



Dialogic® Brooktrout® SR140 Fax Software with Avaya Communication Manager 5.0 and Avaya G350 Gateway

Installation and Configuration Integration Note

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1. Scope

This document is intended as a general guide for configuring a basic installation of the **Avaya Communication Manager 5.0 and Avaya G350 Gateway** for use with Dialogic® Brooktrout® SR140 Fax over IP (FoIP) software platform. The interoperability includes **SIP and H.323** call control and T.38/T.30 media.

This document is not intended to be comprehensive, and thus should not and does not replace the manufacturer's detailed configuration documentation. Users of this document should already have a general knowledge of how to install and configure the **Avaya Communication Manager 5.0 and Avaya G350 Gateway**.

The sample configuration shown and/or referred in the subsequent sections was used for lab validation testing by Dialogic. Therefore, it is quite possible that the sample configuration will not match an exact configuration or versions that would be present in a deployed environment. However, the sample configuration does provide a possible starting point to work with the equipment vendor for configuring your device. Please consult the appropriate manufacturer's documentation for details on setting up your specific end user configuration.

For ease of reference, the Dialogic Brooktrout SR140 Fax Software and Dialogic Brooktrout TR1034 Fax Boards will sometimes be denoted herein, respectively, as SR140 and TR1034. The *Avaya Communication Manager 5.0* will be denoted herein as Avaya CM 5.0 and the Avaya G350 Gateway will be denoted G350 GW, or some other form thereof. Also, all mentions of SDK herein refer to the Dialogic Brooktrout SDK.

2. Configuration Details

The following systems were used for the sample configuration described in the document.

2.1 Avaya Communication Manager 5.0

Vendor	Avaya
Model	Communication Manager
Software Version	5.0
Protocol to SR140	SIP or H.323
Protocol to Gateway	SIP or H.323

2.2 Avaya G350 Gateway

Vendor	Avaya
Model	G350 with S8300
Software Version	SES-5.0.0.0-825.30, Operating system: Linux 2.6.11-AV24 i686, Built: Oct 4 15:33 2007, Contains: 00.0.825.4, CM Reports as: R015x.00.0.825.4, CM Release String: S8300-015-00.0.825.4, SES-00.0.825.4-SP4a
PSTN Device	Dialogic® Brooktrout® TR1034 Fax Board
Protocol to PSTN Device	T1 ISDN
IP Device	Dialogic® Brooktrout® SR140 Fax Software and Avaya CM 5.0
Protocol to CM 5.0	SIP or H.323

2.3 Dialogic® Brooktrout® SR140 Fax Software

Vendor	Dialogic
Model	Dialogic® Brooktrout® SR140 Fax Software
Software Version	SDK 6.0.0 and higher
Protocol to CM 5.0	SIP or H.323
callctrl.cfg file	All defaults

2.4 Dialogic® Brooktrout® TR1034 Fax Board

Vendor	Dialogic
PSTN Device	Dialogic® Brooktrout® TR1034 Fax Board
Software Version	SDK 5.2.1 and higher
Protocol to PSTN Device	T1 ISDN
callctrl.cfg file	All defaults

2.5 Network System Configuration

The diagram below details the sample configuration used in connection with this document.

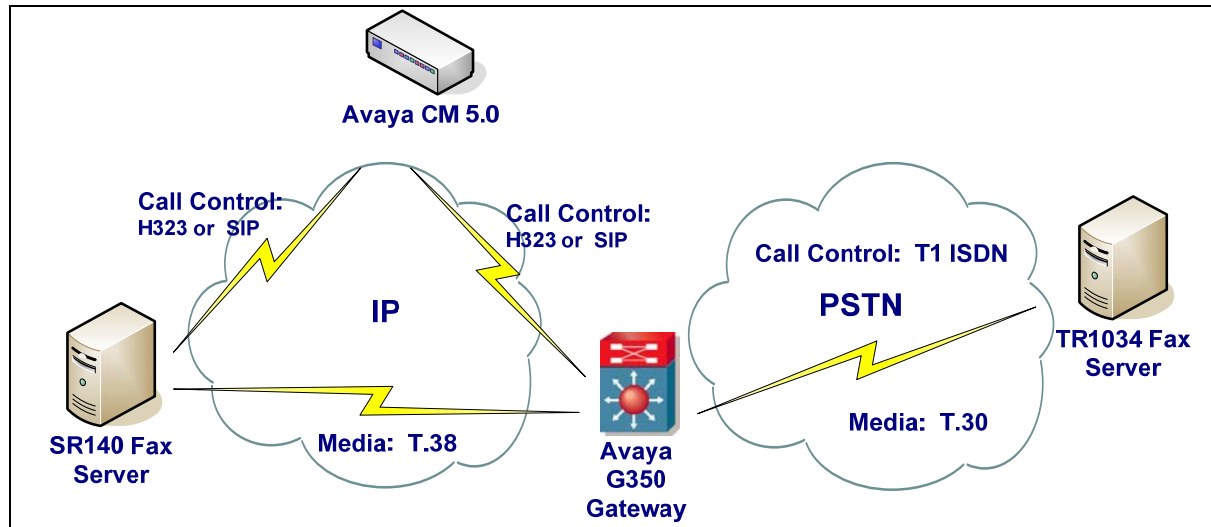


Diagram Notes:

- SR140 Fax Server = Fax Server including Dialogic® Brooktrout® SR140 Fax Software and third party fax application.
- TR1034 Fax Server = Fax Server including Dialogic® Brooktrout® TR1034 Fax Board and third party fax application.

3. Prerequisites

To support SIP, the Avaya GW requires the SES (SIP Enablement Services) option.

4. Summary of Limitations

- When configuring the Avaya GW for G.711 mu law and SIP, the SR140 must be configured to only offer the G.711 mu law codec in callctrl.cfg file.
- The Avaya GW cannot handle SIP invites with multiple “m” media lines, which the SR140 uses when originating a call with multiple codecs. So in callctrl.cfg, we added a section:

```
[host_module.1/rtp]
rtp_codec=pcmu
```

- The “SIP Domain” in the SES System Properties was set to “test.brooktrout.com”. The Avaya GW uses this as a filter for incoming invites, so the SR140 default for sip_From had to be changed to use this domain. So in callctrl.cfg, it looks like this:

```
Sip_From=Anonymous sip:no\_from\_info@test.brooktrout.com
```

- On the Avaya IP trunks, the “DTMF over IP” option should be set to “in-band”.

5. Dialogic® Brooktrout® SR140 Fax Software Setup Notes

5.1 SIP Configuration

For the SIP sample test configuration, the SR140 was configured using the default values except as previously noted in the Summary of Limitations section. Consult the *Dialogic® Brooktrout® Fax Products Installation and Configuration Guide* for details.

The Installation and Configuration Guides for SDK 5.2.x, SDK 6.0.x and SDK 6.1.x are available from the site:

<http://www.dialogic.com/manuals/brooktrout/default.htm>

The *callctrl.cfg* file configured for SIP sample test configuration is shown for reference:

```
api_trace=none
host_module_trace=none
internal_trace=none
ip_stack_trace=none
l3l4_trace=none
l4l3_trace=none
max_trace_files=1
max_trace_file_size=10
trace_file=
[host_module.1]
module_library=brktsip.dll
enabled=true
[host_module.1/t38parameters]
t38_fax_rate_management=transferredTCF
fax_transport_protocol=t38_only
t38_fax_udp_ec=t38UDPRedundancy
rtp_ced_enable=false
t38_max_bit_rate=14400
t38_fax_version=0
media_renegotiate_delay_inbound=1000
media_renegotiate_delay_outbound=-1
t38_fax_fill_bit_removal=false
t38_fax_transcoding_jbig=false
t38_fax_transcoding_mmr=false
t38_t30_fastnotify=false
t38_UDPTL_redundancy_depth_control=5
t38_UDPTL_redundancy_depth_image=2
[host_module.1/parameters]
sip_max_sessions=256
sip_default_gateway=0.0.0.0:0
sip_proxy_server1=
sip_proxy_server2=
sip_proxy_server3=
sip_proxy_server4=
sip_registration_server1=
sip_registration_server1_aor=
sip_registration_server1_username=
```

```
sip_registration_server1_password=  
sip_registration_server1_expires=3600  
sip_registration_server2=  
sip_registration_server2_aor=  
sip_registration_server2_username=  
sip_registration_server2_password=  
sip_registration_server2_expires=3600  
sip_registration_server3=  
sip_registration_server3_aor=  
sip_registration_server3_username=  
sip_registration_server3_password=  
sip_registration_server3_expires=3600  
sip_registration_server4=  
sip_registration_server4_aor=  
sip_registration_server4_username=  
sip_registration_server4_password=  
sip_registration_server4_expires=3600  
sip_registration_interval=60  
sip_Max-Forwards=70  
sip_From=Anonymous <sip:no_from_info@sushi.brooktrout.com>  
sip_Contact=0.0.0.0:0  
sip_username=-  
sip_session_name=no_session_name  
sip_session_description=  
sip_description_URI=  
sip_email=  
sip_phone=  
sip_Route=  
sip_session_timer_session_expires=0  
sip_session_timer_minse=-1  
sip_session_timer_refresh_method=0  
sip_ip_interface=  
sip_ip_interface_port=5060  
[host_module.1/rtp]  
  rtp_codec=pcmu  
[module.41]  
  model=SR140  
  virtual=1  
  exists=1  
  vb_firm=C:\Brooktrout\Boston\fw\bostvb.dll  
  channels=120  
[module.41/ethernet.1]  
  ip_interface={8A1AA204-C89E-4A4F-888F-360E11C82C77}:0  
  media_port_min=56000  
  media_port_max=57000  
[module.41/host_cc.1]  
  host_module=1  
  number_of_channels=120
```

5.2 H.323 Configuration

For the H.323 sample test configuration, the SR140 was configured using the default values. Consult the *Dialogic® Brooktrout® Fax Products Installation and Configuration Guide* for details.

The *callctrl.cfg* file configured for H.323 sample test configuration is shown for reference:

```
api_trace=none
host_module_trace=none
internal_trace=none
ip_stack_trace=none
l3l4_trace=none
l4l3_trace=none
max_trace_files=1
max_trace_file_size=10
trace_file=
[module.41]
model=SR140
virtual=1
exists=1
vb_firm=C:\Brooktrout\Boston\fw\bostvb.dll
channels=120
[module.41/ethernet.1]
ip_interface={8A1AA204-C89E-4A4F-888F-360E11C82C77}:0
media_port_min=56000
media_port_max=57000
[module.41/host_cc.1]
host_module=1
number_of_channels=120
[host_module.1]
module_library=brkth323.dll
enabled=true
[host_module.1/t38parameters]
t38_fax_rate_management=transferredTCF
fax_transport_protocol=t38_only
t38_fax_udp_ec=t38UDPRedundancy
rtp_ced_enable=false
t38_max_bit_rate=14400
t38_fax_version=0
media_renegotiate_delay_inbound=1000
media_renegotiate_delay_outbound=-1
t38_fax_fill_bit_removal=false
t38_fax_transcoding_jbig=false
t38_fax_transcoding_mmr=false
t38_t30_fastnotify=false
t38_UDPTL_redundancy_depth_control=5
t38_UDPTL_redundancy_depth_image=2
[host_module.1/parameters]
h323_CalledPartyOption=1
h323_default_gateway=0.0.0.0:0
h323_e164alias=
h323_FastStart=1
h323_gatekeeper_id=
h323_gatekeeper_ip_address=0.0.0.0:0
```


h323_gatekeeper_ttl=0
h323_H245Stage=5
h323_h245Tunneling=1
h323_h323IDalias=
h323_local_ip_address=0.0.0.0:0
h323_Manufacturer=Dialogic Corporation
h323_ManufacturerCode=48
h323_max_sessions=256
h323_MediaWaitForConnect=0
h323_OlcRejectResponseTimeout=-1
h323_OverrideNumberingPlan=-1
h323_OverrideNumberingType=-1
h323_RasTerminalType=0
h323_RasVoiceSupportedPrefixesE164=
h323_register=0
h323_support_alternate_gk=0
h323_t35CountryCode=181
h323_t35Extension=0

6. Dialogic® Brooktrout® TR1034 Fax PSTN Setup Notes

For the sample test configuration, the TR1034 was configured using the default values, consult the *Dialogic® Brooktrout® Fax Products Installation and Configuration Guide* for details.

7. Avaya Gateway Setup Notes

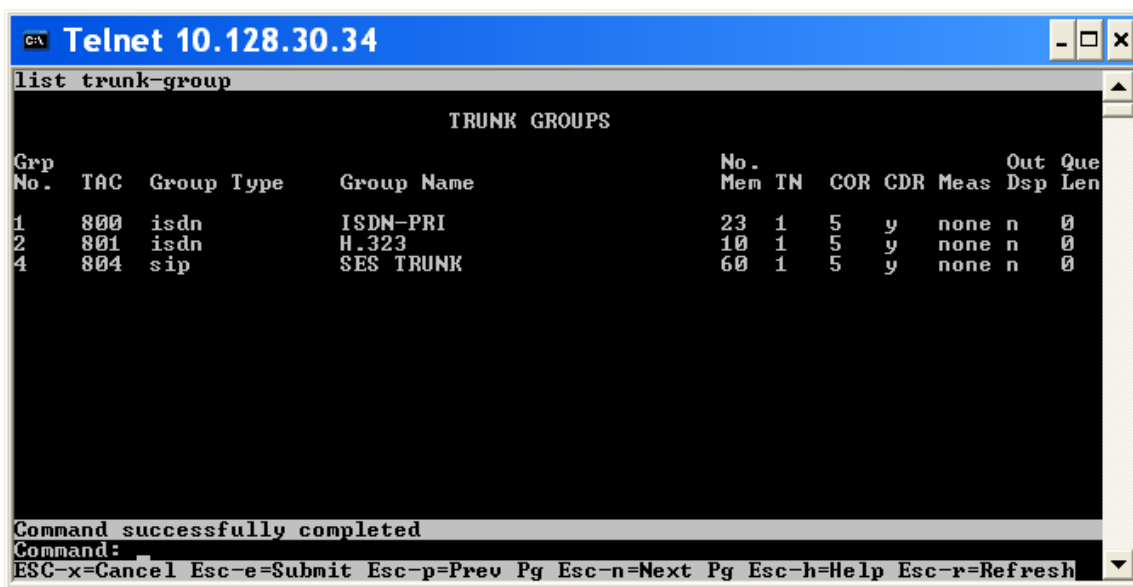
Two Avaya tools were used to create the Avaya configuration. The command line based “sat” tool for creating the trunks and dial plans, and also the Avaya SES GUI screens for setting SIP parameters.

7.1 Network Addresses

Device #	Device Make, Model, and Description	Device IP Address
1	SR140	10.128.30.12
2	Avaya server	10.128.30.34
3	Avaya gateway	10.128.30.35
4	TR1034 PSTN server	10.128.30.44 connected to the Avaya GW via T1 ISDN

7.2 IP Trunk Configuration

Using the “sat” tool “list trunk-group” command, we see trunk-group 1 is the ISDN T1 line, group 2 is the H.323 IP trunk, and group 4 is the SIP IP trunk.



```
C:\> Telnet 10.128.30.34
list trunk-group

                          TRUNK GROUPS

Grp No.   TAC   Group Type   Group Name           No. Mem TN  COR CDR Meas  Out Dsp  Que Len
1       800   isdn        ISDN-PRI             23  1  5   y   none n    0
2       801   isdn        H.323                10  1  5   y   none n    0
4       804   sip         SES TRUNK            60  1  5   y   none n    0

Command successfully completed
Command:
ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh
```

H.323 trunk group 2

Using the “sat” tool “display trunk-group 2” command, we see details of the H.323 trunk group.

```
C:\ Telnet 10.128.30.34
display trunk-group 2                                     Page 1 of 21
TRUNK GROUP_
Group Number: 2          Group Type: isdn          CDR Reports: y
Group Name: H.323        COR: 5                   TN: 1          TAC: 801
Direction: two-way      Outgoing Display? n       Carrier Medium: H.323
Dial Access? n          Busy Threshold: 255       Night Service:
Queue Length: 0
Service Type: tie        Auth Code? n
                          Member Assignment Method: manual

ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh
```

```
C:\ Telnet 10.128.30.34
display trunk-group 2                                     Page 2 of 21
Group Type: isdn
TRUNK PARAMETERS
Codeset to Send Display: 6      Codeset to Send National IEs: 6
Charge Advice: none
Supplementary Service Protocol: a Digit Handling (in/out): enbloc/enbloc

Incoming Calling Number - Delete: Insert:      Digital Loss Group: 18
Format:
Disconnect Supervision - In? y Out? y
Answer Supervision Timeout: 0

ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh
```

```
C:\ Telnet 10.128.30.34
display trunk-group 2                                     Page 3 of 21
TRUNK FEATURES_
  ACA Assignment? n                                     Measured: none
                                                         Internal Alert? n
                                                         Maintenance Tests? y
  Data Restriction? n                                   NCA-TSC Trunk Member:
  Send Name: y                                          Send Calling Number: y
                                                         Send EMU Visitor CPN? n
  Used for DCS? n                                       Format: public
  Suppress # Outpulsing? n                             UI IE Treatment: service-provider
                                                         Replace Restricted Numbers? n
                                                         Replace Unavailable Numbers? n
                                                         Send Connected Number: y
                                                         Hold/Unhold Notifications? n
                                                         Modify Tandem Calling Number? n
  Send UI IE? y
  Send UCID? n
  Send Codeset 6/? LAI IE? n
ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh
```

```
C:\ Telnet 10.128.30.34
display trunk-group 2                                     Page 4 of 21
QSIG TRUNK GROUP OPTIONS_
SBS? n
QSIG Value-Added? n
ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh
```

```
C:\ Telnet 10.128.30.34
display trunk-group 2                                     Page 5 of 21

TRUNK GROUP
Administered Members (min/max): 1/10
Total Administered Members: 10

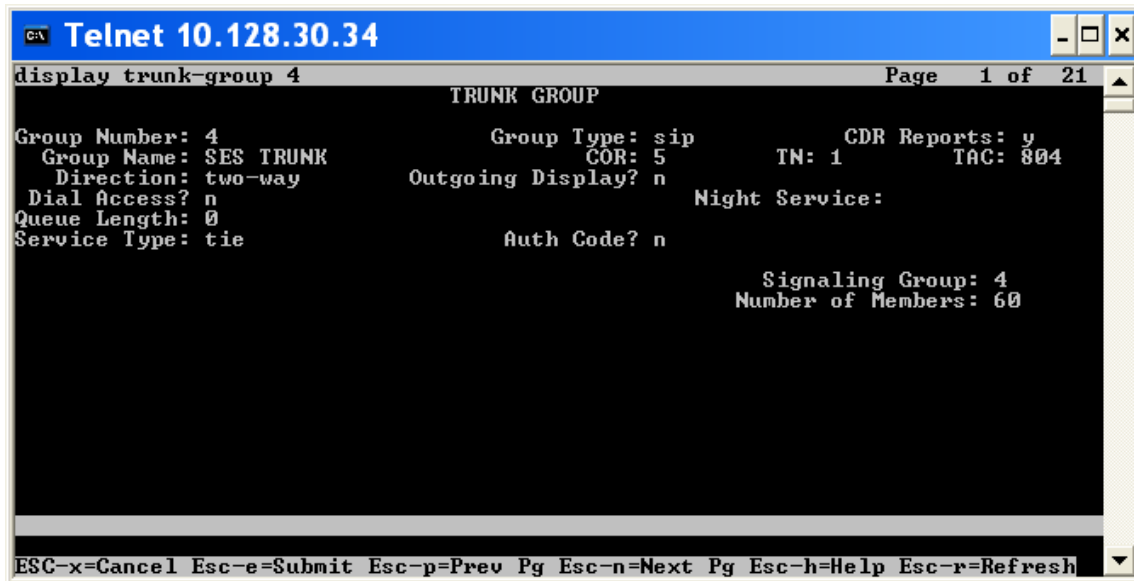
GROUP MEMBER ASSIGNMENTS

  Port      Name      Night      Sig Grp
1: T00024
2: T00025
3: T00026
4: T00027
5: T00028
6: T00029
7: T00030
8: T00031
9: T00032
10: T00033
11:
12:
13:
14:
15:

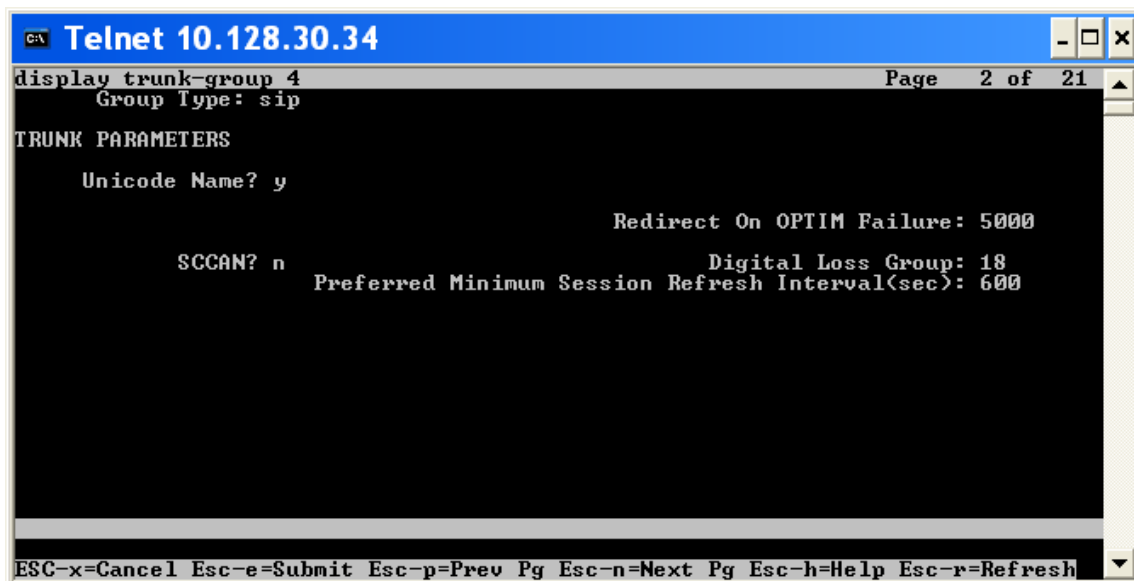
ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh
```

SIP trunk group 4

Using the “sat” tool “display trunk-group 4” command, we see details of the SIP trunk group.



```
C:\ Telnet 10.128.30.34
display trunk-group 4                                     Page 1 of 21
TRUNK GROUP
Group Number: 4          Group Type: sip          CDR Reports: y
Group Name: SES TRUNK    COR: 5                  TN: 1        TAC: 804
Direction: two-way      Outgoing Display? n      Night Service:
Dial Access? n
Queue Length: 0
Service Type: tie        Auth Code? n
                               Signaling Group: 4
                               Number of Members: 60
ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh
```



```
C:\ Telnet 10.128.30.34
display trunk-group 4                                     Page 2 of 21
Group Type: sip
TRUNK PARAMETERS
Unicode Name? y
Redirect On OPTIM Failure: 5000
SCCAN? n              Digital Loss Group: 18
Preferred Minimum Session Refresh Interval(sec): 600
ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh
```

```
C:\ Telnet 10.128.30.34
display trunk-group 4                                     Page 3 of 21
TRUNK FEATURES
    ACA Assignment? n          Measured: none          Maintenance Tests? y

    Numbering Format: public    UUI Treatment: service-provider
                                Replace Restricted Numbers? n
                                Replace Unavailable Numbers? n

Show ANSWERED BY on Display? y

ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh
```

```
C:\ Telnet 10.128.30.34
display trunk-group 4                                     Page 4 of 21
                                PROTOCOL VARIATIONS
                                Mark Users as Phone? n
                                Prepend '+' to Calling Number? n
                                Send Transferring Party Information? n
                                Telephone Event Payload Type:

ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh
```

```
C:\ Telnet 10.128.30.34
display trunk-group 4                                     Page 5 of 21
TRUNK GROUP
Administered Members <min/max>: 1/60
Total Administered Members: 60
GROUP MEMBER ASSIGNMENTS
Port      Name
1: T00044 SES TRUNK
2: T00045 SES TRUNK
3: T00046 SES TRUNK
4: T00047 SES TRUNK
5: T00048 SES TRUNK
6: T00049 SES TRUNK
7: T00050 SES TRUNK
8: T00051 SES TRUNK
9: T00052 SES TRUNK
10: T00053 SES TRUNK
11: T00054 SES TRUNK
12: T00055 SES TRUNK
13: T00056 SES TRUNK
14: T00057 SES TRUNK
15: T00058 SES TRUNK
ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh
```


Signaling groups

Using the “sat” tool “list signaling-group” command, we see that H.323 is signaling group 2 and SIP is signaling group 4.

```
C:\> Telnet 10.128.30.34
list signaling-group

                SIGNALING GROUPS

Grp  Group      FAS? No.  Primary  Secondary  Max    Max    No.  Adm'd
No.  Type          Trunk Brds  D-Channel D-Channel  NCA  TSCs  CA  TSCs  NCA  TSCs
1    isdn-pri    y     1          0010324          0      0      0
2    h.323      y     1          0      0      0      0      0
4    sip        y     1          0      0      0      0      0

Command successfully completed
Command:
ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh
```

H.323 signaling group 2

Using the “sat” tool “display signaling-group 2” command, we see details of the H.323 signaling group. Note that DTMF over IP is set to “in-band-g711”.

```

CN Telnet 10.128.30.34
display signaling-group 2                               Page 1 of 5
SIGNALING GROUP_
Group Number: 2          Group Type: h.323
Remote Office? n        Max number of NCA TSC: 0
SBS? n                  Max number of CA TSC: 0
IP Video? n              Trunk Group for NCA TSC:
Trunk Group for Channel Selection: 2
TSC Supplementary Service Protocol: a
T303 Timer(sec): 10

Near-end Node Name: procr          Far-end Node Name: kampai
Near-end Listen Port: 1720         Far-end Listen Port: 1720
Far-end Network Region: 1
LRQ Required? n                  Calls Share IP Signaling Connection? n
RRQ Required? n

Bypass If IP Threshold Exceeded? n
H.235 Annex H Required? n
Direct IP-IP Audio Connections? y
IP Audio Hairpinning? y
Interworking Message: PROGRESS
H.323 Outgoing Direct Media? n    DCP/Analog Bearer Capability: 3.1kHz
DTMF over IP: in-band-g711
Link Loss Delay Timer(sec): 90
Enable Layer 3 Test? n

ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh

```

```

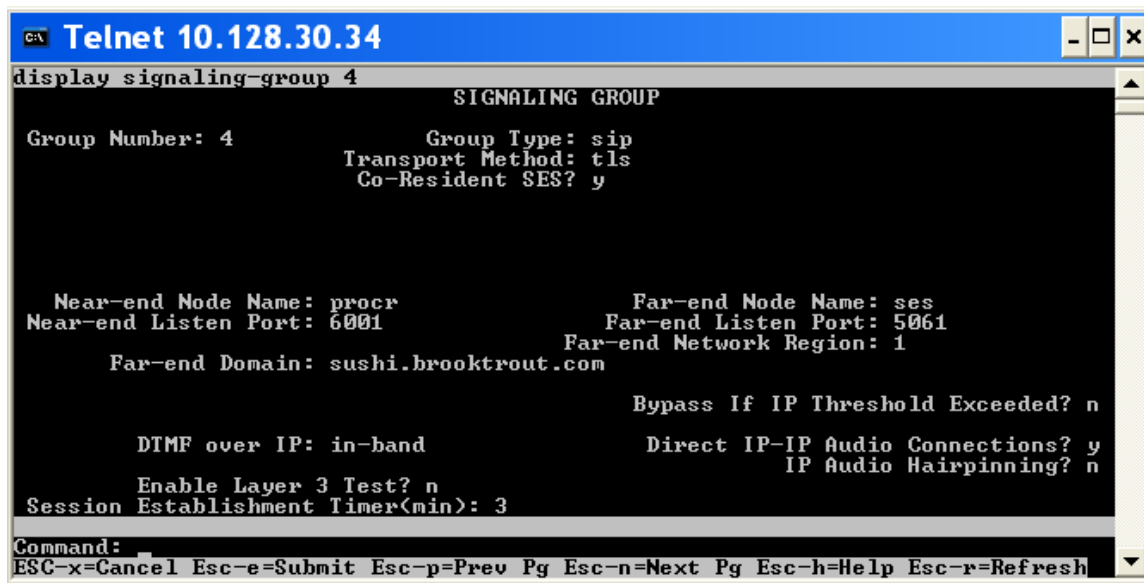
CN Telnet 10.128.30.34
display signaling-group 2                               Page 2 of 5
ADMINISTERED NCA TSC ASSIGNMENT_
Service/Feature:          As-needed Inactivity Time-out (min):
TSC Local
Index Ext. Enabled Established Dest. Digits Appl. Adj. Mach.
1:      n
2:      n
3:      n
4:      n
5:      n
6:      n
7:      n
8:      n
9:      n
10:     n
11:     n
12:     n
13:     n
14:     n
15:     n
16:     n

ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh

```

SIP signaling group 4

Using the “sat” tool “display signaling-group 4” command, we see details of the SIP signaling group. **Note that DTMF over IP is set to “in-band”.**



```
C:\> Telnet 10.128.30.34
display signaling-group 4

SIGNALING GROUP

Group Number: 4          Group Type: sip
                        Transport Method: tls
                        Co-Resident SES? y

Near-end Node Name: procr          Far-end Node Name: ses
Near-end Listen Port: 6001         Far-end Listen Port: 5061
                                Far-end Network Region: 1
Far-end Domain: sushi.brooktrout.com

                                Bypass If IP Threshold Exceeded? n

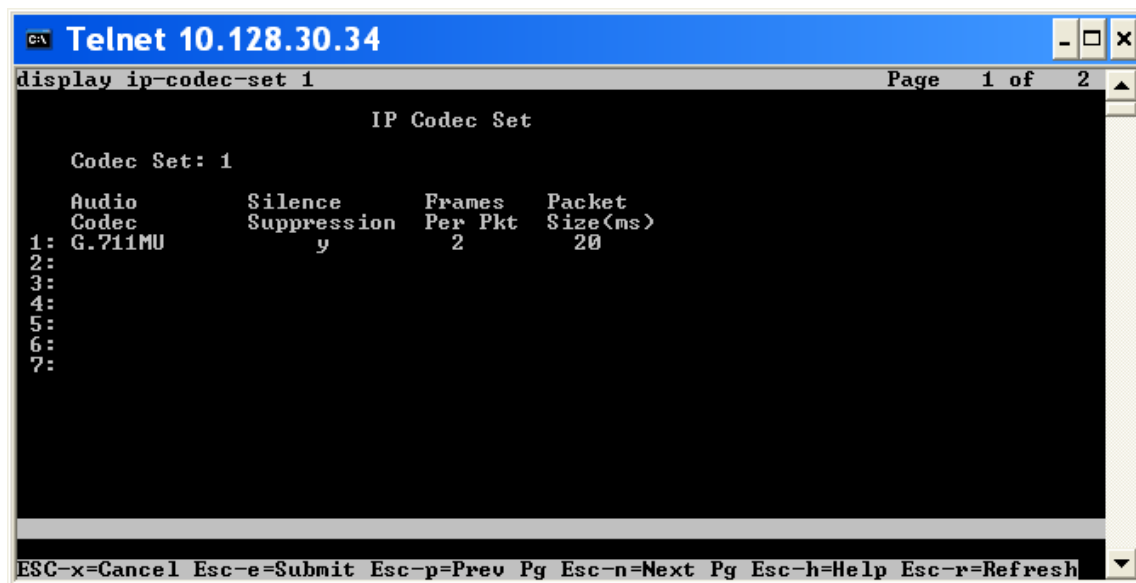
DTMF over IP: in-band          Direct IP-IP Audio Connections? y
                                IP Audio Hairpinning? n

Enable Layer 3 Test? n
Session Establishment Timer(min): 3

Command:
ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh
```

IP Codec setting

Using the “sat” tool “display ip-codec-set 1” command, we see that the Avaya GW was set to use G711 mu law as the codec and T.38 for fax.



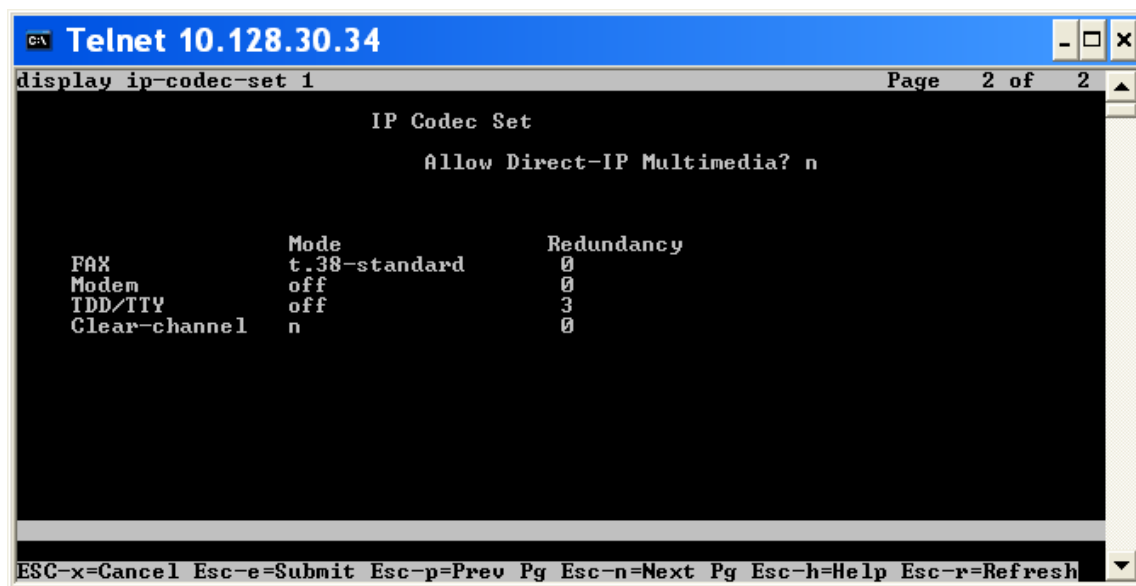
```
C:\> Telnet 10.128.30.34
display ip-codec-set 1                                     Page 1 of 2

                               IP Codec Set

      Codec Set: 1

      Audio      Silence      Frames      Packet
      Codec      Suppression  Per Pkt    Size(ms)
1:  G.711MU              y          2        20
2:
3:
4:
5:
6:
7:

ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh
```



```
C:\> Telnet 10.128.30.34
display ip-codec-set 1                                     Page 2 of 2

                               IP Codec Set

                               Allow Direct-IP Multimedia? n

      FAX          Mode          Redundancy
      Modem        t.38-standard  0
      TDD/TTY      off           0
      Clear-channel n            0

ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh
```

SIP settings in the SIP Server Management tool

The screenshot shows a web browser window titled "View System Properties - Microsoft Internet Explorer". The address bar displays the URL `https://10.128.30.34/cgi-bin/madmin/do/thishost/this_host`. The page header features the AVAYA logo and the text "Integrated Management SIP Server Management" with a server address "Server: 10.128.30.34".

The main content area is titled "View System Properties" and displays the following configuration details:

SES Version	SES-5.0.0.0-825.30
System Configuration	simplex
Host Type	CM combined home-edge

SIP Domain*

Note that the DNS domain is sushi.cantada.com

If you are unsure about this field, most often the SIP domain should be the root level DNS domain. For example, for a DNS domain of eastcoast.example.com, the SIP domain would likely be configured to example.com. This allows SIP calls and instant messages to users with handles of the format handle@example.com

SIP License Host*

DiffServ/TOS Parameters

Call Control PHB Value*

802.1 Parameters

Priority Value*

Management System Access Login

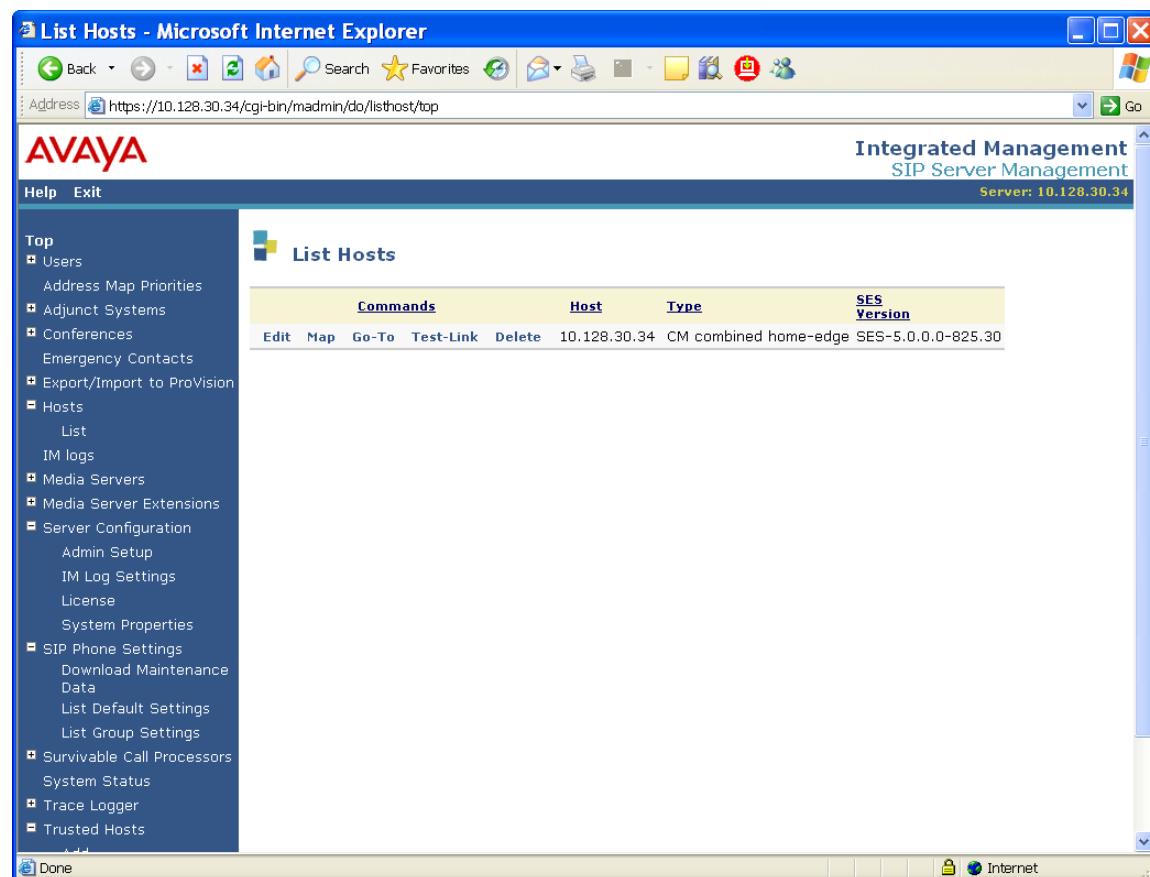
Management System Access Password

DB Log Level

The left sidebar contains a navigation menu with the following items:

- Top
 - Users
 - Address Map Priorities
 - Adjunct Systems
 - Conferences
 - Emergency Contacts
 - Export/Import to ProVision
 - Hosts
 - IM logs
 - Media Servers
 - Media Server Extensions
 - Server Configuration
 - Admin Setup
 - IM Log Settings
 - License
 - System Properties
 - SIP Phone Settings
 - Survivable Call Processors
 - System Status
 - Trace Logger
 - Trusted Hosts

The footer of the page states "© 2006 Avaya Inc. All Rights Reserved."



Edit Host - Microsoft Internet Explorer

Address: https://10.128.30.34/cgi-bin/madmin/do/listhost/edit_host?node_id=1

AVAYA

Integrated Management
SIP Server Management
Server: 10.128.30.34

Help Exit

Top

- Users
 - Address Map Priorities
- Adjunct Systems
- Conferences
 - Emergency Contacts
- Export/Import to ProVision
- Hosts
 - List
 - IM logs
- Media Servers
- Media Server Extensions
- Server Configuration
 - Admin Setup
 - IM Log Settings
 - License
 - System Properties
- SIP Phone Settings
- Survivable Call Processors
 - System Status
- Trace Logger
- Trusted Hosts

Edit Host

Host IP Address*

Profile Service Password*

Host Type
CM combined home-edge

Parent
none

Listen Protocols
☒ UDP ☒ TCP ☒ TLS

Link Protocols
☐ UDP ☐ TCP ☒ TLS

Access Control Policy (Default)
☐ Allow All ☒ Deny All

Emergency Contacts Policy
☒ Allow ☐ Deny

Minimum Registration (seconds)

Registration Expiration Timer (seconds)*

Line Reservation Timer (seconds)

Outbound Routing Allowed
☒ Internal ☒ External

OutboundProxy Port ☐ UDP ☐ TCP ☐ TLS

Outbound Direct Domains

Default Ringer Volume*

Default Ringer Cadence

Default Receiver Volume*

Default Speaker Volume*

VMM Server Address

VMM Server Port

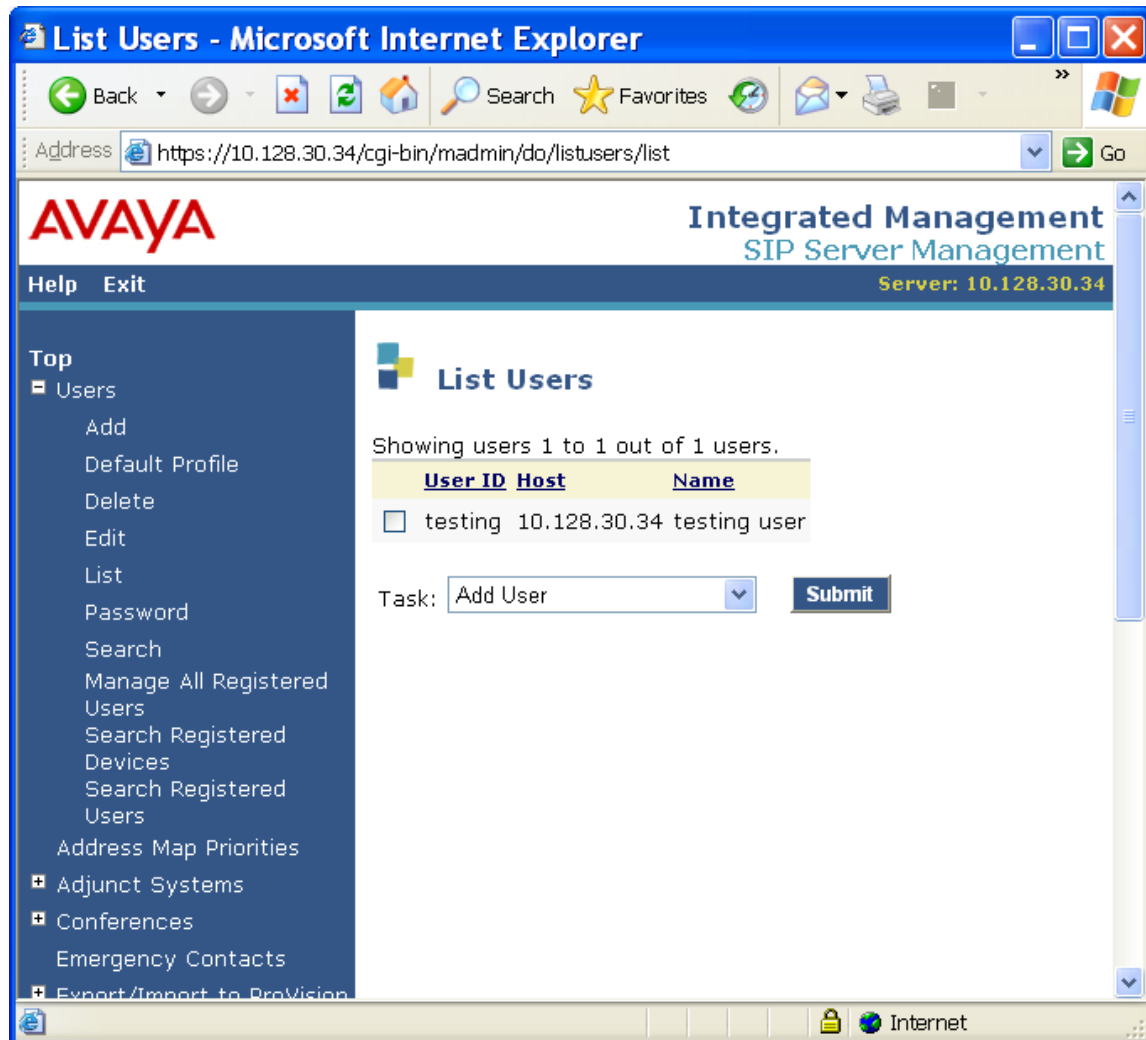
VMM Report Period

Fields marked * are required.

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Done Internet





Edit Media Server Interface - Microsoft Internet Explorer

Address: https://10.128.30.34/cgi-bin/madmin/do/listacp/edit_acp?acp_id=1

AVAYA Integrated Management SIP Server Management
Server: 10.128.30.34

Help Exit

Top

- Users
- Address Map Priorities
- Adjunct Systems
- Conferences
- Emergency Contacts
- Export/Import to ProVision
- Hosts
- IM logs
- Media Servers
- List
- Media Server Extensions
- Server Configuration
- Admin Setup
- IM Log Settings
- License
- System Properties
- SIP Phone Settings
- Survivable Call Processors
- System Status
- Trace Logger
- Trusted Hosts

Edit Media Server Interface

Media Server Interface Name* 10.128.30.34CM

Host 10.128.30.34

SIP Trunk IP Address* 10.128.30.34

SIP Trunk Port* 6001

Media Server

Media Server Admin Address (see Help) 10.128.30.34

Media Server Admin Port 5022

Media Server Admin Login sipuser

Media Server Admin Password*

Media Server Admin Password Confirm*

SMS Connection Type ☒ SSH ☐ Telnet ☐ Not Available

Note: Changing connection type to SSH resets media server admin port to 5022 if the port has not changed. Changing connection type to Telnet resets media server admin port to 5023 if the port has not changed.

Fields marked * are required.

Update

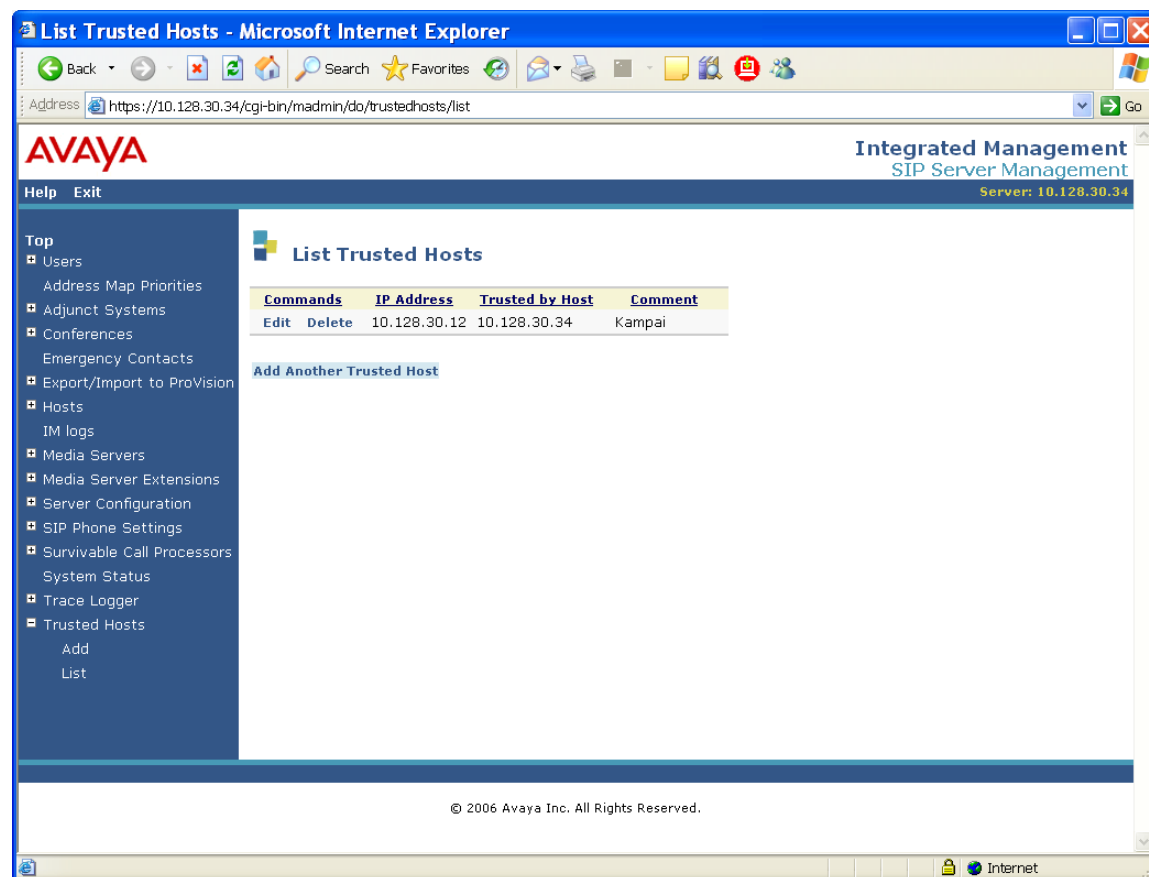
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Done Internet

The screenshot shows a web browser window titled "System Status - Microsoft Internet Explorer". The address bar displays "https://10.128.30.34/cgi-bin/madmin/do/systemstatus/top". The page features the Avaya logo and the title "Integrated Management SIP Server Management" with "Server: 10.128.30.34" below it. A left-hand navigation menu lists various system components, with "System Status" selected. The main content area, titled "System Status", includes a sub-section "Access Admin Setup" containing a table of system parameters.

Access Admin Setup	
Admin Connectivity	Connected
Master Administration IP Address	10.128.30.34
Host Type	home/edge
SipServer	SipServer 46/46 UP SIMPLEX
PPM Status	PPM is running
SESDDataService	SESDDataService is running...

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Address Map Priorities - Microsoft Internet Explorer

Address: https://10.128.30.34/cgi-bin/madmin/do/listaddressmaps/top

AVAYA Integrated Management
SIP Server Management
Server: 10.128.30.34

Help Exit

Top

- Users
 - Address Map Priorities
- Adjunct Systems
- Conferences
- Emergency Contacts
- Export/Import to ProVision
- Hosts
 - IM logs
- Media Servers
- Media Server Extensions
- Server Configuration
- SIP Phone Settings
 - Download Maintenance Data
 - List Default Settings
 - List Group Settings
- Survivable Call Processors
- System Status
- Trace Logger
- Trusted Hosts

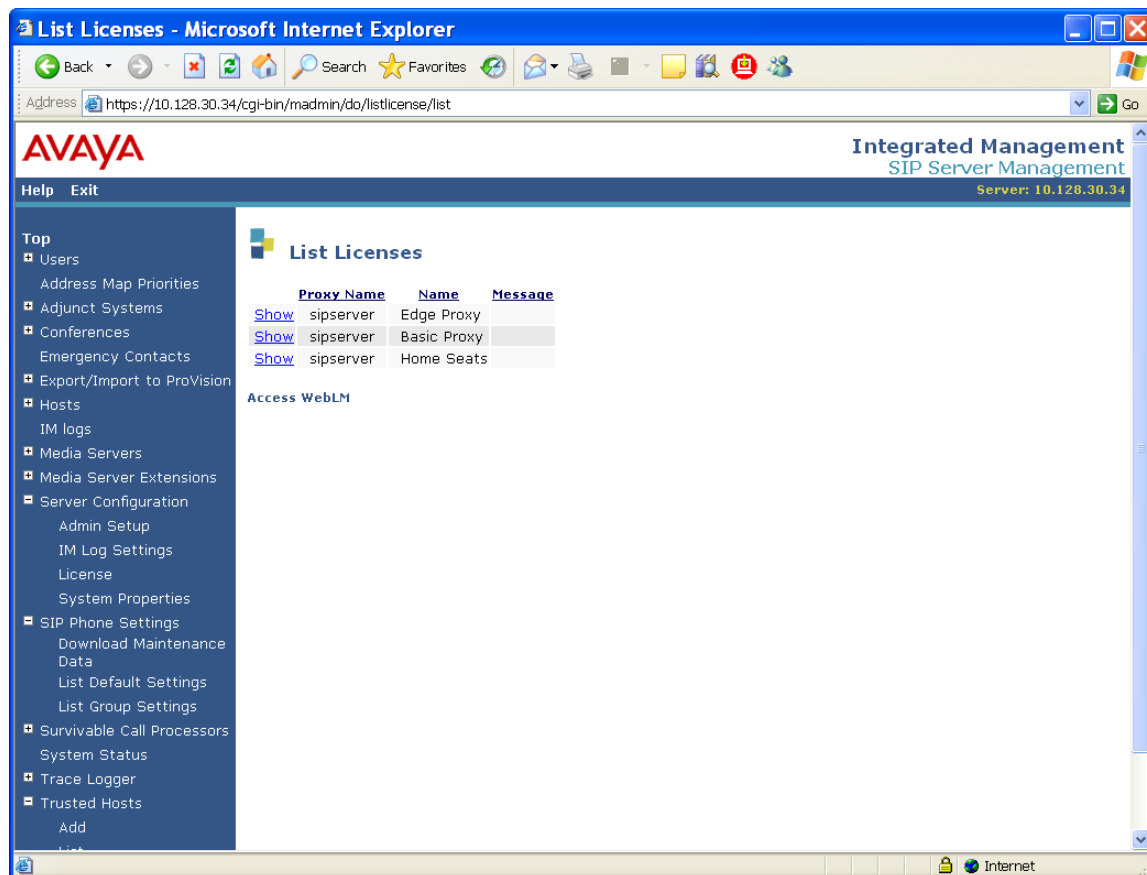
Address Map Priorities

Map Handle	Pattern	Map Type	Map Owner	Host	Priority* Highest Priority = 1
Kampai	^sip:7813230400	host	10.128.30.34	10.128.30.34	1
SIP_to_T1	^sip:0000	media server	10.128.30.34CM	10.128.30.34	1

Update

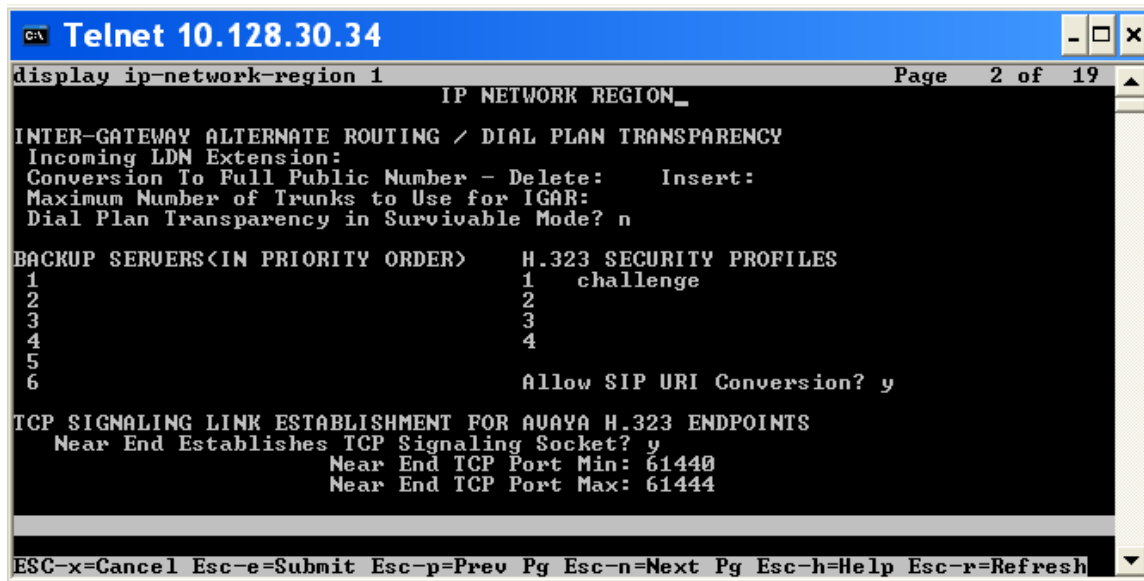
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Done Internet



Additional “sat” tool screen captures

Here are some additional screenshots from within the sat tool for reference.

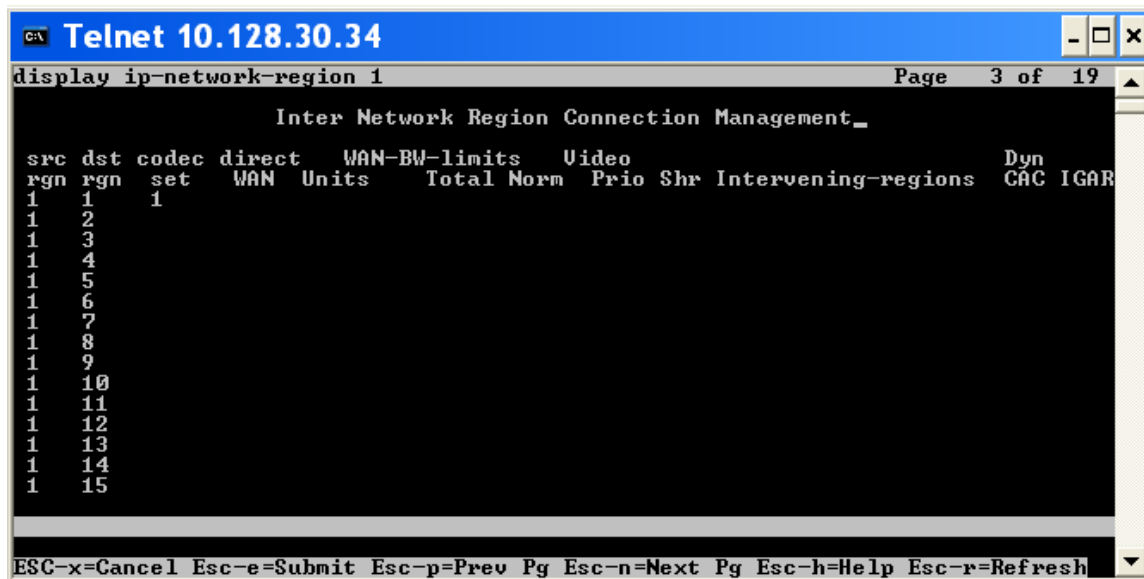


```
C:\> Telnet 10.128.30.34
display ip-network-region 1                               Page 2 of 19
IP NETWORK REGION_
INTER-GATEWAY ALTERNATE ROUTING / DIAL PLAN TRANSPARENCY
Incoming LDN Extension:
Conversion To Full Public Number - Delete:      Insert:
Maximum Number of Trunks to Use for IGAR:
Dial Plan Transparency in Survivable Mode? n

BACKUP SERVERS<IN PRIORITY ORDER>      H.323 SECURITY PROFILES
1                                         1 challenge
2                                         2
3                                         3
4                                         4
5                                         6
6                                         Allow SIP URI Conversion? y

TCP SIGNALING LINK ESTABLISHMENT FOR AVAYA H.323 ENDPOINTS
Near End Establishes TCP Signaling Socket? y
Near End TCP Port Min: 61440
Near End TCP Port Max: 61444

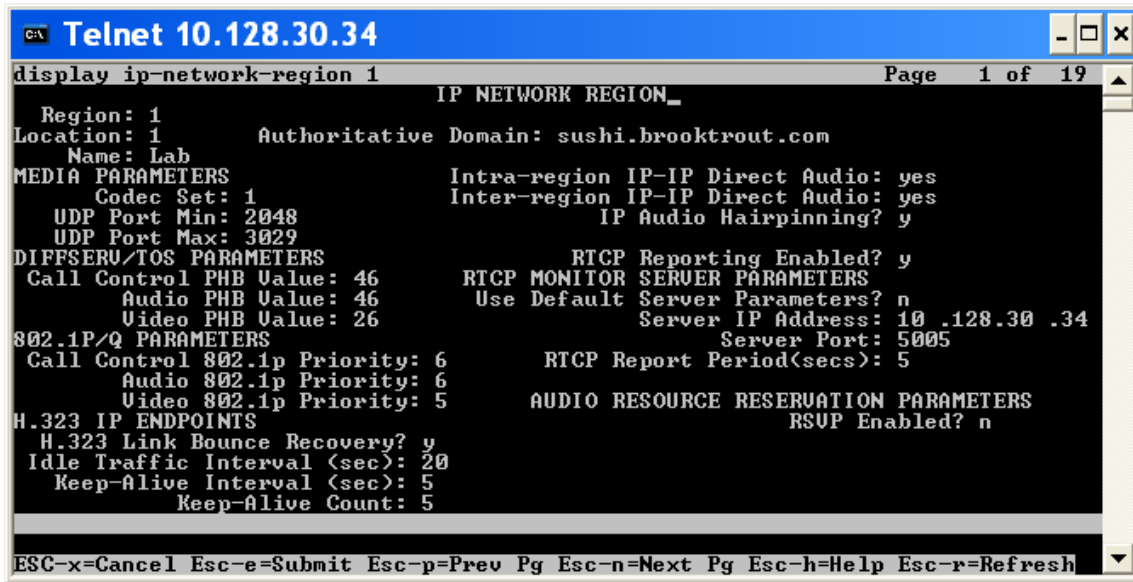
ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh
```



```
C:\> Telnet 10.128.30.34
display ip-network-region 1                               Page 3 of 19
Inter Network Region Connection Management_

src  dst  codec  direct  WAN-BW-limits  Video  Dyn
rgn  rgn   set   WAN  Units    Total Norm  Prio Shr Intervening-regions  CAC IGAR
1    1     1
1    2
1    3
1    4
1    5
1    6
1    7
1    8
1    9
1   10
1   11
1   12
1   13
1   14
1   15

ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh
```




```

Telnet 10.128.30.34
display ip-network-region 1
Page 2 of 19

IP NETWORK REGION

INTER-GATEWAY ALTERNATE ROUTING / DIAL PLAN TRANSPARENCY
Incoming LDN Extension:
Conversion To Full Public Number - Delete:      Insert:
Maximum Number of Trunks to Use for IGAR:
Dial Plan Transparency in Survivable Mode? n

BACKUP SERVERS<IN PRIORITY ORDER>      H.323 SECURITY PROFILES
1                                         1 challenge
2                                         2
3                                         3
4                                         4
5
6                                         Allow SIP URI Conversion? y

TCP SIGNALING LINK ESTABLISHMENT FOR AVAYA H.323 ENDPOINTS
Near End Establishes TCP Signaling Socket? y
Near End TCP Port Min: 61440
Near End TCP Port Max: 61444

ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh

```

```

Telnet 10.128.30.34
display ip-network-region 1
Page 3 of 19

Inter Network Region Connection Management

src dst codec direct WAN-BW-limits Video Dyn
rgn rgn set WAN Units Total Norm Prio Shr Intervening-regions CAC IGAR
1 1 1
1 2
1 3
1 4
1 5
1 6
1 7
1 8
1 9
1 10
1 11
1 12
1 13
1 14
1 15

ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh

```

```

C:\ Telnet 10.128.30.34
display node-names ip
IP NODE NAMES
Name      IP Address
default   0.0.0.0
ebi       10.128.30.101
fernando   10.128.24.44
hiramasa   10.128.30.102
kampai     10.128.30.12
procr      10.128.30.34
ses        10.128.30.34
zuke       10.128.30.119
zuke_ush   10.128.30.152

< 9 of 9 administered node-names were displayed >
Use 'list node-names' command to see all the administered node-names
Use 'change node-names ip xxx' to change a node-name 'xxx' or add a node-name

Command:
ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh

```

```

C:\ Telnet 10.128.30.34
display locations
Page 1 of 4
LOCATIONS
ARS Prefix 1 Required For 10-Digit NANP Calls? y

Loc  Name      Timezone Rule  NPA  ARS  Atd  Disp  Prefix  Proxy Sel
No   Offset      0      FAC  FAC  PAC  Parm  Rte Pat
1:   Main      + 00:00  0      1
2:   :
3:   :
4:   :
5:   :
6:   :
7:   :
8:   :
9:   :
10:  :
11:  :
12:  :
13:  :
14:  :

ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh

```

```
C:\ Telnet 10.128.30.34
display media-gateway 1

MEDIA GATEWAY

Number: 1                      Registered? y
Type: g350                     FW Version/HW Vintage: 27 .31 .0 /1
Name: minari_gw                MGP IP Address: 10 .128.30 .35
Serial No: 05IS35724256        Controller IP Address: 10 .128.30 .34
Encrypt Link? y                MAC Address: 00:04:0d:9a:a1:5d
Network Region: 1
Location: 1                    Site Data:
Recovery Rule: none

Slot  Module Type              Name
U1:    S8300                  ICC MM
U2:
U3:    MM710                  DS1 MM
U4:
U5:
U6:
U7:    1T+2L-Integ-Analog     ANA IMM           Max Survivable IP Ext: 8
U9:

Command:
ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh
```

```
C:\ Telnet 10.128.30.34
list public-unknown-numbering start 5

NUMBERING - PUBLIC/UNKNOWN FORMAT

Ext  Ext      Trk      CPN      Total
Len  Code      Grp(s)  Prefix   CPN
4    00          1        781911   10
4    03          1        781323   10

Command successfully completed
Command:
ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh
```

```

C:\ Telnet 10.128.30.34
list station

STATIONS

Ext/      Port/      Name/      Room/      Cv1/  COR/  Cable/
Hunt-to   Type       Surv GK NN  Move  Data Ext  Cv2  COS  TN  Jack
0102      001U702   line 2 <g350 front panel>      1
2500      2500      no                                1  1

Command successfully completed
Command:
ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh

```

```

C:\ Telnet 10.128.30.34
change station 0102                                     Page 1 of 4

STATION

Extension: 0102      Lock Messages? n      BCC: 0
Type: 2500           Security Code:        TN: 1
Port: 001U702       Coverage Path 1:      COR: 1
Name: line 2 <g350 front panel> Coverage Path 2:      COS: 1
Hunt-to Station:    Tests? y

STATION OPTIONS
  XOIP Endpoint type: auto      Time of Day Lock Table:
  Loss Group: 1                Message Waiting Indicator: none
  Off Premises Station? n

  Survivable COR: internal
  Survivable Trunk Dest? y

  Remote Office Phone? n

ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh

```

```

C:\ Telnet 10.128.30.34
change station 0102                                     Page 2 of 4
STATION
FEATURE OPTIONS
LWC Reception: spe
LWC Activation? y
LWC Log External Calls? n
CDR Privacy? n
Redirect Notification? y
Per Button Ring Control? n
Bridged Call Alerting? n
Switchhook Flash? y
Ignore Rotary Digits? n
H.320 Conversion? n
Service Link Mode: as-needed
Multimedia Mode: basic
MWI Served User Type:
AUDIX Name:
Coverage Msg Retrieval? y
Auto Answer: none
Data Restriction? n
Call Waiting Indication: y
Att. Call Waiting Indication: y
Distinctive Audible Alert? y
Adjunct Supervision? y
Per Station CPN - Send Calling Number?
Audible Message Waiting? n
Coverage After Forwarding? s
Multimedia Early Answer? n
Direct IP-IP Audio Connections? y
IP Audio Hairpinning? y
Emergency Location Ext: 0102
ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh

```

```

C:\ Telnet 10.128.30.34
change station 0102                                     Page 3 of 4
STATION
Bridged Appearance Origination Restriction? n

ENHANCED CALL FORWARDING
Forwarded Destination      Active
Unconditional For Internal Calls To:      n
                          External Calls To: n
Busy For Internal Calls To:                n
                          External Calls To: n
No Reply For Internal Calls To:            n
                          External Calls To: n
SAC/CF Override: No
ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh

```

```

C:\ Telnet 10.128.30.34
change station 0102                                     Page 4 of 4
STATION
SITE DATA
  Room:
  Jack:
  Cable:
  Floor:
  Building:
  Headset? n
  Speaker? n
  Mounting: d
  Cord Length: 0
  Set Color:

ABBREVIATED DIALING
  List1:
  List2:
  List3:

HOT LINE DESTINATION
  Abbreviated Dialing List Number (From above 1, 2 or 3):
  Dial Code:

  Line Appearance: call-appr

ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh

```

```

C:\ Telnet 10.128.30.34
display capacity                                     Page 1 of 12
SYSTEM CAPACITY
Current System Memory Configuration: Standard
Used Available System
----- Limit
AAR/ARS
  AAR/ARS Patterns: 4 250 254
  Inserted Digit Strings: 3 1197 1200
ABBREVIATED DIALING (AD)
  AD Entries Per System: 0 12000 12000
  AD Personal Lists Per System: 0 2400 2400
ADJUNCT SWITCH APPLICATION INTERFACE (ASAI)
  Active Controlling Associations: 0 2000 2000
  Notification Requests: 0 300 300
  Simultaneous Active Adjunct Controlled Calls: 0 600 600

ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh

```

```

C:\ Telnet 10.128.30.34
display system-parameters customer-options Page 2 of 10
OPTIONAL FEATURES_

IP PORT CAPACITIES
Maximum Administered H.323 Trunks: 22 10
Maximum Concurrently Registered IP Stations: 450 0
Maximum Administered Remote Office Trunks: 450 0
Maximum Concurrently Registered Remote Office Stations: 450 0
Maximum Concurrently Registered IP eCons: 0 0
Max Concur Registered Unauthenticated H.323 Stations: 0 0
Maximum Video Capable H.323 Stations: 0 0
Maximum Video Capable IP Softphones: 0 0
Maximum Administered SIP Trunks: 450 60
Maximum Administered Ad-hoc Video Conferencing Ports: 0 0
Maximum Number of DS1 Boards with Echo Cancellation: 80 0
Maximum TN2501 UAL Boards: 0 0
Maximum Media Gateway UAL Sources: 50 0
Maximum TN2602 Boards with 80 VoIP Channels: 0 0
Maximum TN2602 Boards with 320 VoIP Channels: 0 0
Maximum Number of Expanded Meet-me Conference Ports: 0 0

<NOTE: You must logoff & login to effect the permission changes.>

ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh

```

```

C:\ Telnet 10.128.30.34
display system-parameters customer-options Page 4 of 10
OPTIONAL FEATURES_

Emergency Access to Attendant? y IP Stations? y
Enable 'dadmin' Login? y
Enhanced Conferencing? y ISDN Feature Plus? y
Enhanced EC500? y ISDN/SIP Network Call Redirection? n
Enterprise Survivable Server? n ISDN-BRI Trunks? y
Enterprise Wide Licensing? n ISDN-PRI? y
ESS Administration? n Local Survivable Processor? n
Extended Cvg/Fwd Admin? y Malicious Call Trace? y
External Device Alarm Admin? y Media Encryption Over IP? n
Five Port Networks Max Per MCG? n Mode Code for Centralized Voice Mail? n
Flexible Billing? n
Forced Entry of Account Codes? y Multifrequency Signaling? y
Global Call Classification? y Multimedia Call Handling <Basic>? y
Hospitality <Basic>? y Multimedia Call Handling <Enhanced>? y
Hospitality <G3U3 Enhancements>? y Multimedia IP SIP Trunking? n
IP Trunks? y
IP Attendant Consoles? y
<NOTE: You must logoff & login to effect the permission changes.>

ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh

```

7.3 Dialing Plan Overview

Fax calls were placed from the SR140 to the T1 through the Avaya GW, and from the T1 to the SR140 through the Avaya GW. The phone number dialed on the PSTN side determines if the Avaya GW will route the call to the H.323 or SIP trunk. When calling from the IP side via H.323 or SIP, the same phone number is used to route the call to the PSTN T1 connection.

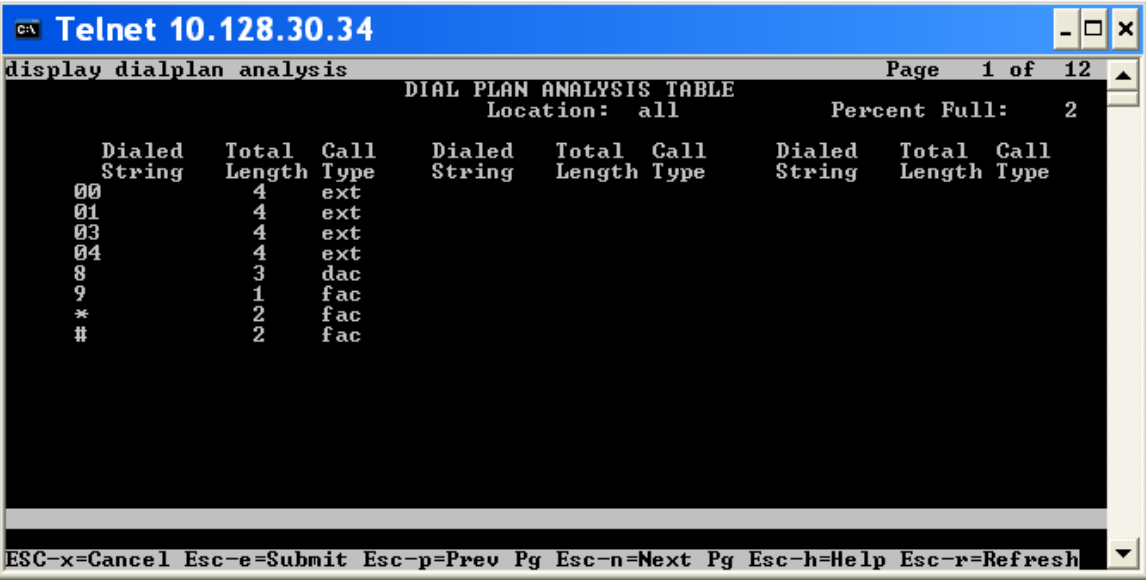
To call the SR140 (H.323) from the PSTN connection: dial string 0300

To call the SR140 (SIP) from the PSTN connection: dial string 0400

Call PSTN T1 from SR140 using SIP or H.323: dial string 0000@10.128.30.34

7.4 Call Routing Configuration

Here are screens showing the dial plan setup that was used.



The screenshot shows a Telnet window titled "C:\ Telnet 10.128.30.34". The user has entered the command "display dialplan analysis". The output is a "DIAL PLAN ANALYSIS TABLE" for "Location: all", showing "Page 1 of 12" and "Percent Full: 2". The table has three columns: "Dialed String", "Total Length", and "Call Type". The data rows are as follows:

Dialed String	Total Length	Call Type
00	4	ext
01	4	ext
03	4	ext
04	4	ext
8	3	dac
9	1	fac
*	2	fac
#	2	fac

At the bottom of the window, there is a status bar with the text: "ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh".


```

C:\ Telnet 10.128.30.34
display uniform-dialplan 0
UNIFORM DIAL PLAN TABLE
Percent Full: 0

Matching      Len Del    Insert   Net Conv Node
Pattern              Digits
00            4   0     222      aar  n   Num
03            4   0     111      aar  n
04            4   0     444      aar  n
               n
               n
               n
               n
               n
               n
               n
               n
               n
               n

```

ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh

```
C:\ Telnet 10.128.30.34 - □ ×
```

```
display aar analysis 1 Page 1 of 2 ▲
```

```
AAR DIGIT ANALYSIS TABLE_
Location: all Percent Full: 2
```

Dialed String	Total Min	Total Max	Route Pattern	Call Type	Node Num	ANI Req'd
111	7	7	2	aar	n	n
2	7	7	254	aar	n	n
222	7	7	1	aar	n	n
3	7	7	254	aar	n	n
4	7	7	254	aar	n	n
444	7	7	4	aar	n	n
5	7	7	254	aar	n	n
6	7	7	254	aar	n	n
7	7	7	254	aar	n	n
8	7	7	254	aar	n	n
9	7	7	254	aar	n	n
					n	n
					n	n
					n	n
					n	n

```
ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh ▼
```

```

C:\ Telnet 10.128.30.34
display route-pattern 1
Page 1 of 3
Pattern Number: 1 Pattern Name: IP to TDM
SCCAN? n Secure SIP? n
Grp FRL NPA Pfx Hop Toll No. Inserted DCS/ IXC
No Del Digits QSIG Intw
1: 1 0 781 0 3 781911 n user
2: n user
3: n user
4: n user
5: n user
6: n user

BCC VALUE TSC CA-TSC ITC BCIE Service/Feature PARM No. Numbering LAR
0 1 2 M 4 W Request Dgts Format Subaddress
1: y y y y y n n bothept none
2: y y y y y n n rest none
3: y y y y y n n rest none
4: y y y y y n n rest none
5: y y y y y n n rest none
6: y y y y y n n rest none

ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh

```

```

C:\ Telnet 10.128.30.34
display route-pattern 4
Page 1 of 3
Pattern Number: 4 Pattern Name: TDM to SIP
SCCAN? n Secure SIP? n
Grp FRL NPA Pfx Hop Toll No. Inserted DCS/ IXC
No Del Digits QSIG Intw
1: 4 3 781 0 3 781323 n user
2: n user
3: n user
4: n user
5: n user
6: n user

BCC VALUE TSC CA-TSC ITC BCIE Service/Feature PARM No. Numbering LAR
0 1 2 M 4 W Request Dgts Format Subaddress
1: y y y y y n n rest none
2: y y y y y n n rest none
3: y y y y y n n rest none
4: y y y y y n n rest none
5: y y y y y n n rest none
6: y y y y y n n rest none

ESC-x=Cancel ESC-e=Submit ESC-p=Prev Pg ESC-n=Next Pg ESC-h=Help ESC-r=Refresh

```

8. Frequently Asked Questions

- *"I'm configured as near as possible to this the sample configuration described in this document, but calls are still not successful; what is my next step?"*
 - ➔ Provide this document to your gateway support.
 - ➔ Ensure T.38 is enabled on the gateway.
 - ➔ Confirm that basic network access is possible by pinging the gateway.
- *"How do I obtain Wireshark traces?"*
 - ➔ The traces can be viewed using the Wireshark network analyzer program, which can be freely downloaded from <http://www.wireshark.org>.
 - ➔ To view the call flow in Wireshark, open the desired network trace file and select "Statistics->VoIP Calls" from the drop down menu. Then highlight the call and click on the "Graph" button.