Avaya Solution & Interoperability Test Lab

Configuring SIP Connectivity between the Avaya Communication Server Integral 55 LX and Avaya Meeting Exchange Express Edition - Issue 1.0

Abstract

These Application Notes present the procedures for configuring SIP connectivity between the Avaya Communication Server Integral 55 LX (Avaya I55) and Avaya Meeting Exchange Express Edition (Avaya Meeting Exchange). This configuration leverages the flexibility offered by the Avaya I55 to support a rich set of audio conferencing options provided by Avaya Meeting Exchange.

1. Introduction

These Application Notes present the procedures for configuring SIP connectivity between the Avaya Communication Server Integral 55 LX (Avaya I55) and Avaya Meeting Exchange Express Edition (Avaya Meeting Exchange). This configuration leverages the flexibility offered by the Avaya I55 to support a rich set of audio conferencing options provided by Avaya Meeting Exchange.

Figure 1 illustrates the sample network configuration utilized for this compliance tested solution. The Avaya I55 is an ISDN based PABX (Private Automatic Branch Exchange) that also supports IP based clients and trunks via SIP and H.323. For this sample configuration, the Avaya I55 provided endpoint aggregation and media gateway functionality. For example, any station or trunk type associated with the Avaya I55 can interoperate with Avaya Meeting Exchange via SIP connectivity. The Avaya I55 also provided feature functionality for stations interoperating with Avaya Meeting Exchange, e.g., call hold, call transfer, three-way conference.

Avaya Meeting Exchange is a SIP-based voice conferencing solution that provides mid-market enterprise customers with an IP based audio conferencing system. For this sample configuration, Avaya Meeting Exchange was provisioned to accept calls from the Avaya I55 via either direct or basic call flows. A direct call flow allows access to conferences provisioned on Avaya Meeting Exchange without entering a passcode. Conversely, to enter a conference via a basic call flow requires a passcode. Avaya Meeting Exchange was also administered for outbound calling, which enabled call origination from Avaya Meeting Exchange to participants registered to the Avaya I55.

Signaling and media (audio) connectivity between the Avaya I55 and Avaya Meeting Exchange was configured for SIP and RTP respectively. Direct IP-to-IP audio connectivity on the Avaya I55 is not supported, e.g., the media exchange (RTP) between the Avaya 4600 Series IP Telephones registered to the Avaya I55 and Avaya Meeting Exchange is required to traverse the Avaya I55.

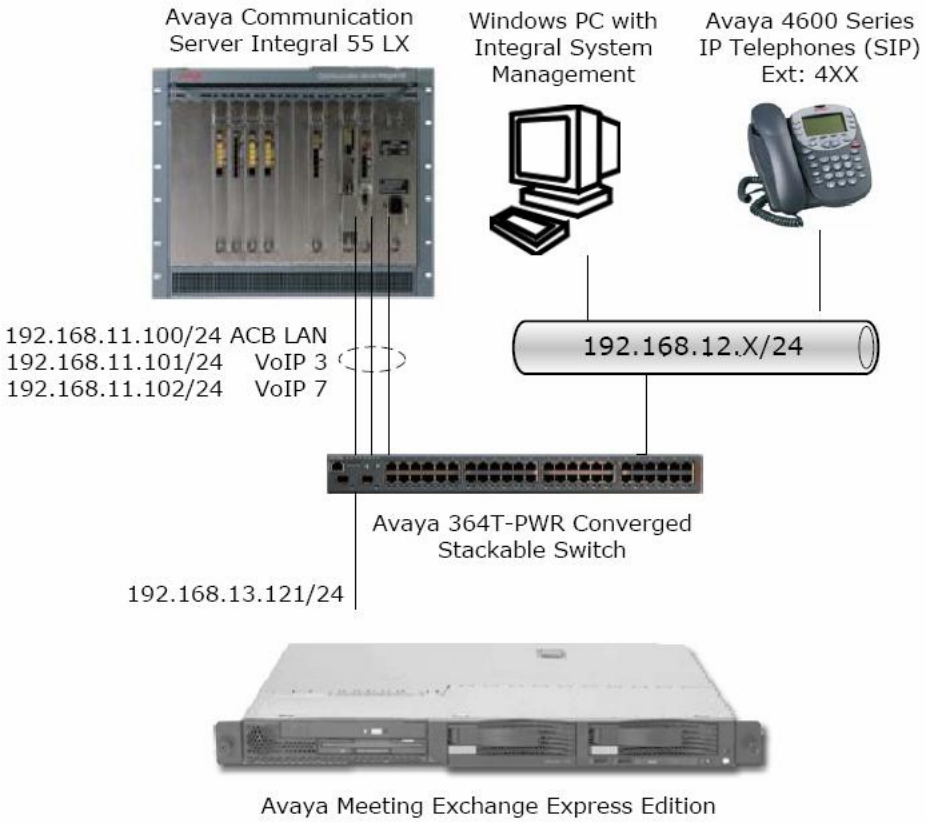


Figure 1: Sample Network Configuration

2. Equipment and Software Validated

The following equipment and software versions were used for this sample configuration:

Equipment	Software Version
Avaya Communication Server Integral 55 LX • ACB • VoIP Module(s)	 L030V00.1.4 VOIPSW56_rel_0166
Integral System Management	13.0.4
Avaya Meeting Exchange Express Edition	S6100-2.5.21.0
Avaya C364T-PWR Converged Stackable Switch	4.5.14
Avaya 4600 Series IP Telephones	2.2.2 (SIP)

Table 1: Equipment and Software Versions

3. Avaya Communication Server Integral 55 LX Configuration

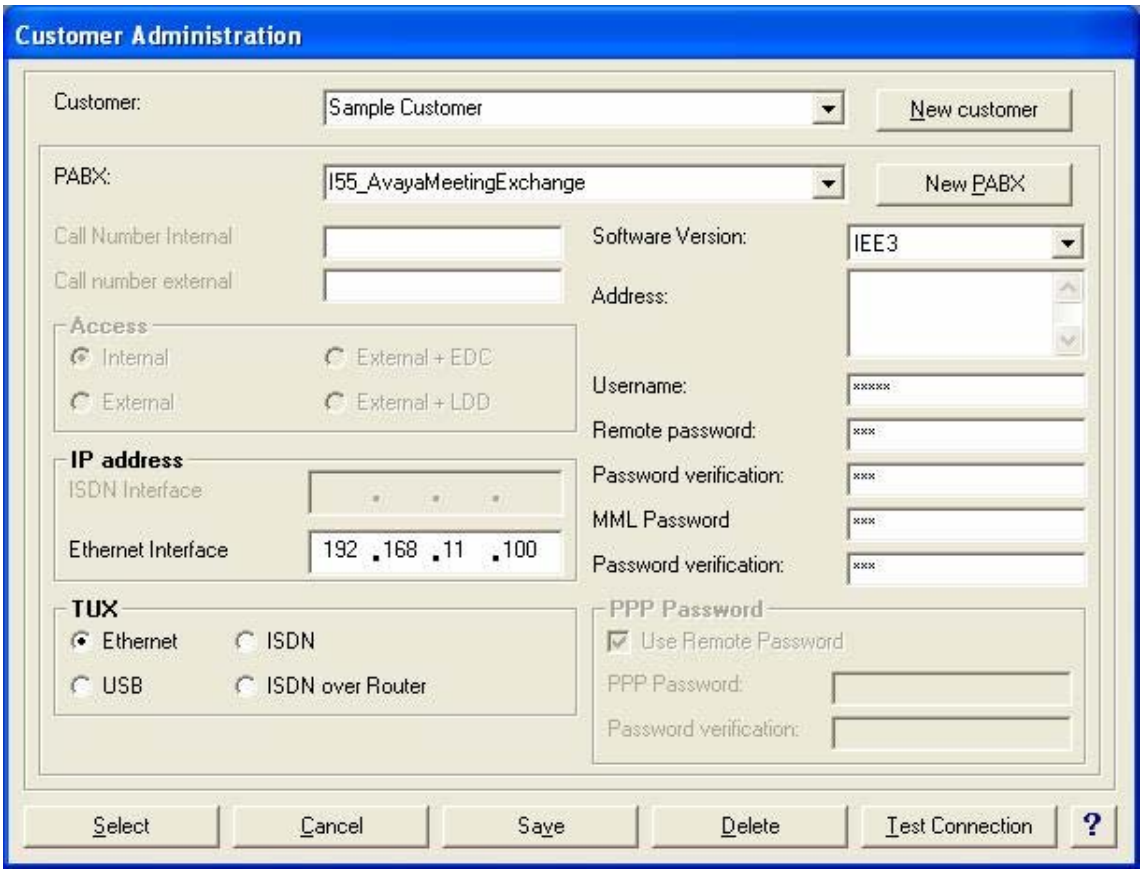
This section displays the configuration for enabling the Avaya I55 to interoperate with Avaya Meeting Exchange.

The Avaya I55 is administered by means of Integral System Management (ISM), and its components. ISM is an application running on a PC with Windows-2000 or Windows-XP with IP connectivity to the Avaya I55. The following ISM components are used for the configuration:

- ICU Editor: A GUI based application for the administration of circuit packs on the system. In general, administration via the ICU Editor has the following template:
    - Modify data.
    - Save changes and exit provisioning screen.
    - Send updates to the board.
    - Reset board.
- Transparent Console (TCO) MML: A text based Command Line Interface (CLI) which can be used to administer the entire Avaya I55 system. However, for these Application Notes, TCO was used for administering areas that the ICU Editor could not. It should be noted that the procedures regarding MML commands are displayed in these Application Notes with liberal use of the "Help" command. To use Help, enter the question mark character "?", either at the command prompt, or appended to the end of a command. This will print a list of all commands available in the current mode. Using the Help command is optional; however, its use within these Application Notes better displays the options and syntax available to administrators.

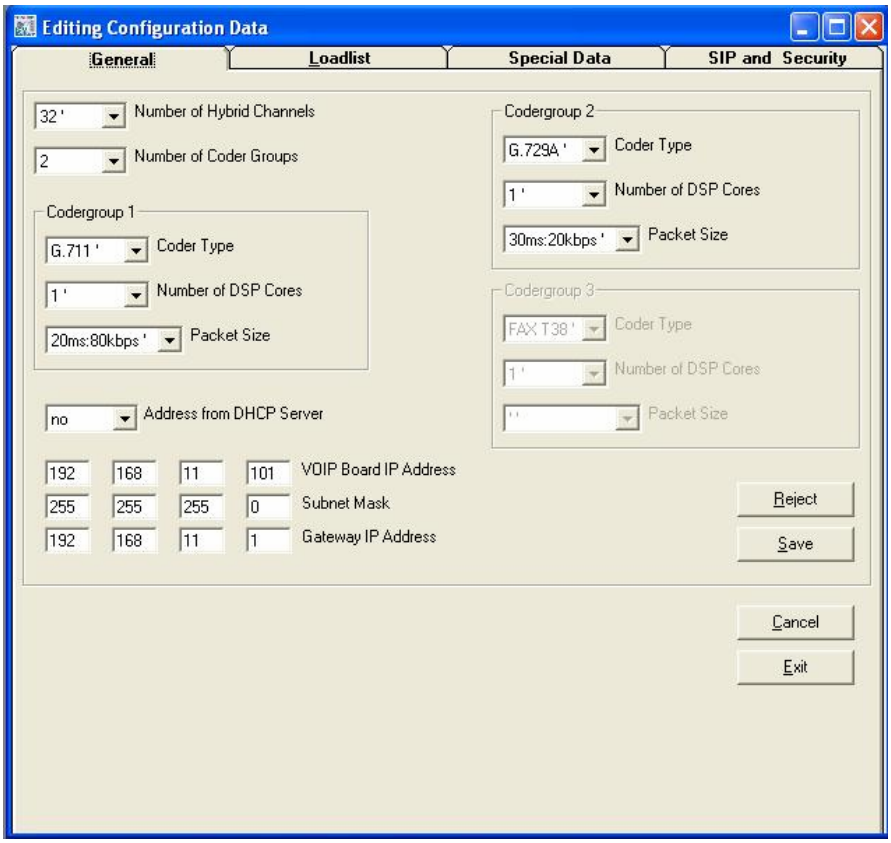
3.1. Configure Integral System Management

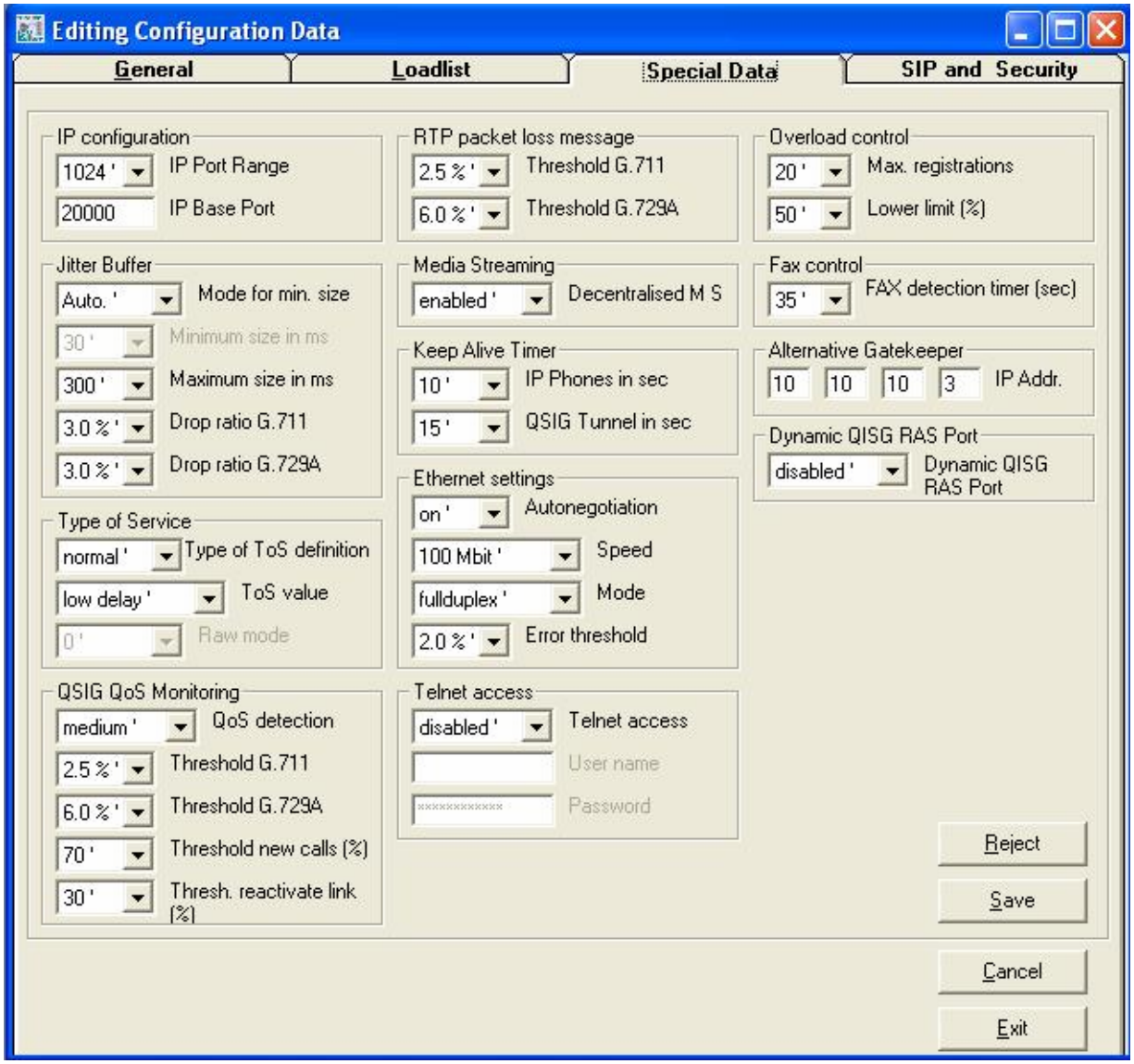
This section describes the steps for configuring a customer account in ISM. A customer account in ISM is required to access and provision the Avaya I55.

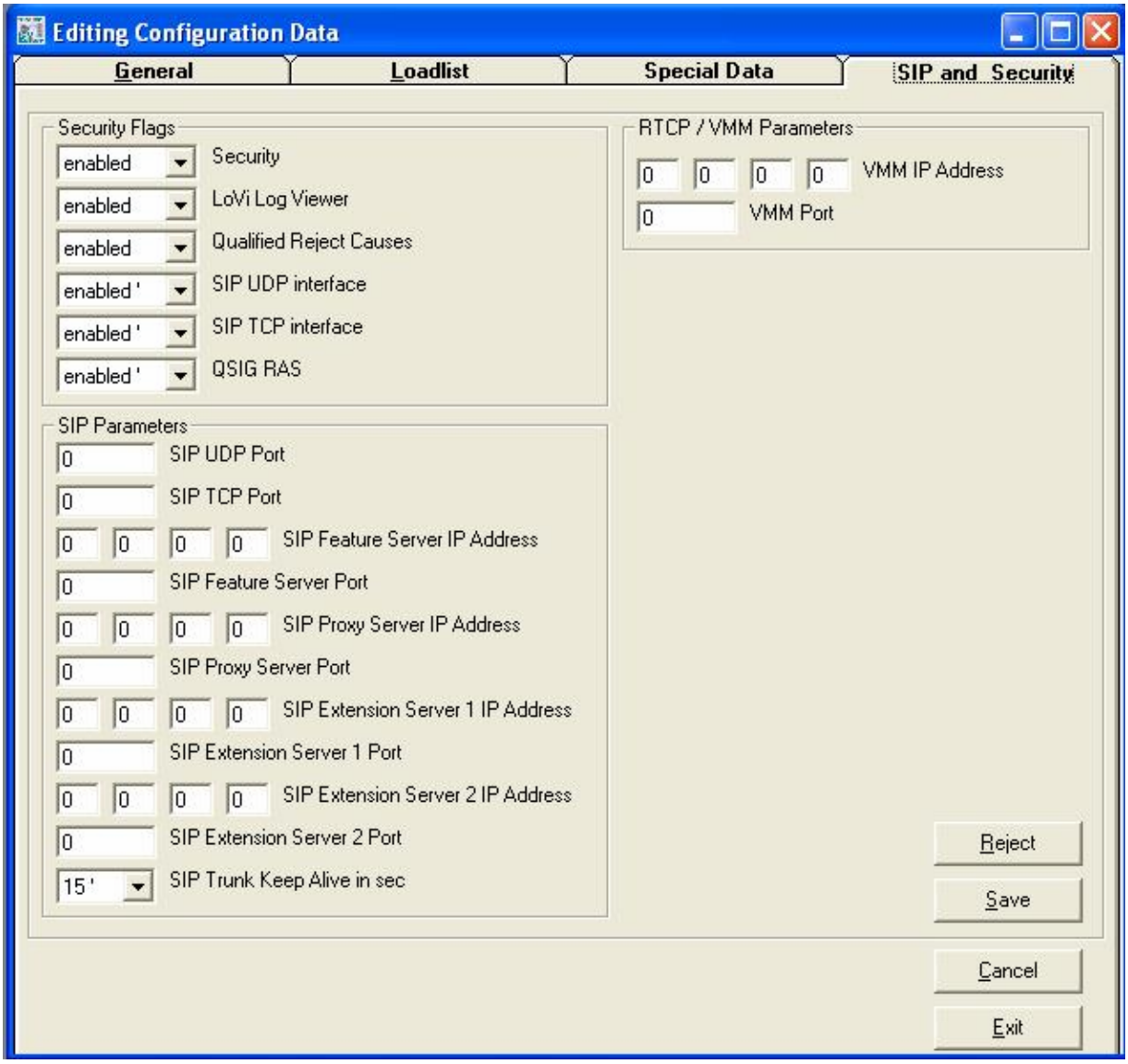
Step	Description
3.1.1	Open ISM, and log in with the appropriate credentials. Administer settings for a customer account as displayed. • Enter a descriptive name for the trunk group in the **PABX** field. • Select **IEE3** from the drop down menu for the **Software Version** field. • Enter the appropriate credentials for the **Username**, password and password verification fields. • Set the **Ethernet Interface** field to the IP address of the ACB LAN. • Select the **Ethernet** radio button for the **TUX** field. • Click the **Save** button to save the customer account. • Click the **Select** button to open a connection to the Avaya I55. 

3.2. Configure VoIP Board for SIP Clients

This section describes the steps for configuring SIP signaling and media connectivity between the Avaya I55 and SIP clients. For this sample configuration, VoIP board 3 on the Avaya I55 was utilized for SIP clients, where SIP clients were Avaya 4600 Series IP Telephones. The configuration presented in this section is administered by means of the ICU Editor.

Step	Description
3.2.1	From ISM, open the ICU editor by selecting: **PABX Administration ➔ SW Exchange Config Data ➔ <Select VoIP Board>➔ Change Data ➔ Execute**. From the **General** tab, administer settings to enable codecs for SIP clients as displayed. • Select 2 from the drop down menu for the **Number of Coder Groups** field. • Select codecs from the drop down menu for the **Coder Type** field under **Codergroup 1** and **Codergroup 2** that are supported on the Avaya 4600 Series IP Telephones. • Enter the appropriate IP network configuration for the board in the **VOIP Board IP Address**, **Subnet Mask** and **Gateway IP Address** fields. • Use default settings for remaining fields. 

Step	Description
3.2.2	From the **Special Data** tab, administer settings for ethernet connectivity as displayed. • Administer appropriate ethernet configuration regarding physical connectivity under **Ethernet settings**. • Use default settings for remaining fields. 

Step	Description
3.2.3	From the **SIP and Security** tab, administer settings to enable SIP connectivity for SIP clients as displayed. • Enable both the **SIP UDP interface** and **SIP TCP interface** fields from the drop down menu under **Security Flags**. • Enter **0** in both the **SIP UDP Port** and **SIP TCP Port** fields under **SIP Parameters**. ***Note**: The value 0 corresponds to port 5060.* • Use default settings for remaining fields. • Click the **Save** button. 

3.3. Configure an Access Code for SIP Clients

This section describes the steps for configuring an access code for SIP clients on the Avaya I55. The configuration presented in this section is administered by means of MML commands entered in the TCO, which is accessible via ISM.

Step	Description
3.3.1	From ISM, open TCO by selecting: **Service ➔ TCO (Terminal emulation)**. From TCO, administer settings to install an access code for SIP clients as follows: • Enter **1:wabe;** at the **PROL<** command prompt. • To query available options, enter a "**?**" at the **WABE<** command prompt.

```
------------------------------------------------------------------
CONSOLE-ID  LOGIN DATE/TIME        TASK    CALL NUMBER/IP ADDRESS
------------------------------------------------------------------
TC-03-3     26-04-2007 14:07:46    PROL    -
                                           (V4)192.168.12.144:1378

PROL<1:wabe;
Command processing in progress !
WABE<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 pgwe - Program change  */
/* 02 auge - Select output device */
/* 03 anzg - Branch to display menu */
/* 04 akze - Set up AKZ */
/* 05 akzl - Clear AKZ */
/* 06 idke - Set up identification code */
/* 07 idkl - Clear identification code */
/* 08 cpnm - Install/delete company name */
/* 09 vbke - Set up VKZ */
/* 10 vbkl - Delete VKZ */
/* 11 datm - Branch to DAT DDI Alpha Tagging administration */
/* 12 akza - Modify AKZ */
```

Step	Description
3.3.2	From TCO, configure AKZ to route a leading 4 plus 2 digits as follows: • To access the AKZ configuration menu, as well as query available options, enter **akze:?** at the **WABE<** command prompt. • To provision call routing for SIP clients, enter **4,intern,2,v;** at the **akze:<** command prompt. This command will route to **Dial group 2**, using the **Predial Dial method**, based on a **Selection code digit**, or leading digit "4" that is entered from a SIP client registered to the Avaya I55. • To query available options, enter a "**?**" at the **zids:<** command prompt. • To complete the configuration of AKZ, enter **,2;** at the **zids:<** command prompt. This setting defines the number of additional digits that are dialed to enable call routing.

```
WABE<akze:?
/*   01 akz  - Selection code digit
               Format: 1..10 char.
               Poss. values: [0..F] */
/*   02 wsel - Dial selector
               Format: 2..6 charac.
               ANZG generates list of possible entries */
/*   03 wgrp - Dial group
               Poss. values: [1..128] / ALLE
               Block and specified entry possible
               Continuation permitted */
/*   04 wver - Dial method
               Poss. values: V = Predial / N = Postdial */
/* "E" means parameter input */
akze:<4,intern,2,v;
zids:<?
/*   01 bnnr - Bundle number of add. info data record
               Poss. values: [1..999]
               For selector GZL [A..F]
               Don't use bundle number 255! */

/*   02 akzi - AKZ information of add. info data record
               Poss. values: [-1..24] EXTERN selectors
               Poss. values: [-1..10] NETZ and QUE
               Poss. values: [0..4] KONTRA
               Poss. values: [0..8] other dialing sel. */
/*   03 lcds - LCR data
               optional parameter
               only in connection with bundle no.
               Default = 0 - no LCR data
               Poss. values: [0..4] */
/*   04 vwzz - Prefix allocation-Translation digit sequence
               No.of digits [1..10], Poss. values: [-1..9,A-D,*,#]
               Input without "," */
/*   05 vwzs - Prefix allocation-Translation selector
               Poss. values: [-1..1023]
               Meaning see Operating Instructions */
/* "E" means parameter input */
zids:<,2;
```

Step	Description
3.3.3	From TCO, verify the provisioning administered in this section as displayed.

```
WABE<anzg;
WABE<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzv - Display number of free reference blocks */
/* 03 dakz - Display data to an AKZ */
/* 04 dwse - Display data to a dial selector */
/* 05 dwgr - Display data to a dial group */
/* 06 dikz - Display data for identification code numbers */
/* 07 dise - Display data for identification selector */
/* 08 diwg - Display data for identification of a dial group */
/* 09 dcom - Display data of installed company no. */
/* 10 vbka - Display weighting data */
WABE<dwgr:2;
                                                        26.04.07  14:18:19
Display of dial evaluation data to a dial group
================================================
 Dial group   :  2
 Dial method  :  Predial

AKZ        Dial   Bndl  AKZ  SA    Co. LCR   dialing         ext. LCR  RI- Num.
           sele.  numb. Info group nr. data  conversion      all. rout SA  Plan
                                       set   digits     sel  cat. flg  flg
-------------------------------------------------------------------------------

0          EXTERN 3     -    -     -   -                0    INIT ROFF -   -
                                                           Exch. line via earth
1          NETZ   12    1    -     -   -                0    INIT ROFF -   -
2          NETZ   12    1    -     -   -                0    INIT ROFF -   -
3          NETZ   12    1    -     -   -                0    INIT ROFF -   -
4          INTERN -     2    -     -   -                0     -    -   -   -
5          NETZ   12    1    -     -   -                0    INIT ROFF -   -
6          NETZ   12    1    -     -   -                0    INIT ROFF -   -
7          NETZ   12    1    -     -   -                0    INIT ROFF -   -
81         NETZ   12    1    -     -   -                0    INIT ROFF -   -
82         INTERN -     5    -     -   -                0     -    -   -   -
991        INTERN -     2    -     -   -                0     -    -   -   -
```

3.4. Configure Lines for SIP Clients

This section describes the steps for configuring lines for SIP clients. The configuration presented in this section is administered by means of MML commands entered in the TCO, which is accessible via ISM.

Step	Description
3.4.1	From ISM, open TCO by selecting: **Service ➔ TCO (Terminal emulation)**. From TCO, administer settings for SIP clients as follows: • Enter **1:aogd;** at the **PROL<** command prompt. • To query available options, enter a "**?**" at the **AOGD<** command prompt.

```
------------------------------------------------------------------
CONSOLE-ID  LOGIN DATE/TIME        TASK    CALL NUMBER/IP ADDRESS
------------------------------------------------------------------
TC-03-3     26-04-2007 14:07:46    PROL    -
                                           (V4)192.168.12.144:1378

PROL<1:aogd;
Command processing in progress !
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 pgwe - Program change */
/* 02 anzg - Display AO basic data */
/* 03 aoae - Alter AO basic data */
/* 04 aoei - Set up AO basic data */
/* 05 aolo - Clear AO basic data */
```

Step	Description
3.4.2	From TCO, administer settings as follows: • To access the AO configuration menu, as well as query available options, enter **aoei:?** at the **AOGD<** command prompt. • To associate extension 401 with VoIP board 3, enter **401,01-01-03-16;** at the **aoei:<** command prompt.

```
AOGD<aoei:?
/*   01 aonr - Call No. or pseudo - Call No.
               Poss. values:     0..999999999 or
                              A0000..F9999 */
/*   02 hwad - AO-HWA
               format: GG-MD-ST-AO[-Z]
               group - modul - slot - AO of slot
               [-Z]addition : 'S' second ICU adress ,'M' for MMG,
                              'C' for MSMC  */
/*   03 bnnr - Bundle number for System Network  AO
               Format: 1..3 digits
               Don't use bundle number 255! */
/*   04 task - Taskname for entry in RNPL
               Poss. entries:
               HOKO - Hotel communications (branch server)
                      (default call no. F9998)
               TKOM - Text communications
                      (default call no. F9997)
               IDAS - Information and data server
                      (default call no. F9996)
               ZETB - Central Electronic Directory
                      (default call no. F9995) */
/* "E" means parameter input */
aoei:<401,01-01-03-16;
Indicate AO type
```

Step	Description
3.4.3	From TCO, administer settings as displayed.
	AOGD<? /* SE Status display switch on */ /* HE Task-Help switch on */ /* GF Enable blocked device */ /* PE PC mode switch on */ /* 01 exit - Branch to first menu level */ /* 02 anzg - Display AO basic data */ /* 03 aozu - Indicate or change AO status */ /* 04 alae - Branch to additional alteration menu */ /* 05 aoty - Indicate or change AO type */ /* 06 dnei - Set up service */ /* 07 bkan - Indicate or alter B channel data */ **AOGD<dnei:tlp;** **AOGD<?** /* SE Status display switch on */ /* HE Task-Help switch on */ /* GF Enable blocked device */ /* PE PC mode switch on */ /* 01 exit - Branch to first menu level */ /* 02 anzg - Display AO basic data */ /* 03 aozu - Indicate or change AO status */ /* 04 grda - Indicate or alter group data */ /* 05 ltgd - Indicate or alter line data */ /* 06 dnzu - Indicate or alter service data */ /* 07 dnei - Set up service */ /* 08 cdec - Coder / Echocanceler / Codermode install/change */ **AOGD<grda:2,1;** **AOGD<dnei:gen;** **AOGD<dnzu:f;** **AOGD<cdec:1,ein,n;**

Step	Description
3.4.4	From TCO, verify the provisioning administered thus far in this section as displayed.

```
AOGD<anzg;
================================================================================
                                                          26.04.07  14:32:12
Connecting circuit
------------------
Call No.                    : 401
Slot / HWA                  : 01-01-03-16
AO type                     : DITN
================================================================================

Service data
------------

                |     TLP      |     GEN      |              |              |
----------------+--------------+--------------+--------------+--------------+
Status          | RELEASED     | RELEASED     |              |              |
Dial group      | 2            | 2            |              |              |
Traffic group   | 1            | 1            |              |              |
Switchover group| 0            | 0            |              |              |
Code dial group | 0            | 0            |              |              |
LCR-group       | 0            | 0            |              |              |
Dial retrieval  | DEACTIVE     | DEACTIVE     |              |              |
Backward rel.   | DEACTIVE     | DEACTIVE     |              |              |
coder           | g711alaw64k  | g711alaw64k  | init         | init         |
codermode       | normal       | normal       |              |              |
echocanceler    |  on          |  on          |              |              |
================================================================================
```

Step	Description
3.4.5	From TCO, administer settings as follows: • To return to the first menu, enter **1;** at the **AOGD<** command prompt. • To query available options, enter "**?**" at the **AOGD<** command prompt. • Enter remaining commands as displayed.

```
AOGD<1;
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 pgwe - Program change */
/* 02 anzg - Display AO basic data */
/* 03 aoae - Alter AO basic data */
/* 04 aoei - Set up AO basic data */
/* 05 aolo - Clear AO basic data */
AOGD<aoae;
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzg - Display AO basic data */
/* 03 aozu - Indicate or change AO status */
/* 04 alae - Branch to additional alteration menu */
/* 05 aoty - Indicate or change AO type */
/* 06 dnei - Set up service */
/* 07 bkan - Indicate or alter B channel data */
/* 08 dnda - Alter service data */
/* 09 hwae - Alter AO HWA */
/* 10 nrae - Alter AO Call No. */
/* 11 rirr - Remote IP address / line call number install/change */
/* 12 lipi - Local IP Port / Connectivity Mode install/change */
AOGD<bkan:all;
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzg - Display AO basic data */
/* 03 aozu - Indicate or change AO status */
/* 04 bkan - Indicate or alter B channel data */
/* 07 bkzu - Indicate or alter B channel status */
AOGD<bkzu:f;
```

Step	Description
3.4.6	From TCO, verify the provisioning administered thus far in this section as displayed. ***Note**: There is a maximum of two B-channels available for SIP clients.*

```
AOGD<anzg;
================================================================================
                                                          26.04.07  14:25:18
Connecting circuit
------------------
Call No.                    : 401
Slot / HWA                  : 01-01-03-16
AO type                     : DITN
================================================================================

B channel data
--------------
Allocation code     :  -
Deliberation code   :  -

B chan. Bundle Direct  Acc. Status  |  B chan. Bundle Direct  Acc. Status
number  number                      |  number  number
----------------------------------  |  ----------------------------------
1        -        -      -     F    |  2        -        -      -     F

Number of seizable B channels: 2

Seizure direction                   |  Status
----------------------------------  |  ----------------------------------
G - outgoing                        |  B  - BUSY
K - incoming                        |  D  - DEFECT.
W - bothway                         |  EB - EDSS1 BUSY
                                    |  ER - EDSS1 RESERVED
                                    |  F  - FREE
                                    |  G  - FAULTY
Access right                        |  R  - RESERVED
----------------------------------  |  S  - BARRED
M - with                            |  T  - DEFECT./BARRED
O - without                         |  V  - SEIZED/BARRED
================================================================================
```

Step	Description
3.4.7	From TCO, administer settings as displayed.

```
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzg - Display AO basic data */
/* 03 aozu - Indicate or change AO status */
/* 04 bkan - Indicate or alter B channel data */
/* 07 bkzu - Indicate or alter B channel status */
AOGD<aozu:f;
AOGD<aoae;
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzg - Display AO basic data */
/* 03 aozu - Indicate or change AO status */
/* 04 alae - Branch to additional alteration menu */
/* 05 aoty - Indicate or change AO type */
/* 06 dnei - Set up service */
/* 07 bkan - Indicate or alter B channel data */
/* 08 dnda - Alter service data */
/* 09 hwae - Alter AO HWA */
/* 10 nrae - Alter AO Call No. */
/* 11 rirr - Remote IP address / line call number install/change */
/* 12 lipi - Local IP Port / Connectivity Mode install/change */
AOGD<lipi:5060,11;
AOGD<alae;
```

Step	Description
3.4.8	From TCO, administer settings as displayed.
	AOGD<? /* SE Status display switch on */ /* HE Task-Help switch on */ /* GF Enable blocked device */ /* PE PC mode switch on */ /* 01 exit - Branch to first menu level */ /* 02 anzg - Display AO basic data */ /* 03 aozu - Indicate or change AO status */ /* 04 nako - Indicate or alter name / accounting section */ /* 05 vres - Indicate or alter reserved Connecting Memory */ /* 06 prve - Indicate or alter protocol / version */ /* 07 agrp - Indicate or alter general group data */ /* 08 uela - Indicate, alter, display overload priority */ /* 09 olae - Alter Operator overload entry */ **AOGD<nako:SIP-ext1;** **AOGD<prve:etsi,0;** **AOGD<uela:2;**

Step	Description
3.4.9	From TCO, verify the provisioning administered in this section as displayed.

```
AOGD<anzg;
================================================================================
                                                          26.04.07  14:42:58
Connecting circuit
------------------
Call No.                    : 401
Slot / HWA                  : 01-01-03-16
AO type                     : DITN
================================================================================

General ADS data
----------------
Name                        : SIP-ext1
Accounting section          : 00000
Protocols                   :
                               Protocol  | Version | faulty | busy 2| error
                               ----------+---------+--------+-------+------
                                ETSI     | 0       | OFF    | OFF   | OFF
Overload priority           : 2
Public bar. unit gr.        : 0
Colisee bar. unit gr.       : 0
DISA-group                  : 0
Dealergroup                 : 0
CN alloc. HKZ line & tie    :
Category                    : -1
Waiting field maximum       : 0
Reserved
Connection memory           : 0
Service memory              : 2
AO state                    : IN OPERATION
Service block               : sv-free
Call number block           : Off
IP - address                :
-:-
Active Coder                : -
Secured registration        : -
================================================================================
AOGD<
```

If additional SIP clients are required:

- Enter 1; at the AOGD< command prompt to return to the first menu.
- Repeat the steps in this section, changing only the extension number in the command entered in **Step 3.4.6**, e.g., AOGD<nako:SIP-ext1; to AOGD<nako:SIP-ext<n>;, where n is the next available number.

3.5. Configure Supported Services for SIP Clients

This section describes the steps for configuring supported services for SIP clients registered to the Avaya I55. The configuration presented in this section is administered by means of MML commands entered in the TCO, which is accessible via ISM.

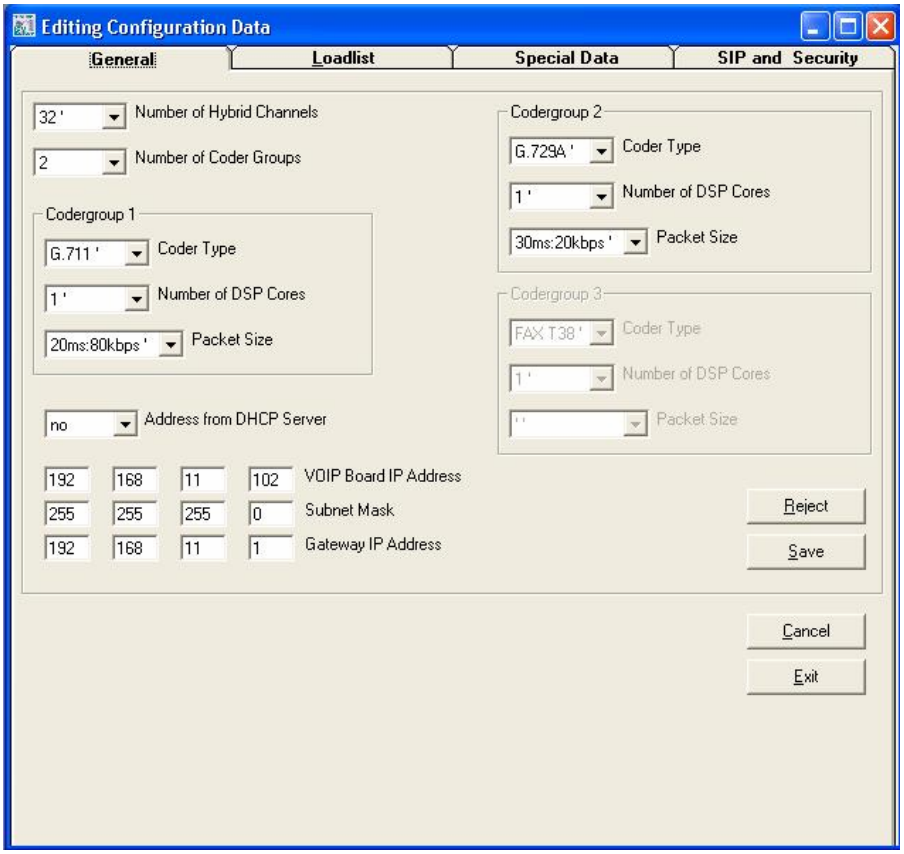
Step	Description
3.5.1	From ISM, open TCO by selecting: **Service ➔ TCO (Terminal emulation)**. From TCO, administer services for SIP clients as follows: • Enter **1:aolm;** at the **PROL<** command prompt. • To query available options, enter a "**?**" at the **AOLM<** command prompt. • To administer services for the client associated with extension 401, enter **aoau:401;** at the **AOLM<** command prompt. • To query available options, enter a "**?**" at the **AOLM<** command prompt. • To enable AO related LM and variants for the client associated with extension 401, enter **falm:amt;** at the **AOLM<** command prompt.

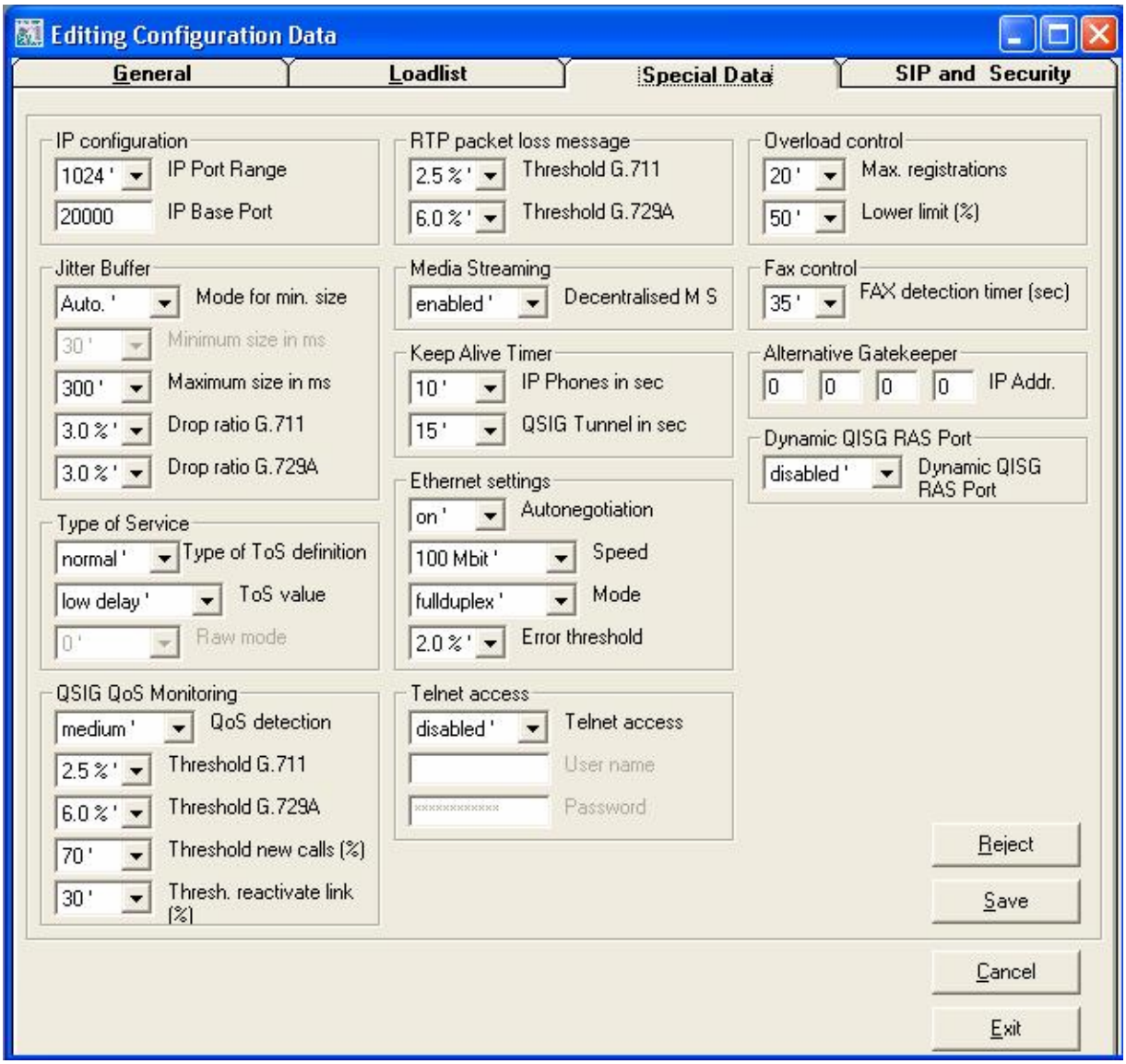
```
-------------------------------------------------------------------
CONSOLE-ID  LOGIN DATE/TIME        TASK    CALL NUMBER/IP ADDRESS
-------------------------------------------------------------------
TC-03-3     23-05-2007 13:55:20    PROL    -
                                           (V4)192.168.12.144:2410

PROL<1:aolm;
Command processing in progress !
AOLM<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 pgwe - Program change */
/* 02 auge - Select output device */
/* 03 aoau - Select AO number */
AOLM<aoau:401;
AOLM<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to the first program level */
/* 02 pgwe - Program change */
/* 03 dibe - Set service area */
/* 04 aalm - Display  active LM and variants */
/* 05 falm - Enable AO related LM and variants */
/* 06 salm - Block AO related LM and variants */
AOLM<falm:amt;
```

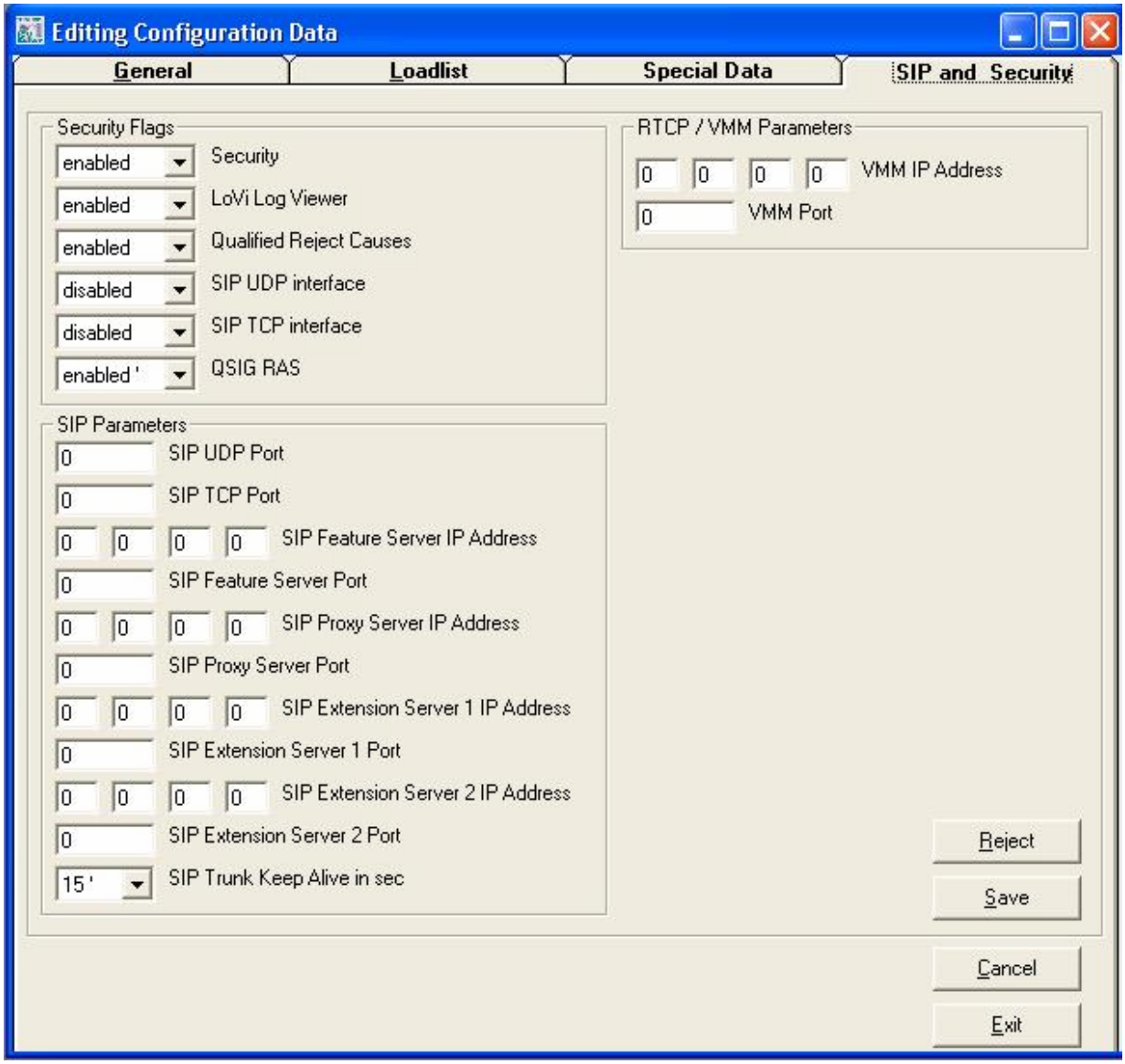
Step	Description
3.5.2	From TCO, verify the provisioning administered in this section as displayed.
	AOLM<aalm; 23.05.07 13:57:00 **AO-Number AO - Perform. features (Service: TLP)** ---------- **400 AMT** AOLM<
	If additional SIP clients require supported services: • Enter 1; at the AOLM< command prompt to return to the first menu. • Repeat the steps in this section for each client.

3.6. Configure VoIP Board for SIP Trunking

This section describes the steps for configuring SIP signaling and media connectivity between the Avaya I55 and Avaya Meeting Exchange. For this sample configuration, VoIP board 7 on the Avaya I55 was utilized for SIP trunking between the Avaya I55 and Avaya Meeting Exchange. The configuration presented in this section is administered by means of the ICU Editor.

Step	Description
3.6.1	From ISM, open the ICU editor by selecting: **PABX Administration ➔ SW Exchange Config Data ➔ <Select VoIP Board>➔ Change Data ➔ Execute**. From the **General** tab, administer settings to enable codecs for SIP trunking as displayed. • Select 2 from the drop down menu for the **Number of Coder Groups** field. • Select codecs from the drop down menu for the **Coder Type** field under **Codergroup 1** and **Codergroup 2** that are supported on the Avaya 4600 Series IP Telephones. • Enter the appropriate IP network configuration for the board in the **VOIP Board IP Address**, **Subnet Mask** and **Gateway IP Address** fields. • Use default settings for remaining fields. 

Step	Description
3.6.2	From the **Special Data** tab, administer settings for ethernet connectivity as displayed. • Administer appropriate ethernet configuration regarding physical connectivity under **Ethernet settings**. • Use default settings for remaining fields. 

Step	Description
3.6.3	From the **SIP and Security** tab, administer settings to enable SIP connectivity for SIP trunking as displayed. • Disable both the **SIP UDP interface** and **SIP TCP interface** fields from the drop down menu under **Security Flags**. • Use default settings for remaining fields. • Click the **Save** button. 

3.7. Configure a Bundle

This section describes the steps for provisioning a bundle on the Avaya I55. The configuration presented in this section is administered by means of MML commands entered in the TCO, which is accessible via ISM.

Step	Description
3.7.1	From ISM, open TCO by selecting: **Service ➔ TCO (Terminal emulation)**. From TCO, administer settings to provision a new bundle as follows: • Enter **1:bndl;** at the **PROL<** command prompt. • To query available options, enter a "**?**" at the **BNDL<** command prompt. • To display bundle data, enter **anzg;** at the **BNDL<** command prompt.

```
-----------------------------------------------------------------
CONSOLE-ID  LOGIN DATE/TIME        TASK    CALL NUMBER/IP ADDRESS
-----------------------------------------------------------------
TC-03-3     26-04-2007 11:26:18    PROL    -
                                           (V4)192.168.12.144:1353

PROL<1:bndl;
Command processing in progress !
BNDL<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 pgwe - Program change  */
/* 02 auge - Select output device */
/* 03 anzg - Display bundle data */
/* 04 bnei - Set up bundle data */
/* 05 bnlo - Delete bundle data */
/* 06 bnae - Alter bundle data */
/* 07 vwza - Alter VWZ data to bundles */
/* 08 riae - Alter bundle seizure direction */
/* 09 skbt - Softkey and Bundle short text administration */
BNDL<anzg;
```

Step	Description
3.7.2	From TCO, administer settings as displayed.

```
BNDL<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 ands - Display number of free bundle data records */
/* 03 dueb - Display basic bundle of overflow bundle number */
/* 04 dbnd - Display data to bundles */
/* 05 dblt - Display Line Call Numbers to bundles */
/* 06 dbzu - Display bundle status */
/* 07 dbue - Display overflow bundle number to bundles */
/* 08 dvwz - Display VWZ data to bundles */
/* 09 aran - Display FOAC reactions for bundles */
BNDL<dblt:<?
/*   01 bnnr - Bundle number
               Poss. values: [1..999] / ALLE
               Don't use bundle number 255!
               Block and specified entry possible
               Continuation permitted */
/* Digit number - [01,20] */
BNDL<dblt:<alle;
                                                        26.04.07  11:29:21
Bundle number          : 1
Lines entered :
--------------
------------------------------------------------------------
Bundle number          : 2
Lines entered :
--------------
------------------------------------------------------------
Bundle number          : 3
Lines entered :
--------------
------------------------------------------------------------
Bundle number          : 12
Lines entered :
--------------
------------------------------------------------------------
Bundle number          : 13
Lines entered :
--------------
------------------------------------------------------------
Bundle number          : 200
Lines entered :
--------------
------------------------------------------------------------
BNDL<exit;
```

Step	Description
3.7.3	From TCO, administer settings as displayed.

```
BNDL<bnei:?
/*   01 bnnr - Bundle number
               Poss. values: [1..999] / ALLE
               Don't use bundle number 255!
               Block and specified entry possible
               Continuation permitted */
/*   02 uenr - Overflow bundle number
               Poss. values:[0..999]
               Don't use bundle number 255!
               0 = No overflow bundle */
/* "E" means parameter input */
bnei:<86,;
BNDL<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 bnzu - Alter bundle status */
/* 03 uebn - Alter overflow bundle number */
/* 04 alva - Alter bundle ALV flag */
/* 05 stke - Alter bundle ALV stage */
/* 06 ltza - Alter bundle line limit */
/* 07 lwzf - Alter route digit sequence */
/* 08 nwfl - Change postdialing flag */
/* 09 bntx - Information text change */
/* 10 wbna - Alter other bundle data */
/* 11 qlfl - Change QSIG-Line flag */
BNDL<bnzu:?
/*   01 zust - Status
               Poss. values: s/f */
/* "E" means parameter input */
bnzu:<f;
BNDL<bnae:<86;
BNDL<stke:?
/*   01 keng - ALV stage
               Format: 4 charac.
               ANZG generates list of possible entries */
/* "E" means parameter input */
stke:<anzg;

Brief staging designator :
--------------------------

INTR  -    Intern
AMTK  -    Exchange Line incomming
AMTG  -    Exchange Line outgoing
LMUE  -    LM overlapping

stke:<amtk;
```

Step	Description
3.7.4	From TCO, verify the provisioning administered in this section as displayed.

```
BNDL<anzg;
BNDL<dbnd:<86;
                                                              26.04.07  11:48:54
Bundle number          : 86
Overflow bundle number : 0
Bundle status          : free
Bundle type            : ---
ALV stage              : ext.incoming
Seizure direction      : init
Available lines        : 0
Line limit             : 0
Route digit sequence   : -
Postdialing flag       : nein
QSIG Line              : no
Information text       :

- VWZ data
outgoing:
    Allocation digit   : -1,-1,-1,-1,-1,-1,-1,-1,-1,-1
             Selector  : -1
incoming:
    Allocation digit   : -1,-1,-1,-1,-1,-1,-1,-1,-1,-1
             Selector  : -1

FOAC reactions for bundle number
Event     Reaction
-----------------
nstf      nein
nstb      nein
kres      nein
uvwa      nein
newa      nein
nbao      nein
anaw      nein
kbne      nein
aoab      nein
nuel      nein

Lines entered :
--------------
------------------------------------------------------------
Explanation for FOAC data - FOAC event:
---------------------------------------
NSTF - called extension free      NSTB - called extension busy
KRES - no resources available     UVWA - incomplete dialling
NEWA - invalid dialling           NBAO - called extension not assigned
ANAW - call rejected              KBNE - incoming calls barred
AOAB - out of order               NUEL - network busy
Explanation for FOAC data - FOAC reaction:
------------------------------------------
APSO - forward to AC immediately  APNZ - forward to AC after timeout
AUSL - release call               NEIN - no FOAC specific reaction
                                         (treatment as if FOAC was not active)
```

3.8. Configure an Access Code for SIP Trunking

This section describes the steps for configuring an access code for SIP trunking on the Avaya I55. The configuration presented in this section is administered by means of MML commands entered in the TCO, which is accessible via ISM.

Step	Description
3.8.1	From ISM, open TCO by selecting: **Service ➔ TCO (Terminal emulation)**. From TCO, administer settings to install an access code for SIP clients as follows: • Enter **1:wabe;** at the **PROL<** command prompt. • To query available options, enter a "**?**" at the **WABE<** command prompt.

```
------------------------------------------------------------------
CONSOLE-ID  LOGIN DATE/TIME        TASK    CALL NUMBER/IP ADDRESS
------------------------------------------------------------------
TC-03-3     26-04-2007 11:26:18    PROL    -
                                           (V4)192.168.12.144:1353

PROL<1:wabe;
Command processing in progress !
WABE<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 pgwe - Program change  */
/* 02 auge - Select output device */
/* 03 anzg - Branch to display menu */
/* 04 akze - Set up AKZ */
/* 05 akzl - Clear AKZ */
/* 06 idke - Set up identification code */
/* 07 idkl - Clear identification code */
/* 08 cpnm - Install/delete company name */
/* 09 vbke - Set up VKZ */
/* 10 vbkl - Delete VKZ */
/* 11 datm - Branch to DAT DDI Alpha Tagging administration */
/* 12 akza - Modify AKZ */
```

Step	Description
3.8.2	From TCO, administer settings as displayed.

```
WABE<akze:?
/*   01 akz  - Selection code digit
               Format: 1..5 charac. for dial selector KONTRA
               Format: 1..10 charac. for dial selector QUE, KNR, NETZ,
                                     OUTCC, INTAKZ
               Format: 1..9 charac. for all other dial selectors
               Poss. values: [0..F] */
/*   02 wsel - Dial selector
               Format: 2..6 charac.
               ANZG generates list of possible entries */
/*   03 wgrp - Dial group
               Poss. values: [1..128] / ALLE
               Block and specified entry possible
               Continuation permitted */
/*   04 wver - Dial method
               Poss. values: V = Predial / N = Postdial */
/* "E" means parameter input */
akze:<e0,extern,2,v;
zids:<?
/*   01 bnnr - Bundle number of add. info data record
               Poss. values: [1..999]
               For selector GZL [A..F]
               Don't use bundle number 255! */

/*   02 akzi - AKZ information of add. info data record
               Poss. values: [-1..24] EXTERN selectors
               Poss. values: [-1..10] NETZ and QUE
               Poss. values: [0..4] KONTRA
               Poss. values: [0..8] other dialing sel. */
/*   03 lcds - LCR data
               optional parameter
               only in connection with bundle no.
               Default = 0 - no LCR data
               Poss. values: [0..4] */
/*   04 vwzz - Prefix allocation-Translation digit sequence
               No.of digits [1..10], Poss. values: [-1..9,A-D,*,#]
               Input without "," */
/*   05 vwzs - Prefix allocation-Translation selector
               Poss. values: [-1..1023]
               Meaning see Operating Instructions */
/* "E" means parameter input */
zids:<86,3;
zids:<;
```

Step	Description
3.8.3	From TCO, administer settings as displayed.

```
WABE<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 pgwe - Program change  */
/* 02 auge - Select output device */
/* 03 anzg - Branch to display menu */
/* 04 akze - Set up AKZ */
/* 05 akzl - Clear AKZ */
/* 06 idke - Set up identification code */
/* 07 idkl - Clear identification code */
/* 08 cpnm - Install/delete company name */
/* 09 vbke - Set up VKZ */
/* 10 vbkl - Delete VKZ */
/* 11 datm - Branch to DAT DDI Alpha Tagging administration */
/* 12 akza - Modify AKZ */
WABE<akzl:?
/*   01 akz  - Selection code digit
               Format: 1..10 char.
               Poss. values: [0..F] */
/*   02 wsel - Dial selector
               Format: 2..6 charac.
               ANZG generates list of possible entries */
/*   03 wgrp - Dial group
               Poss. values: [1..128] / ALLE
               Block and specified entry possible
               Continuation permitted */
/*   04 wver - Dial method
               Poss. values: V = Predial / N = Postdial */
/* "E" means parameter input */
akzl:<e0;
WABE<akze:?
/*   01 akz  - Selection code digit
               Format: 1..5 charac. for dial selector KONTRA
               Format: 1..10 charac. for dial selector QUE, KNR, NETZ,
                                     OUTCC, INTAKZ
               Format: 1..9 charac. for all other dial selectors
               Poss. values: [0..F] */
/*   02 wsel - Dial selector
               Format: 2..6 charac.
               ANZG generates list of possible entries */
/*   03 wgrp - Dial group
               Poss. values: [1..128] / ALLE
               Block and specified entry possible
               Continuation permitted */
/*   04 wver - Dial method
               Poss. values: V = Predial / N = Postdial */
/* "E" means parameter input */
akze:<e0,netz,alle,v;
```

Step	Description
3.8.4	From TCO, administer settings as displayed.

```
zids:<?
/*   01 bnnr - Bundle number of add. info data record
               Poss. values: [1..999]
               For selector GZL [A..F]
               Don't use bundle number 255! */

/*   02 akzi - AKZ information of add. info data record
               Poss. values: [-1..24] EXTERN selectors
               Poss. values: [-1..10] NETZ and QUE
               Poss. values: [0..4] KONTRA
               Poss. values: [0..8] other dialing sel. */
/*   03 lcds - LCR data
               optional parameter
               only in connection with bundle no.
               Default = 0 - no LCR data
               Poss. values: [0..4] */
/*   04 vwzz - Prefix allocation-Translation digit sequence
               No.of digits [1..10], Poss. values: [-1..9,A-D,*,#]
               Input without "," */
/*   05 vwzs - Prefix allocation-Translation selector
               Poss. values: [-1..1023]
               Meaning see Operating Instructions */
/* "E" means parameter input */
zids:<86,3;
zids:<;
```

Step	Description
3.8.5	From TCO, verify the provisioning administered in this section as displayed.

```
WABE<anzg;
WABE<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzv - Display number of free reference blocks */
/* 03 dakz - Display data to an AKZ */
/* 04 dwse - Display data to a dial selector */
/* 05 dwgr - Display data to a dial group */
/* 06 dikz - Display data for identification code numbers */
/* 07 dise - Display data for identification selector */
/* 08 diwg - Display data for identification of a dial group */
/* 09 dcom - Display data of installed company no. */
/* 10 vbka - Display weighting data */
WABE<dwgr:2,v;
                                                        04.05.07  15:50:55
Display of dial evaluation data to a dial group
===============================================
 Dial group   :  2
 Dial method  :  Predial

AKZ        Dial   Bndl  AKZ  SA    Co. LCR   dialing         ext. LCR  RI- Num.
           sele.  numb. Info group nr. data  conversion      all. rout SA  Plan
                                       set   digits     sel  cat. flg  flg
-------------------------------------------------------------------------------

0          EXTERN 3     -    -     -   -                0    INIT ROFF -   -
                                                           Exch. line via earth
1          NETZ   12    1    -     -   -                0    INIT ROFF -   -
2          NETZ   12    1    -     -   -                0    INIT ROFF -   -
3          NETZ   12    1    -     -   -                0    INIT ROFF -   -
4          INTERN -     2    -     -   -                0     -    -   -   -
5          NETZ   12    1    -     -   -                0    INIT ROFF -   -
6          NETZ   12    1    -     -   -                0    INIT ROFF -   -
7          NETZ   12    1    -     -   -                0    INIT ROFF -   -
81         NETZ   12    1    -     -   -                0    INIT ROFF -   -
82         INTERN -     5    -     -   -                0     -    -   -   -
991        INTERN -     2    -     -   -                0     -    -   -   -
A          RUVA   -     -    -     -   -     -          -     -    -   -   -
C          PUALLG -     -    -     -   -     -          -     -    -   -   -
D          CW     -     -    -     -   -     -          -     -    -   -   -
E0         NETZ   86    3    -     -   -                0    INIT ROFF -   -
```

3.9. Configure Lines for SIP Trunking

This section describes the steps for configuring lines for SIP trunking. The configuration presented in this section is administered by means of MML commands entered in the TCO, which is accessible via ISM.

Step	Description
3.9.1	From ISM, open TCO by selecting: **Service ➔ TCO (Terminal emulation)**. From TCO, administer settings for SIP clients as follows: • Enter **1:aogd;** at the **PROL<** command prompt. • To query available options, enter a "**?**" at the **AOGD<** command prompt.

```
------------------------------------------------------------------
CONSOLE-ID  LOGIN DATE/TIME        TASK    CALL NUMBER/IP ADDRESS
------------------------------------------------------------------
TC-03-3     26-04-2007 11:26:18    PROL    -
                                           (V4)192.168.12.144:1353

PROL<1:aogd;
Command processing in progress !
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 pgwe - Program change */
/* 02 anzg - Display AO basic data */
/* 03 aoae - Alter AO basic data */
/* 04 aoei - Set up AO basic data */
/* 05 aolo - Clear AO basic data */
```

Step	Description
3.9.2	From TCO, administer settings as follows: • To access the AO configuration menu, as well as query available options, enter **aoei:?** at the **AOGD<** command prompt. • To associate SIP trunking with VoIP board 7, enter **c9000,01-01-07-30;** at the **aoei:<** command prompt.

```
AOGD<aoei:?
/*   01 aonr - Call No. or pseudo - Call No.
               Poss. values:     0..999999999 or
                              A0000..F9999 */
/*   02 hwad - AO-HWA
               format: GG-MD-ST-AO[-Z]
               group - modul - slot - AO of slot
               [-Z]addition : 'S' second ICU adress ,'M' for MMG,
                              'C' for MSMC  */
/*   03 bnnr - Bundle number for System Network  AO
               Format: 1..3 digits
               Don't use bundle number 255! */
/*   04 task - Taskname for entry in RNPL
               Poss. entries:
               HOKO - Hotel communications (branch server)
                      (default call no. F9998)
               TKOM - Text communications
                      (default call no. F9997)
               IDAS - Information and data server
                      (default call no. F9996)
               ZETB - Central Electronic Directory
                      (default call no. F9995) */
/* "E" means parameter input */
aoei:<c9000,01-01-07-30;
Indicate AO type
```

Step	Description
3.9.3	From TCO, administer settings to associate 30 B-channels with VoIP board 7 as displayed.

```
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzg - Display AO basic data */
/* 03 aozu - Indicate or change AO status */
/* 04 alae - Branch to additional alteration menu */
/* 05 aoty - Indicate or change AO type */
/* 06 dnei - Set up service */
/* 07 bkan - Indicate or alter B channel data */
AOGD<aoty:?
/*   01 typ  - AO Type
               Format: 3..4 char.
               ANZG generates list of possible entries */
/*   02 plty - Special position functions for AO type DIPL
               Poss. values: [ J / N ]
               Spec.pos.:      = J (dealer or ACD)
               Operator pos.:  = N  */
/* "E" means parameter input */
aoty:<pra;
AO blocked and out of order
AOGD<bkan:?
/*   01 bknr - B channel no.
               Indic. of B channel no.
               Poss. values: [1..30] / ALL
               Block and specified entry possible */
/*   02 vgke - Allocation code
               Format: 4 char.
               Poss. entries: NSTA - PABX
                              GEGA - Opp. system */
/*   03 vhke - B channel deliberation code
               Poss. values: J - B channel deliberation possible
                             N - B channel deliberation not poss. */
/* "E" means parameter input */
bkan:<all,nsta;
```

Step	Description
3.9.4	From TCO, administer settings as displayed.

```
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzg - Display AO basic data */
/* 03 aozu - Indicate or change AO status */
/* 04 bkan - Indicate or alter B channel data */
/* 05 ribn - Indicate or alter seizure direction and bundle allocation */
/* 06 zugr - Indicate or alter primary access right */
/* 07 bkzu - Indicate or alter B channel status */
AOGD<ribn:?
/*   01 rich - Seizure direction
               Poss. value : G - outgoing
                             K - incoming
                             W - bothway */
/*   02 bnnr - Bundle number
              - Bundle for analogue and digital trunk lines [1..999]
                  Don't use bundle 255!
              - Bundle for announcement [1..10]
                     1 = ACD, 2 = HOKO, 3 = common,
                     4 = ACD calls on hold, 5..9 = unused,
                     10 = recording ACD announcem.
               Format: 1..3 digits */
/* "E" means parameter input */
ribn:<w,86;
AOGD<bkzu:f;
```

Step	Description
3.9.5	From TCO, verify the provisioning administered thus far in this section as displayed. ***Note**: There is a maximum of thirty B-channels available for SIP trunking.*

```
AOGD<anzg;
================================================================================
                                                          26.04.07  12:43:26
Connecting circuit
------------------
Call No.                    : C9000 - C9029
Slot / HWA                  : 01-01-07-30
AO type                     : PRA
================================================================================

B channel data
--------------
Allocation code     : NSTA
Deliberation code   : DEACTIVE

B chan. Bundle Direct  Acc. Status  |  B chan. Bundle Direct  Acc. Status
number  number                      |  number  number
---------------------------------   |  ---------------------------------
1       86      W     O     F       |  16      86      W     O     F
2       86      W     O     F       |  17      86      W     O     F
3       86      W     O     F       |  18      86      W     O     F
4       86      W     O     F       |  19      86      W     O     F
5       86      W     O     F       |  20      86      W     O     F
6       86      W     O     F       |  21      86      W     O     F
7       86      W     O     F       |  22      86      W     O     F
8       86      W     O     F       |  23      86      W     O     F
9       86      W     O     F       |  24      86      W     O     F
10      86      W     O     F       |  25      86      W     O     F
11      86      W     O     F       |  26      86      W     O     F
12      86      W     O     F       |  27      86      W     O     F
13      86      W     O     F       |  28      86      W     O     F
14      86      W     O     F       |  29      86      W     O     F
15      86      W     O     F       |  30      86      W     O     F

Number of seizable B channels: 30

Seizure direction                   |  Status
---------------------------------   |  ---------------------------------
G - outgoing                        |  B  - BUSY
K - incoming                        |  D  - DEFECT.
W - bothway                         |  EB - EDSS1 BUSY
                                    |  ER - EDSS1 RESERVED
                                    |  F  - FREE
                                    |  G  - FAULTY
Access right                        |  R  - RESERVED
---------------------------------   |  S  - BARRED
M - with                            |  T  - DEFECT./BARRED
O - without                         |  V  - SEIZED/BARRED
================================================================================
```

Step	Description
3.9.6	From TCO, administer settings as displayed.

```
AOGD<1;
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 pgwe - Program change */
/* 02 anzg - Display AO basic data */
/* 03 aoae - Alter AO basic data */
/* 04 aoei - Set up AO basic data */
/* 05 aolo - Clear AO basic data */
AOGD<aoae;
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzg - Display AO basic data */
/* 03 aozu - Indicate or change AO status */
/* 04 alae - Branch to additional alteration menu */
/* 05 aoty - Indicate or change AO type */
/* 06 dnei - Set up service */
/* 07 bkan - Indicate or alter B channel data */
/* 08 dnda - Alter service data */
/* 09 hwae - Alter AO HWA */
/* 10 nrae - Alter AO Call No. */
/* 11 rirr - Remote IP address / line call number install/change */
/* 12 lipi - Local IP Port / Connectivity Mode install/change */
AOGD<dnda:?
/*   01 dnst - Service
              Format : 3 char.
              Default: TLP - Telephony
              ANZG generates list of possible entries */
/* "E" means parameter input */
dnda:<tlp;
```

Step	Description
3.9.7	From TCO, administer settings as displayed.

```
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzg - Display AO basic data */
/* 03 aozu - Indicate or change AO status */
/* 04 grda - Indicate or alter group data */
/* 05 ltgd - Indicate or alter line data */
/* 06 dnzu - Indicate or alter service data */
/* 07 dnei - Set up service */
/* 08 dnda - Alter service data */
/* 09 dnlo - Clear service */
/* 10 cdec - Coder / Echocanceler / Codermode install/change */
AOGD<grda:?
/*   01 wgrp - Dial group
                Format: 1..3 digits */
/*   02 vgrp - Traffic group
                Format: 1..2 digits */
/*   03 ugrp - Switchover group
                Format: 1 digit */
/*   04 cwgr - Code dialing group
                Format: 1..3 digits */
/*   05 lcrg - Least Cost Routing (LCR)-group
                Format: 1..2 digits */
/* "E" means parameter input */
grda:<2,1,0,0,0;
AOGD<cdec:?
/*   01 code - Codername
                Input format :
                nnn - nnn 1 to 24 characters
                Possible values with ANZG */
/*   02 echo - Echocanceler
                Possible values :
                EIN / ON
                AUS / OFF */
/*   03 como - Codermode
                Possible values :
                N = normal
                T = transparent */
/* "E" means parameter input */
cdec:<1,ein,n;
AOGD<dnzu:f;
```

Step	Description
3.9.8	From TCO, verify the provisioning administered thus far in this section as displayed.

```
AOGD<anzg;
================================================================================
                                                          26.04.07  12:48:52
Connecting circuit
------------------
Call No.                    : C9000 - C9029
Slot / HWA                  : 01-01-07-30
AO type                     : PRA
================================================================================

Service data
------------

                |     TLP      |              |              |              |
----------------+--------------+--------------+--------------+--------------+
Status          | RELEASED     |              |              |              |
Dial group      | 2            |              |              |              |
Traffic group   | 1            |              |              |              |
Switchover group| 0            |              |              |              |
Code dial group | 0            |              |              |              |
LCR-group       | 0            |              |              |              |
Dial retrieval  | DEACTIVE     |              |              |              |
Backward rel.   | DEACTIVE     |              |              |              |
coder           | g711alaw64k  | init         | init         | init         |
codermode       | normal       |              |              |              |
echocanceler    |  on          |              |              |              |
================================================================================
```

Step	Description
3.9.9	From TCO, administer settings as displayed.
	AOGD<? /* SE Status display switch on */ /* HE Task-Help switch on */ /* GF Enable blocked device */ /* PE PC mode switch on */ /* 01 exit - Branch to first menu level */ /* 02 anzg - Display AO basic data */ /* 03 aozu - Indicate or change AO status */ /* 04 grda - Indicate or alter group data */ /* 05 ltgd - Indicate or alter line data */ /* 06 dnzu - Indicate or alter service data */ /* 07 dnei - Set up service */ /* 08 dnda - Alter service data */ /* 09 dnlo - Clear service */ /* 10 cdec - Coder / Echocanceler / Codermode install/change */ **AOGD<dnei:gen;** **AOGD<dnda:gen;** **AOGD<cdec:<11,ein,n;** **AOGD<grda:7,0,0,0,0;** WARNING - No traffic group entered for service 19 **AOGD<dnzu:f;**

Step	Description
3.9.10	From TCO, administer settings as displayed.

```
AOGD<1;
AOGD<aoae;
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzg - Display AO basic data */
/* 03 aozu - Indicate or change AO status */
/* 04 alae - Branch to additional alteration menu */
/* 05 aoty - Indicate or change AO type */
/* 06 dnei - Set up service */
/* 07 bkan - Indicate or alter B channel data */
/* 08 dnda - Alter service data */
/* 09 hwae - Alter AO HWA */
/* 10 nrae - Alter AO Call No. */
/* 11 rirr - Remote IP address / line call number install/change */
/* 12 lipi - Local IP Port / Connectivity Mode install/change */
AOGD<alae;
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzg - Display AO basic data */
/* 03 aozu - Indicate or change AO status */
/* 04 nako - Indicate or alter name / accounting section */
/* 05 vres - Indicate or alter reserved Connecting Memory */
/* 06 prve - Indicate or alter protocol / version */
/* 07 agrp - Indicate or alter general group data */
/* 08 uela - Indicate, alter, display overload priority */
/* 09 olae - Alter Operator overload entry */
AOGD<nako:SIP_Trunk;
```

Step	Description
3.9.11	From TCO, administer settings as displayed.

```
AOGD<vres:?
/*   01 rese - Number of Connecting Memories
               Poss. values: [0..2] */
/*   02 wfdm - waiting field maximum
               possible values: 0..10 */
/* "E" means parameter input */
vres:<,10;
AOGD<uela:?
/*   01 prio - Priority
               Poss. values: [0..2] */
/*   02 pran - Display of priority distribution to AO group
               Poss. value: a */
/* "E" means parameter input */
uela:<2;
AOGD<agrp:?
/*   01 spam - Public Barring Unit group
               Format: 1..2 digits */
/*   02 grkn - Enter group allocation for HKZ line
               For dealer group: [G0..G255]
                                  G0 = deleted
          or
               Call number allocation for HKZ line and tie
               Poss. values: 0..999999999 or A0000..F9999
                             L = delete */
/*   03 digr - DISA-group
               Format: 1 digit */
/*   04 katg - category
               possible values: -1..9 */
/*   05 spco - Barring Unit COLISEE NUMERIS
               Format: 1..2 digit */
/* "E" means parameter input */
agrp:<1,,,-1;
AOGD<prve:?
/*   01 prot - Protocol
               Poss. values: INIT, 8030, 1TR6, TN1R6, ECMA, ETSI, NTA, DKZN1,
                             DKZN2, QSIG, STIM, MOBI, NI */
/*   02 vers - Version
               Poss. values: [0..255]
               Enter both, Protocol and Version
               Delete if Protocol and Version are present */
/*   03 lmff - Release LM
               Format: 4 characters
               ANZG generates list of possible entries */
/*   04 lmfs - Block LM
               Format: 4 characters
               ANZG generates list of possible entries */
/* "E" means parameter input */
prve:<etsi,60;
```

Step	Description
3.9.12	From TCO, administer settings as displayed.

```
AOGD<aoae;
AOGD<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Branch to first menu level */
/* 02 anzg - Display AO basic data */
/* 03 aozu - Indicate or change AO status */
/* 04 alae - Branch to additional alteration menu */
/* 05 aoty - Indicate or change AO type */
/* 06 dnei - Set up service */
/* 07 bkan - Indicate or alter B channel data */
/* 08 dnda - Alter service data */
/* 09 hwae - Alter AO HWA */
/* 10 nrae - Alter AO Call No. */
/* 11 rirr - Remote IP address / line call number install/change */
/* 12 lipi - Local IP Port / Connectivity Mode install/change */
AOGD<rirr:?
/*   01 ipvr - Remote IP version
               Posible values : V4 or V6 */
/*   02 ipad - Remote IP address
               Input format :
               xxx&xxx&xxx&xxx with IPVR = V4 or with IPVR = V6
                xxx&xxx&xxx&xxx&xxx&xxx&xxx&xxx&xxx&xxx&xxx&xxx&xxx&xxx&xxx&xxx
                      - mit xxx 1 to 3 digits [0..255]
               xx-xxx - mit xx 1 to 2 digits for the byte number
                        und xxx 1 to 3 digits for the byte value
*/
/*   03 ippo - Remote IP port number
               Input format :
               xxxxxx - with xxxxx 1 to 5 digits
               Possible values : 0 .. 65535  */
               If the Remote IP Port =0, it is dynamically assigned  */
/*   04 reru - Remote call number
               Input format:
               yxxxx - 5 digit line call number [y:A..F,x:0..9] */
/* "E" means parameter input */
rirr:<v4,192&168&13&121,5060;
```

Step	Description
3.9.13	From TCO, administer settings as displayed.
	AOGD<lipi:? /* 01 lipp - Local IP Port Input format : xxxxxx - with xxxxx 1 to 5 digits Possible values : 0 .. 65535 If the Local IP Port =0, it is dynamically assigned */ /* 02 ipcm - Connectivity mode Input format : xxxxxx - with xxxxx 1 to 5 digits Possible values : 0 .. 65535 */ /* "E" means parameter input */ **lipi:<5060,11;** **AOGD<aozu:s;** **AOGD<aozu:f;** WARNING - No traffic group entered for service 19

Step	Description
3.9.14	From TCO, verify the provisioning administered in this section as displayed.

```
AOGD<anzg:c9000;
================================================================================
                                                          26.04.07  13:50:38
Connecting circuit
------------------
Call No.                    : C9000 - C9029
Slot / HWA                  : 01-01-07-30
AO type                     : PRA
================================================================================

General ADS data
---------------
Name                        : SIP_Trunk
Accounting section          : 00000
Protocols                   :
                               Protocol  | Version | faulty | busy 2| error
                               ----------+---------+--------+-------+------
                                ETSI     | 60      | OFF    | OFF   | OFF
Overload priority           : 2
Public bar. unit gr.        : 1
Colisee bar. unit gr.       : 0
DISA-group                  : 0
Dealergroup                 : 0
CN alloc. HKZ line & tie    :
Category                    : -1
Waiting field maximum       : 10
Reserved
Connection memory           : 0
Service memory              : 2
AO state                    : IN OPERATION
Service block               : sv-free
Call number block           : Off
IP - address                :
(V4)192.168.11.102:5060
Active Coder                : g711alaw64k
Secured registration        : NO
Remote IP - address         :
(V4)192.168.13.121:5060
Remote call number          :
Connectivity mode           : 11
================================================================================
```

Step	Description
3.9.15	From TCO, scroll down to continue verifying the provisioning administered in this section as displayed.

```
Service data
------------

                |     TLP      |     GEN      |              |              |
----------------+--------------+--------------+--------------+--------------+
Status          | RELEASED     | RELEASED     |              |              |
Dial group      | 2            | 7            |              |              |
Traffic group   | 1            | 0            |              |              |
Switchover group| 0            | 0            |              |              |
Code dial group | 0            | 0            |              |              |
LCR-group       | 0            | 0            |              |              |
Dial retrieval  | DEACTIVE     | DEACTIVE     |              |              |
Backward rel.   | DEACTIVE     | DEACTIVE     |              |              |
coder           | g711alaw64k  | g729annexa   | init         | init         |
codermode       | normal       | normal       |              |              |
echocanceler    |  on          |  on          |              |              |
================================================================================
```

Step	Description
3.9.16	From TCO, scroll down to continue verifying the provisioning administered in this section as displayed.

```
B channel data
--------------
Allocation code     : NSTA
Deliberation code   : DEACTIVE

B chan. Bundle Direct  Acc. Status  |  B chan. Bundle Direct  Acc. Status
number  number                      |  number  number
------------------------------------|------------------------------------
1       86      W      O     F      |  16      86      W      O     F
2       86      W      O     F      |  17      86      W      O     F
3       86      W      O     F      |  18      86      W      O     F
4       86      W      O     F      |  19      86      W      O     F
5       86      W      O     F      |  20      86      W      O     F
6       86      W      O     F      |  21      86      W      O     F
7       86      W      O     F      |  22      86      W      O     F
8       86      W      O     F      |  23      86      W      O     F
9       86      W      O     F      |  24      86      W      O     F
10      86      W      O     F      |  25      86      W      O     F
11      86      W      O     F      |  26      86      W      O     F
12      86      W      O     F      |  27      86      W      O     F
13      86      W      O     F      |  28      86      W      O     F
14      86      W      O     F      |  29      86      W      O     F
15      86      W      O     F      |  30      86      W      O     F

Number of seizable B channels: 30

Seizure direction                   |  Status
------------------------------------|------------------------------------
G - outgoing                        |  B  - BUSY
K - incoming                        |  D  - DEFECT.
W - bothway                         |  EB - EDSS1 BUSY
                                    |  ER - EDSS1 RESERVED
                                    |  F  - FREE
                                    |  G  - FAULTY
Access right                        |  R  - RESERVED
------------------------------------|  S  - BARRED
M - with                            |  T  - DEFECT./BARRED
O - without                         |  V  - SEIZED/BARRED
=============================================================================
```

3.10. Configure an Access Number for SIP Trunking

This section describes the steps for configuring an access number for SIP trunking on the Avaya I55. The configuration presented in this section is administered by means of MML commands entered in the TCO, which is accessible via ISM.

Step	Description
3.10.1	From ISM, open TCO by selecting: **Service ➔ TCO (Terminal emulation)**. From TCO, administer settings to install an access code for SIP clients as follows: • Enter **1:addr;** at the **PROL<** command prompt. • To query available options, enter a "**?**" at the **ADDR<** command prompt. • To access the bundle addressing menu for bundle 86, enter **badm:86;** at the **ADDR<** command prompt.

```
------------------------------------------------------------------
CONSOLE-ID  LOGIN DATE/TIME        TASK    CALL NUMBER/IP ADDRESS
------------------------------------------------------------------
TC-03-3     03-05-2007 15:58:23    PROL    -
                                           (V4)192.168.12.144:1732

PROL<1:addr;
Command processing in progress !
ADDR<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 pgwe - Program change */
/* 02 auge - Select output device for display */
/* 03 addm - branch to addressing menu */
/* 04 badm - branch to bundle addressing menu */
ADDR<badm:86;
```

Step	Description
3.10.2	From TCO, administer settings as displayed.

```
ADDR<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 exit - Back to main menu */
/* 02 pdaz - Display Bundle Addressing Data */
/* 03 ipae - change Bundle ISDN-PABX-Access-Number */
/* 04 ppae - change Bundle Private-PABX-Access-Number */
/* 05 ipre - change Bundle ISDN-PABX-Prefixes */
/* 06 ppre - change Bundle Private-PABX-Prefixes */
/* 07 dead - change Bundle Destination Addresses */
/* 08 orad - change Bundle Origination Addresses */
/* 09 sads - set Bundle Address Settings */
/* 10 rads - reset Bundle Address Settings */
/* 11 ilev - change Bundle ISDN NP Level */
/* 12 plev - change Bundle Private NP Level */
/* 13 bnae - change bundle number */
ADDR<ipre:?
/*   01 rich - direction
           possible values: k - inward
                            g - outward */
/*   02 npre - NPI-Prefix
           max. 15 digits, possible values: [-1,0..9,*]
                     Init value = -1 */
/*   03 tpin - TON-Prefix international
           max. 15 digits, possible values: [-1,0..9,*]
                     Init value = -1 */
/*   04 tpna - TON-Prefix national
           max. 15 digits, possible values: [-1,0..9,*]
                     Init value = -1 */
/*   05 tpsu - TON-Prefix subscriber
           max. 15 digits, possible values: [-1,0..9,*]
                     Init value = -1 */
/* "E" means parameter input */
ipre:<g,0,00,0,;
ADDR<ilev:k,dddi;
```

Step	Description
3.10.3	From TCO, verify the provisioning administered in this section as displayed.

```
ADDR<pdaz;
Data for Bundle 86
----------------------------
- ISDN PABX Access numbers
             coun-            nation.          Access code      def. DDI-Part
             try              destin.          subscriber       subsr. number
  outward :  -                -                -                -
  inward  :  -                -                -                -

- PABX Access number: Priv.-NP
             Level2           Level1           Access Code      def. DDI-Part
                                               code Local       Local Nr
  outward :  -                -                -                -
  inward  :  -                -                -                -

- Prefixes : ISDN-NP:
             NPI-Pref.        TON-Pref-        TON-Pref-        TON-Pref
                              Internat.        National         Subscr.
  outward : 0                 00               0                -
  inward  : -                 -                -                -

- Prefixes : Priv.-NP:
             NPI-Pref.        TON-Pref-        TON-Pref-        TON-Pref
                              Level 2          Level 1          Local
  outward : -                 -                -                -
  inward  : -                 -                -                -

- Level  ISDN-NP
  outward : init
  inward  : dddi                          <ilev

- Level Priv.-NP
  outward : init
  inward  : init

Destination Addresses (Default)
-------------------------------
Internal Address : init
Format of ISDN Address : init
Format of Private Address : init

Origination Addresses (Default)
-------------------------------
Internal Address : init
Format of ISDN Address : init
Format of Private Address : init

Bundle Address Settings
-----------------------
```

3.11. Configure Supported Services for SIP Trunking

This section describes the steps for configuring supported services for SIP trunking on the Avaya I55. The configuration presented in this section is administered by means of MML commands entered in the TCO, which is accessible via ISM.

Step	Description
3.11.1	From ISM, open TCO by selecting: **Service ➔ TCO (Terminal emulation)**. From TCO, administer settings to install an access code for SIP clients as follows: • Enter **1:wabe;** at the **PROL<** command prompt. • To query available options, enter a "**?**" at the **WABE<** command prompt.

```
------------------------------------------------------------------
CONSOLE-ID  LOGIN DATE/TIME        TASK    CALL NUMBER/IP ADDRESS
------------------------------------------------------------------
TC-03-3     26-04-2007 14:07:46    PROL    -
                                           (V4)192.168.12.144:1378

PROL<1:wabe;
Command processing in progress !
WABE<?
/* SE Status display switch on */
/* HE Task-Help switch on */
/* GF Enable blocked device */
/* PE PC mode switch on */

/* 01 pgwe - Program change  */
/* 02 auge - Select output device */
/* 03 anzg - Branch to display menu */
/* 04 akze - Set up AKZ */
/* 05 akzl - Clear AKZ */
/* 06 idke - Set up identification code */
/* 07 idkl - Clear identification code */
/* 08 cpnm - Install/delete company name */
/* 09 vbke - Set up VKZ */
/* 10 vbkl - Delete VKZ */
/* 11 datm - Branch to DAT DDI Alpha Tagging administration */
/* 12 akza - Modify AKZ */
```

Step	Description
3.11.2	From TCO, query settings administered in **Section 3.8** as displayed.

```
WABE<anzg;
WABE<dwgr:2,v;
                                                          04.05.07  13:49:15
Display of dial evaluation data to a dial group
===============================================
 Dial group   :  2
 Dial method  :  Predial

AKZ        Dial   Bndl  AKZ  SA    Co. LCR   dialing         ext. LCR  RI- Num.
           sele.  numb. Info group nr. data  conversion      all. rout SA  Plan
                                       set   digits     sel  cat. flg  flg
-------------------------------------------------------------------------------

0          EXTERN 3     -    -     -   -                 0    INIT ROFF -   -
                                                            Exch. line via earth
1          NETZ   12    1    -     -   -                 0    INIT ROFF -   -
2          NETZ   12    1    -     -   -                 0    INIT ROFF -   -
3          NETZ   12    1    -     -   -                 0    INIT ROFF -   -
4          INTERN -     2    -     -   -                 0     -    -   -   -
5          NETZ   12    1    -     -   -                 0    INIT ROFF -   -
6          NETZ   12    1    -     -   -                 0    INIT ROFF -   -
7          NETZ   12    1    -     -   -                 0    INIT ROFF -   -
81         NETZ   12    1    -     -   -                 0    INIT ROFF -   -
82         INTERN -     5    -     -   -                 0     -    -   -   -
991        INTERN -     2    -     -   -                 0     -    -   -   -
A          RUVA   -     -    -     -   -     -           -     -    -   -   -
C          PUALLG -     -    -     -   -     -           -     -    -   -   -
D          CW     -     -    -     -   -     -           -     -    -   -   -
E0         EXTERN 86    3    -     -   -                 0    INIT ROFF -   -
```

Step	Description
3.11.3	From TCO, administer settings as displayed.

```
WABE<1;
WABE<1:aolm;
Command processing in progress !
AOLM<3:c9000;
AOLM<4;
                                                              04.05.07  13:51:27
  AO-Number  AO - Perform. features ( Service: TLP )
------------------------------------------------------------------------------

  C9000      NAM   CWA
AOLM<falm:amt;
AOLM<falm:toc,klf;
AOLM<4;
                                                              04.05.07  13:52:00
  AO-Number  AO - Perform. features ( Service: TLP )
------------------------------------------------------------------------------

  C9000      AMT   CWA   KLF   TOC
AOLM<salm:cwa;
AOLM<4;
                                                              04.05.07  13:55:39
  AO-Number  AO - Perform. features ( Service: TLP )
------------------------------------------------------------------------------

  C9000      AMT   KLF   TOC
AOLM<1;
AOLM<1:anlm;
Command processing in progress !
ANLM<9;
```

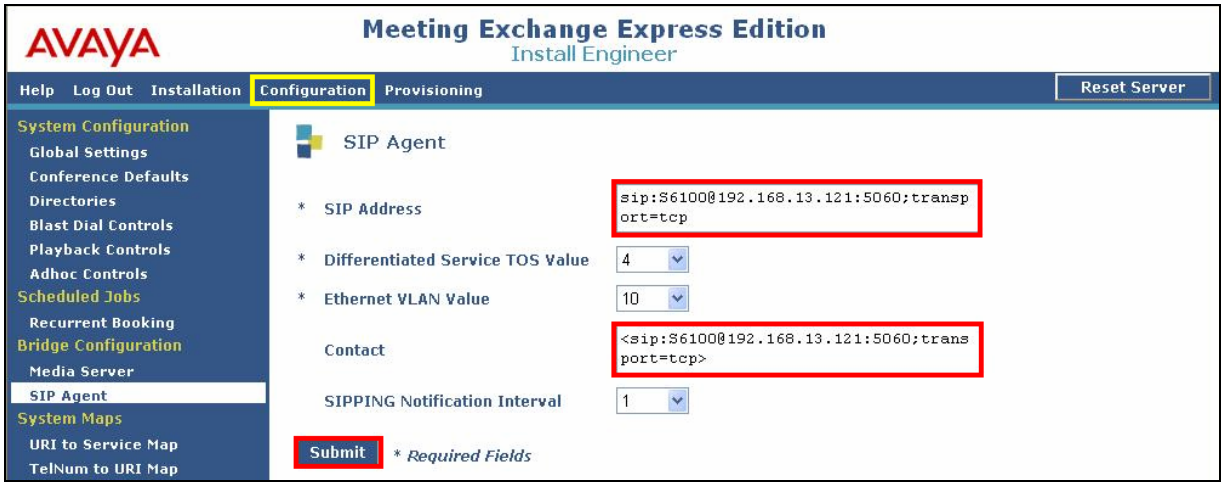
Step	Description
3.11.4	From TCO, administer settings as displayed.
	ANLM<? /* SE Status display switch on */ /* HE Task-Help switch on */ /* GF Enable blocked device */ /* PE PC mode switch on */ /* 01 pgwe - Program change */ /* 02 auge - Select output device */ /* 03 almf - Enable System LM */ /* 04 alms - Blocking System LM */ /* 05 alma - Display System LM */ /* 06 alvf - Enable System LM variants */ /* 07 alvs - Blocking System LM variants */ /* 08 alva - Display System LM variants to one System LM */ /* 09 lmab - Display perf. feature capacity of system */ **ANLM<almf:toc,klf;** **ANLM<alma:toc;** TOC F **ANLM<alma:klf;** KLF F

4. Avaya Meeting Exchange Configuration

This section displays the configuration for enabling Avaya Meeting Exchange to interoperate with the Avaya I55. Avaya Meeting Exchange is administered and maintained using a standard web browser over a secure connection by entering **https://<IP address of Avaya Meeting Exchange>/mx** into the web browser's Uniform Resource Locator (URL) bar.

4.1. Configure Connectivity

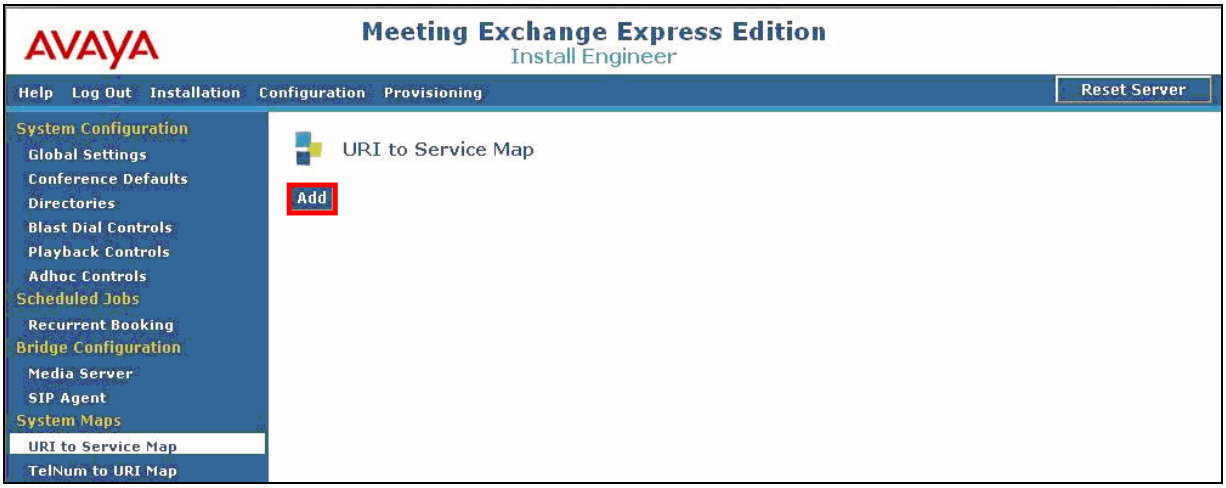
This section describes the steps for configuring SIP connectivity between Avaya Meeting Exchange and other SIP User Agents (UA).

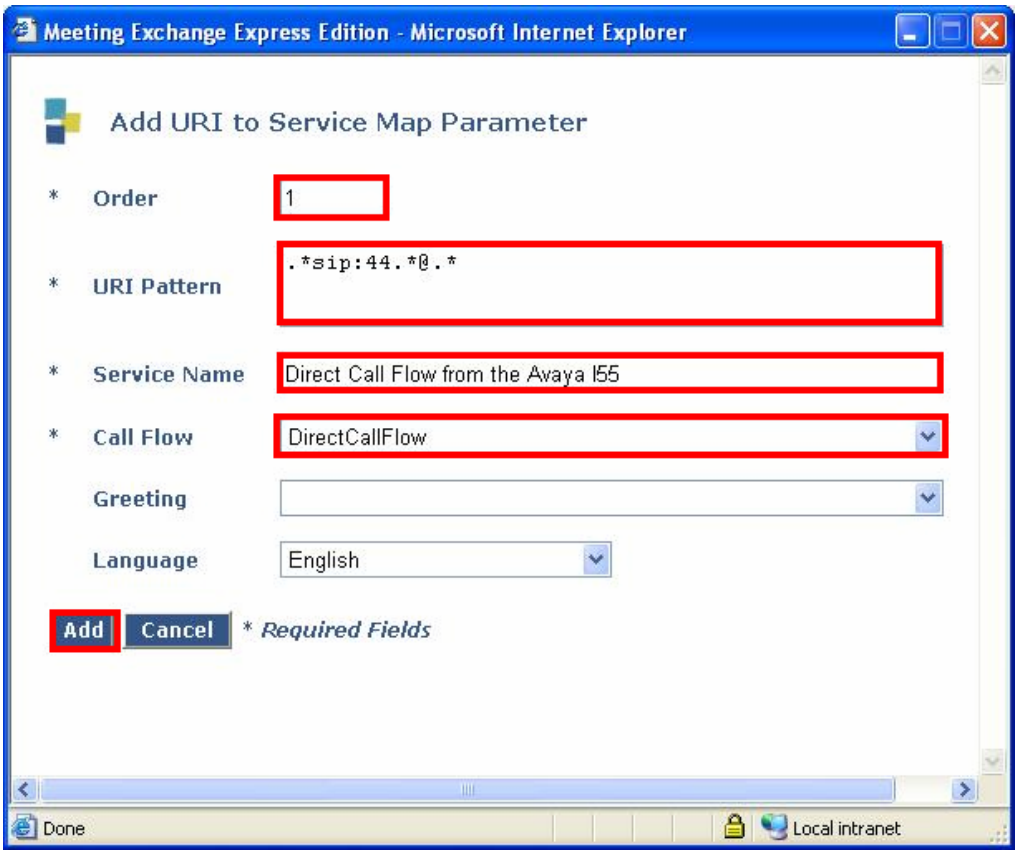
Step	Description
4.1.1	Administer settings that enable SIP connectivity between Avaya Meeting Exchange and the Avaya I55 as follows: • From the web interface toolbar, click **Configuration**. • Click **SIP Agent** under **Bridge Configuration**. • Enter a SIP URI for Avaya Meeting Exchange that conforms to SIP standards in the **SIP Address** field. This field is used to populate the From Header Field in SIP INVITE messages from Avaya Meeting Exchange. To enable SIP/TCP connectivity on port 5060, this entry must contain **5060** and **transport=tcp**. The user field, **S6100**, must conform to SIP standards, and is selected to uniquely identify this server. For example, **S6100** will be inserted in the From Header Field of SIP INVITE messages from Avaya Meeting Exchange and will display on a participant's endpoint when Dial-Out procedures from Avaya Meeting Exchange are invoked. This enables an end-user to identify a call from Avaya Meeting Exchange. • Enter the SIP URI, as configured for the **SIP Address** field, in angled brackets in the **Contact** field. This field is used to populate the Contact Header Field in SIP INVITE messages from Avaya Meeting Exchange, and provides SIP UAs, for these Application Notes the Avaya I55, a means for acknowledging SIP messages from Avaya Meeting Exchange. • Use default settings for remaining fields. • Click the **Submit** button to add the configuration to the database. 

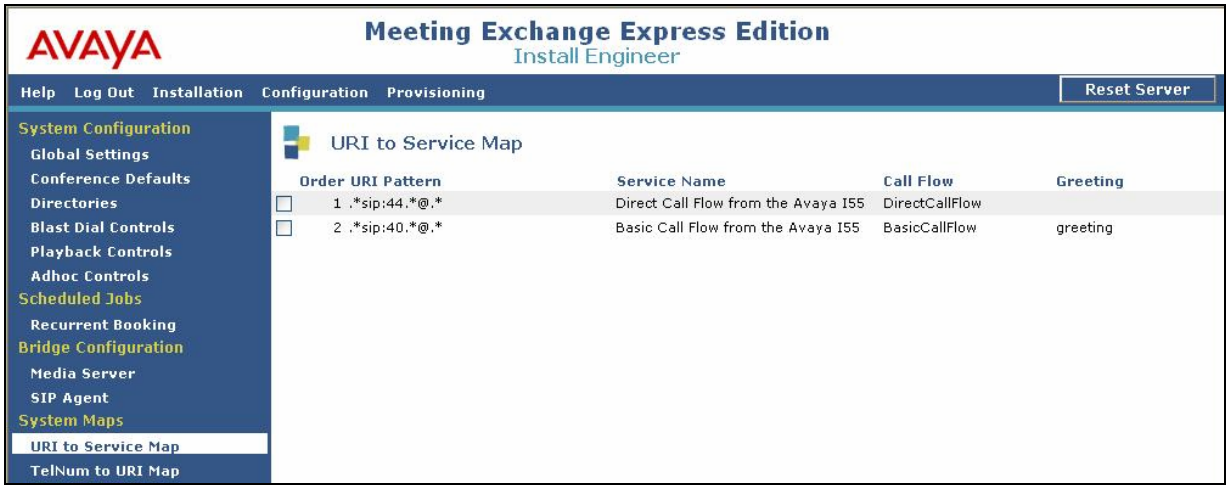
4.2. Configure Call Routing

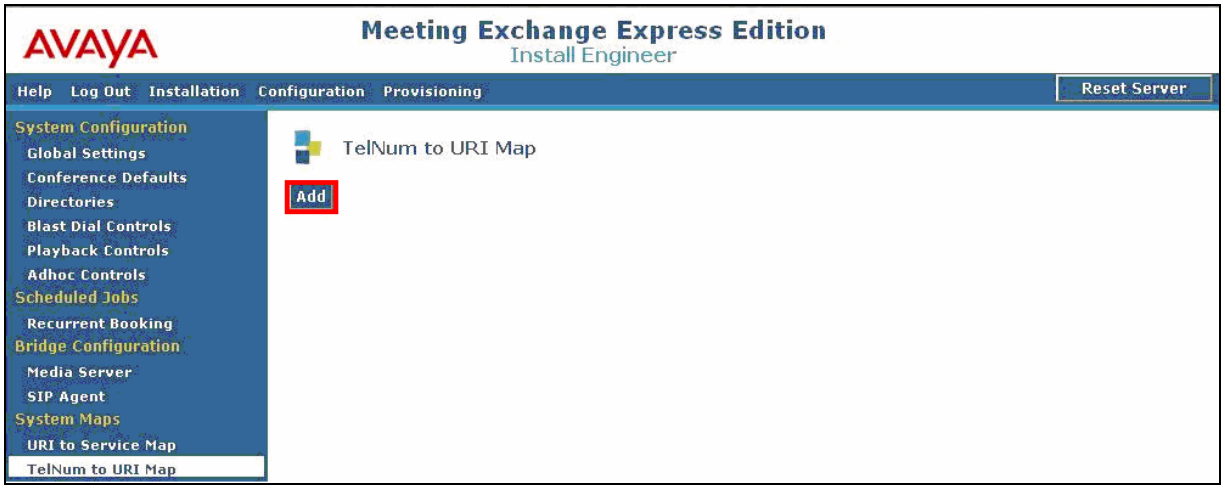
This section describes the steps for configuring call routing for Avaya Meeting Exchange. On Avaya Meeting Exchange, call routing is defined by service maps as follows:

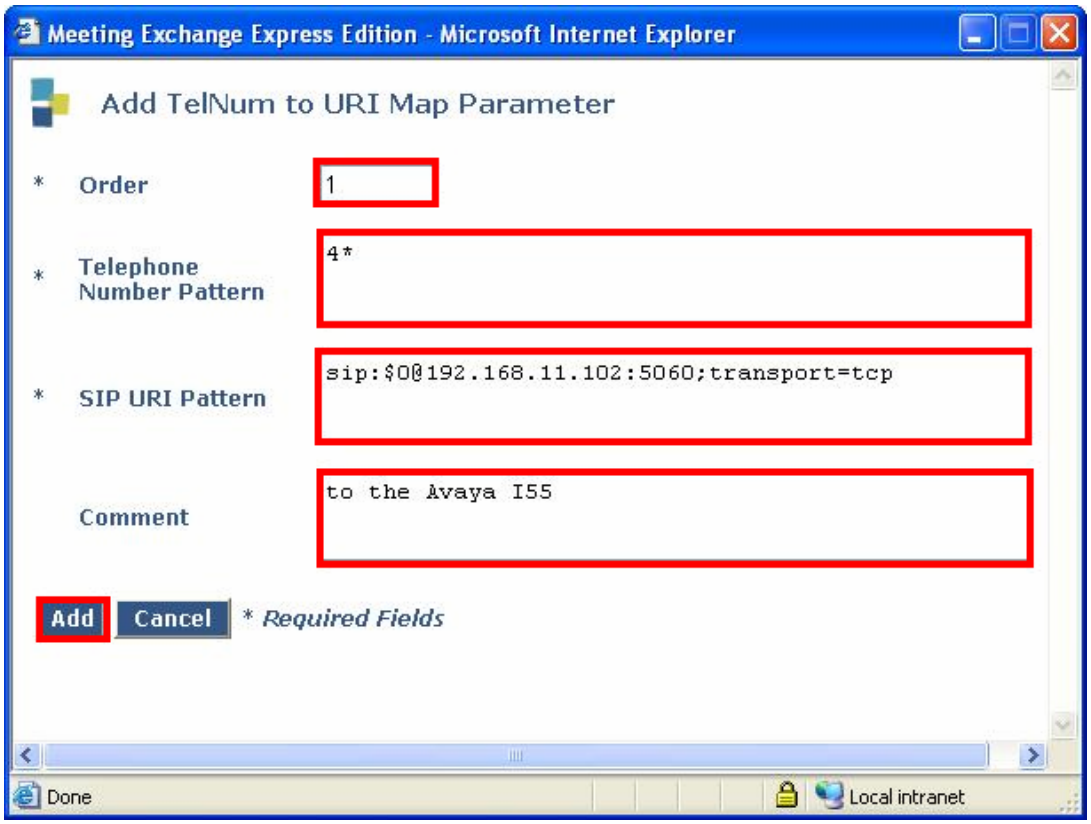
- For inbound calls to Avaya Meeting Exchange, service maps for URI to telephone number translations are utilized. These translations associate calls to Avaya Meeting Exchange with corresponding call flows, thus allowing for specific treatment for an incoming call based on a the caller's SIP Uniform Resource Identifier (URI).
- For outbound calls from Avaya Meeting Exchange, service maps for telephone number to URI translations are utilized. These translations associate a telephone number pattern with a corresponding SIP URI of a SIP UA, thus allowing call origination from Avaya Meeting Exchange to the SIP UA.

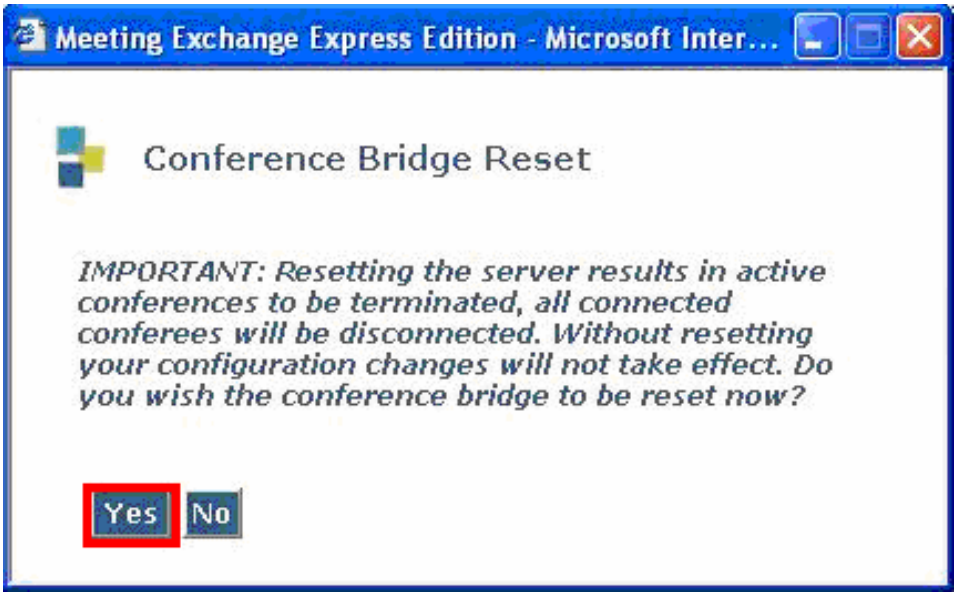
Step	Description
4.2.1	To associate incoming calls to Avaya Meeting Exchange with a call flow, add a URI to service map entry as follows: • Click **URI to Service Map** under **System Maps**. • Click the **Add** button. 

Step	Description
4.2.2	From the **Add URI to Service Map Parameter** screen, administer settings to enable a direct call flow for calls from the Avaya I55 as follows: • Leave the **Order** field at the default value. Avaya Meeting Exchange parses URI to service map entries for pattern matches in descending order, terminating the search once a pattern is matched. For this sample configuration, order is irrelevant as the patterns for call flows are mutually exclusive. • Enter a rule in the **URI Pattern** field to match the pattern of incoming Request URIs in SIP INVITE messages from the Avaya I55. Metacharacters such as "**.**" (matches any one character) or "*****" (matches zero or more of the preceding character) may be utilized. For example, assume the Avaya I55 sends the following URI: ***sip:444@192.168.13.121:5060;transport=tcp***. The entry in the **URI Pattern** field, **.*sip:44.*@.***, would match ***sip:44***, then zero or more characters, followed by **@**, then zero or more characters. • To allow access to conferences as moderator, without entering a passcode, select **DirectCallFlow** from the drop down menu for the **Call Flow** field. • Enter a descriptive name for this map in the **Service Name** field. • Click the **Add** button to add the map to the database. 

Step	Description
4.2.3	To associate incoming calls to Avaya Meeting Exchange with a basic call flow, repeat **Step 4.2.1** to add a URI to service map entry for a basic call flow with the following parameters: • Leave the **Order** field at the default value. • Enter **.*sip:40.*@.*** in the **URI Pattern** field to match the pattern of incoming Request URIs in SIP INVITE messages from the Avaya I55. • To access a conference with an associated passcode, select **BasicCallFlow** from the drop down menu for the **Call Flow** field. • Enter a descriptive name for this map in the **Service Name** field. • [***Optional***] Select a greeting from the drop down menu for the **Greeting** field. • The resulting URI to service map list is displayed below. ***Note**: The provisioning for the **URI Pattern** fields for the direct and basic call flows utilize wild cards that make the call flows mutually exclusive while maximizing the breadth of the pattern match. For example, the **URI Pattern** field for the basic call flow is **.*sip:40.*@.***. This aligns with the provisioning for call routing on the Avaya I55, and allows 40x, where x can be any digit, to match this direct call flow.* 

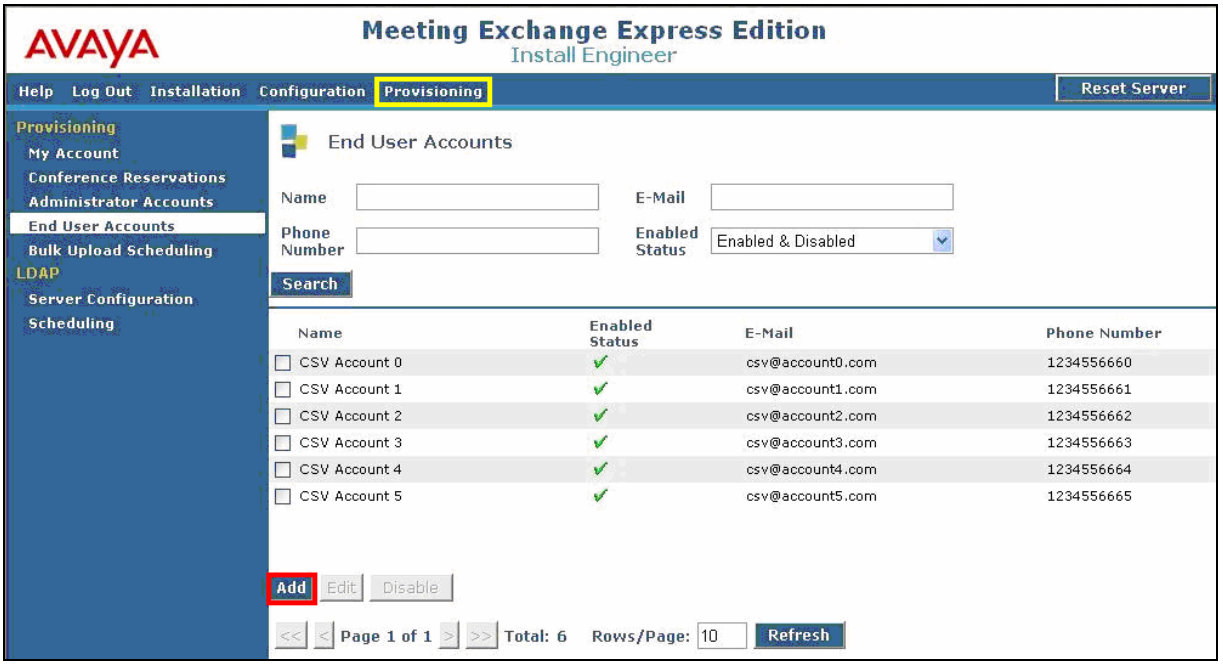
Step	Description
4.2.4	To enable routing of outbound calls from Avaya Meeting Exchange, add a TelNum to URI map entry as follows: • Click **TelNum to URI Map** under **System Maps**. • Click the **Add** button. 

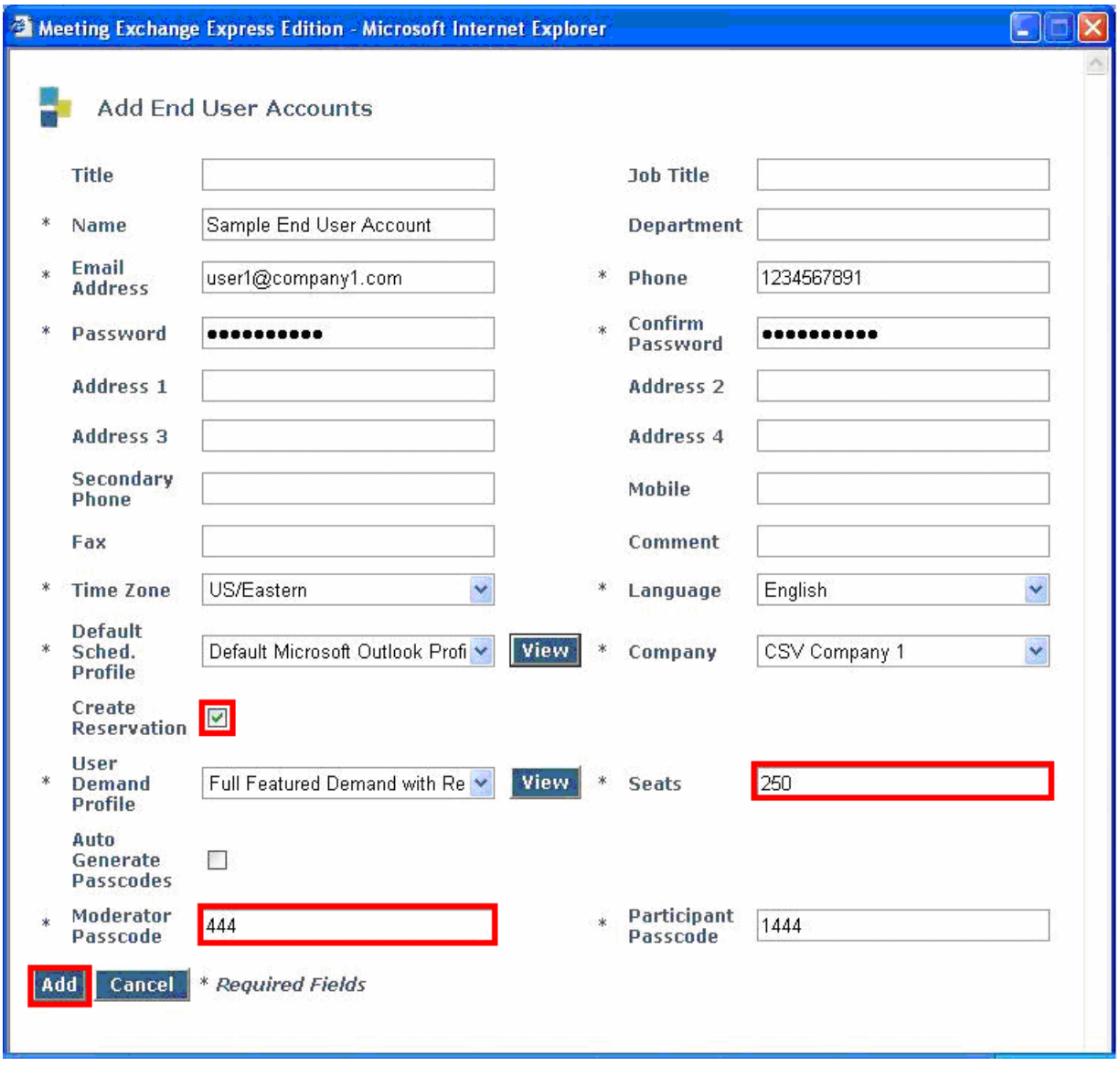
Step	Description
4.2.5	From the **Add TelNum to URI Map Parameter** screen, administer settings to enable outbound calling to the Avaya I55 as follows: • Leave the **Order** field at the default value. Avaya Meeting Exchange parses TelNum to URI map entries for pattern matches in descending order, terminating the search once a pattern is matched. For this sample configuration, order is irrelevant as there is only one entry in the database. • Enter a rule in the **Telephone Number Pattern** field that matches the administration for telephone extensions on the Avaya I55. Metacharacters such as "*****" (refers to a character string) or "**?**" (refers to a single character) may be utilized. • To enable outbound calling from Avaya Meeting Exchange, enter a rule in the **SIP URI Pattern** field that conforms to SIP standards. To enable SIP/TCP connectivity for outbound calls to the Avaya I55, the rule must contain **5060** and **transport=tcp**. The metacharacter, **$0** is replaced by the entire **Telephone Number Pattern** at the location of **$0** in the **SIP URI Pattern**. For example, if ***401*** is the dialed string, Avaya Meeting Exchange will send a SIP INVITE message with a SIP URI and To Header Field formatted as follows: ***sip:401@192.168.11.102:5060;transport=tcp***. • Click the **Add** button to add the map to the database. 

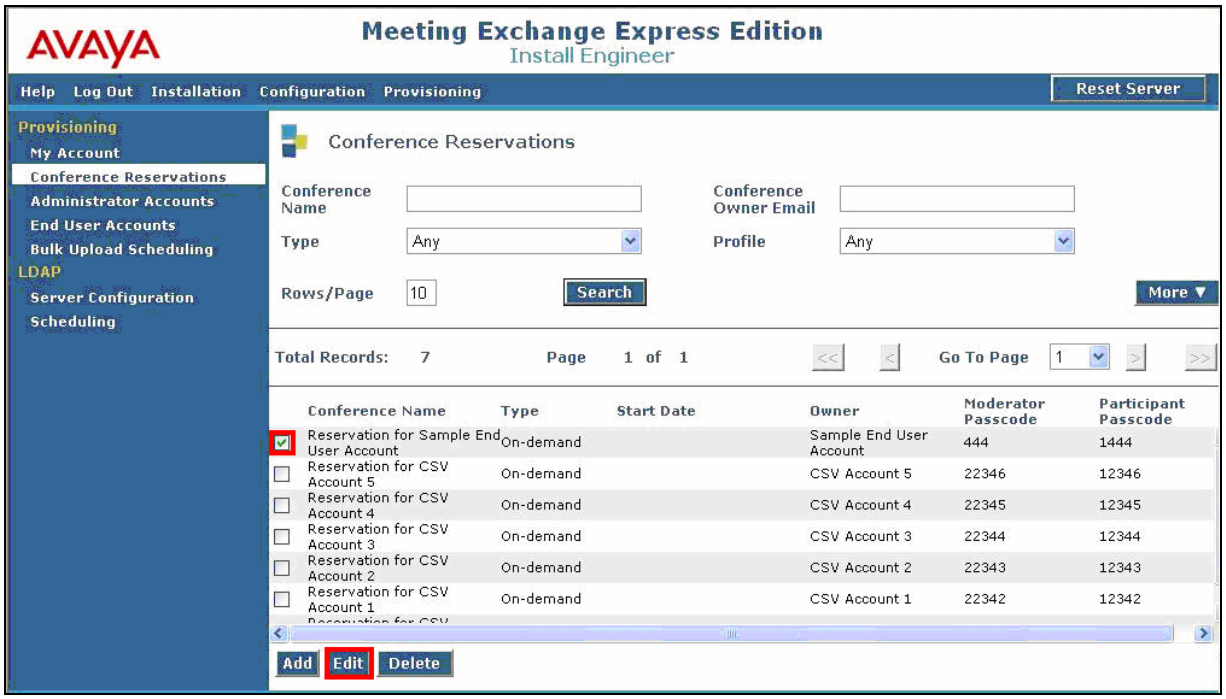
Step	Description
4.2.6	Apply the configuration by clicking the **Reset Serve**r button  located on the right hand side of the web interface toolbar. Confirm this action by clicking **Yes** in the pop up window. 

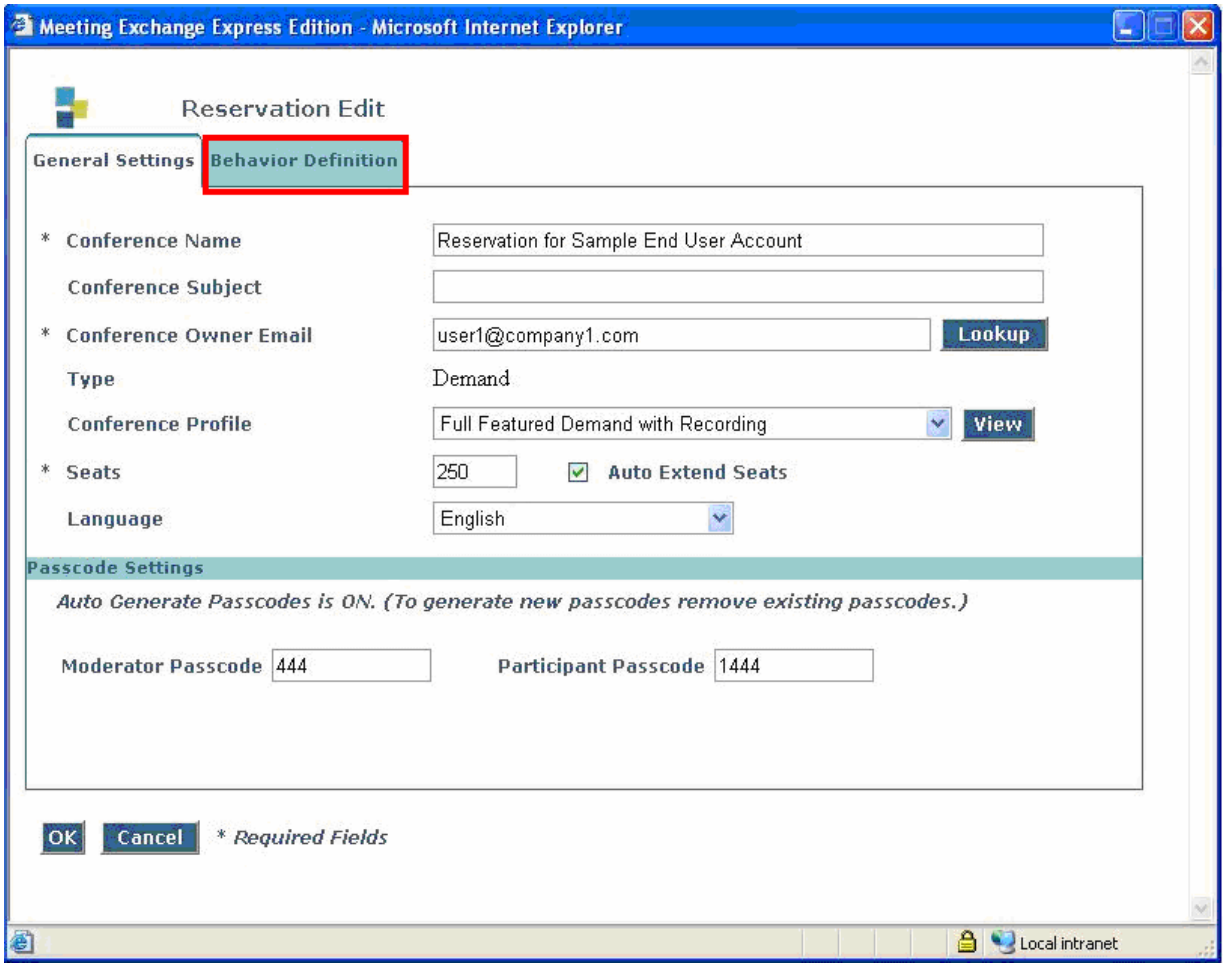
4.3. Provision Accounts

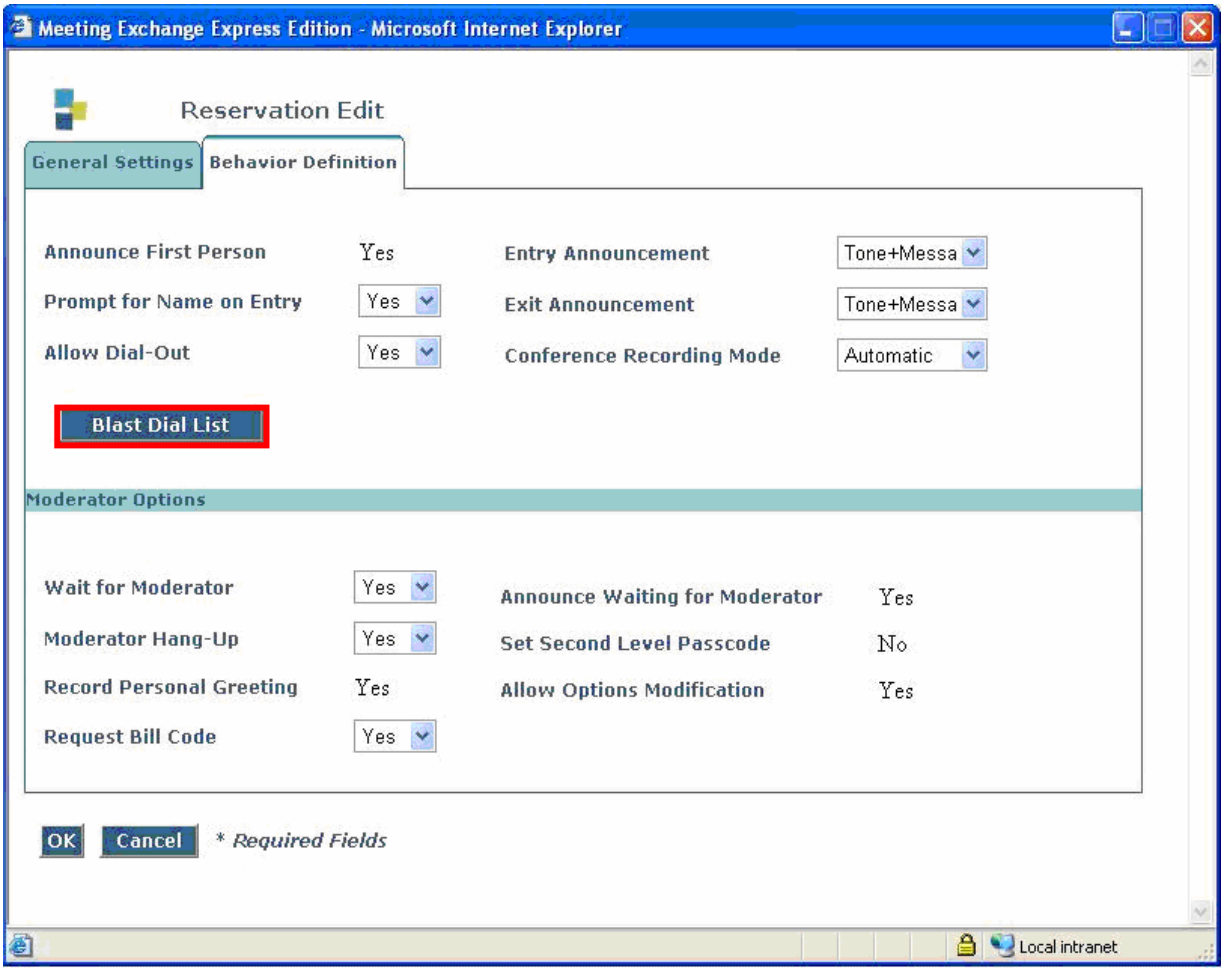
The following steps present an example of provisioning an end user account and associated conference reservation on Avaya Meeting Exchange.

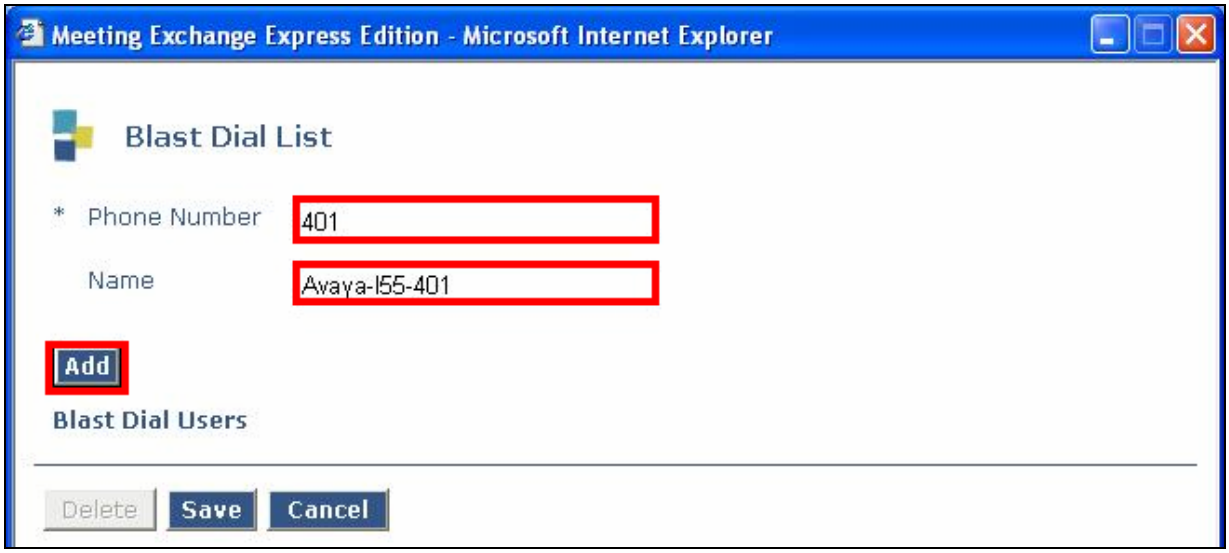
Step	Description
4.3.1	To provide end users access to the conferencing features available on Avaya Meeting Exchange, add an end user account as follows: • From the web interface toolbar, click **Provisioning**. • Click **End User Accounts** under **Provisioning**. • Click the **Add** button. ***Note**: Avaya Meeting Exchange comes with pre-provisioned accounts as displayed.* 

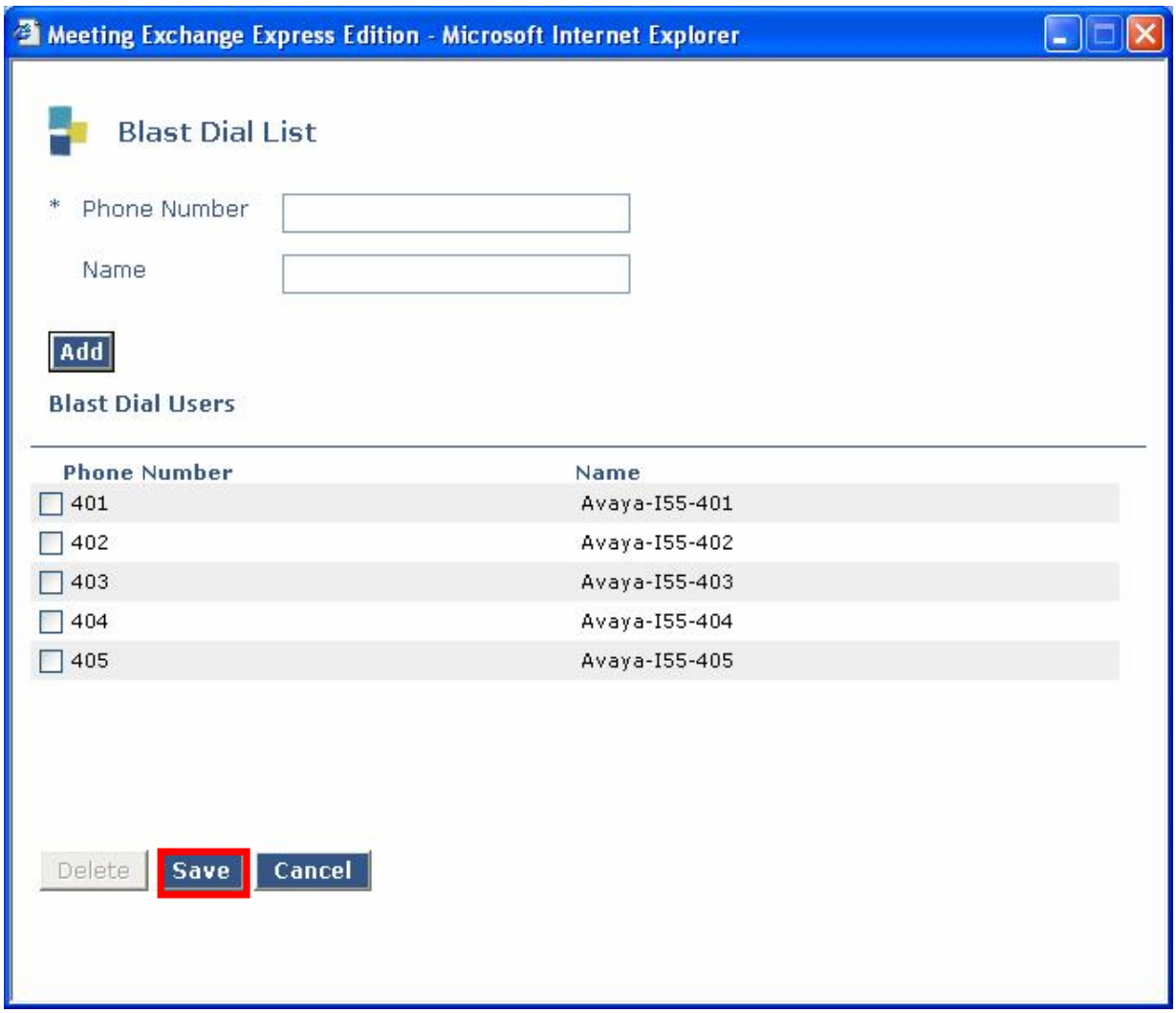
Step	Description
4.3.2	From the **Add End User Accounts** screen, provision an end user account as follows: • Check **Create Reservation** to generate a reservation for an on demand conference that is associated with this end user account. • Enter the number of ports assigned to this conference in the **Seats** field. • Enter a number in the **Moderator Passcode** field that corresponds to the direct call flow provisioned in **Step 4.2.2**. • Refer to [**1**] for definitions regarding the remaining required fields on this screen. • Click the **Add** button to add the account to the database. 

Step	Description
4.3.3	Modify the conference reservation corresponding to the end user account provisioned in **Step 4.3.2** as follows: • Click **Conference Reservations** under **Provisioning**. • Check the conference reservation corresponding to the end user account provisioned in **Step 4.3.2**. • Click the **Edit** button. 

Step	Description
4.3.4	The configuration displayed in the **General Settings** tab for this conference reservation is correlated with the configuration administered for the end user account provisioned in **Step 4.3.2**. Any updates made in this screen will be reflected in the corresponding end user account and vice versa. To modify parameters associated with this conference reservation, click the **Behavior Definition** tab. 

Step	Description
4.3.5	The configuration displayed in the **Behavior Definition** tab may be modified to suit the requirements for this conference. For this sample configuration, a blast dial list was provisioned. To configure a blast dial list, click the **Blast Dial List** button. 

Step	Description
4.3.6	From the **Blast Dial List** screen, add entries to the blast dial list as follows: • Enter a number in the **Phone Number** field that corresponds to an extension of an Avaya 4600 Series IP Telephone that is registered to the Avaya I55. • Enter a descriptive name for this phone number in the **Name** field. • Click the **Add** button to add entries to this blast dial list. 

Step	Description
4.3.7	Repeat **Step 4.3.6** to add additional phone numbers to the blast dial list. The resultant blast dial list is displayed below. • Click the **Save** button to save and associate the blast dial list with this conference. • Click the **OK** button OK (displayed in the lower left hand corner of the **Behavior Definition** tab in **Step 4.3.5**) to save the modifications to this conference in the database. 

5. Interoperability Compliance Testing

5.1. General Test Approach

The general test approach was to place calls between the Avaya I55 and Avaya Meeting Exchange, utilizing the sample configuration displayed in **Figure 1**.

The main objectives were to verify the following:

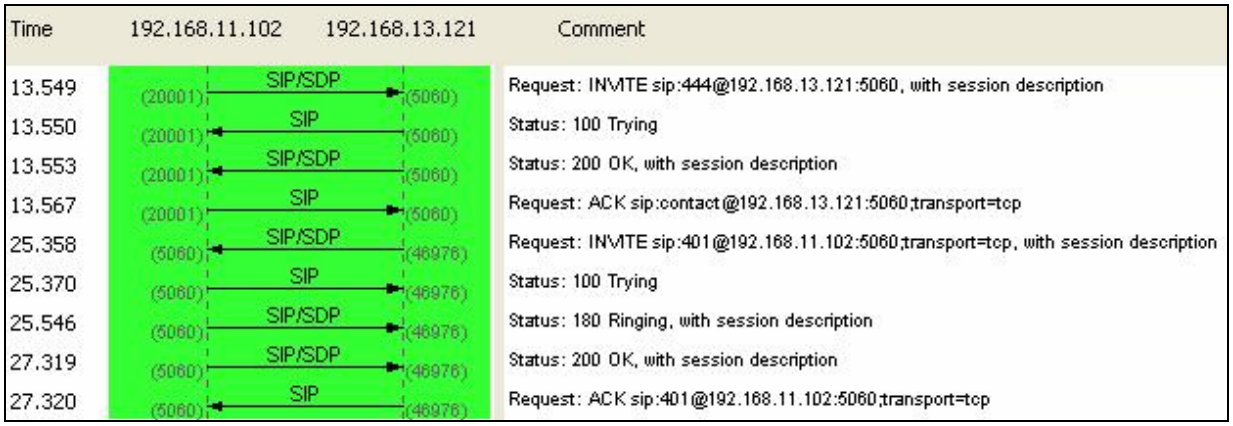
- Inbound calling from Avaya 4600 Series IP Telephones registered to the Avaya I55 to scheduled and demand conferences provisioned on Avaya Meeting Exchange:
  - Direct call flow (without participant-access-code)
  - Basic call flow (with participant-access-code)
- Outbound calling from Avaya Meeting Exchange to Avaya 4600 Series IP Telephones registered to the Avaya I55:
  - Blast dial to a pre-provisioned blast dial list
  - Originator dial-out
- Conferencing features, provided by Avaya Meeting Exchange, for both moderator and participant accessed during a conference call via touchtone commands.
- The following sub-set of the SIPPING-19 supplementary features for SIP endpoints:
  - Call hold
  - Attended/unattended call transfer
  - Call forward
  - Three-way conference
- The following transport methods for signaling between the Avaya I55 and Avaya Meeting Exchange:
  - TCP
  - UDP
- The following codecs:
  - G711MU
- Subjective voice quality for endpoints participating in a conference.
- DTMF transmission via RFC 2833.

5.2. Test Results

All test cases, as defined by the general test approach, passed.

6. Verification Steps

The following steps were used to verify the administrative steps presented in these Application Notes and are applicable for similar configurations in the field. The verification steps in this section validated the following:

Step	Description
6.1.1	Validate signaling and media connectivity for inbound calls to Avaya Meeting Exchange from the Avaya I55. • From a station registered to the Avaya I55, dial **444** to enter the conference provisioned in **Section 4.3** as moderator via the direct call flow provisioned in **Step 4.2.2**.
6.1.2	Validate signaling and media connectivity for outbound calls from Avaya Meeting Exchange to the Avaya I55. • From a station in a conference on Avaya Meeting Exchange, enter the appropriate touchtone command to invoke a blast dial to the blast dial list provisioned in **Section 4.3**.
6.1.3	Verify that calls to and from Avaya Meeting Exchange are managed correctly, e.g., callers are added/removed from conferences. This is verified by the following procedures: • Log in to the Avaya Meeting Exchange server console with the appropriate credentials. • At the command prompt, enter the command: **watch -t -n 5 -d "ipinfo -l |egrep -ci active"** o This command provides a real time, continuous update of port utilization on Avaya Meeting Exchange.
6.1.4	The following packet trace depicts the inbound and outbound call scenarios invoked in **Step 6.1.1** and **Step 6.1.2**. 

7. Conclusion

These Application Notes present a compliance-tested solution comprised of the Avaya I55 and Avaya Meeting Exchange. This solution enables connectivity between the Avaya I55 and Avaya Meeting Exchange utilizing standards based SIP connectivity.

8. Additional References

Avaya references are available at http://support.avaya.com.

[1] *Avaya Meeting Exchange Express Edition Release 1.5 Administration and Maintenance Guide*, Issue 1, Doc ID: 04-601909, March 2007.

[2] *Avaya Meeting Exchange Express Edition Release 1.5 Installation and Configuration Guide*, Issue 1, Doc ID: 04-601898, March 2007.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya Solution & Interoperability Test Lab at interoplabnotes@list.avaya.com