no ip proxy-arp
  ip authentication mode eigrp 100 md5
  ip authentication key-chain eigrp 100 CE-5
  ip pim sparse-dense-mode
  no ip mroute-cache
  load-interval 30
  no cdp enable
  ppp multilink
  multilink-group 100
!
interface FastEthernet0/0
  description Access Link to engossw1 ! DON'T MODIFY or REMOVE !
  ip address 11.11.11.8 255.255.255.0
  duplex half
  speed 100
!
interface FastEthernet0/1
  no ip address
  shutdown
```

```

duplex half
speed 100
!
interface ATM1/0
no ip address
no atm ilmi-keepalive
atm voice aal2 aggregate-svc upspeed-number 0
!
!
interface ATM1/0.52 point-to-point
description QoS Link to engosce52 ! DON'T MODIFY or REMOVE !
ip address 152.152.152.1 255.255.255.252
pvc 0/51
    vbr-nrt 128 64 2000
    encapsulation aal5snap
    service-policy input ISC_IN_Customer-A_CustA-QoSPolicy
    service-policy output ISC_OUT_Customer-A_CustA-QoSPolicy
!
interface ATM2/0
no ip address
no atm ilmi-keepalive
atm voice aal2 aggregate-svc upspeed-number 0
!
interface ATM2/0.5 point-to-point
description Link to engospel ! DON'T MODIFY OR REMOVE !
ip address 12.12.12.10 255.255.255.252
pvc 0/5
    encapsulation aal5snap
    protocol ppp Virtual-Template173
!
!
interface GigabitEthernet4/0
no ip address
shutdown
negotiation auto
!
router ospf 1
log-adjacency-changes
network 11.11.11.8 0.0.0.0 area 0
network 192.168.114.5 0.0.0.0 area 0
!
!
no ip classless
no ip http server
ip pim bidir-enable
!
!
ip access-list extended ISC_IN_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
permit ip any 10.10.10.0 0.0.0.255
ip access-list extended ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
permit ip 10.10.10.0 0.0.0.255 any
ip access-list extended ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
permit udp any any eq rip
permit tcp any any eq bgp
permit ospf any any
permit eigrp any any
!
snmp-server community public RO
snmp-server community private RW
!
!
call rsvp-sync
!
!

```

```
mgcp profile default
!
dial-peer cor custom
!
!
!
!
line con 0
  exec-timeout 30 0
  password 7 cisco
  login
line aux 0
  exec-timeout 30 0
  password 7 cisco
  login
line vty 0 4
  exec-timeout 60 0
  password 7 cisco
  login
!
!
end
```

Device enqosce52:

```
version 12.2
service timestamps debug datetime
service timestamps log datetime
no service password-encryption
!
hostname enqosce52
!
enable password 7 cisco
!
ip subnet-zero
ip cef
!
!
ip tftp source-interface Loopback0
no ip domain-lookup
!
!
class-map match-any ISC_OUT_Customer-A_Best-Effort
  match ip dscp 0
class-map match-any ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
  match ip rtp 16384 16383
class-map match-any ISC_OUT_Customer-A_Business-Data-1
  match ip dscp 34
class-map match-any ISC_OUT_Customer-A_Management
  match access-group name ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
class-map match-any ISC_OUT_Customer-A_Routing_Protocol
  match access-group name ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
class-map match-any ISC_IN_Customer-A_Best-Effort
  match any
class-map match-any ISC_IN_Customer-A_Business-Data-1
  match protocol http
  match protocol telnet
  match protocol tftp
  match protocol ftp
  match protocol smtp
class-map match-any ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
  match ip dscp 46
```

```

!
!
policy-map ISC_OUT_Customer-A_CustA-QoSPolicy
  class ISC_OUT_Customer-A_CustA-QoSPolicy_VoIP
    priority percent 10
  class ISC_OUT_Customer-A_Routing_Protocol
    bandwidth percent 1
  class ISC_OUT_Customer-A_Management
    set ip dscp 34
    bandwidth percent 1
  class ISC_OUT_Customer-A_Business-Data-1
    bandwidth percent 20
  class ISC_OUT_Customer-A_Best-Effort
    bandwidth percent 25
policy-map ISC_IN_Customer-A_CustA-QoSPolicy
  class ISC_IN_Customer-A_CustA-QoSPolicy_VoIP
    set ip dscp 46
  class ISC_IN_Customer-A_Business-Data-1
    set ip dscp 34
  class ISC_IN_Customer-A_Best-Effort
    set ip dscp 0
!
!
!
fax interface-type fax-mail
mta receive maximum-recipients 0
!
controller T1 0/0
  framing sf
  linecode ami
  channel-group 0 timeslots 1-24
!
!
!
!
interface Loopback0
  description DNS entry for engosce52 ! DON'T MODIFY or REMOVE !
  ip address 192.168.114.12 255.255.255.255
!
interface FastEthernet0/0
  description Access Link to engossw1 ! DON'T MODIFY or REMOVE !
  ip address 11.11.11.13 255.255.255.0
  duplex auto
  speed auto
  service-policy input ISC_IN_Customer-A_CustA-QoSPolicy
!
interface Serial0/0:0
  no ip address
!
interface FastEthernet0/1
  no ip address
  shutdown
  duplex auto
  speed auto
!
interface ATM1/0
  description QoS Link to engospe5 ! DON'T MODIFY or REMOVE !
  no ip address
  no atm ilmi-keepalive
!
interface ATM1/0.52 point-to-point
  description QoS Link to engospe5 ! DON'T MODIFY or REMOVE !
  ip address 152.152.152.2 255.255.255.252
  pvc 0/52

```

```
encapsulation aal5snap
service-policy output ISC_OUT_Customer-A_CustA-QoSPolicy
!
!
router ospf 1
 log-adjacency-changes
 network 11.11.11.13 0.0.0.0 area 0
 network 192.168.114.12 0.0.0.0 area 0
!
no ip classless
ip http server
ip pim bidir-enable
!
!
ip access-list extended ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Management
 permit ip any 10.10.10.0 0.0.0.255
ip access-list extended ISC_OUT_QOS_ACL_Customer-A_CustA-QoSPolicy_Routing_Protocol
 permit udp any any eq rip
 permit tcp any any eq bgp
 permit ospf any any
 permit eigrp any any
!
!
snmp-server community public RO
snmp-server community private RW
call rsvp-sync
!
!
mgcp profile default
!
dial-peer cor custom
!
!
!
!
line con 0
 exec-timeout 30 0
 password 7 cisco
 login
line aux 0
 exec-timeout 30 0
 password 7 cisco
 login
line vty 0 4
 exec-timeout 60 0
 password 7 cisco
 login
line vty 5 15
 login
!
!
end
```

ISC Ethernet QoS Configurations

PE-CLE QoS Configuration (Cisco Catalyst 3550)



Note

ISC treats the global **mls qos** command as a prerequisite for Metro Ethernet QoS deployment. You must use this command to enable QoS on the Catalyst 3550. ISC does not automatically provision the **mls qos** command but requires it to be part of the initial configuration.

The **mls qos** command has a global effect on the switch and is not ever disabled by ISC. If you do not enable the QoS switch on the Catalyst 3550 with the **mls qos** command, all the QoS commands provisioned by ISC do download to the switch and the QoS service request does go to the DEPLOYED state. However QoS is not in effect until it is enabled with the **mls qos** command.

Ingress per vlan policing / Trust DSCP / Match DSCP / Set CoS to 5 and 2

```
mls qos aggregate-policer aggr-vlan1701-d 5000000 250000 exceed-action drop
mls qos aggregate-policer aggr-vlan1701-v 1000000 250000 exceed-action drop
class-map match-all vlan1701-voice
  match vlan 1701
  match class-map voice-traffic
class-map match-all vlan1701-voice-ctrl
  match vlan 1701
  match class-map voice-control
class-map match-all vlan1701-data
  match vlan 1701
  match class-map data-traffic
class-map match-all vlan1701-l2
  match vlan 1701
  match class-map l2-traffic
policy-map pol-giga01
  description Input policy for Port Giga 0/1
  class vlan1701-voice
    police aggregate aggr-vlan1701-v
    trust dscp
    set cos 5
  class vlan1701-voice-ctrl
    police aggregate aggr-vlan1701-v
    trust dscp
    set cos 3
  class vlan1701-data
    police aggregate aggr-vlan1701-d
    trust dscp
    set cos 2
  class vlan1701-l2
    police aggregate aggr-vlan1701-d
    set cos 2
interface GigabitEthernet0/1
  description 802.1Q trunk connected to Customer A1
  service-policy input pol-giga01
```

Egress Queuing at the Customer UNI in a PE-CLE: Egress Traffic Assigned to Respective Queue

```
interface GigabitEthernet0/11
```

```
wrr-queue bandwidth 30 60 10 0
wrr-queue queue-limit 20 40 20 20
wrr-queue cos-map 1 0 1 4
wrr-queue cos-map 2 2
wrr-queue cos-map 3 3 6 7
wrr-queue cos-map 4 5
priority-queue out
```

Egress Queueing at the PE-POP Facing Port in a PE-CLE

```
interface GigabitEthernet0/11
wrr-queue bandwidth 30 60 10 0
wrr-queue queue-limit 20 40 20 20
wrr-queue cos-map 1 0 1 4
wrr-queue cos-map 2 2
wrr-queue cos-map 3 3 6 7
wrr-queue cos-map 4 5
priority-queue out
```

PE-POP QoS Configuration (Cisco 7600)

No DSCP Rewrite / Copy MPLS exp to 802.1p / Egress Queueing

```
mls qos queueing-only

interface GigabitEthernet3/1
wrr-queue queue-limit 50 50
wrr-queue random-detect min-threshold 1 100 100
wrr-queue random-detect min-threshold 2 100 100
wrr-queue random-detect max-threshold 1 100 100
wrr-queue random-detect max-threshold 2 100 100
wrr-queue cos-map 1 1 0 1 3 4
wrr-queue cos-map 2 1 2
priority-queue cos-map 1 5 6 7
```

