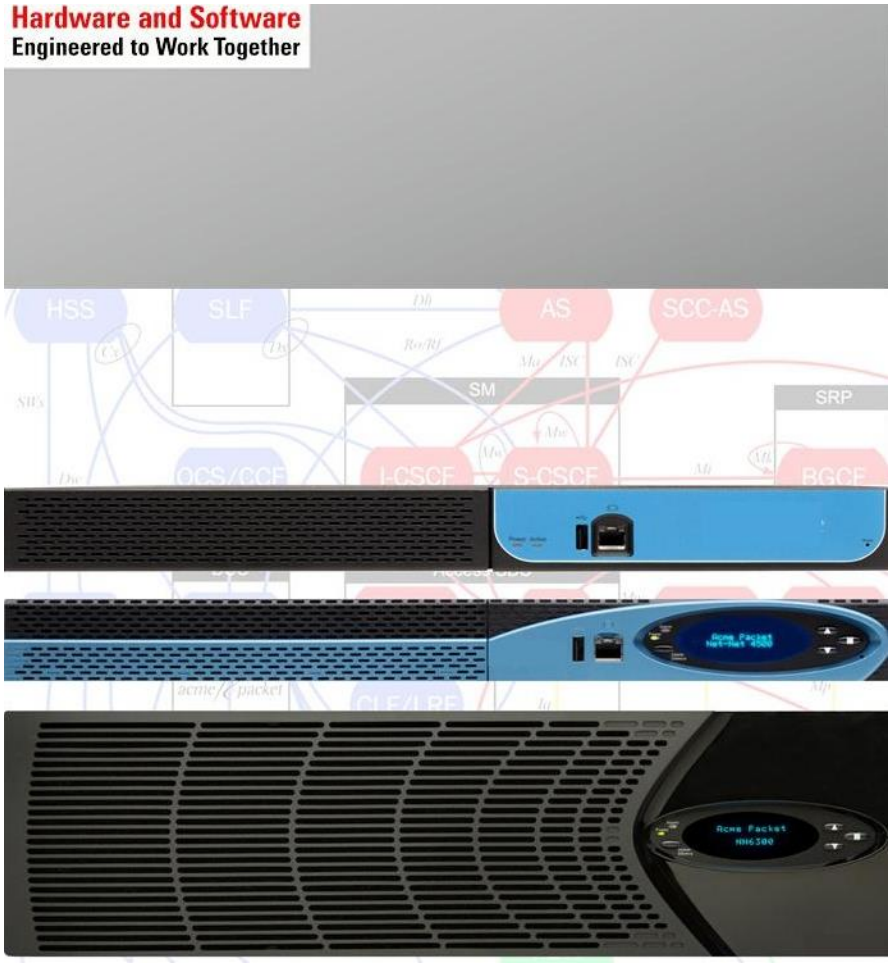


Oracle Communications Session Border Controller with NICE Systems Recorder and Avaya Session Manager, Cisco UCM & Genesys SIP server

Technical Application Note

Disclaimer

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Table of Contents

Intended Audience

This document is intended for use by Oracle Systems Engineers, third party Systems Integrators, and end users of the Oracle Communications Session Border Controller. It assumes that the reader is familiar with basic operations of the Oracle Communications Session Border Controller.

Document Overview

This document is intended for use as a guide for a successful integration of both NICE Systems Recorder and Oracle Communications Session Border Controller. It outlines the architecture design, Oracle SBC configuration including troubleshooting tools, as well as test cases executed as part of the interoperability testing.

Introduction

Audience

This is a technical document intended for telecommunications engineers with the purpose of configuring the Oracle SBC to interop with the NICE Recorder, Avaya CM, CUCM and Genesys Server for this testing. Understanding the basic concepts of TCP/UDP, IP/Routing, and SIP/RTP are also necessary to complete the configuration and for troubleshooting, if necessary.

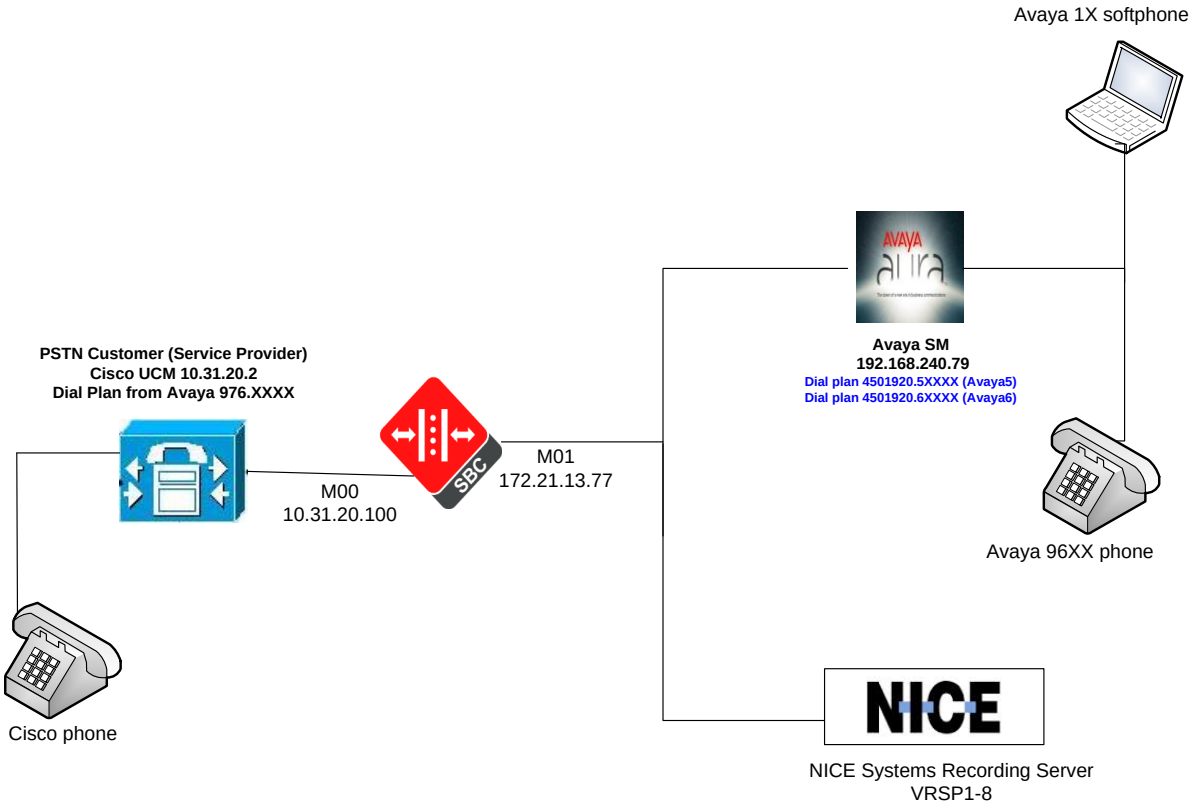
Requirements

- ACME Net Net 4500 with Firmware Release SCZ7.2.0 Patch 2
- Avaya Session Manager 6.3 and Avaya CM 6.3
- Cisco UCM
- Genesys SIP Server 8.1
- NICE Engage 6.3.4
- NICE Interaction Management 4.1.48 (minimum version for Genesys SIP integration. Total SIPREC recording in Avaya environment supported since 4.1.9, selective since 4.1.24)
- Standard SIP softphones and Grandstream phones registering to Genesys server
- Avaya environment 1X softphone and 96XX phone

Oracle SBC with NICE Recorder in an Avaya environment

Architecture

The following reference architecture shows a logical view of the connectivity between Avaya, Cisco, NICE Recorder and the SBC.



As shown in the network diagram, the Oracle SBC is connected as an edge component in an Avaya enterprise environment. The core side of the Enterprise consists of Avaya SM and phones registered to the SM. For the purpose of this interop testing, the calls are tested from a Cisco Enterprise to Avaya Enterprise through the Oracle Communications SBC.

The SBC supports the SIP Recording (SIPREC) standard as per RFC 6341 which is used for recording the call and sending the recorded stream to the NICE recorders. The SIPREC protocol is the protocol used to interact between a Session Recording Client (SRC - the role performed by Oracle SBC) and a Session Recording Server (SRS- Nice recorder).

NICE Interaction Management can record multiple media— digital and analog—in TDM, voice over IP (VoIP), session initiation protocol (SIP)-based and hybrid environments. The Nice Interactions Center receives the call status, monitors call events, and stores them in its databases for other system functions such as queries, reports, etc. and uses them when interaction-based recordings are implemented to determine whether to record a call.

NICE VoIP Logger: A Logger was setup for Active Recording and is used in an Active VoIP Recording environment. The NICE VoIP recording solution enables customers to effectively capture, evaluate, analyze and improve multimedia interactions taking place on an IP network. Once the VoIP audio is recorded, it can be saved, archived, queried, and played back as easily as analog or digital recorded audio.

Voice Recording SIP Proxy (VRSP): The VRSP functions as a SIP Proxy. It is used to set up SIP-based calls between the SBC and the NICE VoIP Logger. It is recommended to deploy VRSP redundancy in order to guarantee recording.

Configuring the Oracle Communications SBC

In this section we describe the steps for configuring an Oracle Communications Session Border Controller, formally known as an Acme Packet Net-Net Session Director ("SBC").

In Scope

The following step-by-step guide configuring the Oracle SBC assumes that this is a newly deployed device dedicated to a single customer. This testing was done without redundancy due to resource limitation.

Note that Oracle offers several models of SBC. This document covers the setup for the 1100, 3820 & 4500 platform series running Net-Net OS SCZ 7.2p2 or later. If instructions are needed for other Oracle SBC models, please contact your Oracle representative.

Out of Scope

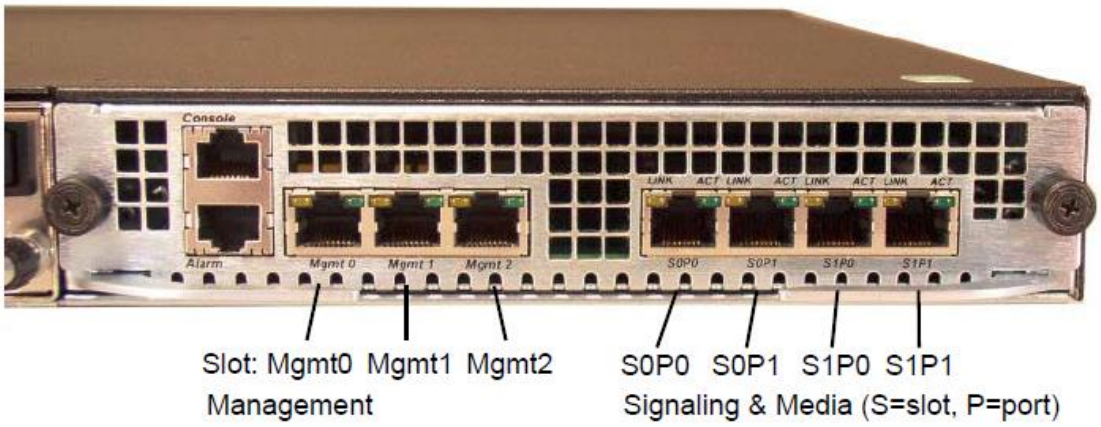
- Configuration of Network management including SNMP and RADIUS; and
- Complete configuration of the Avaya SM, Avaya CM, Cisco UCM and the NICE recorder.

What will you need

- Serial Console cross over cable with RJ-45 connector
- Terminal emulation application such as PuTTY or HyperTerm
- Passwords for the User and Superuser modes on the Oracle SBC
- IP address to be assigned to management interface (Wancom0) of the SBC - the Wancom0 management interface must be connected and configured to a management network separate from the service interfaces. Otherwise the SBC is subject to ARP overlap issues, loss of system access when the network is down, and compromising DDoS protection. Oracle does not support SBC configurations with management and media/service interfaces on the same subnet.
- IP address of the Avaya SM/CM, CUCM and NICE Recorder

- IP address to be used for the SBC internal and external facing ports (Service Interfaces)

Once the Oracle SBC is racked and the power cable connected, you are ready to set up physical network connectivity.



Plug the slot 0 port 0 (s0p0) interface into your Cisco facing gateway and the slot 0 port 1 (s0p1) interface into Avaya facing gateway. For the purpose of this testing, the NICE recorder is also connected to port s0p1, though it can be connected on a separate network interface too. Once connected, you are ready to power on and perform the following steps.

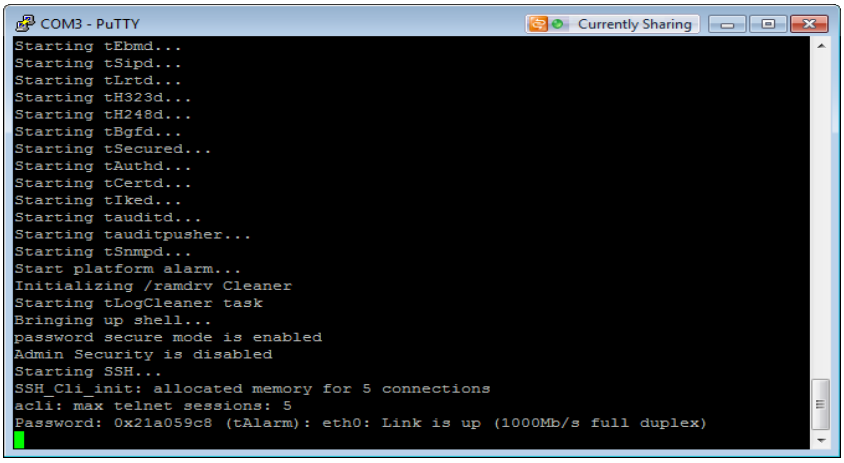
All commands are in bold, such as **`configure terminal`**; parameters in bold red such as ACMESYSTEM are parameters which are specific to an individual deployment. **Note:** The ACLI is case sensitive.

Establish the serial connection and logging in the SBC

Confirm the SBC is powered off and connect one end of a straight-through Ethernet cable to the front console port (which is active by default) on the SBC and the other end to console adapter that ships with the SBC, connect the console adapter (a DB-9 adapter) to the DB-9 port on a workstation, running a terminal emulator application such as PuTTY. Start the terminal emulation application using the following settings:

- Baud Rate=115200
- Data Bits=8
- Parity=None
- Stop Bits=1
- Flow Control=None

Power on the SBC and confirm that you see the following output from the bootup sequence.



Enter the following commands to login to the SBC and move to the configuration mode. Note that the default SBC password is "**acme**" and the default super user password is "**packet**".

```
Password: acme
ACMESYSTEM> enable
Password: packet
ACMESYSTEM# configure terminal
ACMESYSTEM(configure)#
```

You are now in the global configuration mode.

Initial Configuration – Assigning the management Interface an IP address

To assign an IP address, one has to configure the bootparams on the SBC by going to

ACMESYSTEM# configure terminal --- >bootparams

- Once you type "bootparam" you have to use "carriage return" key to navigate down
- A reboot is required if changes are made to the existing bootparams

```
ACMESYSTEM#(configure)bootparam
'.' = clear field;  '-' = go to previous field;  q = quit
boot device             : eth0
processor number        : 0
host name               : acmesystem
file name               : /boot/nnSCZ720p2.bz--- >location where the
software is loaded on the SBC
inet on ethernet (e)    : 172.18.255.52:ffffff80 --- > This is the ip
address of the management interface of the SBC, type the IP address and
mask in hex
inet on backplane (b)   :
host inet (h)           :
gateway inet (g)        : 172.18.0.1 --- > gateway address here
user (u)                : vxftp
ftp password (pw) (blank = use rsh)     : vxftp
flags (f)               :
target name (tn)        : ACMESYSTEM
startup script (s)      :
other (o)               :
```

Configuration of the SBC

The following section walks you through configuring the Oracle Communications SBC to work with the Avaya SM/CM and the NICE recorders.

The calls are recorded by a NICE recorder which is added to the configuration using session-recording-server and session-recording-group. The session recorders are defined in the session-recording-group, and the session-recording-group is referenced from the sip-interface. In our case, there is one session-recording-group NiceRecordingServer which has one session recording server VRSP1. Depending on which recorder needs to record the calls, the rest of session-recording-servers (VRSP2 - VRSP8) are accordingly added in the session-recording-group. The session-recording-server element has details of the session recorder such as the IP and port, as also the realm to which it belongs. Another field with reference to call recording in the realm-config is the session-recording-required. If session-recording-required =enabled, then the calls between the two parties will not go through unless the session recorder is ready and available to record.

Also, as often in contact center applications, a unique ID is needed to co-relate the recorded calls, an Avaya UCID is used for this purpose in this testing. The AvayaCiscoUCID64 SPL plug-in generates or preserves a UCID based on configuration. Once a UCID is generated or preserved, the system adds the value to all subsequent egress SIP requests within the session. This SPL plugin is invoked by defining it in plugins under spl-config. You also need to enable the plugin with the SPL option UCID-App-ID=0019 in the spl-config element. The UCID-App-ID SPL option allows the SBC to examine ingress SIP requests for the “User-to-User” header. When present, the header is transparently passed through the egress SIP message. If set to replace-ucid or the header is not present, the system generates a new value for “User-to-User”.

You must set the value to a 2-byte hex-ascii value that represents the app ID which is the identifying value, as defined by the vendors. All input is truncated to 4 characters. Any characters outside the range of 0-9 and A-F will result in an invalid User-to-User header. The UCID is added as an extension data to the session element of the recording's metadata when using SIPREC.

SIP Manipulations:

The NAT_IP manipulation is to NAT the To, From, Remote-Party-ID and the Diversion headers from the INVITE messages to the local SBC interface IP.

Add_ingress_header stores the RTP IP and port of the SBC interface towards CUCM and inserts it in the ingress_header_sdp_info uri param in the Contact header (need to check with Nice why is this needed) in the INVITE going from the SBC to the CUCM. This ingress_header_sdp_info parameter in the Contact header is stripped off in the ACK coming from the CUCM and inserted into a new header X-ingress towards the SBC.

StripPrefix SIP manipulation is added on the out-manipulation id of the recording realm. It removes the 00FA08 prefix from the metadata of the INVITE message going to the Nice Recorders.

It is outside the scope of this document to include all the interoperability working information as it will differ in every deployment. Following is the configuration with which the testing has taken place:

```
local-policy
        from-address                            *
        to-address                              *
        source-realm                            Core-ASM
        description
        activate-time
        deactivate-time
        state                                   enabled
        policy-priority                         none
        policy-attribute
                next-hop                                10.31.20.2
                realm                                   Peer-CUCM
                action                                  none
                terminate-recursion                     disabled
                carrier
                start-time                              0000
                end-time                                2400
                days-of-week                            U-S
                cost                                    0
                state                                   enabled
```

```
                app-protocol
                methods
                media-profiles
                lookup                                  single
                next-key
                eloc-str-lkup                           disabled
                eloc-str-match
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
local-policy
        from-address                            *
        to-address                              *
        source-realm                            Peer-CUCM
        description
        activate-time
        deactivate-time
        state                                   enabled
        policy-priority                         none
        policy-attribute
                next-hop                                192.168.240.79
                realm                                   Core-ASM
                action                                  none
                terminate-recursion                     disabled
                carrier
                start-time                              0000
                end-time                                2400
                days-of-week                            U-S
                cost                                    0
                state                                   enabled
                app-protocol
                methods
                media-profiles
                lookup                                  single
                next-key
                eloc-str-lkup                           disabled
                eloc-str-match
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
media-manager
        state                                   enabled
        latching                                enabled
```

```
        flow-time-limit                         86400
        initial-guard-timer                     300
        subsq-guard-timer                       300
        tcp-flow-time-limit                     86400
        tcp-initial-guard-timer                 300
        tcp-subsq-guard-timer                   300
        tcp-number-of-ports-per-flow            2
        hnt-rtcp                                disabled
        algd-log-level                          NOTICE
        mbcd-log-level                          NOTICE
        options
        red-flow-port                           1985
        red-mgcp-port                           1986
        red-max-trans                           10000
        red-sync-start-time                     5000
        red-sync-comp-time                      1000
        media-policing                          enabled
        max-untrusted-packet-rate               50000
        max-trusted-packet-rate                 50000
        max-arp-packet-rate                     1000
        tolerance-window                        30
        trap-on-demote-to-deny                  disabled
        trap-on-demote-to-untrusted             disabled
        syslog-on-demote-to-deny                disabled
        syslog-on-demote-to-untrusted           disabled
        rtcp-rate-limit                         0
        anonymous-sdp                           disabled
        rfc2833-timestamp                       disabled
        default-2833-duration                   100
        rfc2833-end-pkts-only-for-non-sig       enabled
        translate-non-rfc2833-event             disabled
        media-supervision-traps                 disabled
        dnsalg-server-failover                  disabled
        syslog-on-call-reject                   disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
network-interface
        name                                    s0p0
        sub-port-id                             0
        description
        hostname
```

```
        ip-address                              10.31.20.100
        pri-utility-addr
        sec-utility-addr
        netmask                                 255.255.255.0
        gateway                                 10.31.20.1
        sec-gateway
        gw-heartbeat
                state                                   disabled
                heartbeat                               0
                retry-count                             0
                retry-timeout                           1
                health-score                            0
        dns-ip-primary
        dns-ip-backup1
        dns-ip-backup2
        dns-domain
        dns-timeout                             11
        signaling-mtu                           0
        hip-ip-list                             10.31.20.100
                                                10.31.20.101
                                                10.31.20.102
        ftp-address
        icmp-address                            10.31.20.100
                                                10.31.20.101
                                                10.31.20.102
        snmp-address
        telnet-address
        ssh-address
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
network-interface
        name                                    s0p1
        sub-port-id                             0
        description
        hostname
        ip-address                              172.21.13.77
        pri-utility-addr
        sec-utility-addr
        netmask                                 255.255.255.0
        gateway                                 172.21.13.1
        sec-gateway
```

```
        gw-heartbeat
                state                                   disabled
                heartbeat                               0
                retry-count                             0
                retry-timeout                           1
                health-score                            0
        dns-ip-primary
        dns-ip-backup1
        dns-ip-backup2
        dns-domain
        dns-timeout                             11
        signaling-mtu                           0
        hip-ip-list                             172.21.13.77
                                                172.21.13.78
                                                172.21.13.79
                                                172.21.13.88
        ftp-address
        icmp-address                            172.21.13.77
                                                172.21.13.78
                                                172.21.13.79
                                                172.21.13.88
        snmp-address
        telnet-address
        ssh-address
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
network-parameters
        tcp-keepinit-timer                      75
        tcp-keepalive-count                     4
        tcp-keepalive-idle-timer                400
        tcp-keepalive-interval-timer            75
        tcp-keepalive-mode                      0
        sctp-send-mode                          unordered
        sctp-rto-initial                        3000
        sctp-rto-max                            60000
        sctp-rto-min                            1000
        sctp-hb-interval                        30000
        sctp-max-burst                          4
        sctp-sack-timeout                       200
        sctp-assoc-max-retrans                  10
        sctp-path-max-retrans                   5
```

```
        options
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-13 11:52:54
phy-interface
        name                                    s0p0
        operation-type                          Media
        port                                    0
        slot                                    0
        virtual-mac
        admin-state                             enabled
        auto-negotiation                        enabled
        duplex-mode                             FULL
        speed                                   100
        wancom-health-score                     50
        overload-protection                     disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
phy-interface
        name                                    s0p1
        operation-type                          Media
        port                                    1
        slot                                    0
        virtual-mac
        admin-state                             enabled
        auto-negotiation                        enabled
        duplex-mode                             FULL
        speed                                   100
        wancom-health-score                     50
        overload-protection                     disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
realm-config
        identifier                              Core-ASM
        description                             Avaya SM
        addr-prefix                             0.0.0.0
        network-interfaces                      s0p1:0
        mm-in-realm                             disabled
        mm-in-network                           enabled
        mm-same-ip                              enabled
        mm-in-system                            enabled
        bw-cac-non-mm                           disabled
```

```
        msm-release                          disabled
        qos-enable                           disabled
        max-bandwidth                        0
        fallback-bandwidth                   0
        max-priority-bandwidth               0
        max-latency                          0
        max-jitter                           0
        max-packet-loss                      0
        observ-window-size                   0
        parent-realm
        dns-realm
        media-policy
        class-profile
        in-translationid                     fromAvaya
        out-translationid
        in-manipulationid
        out-manipulationid                   NAT_IP
        average-rate-limit                   0
        access-control-trust-level           none
        invalid-signal-threshold             0
        maximum-signal-threshold             0
        untrusted-signal-threshold           0
        nat-trust-threshold                  0
        max-endpoints-per-nat                0
        nat-invalid-message-threshold        0
        wait-time-for-invalid-register       0
        deny-period                          30
        cac-failure-threshold                0
        untrust-cac-failure-threshold        0
        ext-policy-svr
        diam-e2-address-realm
        subscription-id-type                 END_USER_NONE
        symmetric-latching                   disabled
        pai-strip                            disabled
        trunk-context
        device-id
        early-media-allow
        enforcement-profile
        additional-prefixes
        restricted-latching                  none
        restriction-mask                     32
```

```
        user-cac-mode                           none
        user-cac-bandwidth                      0
        user-cac-sessions                       0
        icmp-detect-multiplier                  0
        icmp-advertisement-interval             0
        icmp-target-ip
        monthly-minutes                         0
        options
        spl-options
        accounting-enable                       enabled
        net-management-control                  disabled
        delay-media-update                      disabled
        refer-call-transfer                     disabled
        refer-notify-provisional                none
        dyn-refer-term                          disabled
        codec-policy
        codec-manip-in-realm                    disabled
        codec-manip-in-network                  enabled
        rtcp-policy
        constraint-name
        session-recording-server
        session-recording-required              disabled
        manipulation-string
        manipulation-pattern
        stun-enable                             disabled
        stun-server-ip                          0.0.0.0
        stun-server-port                        3478
        stun-changed-ip                         0.0.0.0
        stun-changed-port                       3479
        sip-profile
        sip-isup-profile
        match-media-profiles
        qos-constraint
        block-rtcp                              disabled
        hide-egress-media-update                disabled
        tcp-media-profile
        monitoring-filters
        node-functionality
        default-location-string
        alt-family-realm
        pref-addr-type                          none
```

```
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
realm-config
        identifier                              Peer-CUCM
        description
        addr-prefix                             0.0.0.0
        network-interfaces                      s0p0:0
        mm-in-realm                             disabled
        mm-in-network                           enabled
        mm-same-ip                              enabled
        mm-in-system                            enabled
        bw-cac-non-mm                           disabled
        msm-release                             disabled
        qos-enable                              disabled
        max-bandwidth                           0
        fallback-bandwidth                      0
        max-priority-bandwidth                  0
        max-latency                             0
        max-jitter                              0
        max-packet-loss                         0
        observ-window-size                      0
        parent-realm
        dns-realm
        media-policy
        class-profile
        in-translationid
        out-translationid
        in-manipulationid
        out-manipulationid                      NAT_IP
        average-rate-limit                      0
        access-control-trust-level              none
        invalid-signal-threshold                0
        maximum-signal-threshold                0
        untrusted-signal-threshold              0
        nat-trust-threshold                     0
        max-endpoints-per-nat                   0
        nat-invalid-message-threshold           0
        wait-time-for-invalid-register          0
        deny-period                             30
        cac-failure-threshold                   0
        untrust-cac-failure-threshold           0
```

```
        ext-policy-svr
        diam-e2-address-realm
        subscription-id-type                    END_USER_NONE
        symmetric-latching                      disabled
        pai-strip                               disabled
        trunk-context
        device-id
        early-media-allow
        enforcement-profile
        additional-prefixes
        restricted-latching                     none
        restriction-mask                        32
        user-cac-mode                           none
        user-cac-bandwidth                      0
        user-cac-sessions                       0
        icmp-detect-multiplier                  0
        icmp-advertisement-interval             0
        icmp-target-ip
        monthly-minutes                         0
        options
        spl-options
        accounting-enable                       enabled
        net-management-control                  disabled
        delay-media-update                      disabled
        refer-call-transfer                     disabled
        refer-notify-provisional                none
        dyn-refer-term                          disabled
        codec-policy
        codec-manip-in-realm                    disabled
        codec-manip-in-network                  enabled
        rtcp-policy
        constraint-name
        session-recording-server
        session-recording-required              disabled
        manipulation-string
        manipulation-pattern
        stun-enable                             disabled
        stun-server-ip                          0.0.0.0
        stun-server-port                        3478
        stun-changed-ip                         0.0.0.0
        stun-changed-port                       3479
```

```
        sip-profile
        sip-isup-profile
        match-media-profiles
        qos-constraint
        block-rtcp                          disabled
        hide-egress-media-update            disabled
        tcp-media-profile
        monitoring-filters
        node-functionality
        default-location-string
        alt-family-realm
        pref-addr-type                      none
        last-modified-by                    admin@172.28.183.62
        last-modified-date                  2014-10-19 11:23:47
realm-config
        identifier                          recording-realm
        description
        addr-prefix                         0.0.0.0
        network-interfaces                  s0p1:0
        mm-in-realm                         disabled
        mm-in-network                       enabled
        mm-same-ip                          enabled
        mm-in-system                        enabled
        bw-cac-non-mm                       disabled
        msm-release                         disabled
        qos-enable                          disabled
        max-bandwidth                       0
        fallback-bandwidth                  0
        max-priority-bandwidth              0
        max-latency                         0
        max-jitter                          0
        max-packet-loss                     0
        observ-window-size                  0
        parent-realm
        dns-realm
        media-policy
        class-profile
        in-translationid
        out-translationid
        in-manipulationid
        out-manipulationid                  StripPrefix
```

```
        average-rate-limit                      0
        access-control-trust-level              none
        invalid-signal-threshold                0
        maximum-signal-threshold                0
        untrusted-signal-threshold              0
        nat-trust-threshold                     0
        max-endpoints-per-nat                   0
        nat-invalid-message-threshold           0
        wait-time-for-invalid-register          0
        deny-period                             30
        cac-failure-threshold                   0
        untrust-cac-failure-threshold           0
        ext-policy-svr
        diam-e2-address-realm
        subscription-id-type                    END_USER_NONE
        symmetric-latching                      disabled
        pai-strip                               disabled
        trunk-context
        device-id
        early-media-allow
        enforcement-profile
        additional-prefixes
        restricted-latching                     none
        restriction-mask                        32
        user-cac-mode                           none
        user-cac-bandwidth                      0
        user-cac-sessions                       0
        icmp-detect-multiplier                  0
        icmp-advertisement-interval             0
        icmp-target-ip
        monthly-minutes                         0
        options
        spl-options
        accounting-enable                       enabled
        net-management-control                  disabled
        delay-media-update                      disabled
        refer-call-transfer                     disabled
        refer-notify-provisional                none
        dyn-refer-term                          disabled
        codec-policy
        codec-manip-in-realm                    disabled
```

```
        codec-manip-in-network                enabled
        rtcp-policy
        constraint-name
        session-recording-server
        session-recording-required            disabled
        manipulation-string
        manipulation-pattern
        stun-enable                           disabled
        stun-server-ip                        0.0.0.0
        stun-server-port                      3478
        stun-changed-ip                       0.0.0.0
        stun-changed-port                     3479
        sip-profile
        sip-isup-profile
        match-media-profiles
        qos-constraint
        block-rtcp                            disabled
        hide-egress-media-update              disabled
        tcp-media-profile
        monitoring-filters
        node-functionality
        default-location-string
        alt-family-realm
        pref-addr-type                        none
        last-modified-by                      admin@172.28.183.62
        last-modified-date                    2014-10-19 11:23:47
session-agent
        hostname                              10.31.20.2
        ip-address                            10.31.20.2
        port                                  5060
        state                                 enabled
        app-protocol                          SIP
        app-type
        transport-method                      StaticTCP
        realm-id                              Peer-CUCM
        egress-realm-id
        description                           ToCUCM_SBC
        carriers
        allow-next-hop-lp                     enabled
        constraints                           disabled
        max-sessions                          0
```

```
        max-inbound-sessions                    0
        max-outbound-sessions                   0
        max-burst-rate                          0
        max-inbound-burst-rate                  0
        max-outbound-burst-rate                 0
        max-sustain-rate                        0
        max-inbound-sustain-rate                0
        max-outbound-sustain-rate               0
        min-seizures                            5
        min-asr                                 0
        time-to-resume                          0
        ttr-no-response                         0
        in-service-period                       0
        burst-rate-window                       0
        sustain-rate-window                     0
        req-uri-carrier-mode                    None
        proxy-mode
        redirect-action
        loose-routing                           enabled
        send-media-session                      enabled
        response-map
        ping-method
        ping-interval                           0
        ping-send-mode                          keep-alive
        ping-all-addresses                      disabled
        ping-in-service-response-codes
        out-service-response-codes
        load-balance-dns-query                  hunt
        options
        spl-options
        media-profiles
        in-translationid
        out-translationid
        trust-me                                disabled
        request-uri-headers
        stop-recurse
        local-response-map
        ping-to-user-part
        ping-from-user-part
        in-manipulationid
        out-manipulationid                      Add_ingress_header
```

```
        manipulation-string
        manipulation-pattern
        p-asserted-id
        trunk-group
        max-register-sustain-rate               0
        early-media-allow
        invalidate-registrations                disabled
        rfc2833-mode                            none
        rfc2833-payload                         0
        codec-policy
        enforcement-profile
        refer-call-transfer                     enabled
        refer-notify-provisional                none
        reuse-connections                       NONE
        tcp-keepalive                           none
        tcp-reconn-interval                     0
        max-register-burst-rate                 0
        register-burst-window                   0
        sip-profile
        sip-isup-profile
        kpml-interworking                       inherit
        monitoring-filters
        session-recording-server
        session-recording-required              disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-agent
        hostname                                192.168.240.79
        ip-address                              192.168.240.79
        port                                    5060
        state                                   enabled
        app-protocol                            SIP
        app-type
        transport-method                        StaticTCP
        realm-id                                Core-ASM
        egress-realm-id
        description                             ToAvayaSessionManager
        carriers
        allow-next-hop-lp                       enabled
        constraints                             disabled
        max-sessions                            0
```

```
        max-inbound-sessions                    0
        max-outbound-sessions                   0
        max-burst-rate                          0
        max-inbound-burst-rate                  0
        max-outbound-burst-rate                 0
        max-sustain-rate                        0
        max-inbound-sustain-rate                0
        max-outbound-sustain-rate               0
        min-seizures                            5
        min-asr                                 0
        time-to-resume                          0
        ttr-no-response                         0
        in-service-period                       0
        burst-rate-window                       0
        sustain-rate-window                     0
        req-uri-carrier-mode                    None
        proxy-mode
        redirect-action
        loose-routing                           enabled
        send-media-session                      enabled
        response-map
        ping-method                             OPTIONS;hops=0
        ping-interval                           60
        ping-send-mode                          keep-alive
        ping-all-addresses                      disabled
        ping-in-service-response-codes
        out-service-response-codes
        load-balance-dns-query                  hunt
        options
        spl-options
        media-profiles
        in-translationid
        out-translationid
        trust-me                                disabled
        request-uri-headers
        stop-recurse
        local-response-map
        ping-to-user-part
        ping-from-user-part
        in-manipulationid
        out-manipulationid
```

```
        manipulation-string
        manipulation-pattern
        p-asserted-id
        trunk-group
        max-register-sustain-rate               0
        early-media-allow
        invalidate-registrations                disabled
        rfc2833-mode                            none
        rfc2833-payload                         0
        codec-policy
        enforcement-profile
        refer-call-transfer                     enabled
        refer-notify-provisional                none
        reuse-connections                       NONE
        tcp-keepalive                           none
        tcp-reconn-interval                     0
        max-register-burst-rate                 0
        register-burst-window                   0
        sip-profile
        sip-isup-profile
        kpml-interworking                       inherit
        monitoring-filters
        session-recording-server
        session-recording-required              disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-recording-group
        name                                    NICERecordingServer
        description                             AvayaASM
        strategy                                RoundRobin
        simultaneous-recording-servers          1
        session-recording-servers               VRSP1
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-recording-server
        name                                    VRSP1
        description                             172.17.3.65
        realm                                   recording-realm
        mode                                    selective
        destination                             172.17.3.65
        port                                    5060
```

```
        transport-method                UDP
        ping-method
        ping-interval                   0
        last-modified-by                admin@172.29.58.27
        last-modified-date              2015-02-26 14:49:52
session-recording-server
        name                            VRSP2
        description                     172.28.183.62
        realm                           recording-realm
        mode                            selective
        destination                     172.28.183.62
        port                            5060
        transport-method                UDP
        ping-method
        ping-interval                   0
        last-modified-by                admin@172.28.183.62
        last-modified-date              2015-01-05 15:27:43
session-recording-server
        name                            VRSP3
        description                     1.9.80.65
        realm                           recording-realm
        mode                            selective
        destination                     1.9.80.65
        port                            5060
        transport-method                UDP
        ping-method
        ping-interval                   0
        last-modified-by                admin@172.28.183.62
        last-modified-date              2015-01-06 07:40:16
session-recording-server
        name                            VRSP4
        description                     1.9.80.66
        realm                           recording-realm
        mode                            selective
        destination                     1.9.80.66
        port                            5060
        transport-method                UDP
        ping-method
        ping-interval                   0
        last-modified-by                admin@172.28.183.62
        last-modified-date              2015-01-04 11:47:43
```

```
session-recording-server
        name                                    VRSP5
        description                             1.9.66.92
        realm                                   recording-realm
        mode                                    selective
        destination                             1.9.66.92
        port                                    5060
        transport-method                        UDP
        ping-method
        ping-interval                           0
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-recording-server
        name                                    VRSP6
        description                             1.9.14.129
        realm                                   recording-realm
        mode                                    selective
        destination                             1.9.14.129
        port                                    5060
        transport-method                        UDP
        ping-method
        ping-interval                           0
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-recording-server
        name                                    VRSP7
        description                             1.9.14.125
        realm                                   recording-realm
        mode                                    selective
        destination                             1.9.14.125
        port                                    5060
        transport-method                        UDP
        ping-method
        ping-interval                           0
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-recording-server
        name                                    VRSP8
        description                             1.9.66.29
        realm                                   recording-realm
        mode                                    selective
```

```
        destination                             1.9.66.29
        port                                    5060
        transport-method                        UDP
        ping-method
        ping-interval                           0
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-router
        state                                   enabled
        system-number-type                      Pots
        match-lp-src-parent-realm               disabled
        nested-realm-stats                      disabled
        reject-message-threshold                0
        reject-message-window                   10
        force-report-trunk-info                 disabled
        additional-lp-lookups                   0
        max-routes-per-lookup                   1
        total-lp-routes                         0
        multi-stage-src-realm-override          disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-translation
        id                                      fromAvaya
        rules-calling                           del920
        rules-called
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-config
        state                                   enabled
        operation-mode                          dialog
        dialog-transparency                     enabled
        home-realm-id                           Core-ASM
        egress-realm-id
        auto-realm-id
        nat-mode                                None
        registrar-domain                        *
        registrar-host                          *
        registrar-port                          5060
        register-service-route                  always
        init-timer                              500
        max-timer                               4000
```

```
        trans-expire                        32
        initial-inv-trans-expire            0
        invite-expire                       180
        inactive-dynamic-conn               32
        enforcement-profile
        pac-method
        pac-interval                        10
        pac-strategy                        PropDist
        pac-load-weight                     1
        pac-session-weight                  1
        pac-route-weight                    1
        pac-callid-lifetime                 600
        pac-user-lifetime                   3600
        red-sip-port                        1988
        red-max-trans                       10000
        red-sync-start-time                 5000
        red-sync-comp-time                  1000
        options                             max-udp-length=0
                                            reg-cache-mode=from
        add-reason-header                   disabled
        sip-message-len                     4096
        enum-sag-match                      disabled
        extra-method-stats                  disabled
        extra-enum-stats                    disabled
        rph-feature                         disabled
        nsep-user-sessions-rate             0
        nsep-sa-sessions-rate               0
        registration-cache-limit            0
        register-use-to-for-lp              disabled
        refer-src-routing                   disabled
        add-ucid-header                     disabled
        proxy-sub-events
        allow-pani-for-trusted-only         disabled
        atcf-stn-sr
        atcf-psi-dn
        atcf-route-to-sccas                 disabled
        eatf-stn-sr
        pass-gruu-contact                   disabled
        sag-lookup-on-redirect              disabled
        set-disconnect-time-on-bye          disabled
        msrp-delayed-bye-timer              15
```

```
        transcoding-realm
        transcoding-agents
        create-dynamic-sa                       disabled
        node-functionality                      P-CSCF
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-interface
        state                                   enabled
        realm-id                                Core-ASM
        description
        sip-port
                address                                 172.21.13.77
                port                                    5060
                transport-protocol                      UDP
                tls-profile
                allow-anonymous                         all
                multi-home-addrs
                ims-aka-profile
        sip-port
                address                                 172.21.13.77
                port                                    5060
                transport-protocol                      TCP
                tls-profile
                allow-anonymous                         all
                multi-home-addrs
                ims-aka-profile
        carriers
        trans-expire                            0
        initial-inv-trans-expire                0
        invite-expire                           0
        max-redirect-contacts                   0
        proxy-mode
        redirect-action
        contact-mode                            none
        nat-traversal                           none
        nat-interval                            30
        tcp-nat-interval                        90
        registration-caching                    disabled
        min-reg-expire                          300
        registration-interval                   3600
        route-to-registrar                      disabled
```

```
        secured-network                         disabled
        teluri-scheme                           disabled
        uri-fqdn-domain
        options
        spl-options
        trust-mode                              all
        max-nat-interval                        3600
        nat-int-increment                       10
        nat-test-increment                      30
        sip-dynamic-hnt                         disabled
        stop-recurse                            401,407
        port-map-start                          0
        port-map-end                            0
        in-manipulationid
        out-manipulationid
        sip-ims-feature                         disabled
        sip-atcf-feature                        disabled
        subscribe-reg-event                     disabled
        operator-identifier
        anonymous-priority                      none
        max-incoming-conns                      0
        per-src-ip-max-incoming-conns           0
        inactive-conn-timeout                   0
        untrusted-conn-timeout                  0
        network-id
        ext-policy-server
        ldap-policy-server
        default-location-string
        term-tgrp-mode                          none
        charging-vector-mode                    pass
        charging-function-address-mode          pass
        ccf-address
        ecf-address
        implicit-service-route                  disabled
        rfc2833-payload                         101
        rfc2833-mode                            transparent
        constraint-name
        response-map
        local-response-map
        ims-aka-feature                         disabled
        enforcement-profile
```

```
        route-unauthorized-calls
        tcp-keepalive                           none
        add-sdp-invite                          disabled
        add-sdp-profiles
        manipulation-string
        manipulation-pattern
        sip-profile
        sip-isup-profile
        tcp-conn-dereg                          0
        tunnel-name
        register-keep-alive                     none
        kpml-interworking                       disabled
        msrp-delay-egress-bye                   disabled
        send-380-response
        pcscf-restoration
        session-timer-profile
        session-recording-server                SRG:NICERecordingServer
        session-recording-required              disabled
        service-tag
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-interface
        state                                   enabled
        realm-id                                Peer-CUCM
        description
        sip-port
                address                                 10.31.20.100
                port                                    5060
                transport-protocol                      UDP
                tls-profile
                allow-anonymous                         all
                multi-home-addrs
                ims-aka-profile
        sip-port
                address                                 10.31.20.100
                port                                    5060
                transport-protocol                      TCP
                tls-profile
                allow-anonymous                         all
                multi-home-addrs
                ims-aka-profile
```

```
        carriers
        trans-expire                        0
        initial-inv-trans-expire            0
        invite-expire                       0
        max-redirect-contacts               0
        proxy-mode
        redirect-action
        contact-mode                        none
        nat-traversal                       none
        nat-interval                        30
        tcp-nat-interval                    90
        registration-caching                disabled
        min-reg-expire                      300
        registration-interval               3600
        route-to-registrar                  disabled
        secured-network                     disabled
        teluri-scheme                       disabled
        uri-fqdn-domain
        options
        spl-options
        trust-mode                          all
        max-nat-interval                    3600
        nat-int-increment                   10
        nat-test-increment                  30
        sip-dynamic-hnt                     disabled
        stop-recurse                        401,407
        port-map-start                      0
        port-map-end                        0
        in-manipulationid                   fixACK
        out-manipulationid                  Add_ingress_header
        sip-ims-feature                     disabled
        sip-atcf-feature                    disabled
        subscribe-reg-event                 disabled
        operator-identifier
        anonymous-priority                  none
        max-incoming-conns                  0
        per-src-ip-max-incoming-conns       0
        inactive-conn-timeout               0
        untrusted-conn-timeout              0
        network-id
        ext-policy-server
```

```
        ldap-policy-server
        default-location-string
        term-tgrp-mode                          none
        charging-vector-mode                    pass
        charging-function-address-mode          pass
        ccf-address
        ecf-address
        implicit-service-route                  disabled
        rfc2833-payload                         101
        rfc2833-mode                            transparent
        constraint-name
        response-map
        local-response-map
        ims-aka-feature                         disabled
        enforcement-profile
        route-unauthorized-calls
        tcp-keepalive                           none
        add-sdp-invite                          disabled
        add-sdp-profiles
        manipulation-string
        manipulation-pattern
        sip-profile
        sip-isup-profile
        tcp-conn-dereg                          0
        tunnel-name
        register-keep-alive                     none
        kpml-interworking                       disabled
        msrp-delay-egress-bye                   disabled
        send-380-response
        pcscf-restoration
        session-timer-profile
        session-recording-server
        session-recording-required              disabled
        service-tag
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-interface
        state                                   enabled
        realm-id                                recording-realm
        description
        sip-port
```

```
                address                                 172.21.13.79
                port                                    5060
                transport-protocol                      UDP
                tls-profile
                allow-anonymous                         all
                multi-home-addrs
                ims-aka-profile
        sip-port
                address                                 172.21.13.79
                port                                    5060
                transport-protocol                      TCP
                tls-profile
                allow-anonymous                         all
                multi-home-addrs
                ims-aka-profile
        carriers
        trans-expire                            0
        initial-inv-trans-expire                0
        invite-expire                           0
        max-redirect-contacts                   0
        proxy-mode
        redirect-action
        contact-mode                            none
        nat-traversal                           none
        nat-interval                            30
        tcp-nat-interval                        90
        registration-caching                    disabled
        min-reg-expire                          300
        registration-interval                   3600
        route-to-registrar                      disabled
        secured-network                         disabled
        teluri-scheme                           disabled
        uri-fqdn-domain
        options
        spl-options
        trust-mode                              all
        max-nat-interval                        3600
        nat-int-increment                       10
        nat-test-increment                      30
        sip-dynamic-hnt                         disabled
        stop-recurse                            401,407
```

```
        port-map-start                          0
        port-map-end                            0
        in-manipulationid
        out-manipulationid                      StripPrefix
        sip-ims-feature                         disabled
        sip-atcf-feature                        disabled
        subscribe-reg-event                     disabled
        operator-identifier
        anonymous-priority                      none
        max-incoming-conns                      0
        per-src-ip-max-incoming-conns           0
        inactive-conn-timeout                   0
        untrusted-conn-timeout                  0
        network-id
        ext-policy-server
        ldap-policy-server
        default-location-string
        term-tgrp-mode                          none
        charging-vector-mode                    pass
        charging-function-address-mode          pass
        ccf-address
        ecf-address
        implicit-service-route                  disabled
        rfc2833-payload                         101
        rfc2833-mode                            transparent
        constraint-name
        response-map
        local-response-map
        ims-aka-feature                         disabled
        enforcement-profile
        route-unauthorized-calls
        tcp-keepalive                           none
        add-sdp-invite                          disabled
        add-sdp-profiles
        manipulation-string
        manipulation-pattern
        sip-profile
        sip-isup-profile
        tcp-conn-dereg                          0
        tunnel-name
        register-keep-alive                     none
```

```
        kpml-interworking                       disabled
        msrp-delay-egress-bye                   disabled
        send-380-response
        pcscf-restoration
        session-timer-profile
        session-recording-server
        session-recording-required              disabled
        service-tag
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-manipulation
        name                                    Add_ingress_header
        description
        split-headers
        join-headers
        header-rule
                name                                    Get_rtp_port
                header-name                             Content-Type
                action                                  store
                comparison-type                         pattern-rule
                msg-type                                reply
                methods                                 INVITE
                match-value
                new-value
                element-rule
                        name                                    StoreRtpPort
                        parameter-name                          application/sdp
                        type                                    mime
                        action                                  store
                        match-val-type                          any
                        comparison-type                         pattern-rule
                        match-value                     (m=audio )(.*)( RTP/AVP )(.*)
                        new-value                               ""
                element-rule
                        name                                    StoreRtpIP
                        parameter-name                          application/sdp
                        type                                    mime
                        action                                  store
                        match-val-type                          any
                        comparison-type                         pattern-rule
                        match-value                             (c=IN IP4 )(.*)
```

```
                        new-value                                       ""
        header-rule
                name                                            add_ingress_header
                header-name                                     Contact
                action                                          manipulate
                comparison-type                                 case-sensitive
                msg-type                                        reply
                methods                                         INVITE
                match-value
                new-value
                element-rule
                        name                                            append_contact
                        parameter-name                        ingress_header_sdp_info
                        type                                            uri-param
                        action                                          add
                        match-val-type                                  any
                        comparison-type                                 case-sensitive
                        match-value
                        new-value
$Get_rtp_port.$StoreRtpIP.$2+":"+$Get_rtp_port.$StoreRtpPort.$2
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-manipulation
        name                                    NAT_IP
        description
        split-headers
        join-headers
        header-rule
                name                                            To
                header-name                                     To
                action                                          manipulate
                comparison-type                                 case-sensitive
                msg-type                                        request
                methods
                match-value
                new-value
                element-rule
                        name                                            To
                        parameter-name
                        type                                            uri-host
                        action                                          replace
```

```
                match-val-type                          ip
                comparison-type                         case-sensitive
                match-value
                new-value                               $REMOTE_IP
        header-rule
                name                                    From
                header-name                             From
                action                                  manipulate
                comparison-type                         case-sensitive
                msg-type                                request
                methods
                match-value
                new-value
                element-rule
                        name                            From
                        parameter-name
                        type                            uri-host
                        action                          replace
                        match-val-type                  ip
                        comparison-type                 case-sensitive
                        match-value
                        new-value                       $LOCAL_IP
        header-rule
                name                                    RemotePartyID
                header-name                             Remote-Party-ID
                action                                  manipulate
                comparison-type                         case-sensitive
                msg-type                                request
                methods
                match-value
                new-value
                element-rule
                        name                            RemotePartyID
                        parameter-name
                        type                            uri-host
                        action                          replace
                        match-val-type                  ip
                        comparison-type                 case-sensitive
                        match-value
                        new-value                       $LOCAL_IP
        header-rule
```

```
                name                                    manipDiv
                header-name                             Diversion
                action                                  manipulate
                comparison-type                         case-sensitive
                msg-type                                request
                methods
                match-value
                new-value
                element-rule
                        name                                    div
                        parameter-name
                        type                                    uri-host
                        action                                  replace
                        match-val-type                          any
                        comparison-type                         case-sensitive
                        match-value
                        new-value                               $LOCAL_IP
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-manipulation
        name                                    StripPrefix
        description
        split-headers
        join-headers
        header-rule
                name                                    STripPrefix
                header-name                             Content-Type
                action                                  manipulate
                comparison-type                         pattern-rule
                msg-type                                any
                methods                                 INVITE
                match-value
                new-value
                element-rule
                        name                                    RemovePrefix
                        parameter-name                application/rs-metadata+xml
                        type                                    mime
                        action                                  find-replace-all
                        match-val-type                          any
                        comparison-type                         pattern-rule
                        match-value                       (00FA08)(.*)[a-zA-Z0-9]*
```

```
                        new-value                                   $2
        last-modified-by                            admin@172.28.183.62
        last-modified-date                          2014-10-19 11:23:47
sip-manipulation
        name                                        fixACK
        description
        split-headers
        join-headers
        header-rule
                name                                        StoreIngress
                header-name                                 request-uri
                action                                      store
                comparison-type                             case-sensitive
                msg-type                                    request
                methods                                     ACK
                match-value
                new-value
                element-rule
                        name                                        extract_acme_sdp
                        parameter-name                    ingress_header_sdp_info
                        type                                        uri-param
                        action                                      store
                        match-val-type                              any
                        comparison-type                             case-sensitive
                        match-value
                        new-value
        header-rule
                name                                        append_header
                header-name                                 x-ingress
                action                                      add
                comparison-type                             case-sensitive
                msg-type                                    any
                methods
                match-value
                new-value           "<sip:"+$StoreIngress.$extract_acme_sdp.$0+">"
        header-rule
                name                                        delete_acme_sdp
                header-name                                 request-uri
                action                                      manipulate
                comparison-type                             case-sensitive
                msg-type                                    request
```

```
                methods                                 ACK
                match-value
                new-value
                element-rule
                        name                                    del_sdp
                        parameter-name                  ingress_header_sdp_info
                        type                                    uri-param
                        action                                  delete-element
                        match-val-type                          any
                        comparison-type                         case-sensitive
                        match-value
                        new-value
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
spl-config
        spl-options                             UCID-App-ID=0019
        plugins
                state                           enabled
                name                            AvayaCiscoUCID64.4.spl
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
steering-pool
        ip-address                              10.31.20.100
        start-port                              20000
        end-port                                49999
        realm-id                                Peer-CUCM
        network-interface
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
steering-pool
        ip-address                              172.21.13.77
        start-port                              20000
        end-port                                49999
        realm-id                                Core-ASM
        network-interface
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
steering-pool
        ip-address                              172.21.13.79
        start-port                              20000
        end-port                                49999
```

```
        realm-id                                recording-realm
        network-interface
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
system-config
        hostname                                ACMEVM4500
        description
        location
        mib-system-contact
        mib-system-name
        mib-system-location                     IL-RN-201-VE0-XX-XX-V-APP
        snmp-enabled                            enabled
        enable-snmp-auth-traps                  disabled
        enable-snmp-syslog-notify               disabled
        enable-snmp-monitor-traps               disabled
        enable-env-monitor-traps                disabled
        snmp-syslog-his-table-length            1
        snmp-syslog-level                       WARNING
        system-log-level                        WARNING
        process-log-level                       NOTICE
        process-log-ip-address                  0.0.0.0
        process-log-port                        0
        collect
                sample-interval                         5
                push-interval                           15
                boot-state                              disabled
                start-time                              now
                end-time                                never
                red-collect-state                       disabled
                red-max-trans                           1000
                red-sync-start-time                     5000
                red-sync-comp-time                      1000
                push-success-trap-state                 disabled
        comm-monitor
                state                                   disabled
                sbc-grp-id                              0
                tls-profile
                qos-enable                              enabled
        call-trace                              disabled
        internal-trace                          disabled
        log-filter                              all
```

```
        default-gateway                 192.168.240.254
        restart                         enabled
        exceptions
        telnet-timeout                  0
        console-timeout                 0
        remote-control                  enabled
        cli-audit-trail                 enabled
        link-redundancy-state           disabled
        source-routing                  enabled
        cli-more                        disabled
        terminal-height                 24
        debug-timeout                   0
        trap-event-lifetime             0
        ids-syslog-facility             -1
        options
        default-v6-gateway              ::
        ipv6-signaling-mtu              1500
        ipv4-signaling-mtu              1500
        cleanup-time-of-day             00:00
        snmp-engine-id-suffix
        snmp-agent-mode                 v1v2
        last-modified-by                admin@172.29.58.27
        last-modified-date              2015-01-12 08:02:52
translation-rules
        id                              del920
        type                            delete
        add-string
        add-index                       0
        delete-string                   +920
        delete-index                    0
        last-modified-by                admin@172.28.183.62
        last-modified-date              2014-10-19 11:23:47
web-server-config
        state                           enabled
        inactivity-timeout              5
        http-state                      enabled
        http-port                       80
        https-state                     disabled
        https-port                      443
        tls-profile
        last-modified-by                admin@172.28.183.62
```

```
        last-modified-date                      2014-11-06 12:48:35
```

Verify configuration integrity

You will verify your configuration referential integrity before saving and activating it with the verify-**config** command. This command is available from Superuser Mode. To enter the Superuser Mode from session-agent, you issue the **exit** command three times.

```
ACMESYSTEM# verify-config
-------------------------------------------------------------------------

Verification successful! No errors nor warnings in the configuration
```

Save and activate your configuration

You will now save your configuration with the **save-config** command. This will make it persistent through reboots, but it will not take effect until after you issue the **activate-config** command.

```
ACMESYSTEM# save-config
checking configuration
Save-Config received, processing.
waiting for request to finish
Request to 'SAVE-CONFIG' has Finished,
Save complete
Currently active and saved configurations do not match!
To sync & activate, run 'activate-config' or 'reboot activate'.

ACMESYSTEM# activate-config
Activate-Config received, processing.
waiting for request to finish
Setting phy0 on Slot=0, Port=0, MAC=00:08:25:03:FC:43,
VMAC=00:08:25:03:FC:43
Setting phy1 on Slot=1, Port=0, MAC=00:08:25:03:FC:45,
VMAC=00:08:25:03:FC:45
Request to 'ACTIVATE-CONFIG' has Finished,
Activate Complete
```

Test Plan Executed

Following is the test plan executed for Avaya TSAPI and the results have been documented below.

#	Test name	Scenario	Expected result
1	ACME SBC with Avaya TSAPI DMCC configuration by CTI Connection Wizard	Make appropriate configuration in Nice System Administrator	Configuration successful. On Apply all components are started and connected.
2	Call Scenarios - Incoming call	Make Incoming call to Agent. After call is closed - make playback.	Conversation recorded successfully using ACME SBC and can be played back.
3	Call Scenarios - Outgoing call	Make Outgoing call to External number from agent desktop. After call is closed - make playback.	Conversation recorded successfully using ACME SBC and can be played back.
4	Call Scenarios - Internal calls	Make Internal call between Agents desktops.	Conversation recorded successfully using Avaya DMCC and can be played back.
5	Call Scenarios - Incoming consult conference with internal agent	Make Incoming call to Agent A. Agent A makes consultation with Agent B. Agent A initialize conference with Agent B and External participant. Agent B hangs up. Agent A and External participants proceed talking.	All conversation recorded successfully. Internal part recorded using Avaya DMCC. Interactions with External participant recorded using ACME SBC. Playback fine.
6	Call Scenarios - Incoming consult transfer with internal agent	Make Incoming call to Agent A. Agent A makes consultation with Agent B. Agent A makes transfer of External participant to Agent B. Agent B and External participants proceed talking.	All conversation recorded successfully. Internal part recorded using Avaya DMCC. Interactions with External participant recorded using ACME SBC. Playback fine.
7	Call Scenarios - Outgoing consult conference with internal agent	Make Outgoing call from Agent A. Agent A makes consultation with Agent B. Agent A initializes conference with Agent B and External participant. Agent B hangs up. Agent A and External participants proceed talking.	All conversation recorded successfully. Internal part recorded using Avaya DMCC. Interactions with External participant recorded using ACME SBC. Playback fine.

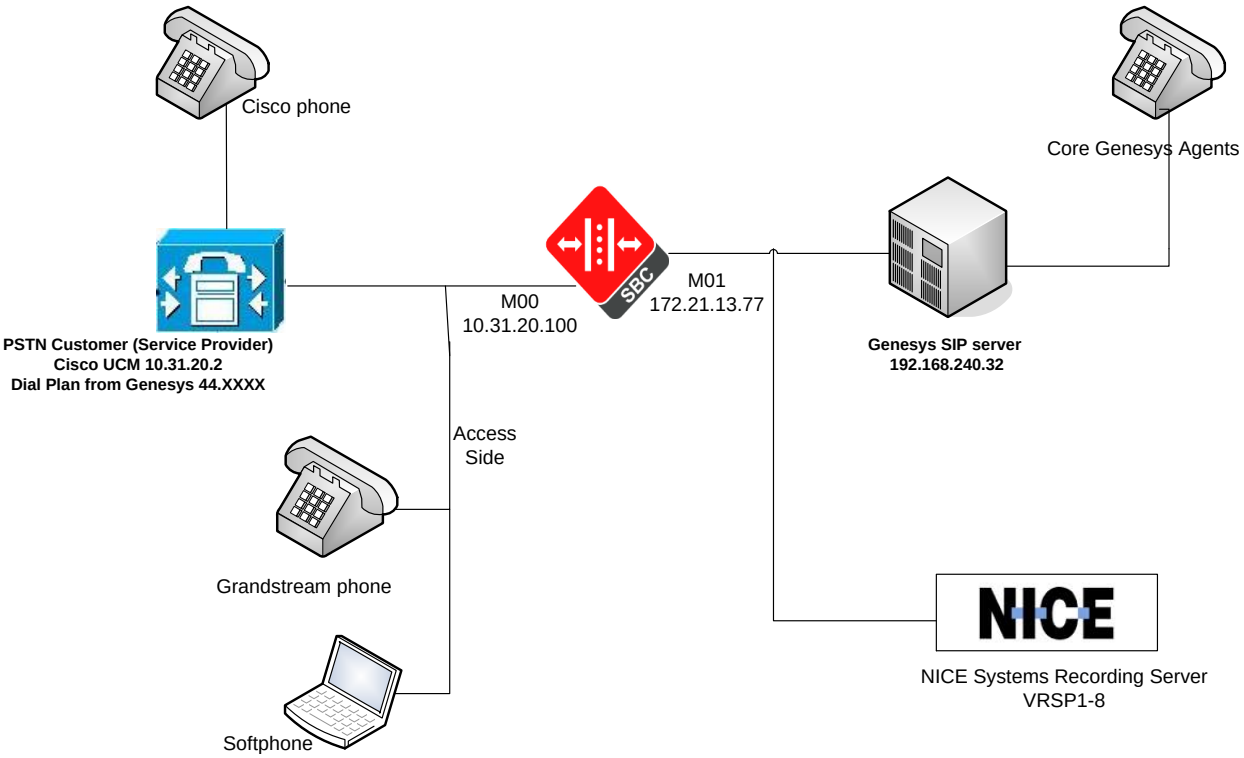
8	Call Scenarios - Outgoing consult transfer with internal agent	Make Outgoing call from Agent A. Agent A makes consultation with Agent B. Agent A makes transfer of External participant to Agent B. Agent B and External participants proceed talking.	All conversation recorded successfully. Internal part recorded using Avaya DMCC. Interactions with External participant recorded using ACME SBC. Playback fine.
9	Call Scenarios - Incoming blind conference with internal agent	Make Incoming call to Agent A. Agent A makes blind conference with Agent B and External participant. Agent B hangs up. Agent A and External participants proceed talking.	All conversation recorded successfully. Internal part recorded using Avaya DMCC. Interactions with External participant recorded using ACME SBC. Playback fine.
10	Call Scenarios - Incoming blind transfer with internal agent	Make Incoming call to Agent A. Agent A makes blind transfer of External participant to Agent B. Agent B and External participants proceed talking.	All conversation recorded successfully. Internal part recorded using Avaya DMCC. Interactions with External participant recorded using ACME SBC. Playback fine.
11	Call Scenarios - Outgoing blind conference with internal agent	Make Outgoing call from Agent A. Agent A makes blind conference with Agent B and External participant. Agent B hangs up. Agent A and External participants proceed talking.	All conversation recorded successfully. Internal part recorded using Avaya DMCC. Interactions with External participant recorded using ACME SBC. Playback fine.
12	Call Scenarios - Outgoing blind transfer with internal agent	Make Outgoing call from Agent A. Agent A makes blind transfer of External participant to Agent B. Agent B and External participants proceed talking.	All conversation recorded successfully. Internal part recorded using Avaya DMCC. Interactions with External participant recorded using ACME SBC. Playback fine.
13	Call Scenarios - Agent Login	Make Avaya agent login into desktop. Make Incoming call. Make Outgoing call. Make Internal call.	Nice server received Agent Login event. Agent identity appears in Nice Monitor application. External calls recorded using ACME SBC. Internal call recorded using Avaya DMCC.

			Playback fine.
14	Call Scenarios - Agent Logout	Make Avaya agent logout from desktop. Make Incoming call. Make Outgoing call. Make Internal call.	Nice server received Agent Logout event. Agent identity cleared from Nice Monitor application. External calls recorded using ACME SBC. Internal call recorded using Avaya DMCC. Playback fine.
15	Call Scenarios - Short call	Make a set of short call (~2-4 sec) with different directions.	Calls correlated between ACME SBC and Avaya successfully.
16	Call Scenarios - Long call	Make a set of long call (~4 hours) with different directions.	All calls are fully recorded and can be played back.
17	Call Scenarios - Simultaneous calls	Make a set of simultaneous calls with different directions.	Verify that each call recorded on separate channel. Verify that each call can be played back.
18	Disconnections - Long LAN disconnection for Nice server	Make few calls with different directions. Disconnect LAN from Nice server for at least 12 hours. Reconnect network cable back. Make few test calls.	Verify that calls are recorded until the moment of disconnection. Verify no memory leaks during LAN disconnection. After connection was restored - all calls recorded successfully.
19	Disconnections - Avaya AES disconnection	Make few calls with different directions. Disconnect network from Avaya AES server. Reconnect network cable back. Make few test calls.	Verify that calls are recorded until the moment of disconnection. After connection was restored - all calls recorded successfully.

Oracle SBC with NICE Recorder in a Genesys environment

Architecture

The following reference architecture shows a logical view of the connectivity between Genesys, Cisco, NICE Recorder and the SBC.



As shown in the network diagram, the SBC is connected as an edge component in a Genesys enterprise environment. The core side of the Enterprise consists of Genesys SIP server and a phone registered to it. There are two phones registered to the Genesys through a SIP trunk through the Oracle SBC on the Access side. For the purpose of this interop testing, the calls are tested from a Cisco Enterprise to the Genesys phones in the core through the Oracle Communications SBC; and from the Genesys phones in the access to the phone in the core.

The SBC supports the SIP Recording (SIPREC) standard as per RFC 6341 which is used for recording the call and sending the recorded stream to the NICE recorders. The SIPREC protocol is the protocol used to interact between a Session Recording Client (SRC - the role performed by Oracle SBC) and a Session Recording Server (SRS- Nice recorder).

NICE Interaction Management can record multiple media— digital and analog—in TDM, voice over IP (VoIP), session initiation protocol (SIP)-based and hybrid environments. The Nice Interactions Center receives the call status, monitors call events, and stores them in its databases for other system functions such as queries, reports, etc. and uses them when interaction-based recordings are implemented to determine whether to record a call.

NICE VoIP Logger: A Logger was setup for Active Recording and is used in an Active VoIP Recording environment. The NICE VoIP recording solution enables customers to effectively capture, evaluate, analyze and improve multimedia interactions taking place on an IP network. Once the VoIP audio is recorded, it can be saved, archived, queried, and played back as easily as analog or digital recorded audio.

Voice Recording SIP Proxy (VRSP): The VRSP functions as a SIP Proxy. It is used to set up SIP-based calls between the SBC and the NICE VoIP Logger. It is recommended to deploy VRSP redundancy in order to guarantee recording.

Configuring the Oracle Communications SBC

In this section we describe the steps for configuring an Oracle Communications Session Border Controller, formally known as an Acme Packet Net-Net Session Director ("SBC").

In Scope

The following step-by-step guide configuring the Oracle SBC assumes that this is a newly deployed device dedicated to a single customer. This testing was done without redundancy due to resource limitation.

Note that Oracle offers several models of SBC. This document covers the setup for the 3820 and 4500 platform series running Net-Net OS SCZ 7.2p2 or later. If instructions are needed for other Oracle SBC models, please contact your Oracle representative.

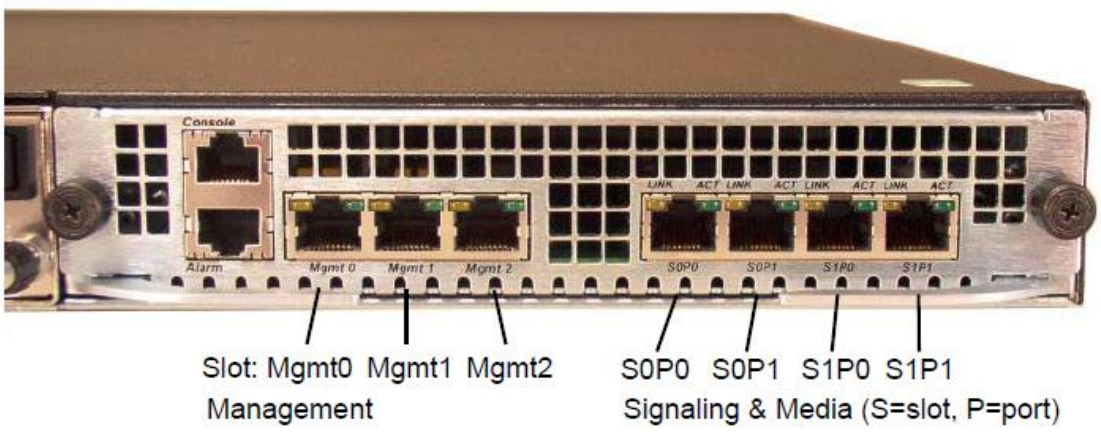
Out of Scope

- Configuration of Network management including SNMP and RADIUS; and
- Complete configuration of the Genesys SIP server, Cisco UCM and the NICE recorder.

What will you need

- Serial Console cross over cable with RJ-45 connector
- Terminal emulation application such as PuTTY or HyperTerm
- Passwords for the User and Superuser modes on the Oracle SBC
- IP address to be assigned to management interface (Wancom0) of the SBC - the Wancom0 management interface must be connected and configured to a management network separate from the service interfaces. Otherwise the SBC is subject to ARP overlap issues, loss of system access when the network is down, and compromising DDoS protection. Oracle does not support SBC configurations with management and media/service interfaces on the same subnet.
- IP address of the Genesys SIP server, CUCM and NICE Recorder
- IP address to be used for the SBC internal and external facing ports (Service Interfaces)

Once the Oracle SBC is racked and the power cable connected, you are ready to set up physical network connectivity.



Plug the slot 0 port 0 (s0p0) interface into your Cisco facing gateway and the slot 0 port 1 (s0p1) interface into Genesys facing gateway. For the purpose of this testing, the NICE recorder is also connected to port s0p1, though it can be connected on a separate network interface too. Once connected, you are ready to power on and perform the following steps.

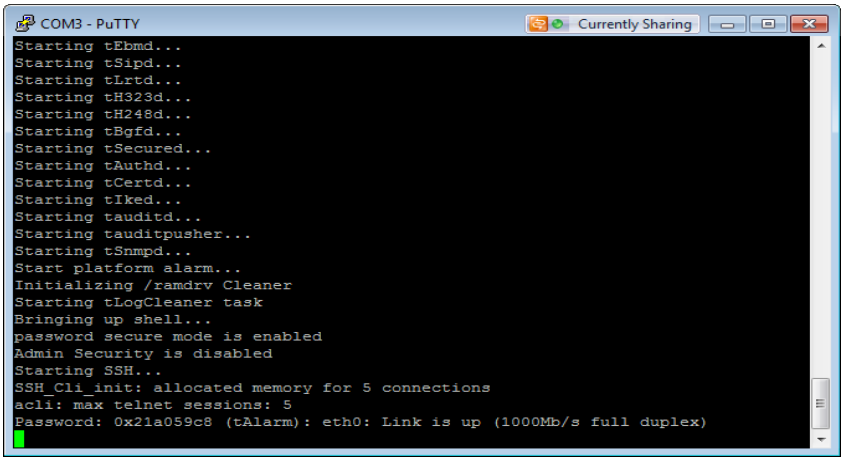
All commands are in bold, such as **`configure terminal`**; parameters in bold red such as ACMESYSTEM are parameters which are specific to an individual deployment. **Note:** The ACLI is case sensitive.

Establish the serial connection and logging in the SBC

Confirm the SBC is powered off and connect one end of a straight-through Ethernet cable to the front console port (which is active by default) on the SBC and the other end to console adapter that ships with the SBC, connect the console adapter (a DB-9 adapter) to the DB-9 port on a workstation, running a terminal emulator application such as PuTTY. Start the terminal emulation application using the following settings:

- Baud Rate=115200
- Data Bits=8
- Parity=None
- Stop Bits=1
- Flow Control=None

Power on the SBC and confirm that you see the following output from the bootup sequence.



Enter the following commands to login to the SBC and move to the configuration mode. Note that the default SBC password is "**acme**" and the default super user password is "**packet**".

```
Password: acme
ACMESYSTEM> enable
Password: packet
ACMESYSTEM# configure terminal
ACMESYSTEM(configure)#
```

You are now in the global configuration mode.

Initial Configuration – Assigning the management Interface an IP address

To assign an IP address, one has to configure the bootparams on the SBC by going to

ACMESYSTEM# configure terminal --- >bootparams

- Once you type “bootparam” you have to use “carriage return” key to navigate down
- A reboot is required if changes are made to the existing bootparams

```
ACMESYSTEM#(configure)bootparam
'.' = clear field;  '-' = go to previous field;  q = quit
boot device             : eth0
processor number        : 0
host name               : acmesystem
file name               : /boot/nnSCZ720p2.bz--- >location where the
software is loaded on the SBC
inet on ethernet (e)    : 172.18.255.52:ffffff80 --- > This is the ip
address of the management interface of the SBC, type the IP address and
mask in hex
inet on backplane (b)   :
host inet (h)           :
gateway inet (g)        : 172.18.0.1 --- > gateway address here
user (u)                : vxftp
ftp password (pw) (blank = use rsh)     : vxftp
flags (f)               :
target name (tn)        : ACMESYSTEM
startup script (s)      :
other (o)               :
```

Configuration of the SBC

The following section walks you through configuring the Oracle Communications SBC to work with the Genesys Server, CUCM and the NICE recorders.

The calls are recorded by a NICE recorder which is added to the configuration using session-recording-server and session-recording-group. The session recorders are defined in the session-recording-group, and the session-recording-group is referenced from the sip-interface. In our case, there are two scenarios being tested in this setup: Access and SIP trunking. For the access scenario, the session-recording-group NiceRecordingServer2 is used, which references VRSP4; and for the SIP

trunk scenario, the session-recording-group is NiceRecordingServer3 which references VRSP3. Depending on which calls you need to record on which particular VRSP, the session-recording-servers (VRSP1 - VRSP8) are accordingly added in the session-recording-group. The session-recording-server element has details of the session recorder such as the IP and port, as also the realm to which it belongs. Another field with reference to call recording in the realm-config is the session-recording-required. If session-recording-required =enabled, then the calls between the two parties will not go through unless the session recorder is ready and available to record.

SIP Manipulations:

Also, as often in contact center applications, a unique ID is needed to co-relate the recorded calls, a SIP manipulation is used to create and insert the Genesys UUID.

For calls from the Genesys Server, the storeXgenesysInSDP SIP manipulation rule is used to first check if a X-Genesys-CallUUID is present in the INVITE, if it is, it is used to build a header X--Genesys in the a-line of the SDP of the INVITE. This value is then passed in the INVITE to the recorder and is used to insert the Genesys UUID in the metadata. The StripPrefix SIP manipulation rule references the extractXgenesysToMetadata SIP manip which is used to add the Genesys UUID to the metadata for the INVITE going to the Nice Recorder. Genesys UUID is a unique ID for Genesys similar to the Avaya UCID as explained in the previous section and is used to co-relate the calls sent to the recorder.

The NAT_IP manipulation is to NAT the To, From, Remote-Party-ID and the Diversion headers from the INVITE messages to the local SBC interface IP.

delReplaces SIP manipulation is used to delete the Replaces header from the INVITE's going out to the Access side.

It is outside the scope of this document to include all the interoperability working information as it will differ in every deployment. Following is the configuration with which the testing has taken place:

```
local-policy
        from-address                            *
        to-address                              *
        source-realm                            Core-Genesys
        description
        activate-time
        deactivate-time
        state                                   enabled
        policy-priority                         none
        policy-attribute
                next-hop                                10.31.20.2
                realm                                   Peer-CUCM-Genesys
                action                                  none
```

```
                terminate-recursion                     disabled
                carrier
                start-time                              0000
                end-time                                2400
                days-of-week                            U-S
                cost                                    0
                state                                   enabled
                app-protocol
                methods
                media-profiles
                lookup                                  single
                next-key
                eloc-str-lkup                           disabled
                eloc-str-match
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
local-policy
        from-address                            *
        to-address                              *
        source-realm                            Peer-CUCM-Genesys
        description
        activate-time
        deactivate-time
        state                                   enabled
        policy-priority                         none
        policy-attribute
                next-hop                                192.168.240.32
                realm                                   Core-Genesys
                action                                  none
                terminate-recursion                     disabled
                carrier
                start-time                              0000
                end-time                                2400
                days-of-week                            U-S
                cost                                    0
                state                                   enabled
                app-protocol
                methods
                media-profiles
                lookup                                  single
                next-key
```

```
                eloc-str-lkup                           disabled
                eloc-str-match
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
local-policy
        from-address                            *
        to-address                              *
        source-realm                            access1
        description
        activate-time
        deactivate-time
        state                                   enabled
        policy-priority                         none
        policy-attribute
                next-hop                                192.168.240.32
                realm                                   core-Genesys-agents
                action                                  none
                terminate-recursion                     disabled
                carrier
                start-time                              0000
                end-time                                2400
                days-of-week                            U-S
                cost                                    0
                state                                   enabled
                app-protocol
                methods
                media-profiles
                lookup                                  single
                next-key
                eloc-str-lkup                           disabled
                eloc-str-match
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
media-manager
        state                                   enabled
        latching                                enabled
        flow-time-limit                         86400
        initial-guard-timer                     300
        subsq-guard-timer                       300
        tcp-flow-time-limit                     86400
        tcp-initial-guard-timer                 300
```

```
        tcp-subsq-guard-timer                   300
        tcp-number-of-ports-per-flow            2
        hnt-rtcp                                disabled
        algd-log-level                          NOTICE
        mbcd-log-level                          NOTICE
        options
        red-flow-port                           1985
        red-mgcp-port                           1986
        red-max-trans                           10000
        red-sync-start-time                     5000
        red-sync-comp-time                      1000
        media-policing                          enabled
        max-untrusted-packet-rate               50000
        max-trusted-packet-rate                 50000
        max-arp-packet-rate                     1000
        tolerance-window                        30
        trap-on-demote-to-deny                  disabled
        trap-on-demote-to-untrusted             disabled
        syslog-on-demote-to-deny                disabled
        syslog-on-demote-to-untrusted           disabled
        rtcp-rate-limit                         0
        anonymous-sdp                           disabled
        rfc2833-timestamp                       disabled
        default-2833-duration                   100
        rfc2833-end-pkts-only-for-non-sig       enabled
        translate-non-rfc2833-event             disabled
        media-supervision-traps                 disabled
        dnsalg-server-failover                  disabled
        syslog-on-call-reject                   disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
network-interface
        name                                    s0p0
        sub-port-id                             0
        description
        hostname
        ip-address                              10.31.20.100
        pri-utility-addr
        sec-utility-addr
        netmask                                 255.255.255.0
        gateway                                 10.31.20.1
```

```
        sec-gateway
        gw-heartbeat
                state                                   disabled
                heartbeat                               0
                retry-count                             0
                retry-timeout                           1
                health-score                            0
        dns-ip-primary
        dns-ip-backup1
        dns-ip-backup2
        dns-domain
        dns-timeout                             11
        signaling-mtu                           0
        hip-ip-list                             10.31.20.100
                                                10.31.20.101
                                                10.31.20.102
        ftp-address
        icmp-address                            10.31.20.100
                                                10.31.20.101
                                                10.31.20.102
        snmp-address
        telnet-address
        ssh-address
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
network-interface
        name                                    s0p1
        sub-port-id                             0
        description
        hostname
        ip-address                              172.21.13.77
        pri-utility-addr
        sec-utility-addr
        netmask                                 255.255.255.0
        gateway                                 172.21.13.1
        sec-gateway
        gw-heartbeat
                state                                   disabled
                heartbeat                               0
                retry-count                             0
                retry-timeout                           1
```

```
                health-score                            0
        dns-ip-primary
        dns-ip-backup1
        dns-ip-backup2
        dns-domain
        dns-timeout                             11
        signaling-mtu                           0
        hip-ip-list                             172.21.13.77
                                                172.21.13.78
                                                172.21.13.79
                                                172.21.13.88
        ftp-address
        icmp-address                            172.21.13.77
                                                172.21.13.78
                                                172.21.13.79
                                                172.21.13.88
        snmp-address
        telnet-address
        ssh-address
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
network-parameters
        tcp-keepinit-timer                      75
        tcp-keepalive-count                     4
        tcp-keepalive-idle-timer                400
        tcp-keepalive-interval-timer            75
        tcp-keepalive-mode                      0
        sctp-send-mode                          unordered
        sctp-rto-initial                        3000
        sctp-rto-max                            60000
        sctp-rto-min                            1000
        sctp-hb-interval                        30000
        sctp-max-burst                          4
        sctp-sack-timeout                       200
        sctp-assoc-max-retrans                  10
        sctp-path-max-retrans                   5
        options
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-13 11:52:54
phy-interface
        name                                    s0p0
```

```
        operation-type                          Media
        port                                    0
        slot                                    0
        virtual-mac
        admin-state                             enabled
        auto-negotiation                        enabled
        duplex-mode                             FULL
        speed                                   100
        wancom-health-score                     50
        overload-protection                     disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
phy-interface
        name                                    s0p1
        operation-type                          Media
        port                                    1
        slot                                    0
        virtual-mac
        admin-state                             enabled
        auto-negotiation                        enabled
        duplex-mode                             FULL
        speed                                   100
        wancom-health-score                     50
        overload-protection                     disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
realm-config
        identifier                              Core-Genesys
        description
        addr-prefix                             0.0.0.0
        network-interfaces                      s0p1:0
        mm-in-realm                             enabled
        mm-in-network                           enabled
        mm-same-ip                              enabled
        mm-in-system                            enabled
        bw-cac-non-mm                           disabled
        msm-release                             disabled
        qos-enable                              disabled
        max-bandwidth                           0
        fallback-bandwidth                      0
        max-priority-bandwidth                  0
```

```
        max-latency                         0
        max-jitter                          0
        max-packet-loss                     0
        observ-window-size                  0
        parent-realm
        dns-realm
        media-policy
        class-profile
        in-translationid
        out-translationid
        in-manipulationid
        out-manipulationid                  NAT_IP
        average-rate-limit                  0
        access-control-trust-level          none
        invalid-signal-threshold            0
        maximum-signal-threshold            0
        untrusted-signal-threshold          0
        nat-trust-threshold                 0
        max-endpoints-per-nat               0
        nat-invalid-message-threshold       0
        wait-time-for-invalid-register      0
        deny-period                         30
        cac-failure-threshold               0
        untrust-cac-failure-threshold       0
        ext-policy-svr
        diam-e2-address-realm
        subscription-id-type                END_USER_NONE
        symmetric-latching                  disabled
        pai-strip                           disabled
        trunk-context
        device-id
        early-media-allow
        enforcement-profile
        additional-prefixes
        restricted-latching                 none
        restriction-mask                    32
        user-cac-mode                       none
        user-cac-bandwidth                  0
        user-cac-sessions                   0
        icmp-detect-multiplier              0
        icmp-advertisement-interval         0
```

```
        icmp-target-ip
        monthly-minutes                         0
        options
        spl-options
        accounting-enable                       enabled
        net-management-control                  disabled
        delay-media-update                      disabled
        refer-call-transfer                     disabled
        refer-notify-provisional                none
        dyn-refer-term                          disabled
        codec-policy
        codec-manip-in-realm                    disabled
        codec-manip-in-network                  enabled
        rtcp-policy
        constraint-name
        session-recording-server
        session-recording-required              disabled
        manipulation-string
        manipulation-pattern
        stun-enable                             disabled
        stun-server-ip                          0.0.0.0
        stun-server-port                        3478
        stun-changed-ip                         0.0.0.0
        stun-changed-port                       3479
        sip-profile
        sip-isup-profile
        match-media-profiles
        qos-constraint
        block-rtcp                              disabled
        hide-egress-media-update                disabled
        tcp-media-profile
        monitoring-filters
        node-functionality
        default-location-string
        alt-family-realm
        pref-addr-type                          none
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
realm-config
        identifier                              Peer-CUCM-Genesys
        description
```

```
        addr-prefix                          0.0.0.0
        network-interfaces                   s0p0:0
        mm-in-realm                          enabled
        mm-in-network                        enabled
        mm-same-ip                           enabled
        mm-in-system                         enabled
        bw-cac-non-mm                        disabled
        msm-release                          disabled
        qos-enable                           disabled
        max-bandwidth                        0
        fallback-bandwidth                   0
        max-priority-bandwidth               0
        max-latency                          0
        max-jitter                           0
        max-packet-loss                      0
        observ-window-size                   0
        parent-realm
        dns-realm
        media-policy
        class-profile
        in-translationid
        out-translationid
        in-manipulationid
        out-manipulationid                   NAT_IP
        average-rate-limit                   0
        access-control-trust-level           none
        invalid-signal-threshold             0
        maximum-signal-threshold             0
        untrusted-signal-threshold           0
        nat-trust-threshold                  0
        max-endpoints-per-nat                0
        nat-invalid-message-threshold        0
        wait-time-for-invalid-register       0
        deny-period                          30
        cac-failure-threshold                0
        untrust-cac-failure-threshold        0
        ext-policy-svr
        diam-e2-address-realm
        subscription-id-type                 END_USER_NONE
        symmetric-latching                   disabled
        pai-strip                            disabled
```

```
        trunk-context
        device-id
        early-media-allow
        enforcement-profile
        additional-prefixes
        restricted-latching                 none
        restriction-mask                    32
        user-cac-mode                       none
        user-cac-bandwidth                  0
        user-cac-sessions                   0
        icmp-detect-multiplier              0
        icmp-advertisement-interval         0
        icmp-target-ip
        monthly-minutes                     0
        options
        spl-options
        accounting-enable                   enabled
        net-management-control              disabled
        delay-media-update                  disabled
        refer-call-transfer                 disabled
        refer-notify-provisional            none
        dyn-refer-term                      disabled
        codec-policy
        codec-manip-in-realm                disabled
        codec-manip-in-network              enabled
        rtcp-policy
        constraint-name
        session-recording-server
        session-recording-required          disabled
        manipulation-string
        manipulation-pattern
        stun-enable                         disabled
        stun-server-ip                      0.0.0.0
        stun-server-port                    3478
        stun-changed-ip                     0.0.0.0
        stun-changed-port                   3479
        sip-profile
        sip-isup-profile
        match-media-profiles
        qos-constraint
        block-rtcp                          disabled
```

```
        hide-egress-media-update                disabled
        tcp-media-profile
        monitoring-filters
        node-functionality
        default-location-string
        alt-family-realm
        pref-addr-type                          none
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
realm-config
        identifier                              access1
        description
        addr-prefix                             0.0.0.0
        network-interfaces                      s0p0:0
        mm-in-realm                             disabled
        mm-in-network                           enabled
        mm-same-ip                              enabled
        mm-in-system                            enabled
        bw-cac-non-mm                           disabled
        msm-release                             disabled
        qos-enable                              disabled
        max-bandwidth                           0
        fallback-bandwidth                      0
        max-priority-bandwidth                  0
        max-latency                             0
        max-jitter                              0
        max-packet-loss                         0
        observ-window-size                      0
        parent-realm
        dns-realm
        media-policy
        class-profile
        in-translationid
        out-translationid
        in-manipulationid
        out-manipulationid
        average-rate-limit                      0
        access-control-trust-level              none
        invalid-signal-threshold                0
        maximum-signal-threshold                0
        untrusted-signal-threshold              0
```

```
        nat-trust-threshold                     0
        max-endpoints-per-nat                   0
        nat-invalid-message-threshold           0
        wait-time-for-invalid-register          0
        deny-period                             30
        cac-failure-threshold                   0
        untrust-cac-failure-threshold           0
        ext-policy-svr
        diam-e2-address-realm
        subscription-id-type                    END_USER_NONE
        symmetric-latching                      disabled
        pai-strip                               disabled
        trunk-context
        device-id
        early-media-allow
        enforcement-profile
        additional-prefixes
        restricted-latching                     none
        restriction-mask                        32
        user-cac-mode                           none
        user-cac-bandwidth                      0
        user-cac-sessions                       0
        icmp-detect-multiplier                  0
        icmp-advertisement-interval             0
        icmp-target-ip
        monthly-minutes                         0
        options
        spl-options
        accounting-enable                       enabled
        net-management-control                  disabled
        delay-media-update                      disabled
        refer-call-transfer                     disabled
        refer-notify-provisional                none
        dyn-refer-term                          disabled
        codec-policy
        codec-manip-in-realm                    disabled
        codec-manip-in-network                  enabled
        rtcp-policy
        constraint-name
        session-recording-server
        session-recording-required              disabled
```

```
        manipulation-string
        manipulation-pattern
        stun-enable                           disabled
        stun-server-ip                        0.0.0.0
        stun-server-port                      3478
        stun-changed-ip                       0.0.0.0
        stun-changed-port                     3479
        sip-profile
        sip-isup-profile
        match-media-profiles
        qos-constraint
        block-rtcp                            disabled
        hide-egress-media-update              disabled
        tcp-media-profile
        monitoring-filters
        node-functionality
        default-location-string
        alt-family-realm
        pref-addr-type                        none
        last-modified-by                      admin@172.28.183.62
        last-modified-date                    2014-10-19 11:23:47
realm-config
        identifier                            core-Genesys-agents
        description
        addr-prefix                           0.0.0.0
        network-interfaces                    s0p1:0
        mm-in-realm                           disabled
        mm-in-network                         enabled
        mm-same-ip                            enabled
        mm-in-system                          enabled
        bw-cac-non-mm                         disabled
        msm-release                           disabled
        qos-enable                            disabled
        max-bandwidth                         0
        fallback-bandwidth                    0
        max-priority-bandwidth                0
        max-latency                           0
        max-jitter                            0
        max-packet-loss                       0
        observ-window-size                    0
        parent-realm
```

```
        dns-realm
        media-policy
        class-profile
        in-translationid
        out-translationid
        in-manipulationid
        out-manipulationid
        average-rate-limit                  0
        access-control-trust-level          none
        invalid-signal-threshold            0
        maximum-signal-threshold            0
        untrusted-signal-threshold          0
        nat-trust-threshold                 0
        max-endpoints-per-nat               0
        nat-invalid-message-threshold       0
        wait-time-for-invalid-register      0
        deny-period                         30
        cac-failure-threshold               0
        untrust-cac-failure-threshold       0
        ext-policy-svr
        diam-e2-address-realm
        subscription-id-type                END_USER_NONE
        symmetric-latching                  disabled
        pai-strip                           disabled
        trunk-context
        device-id
        early-media-allow
        enforcement-profile
        additional-prefixes
        restricted-latching                 none
        restriction-mask                    32
        user-cac-mode                       none
        user-cac-bandwidth                  0
        user-cac-sessions                   0
        icmp-detect-multiplier              0
        icmp-advertisement-interval         0
        icmp-target-ip
        monthly-minutes                     0
        options
        spl-options
        accounting-enable                   enabled
```

```
        net-management-control                  disabled
        delay-media-update                      disabled
        refer-call-transfer                     disabled
        refer-notify-provisional                none
        dyn-refer-term                          disabled
        codec-policy
        codec-manip-in-realm                    disabled
        codec-manip-in-network                  enabled
        rtcp-policy
        constraint-name
        session-recording-server
        session-recording-required              disabled
        manipulation-string
        manipulation-pattern
        stun-enable                             disabled
        stun-server-ip                          0.0.0.0
        stun-server-port                        3478
        stun-changed-ip                         0.0.0.0
        stun-changed-port                       3479
        sip-profile
        sip-isup-profile
        match-media-profiles
        qos-constraint
        block-rtcp                              disabled
        hide-egress-media-update                disabled
        tcp-media-profile
        monitoring-filters
        node-functionality
        default-location-string
        alt-family-realm
        pref-addr-type                          none
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
realm-config
        identifier                              recording-realm
        description
        addr-prefix                             0.0.0.0
        network-interfaces                      s0p1:0
        mm-in-realm                             disabled
        mm-in-network                           enabled
        mm-same-ip                              enabled
```

```
        mm-in-system                        enabled
        bw-cac-non-mm                       disabled
        msm-release                         disabled
        qos-enable                          disabled
        max-bandwidth                       0
        fallback-bandwidth                  0
        max-priority-bandwidth              0
        max-latency                         0
        max-jitter                          0
        max-packet-loss                     0
        observ-window-size                  0
        parent-realm
        dns-realm
        media-policy
        class-profile
        in-translationid
        out-translationid
        in-manipulationid
        out-manipulationid                  StripPrefix
        average-rate-limit                  0
        access-control-trust-level          none
        invalid-signal-threshold            0
        maximum-signal-threshold            0
        untrusted-signal-threshold          0
        nat-trust-threshold                 0
        max-endpoints-per-nat               0
        nat-invalid-message-threshold       0
        wait-time-for-invalid-register      0
        deny-period                         30
        cac-failure-threshold               0
        untrust-cac-failure-threshold       0
        ext-policy-svr
        diam-e2-address-realm
        subscription-id-type                END_USER_NONE
        symmetric-latching                  disabled
        pai-strip                           disabled
        trunk-context
        device-id
        early-media-allow
        enforcement-profile
        additional-prefixes
```

```
        restricted-latching                     none
        restriction-mask                        32
        user-cac-mode                           none
        user-cac-bandwidth                      0
        user-cac-sessions                       0
        icmp-detect-multiplier                  0
        icmp-advertisement-interval             0
        icmp-target-ip
        monthly-minutes                         0
        options
        spl-options
        accounting-enable                       enabled
        net-management-control                  disabled
        delay-media-update                      disabled
        refer-call-transfer                     disabled
        refer-notify-provisional                none
        dyn-refer-term                          disabled
        codec-policy
        codec-manip-in-realm                    disabled
        codec-manip-in-network                  enabled
        rtcp-policy
        constraint-name
        session-recording-server
        session-recording-required              disabled
        manipulation-string
        manipulation-pattern
        stun-enable                             disabled
        stun-server-ip                          0.0.0.0
        stun-server-port                        3478
        stun-changed-ip                         0.0.0.0
        stun-changed-port                       3479
        sip-profile
        sip-isup-profile
        match-media-profiles
        qos-constraint
        block-rtcp                              disabled
        hide-egress-media-update                disabled
        tcp-media-profile
        monitoring-filters
        node-functionality
        default-location-string
```

```
        alt-family-realm
        pref-addr-type                  none
        last-modified-by                admin@172.28.183.62
        last-modified-date              2014-10-19 11:23:47
session-agent
        hostname                        192.168.240.30
        ip-address                      192.168.240.30
        port                            5060
        state                           enabled
        app-protocol                    SIP
        app-type
        transport-method                UDP+TCP
        realm-id                        core-Genesys-agents
        egress-realm-id
        description
        carriers
        allow-next-hop-lp               enabled
        constraints                     disabled
        max-sessions                    0
        max-inbound-sessions            0
        max-outbound-sessions           0
        max-burst-rate                  0
        max-inbound-burst-rate          0
        max-outbound-burst-rate         0
        max-sustain-rate                0
        max-inbound-sustain-rate        0
        max-outbound-sustain-rate       0
        min-seizures                    5
        min-asr                         0
        time-to-resume                  0
        ttr-no-response                 0
        in-service-period               0
        burst-rate-window               0
        sustain-rate-window             0
        req-uri-carrier-mode            None
        proxy-mode
        redirect-action
        loose-routing                   enabled
        send-media-session              enabled
        response-map
        ping-method
```

```
        ping-interval                           0
        ping-send-mode                          keep-alive
        ping-all-addresses                      disabled
        ping-in-service-response-codes
        out-service-response-codes
        load-balance-dns-query                  hunt
        options
        spl-options
        media-profiles
        in-translationid
        out-translationid
        trust-me                                disabled
        request-uri-headers
        stop-recurse
        local-response-map
        ping-to-user-part
        ping-from-user-part
        in-manipulationid
        out-manipulationid
        manipulation-string
        manipulation-pattern
        p-asserted-id
        trunk-group
        max-register-sustain-rate               0
        early-media-allow
        invalidate-registrations                disabled
        rfc2833-mode                            none
        rfc2833-payload                         0
        codec-policy
        enforcement-profile
        refer-call-transfer                     disabled
        refer-notify-provisional                none
        reuse-connections                       NONE
        tcp-keepalive                           none
        tcp-reconn-interval                     0
        max-register-burst-rate                 0
        register-burst-window                   0
        sip-profile
        sip-isup-profile
        kpml-interworking                       inherit
        monitoring-filters
```

```
        session-recording-server
        session-recording-required              disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-agent
        hostname                                192.168.240.32
        ip-address                              192.168.240.32
        port                                    5060
        state                                   enabled
        app-protocol                            SIP
        app-type
        transport-method                        UDP+TCP
        realm-id                                core-Genesys-agents
        egress-realm-id
        description
        carriers
        allow-next-hop-lp                       enabled
        constraints                             disabled
        max-sessions                            0
        max-inbound-sessions                    0
        max-outbound-sessions                   0
        max-burst-rate                          0
        max-inbound-burst-rate                  0
        max-outbound-burst-rate                 0
        max-sustain-rate                        0
        max-inbound-sustain-rate                0
        max-outbound-sustain-rate               0
        min-seizures                            5
        min-asr                                 0
        time-to-resume                          0
        ttr-no-response                         0
        in-service-period                       0
        burst-rate-window                       0
        sustain-rate-window                     0
        req-uri-carrier-mode                    None
        proxy-mode
        redirect-action
        loose-routing                           enabled
        send-media-session                      enabled
        response-map
        ping-method
```

```
        ping-interval                           0
        ping-send-mode                          keep-alive
        ping-all-addresses                      disabled
        ping-in-service-response-codes
        out-service-response-codes
        load-balance-dns-query                  hunt
        options
        spl-options
        media-profiles
        in-translationid
        out-translationid
        trust-me                                disabled
        request-uri-headers
        stop-recurse
        local-response-map
        ping-to-user-part
        ping-from-user-part
        in-manipulationid
        out-manipulationid
        manipulation-string
        manipulation-pattern
        p-asserted-id
        trunk-group
        max-register-sustain-rate               0
        early-media-allow
        invalidate-registrations                disabled
        rfc2833-mode                            none
        rfc2833-payload                         0
        codec-policy
        enforcement-profile
        refer-call-transfer                     disabled
        refer-notify-provisional                none
        reuse-connections                       NONE
        tcp-keepalive                           none
        tcp-reconn-interval                     0
        max-register-burst-rate                 0
        register-burst-window                   0
        sip-profile
        sip-isup-profile
        kpml-interworking                       inherit
        monitoring-filters
```

```
        session-recording-server
        session-recording-required              disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-agent
        hostname                                gen08media.voicelab.local
        ip-address                              192.168.240.32
        port                                    5069
        state                                   enabled
        app-protocol                            SIP
        app-type
        transport-method                        UDP+TCP
        realm-id                                Core-Genesys
        egress-realm-id
        description                             ToPureGenesys
        carriers
        allow-next-hop-lp                       enabled
        constraints                             disabled
        max-sessions                            0
        max-inbound-sessions                    0
        max-outbound-sessions                   0
        max-burst-rate                          0
        max-inbound-burst-rate                  0
        max-outbound-burst-rate                 0
        max-sustain-rate                        0
        max-inbound-sustain-rate                0
        max-outbound-sustain-rate               0
        min-seizures                            5
        min-asr                                 0
        time-to-resume                          0
        ttr-no-response                         0
        in-service-period                       0
        burst-rate-window                       0
        sustain-rate-window                     0
        req-uri-carrier-mode                    None
        proxy-mode
        redirect-action
        loose-routing                           enabled
        send-media-session                      enabled
        response-map
        ping-method
```

```
        ping-interval                           0
        ping-send-mode                          keep-alive
        ping-all-addresses                      disabled
        ping-in-service-response-codes
        out-service-response-codes
        load-balance-dns-query                  hunt
        options
        spl-options
        media-profiles
        in-translationid
        out-translationid
        trust-me                                disabled
        request-uri-headers
        stop-recurse
        local-response-map
        ping-to-user-part
        ping-from-user-part
        in-manipulationid
        out-manipulationid
        manipulation-string
        manipulation-pattern
        p-asserted-id
        trunk-group
        max-register-sustain-rate               0
        early-media-allow
        invalidate-registrations                disabled
        rfc2833-mode                            none
        rfc2833-payload                         0
        codec-policy
        enforcement-profile
        refer-call-transfer                     disabled
        refer-notify-provisional                none
        reuse-connections                       NONE
        tcp-keepalive                           none
        tcp-reconn-interval                     0
        max-register-burst-rate                 0
        register-burst-window                   0
        sip-profile
        sip-isup-profile
        kpml-interworking                       inherit
        monitoring-filters
```

```
        session-recording-server
        session-recording-required              disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-recording-group
        name                                    NICERecordingServer2
        description                             Access
        strategy                                RoundRobin
        simultaneous-recording-servers          1
        session-recording-servers               VRSP4
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-recording-group
        name                                    NICERecordingServer3
        description                             Genesys
        strategy                                RoundRobin
        simultaneous-recording-servers          1
        session-recording-servers               VRSP3
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-recording-server
        name                                    VRSP1
        description                             172.17.3.65
        realm                                   recording-realm
        mode                                    selective
        destination                             172.17.3.65
        port                                    5060
        transport-method                        UDP
        ping-method
        ping-interval                           0
        last-modified-by                        admin@172.29.58.27
        last-modified-date                      2015-02-26 14:49:52
session-recording-server
        name                                    VRSP2
        description                             172.28.183.62
        realm                                   recording-realm
        mode                                    selective
        destination                             172.28.183.62
        port                                    5060
        transport-method                        UDP
        ping-method
```

```
        ping-interval                           0
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2015-01-05 15:27:43
session-recording-server
        name                                    VRSP3
        description                             1.9.80.65
        realm                                   recording-realm
        mode                                    selective
        destination                             1.9.80.65
        port                                    5060
        transport-method                        UDP
        ping-method
        ping-interval                           0
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2015-01-06 07:40:16
session-recording-server
        name                                    VRSP4
        description                             1.9.80.66
        realm                                   recording-realm
        mode                                    selective
        destination                             1.9.80.66
        port                                    5060
        transport-method                        UDP
        ping-method
        ping-interval                           0
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2015-01-04 11:47:43
session-recording-server
        name                                    VRSP5
        description                             1.9.66.92
        realm                                   recording-realm
        mode                                    selective
        destination                             1.9.66.92
        port                                    5060
        transport-method                        UDP
        ping-method
        ping-interval                           0
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
session-recording-server
        name                                    VRSP6
```

```
        description                     1.9.14.129
        realm                           recording-realm
        mode                            selective
        destination                     1.9.14.129
        port                            5060
        transport-method                UDP
        ping-method
        ping-interval                   0
        last-modified-by                admin@172.28.183.62
        last-modified-date              2014-10-19 11:23:47
session-recording-server
        name                            VRSP7
        description                     1.9.14.125
        realm                           recording-realm
        mode                            selective
        destination                     1.9.14.125
        port                            5060
        transport-method                UDP
        ping-method
        ping-interval                   0
        last-modified-by                admin@172.28.183.62
        last-modified-date              2014-10-19 11:23:47
session-recording-server
        name                            VRSP8
        description                     1.9.66.29
        realm                           recording-realm
        mode                            selective
        destination                     1.9.66.29
        port                            5060
        transport-method                UDP
        ping-method
        ping-interval                   0
        last-modified-by                admin@172.28.183.62
        last-modified-date              2014-10-19 11:23:47
session-router
        state                           enabled
        system-number-type              Pots
        match-lp-src-parent-realm       disabled
        nested-realm-stats              disabled
        reject-message-threshold        0
        reject-message-window           10
```

```
        force-report-trunk-info                 disabled
        additional-lp-lookups                   0
        max-routes-per-lookup                   1
        total-lp-routes                         0
        multi-stage-src-realm-override          disabled
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-config
        state                                   enabled
        operation-mode                          dialog
        dialog-transparency                     enabled
        home-realm-id                           Core-Genesys
        egress-realm-id
        auto-realm-id
        nat-mode                                None
        registrar-domain                        *
        registrar-host                          *
        registrar-port                          5060
        register-service-route                  always
        init-timer                              500
        max-timer                               4000
        trans-expire                            32
        initial-inv-trans-expire                0
        invite-expire                           180
        inactive-dynamic-conn                   32
        enforcement-profile
        pac-method
        pac-interval                            10
        pac-strategy                            PropDist
        pac-load-weight                         1
        pac-session-weight                      1
        pac-route-weight                        1
        pac-callid-lifetime                     600
        pac-user-lifetime                       3600
        red-sip-port                            1988
        red-max-trans                           10000
        red-sync-start-time                     5000
        red-sync-comp-time                      1000
        options                                 max-udp-length=0
                                                reg-cache-mode=from
        add-reason-header                       disabled
```

```
        sip-message-len                         4096
        enum-sag-match                          disabled
        extra-method-stats                      disabled
        extra-enum-stats                        disabled
        rph-feature                             disabled
        nsep-user-sessions-rate                 0
        nsep-sa-sessions-rate                   0
        registration-cache-limit                0
        register-use-to-for-lp                  disabled
        refer-src-routing                       disabled
        add-ucid-header                         disabled
        proxy-sub-events
        allow-pani-for-trusted-only             disabled
        atcf-stn-sr
        atcf-psi-dn
        atcf-route-to-sccas                     disabled
        eatf-stn-sr
        pass-gruu-contact                       disabled
        sag-lookup-on-redirect                  disabled
        set-disconnect-time-on-bye              disabled
        msrp-delayed-bye-timer                  15
        transcoding-realm
        transcoding-agents
        create-dynamic-sa                       disabled
        node-functionality                      P-CSCF
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-interface
        state                                   enabled
        realm-id                                Core-Genesys
        description
        sip-port
                address                                 172.21.13.88
                port                                    5060
                transport-protocol                      TCP
                tls-profile
                allow-anonymous                         all
                multi-home-addrs
                ims-aka-profile
        sip-port
                address                                 172.21.13.88
```

```
        port                                5060
        transport-protocol                  UDP
        tls-profile
        allow-anonymous                     all
        multi-home-addrs
        ims-aka-profile
    carriers
    trans-expire                            0
    initial-inv-trans-expire                0
    invite-expire                           0
    max-redirect-contacts                   0
    proxy-mode
    redirect-action
    contact-mode                            none
    nat-traversal                           none
    nat-interval                            30
    tcp-nat-interval                        90
    registration-caching                    disabled
    min-reg-expire                          300
    registration-interval                   3600
    route-to-registrar                      disabled
    secured-network                         disabled
    teluri-scheme                           disabled
    uri-fqdn-domain
    options
    spl-options
    trust-mode                              all
    max-nat-interval                        3600
    nat-int-increment                       10
    nat-test-increment                      30
    sip-dynamic-hnt                         disabled
    stop-recurse                            401,407
    port-map-start                          0
    port-map-end                            0
    in-manipulationid                       storeXgenesysInSDP
    out-manipulationid
    sip-ims-feature                         disabled
    sip-atcf-feature                        disabled
    subscribe-reg-event                     disabled
    operator-identifier
    anonymous-priority                      none
```

```
        max-incoming-conns                      0
        per-src-ip-max-incoming-conns           0
        inactive-conn-timeout                   0
        untrusted-conn-timeout                  0
        network-id
        ext-policy-server
        ldap-policy-server
        default-location-string
        term-tgrp-mode                          none
        charging-vector-mode                    pass
        charging-function-address-mode          pass
        ccf-address
        ecf-address
        implicit-service-route                  disabled
        rfc2833-payload                         101
        rfc2833-mode                            transparent
        constraint-name
        response-map
        local-response-map
        ims-aka-feature                         disabled
        enforcement-profile
        route-unauthorized-calls
        tcp-keepalive                           none
        add-sdp-invite                          disabled
        add-sdp-profiles
        manipulation-string
        manipulation-pattern
        sip-profile
        sip-isup-profile
        tcp-conn-dereg                          0
        tunnel-name
        register-keep-alive                     none
        kpml-interworking                       disabled
        msrp-delay-egress-bye                   disabled
        send-380-response
        pcscf-restoration
        session-timer-profile
        session-recording-server                SRG:NICERecordingServer3
        session-recording-required              disabled
        service-tag
        last-modified-by                        admin@172.28.183.62
```

```
        last-modified-date                      2014-10-19 11:23:47
sip-interface
        state                                   enabled
        realm-id                                Peer-CUCM-Genesys
        description
        sip-port
                address                                 10.31.20.102
                port                                    5060
                transport-protocol                      TCP
                tls-profile
                allow-anonymous                         all
                multi-home-addrs
                ims-aka-profile
        sip-port
                address                                 10.31.20.102
                port                                    5060
                transport-protocol                      UDP
                tls-profile
                allow-anonymous                         all
                multi-home-addrs
                ims-aka-profile
        carriers
        trans-expire                            0
        initial-inv-trans-expire                0
        invite-expire                           0
        max-redirect-contacts                   0
        proxy-mode
        redirect-action
        contact-mode                            none
        nat-traversal                           none
        nat-interval                            30
        tcp-nat-interval                        90
        registration-caching                    disabled
        min-reg-expire                          300
        registration-interval                   3600
        route-to-registrar                      disabled
        secured-network                         disabled
        teluri-scheme                           disabled
        uri-fqdn-domain
        options
        spl-options
```

```
        trust-mode                              all
        max-nat-interval                        3600
        nat-int-increment                       10
        nat-test-increment                      30
        sip-dynamic-hnt                         disabled
        stop-recurse                            401,407
        port-map-start                          0
        port-map-end                            0
        in-manipulationid
        out-manipulationid
        sip-ims-feature                         disabled
        sip-atcf-feature                        disabled
        subscribe-reg-event                     disabled
        operator-identifier
        anonymous-priority                      none
        max-incoming-conns                      0
        per-src-ip-max-incoming-conns           0
        inactive-conn-timeout                   0
        untrusted-conn-timeout                  0
        network-id
        ext-policy-server
        ldap-policy-server
        default-location-string
        term-tgrp-mode                          none
        charging-vector-mode                    pass
        charging-function-address-mode          pass
        ccf-address
        ecf-address
        implicit-service-route                  disabled
        rfc2833-payload                         101
        rfc2833-mode                            transparent
        constraint-name
        response-map
        local-response-map
        ims-aka-feature                         disabled
        enforcement-profile
        route-unauthorized-calls
        tcp-keepalive                           none
        add-sdp-invite                          disabled
        add-sdp-profiles
        manipulation-string
```

```
        manipulation-pattern
        sip-profile
        sip-isup-profile
        tcp-conn-dereg                          0
        tunnel-name
        register-keep-alive                     none
        kpml-interworking                       disabled
        msrp-delay-egress-bye                   disabled
        send-380-response
        pcscf-restoration
        session-timer-profile
        session-recording-server
        session-recording-required              disabled
        service-tag
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-interface
        state                                   enabled
        realm-id                                access1
        description
        sip-port
                address                                 10.31.20.101
                port                                    5060
                transport-protocol                      UDP
                tls-profile
                allow-anonymous                         registered
                multi-home-addrs
                ims-aka-profile
        sip-port
                address                                 10.31.20.101
                port                                    5060
                transport-protocol                      TCP
                tls-profile
                allow-anonymous                         registered
                multi-home-addrs
                ims-aka-profile
        carriers
        trans-expire                            0
        initial-inv-trans-expire                0
        invite-expire                           0
        max-redirect-contacts                   0
```

```
        proxy-mode
        redirect-action
        contact-mode                          none
        nat-traversal                         always
        nat-interval                          30
        tcp-nat-interval                      90
        registration-caching                  enabled
        min-reg-expire                        300
        registration-interval                 3600
        route-to-registrar                    enabled
        secured-network                       disabled
        teluri-scheme                         disabled
        uri-fqdn-domain
        options                               reuse-connections
        spl-options
        trust-mode                            all
        max-nat-interval                      3600
        nat-int-increment                     10
        nat-test-increment                    30
        sip-dynamic-hnt                       disabled
        stop-recurse                          401,407
        port-map-start                        0
        port-map-end                          0
        in-manipulationid
        out-manipulationid                    delReplaces
        sip-ims-feature                       disabled
        sip-atcf-feature                      disabled
        subscribe-reg-event                   disabled
        operator-identifier
        anonymous-priority                    none
        max-incoming-conns                    0
        per-src-ip-max-incoming-conns         0
        inactive-conn-timeout                 0
        untrusted-conn-timeout                0
        network-id
        ext-policy-server
        ldap-policy-server
        default-location-string
        term-tgrp-mode                        none
        charging-vector-mode                  pass
        charging-function-address-mode        pass
```

```
        ccf-address
        ecf-address
        implicit-service-route                  disabled
        rfc2833-payload                         101
        rfc2833-mode                            transparent
        constraint-name
        response-map
        local-response-map
        ims-aka-feature                         disabled
        enforcement-profile
        route-unauthorized-calls
        tcp-keepalive                           none
        add-sdp-invite                          disabled
        add-sdp-profiles
        manipulation-string
        manipulation-pattern
        sip-profile
        sip-isup-profile
        tcp-conn-dereg                          0
        tunnel-name
        register-keep-alive                     none
        kpml-interworking                       disabled
        msrp-delay-egress-bye                   disabled
        send-380-response
        pcscf-restoration
        session-timer-profile
        session-recording-server                SRG:NICERecordingServer2
        session-recording-required              disabled
        service-tag
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-interface
        state                                   enabled
        realm-id                                core-Genesys-agents
        description
        sip-port
                address                                 172.21.13.78
                port                                    5060
                transport-protocol                      UDP
                tls-profile
                allow-anonymous                         all
```

```
                multi-home-addrs
                ims-aka-profile
        sip-port
                address                                 172.21.13.78
                port                                    5060
                transport-protocol                      TCP
                tls-profile
                allow-anonymous                         all
                multi-home-addrs
                ims-aka-profile
        carriers
        trans-expire                            0
        initial-inv-trans-expire                0
        invite-expire                           0
        max-redirect-contacts                   0
        proxy-mode
        redirect-action
        contact-mode                            none
        nat-traversal                           none
        nat-interval                            30
        tcp-nat-interval                        90
        registration-caching                    disabled
        min-reg-expire                          300
        registration-interval                   3600
        route-to-registrar                      disabled
        secured-network                         disabled
        teluri-scheme                           disabled
        uri-fqdn-domain
        options
        spl-options
        trust-mode                              all
        max-nat-interval                        3600
        nat-int-increment                       10
        nat-test-increment                      30
        sip-dynamic-hnt                         disabled
        stop-recurse                            401,407
        port-map-start                          0
        port-map-end                            0
        in-manipulationid
        out-manipulationid
        sip-ims-feature                         disabled
```

```
        sip-atcf-feature                        disabled
        subscribe-reg-event                     disabled
        operator-identifier
        anonymous-priority                      none
        max-incoming-conns                      0
        per-src-ip-max-incoming-conns           0
        inactive-conn-timeout                   0
        untrusted-conn-timeout                  0
        network-id
        ext-policy-server
        ldap-policy-server
        default-location-string
        term-tgrp-mode                          none
        charging-vector-mode                    pass
        charging-function-address-mode          pass
        ccf-address
        ecf-address
        implicit-service-route                  disabled
        rfc2833-payload                         101
        rfc2833-mode                            transparent
        constraint-name
        response-map
        local-response-map
        ims-aka-feature                         disabled
        enforcement-profile
        route-unauthorized-calls
        tcp-keepalive                           none
        add-sdp-invite                          disabled
        add-sdp-profiles
        manipulation-string
        manipulation-pattern
        sip-profile
        sip-isup-profile
        tcp-conn-dereg                          0
        tunnel-name
        register-keep-alive                     none
        kpml-interworking                       disabled
        msrp-delay-egress-bye                   disabled
        send-380-response
        pcscf-restoration
        session-timer-profile
```

```
        session-recording-server
        session-recording-required              disabled
        service-tag
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-interface
        state                                   enabled
        realm-id                                recording-realm
        description
        sip-port
                address                                 172.21.13.79
                port                                    5060
                transport-protocol                      UDP
                tls-profile
                allow-anonymous                         all
                multi-home-addrs
                ims-aka-profile
        sip-port
                address                                 172.21.13.79
                port                                    5060
                transport-protocol                      TCP
                tls-profile
                allow-anonymous                         all
                multi-home-addrs
                ims-aka-profile
        carriers
        trans-expire                            0
        initial-inv-trans-expire                0
        invite-expire                           0
        max-redirect-contacts                   0
        proxy-mode
        redirect-action
        contact-mode                            none
        nat-traversal                           none
        nat-interval                            30
        tcp-nat-interval                        90
        registration-caching                    disabled
        min-reg-expire                          300
        registration-interval                   3600
        route-to-registrar                      disabled
        secured-network                         disabled
```

```
        teluri-scheme                           disabled
        uri-fqdn-domain
        options
        spl-options
        trust-mode                              all
        max-nat-interval                        3600
        nat-int-increment                       10
        nat-test-increment                      30
        sip-dynamic-hnt                         disabled
        stop-recurse                            401,407
        port-map-start                          0
        port-map-end                            0
        in-manipulationid
        out-manipulationid                      StripPrefix
        sip-ims-feature                         disabled
        sip-atcf-feature                        disabled
        subscribe-reg-event                     disabled
        operator-identifier
        anonymous-priority                      none
        max-incoming-conns                      0
        per-src-ip-max-incoming-conns           0
        inactive-conn-timeout                   0
        untrusted-conn-timeout                  0
        network-id
        ext-policy-server
        ldap-policy-server
        default-location-string
        term-tgrp-mode                          none
        charging-vector-mode                    pass
        charging-function-address-mode          pass
        ccf-address
        ecf-address
        implicit-service-route                  disabled
        rfc2833-payload                         101
        rfc2833-mode                            transparent
        constraint-name
        response-map
        local-response-map
        ims-aka-feature                         disabled
        enforcement-profile
        route-unauthorized-calls
```

```
        tcp-keepalive                           none
        add-sdp-invite                          disabled
        add-sdp-profiles
        manipulation-string
        manipulation-pattern
        sip-profile
        sip-isup-profile
        tcp-conn-dereg                          0
        tunnel-name
        register-keep-alive                     none
        kpml-interworking                       disabled
        msrp-delay-egress-bye                   disabled
        send-380-response
        pcscf-restoration
        session-timer-profile
        session-recording-server
        session-recording-required              disabled
        service-tag
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-manipulation
        name                                    NAT_IP
        description
        split-headers
        join-headers
        header-rule
                name                                    To
                header-name                             To
                action                                  manipulate
                comparison-type                         case-sensitive
                msg-type                                request
                methods
                match-value
                new-value
                element-rule
                        name                                    To
                        parameter-name
                        type                                    uri-host
                        action                                  replace
                        match-val-type                          ip
                        comparison-type                         case-sensitive
```

```
                match-value
                new-value                               $REMOTE_IP
        header-rule
                name                                    From
                header-name                             From
                action                                  manipulate
                comparison-type                         case-sensitive
                msg-type                                request
                methods
                match-value
                new-value
                element-rule
                        name                            From
                        parameter-name
                        type                            uri-host
                        action                          replace
                        match-val-type                  ip
                        comparison-type                 case-sensitive
                        match-value
                        new-value                       $LOCAL_IP
        header-rule
                name                                    RemotePartyID
                header-name                             Remote-Party-ID
                action                                  manipulate
                comparison-type                         case-sensitive
                msg-type                                request
                methods
                match-value
                new-value
                element-rule
                        name                            RemotePartyID
                        parameter-name
                        type                            uri-host
                        action                          replace
                        match-val-type                  ip
                        comparison-type                 case-sensitive
                        match-value
                        new-value                       $LOCAL_IP
        header-rule
                name                                    manipDiv
                header-name                             Diversion
```

```
                action                                  manipulate
                comparison-type                         case-sensitive
                msg-type                                request
                methods
                match-value
                new-value
                element-rule
                        name                                    div
                        parameter-name
                        type                                    uri-host
                        action                                  replace
                        match-val-type                          any
                        comparison-type                         case-sensitive
                        match-value
                        new-value                               $LOCAL_IP
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-manipulation
        name                                    StripPrefix
        description
        split-headers
        join-headers
        header-rule
                name                                    STripPrefix
                header-name                             Content-Type
                action                                  manipulate
                comparison-type                         pattern-rule
                msg-type                                any
                methods                                 INVITE
                match-value
                new-value
                element-rule
                        name                                    RemovePrefix
                        parameter-name                  application/rs-metadata+xml
                        type                                    mime
                        action                                  find-replace-all
                        match-val-type                          any
                        comparison-type                         pattern-rule
                        match-value                       (00FA08)(.*)[a-zA-Z0-9]*
                        new-value                               $2
        header-rule
```

```
                name                                    callotherHMR
                header-name                             To
                action                                  sip-manip
                comparison-type                         case-sensitive
                msg-type                                any
                methods
                match-value
                new-value                               extractXgenesysToMetadata
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-manipulation
        name                                    delReplaces
        description
        split-headers
        join-headers
        header-rule
                name                                    delReplacesHR
                header-name                             Replaces
                action                                  delete
                comparison-type                         case-sensitive
                msg-type                                request
                methods                                 Invite
                match-value
                new-value
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-manipulation
        name                                    extractXgenesysToMetadata
        description
        split-headers
        join-headers
        mime-rule
                name                                    extractUUIDmRule
                content-type                            application/sdp
                msg-type                                request
                methods                                 INVITE
                format                                  ascii-string
                action                                  store
                comparison-type                         pattern-rule
                match-value                             Genesys:(.*)UUIDend
                new-value
```

```
        mime-rule
                name                                    manMetadatamRule
                content-type                            application/rs-metadata+xml
                msg-type                                request
                methods                                 INVITE
                format                                  ascii-string
                action                                  find-replace-all
                comparison-type                         pattern-rule
                match-value                             </apkt:callerOrig>
                new-value                               </apkt:callerOrig>+$CRLF+"
"+"<apkt:uuid>"+$extractUUIDmRule.$1+"</apkt:uuid>"
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
sip-manipulation
        name                                    storeXgenesysInSDP
        description
        split-headers
        join-headers
        header-rule
                name                                    storeXGenesys
                header-name                             X-Genesys-CallUUID
                action                                  store
                comparison-type                         case-sensitive
                msg-type                                any
                methods                                 INVITE
                match-value
                new-value
        mime-sdp-rule
                name                                    manSDPmSR
                msg-type                                any
                methods                                 INVITE
                action                                  manipulate
                comparison-type                         boolean
                match-value                             $storeXGenesys
                new-value
                sdp-media-rule
                        name                                    manSDPsLR
                        media-type                              audio
                        action                                  manipulate
                        comparison-type                         case-sensitive
                        match-value
```

```
                        new-value
                        sdp-line-rule
                                name                                    manSDPsLR
                                type                                    a
                                action                                  add
                                comparison-type                      case-sensitive
                                match-value
                                new-value   "X-Genesys:"+$storeXGenesys.$0+UUIDend
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
static-flow
        in-realm-id                             access1
        description                             GenesysTool
        in-source                               0.0.0.0
        in-destination                          10.31.20.7:2020
        out-realm-id                            core-Genesys-agents
        out-source                              192.168.241.55
        out-destination                         192.168.240.30:2020
        protocol                                TCP
        alg-type                                NAPT
        start-port                              16000
        end-port                                16999
        flow-time-limit                         0
        initial-guard-timer                     60
        subsq-guard-timer                       60
        average-rate-limit                      0
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
steering-pool
        ip-address                              10.31.20.101
        start-port                              20000
        end-port                                49999
        realm-id                                access1
        network-interface
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
steering-pool
        ip-address                              10.31.20.102
        start-port                              20000
        end-port                                49999
        realm-id                                Peer-CUCM-Genesys
```

```
        network-interface
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
steering-pool
        ip-address                              172.21.13.78
        start-port                              20000
        end-port                                49999
        realm-id                                core-Genesys-agents
        network-interface
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
steering-pool
        ip-address                              172.21.13.79
        start-port                              20000
        end-port                                49999
        realm-id                                recording-realm
        network-interface
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
steering-pool
        ip-address                              172.21.13.88
        start-port                              20000
        end-port                                49999
        realm-id                                Core-Genesys
        network-interface
        last-modified-by                        admin@172.28.183.62
        last-modified-date                      2014-10-19 11:23:47
system-config
        hostname                                ACMEVM4500
        description
        location
        mib-system-contact
        mib-system-name
        mib-system-location                     IL-RN-201-VE0-XX-XX-V-APP
        snmp-enabled                            enabled
        enable-snmp-auth-traps                  disabled
        enable-snmp-syslog-notify               disabled
        enable-snmp-monitor-traps               disabled
        enable-env-monitor-traps                disabled
        snmp-syslog-his-table-length            1
        snmp-syslog-level                       WARNING
```

```
        system-log-level                        WARNING
        process-log-level                       NOTICE
        process-log-ip-address                  0.0.0.0
        process-log-port                        0
        collect
                sample-interval                         5
                push-interval                           15
                boot-state                              disabled
                start-time                              now
                end-time                                never
                red-collect-state                       disabled
                red-max-trans                           1000
                red-sync-start-time                     5000
                red-sync-comp-time                      1000
                push-success-trap-state                 disabled
        comm-monitor
                state                                   disabled
                sbc-grp-id                              0
                tls-profile
                qos-enable                              enabled
        call-trace                              disabled
        internal-trace                          disabled
        log-filter                              all
        default-gateway                         192.168.240.254
        restart                                 enabled
        exceptions
        telnet-timeout                          0
        console-timeout                         0
        remote-control                          enabled
        cli-audit-trail                         enabled
        link-redundancy-state                   disabled
        source-routing                          enabled
        cli-more                                disabled
        terminal-height                         24
        debug-timeout                           0
        trap-event-lifetime                     0
        ids-syslog-facility                     -1
        options
        default-v6-gateway                      ::
        ipv6-signaling-mtu                      1500
        ipv4-signaling-mtu                      1500
```

```
cleanup-time-of-day                     00:00
snmp-engine-id-suffix
snmp-agent-mode                         v1v2
last-modified-by                        admin@172.29.58.27
last-modified-date                      2015-01-12 08:02:50
```

Test Plan Executed

Following is the test plan executed for Genesys SIP server, where Pass stands for Call successfully recorded.

Test case scenario	Result
Incoming	
1. C calls A1	Pass
2. C calls A1 & A1 Blind Transfer A2	Pass
3. C calls A1 & A1 Consult Transfer A2	Pass
4. C calls A1 & A1 Blind Conference A2	Pass
5. C calls A1 & A1 Consult Conference A2	Pass
Outgoing	
	Pass
1. A1 calls C	Pass
2. A1 calls C & A1 Blind Transfer A2	Pass
3. A1 calls C & A1 Consult Transfer A2	Pass
4. A1 calls C & A1 Blind Conference A2	Pass
5. A1 calls C & A1 Consult Conference A2	Pass

Troubleshooting Tools

If you find that you are not able to complete calls or have problems with the test cases, there are a few tools available for Oracle SBC like logging and tracing which may be of assistance. In this section we will provide a list of tools which you can use to aid in troubleshooting any issues you may encounter.

Since we are concerned with communication between the NICE Recorder and the SBC we will focus on the troubleshooting tools to use between those devices if calls are not working or tests are not passing.

Wireshark

Wireshark is also a network protocol analyzer which is freely downloadable from www.wireshark.org.

On the Oracle SBC

The Oracle SBC provides a rich set of statistical counters available from the ACLI, as well as log file output with configurable detail. The follow sections detail enabling, adjusting and accessing those interfaces.

Resetting the statistical counters, enabling logging and restarting the log files.

At the SBC Console:

```
ACMESYSTEM# reset sipd
ACMESYSTEM# notify sipd debug
ACMESYSTEM#
enabled SIP Debugging
ACMESYSTEM# notify all rotate-logs
```

Examining the log files.

Note: You will FTP to the management interface of the SBC with the username user and user mode password (the default is "**acme**").

```
C:\Documents and Settings\user>ftp 192.168.5.24
Connected to 192.168.85.55.
220 ACMESYSTEM FTP server (VxWorks 6.4) ready.
User (192.168.85.55:(none)): user
331 Password required for user.
```

```
Password: acme
230 User user logged in.
ftp> cd /ramdrv/logs
250 CWD command successful.
ftp> get sipmsg.log
200 PORT command successful.
150 Opening ASCII mode data connection for '/ramdrv/logs/sipmsg.log' (3353
bytes).
226 Transfer complete.
ftp: 3447 bytes received in 0.00Seconds 3447000.00Kbytes/sec.
ftp> get log.sipd
200 PORT command successful.
150 Opening ASCII mode data connection for '/ramdrv/logs/log.sipd' (204681
bytes).
226 Transfer complete.
ftp: 206823 bytes received in 0.11Seconds 1897.46Kbytes/sec.
ftp> bye
221 Goodbye.
```

You may now examine the log files with the text editor of your choice.

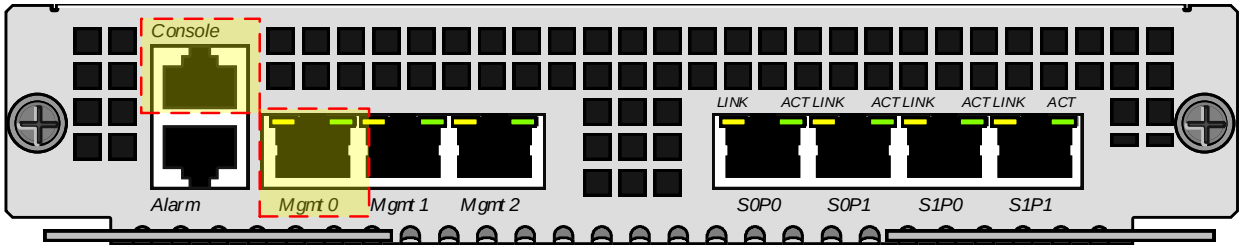
Appendix A

Accessing the ACLI

Access to the ACLI is provided by:

- The serial console connection;
- TELNET, which is enabled by default but may be disabled; and
- SSH, this must be explicitly configured.

Initial connectivity will be through the serial console port. At a minimum, this is how to configure the management (eth0) interface on the SBC.

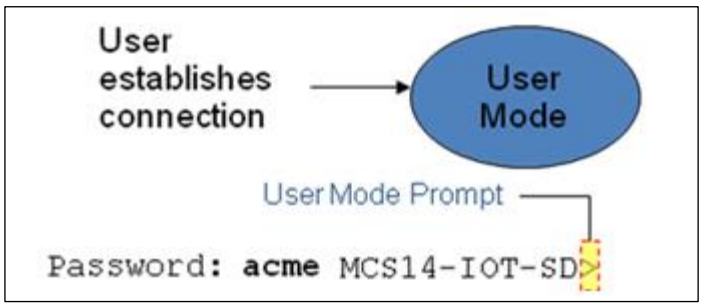


ACLI Basics

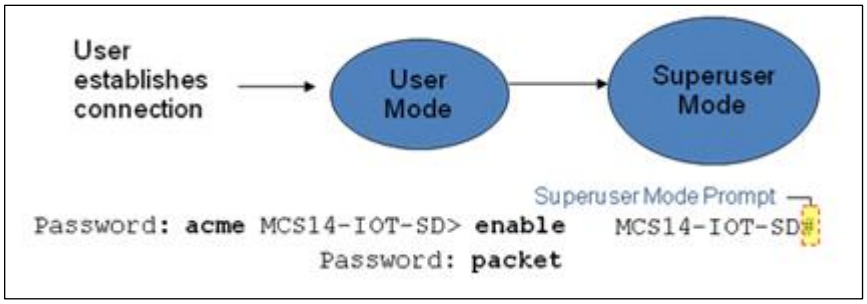
There are two password protected modes of operation within the ACLI, User mode and Superuser mode.

When you establish a connection to the SBC, the prompt for the User mode password appears. The default password is acme.

User mode consists of a restricted set of basic monitoring commands and is identified by the greater than sign (>) in the system prompt after the target name. You cannot perform configuration and maintenance from this mode.



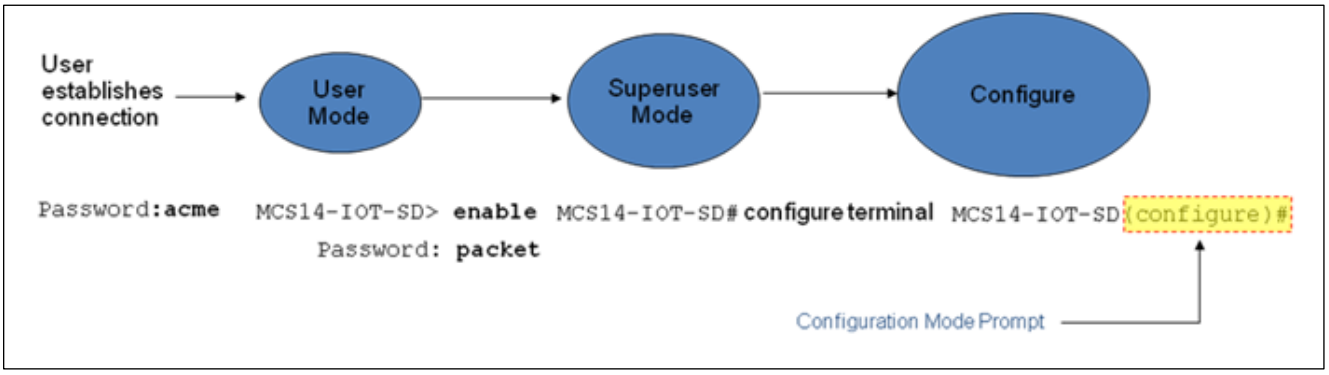
The Superuser mode allows for access to all system commands for operation, maintenance, and administration. This mode is identified by the pound sign (#) in the prompt after the target name. To enter the Superuser mode, issue the enable command in the User mode.



From the Superuser mode, you can perform monitoring and administrative tasks; however you cannot configure any elements. To return to User mode, issue the exit command.

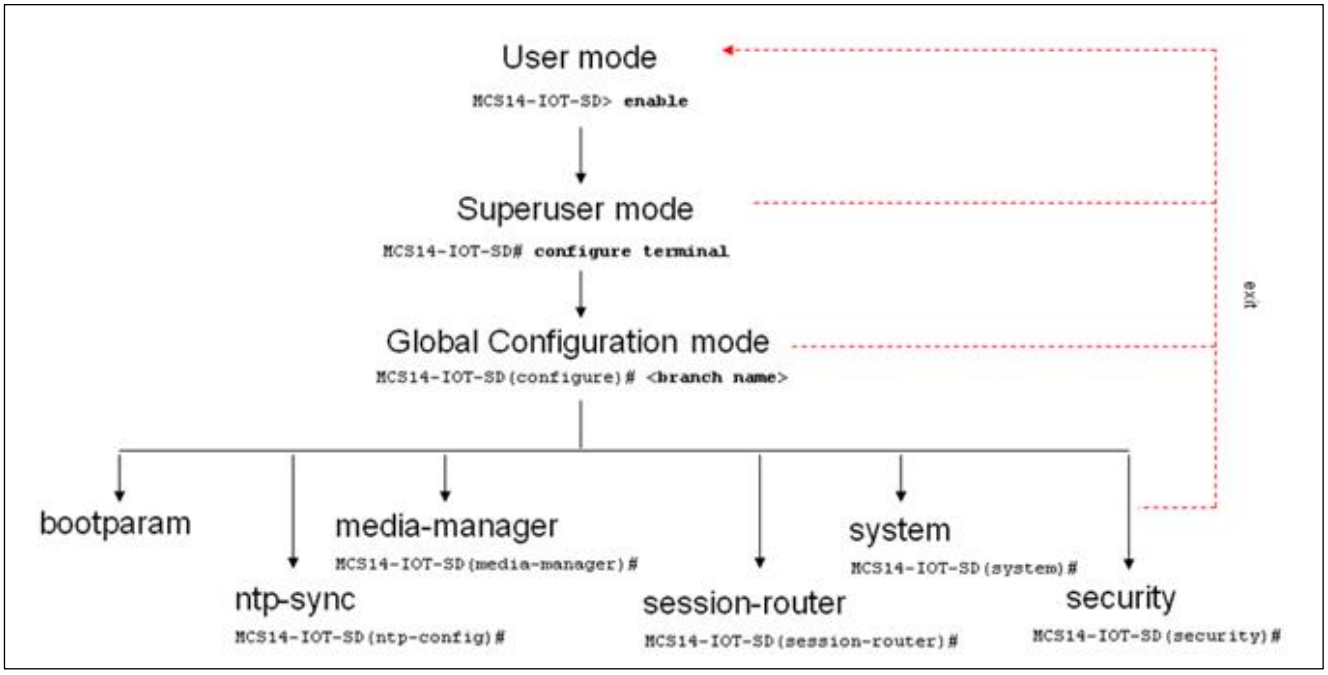
You must enter the Configuration mode to configure elements. For example, you can access the configuration branches and configuration elements for signaling and media configurations. To enter the Configuration mode, issue the **`configure terminal`** command in the Superuser mode.

Configuration mode is identified by the word configure in parenthesis followed by the pound sign (#) in the prompt after the target name, for example, **ACMESYSTEM(configure)#**. To return to the Superuser mode, issue the **`exit`** command.



In the configuration mode, there are six configuration branches:

- bootparam;
- ntp-sync;
- media-manager;
- session-router;
- system; and
- security.



The ntp-sync and bootparams branches are flat branches (i.e., they do not have elements inside the branches). The rest of the branches have several elements under each of the branches.

The bootparam branch provides access to SBC boot parameters. Key boot parameters include:

- boot device – The global management port, usually eth0
- file name – The boot path and the image file.

- inet on ethernet – The IP address and subnet mask (in hex) of the management port of the SD.
- host inet –The IP address of external server where image file resides.
- user and ftp password – Used to boot from the external FTP server.
- gateway inet – The gateway IP address for reaching the external server, if the server is located in a different network.

```
'.' = clear field;  '-' = go to previous field;  q = quit
boot device             : eth0
processor number        : 0
host name               :
file name               : /tffs0/nnSCX620.gz
inet on ethernet (e)    : 10.0.3.11:ffff0000
inet on backplane (b)   :
host inet (h)           : 10.0.3.100
gateway inet (g)        : 10.0.0.1
user (u)                : anonymous
ftp password (pw) (blank = rsh)       : anonymous
flags (f)               : 0x8
target name (tn)        : MCS14-IOT-SD
startup script (s)      :
other (o)
```

The ntp-sync branch provides access to ntp server configuration commands for synchronizing the SBC time and date.

The security branch provides access to security configuration.

The system branch provides access to basic configuration elements as system-config, snmp-community, redundancy, physical interfaces, network interfaces, etc.

The session-router branch provides access to signaling and routing related elements, including H323-config, sip-config, iwf-config, local-policy, sip-manipulation, session-agent, etc.

The media-manager branch provides access to media-related elements, including realms, steering pools, dns-config, media-manager, and so forth.

You will use media-manager, session-router, and system branches for most of your working configuration.

Configuration Elements

The configuration branches contain the configuration elements. Each configurable object is referred to as an element. Each element consists of a number of configurable parameters.

Some elements are single-instance elements, meaning that there is only one of that type of the element - for example, the global system configuration and redundancy configuration.

Some elements are multiple-instance elements. There may be one or more of the elements of any given type. For example, physical and network interfaces.

Some elements (both single and multiple instance) have sub-elements. For example:

- SIP-ports - are children of the sip-interface element
- peers – are children of the redundancy element
- destinations – are children of the peer element

Creating an Element

1. To create a single-instance element, you go to the appropriate level in the ACLI path and enter its parameters. There is no need to specify a unique identifier property because a single-instance element is a global element and there is only one instance of this element.
2. When creating a multiple-instance element, you must specify a unique identifier for each instance of the element.
3. It is important to check the parameters of the element you are configuring before committing the changes. You do this by issuing the **`show`** command before issuing the **`done`** command. The parameters that you did not configure are filled with either default values or left empty.
4. On completion, you must issue the **`done`** command. The done command causes the configuration to be echoed to the screen and commits the changes to the volatile memory. It is a good idea to review this output to ensure that your configurations are correct.
5. Issue the **`exit`** command to exit the selected element.

Note that the configurations at this point are not permanently saved yet. If the SBC reboots, your configurations will be lost.

Editing an Element

The procedure of editing an element is similar to creating an element, except that you must select the element that you will edit before editing it.

1. Enter the element that you will edit at the correct level of the ACLI path.

2. Select the element that you will edit, and view it before editing it.
   The **`select`** command loads the element to the volatile memory for editing. The **`show`** command allows you to view the element to ensure that it is the right one that you want to edit.
3. Once you are sure that the element you selected is the right one for editing, edit the parameter one by one. The new value you provide will overwrite the old value.
4. It is important to check the properties of the element you are configuring before committing it to the volatile memory. You do this by issuing the **`show`** command before issuing the **`done`** command.
5. On completion, you must issue the **`done`** command.
6. Issue the **`exit`** command to exit the selected element.

Note that the configurations at this point are not permanently saved yet. If the SBC reboots, your configurations will be lost.

Deleting an Element

The **no** command deletes an element from the configuration in editing.

To delete a single-instance element,

1. Enter the **`no`** command from within the path for that specific element
2. Issue the **`exit`** command.

To delete a multiple-instance element,

1. Enter the **`no`** command from within the path for that particular element.
   The key field prompt, such as <name>:<sub-port-id>, appears.
2. Use the <Enter> key to display a list of the existing configured elements.
3. Enter the number corresponding to the element you wish to delete.
4. Issue the **`select`** command to view the list of elements to confirm that the element was removed.

Note that the configuration changes at this point are not permanently saved yet. If the SBC reboots, your configurations will be lost.

Configuration Versions

At any time, three versions of the configuration can exist on the SBC: the edited configuration, the saved configuration, and the running configuration.

- The **edited configuration** – this is the version that you are making changes to. This version of the configuration is stored in the SBC's volatile memory and will be lost on a reboot.
  To view the editing configuration, issue the **`show configuration`** command.

- The **saved configuration –** on issuing the **`save-config`** command, the edited configuration is copied into the non-volatile memory on the SBC and becomes the saved configuration. Because the saved configuration has not been activated yet, the changes in the configuration will not take effect. On reboot, the last activated configuration (i.e., the last running configuration) will be loaded, not the saved configuration.
- The **running configuration** is the saved then activated configuration. On issuing the **`activate-config`** command, the saved configuration is copied from the non-volatile memory to the volatile memory. The saved configuration is activated and becomes the running configuration. Although most of the configurations can take effect once being activated without reboot, some configurations require a reboot for the changes to take effect.
  To view the running configuration, issue command show **`running-config`**.

Saving the Configuration

The **`save-config`** command stores the edited configuration persistently.

Because the saved configuration has not been activated yet, changes in configuration will not take effect. On reboot, the last activated configuration (i.e., the last running configuration) will be loaded. At this stage, the saved configuration is different from the running configuration.

Because the saved configuration is stored in non-volatile memory, it can be accessed and activated at later time.

Upon issuing the **`save-config`** command, the SBC displays a reminder on screen stating that you must use the **`activate-config`** command if you want the configurations to be updated.

```
ACMESYSTEM# save-config
Save-Config received, processing.
waiting 1200 for request to finish
Request to 'SAVE-CONFIG' has Finished,
Save complete
Currently active and saved configurations do not match!
To sync & activate, run 'activate-config' or 'reboot activate'.
ACMESYSTEM#
```

Activating the Configuration

On issuing the **`activate-config`** command, the saved configuration is copied from the non-volatile memory to the volatile memory. The saved configuration is activated and becomes the running configuration.

Some configuration changes are service affecting when activated. For these configurations, the SBC warns that the change could have an impact on service with the configuration elements that will potentially be service affecting. You may decide whether or not to continue with applying these changes immediately or to apply them at a later time.

```
ACMESYSTEM# activate-config
Activate-Config received, processing.
waiting 120000 for request to finish
Request to 'ACTIVATE-CONFIG' has Finished,
Activate Complete
ACMESYSTEM#
```