



# End-to-End Cisco Unified Border Element (SP Edition) Configuration Example

This section contains a complete Cisco Unified Border Element (SP Edition) configuration on the Cisco ASR 1000 Series Routers.

```
Router# show run

Building configuration...

Current configuration : 17580 bytes
!
! Last configuration change at 11:12:56 SGT Sun Nov 21 2010
!
version 15.1
service timestamps debug datetime msec localtime show-timezone
service timestamps log datetime msec localtime show-timezone
service internal
no platform punt-keepalive disable-kernel-core
platform shell
!
hostname ASR1002-2
!
boot-start-marker
boot system
bootflash:asr1000rp1-adventerprisek9.BLD_V151_1_S_XE32_THROTTLE_LATEST_20101109_090050.bin
boot system bootflash:asr1000rp1-adventerprisek9.BLD_MCP_DEV_LATEST_20101109_222533.bin
boot-end-marker
!
!
vrf definition Mgmt-intf
!
address-family ipv4
exit-address-family
!
address-family ipv6
exit-address-family
!
vrf definition h323-vrf-a
description h323-vrf-a
!
address-family ipv4
exit-address-family
!
vrf definition h323-vrf-b
description h323-vrf-b
!
address-family ipv4
```

```

    exit-address-family
    !
vrf definition l2e-vrf-a
  description VRF a-side for late-to-early
  !
  address-family ipv4
  exit-address-family
  !
vrf definition l2e-vrf-b
  description VFR b-side for late-to-early
  !
  address-family ipv4
  exit-address-family
  !
vrf definition sigpinhole_customer_a
  description SigPinhole-VRF-Customer-A
  !
  address-family ipv4
  exit-address-family
  !
vrf definition sigpinhole_customer_b
  description SigPinhole-VRF-Customer-B
  !
  address-family ipv4
  exit-address-family
  !
vrf definition vrf_a
  !
  address-family ipv4
  exit-address-family
  !
  address-family ipv6
  exit-address-family
  !
vrf definition vrf_b
  !
  address-family ipv4
  exit-address-family
  !
  address-family ipv6
  exit-address-family
  !
logging buffered 10000000
enable secret 5 $1$wVYL$r.SbA2ka.6l9g7baSdHJx/
!
no aaa new-model
!
!
!
no process cpu extended history
no process cpu autopprofile hog
clock timezone SGT 8 0
ip source-route
!
!
!
!
!
ip domain name cisco.com
ip host t-mobile.com 10.0.48.236
ip host ibcf.t-mobile.com 10.0.48.236
ip host scscf.t-mobile.com 10.0.48.236
ip name-server 20.21.28.125
ip name-server vrf vrf_a 20.21.28.125

```



```

ip address 10.160.90.16 255.255.255.0 secondary
ip address 10.160.90.17 255.255.255.0 secondary
ip address 10.160.90.18 255.255.255.0 secondary
ip address 10.160.90.19 255.255.255.0 secondary
ip address 10.160.90.3 255.255.255.0 secondary
ip address 20.24.34.1 255.255.255.0
ipv6 address 2001:A401::10:160:90:1/64
ipv6 address 2001:A401::10:160:90:2/64
ipv6 address 2001:A405::20:24:34:1/64
!
interface SBC2
ip address 10.190.6.2 255.255.255.224 secondary
ip address 10.190.6.1 255.255.255.224
!
interface SBC3
ip address 10.190.6.34 255.255.255.224 secondary
ip address 10.190.6.33 255.255.255.224
!
interface SBC4
ip address 10.190.7.66 255.255.255.224 secondary
ip address 10.190.7.65 255.255.255.224
!
interface SBC5
ip address 10.190.7.98 255.255.255.224 secondary
ip address 10.190.7.97 255.255.255.224
!
interface SBC9
ip address 9.1.1.1 255.255.255.0
!
interface SBC200
ip address 20.24.31.1 255.255.255.0
ipv6 address 2001:20:24:31:20:24:31:1/64
!
interface SBC749
ip address 20.24.49.1 255.255.255.0
!
interface GigabitEthernet0/0/0
ip address 1.1.1.2 255.255.255.0
zone-member security private
negotiation auto
cdp enable
redundancy rii 10
!
interface GigabitEthernet0/0/1
no ip address
shutdown
negotiation auto
cdp enable
!
interface GigabitEthernet0/0/1.726
encapsulation dot1Q 726
ip address 20.21.26.120 255.255.255.0
!
interface GigabitEthernet0/0/2
ip address 1.1.2.2 255.255.255.0
zone-member security public
negotiation auto
!
interface GigabitEthernet0/0/3
no ip address
shutdown
negotiation auto
!
interface FastEthernet0/1/0

```

```

ip address 20.21.47.16 255.255.255.0 secondary
ip address 20.21.47.13 255.255.255.0
speed 100
negotiation auto
!
interface FastEthernet0/1/1
no ip address
shutdown
speed 100
negotiation auto
!
interface FastEthernet0/1/2
no ip address
shutdown
speed 100
negotiation auto
!
interface FastEthernet0/1/3
no ip address
shutdown
speed 100
negotiation auto
!
interface GigabitEthernet0
vrf forwarding Mgmt-intf
ip address 10.74.48.165 255.255.255.224
negotiation auto
!
!
no ip http server
no ip http secure-server
ip route 10.74.48.151 255.255.255.255 20.21.26.1
ip route vrf Mgmt-intf 0.0.0.0 0.0.0.0 10.74.48.161
ip route vrf Mgmt-intf 0.0.0.0 0.0.0.0 10.74.28.65
ip route vrf vrf_a 0.0.0.0 0.0.0.0 20.21.27.1
ip route vrf vrf_b 0.0.0.0 0.0.0.0 20.21.26.1
!
logging esm config
cdp run
ipv6 route ::/0 2001:20:21:28:20:21:28:1
ipv6 route vrf vrf_b ::/0 2001:20:21:26:20:21:26:1
ipv6 route vrf vrf_a ::/0 2001:20:21:27:20:21:27:1
!
!
!
control-plane
!
!
sbc diagnostics sparse
!
!
sbc rls8
sbc
control address aaa ipv4 20.24.34.1
radius authentication
server freeRadius
address ipv4 10.0.48.236
mode local
key cisco
radius accounting Codenomicon
concurrent-requests 4000
retry-interval 5000
retry-limit 9
server Codenomicon

```

```

    address ipv4 10.0.48.236
    port 1812
    key cisco
sip body-profile PASSALL
sip parameter-profile test
  parameter aaa
  action strip
sip parameter-profile testb
sip parameter-profile proxy-param
  parameter firewall
  action strip
sip parameter-profile access-param
  parameter firewall
  action add-or-replace value public-ip-address
sip header-profile h1
  src-address
  header-prio 1 header-name P-Called-Party-ID
  header-prio 2 header-name P-Preferred-Identity
  header Allow entry 1
  action pass
  header Call-Info entry 1
  action pass
  header P-Asserted-Identity entry 1
  action pass
sip header-profile 111
  header Allow entry 1
  action replace-value value "ddd"
sip header-profile p-kt
  header P-KT-UE-IP entry 1
  action strip
  header P-KT-UE-IP entry 2
  action add-header value "${msg.rmt_ip_addr}"
sip header-profile proxy
  header contact entry 1
  parameter-profile proxy-param
  action as-profile
sip header-profile access
  header contact entry 1
  parameter-profile access-param
  action as-profile
sip header-profile default
  blacklist
sip header-profile IMS_Access
  blacklist
  header P-Called-Party-ID entry 1
  action strip
sip header-profile P-Charging-Fucntion-Address
  blacklist
  header P-Charging-Function-Addresses entry 1
  action add-first-header value "1.1.1.1"
sip method-profile PASS
  blacklist
sip method-profile default
  blacklist
sip option-profile default
  blacklist
sip error-profile default
  cause rtg-no-route-found sub-cause rtg-src-adjacency status-code 604 reason "Q.850
;cause=16 ;text=\\\"SBC: No route found based on src adjacency\\\""
  adjacency h323 H323CCM134-GK
  signaling-address ipv4 20.24.34.1
  signaling-port 1719
  remote-address ipv4 10.0.50.134 255.255.255.255
  signaling-peer gk 10.0.48.93

```

```
tech-prefix 567
dbe-location-id 0
allow private info
trunk trusted
inbound secure
attach
adjacency h323 H323CCM134-vrfa
vrf h323-vrf-a
signaling-address ipv4 10.190.7.65
remote-address ipv4 10.0.50.134 255.255.255.255
signaling-peer 10.0.50.134
dbe-location-id 0
trunk trusted
inbound secure
attach
adjacency sip SIPP1
signaling-address ipv4 20.24.34.1
statistics method summary
signaling-port 5060
remote-address ipv4 10.0.244.81 255.255.255.255
signaling-peer 10.0.244.81
dbe-location-id 0
attach
adjacency sip SIPP2
signaling-address ipv4 20.24.34.1
statistics method summary
signaling-port 5060
remote-address ipv4 10.0.244.82 255.255.255.255
signaling-peer 10.0.244.82
dbe-location-id 0
attach
adjacency sip UE-RX
inherit profile preset-access
signaling-address ipv4 192.168.2.1
statistics method summary
remote-address ipv4 10.0.120.19 255.255.255.255
signaling-peer 10.0.120.19
dbe-location-id 0
reg-min-expiry 200
fast-register disable
attach
adjacency sip adj1-o
inherit profile preset-access
visited network identifier ims.net
signaling-address ipv4 192.168.2.1
statistics method summary
remote-address ipv4 192.168.1.1 255.255.255.255
signaling-peer 192.168.1.1
media bypass tag 1 a
media bypass tag 2 b
media bypass tag 3 c
media bypass tag 4 d
attach
adjacency sip adj1-t
inherit profile preset-access
visited network identifier ims.net
signaling-address ipv4 192.168.130.1
statistics method summary
remote-address ipv4 192.168.129.1 255.255.255.255
signaling-peer 192.168.129.1
media bypass tag 1 a
media bypass tag 2 b
media bypass tag 3 c
media bypass tag 4 d
```

```

attach
adjacency sip CCM-132
  preferred-transport tcp
  signaling-address ipv4 20.24.34.1
  statistics method summary
  signaling-port 5060
  remote-address ipv4 10.0.50.132 255.255.255.255
  signaling-peer 10.0.50.132
  dbe-location-id 0
  ping-enable
  ping-suppression ood-request
  ping-bad-rsp-codes 503
  warrant match-order destination source diverted-by
attach
adjacency sip CCM-133
  admin-domain ad1
  vrf sigpinhole_customer_a
  signaling-address ipv4 10.190.6.33
  statistics method summary
  signaling-port 5060
  remote-address ipv4 10.0.50.133 255.255.255.255
  signaling-peer 10.0.50.133
  dbe-location-id 0
  dtmf disable sip notify
attach
adjacency sip CCM-135
  admin-domain ad1
  signaling-address ipv4 20.24.34.1
  statistics method summary
  signaling-port 5060
  remote-address ipv4 10.0.50.135 255.255.255.255
  signaling-peer 10.0.50.135
  dbe-location-id 0
  dtmf disable sip info
attach
adjacency sip OpensipsV6
  group IPv6
  nat force-off
  inherit profile preset-core
  signaling-address ipv6 2001:A401::10:160:90:1
  statistics method summary
  signaling-port 7060
  remote-address ipv6 2001::216:ECFF:FE3B:40DD/128
  signaling-peer 2001:A401::33:33:36:1
  dbe-location-id 0
  registration target address 2001:A401::33:33:36:2
  header-name From passthrough
  dtmf prefer sip info
attach
adjacency sip OpenIMSCore
  inherit profile preset-core
  signaling-address ipv4 20.24.34.1
  statistics method summary
  signaling-port 4060
  remote-address ipv4 10.0.48.236 255.255.255.255
  signaling-peer 10.0.48.236
  dbe-location-id 0
  registration target address open-ims.test
  registration monitor
  header-name From passthrough
  ims pani e2
attach
adjacency sip SoftphoneV6
  group IPv6

```

```

nat force-on
inherit profile preset-access
signaling-address ipv6 2001:A401::10:160:90:1
statistics method summary
signaling-port 5060
remote-address ipv6 2001::/64
signaling-peer 2001::10:0:120:19
dbe-location-id 0
registration rewrite-register
attach
cac-policy-set 1
first-cac-table SRC-ADJ
first-cac-scope src-adjacency
cac-table SRC-ADJ
  table-type limit src-adjacency
  entry 1
    match-value UE-RX
    caller inband-dtmf-mode always
    media police strip
    action cac-complete
  entry 2
    match-value CCM-132
    codec-preference-list pref-list1
    callee-privacy privacy-service always
    caller-privacy privacy-service never
    srtp support allow
    payload-type asymmetric allowed
    callee local-call-transfer allowed
    srtp caller forbid
    srtp callee mandate
    srtp interworking allow
    media police strip
    action cac-complete
  entry 3
    match-value CCM-133
    media police strip
    action next-table msmbtbl1
cac-table msmbtbl1
  table-type policy-set
  entry 1
    media bypass type hairpin full
    media police strip
    action cac-complete
complete
cac-policy-set global 1
call-policy-set 1
first-inbound-na-table natable1
first-call-routing-table dal
first-reg-routing-table REG-ROUTE-ON-SRC-ADJ
rtg-dst-address-table dal
  entry 1
    match-address kate string
    dst-adjacency CCM-135
    action complete
  entry 2
    match-address bob string
    dst-adjacency CCM-133
    action complete
  entry 3
    match-address 44 digits
    dst-adjacency CCM-135
    action complete
    prefix
  entry 4

```

```

    match-address 86 digits
    dst-adjacency OpenIMSCore
    action complete
    prefix
rtg-src-adjacency-table REG-ROUTE-ON-SRC-ADJ
  entry 1
    match-adjacency UE-RX
    dst-adjacency OpenIMSCore
    action complete
  entry 2
    match-adjacency SoftphoneV6
    dst-adjacency OpensipsV6
    action complete
  entry 3
    match-adjacency OpenIMSCore
    dst-adjacency adj1-o
    action complete
na-dst-address-table natable1
  entry 1
    action next-table privacytbl
    edit-src add-prefix 1
    match-address 111 digits
  entry 2
    action accept
    edit-src add-prefix 12345
    match-address 112 digits
  entry 3
    action accept
    edit-src add-prefix abc
    match-address 113 digits
  entry 4
    action accept
    match-address ^201[a-d]ef regex
  entry 5
    action accept
na-src-name-anonymous-table privacytbl
  entry 1
    action accept
    edit-dst add-prefix 3
    match-anonymous true
complete
call-policy-set 2
  first-call-routing-table ROUTE-ON-DEST-NUM
  rtg-dst-address-table ROUTE-ON-DEST-NUM
  entry 1
    match-address 1320X digits
    dst-adjacency CCM-132
    action complete
    edit-dst del-prefix 4
    prefix
  complete
call-policy-set 3
  first-call-routing-table table1
  rtg-src-adjacency-table table1
  entry 1
    match-adjacency SIPP1
    dst-adjacency CCM-135
    action complete
  entry 2
    match-adjacency SIPP2
    dst-adjacency CCM-133
    action complete
  complete
call-policy-set default 1

```

```

admin-domain ad1
  description This is a description for DOMAIN1
  call-policy-set inbound-na 3
  call-policy-set rtg 3
  ! using call-policy-set outbound-na default
admin-domain ad2
  description This is a description for DOMAIN2
  call-policy-set inbound-na 2
  call-policy-set rtg 2
  call-policy-set outbound-na 2
enum 1
  req-timeout 60
  rsp-lifetime 34000
  nmr-buf-pool-size 500
  entry default
    server ipv4 10.0.120.33
  activate
network-id 29599
sip dns
  support-type sip-dns-srv
  cache lifetime 0
  cache limit 10
!
!
codec list pref-list1
  codec G723 priority 1
  codec PCMU priority 2
!
codec variant codec G7231L
  variant G7231L
  standard G723
  fmp annexa=yes
  fmp bitrate=5.3
billing
  local-address ipv4 20.24.34.1
  ldr-check 23 30
  method packetcable-em
  method xml
  packetcable-em 0 transport radius Codenomicon
  local-address ipv4 20.24.34.1
  attach
  xml 1
  cdr path usb0:Billing/
  cdr alarm minor 500000
  ldr-check 23 30
  attach
  activate
!
!
blacklist global
  reason bad-address
    trigger-size 65535
  reason cac-policy-rejection
    trigger-size 65535
  reason spam
    trigger-size 65535
blacklist vpn sigpinhole_customer_a
  reason authentication-failure
    trigger-size 65535
  reason endpoint-registration
    trigger-size 65535
  trigger-period 1 seconds
  reason cac-policy-rejection
  reason corrupt-message

```

```

        trigger-size 65535
        trigger-period 1 seconds
    blacklist global ipv6 2001::10:0:233:113
    reason authentication-failure
        trigger-size 65535
        trigger-period 1 seconds
    reason bad-address
        trigger-size 65535
        trigger-period 1 seconds
    reason endpoint-registration
        trigger-size 65535
        trigger-period 1 seconds
    reason cac-policy-rejection
        trigger-size 65535
        trigger-period 1 seconds
    reason corrupt-message
        trigger-size 65535
        trigger-period 1 seconds
    reason spam
        trigger-size 65535
        trigger-period 1 seconds
    !
    rtp-flood-detect
    media-address ipv4 10.160.90.3
    port-range 10000 11000 voice tag CCM-132
    port-range 11001 12000 video tag CCM-135
    media-address ipv6 2001:A401::10:160:90:1
    port-range 16384 32767 signaling
    activate
    !
    !
    !
    !
    line con 0
    exec-timeout 0 0
    stopbits 1
    line aux 0
    stopbits 1
    line vty 0 4
    exec-timeout 0 0
    no login
    !
    exception data-corruption buffer truncate
    !
    monitor session 22 type erspan-source
    description SOURCE_SESSION_FOR_Gi0/0/0
    source interface Gi0/0/0
    destination
    erspan-id 22
    ip address 10.0.100.100
    origin ip address 20.21.28.72
    !
    !
end

```