



# **Dialogic<sup>®</sup> Brooktrout<sup>®</sup> 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	<b>Avaya</b>
Model	<b>Communication Manager</b>
Software Version	<b>5.0</b>
Protocol to SR140	<b>SIP or H.323</b>
Protocol to Gateway	<b>SIP or H.323</b>

## 2.2 Avaya G350 Gateway

Vendor	<b>Avaya</b>
Model	<b>G350 with S8300</b>
Software Version	<b>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</b>
PSTN Device	<b>Dialogic® Brooktrout® TR1034 Fax Board</b>
Protocol to PSTN Device	<b>T1 ISDN</b>
IP Device	<b>Dialogic® Brooktrout® SR140 Fax Software and Avaya CM 5.0</b>
Protocol to CM 5.0	<b>SIP or H.323</b>

## 2.3 Dialogic® Brooktrout® SR140 Fax Software

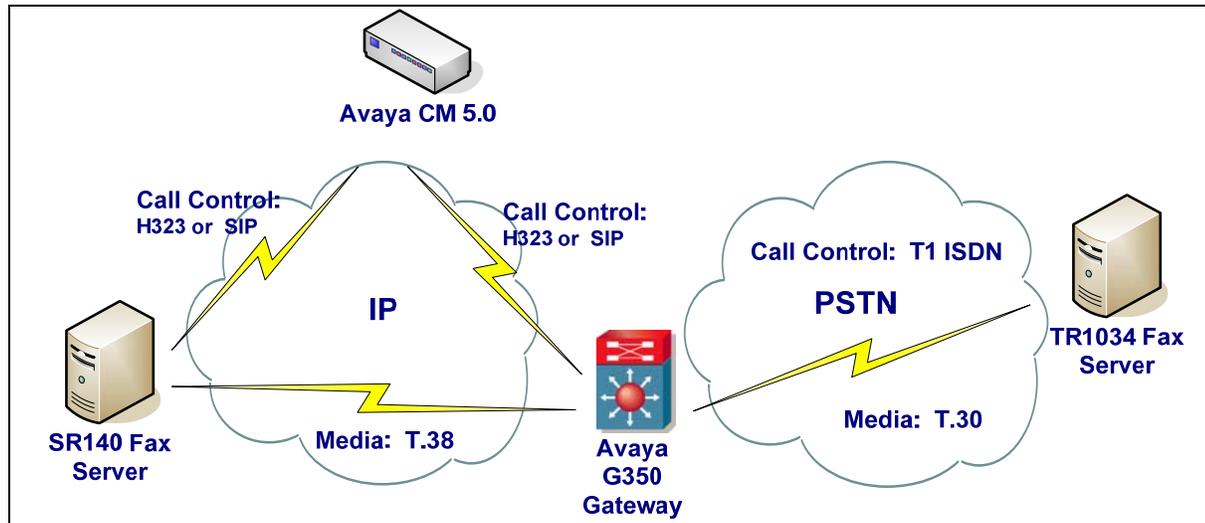
Vendor	<b>Dialogic</b>
Model	<b>Dialogic® Brooktrout® SR140 Fax Software</b>
Software Version	<b>SDK 6.0.0 and higher</b>
Protocol to CM 5.0	<b>SIP or H.323</b>
callctrl.cfg file	<b>All defaults</b>

## 2.4 Dialogic® Brooktrout® TR1034 Fax Board

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

## 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.

```

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.

```
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
```

```
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
Digital Loss Group: 18
Incoming Calling Number - Delete: Insert: 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
                               Used for DCS? n          Send EMU Visitor CPN? n
  Suppress # Outpulsing? n   Format: public
                               UII 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 UII IE? y
  Send UCID? n
  Send Codeset 6/7 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.

```
CA 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
```

```
CA 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.



```
CA 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           001U324           0     0     0
2    h.323      y     1           0     0     0
4    sip       y     1           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”.

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

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 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.
Name ID
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”.**



```
GA Telnet 10.128.30.34
display signaling-group 4
SIGNALING GROUP
Group Number: 4          Group Type: sip
                        Transport Method: tls
                        Co-Resident SES? y

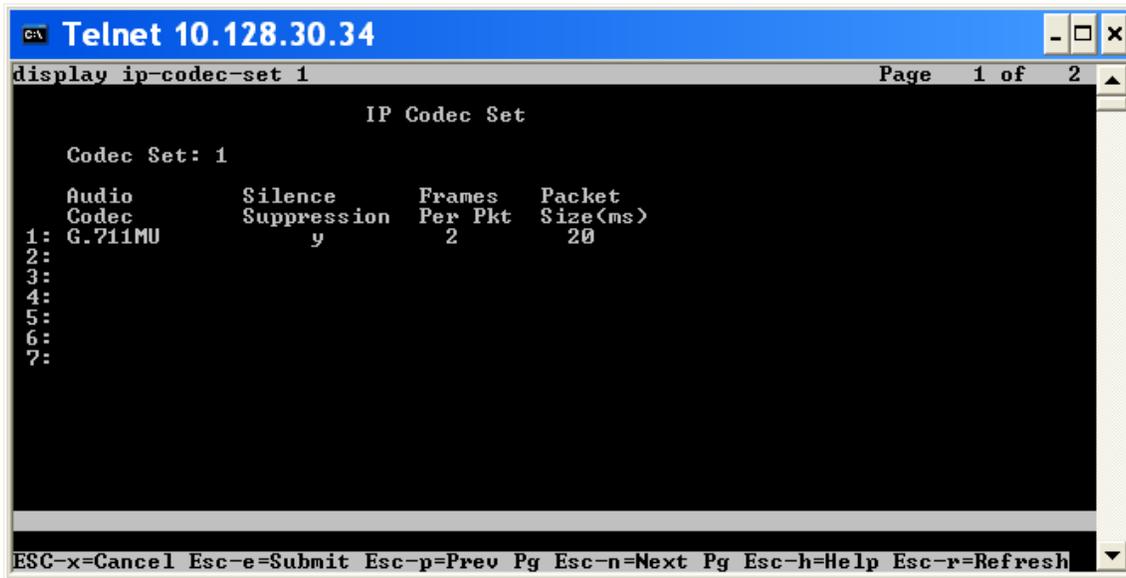
Near-end Node Name: procr          Far-end Node Name: ses
Near-end Listen Port: 6001        Far-end Listen Port: 5061
Far-end Network Region: 1
Far-end Domain: sushi.brooktrout.com

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

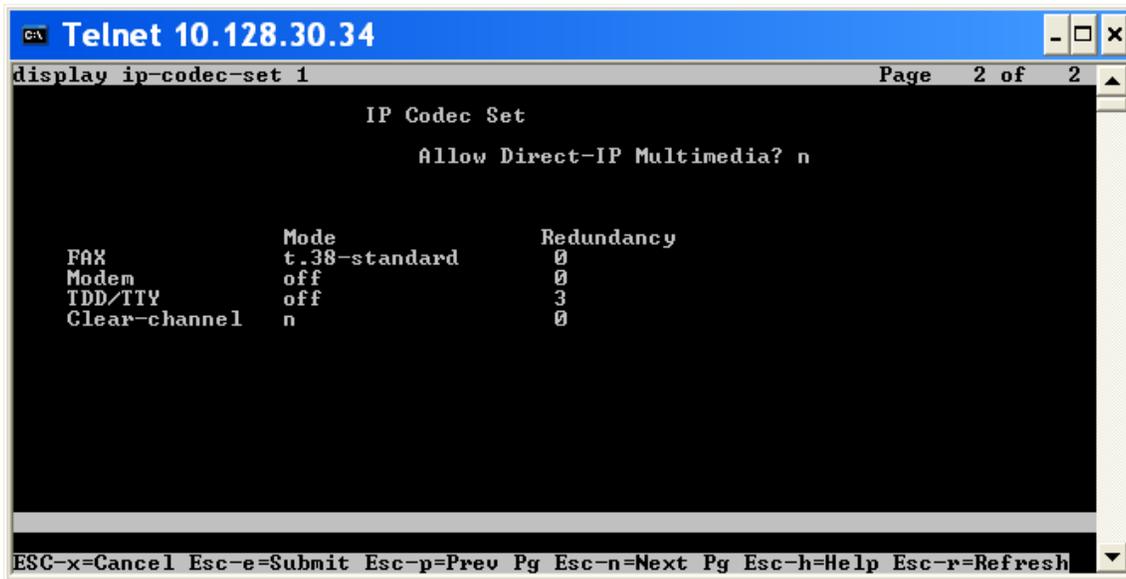
Command:
ESC-x=Cancel Esc-e=Submit Esc-p=Prev Pg Esc-n=Next Pg Esc-h=Help Esc-r=Refresh
```

## 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.



```
CA 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
```



```
CA 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
IDD/TTY  off       0
Clear-channel n         3
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 displays the 'View System Properties' page within the Avaya Integrated Management SIP Server Management tool. The browser window title is 'View System Properties - Microsoft Internet Explorer'. The address bar shows the URL: `https://10.128.30.34/cgi-bin/madmin/do/thishost/this_host`. The page header includes the Avaya logo and the text 'Integrated Management SIP Server Management' with the server IP '10.128.30.34'. A left-hand navigation menu lists various system components, with 'System Properties' selected. The main content area is titled 'View System Properties' and contains the following configuration details:

SES Version	SES-5.0.0.0-825.30
System Configuration	simplex
Host Type	CM combined home-edge
SIP Domain*	<input type="text" value="sushi.brooktrout.com"/>

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*	<input type="text" value="10.128.30.34"/>
-------------------	---

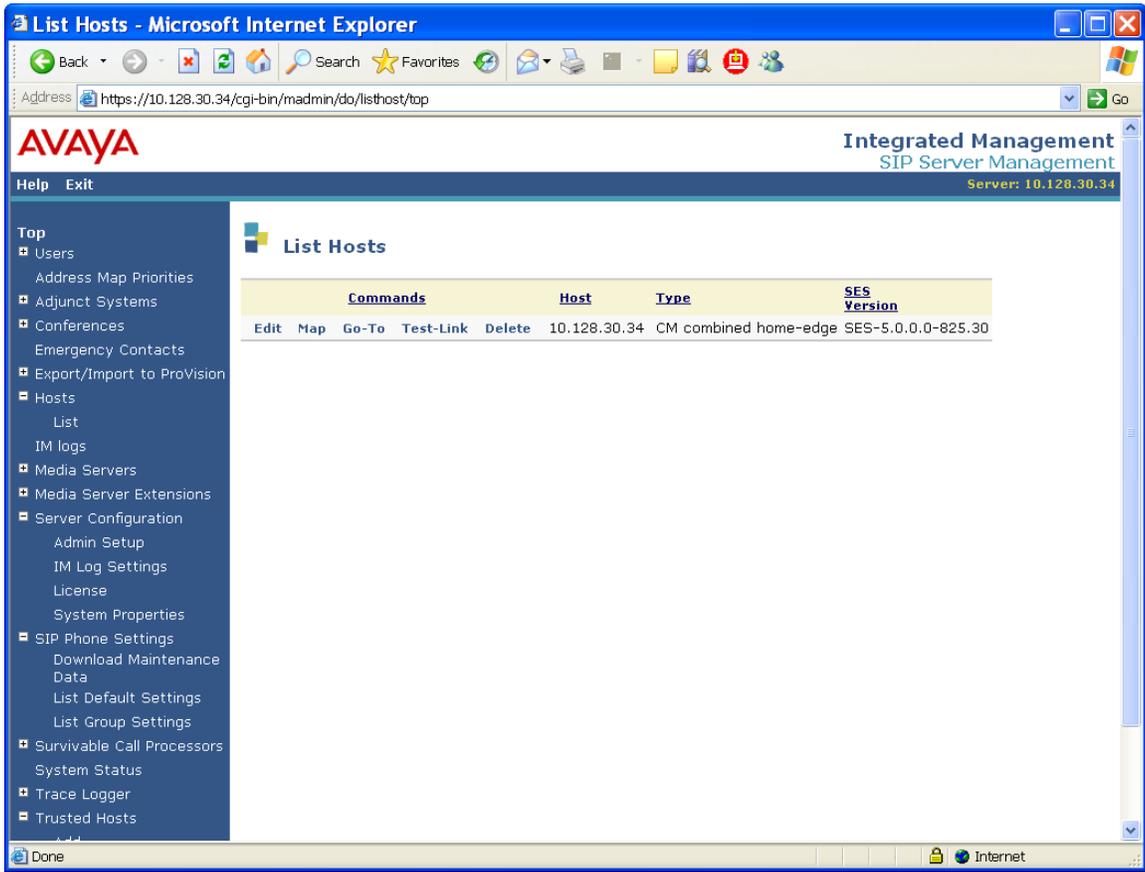
**DiffServ/TOS Parameters**

Call Control PHB Value*	<input type="text" value="46"/>
-------------------------	---------------------------------

**802.1 Parameters**

Priority Value*	<input type="text" value="6"/>
Management System Access Login	<input type="text"/>
Management System Access Password	<input type="text"/>
DB Log Level	<input type="text" value="disabled"/>

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**AVAYA** Integrated Management SIP Server Management  
Server: 10.128.30.34

Help Exit

**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  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

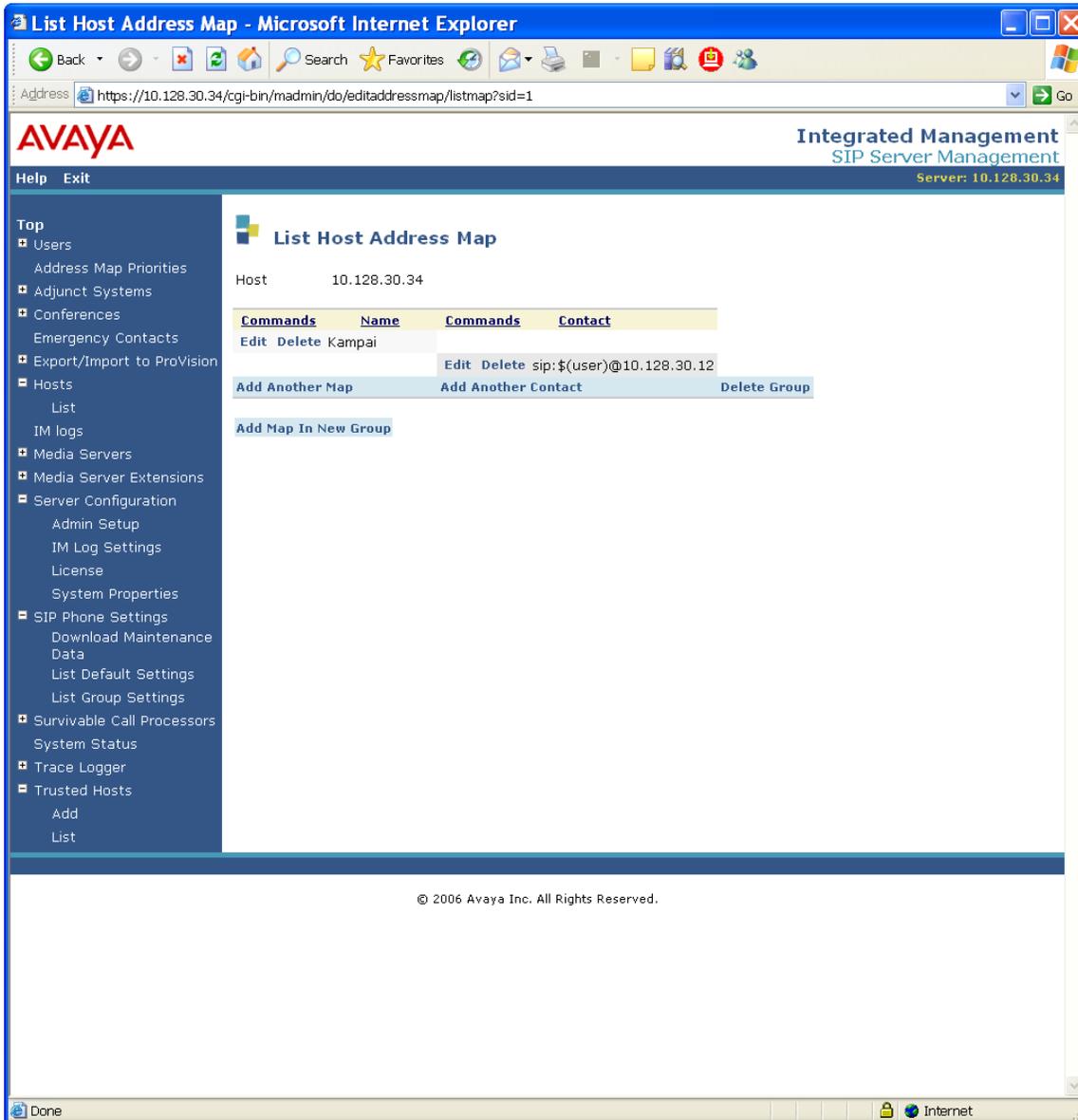
Default Receiver Volume\*  Default Speaker Volume\*

VMM Server Address

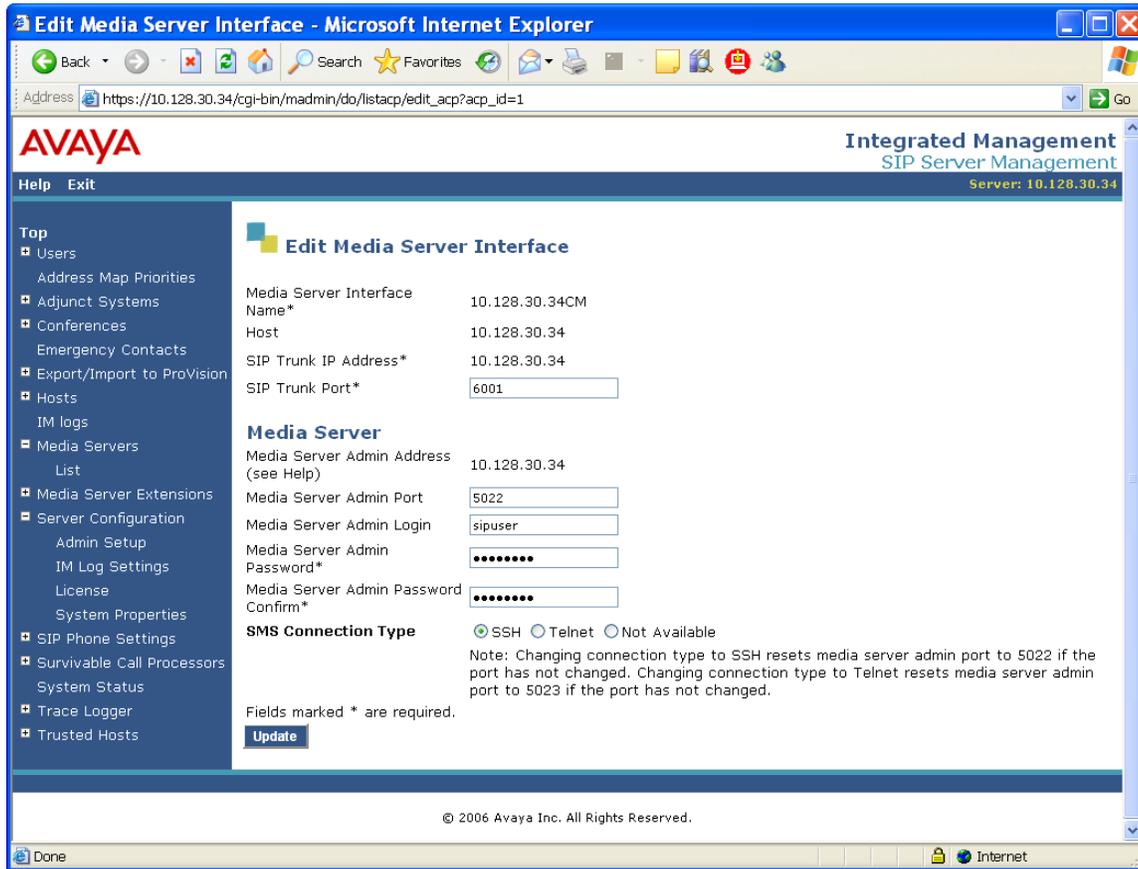
VMM Server Port  VMM Report Period

Fields marked \* are required.

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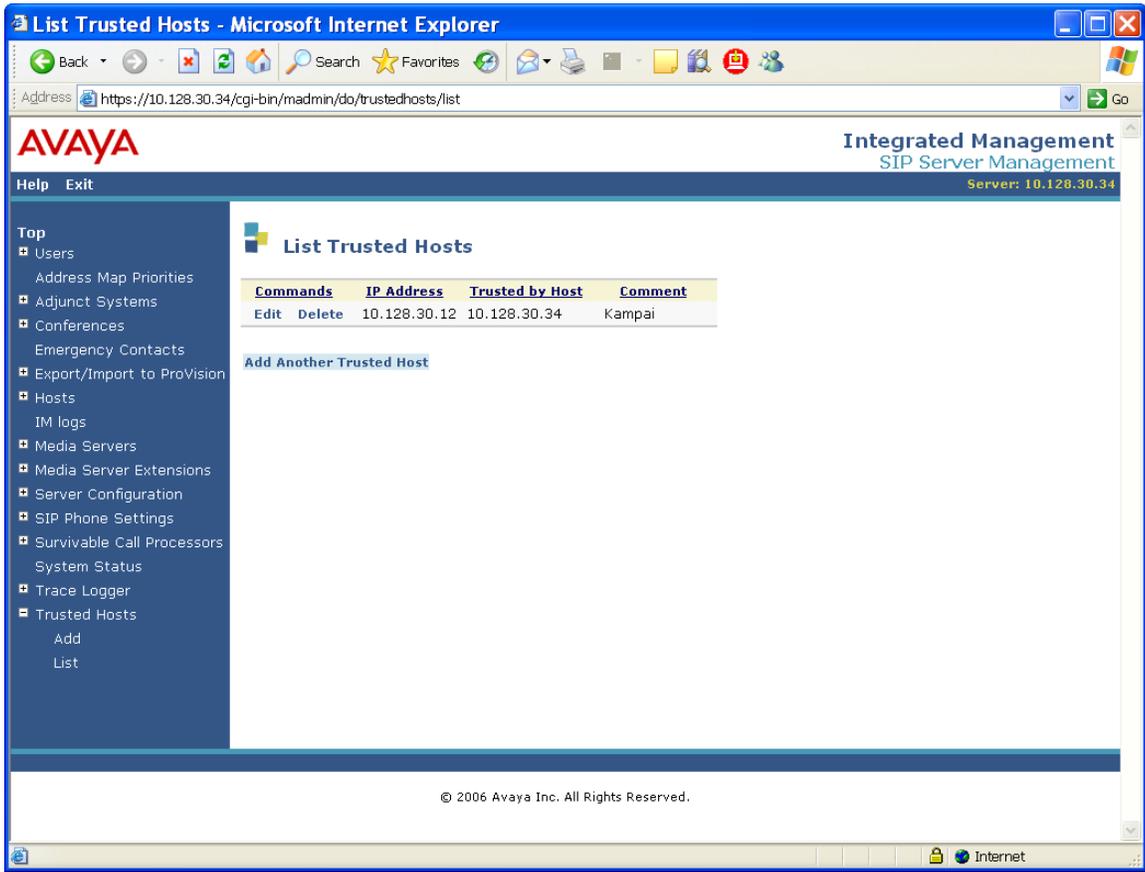


**System Status**

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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The screenshot shows a Microsoft Internet Explorer browser window displaying the Avaya Integrated Management SIP Server Management interface. The address bar shows the URL: <https://10.128.30.34/cgi-bin/madmin/do/listaddressmaps/top>. The page title is "Address Map Priorities".

The interface includes a navigation menu on the left with the following items:

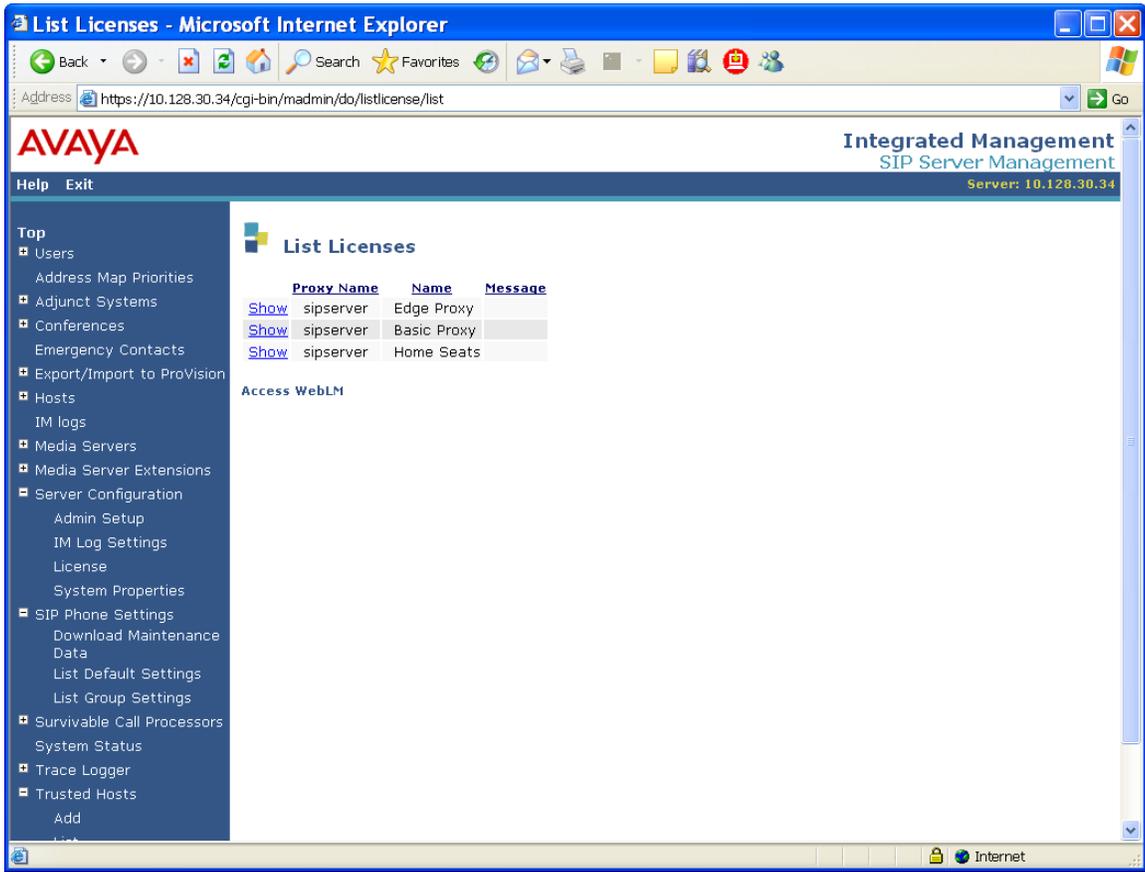
- Top
  - Users
  - Address Map Priorities
  - Adjunct Systems
  - Conferences
  - Emergency Contacts
  - Export/Import to ProVision
  - Hosts
  - IM logs
  - Media Servers
  - Media Server Extensions
  - Server Configuration
  - SIP Phone Settings
    - Download Maintenance Data
    - List Default Settings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

The main content area displays the "Address Map Priorities" table:

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

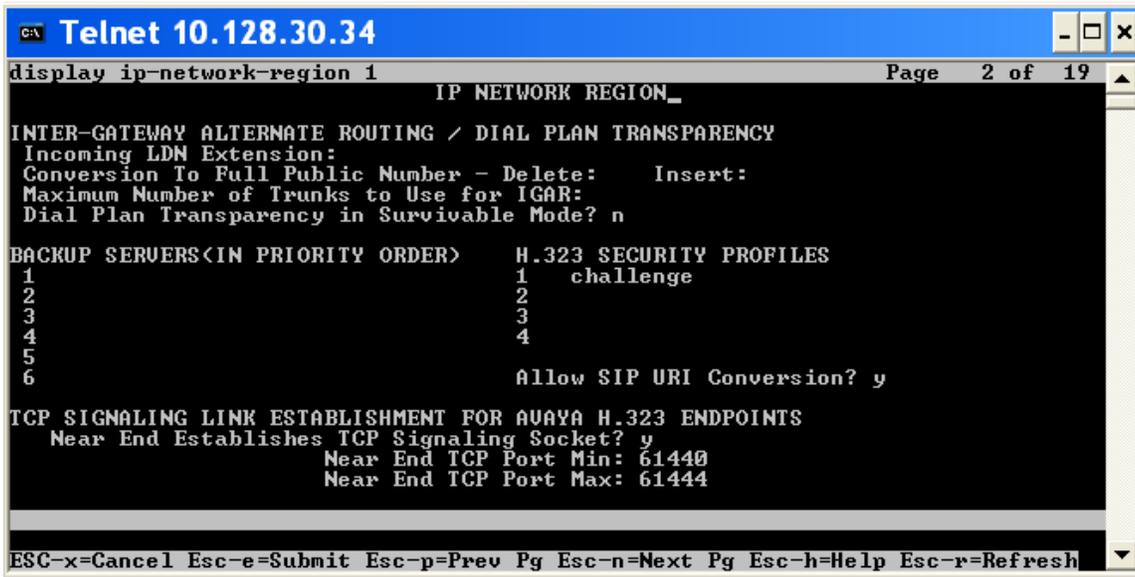
Below the table is an "Update" button.

At the bottom of the page, there is a copyright notice: © 2006 Avaya Inc. All Rights Reserved.



## Additional “sat” tool screen captures

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

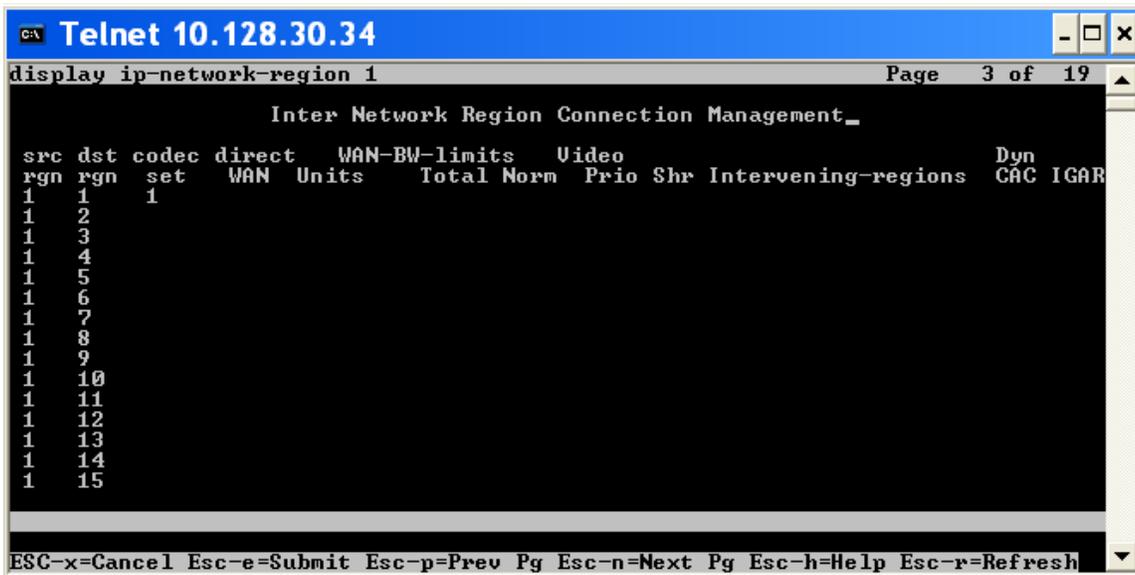


```
C:\> Telnet 10.128.30.34
display ip-network-region 1                               Page 2 of 19
IP NETWORK REGION_
INTER-GATEWAY ALTERNATE ROUTING / DIAL PLAN TRANSPARENCY
Incoming LDN Extension:
Conversion To Full Public Number - Delete:      Insert:
Maximum Number of Trunks to Use for IGAR:
Dial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



```
CA 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
```

```
CA 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
```

```
CA 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_usb      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
```

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

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

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

```
CA Telnet 10.128.30.34
display media-gateway 1
MEDIA GATEWAY
Number: 1 Registered? y
Type: g350 FW Version/HW Uintage: 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
```

```
CA Telnet 10.128.30.34
list public-unknown-numbering start 5
NUMBERING - PUBLIC/UNKNOWN FORMAT
Ext Len Ext Code Trk Grp(s) CPN Prefix Total CPN Len
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
```

```
CA Telnet 10.128.30.34
list station

STATIONS

Ext/      Port/      Name/      Room/      Cw1/  COR/      Cable/
 Hunt-to  Type      Surv GK NN  Move      Data Ext  Cw2  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
```

```
CA 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
KOIP 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
```

```
CA 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
```

```
CA 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
```

```

CA 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
    
```

```

CA 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
    
```

```
CA 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
```

```
CA 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.

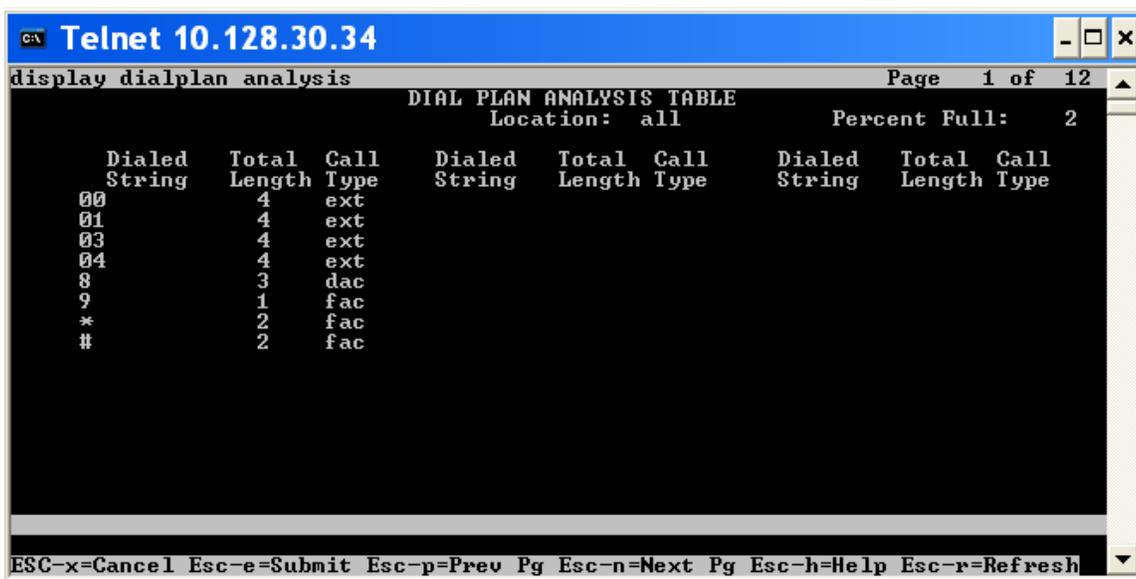
To call the SR140 (H.323) from the PSTN connection: dial string 0300

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.



```
C:\> Telnet 10.128.30.34
display dialplan analysis
DIAL PLAN ANALYSIS TABLE
Location: all          Percent Full: 2

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

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
Pattern Number: 1 Pattern Name: IP to TDM
SCCAN? n Secure SIP? n
Grp FRL NPA Pfx Hop Toll No. Inserted DCS/ IXC
No Mrk Lmt List 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
Pattern Number: 4 Pattern Name: TDM to SIP
SCCAN? n Secure SIP? n
Grp FRL NPA Pfx Hop Toll No. Inserted DCS/ IXC
No Mrk Lmt List 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.