



Sample DER and AR Switch Configurations for the Hub-and-Spoke Topology

This appendix presents sample distribution edge router (DER) and aggregation router (AR) switch configurations for the asymmetric 1-GE topology described in [Configuration 2: 1-GE plus 10-GE Hub and Spoke, page 3-39](#). The following configurations are presented:

- [Configuration for DER1, page B-1](#)
- [Configuration for DER2, page B-11](#)
- [Configuration for AR1, page B-20](#)
- [Configuration for AR2, page B-36](#)



Note

See [Configuring the Hub-and-Spoke Topology, page 4-32](#).

Configuration for DER1

```
Building configuration...

Current configuration : 52268 bytes
!
! Last configuration change at 13:02:28 PDT Mon May 15 2006
! NVRAM config last updated at 13:04:45 PDT Mon May 15 2006
!
upgrade fpd auto
version 12.2
service timestamps debug datetime msec localtime
service timestamps log datetime msec localtime
no service password-encryption
service counters max age 10
!
hostname DER1
!
boot system disk0:s72033-advipservicesk9_wan-mz.122-18.SXF2.bin
logging snmp-authfail
enable password cisco
!
no aaa new-model
clock timezone PST -8
clock summer-time PDT recurring
ip subnet-zero
!
```

```
!  
!  
ip cef load-sharing algorithm original  
ip multicast-routing  
ip igmp ssm-map enable  
ip domain multicast coronado.net  
no ip domain-lookup  
ip domain-name coronado.net  
ip name-server 10.1.10.10  
ipv6 mfib hardware-switching replication-mode ingress  
vtp mode transparent  
mls ip cef load-sharing full  
mls ip multicast replication-mode ingress  
mls ip multicast flow-stat-timer 9  
no mls flow ip  
no mls flow ipv6  
mls qos map dscp-cos 36 to 2  
mls qos  
no mls acl tcam share-global  
mls cef error action freeze  
!  
!  
!  
!  
!  
!  
!  
!  
redundancy  
mode sso  
main-cpu  
  auto-sync running-config  
  auto-sync standard  
!  
spanning-tree mode rapid-pvst  
spanning-tree portfast bpduguard default  
no spanning-tree optimize bpdu transmission  
spanning-tree extend system-id  
no spanning-tree vlan 800,808,816  
!  
power redundancy-mode combined  
error-detection packet-buffer action none  
diagnostic cns publish cisco.cns.device.diag_results  
diagnostic cns subscribe cisco.cns.device.diag_commands  
fabric buffer-reserve queue  
port-channel per-module load-balance  
!  
vlan internal allocation policy ascending  
vlan dot1q tag native  
vlan access-log ratelimit 2000  
!  
vlan 10  
  name VLAN_10_Management  
!  
vlan 60  
  name VLAN_60_VoD  
!  
vlan 70  
  name VLAN_70_Multicast_Video  
!  
vlan 80  
  name VLAN_80_Voice
```

```

!
vlan 800
  name Video/Voice_To/From_DER2
!
vlan 808
  name Video/Voice_To/From_AR1
!
vlan 816
  name Video/Voice_To/From_AR2
!
vlan 1100-1111,1200-1211
!
class-map match-all class_VoIP
  match access-group name acl_VoIP
class-map match-all class_VoD_and_SIP_signaling
  match access-group name acl_VoD_and_SIP_signaling
class-map match-all class_video_broadcast
  match access-group name acl_video_broadcast
class-map match-all class_video_VoD
  match access-group name acl_video_VoD
!
!
policy-map setDSCP
  description Mark DSCP values for ingress traffic
  class class_VoD_and_SIP_signaling
    set dscp cs3
  class class_video_broadcast
    set dscp af41
  class class_video_VoD
    set dscp af42
  class class_VoIP
    set dscp ef
!
!
!
!
interface GigabitEthernet1/1
  description Transport to/from AR2 (GigE1/5)
  switchport
  switchport trunk encapsulation dot1q
  switchport trunk allowed vlan 816,1200-1211
  switchport mode trunk
  dampening 5 1000 2000 20 restart 16000
  no ip address
  load-interval 30
  carrier-delay msec 0
  wrr-queue bandwidth 64 255 0
  wrr-queue queue-limit 40 50 0
  wrr-queue threshold 2 80 100 100 100 100 100 100 100
  wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
  wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
  no wrr-queue random-detect 2
  wrr-queue cos-map 1 1 0 1
  wrr-queue cos-map 2 2 3 4 6 7
  mls qos trust dscp
!
<---output omitted--->
!
interface GigabitEthernet2/1
  description Management VLAN (CNR - DHCP, DNS, SysLog)
  switchport
  switchport access vlan 10
  switchport mode access
  dampening

```

```

no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
interface GigabitEthernet2/2
description Middleware Server (Kasenna LivingRoom Server)
switchport
switchport access vlan 60
switchport mode access
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
interface GigabitEthernet2/3
description Kasenna Gigabase Server - Management Interface (Eth0)
switchport
switchport access vlan 60
switchport mode access
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
interface GigabitEthernet2/4
description Kasenna Gigabase Server - VoD Pump (HPN0)
switchport
switchport access vlan 60
switchport mode access
dampening
no ip address

```

```

load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
interface GigabitEthernet2/5
description Kasenna Gigabase Server - VoD Pump (HPN1)
switchport
switchport access vlan 60
switchport mode access
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
interface GigabitEthernet2/6
description Minerva Video Streamer - Multicast Video
switchport
switchport access vlan 70
switchport mode access
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
interface GigabitEthernet2/7
description VoIP SIP Server
switchport
switchport access vlan 80
switchport mode access
dampening
no ip address
load-interval 30

```

```

carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
<---output omitted--->
!
interface GigabitEthernet2/24
description BRAS for HSD (Dot1q-Tunnel)
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 1100-1111,1200-1211
switchport mode trunk
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
!
interface GigabitEthernet5/1
no ip address
shutdown
!
interface GigabitEthernet5/2
no ip address
shutdown
!
interface TenGigabitEthernet7/1
description Transport to/from AR1 (TenGig1/1)
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 808,1100-1111
switchport mode trunk
dampening 5 1000 2000 20 restart 16000
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0 0 0 0 0
wrr-queue queue-limit 40 50 0 0 0 0 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
mls qos trust dscp
!
<---output omitted--->
!

```

```

interface TenGigabitEthernet7/4
description Transport to/from DER2 (TenGig7/4)
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 800,1100-1111,1200-1211
switchport mode trunk
dampening 5 1000 2000 20 restart 16000
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0 0 0 0
wrr-queue queue-limit 40 50 0 0 0 0
wrr-queue threshold 2 80 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
mls qos trust dscp
!
interface Group-Async2
physical-layer async
no ip address
encapsulation slip
!
interface Vlan1
no ip address
shutdown
!
interface Vlan10
description Management VLAN (CNR - DNS, DHCP, etc)
ip address 10.1.10.1 255.255.255.0
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
interface Vlan60
description VoD Server VLAN (Unicast Video)
ip address 10.1.60.1 255.255.255.0
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
interface Vlan70
description Broadcast video source VLAN (Multicast Video)
ip address 10.1.70.1 255.255.255.0
no ip redirects
no ip unreachable
ip pim query-interval 100 msec
ip pim sparse-mode
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
interface Vlan80
description VoIP Gateway VLAN
ip address 10.1.80.1 255.255.255.0
load-interval 30
!
interface Vlan800
description Transport VLAN to/from DER2
ip address 10.1.1.1 255.255.255.252
ip pim query-interval 100 msec
ip pim sparse-mode

```

```

ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
interface Vlan808
description Transport VLAN to/from AR1
ip address 10.1.1.9 255.255.255.252
ip pim query-interval 100 msec
ip pim sparse-mode
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
interface Vlan816
description Transport VLAN to/from AR2
ip address 10.1.1.17 255.255.255.252
ip pim query-interval 500 msec
ip pim sparse-mode
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
router ospf 100
router-id 10.1.1.1
ispf
log-adjacency-changes
timers throttle spf 10 100 1000
timers throttle lsa all 1 10 1000
timers lsa arrival 100
passive-interface Vlan10
passive-interface Vlan60
passive-interface Vlan70
passive-interface Vlan80
network 10.1.1.0 0.0.0.3 area 0
network 10.1.1.8 0.0.0.3 area 0
network 10.1.1.16 0.0.0.3 area 0
network 10.1.10.0 0.0.0.255 area 0
network 10.1.60.0 0.0.0.255 area 0
network 10.1.70.0 0.0.0.255 area 0
network 10.1.80.0 0.0.0.255 area 0
network 10.1.254.1 0.0.0.0 area 0
maximum-paths 8
!
ip classless
!
no ip http server
ip pim ssm default
!
ip access-list standard LOOPBACK
permit 10.1.254.0 0.0.0.255
!
ip access-list extended acl_VoD_and_SIP_signaling
permit tcp 10.1.60.0 0.0.0.255 any
permit tcp 10.1.61.0 0.0.0.255 any
permit tcp 10.1.80.0 0.0.0.255 any
permit tcp 10.1.81.0 0.0.0.255 any
ip access-list extended acl_VoIP
permit udp any any range 16384 32767
permit udp any range 16384 32767 any
ip access-list extended acl_video_VoD
permit udp 10.1.60.0 0.0.0.255 any
permit udp 10.1.61.0 0.0.0.255 any
ip access-list extended acl_video_broadcast
permit udp 10.1.70.0 0.0.0.255 232.0.0.0 0.255.255.255

```



```

!
logging event link-status default
logging trap debugging
logging 10.1.10.10
!
!
!
control-plane
!
!
!
dial-peer cor custom
!
!
!
banner login ^CC
*****
*
*   DDDDDD      EEEEEEE      RRRRRR      11
*   DD  DD      EE           RR   RR      1111
*   DD  DD      EE           RR   RR      11
*   DD  DD      EEEEE      RRRRRR      11
*   DD  DD      EE           RR   RR      11
*   DD  DD      EE           RR   RR      11
*   DDDDDD      EEEEEEE      RR      RR      11111111
*
* Switch = Cisco7609
* Console =
* Topology = Service Router
*
*****

^C
!
line con 0
  exec-timeout 0 0
  password cisco
  logging synchronous
  login
line vty 0 4
  exec-timeout 0 0
  password cisco
  logging synchronous
  login
!
scheduler runtime netinput 300
ntp clock-period 17180005
ntp update-calendar
ntp server 10.1.60.10 prefer
no mac-address-table learning vlan 1100
no mac-address-table learning vlan 1101
no mac-address-table learning vlan 1102
no mac-address-table learning vlan 1103
no mac-address-table learning vlan 1104
no mac-address-table learning vlan 1105
no mac-address-table learning vlan 1106
no mac-address-table learning vlan 1107
no mac-address-table learning vlan 1108
no mac-address-table learning vlan 1109

```

```
no mac-address-table learning vlan 1110
no mac-address-table learning vlan 1111
no mac-address-table learning vlan 1200
no mac-address-table learning vlan 1201
no mac-address-table learning vlan 1202
no mac-address-table learning vlan 1203
no mac-address-table learning vlan 1204
no mac-address-table learning vlan 1205
no mac-address-table learning vlan 1206
no mac-address-table learning vlan 1207
no mac-address-table learning vlan 1208
no mac-address-table learning vlan 1209
no mac-address-table learning vlan 1210
no mac-address-table learning vlan 1211
no cns aaa enable
end
```

Configuration for DER2

```

Building configuration...

Current configuration : 52507 bytes
!
! Last configuration change at 13:02:51 PDT Mon May 15 2006
! NVRAM config last updated at 13:02:52 PDT Mon May 15 2006
!
upgrade fpd auto
version 12.2
service timestamps debug datetime msec localtime
service timestamps log datetime msec localtime
no service password-encryption
service counters max age 10
!
hostname DER2
!
boot system disk0:s72033-advipservicesk9_wan-mz.122-18.SXF2.bin
logging snmp-authfail
enable password cisco
!
no aaa new-model
clock timezone PST -8
clock summer-time PDT recurring
ip subnet-zero
!
!
!
ip cef load-sharing algorithm original
ip multicast-routing
ip igmp ssm-map enable
ip domain multicast coronado.net
no ip domain-lookup
ip domain-name coronado.net
ip name-server 10.1.10.10
ipv6 mfib hardware-switching replication-mode ingress
vtp mode transparent
mls ip cef load-sharing full
mls ip multicast replication-mode ingress
mls ip multicast flow-stat-timer 9
no mls flow ip
no mls flow ipv6
mls qos map dscp-cos 36 to 2
mls qos
no mls acl tcam share-global
mls cef error action freeze
!
!
!
!
!
!
!
!
!
!
!
!
redundancy
mode rpr-plus
main-cpu
auto-sync startup-config
auto-sync running-config
auto-sync standard
  
```

```

!
spanning-tree mode rapid-pvst
spanning-tree portfast bpduguard default
no spanning-tree optimize bpdu transmission
spanning-tree extend system-id
no spanning-tree vlan 800,824,832
diagnostic cns publish cisco.cns.device.diag_results
diagnostic cns subscribe cisco.cns.device.diag_commands
fabric buffer-reserve queue
port-channel per-module load-balance
!
vlan internal allocation policy ascending
vlan dot1q tag native
vlan access-log ratelimit 2000
!
vlan 11
  name VLAN_11_Management
!
vlan 61
  name VLAN_61_VoD
!
vlan 70
  name VLAN_70_Multicast_Video
!
vlan 81
  name VLAN_81_Voice
!
!
vlan 800
  name Video/Voice_To/From_DER1
!
vlan 824
  name Video/Voice_To/From_AR1
!
vlan 832
  name Video/Voice_To/From_AR2
!
vlan 1100-1111,1200-1211
!
class-map match-all class_VoIP
  match access-group name acl_VoIP
class-map match-all class_VoD_and_SIP_signaling
  match access-group name acl_VoD_and_SIP_signaling
class-map match-all class_video_broadcast
  match access-group name acl_video_broadcast
class-map match-all class_video_VoD
  match access-group name acl_video_VoD
!
!
policy-map setDSCP
  description Mark DSCP values for ingress traffic
  class class_VoD_and_SIP_signaling
    set dscp cs3
  class class_video_broadcast
    set dscp af41
  class class_video_VoD
    set dscp af42
  class class_VoIP
    set dscp ef
!
<---output omitted--->
!
interface GigabitEthernet1/1
  description Transport to/from AR2 (GigE1/1)

```

```

switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 832,1200-1211
switchport mode trunk
dampening 5 1000 2000 20 restart 16000
no ip address
load-interval 30
carrier-delay msec 0
no keepalive
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
mls qos trust dscp
!
<---output omitted--->
!
interface GigabitEthernet2/1
description Management VLAN (CNR - DHCP, DNS, SysLog)
switchport
switchport access vlan 11
switchport mode access
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
interface GigabitEthernet2/2
no ip address
shutdown
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
!
interface GigabitEthernet2/3
description Kasenna Gigabase Server - Management Interface (Eth0)
switchport
switchport access vlan 61
switchport mode access
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0

```

```

wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
interface GigabitEthernet2/4
description Kasenna Gigabase Server - VoD Pump (HPN0)
switchport
switchport access vlan 61
switchport mode access
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
interface GigabitEthernet2/5
description Kasenna Gigabase Server - VoD Pump (HPN1)
switchport
switchport access vlan 61
switchport mode access
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
interface GigabitEthernet2/6
description Minerva Video Streamer - Multicast Video
switchport
switchport access vlan 70
switchport mode access
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0

```

```

wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
interface GigabitEthernet2/7
description VoIP SIP Server
switchport
switchport access vlan 81
switchport mode access
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
spanning-tree portfast
spanning-tree bpduguard enable
service-policy input setDSCP
!
<---output omitted--->
!
interface GigabitEthernet2/24
description BRAS for HSD (Dot1q-Tunnel)
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 1100-1111,1200-1211
switchport mode trunk
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
!
interface GigabitEthernet5/1
no ip address
shutdown
!
interface GigabitEthernet5/2
no ip address
shutdown
!
interface TenGigabitEthernet7/1
description Transport to/from AR1 (TenGig1/3)
switchport
switchport trunk encapsulation dot1q

```

```

switchport trunk allowed vlan 824,1100-1111
switchport mode trunk
dampening 5 1000 2000 20 restart 16000
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0 0 0 0 0
wrr-queue queue-limit 40 50 0 0 0 0 0
wrr-queue threshold 2 80 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
mls qos trust dscp
!
<---output omitted--->
!
interface TenGigabitEthernet7/4
description Transport to/from DER1 (TenGig7/4)
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 800,1100-1111,1200-1211
switchport mode trunk
dampening 5 1000 2000 20 restart 16000
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0 0 0 0 0
wrr-queue queue-limit 40 50 0 0 0 0 0
wrr-queue threshold 2 80 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
mls qos trust dscp
!
interface Group-Async5
physical-layer async
no ip address
encapsulation slip
!
interface Vlan1
no ip address
shutdown
!
interface Vlan11
description Management VLAN (CNR - DNS, DHCP, etc)
ip address 10.1.11.1 255.255.255.0
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
interface Vlan61
description VoD Server VLAN (Unicast Video)
ip address 10.1.61.1 255.255.255.0
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
interface Vlan70
description Broadcast video source VLAN (Multicast Video)
ip address 10.1.70.1 255.255.255.0

```



```
no ip redirects
no ip unreachable
ip pim query-interval 100 msec
ip pim sparse-mode
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
interface Vlan81
description VoIP Gateway VLAN
ip address 10.1.81.1 255.255.255.0
load-interval 30
!
interface Vlan800
description Transport VLAN to/from DER2
ip address 10.1.1.2 255.255.255.252
ip pim query-interval 100 msec
ip pim sparse-mode
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
interface Vlan824
description Transport VLAN to/from AR1
ip address 10.1.1.25 255.255.255.252
ip pim query-interval 100 msec
ip pim sparse-mode
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
interface Vlan832
description Transport VLAN to/from AR2
ip address 10.1.1.33 255.255.255.252
ip pim query-interval 500 msec
ip pim sparse-mode
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
router ospf 100
router-id 10.1.1.2
ispf
log-adjacency-changes
timers throttle spf 10 100 1000
timers throttle lsa all 1 10 1000
timers lsa arrival 100
passive-interface Vlan10
passive-interface Vlan60
passive-interface Vlan70
passive-interface Vlan80
network 10.1.1.0 0.0.0.3 area 0
network 10.1.1.24 0.0.0.3 area 0
network 10.1.1.32 0.0.0.3 area 0
network 10.1.11.0 0.0.0.255 area 0
network 10.1.61.0 0.0.0.255 area 0
network 10.1.70.0 0.0.0.255 area 0
network 10.1.81.0 0.0.0.255 area 0
maximum-paths 8
!
ip classless
!
no ip http server
ip pim ssm default
```

```

!
ip access-list extended acl_VoD_and_SIP_signaling
  permit tcp 10.1.60.0 0.0.0.255 any
  permit tcp 10.1.61.0 0.0.0.255 any
  permit tcp 10.1.80.0 0.0.0.255 any
  permit tcp 10.1.81.0 0.0.0.255 any
ip access-list extended acl_VoIP
  permit udp any any range 16384 32767
  permit udp any range 16384 32767 any
ip access-list extended acl_video_VoD
  permit udp 10.1.60.0 0.0.0.255 any
  permit udp 10.1.61.0 0.0.0.255 any
ip access-list extended acl_video_broadcast
  permit udp 10.1.70.0 0.0.0.255 232.0.0.0 0.255.255.255
!
logging event link-status default
logging trap debugging
logging 10.1.10.10
!
!
!
control-plane
!
!
!
dial-peer cor custom
!
!
!
!
banner login ^CC
*****
*
*   DDDDDD      EEEEEEE      RRRRRR      2222222
*   DD  DD      EE          RR   RR          22
*   DD  DD      EE          RR   RR          22
*   DD  DD      EEEEE      RRRRRR      2222222
*   DD  DD      EE          RR   RR          22
*   DD  DD      EE          RR   RR          22
*   DDDDDD      EEEEEEE      RR      RR      2222222
*
* Switch = Cisco7609
* Console =
* Topology = Service Router
*
*****

^C
!
line con 0
  exec-timeout 0 0
  password cisco
  logging synchronous
  login
line vty 0 4
  exec-timeout 0 0
  password cisco
  logging synchronous
  login

```

```
!  
monitor event-trace timestamps  
ntp clock-period 17179964  
ntp update-calendar  
ntp server 10.1.60.10 prefer  
no mac-address-table learning vlan 1100  
no mac-address-table learning vlan 1101  
no mac-address-table learning vlan 1102  
no mac-address-table learning vlan 1103  
no mac-address-table learning vlan 1104  
no mac-address-table learning vlan 1105  
no mac-address-table learning vlan 1106  
no mac-address-table learning vlan 1107  
no mac-address-table learning vlan 1108  
no mac-address-table learning vlan 1109  
no mac-address-table learning vlan 1110  
no mac-address-table learning vlan 1111  
no mac-address-table learning vlan 1200  
no mac-address-table learning vlan 1201  
no mac-address-table learning vlan 1202  
no mac-address-table learning vlan 1203  
no mac-address-table learning vlan 1204  
no mac-address-table learning vlan 1205  
no mac-address-table learning vlan 1206  
no mac-address-table learning vlan 1207  
no mac-address-table learning vlan 1208  
no mac-address-table learning vlan 1209  
no mac-address-table learning vlan 1210  
no mac-address-table learning vlan 1211  
no cns aaa enable  
end
```



```
!
spanning-tree mode rapid-pvst
spanning-tree portfast bpduguard default
no spanning-tree optimize bpdu transmission
spanning-tree extend system-id
no spanning-tree vlan 100-111,211,808,824
spanning-tree vlan 1100-1111 priority 24576
spanning-tree vlan 1100-1111 forward-time 7
spanning-tree vlan 1100-1111 max-age 10
!
power redundancy-mode combined
diagnostic cns publish cisco.cns.device.diag_results
diagnostic cns subscribe cisco.cns.device.diag_commands
fabric buffer-reserve queue
port-channel per-module load-balance
!
vlan internal allocation policy ascending
vlan dot1q tag native
vlan access-log ratelimit 2000
!
vlan 100-111,200-211,808,824,1100-1111
!
class-map match-all class_VoIP
  match access-group name acl_VoIP
class-map match-all class_VoD_and_SIP_signaling
  match access-group name acl_VoD_and_SIP_signaling
!
!
policy-map setDSCP
  description Mark DSCP values for ingress traffic
  class class_VoIP
    set dscp ef
  class class_VoD_and_SIP_signaling
    set dscp cs3
!
!
!
interface Loopback0
  ip address 10.10.0.1 255.255.0.0
  ip ospf network point-to-point
  load-interval 30
!
interface Loopback1
  ip address 10.20.0.1 255.255.0.0
  ip ospf network point-to-point
  load-interval 30
!
interface TenGigabitEthernet1/1
  description Transport to/from DER1 (TenGig7/1)
  switchport
  switchport trunk encapsulation dot1q
  switchport trunk allowed vlan 808,1100-1111
  switchport mode trunk
  dampening
  no ip address
  load-interval 30
  carrier-delay msec 0
  wrr-queue bandwidth 64 255 0 0 0 0 0
  wrr-queue queue-limit 40 50 0 0 0 0 0
  wrr-queue threshold 2 80 100 100 100 100 100 100
  wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100
  wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100
  no wrr-queue random-detect 2
  wrr-queue cos-map 1 1 0 1
```

```

wrr-queue cos-map 2 2 3 4 6 7
mls qos trust dscp
!
<---output omitted--->
!
interface TenGigabitEthernet1/3
description Transport to/from DER2 (TenGig7/1)
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 824,1100-1111
switchport mode trunk
dampening
no ip address
load-interval 30
carrier-delay msec 0
wrr-queue bandwidth 64 255 0 0 0 0 0
wrr-queue queue-limit 40 50 0 0 0 0 0
wrr-queue threshold 2 80 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
mls qos trust dscp
!
<---output omitted--->
!
interface GigabitEthernet2/1
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 100,200
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/2
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1100
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpduguard enable
!

```

```

interface GigabitEthernet2/3
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 101,201
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/4
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1101
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdupfilter enable
!
interface GigabitEthernet2/5
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 102,202
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/6
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1102
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0

```

```

wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdudfilter enable
!
interface GigabitEthernet2/7
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 103,203
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/8
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1103
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdudfilter enable
!
interface GigabitEthernet2/9
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 104,204
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP

```



```

!
interface GigabitEthernet2/10
  description Connection To UTSI DSLAM 1:1 HSD
  switchport
  switchport access vlan 1104
  switchport mode dot1q-tunnel
  no ip address
  logging event link-status
  wrr-queue bandwidth 64 255 0
  wrr-queue queue-limit 40 50 0
  wrr-queue threshold 2 80 100 100 100 100 100 100 100
  wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
  wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
  no wrr-queue random-detect 2
  wrr-queue cos-map 1 1 0 1
  wrr-queue cos-map 2 2 3 4 6 7
  no cdp enable
  spanning-tree portfast
  spanning-tree bpdufilter enable
!
interface GigabitEthernet2/11
  description Connection To UTSI DSLAM N:1 Video and Voice VLAN
  switchport
  switchport trunk encapsulation dot1q
  switchport trunk allowed vlan 105,205
  switchport mode trunk
  no ip address
  load-interval 30
  wrr-queue bandwidth 64 255 0
  wrr-queue queue-limit 40 50 0
  wrr-queue threshold 2 80 100 100 100 100 100 100 100
  wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
  wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
  no wrr-queue random-detect 2
  wrr-queue cos-map 1 1 0 1
  wrr-queue cos-map 2 2 3 4 6 7
  service-policy input setDSCP
!
interface GigabitEthernet2/12
  description Connection To UTSI DSLAM 1:1 HSD
  switchport
  switchport access vlan 1105
  switchport mode dot1q-tunnel
  no ip address
  logging event link-status
  wrr-queue bandwidth 64 255 0
  wrr-queue queue-limit 40 50 0
  wrr-queue threshold 2 80 100 100 100 100 100 100 100
  wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
  wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
  no wrr-queue random-detect 2
  wrr-queue cos-map 1 1 0 1
  wrr-queue cos-map 2 2 3 4 6 7
  no cdp enable
  spanning-tree portfast
  spanning-tree bpdufilter enable
!
interface GigabitEthernet2/13
  description Connection To UTSI DSLAM N:1 Video and Voice VLAN
  switchport
  switchport trunk encapsulation dot1q
  switchport trunk allowed vlan 106,206
  switchport mode trunk
  no ip address

```

```

load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/14
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1106
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpduguard enable
!
interface GigabitEthernet2/15
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 107,207
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/16
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1107
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable

```

```
spanning-tree portfast
spanning-tree bpdupfilter enable
!
interface GigabitEthernet2/17
description Connection To UTISI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 108,208
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/18
description Connection To UTISI DSLAM 1:1 HSD
switchport
switchport access vlan 1108
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdupfilter enable
!
interface GigabitEthernet2/19
description Connection To UTISI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 109,209
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/20
description Connection To UTISI DSLAM 1:1 HSD
switchport
switchport access vlan 1109
switchport mode dot1q-tunnel
no ip address
```

```

logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpduguard enable
!
interface GigabitEthernet2/21
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 110,210
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/22
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1110
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpduguard enable
!
interface GigabitEthernet2/23
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 111,211
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2

```

```
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/24
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1111
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpduguard enable
!
interface GigabitEthernet5/1
no ip address
shutdown
!
interface GigabitEthernet5/2
no ip address
shutdown
!
interface Vlan1
no ip address
shutdown
!
interface Vlan100
description Video edge VLAN (DSLAM-1)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
ip igmp static-group 232.1.1.1 source ssm-map
ip igmp static-group 232.1.1.2 source ssm-map
ip igmp static-group 232.1.1.3 source ssm-map
ip igmp static-group 232.1.1.4 source ssm-map
ip igmp static-group 232.1.1.5 source ssm-map
ip igmp static-group 232.1.1.6 source ssm-map
ip igmp static-group 232.1.1.7 source ssm-map
ip igmp static-group 232.1.1.8 source ssm-map
ip igmp static-group 232.1.1.9 source ssm-map
ip igmp static-group 232.1.1.10 source ssm-map
load-interval 30
arp timeout 250
!
interface Vlan101
description Video edge VLAN (DSLAM-2)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
ip igmp static-group 232.1.1.1 source ssm-map
ip igmp static-group 232.1.1.2 source ssm-map
ip igmp static-group 232.1.1.3 source ssm-map
ip igmp static-group 232.1.1.4 source ssm-map
ip igmp static-group 232.1.1.5 source ssm-map
ip igmp static-group 232.1.1.6 source ssm-map
```

```

ip igmp static-group 232.1.1.7 source ssm-map
ip igmp static-group 232.1.1.8 source ssm-map
ip igmp static-group 232.1.1.9 source ssm-map
ip igmp static-group 232.1.1.10 source ssm-map
load-interval 30
arp timeout 250
!
interface Vlan102
description Video edge VLAN (DSLAM-3)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
ip igmp static-group 232.1.1.1 source ssm-map
ip igmp static-group 232.1.1.2 source ssm-map
ip igmp static-group 232.1.1.3 source ssm-map
ip igmp static-group 232.1.1.4 source ssm-map
ip igmp static-group 232.1.1.5 source ssm-map
ip igmp static-group 232.1.1.6 source ssm-map
ip igmp static-group 232.1.1.7 source ssm-map
ip igmp static-group 232.1.1.8 source ssm-map
ip igmp static-group 232.1.1.9 source ssm-map
ip igmp static-group 232.1.1.10 source ssm-map
load-interval 30
arp timeout 250
!
interface Vlan103
description Video edge VLAN (DSLAM-4)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
ip igmp static-group 232.1.1.1 source ssm-map
ip igmp static-group 232.1.1.2 source ssm-map
ip igmp static-group 232.1.1.3 source ssm-map
ip igmp static-group 232.1.1.4 source ssm-map
ip igmp static-group 232.1.1.5 source ssm-map
ip igmp static-group 232.1.1.6 source ssm-map
ip igmp static-group 232.1.1.7 source ssm-map
ip igmp static-group 232.1.1.8 source ssm-map
ip igmp static-group 232.1.1.9 source ssm-map
ip igmp static-group 232.1.1.10 source ssm-map
load-interval 30
arp timeout 250
!
interface Vlan104
description Video edge VLAN (DSLAM-5)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
ip igmp static-group 232.1.1.1 source ssm-map
ip igmp static-group 232.1.1.2 source ssm-map
ip igmp static-group 232.1.1.3 source ssm-map
ip igmp static-group 232.1.1.4 source ssm-map
ip igmp static-group 232.1.1.5 source ssm-map
ip igmp static-group 232.1.1.6 source ssm-map
ip igmp static-group 232.1.1.7 source ssm-map
ip igmp static-group 232.1.1.8 source ssm-map
ip igmp static-group 232.1.1.9 source ssm-map
ip igmp static-group 232.1.1.10 source ssm-map
load-interval 30
arp timeout 250
!

```

```
interface Vlan105
description Video edge VLAN (DSLAM-6)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
ip igmp static-group 232.1.1.1 source ssm-map
ip igmp static-group 232.1.1.2 source ssm-map
ip igmp static-group 232.1.1.3 source ssm-map
ip igmp static-group 232.1.1.4 source ssm-map
ip igmp static-group 232.1.1.5 source ssm-map
ip igmp static-group 232.1.1.6 source ssm-map
ip igmp static-group 232.1.1.7 source ssm-map
ip igmp static-group 232.1.1.8 source ssm-map
ip igmp static-group 232.1.1.9 source ssm-map
ip igmp static-group 232.1.1.10 source ssm-map
load-interval 30
arp timeout 250

!
interface Vlan106
description Video edge VLAN (DSLAM-7)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
ip igmp static-group 232.1.1.1 source ssm-map
ip igmp static-group 232.1.1.2 source ssm-map
ip igmp static-group 232.1.1.3 source ssm-map
ip igmp static-group 232.1.1.4 source ssm-map
ip igmp static-group 232.1.1.5 source ssm-map
ip igmp static-group 232.1.1.6 source ssm-map
ip igmp static-group 232.1.1.7 source ssm-map
ip igmp static-group 232.1.1.8 source ssm-map
ip igmp static-group 232.1.1.9 source ssm-map
ip igmp static-group 232.1.1.10 source ssm-map
load-interval 30
arp timeout 250

!
interface Vlan107
description Video edge VLAN (DSLAM-8)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
ip igmp static-group 232.1.1.1 source ssm-map
ip igmp static-group 232.1.1.2 source ssm-map
ip igmp static-group 232.1.1.3 source ssm-map
ip igmp static-group 232.1.1.4 source ssm-map
ip igmp static-group 232.1.1.5 source ssm-map
ip igmp static-group 232.1.1.6 source ssm-map
ip igmp static-group 232.1.1.7 source ssm-map
ip igmp static-group 232.1.1.8 source ssm-map
ip igmp static-group 232.1.1.9 source ssm-map
ip igmp static-group 232.1.1.10 source ssm-map
load-interval 30
arp timeout 250

!
interface Vlan108
description Video edge VLAN (DSLAM-9)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
ip igmp static-group 232.1.1.1 source ssm-map
ip igmp static-group 232.1.1.2 source ssm-map
```

```

ip igmp static-group 232.1.1.3 source ssm-map
ip igmp static-group 232.1.1.4 source ssm-map
ip igmp static-group 232.1.1.5 source ssm-map
ip igmp static-group 232.1.1.6 source ssm-map
ip igmp static-group 232.1.1.7 source ssm-map
ip igmp static-group 232.1.1.8 source ssm-map
ip igmp static-group 232.1.1.9 source ssm-map
ip igmp static-group 232.1.1.10 source ssm-map
load-interval 30
arp timeout 250

!
interface Vlan109
description Video edge VLAN (DSLAM-10)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
ip igmp static-group 232.1.1.1 source ssm-map
ip igmp static-group 232.1.1.2 source ssm-map
ip igmp static-group 232.1.1.3 source ssm-map
ip igmp static-group 232.1.1.4 source ssm-map
ip igmp static-group 232.1.1.5 source ssm-map
ip igmp static-group 232.1.1.6 source ssm-map
ip igmp static-group 232.1.1.7 source ssm-map
ip igmp static-group 232.1.1.8 source ssm-map
ip igmp static-group 232.1.1.9 source ssm-map
ip igmp static-group 232.1.1.10 source ssm-map
load-interval 30
arp timeout 250

!
interface Vlan110
description Video edge VLAN (DSLAM-11)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
ip igmp static-group 232.1.1.1 source ssm-map
ip igmp static-group 232.1.1.2 source ssm-map
ip igmp static-group 232.1.1.3 source ssm-map
ip igmp static-group 232.1.1.4 source ssm-map
ip igmp static-group 232.1.1.5 source ssm-map
ip igmp static-group 232.1.1.6 source ssm-map
ip igmp static-group 232.1.1.7 source ssm-map
ip igmp static-group 232.1.1.8 source ssm-map
ip igmp static-group 232.1.1.9 source ssm-map
ip igmp static-group 232.1.1.10 source ssm-map
load-interval 30
arp timeout 250

!
interface Vlan111
description Video edge VLAN (DSLAM-12)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
no ip igmp snooping
ip igmp static-group 232.1.1.1 source ssm-map
ip igmp static-group 232.1.1.2 source ssm-map
ip igmp static-group 232.1.1.3 source ssm-map
ip igmp static-group 232.1.1.4 source ssm-map
ip igmp static-group 232.1.1.5 source ssm-map
ip igmp static-group 232.1.1.6 source ssm-map
ip igmp static-group 232.1.1.7 source ssm-map
ip igmp static-group 232.1.1.8 source ssm-map

```



```
ip igmp static-group 232.1.1.9 source ssm-map
ip igmp static-group 232.1.1.10 source ssm-map
load-interval 30
arp timeout 250

!
interface Vlan200
description Voice edge VLAN (DSLAM-1)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan201
description Voice edge VLAN (DSLAM-2)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
no ip igmp snooping
load-interval 30
!
interface Vlan202
description Voice edge VLAN (DSLAM-3)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan203
description Voice edge VLAN (DSLAM-4)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan204
description Voice edge VLAN (DSLAM-5)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan205
description Voice edge VLAN (DSLAM-6)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan206
description Voice edge VLAN (DSLAM-7)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan207
description Voice edge VLAN (DSLAM-8)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan208
description Voice edge VLAN (DSLAM-9)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan209
description Voice edge VLAN (DSLAM-10)
ip unnumbered Loopback1
```

```

ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan210
description Voice edge VLAN (DSLAM-11)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan211
description Voice edge VLAN (DSLAM-12)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan808
description Video/Voice Transport to/from DER1
ip address 10.1.1.10 255.255.255.252
ip pim query-interval 100 msec
ip pim sparse-mode
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
interface Vlan824
description Video/Voice Transport to/from DER2
ip address 10.1.1.26 255.255.255.252
ip pim query-interval 100 msec
ip pim sparse-mode
ip ospf network point-to-point
ip ospf hello-interval 1
load-interval 30
!
router ospf 100
router-id 10.1.1.3
ispf
log-adjacency-changes
timers throttle spf 10 100 1000
timers throttle lsa all 1 10 1000
timers lsa arrival 100
network 10.1.1.8 0.0.0.3 area 0
network 10.1.1.24 0.0.0.3 area 0
network 10.10.0.0 0.0.255.255 area 0
network 10.20.0.0 0.0.255.255 area 0
maximum-paths 8
!
ip classless
!
no ip http server
ip pim ssm default
!
ip access-list extended acl_VoD_and_SIP_signaling
permit ip any host 10.1.10.10
permit ip any 10.1.60.0 0.0.0.255
permit ip any 10.1.61.0 0.0.0.255
permit ip any 10.1.80.0 0.0.0.255
permit ip any 10.1.81.0 0.0.0.255
ip access-list extended acl_VoIP
permit udp any any range 16384 32767
permit udp any range 16384 32767 any
!
logging trap debugging
logging 10.1.10.10
!

```

```

!
!
control-plane
!
!
!
dial-peer cor custom
!
!
!
banner login ^CCC
*****
*
*   AA   RRRRRR   11
*  AAAA  RR   RR  1111
* AA  AA  RR   RR   11
* AAAAAA RR  RRR   11
* AAAAAA RR   RR   11
* AA  AA  RR   RR   11
* AA  AA  RR   RR  111111
*
* Switch = Catalyst7609
* Console =
* Topology = Hub & Spoke
*
*****

^C
!
line con 0
  exec-timeout 0 0
  password cisco
  logging synchronous
  login
  stopbits 1
line vty 0 4
  exec-timeout 0 0
  password cisco
  logging synchronous
  login
!
monitor event-trace timestamps
ntp clock-period 17179866
ntp update-calendar
ntp server 10.1.60.10 prefer
no cns aaa enable
end

```

Configuration for AR2

```

Building configuration...

Current configuration : 42149 bytes
!
! Last configuration change at 01:57:54 PDT Sun Apr 30 2006
! NVRAM config last updated at 21:19:47 PDT Thu Apr 27 2006
!
upgrade fpd auto
version 12.2
service timestamps debug datetime msec localtime
service timestamps log datetime msec localtime
no service password-encryption
service counters max age 5
!
hostname AR2
!
boot system disk0:s72033-advipservicesk9_wan-mz.122-18.SXF2.bin
logging snmp-authfail
enable password cisco
!
no aaa new-model
clock timezone PST -8
clock summer-time PDT recurring
ip subnet-zero
!
!
!
ip multicast-routing
ip igmp ssm-map enable
ip domain multicast coronado.net
no ip domain-lookup
ip domain-name coronado.net
ip name-server 10.1.10.10
ipv6 mfib hardware-switching replication-mode ingress
vtp mode transparent
mls ip cef load-sharing full
mls ip multicast flow-stat-timer 9
no mls flow ip
no mls flow ipv6
mls qos map dscp-cos 36 to 2
mls qos
no mls acl tcam share-global
mls cef error action freeze
!
!
!
!
!
!
!
!
!
!
!
redundancy
 mode sso
  main-cpu
   auto-sync running-config
!
spanning-tree mode rapid-pvst
spanning-tree portfast bpduguard default
no spanning-tree optimize bpdu transmission

```

```

spanning-tree extend system-id
no spanning-tree vlan 100-111,200-211,816,832
spanning-tree vlan 1200-1211 priority 24576
spanning-tree vlan 1200-1211 forward-time 7
spanning-tree vlan 1200-1211 max-age 10
!
diagnostic cns publish cisco.cns.device.diag_results
diagnostic cns subscribe cisco.cns.device.diag_commands
fabric buffer-reserve queue
port-channel per-module load-balance
!
vlan internal allocation policy ascending
vlan dot1q tag native
vlan access-log ratelimit 2000
!
vlan 100-111,200-211,816,832,1200-1211
!
class-map match-all class_VoIP
  match access-group name acl_VoIP
class-map match-all class_VoD_and_SIP_signaling
  match access-group name acl_VoD_and_SIP_signaling
!
!
policy-map setDSCP
  description Mark DSCP values for ingress traffic
  class class_VoIP
    set dscp ef
  class class_VoD_and_SIP_signaling
    set dscp cs3
!
!
!
interface Loopback0
  ip address 1.11.0.1 255.255.0.0
  ip ospf network point-to-point
  load-interval 30
!
interface Loopback1
  ip address 1.21.0.1 255.255.0.0
  ip ospf network point-to-point
  load-interval 30
!
!
interface GigabitEthernet1/1
  description Transport to/from DER2 (GigE 1/1)
  switchport
  switchport trunk encapsulation dot1q
  switchport trunk allowed vlan 832,1200-1211
  switchport mode trunk
  dampening 5 1000 2000 20 restart 16000
  no ip address
  load-interval 30
  carrier-delay msec 0
  no keepalive
  wrr-queue bandwidth 64 255 0
  wrr-queue queue-limit 40 50 0
  wrr-queue threshold 2 80 100 100 100 100 100 100 100
  wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
  wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
  no wrr-queue random-detect 2
  wrr-queue cos-map 1 1 0 1
  wrr-queue cos-map 2 2 3 4 6 7
  mls qos trust dscp
!

```

```

<---output omitted--->
!
interface GigabitEthernet1/5
description Transport to/from DER1 (GigE 1/1)
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 816,1200-1211
switchport mode trunk
dampening 5 1000 2000 20 restart 16000
no ip address
load-interval 30
carrier-delay msec 0
no keepalive
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
mls qos trust dscp
channel-group 2 mode desirable
!
<---output omitted--->
!
interface GigabitEthernet2/1
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 100,200
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/2
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1200
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdupfilter enable
!
interface GigabitEthernet2/3

```

```

description Connection To UTISI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 101,201
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/4
description Connection To UTISI DSLAM 1:1 HSD
switchport
switchport access vlan 1201
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdupfilter enable
!
interface GigabitEthernet2/5
description Connection To UTISI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 102,202
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/6
description Connection To UTISI DSLAM 1:1 HSD
switchport
switchport access vlan 1202
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100

```

```

wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdudfilter enable
!
interface GigabitEthernet2/7
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 103,203
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/8
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1203
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdudfilter enable
!
interface GigabitEthernet2/9
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 104,204
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!

```



```

interface GigabitEthernet2/10
description Connection To UTISI DSLAM 1:1 HSD
switchport
switchport access vlan 1204
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdupfilter enable
!
interface GigabitEthernet2/11
description Connection To UTISI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 105,205
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/12
description Connection To UTISI DSLAM 1:1 HSD
switchport
switchport access vlan 1205
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdupfilter enable
!
interface GigabitEthernet2/13
description Connection To UTISI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 106,206
switchport mode trunk
no ip address
load-interval 30

```

```

wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/14
description Connection To UTISI DSLAM 1:1 HSD
switchport
switchport access vlan 1206
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpduguard enable
!
interface GigabitEthernet2/15
description Connection To UTISI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 107,207
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/16
description Connection To UTISI DSLAM 1:1 HSD
switchport
switchport access vlan 1207
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast

```

```

spanning-tree bpdufilter enable
!
interface GigabitEthernet2/17
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 108,208
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/18
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1208
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdufilter enable
!
interface GigabitEthernet2/19
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 109,209
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/20
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1209
switchport mode dot1q-tunnel
no ip address
logging event link-status

```

```

wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdudfilter enable
!
interface GigabitEthernet2/21
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 110,210
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/22
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1210
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpdudfilter enable
!
interface GigabitEthernet2/23
description Connection To UTSI DSLAM N:1 Video and Voice VLAN
switchport
switchport trunk encapsulation dot1q
switchport trunk allowed vlan 111,211
switchport mode trunk
no ip address
load-interval 30
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1

```

```

wrr-queue cos-map 2 2 3 4 6 7
service-policy input setDSCP
!
interface GigabitEthernet2/24
description Connection To UTSI DSLAM 1:1 HSD
switchport
switchport access vlan 1211
switchport mode dot1q-tunnel
no ip address
logging event link-status
wrr-queue bandwidth 64 255 0
wrr-queue queue-limit 40 50 0
wrr-queue threshold 2 80 100 100 100 100 100 100
wrr-queue random-detect min-threshold 1 75 100 100 100 100 100 100
wrr-queue random-detect max-threshold 1 100 100 100 100 100 100 100
no wrr-queue random-detect 2
wrr-queue cos-map 1 1 0 1
wrr-queue cos-map 2 2 3 4 6 7
no cdp enable
spanning-tree portfast
spanning-tree bpduguard enable
!
interface GigabitEthernet5/1
no ip address
shutdown
!
interface GigabitEthernet5/2
no ip address
shutdown
!
interface Vlan1
no ip address
shutdown
!
interface Vlan100
description Video edge VLAN (DSLAM-1)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
load-interval 30
!
interface Vlan101
description Video edge VLAN (DSLAM-2)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
load-interval 30
!
interface Vlan102
description Video edge VLAN (DSLAM-3)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
load-interval 30
!
interface Vlan103
description Video edge VLAN (DSLAM-4)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
load-interval 30
!
interface Vlan104
description Video edge VLAN (DSLAM-5)

```

```
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
load-interval 30
!
interface Vlan105
description Video edge VLAN (DSLAM-6)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
load-interval 30
!
interface Vlan106
description Video edge VLAN (DSLAM-7)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
load-interval 30
!
interface Vlan107
description Video edge VLAN (DSLAM-8)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
load-interval 30
!
interface Vlan108
description Video edge VLAN (DSLAM-9)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
load-interval 30
!
interface Vlan109
description Video edge VLAN (DSLAM-10)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
load-interval 30
!
interface Vlan110
description Video edge VLAN (DSLAM-11)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
load-interval 30
!
interface Vlan111
description Video edge VLAN (DSLAM-12)
ip unnumbered Loopback0
ip helper-address 10.1.10.10
ip pim sparse-mode
no ip igmp snooping
load-interval 30
!
interface Vlan200
description Voice edge VLAN (DSLAM-1)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan201
description Voice edge VLAN (DSLAM-2)
ip unnumbered Loopback1
```

```
ip helper-address 10.1.10.10
no ip igmp snooping
load-interval 30
!
interface Vlan202
description Voice edge VLAN (DSLAM-3)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan203
description Voice edge VLAN (DSLAM-4)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan204
description Voice edge VLAN (DSLAM-5)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan205
description Voice edge VLAN (DSLAM-6)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan206
description Voice edge VLAN (DSLAM-7)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan207
description Voice edge VLAN (DSLAM-8)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan208
description Voice edge VLAN (DSLAM-9)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan209
description Voice edge VLAN (DSLAM-10)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
interface Vlan210
description Voice edge VLAN (DSLAM-11)
ip unnumbered Loopback1
ip helper-address 1.1.10.10
load-interval 30
!
interface Vlan211
description Voice edge VLAN (DSLAM-12)
ip unnumbered Loopback1
ip helper-address 10.1.10.10
load-interval 30
!
```

```

interface Vlan816
  description Transport to/from DER1
  ip address 10.1.1.18 255.255.255.252
  ip pim query-interval 500 msec
  ip pim sparse-mode
  ip ospf network point-to-point
  ip ospf hello-interval 1
  load-interval 30
!
interface Vlan832
  description Transport to/from DER2
  ip address 10.1.1.34 255.255.255.252
  ip pim query-interval 500 msec
  ip pim sparse-mode
  ip ospf network point-to-point
  ip ospf hello-interval 1
  load-interval 30
!
router ospf 100
  router-id 10.1.1.4
  ispf
  log-adjacency-changes
  timers throttle spf 10 100 1000
  timers throttle lsa all 1 10 1000
  timers lsa arrival 100
  network 10.1.1.16 0.0.0.3 area 0
  network 10.1.1.32 0.0.0.3 area 0
  network 10.11.0.0 0.0.255.255 area 0
  network 10.21.0.0 0.0.255.255 area 0
  maximum-paths 8
!
ip classless
!
no ip http server
ip pim ssm default
!
ip access-list extended acl_VoD_and_SIP_signaling
  permit ip any host 10.1.10.10
  permit ip any 10.1.60.0 0.0.0.255
  permit ip any 10.1.61.0 0.0.0.255
  permit ip any 10.1.80.0 0.0.0.255
  permit ip any 10.1.81.0 0.0.0.255
ip access-list extended acl_VoIP
  permit udp any any range 16384 32767
  permit udp any range 16384 32767 any
!
logging trap debugging
logging 10.1.10.10
!
!
!
control-plane
!
!
!
dial-peer cor custom
!
!
!
banner login ^CCCCCC
*****
*
*   AA   RRRRRRR   222222
*  AAAA  RR   RR   22

```



```
* AA AA RR RR 22
* AAAAAA RR RRR 22222
* AAAAAA RR RR 22
* AA AA RR RR 22
* AA AA RR RR 222222
*
* Switch = Catalyst7609
* Console =
* Topology = Hub & Spoke
*
*****

^C
!
line con 0
  exec-timeout 0 0
  password cisco
  logging synchronous
  login
  stopbits 1
line vty 0 4
  exec-timeout 0 0
  password cisco
  logging synchronous
  login
  transport input lat pad mop udptn telnet rlogin ssh nasi acercon
!
monitor event-trace timestamps
ntp clock-period 17180031
ntp update-calendar
ntp server 10.1.60.10 prefer
no cns aaa enable
end
```

