



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for Visionutveckling Icepeak Attendant with Avaya Communication Manager and Avaya Application Enablement Services – Issue 1.0**

### **Abstract**

These Application Notes describe the conformance testing of the Visionutveckling Icepeak Attendant with Avaya Communication Manager. These Application Notes contain a description of the configuration for both Icepeak and Avaya Communication Manager which were used for testing. The testing which was performed covered the major functions of the Icepeak product.

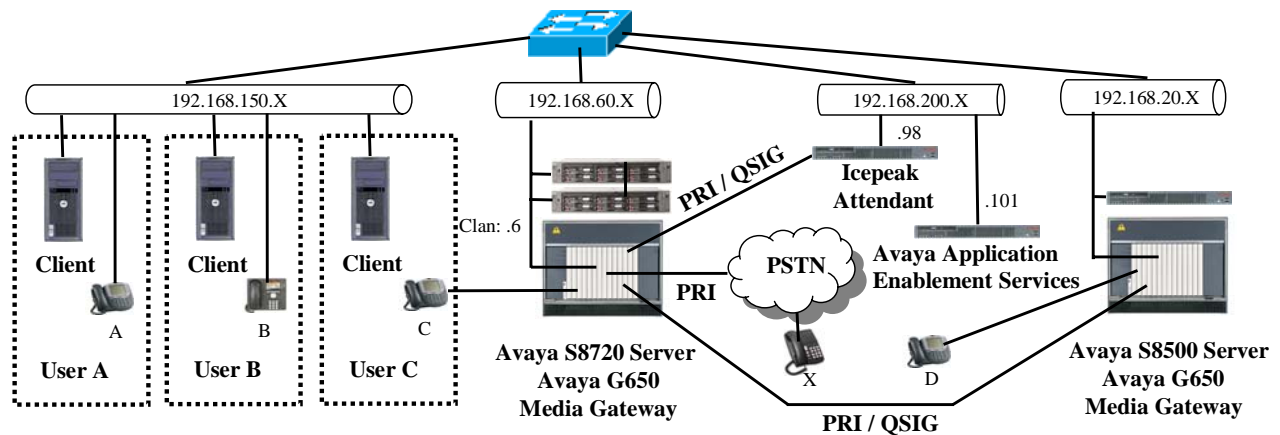
Information in these Application Notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

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# 1. Introduction

These Application Notes describe the configuration used to enable the Visionutveckling Icepeak (“I Speak”) Attendant to interoperate with Avaya Communication Manager and Avaya Application Enablement Services (AES). Icepeak Attendant is a voice enabled automatic attendant, which can be configured to route calls based on voice input from callers. This enables callers to vocally request a connection to a party by name, possibly indicating that they want to call the cell phone of a person who is not otherwise reachable. Users of the system can also control their personal settings via verbal commands and tailor an individual call routing scheme to their own requirements using the Icepeak Call Dialog Editor.



### Figure 1: Icepeak Test Configuration

In the above diagram, Icepeak responds to vocal requests from the local users A - C as well as the endpoints X and D, which are attached to the PSTN and another PBX, respectively. The Avaya Application Enablement Services server informs Icepeak of telephone events which occur as call status changes. Icepeak performs path replacement on its QSIG trunk, when possible, to conserve resources.

The following table contains details about the telephones which were used for testing.

Phone	Model	Extension	PSTN
A	4620SW IP	60121	069 907 xxxxx 60121
B	9640	60093	069 907 xxxxx 60093
C	2410	60007	069 907 xxxxx 60007
D	2410	20008	
X			069 yyyy 6174

**Table 1: Extensions Used for Testing**

## 2. Equipment and Software Validated

Software Component	Version
Avaya Communication Manager	R015x.01.1.415.1
Avaya Application Enablement Services	r4-2-1-20-5-0
Avaya TN2312BP IP Server Interface	HW15/FW042
Avaya TN799DP Control LAN	HW01/FW026
Avaya TN2302AP Media Processor	HW20/FW033
Avaya TN2464CP DS1 Interface	HW01/FW19
Avaya 96xx IP Telephone	2.0.3.0
Avaya 46xxSW IP Telephone	2.887
Microsoft Internet Explorer	6.0 SP3
Icepeak Attendant Server Platform OS	MSWIN 2003 SP2
PostgreSQL (can also use MS SQL)	8.3
AcuLab PRI Interface	6.4.87B5
AcuLab DSP Driver	TiNG 2.24.3 m1258
Nuance Speech Recognition Engine	8.5
Acapela TTS (text to speech engine)	6.0
Visionutveckling Icepeak Attendant	3.1

**Table 2: Hardware/Software Component Versions**

## 3. Configuration

These Application Notes describe the configuration of the following components:

- Avaya Communication Manager, as required for operation with Icepeak Attendant and Avaya Application Enablement services.
- Avaya Application Enablement Services, as required for operation with Avaya Communication Manager and Icepeak Attendant.
- The Icepeak Attendant, including its E1 interface and calling interface to Avaya Communication Manager, as well as the Icepeak Attendant Dialog Editor and its ability to create call flows for interaction with Avaya Communication Manager.

The Nuance Speech Recognition Engine and Acapela Text to Speech (TTS) packages are used by Icepeak for speech recognition and generation. These packages are included in the Icepeak software distribution and both share the server platform with Icepeak Attendant. However, from the perspective of these Application Notes, these components are treated as integral parts of Icepeak. The configuration of these packages is therefore outside the scope of this document.

The Avaya S8500 Server and Avaya G650 Media Gateway are only included within this test configuration to test Icepeak's ability to perform QSIG path replacement with a locally attached PBX. The configuration of this system is not described within this document.

Although the configuration of the E1 trunks to the PSTN and Avaya S8500 Server is described within these Application Notes due to the configuration requirements for QSIG path replacement, the configuration for the routing of calls to and from the PSTN and Avaya S5800 Server is not described.

### 3.1. Configure Avaya Communication Manager

The configuration and verification operations illustrated in this section were all performed using the Avaya Communication Manager System Administration Terminal (SAT) via SSH port 5022.

The information provided in this section describes the configuration of Avaya Communication Manager for this solution. For all other provisioning information such as installation and configuration, please refer to the product documentation in references [1] and [2].

#### 3.1.1. Verify system-parameters customer-options

Use the **display system-parameters customer options** command to verify that Avaya Communication Manager is provisioned to meet the minimum requirements to run Icepeak. Those items shown in **bold** indicate required values or minimum capacity requirements. If these are not met in the configuration, please contact an Avaya representative for further assistance.

Parameter	Usage
Maximum Concurrently Registered IP Stations (p.2)	This must be sufficient to support the total number of IP stations.
Computer Telephony Adjunct Links? (p.3)	This parameter must be set to "y".
IP Stations? (p.4)	This parameter must be set to "y".
ISDN-PRI? (p.4)	This is required to allow the allocation of the PRI trunk to be attached to Icepeak.
IP_Phone (p.10)	This parameter must be set to accommodate the number of IP stations to be used.

**Table 3: System-Parameters Customer-Options Parameters**

display system-parameters customer-options		Page 2 of 11
OPTIONAL FEATURES		
IP PORT CAPACITIES		USED
Maximum Administered H.323 Trunks: 100		60
<b>Maximum Concurrently Registered IP Stations: 12000</b>		<b>4</b>
Maximum Administered Remote Office Trunks: 0		0
Maximum Concurrently Registered Remote Office Stations: 0		0
Maximum Concurrently Registered IP eCons: 10		0
Max Concur Registered Unauthenticated H.323 Stations: 0		0
Maximum Video Capable H.323 Stations: 0		0
Maximum Video Capable IP Softphones: 0		0
Maximum Administered SIP Trunks: 1000		255
Maximum Administered Ad-hoc Video Conferencing Ports: 0		0
Maximum Number of DS1 Boards with Echo Cancellation: 10		0
Maximum TN2501 VAL Boards: 10		1
Maximum Media Gateway VAL Sources: 0		0
Maximum TN2602 Boards with 80 VoIP Channels: 128		0
Maximum TN2602 Boards with 320 VoIP Channels: 128		0
Maximum Number of Expanded Meet-me Conference Ports: 0		0

**Figure 2: System-Parameters Customer-Options Screen, Page 2**

display system-parameters customer-options		Page 3 of 11
OPTIONAL FEATURES		
Abbreviated Dialing Enhanced List? n	Audible Message Waiting? n	
Access Security Gateway (ASG)? n	Authorization Codes? y	
Analog Trunk Incoming Call ID? n	CAS Branch? n	
A/D Grp/Sys List Dialing Start at 01? n	CAS Main? n	
Answer Supervision by Call Classifier? n	Change COR by FAC? n	
ARS? y	<b>Computer Telephony Adjunct Links? y</b>	
ARS/AAR Partitioning? y	Cvg Of Calls Redirected Off-net? n	
ARS/AAR Dialing without FAC? n	DCS (Basic)? n	
ASAI Link Core Capabilities? y	DCS Call Coverage? n	
ASAI Link Plus Capabilities? y	DCS with Rerouting? n	
Async. Transfer Mode (ATM) PNC? n		
Async. Transfer Mode (ATM) Trunking? n	Digital Loss Plan Modification? n	
ATM WAN Spare Processor? n	DS1 MSP? n	
ATMS? n	DS1 Echo Cancellation? y	
Attendant Vectoring? n		

**Figure 3: System-Parameters Customer-Options Screen, Page 3**

display system-parameters customer-options	Page 4 of 11
OPTIONAL FEATURES	
Emergency Access to Attendant? y	IP Stations? y
Enable 'dadmin' Login? y	
Enhanced Conferencing? y	ISDN Feature Plus? n
Enhanced EC500? y	ISDN/SIP Network Call Redirection? y
Enterprise Survivable Server? n	ISDN-BRI Trunks? y
Enterprise Wide Licensing? n	ISDN-PRI? y
ESS Administration? n	Local Survivable Processor? n
Extended Cvg/Fwd Admin? y	Malicious Call Trace? n
External Device Alarm Admin? n	Media Encryption Over IP? n
Five Port Networks Max Per MCC? n	Mode Code for Centralized Voice Mail? n
Flexible Billing? n	
Forced Entry of Account Codes? n	Multifrequency Signaling? y
Global Call Classification? n	Multimedia Call Handling (Basic)? n
Hospitality (Basic)? y	Multimedia Call Handling (Enhanced)? n
Hospitality (G3V3 Enhancements)? n	Multimedia IP SIP Trunking? n
IP Trunks? y	
IP Attendant Consoles? y	

**Figure 4: System-Parameters Customer-Options Screen, Page 4**

display system-parameters customer-options		Page 10 of 11
MAXIMUM IP REGISTRATIONS BY PRODUCT ID		
Product ID	Rel. Limit	Used
IP_API_A	: 1000	0
IP_API_B	: 1000	0
IP_API_C	: 1000	0
IP_Agent	: 1000	0
IP_IR_A	: 1000	0
<b>IP_Phone</b>	<b>: 12000</b>	<b>4</b>
IP_ROMax	: 12000	0
IP_Soft	: 1000	0
IP_eCons	: 128	0
oneX_Comm	: 12000	0

**Figure 5: System-Parameters Customer-Options Screen, Page 10**

### 3.1.2. Configure Dial Plan and Call Routing

Use the **change dialplan analysis** command to specify that dialed strings for the number plan, as shown in the following table.

Dialed String	Usage
0	The prefix for PSTN numbers.
2	The leading digit of extensions for endpoints, as listed in <b>Table 1</b> .
6	The leading digit of local extensions, as listed in <b>Table 1</b> .
*02	Trunk Access Code for the trunk which connects to the Avaya S8500 Server.
*19	Trunk Access Code for the trunk which connects to the Icepeak.
*9	Trunk Access Code for the PSTN trunk

**Table 4: Dial Plan Parameters**

change dialplan analysis						Page 1 of 12			
DIAL PLAN ANALYSIS TABLE									
Location: all						Percent Full: 0			
Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type	
0	1	fac							
2	5	ext							
6	5	ext							
*02	3	dac							
*19	3	dac							
*9	2	dac							

**Figure 6: Dialplan Analysis Screen**

Use the **change aar analysis** command to specify dialed strings for the number plan, as shown in the following table.

Dialed String	Usage
79	This is the prefix for the trunk that is used to contact Icepeak.

**Table 5: AAR Analysis Parameters**

change aar analysis 0							Page 1 of 2	
AAR DIGIT ANALYSIS TABLE								
							Percent Full: 3	
	Dialed	Total		Route	Call	Node	ANI	
	String	Min	Max	Pattern	Type	Num	Reqd	
79		6	6	19	aar		n	

**Figure 7: AAR Analysis Form**



Use the **change route-pattern** command to route numbers using Routing Pattern “19” via Trunk Group “19”, as shown in the following table.

Parameter	Usage
Pattern Name	Specify an appropriate name to identify the routing pattern.
Grp No	Specify “19”.
No. Del Dgts	Specify “2” to delete the leading digits which were used to select the trunk.
TSC	Specify “y”.
CA-TSC Request	Specify “as-needed”.
Format	Specify “lev0-pvt”.

**Table 6: Route-Pattern 19 Parameters**

```

change route-pattern 19                                     Page 1 of 3
      Pattern Number: 19  Pattern Name: WINDOWS
      SCCAN? n      Secure SIP? n
  Grp FRL NPA Pfx Hop Toll No.  Inserted      DCS/ IXC
  No      Mrk Lmt List Del  Digits      QSIG
      Dgts      Intw
1: 19    0              2              n  user
2:              n  user
3:              n  user
4:              n  user
5:              n  user
6:              n  user

      BCC VALUE  TSC CA-TSC      ITC BCIE Service/Feature PARM No. Numbering LAR
      0 1 2 M 4 W      Request      Dgts Format
      Subaddress
1: y y y y y n  y  as-needed rest      lev0-pvt none
2: y y y y y n  n              rest      none
3: y y y y y n  n              rest      none
4: y y y y y n  n              rest      none
5: y y y y y n  n              rest      none
6: y y y y y n  n              rest      none

```

**Figure 8: Route-Pattern 19 Form**

### 3.1.3. Configure IP Network Interface

Use the **change node-names ip** command to configure the IP address, as shown in the following table.

Parameter	Usage
clan	Enter the IP address of the CLAN interface associated with the Avaya S8720 Server.

**Table 7: Node-Names IP Parameters**

change node-names ip		Page 1 of 2
		IP NODE NAMES
Name	IP Address	
clan	192.168.60.6	
default	0.0.0.0	

**Figure 9: Node-Names IP Screen**

### 3.1.4. Configure PRI Interfaces

Included in this section are the configuration parameters for the interface to the Icepeak server, the interface to the Avaya S8500 Server, and the interface to the PSTN. The configurations for these interfaces are similar, but not identical, so each is included in these Application Notes.

#### 3.1.4.1 Configure the PRI Interface to the Icepeak Server

Use the **add ds1 <media module hardware address>** command to configure the DS1 interface card to serve as a Primary Rate ISDN interface. Assign those values for this command as shown in the following table.

Parameter	Usage
Bit Rate	Assign the bit rate to “2.048”, as required to connect to the Icepeak E1 interface card.
Line Coding	Assign the line coding to "hdb3", as required to connect to the Icepeak E1 interface card.
Name	Assign a name to be used to identify the card.
Signaling Mode	Assign the signaling mode to “isdn-pri”.
Connect	Specify the connection is to a “pbx”
Interface	Specify that Avaya Communication Manager is to serve as the “peer-master”.
Peer Protocol	Specify the Q-SIG protocol is to be used.
Interface Companding	Specify “a-law speech encoding is to be used.
CRC?	Specify a cyclic-redundancy-check sequence is not to be sent.
Idle Code	Specify that an idle sequence of “01010100” is to be sent on the interface when no data is being transmitted.
Channel Numbering	Specify that “timeslot” channel numbering is to be used.
Slip Detection?	Specify that slip detection is to be used.

**Table 8: DS1 Parameters for Icepeak PRI Interface**

add ds1 01a09		Page 1 of 1	
DS1 CIRCUIT PACK			
Location: 01A09		Name: MSWIN	
Bit Rate: 2.048		Line Coding: hdb3	
Signaling Mode: isdn-pri		Interface: peer-master	
Connect: pbx		Peer Protocol: Q-SIG	
TN-C7 Long Timers? n		Side: a	
Interworking Message: PROGress		CRC? n	
Interface Companding: alaw		Channel Numbering: timeslot	
Idle Code: 01010100		DCP/Analog Bearer Capability: 3.1kHz	
T303 Timer(sec): 4			
Disable Restarts? n			
Slip Detection? y		Near-end CSU Type: other	
Echo Cancellation? n			

Figure 10: Ds1 Form for Icepeak PRI Interface

Use the **add trunk-group** command to configure the Trunk Group to the Icepeak Server. Assign values for this command as shown in the following table.

Parameter	Usage
Group Type (p.1)	Specify the Group Type as “isdn”
Group Name (p.1)	Select an appropriate name to identify the device.
TAC (p.1)	Specify a trunk access code that can be used to provide dial access to the trunk.
Carrier Medium (p.1)	Specify a Carrier Medium of “PRI/BRI”, as PRI will be used for this trunk.
Dial Access (p.1)	Allow dial access to the trunk by dialing the trunk access code.
Service Type (p.1)	Designate the trunk as a “tie” line to a peer system.
Supplementary Service Protocol (p.2)	Specify a Supplementary Service Protocol of “b” for QSIG.
Digit Handling (p.2)	Specify “enbloc/enbloc” to use block sending of dialed digits.
Trunk Hunt (p.2)	Specify “cyclical”.
Send Name (p.3)	Specify “y” so that the name of the caller is sent for outgoing calls.
Send Calling Number (p.3)	Specify “y” so that the number of the caller is sent for outgoing calls.
Format (p.3)	Specify “unknown” to use unknown dialing plan for both for calls in both directions.
Suppress # Outpulsing? (p.3)	Specify “y”.
Send Connected Number (p.3)	Specify “y” so that the number of the connected party is sent to the caller.
QSIG Value-Added? (p.4)	Specify “y”.
Group Member Assignments (p.5,6)	Assign the interface ports on the E1 interface to the trunk group members. Note that port 16 is used for the D channel, which must be assigned to the signaling group associated with this trunk.

**Table 9: Trunk-Group Parameters for Icepeak PRI Interface**

add trunk-group 19		Page 1 of 21	
TRUNK GROUP			
Group Number: 19	<b>Group Type: isdn</b>	CDR Reports: y	
<b>Group Name: MSWIN</b>	COR: 1	TN: 1	<b>TAC: *19</b>
Direction: two-way	Outgoing Display? n	<b>Carrier Medium: PRI/BRI</b>	
<b>Dial Access? y</b>	Busy Threshold: 255	Night Service:	
Queue Length: 0			
<b>Service Type: tie</b>	Auth Code? n	TestCall ITC: rest	
	Far End Test Line No:		
TestCall BCC: 4			

**Figure 11: Trunk-Group Form for Icepeak PRI Interface, Page 1**

add trunk-group 19		Page 2 of 21
Group Type: isdn		
TRUNK PARAMETERS		
Codeset to Send Display: 6	Codeset to Send National IEs: 6	
Max Message Size to Send: 260	Charge Advice: none	
<b>Supplementary Service Protocol: b</b>	<b>Digit Handling (in/out): enbloc/enbloc</b>	
<b>Trunk Hunt: cyclical</b>		
	Digital Loss Group: 13	
Incoming Calling Number - Delete:	Insert:	Format:
Bit Rate: 1200	Synchronization: async	Duplex: full
Disconnect Supervision - In? y Out? n		
Answer Supervision Timeout: 0		
Administer Timers? n	CONNECT Reliable When Call Leaves ISDN? n	

**Figure 12: Trunk-Group Form for Icepeak PRI Interface, Page 2**

add trunk-group 19		Page 3 of 21
TRUNK FEATURES		
ACA Assignment? n	Measured: none	Wideband Support? n
	Internal Alert? n	Maintenance Tests? y
	Data Restriction? n	NCA-TSC Trunk Member: 10
	<b>Send Name: y</b>	<b>Send Calling Number: y</b>
Used for DCS? n	Hop Dgt? n	Send EMU Visitor CPN? n
<b>Suppress # Outpulsing? y</b>	<b>Format: unknown</b>	
Outgoing Channel ID Encoding: preferred	UII IE Treatment: service-provider	
	Replace Restricted Numbers? n	
	Replace Unavailable Numbers? n	
	<b>Send Connected Number: y</b>	
	Hold/Unhold Notifications? y	
Send UII IE? y	Modify Tandem Calling Number? n	
Send UCID? n		
Send Codeset 6/7 LAI IE? y	Dsl Echo Cancellation? n	
Apply Local Ringback? n		
Show ANSWERED BY on Display? y		
	Network (Japan) Needs Connect Before Disconnect? n	

**Figure 13: Trunk-Group Form for Icepeak PRI Interface, Page 3**

add trunk-group 19		Page 4 of 21
QSIG TRUNK GROUP OPTIONS		
TSC Method for Auto Callback: drop-if-possible		
Diversions by Reroute? y		
Path Replacement? y		
Path Replacement with Retention? n		
Path Replacement Method: better-route		
SBS? n		
Display Forwarding Party Name? y		
Character Set for QSIG Name: eurofont		
<b>QSIG Value-Added? y</b>		

**Figure 14: Trunk-Group Form for Icepeak PRI Interface, Page 4**

add trunk-group 19		Page 5 of 21	
		TRUNK GROUP	
		Administered Members (min/max): 1/30	
GROUP MEMBER ASSIGNMENTS		Total Administered Members: 30	
	Port	Code Sfx Name	Sig Grp
1:	01A0901	TN2464 C	19
2:	01A0902	TN2464 C	19
3:	01A0903	TN2464 C	19
4:	01A0904	TN2464 C	19
5:	01A0905	TN2464 C	19
6:	01A0906	TN2464 C	19
7:	01A0907	TN2464 C	19
8:	01A0908	TN2464 C	19
9:	01A0909	TN2464 C	19
10:	01A0910	TN2464 C	19
11:	01A0911	TN2464 C	19
12:	01A0912	TN2464 C	19
13:	01A0913	TN2464 C	19
14:	01A0914	TN2464 C	19
15:	01A0915	TN2464 C	19

**Figure 15: Trunk-Group Form for Icepeak PRI Interface, Page 5**

add trunk-group 19		Page 6 of 21	
		TRUNK GROUP	
		Administered Members (min/max): 1/30	
GROUP MEMBER ASSIGNMENTS		Total Administered Members: 30	
	Port	Code Sfx Name	Sig Grp
16:	01A0917	TN2464 C	19
17:	01A0918	TN2464 C	19
18:	01A0919	TN2464 C	19
19:	01A0920	TN2464 C	19
20:	01A0921	TN2464 C	19
21:	01A0922	TN2464 C	19
22:	01A0923	TN2464 C	19
23:	01A0924	TN2464 C	19
24:	01A0925	TN2464 C	19
25:	01A0926	TN2464 C	19
26:	01A0927	TN2464 C	19
27:	01A0928	TN2464 C	19
28:	01A0929	TN2464 C	19
29:	01A0930	TN2464 C	19
30:	01A0931	TN2464 C	19

**Figure 16: Trunk-Troup Form for Icepeak PRI Interface, Page 6**

Use the **add signaling-group** command to allocate a signaling group to this trunk.

Parameter	Usage
Group Type	Specify “isdn-pri” for ISDN primary rate.
D-Channel	Assign port 16 of the DS1 interface as the D channel.
Trunk Group for Channel Selection	Specify “19” as the Trunk Group to be used for channel selection.
TSC Supplementary Service Protocol	Specify “b” to designate use of the QSIG protocol.

**Table 10: Signaling-Group Parameters for Icepeak PRI Interface**

add signaling-group 19		Page 1 of 1
SIGNALING GROUP		
Group Number: 19	Group Type: isdn-pri	
	Associated Signaling? y	Max number of NCA TSC: 10
	Primary D-Channel: 01A0916	Max number of CA TSC: 10
		Trunk Group for NCA TSC: 19
	Trunk Group for Channel Selection: 19	
	TSC Supplementary Service Protocol: b	Network Call Transfer? n

**Figure 17: Signaling-Group Form for Icepeak PRI Interface**

Use the **change private-numbering** command to specify that the calling party number is to be sent for calls which are made via the E1 trunk to the Icepeak trunk.

Parameter	Usage
Ext Len	Specify “5” as the length of local extensions.
Ext Code	Specify “6” as the leading digit of local extensions.
Trk Grp	Specify “19” as the trunk which connects to the MSWIN server.
Total Len	Specify “5” as the length of local extensions.

**Table 11: Private-Numbering Parameters for Icepeak PRI Interface**



change private-numbering 0				Page 1 of 2	
NUMBERING - PRIVATE FORMAT					
Ext Len	Ext Code	Trk Grp(s)	Private Prefix	Total Len	
7	1			7	Total Administered: 10
5	2			5	Maximum Entries: 540
5	3			5	
7	5			7	
5	6	19		5	
6	6			6	
7	6			7	
6	81			6	
7	82			7	
7	83			7	

**Figure 18: Private-Numbering Form for Icepeak PRI Interface**

### 3.1.4.2 Configure PRI Interface to S8500

Use the **add ds1 <media module hardware address>** command to configure the DS1 interface card to serve as a Primary Rate ISDN interface to the S8500. Assign those values for this command as shown in the following table.

Parameter	Usage
Bit Rate	Assign the bit rate to “2.048”, as required to connect to the S8500 E1 interface card.
Line Coding	Assign the line coding to "hdb3", as required to connect to the S8500 E1 interface card.
Name	Assign a name to be used to identify the card.
Signaling Mode	Assign the signaling mode to “isdn-pri”.
Connect	Specify the connection is to a “pbx”
Interface	Specify the Avaya S8720 Server is to serve as the “peer-master”.
Peer Protocol	Specify the Q-SIG protocol is to be used.
Interface Companding	Specify “alaw” speech encoding is to be used.
CRC?	Specify that a cyclic-redundancy-check sequence is to be sent.
Idle Code	Specify that an idle sequence of “01010100” is to be sent on the interface when no data is being transmitted.
Channel Numbering	Specify that “timeslot” channel numbering is to be used.
Slip Detection?	Specify that slip detection is not to be used.

**Table 12: DS1 Parameters for S8500 PRI Interface**

add ds1 01a10		Page 1 of 1	
DS1 CIRCUIT PACK			
Location: 01A10		Name: S8500	
Bit Rate: 2.048		Line Coding: hdb3	
Signaling Mode: isdn-pri		Interface: peer-master	
Connect: pbx		Peer Protocol: Q-SIG	
TN-C7 Long Timers? n		Side: a	
Interworking Message: PROGress		CRC? y	
Interface Companding: alaw		Channel Numbering: timeslot	
Idle Code: 01010100		DCP/Analog Bearer Capability: 3.1kHz	
		T303 Timer(sec): 4	
		Disable Restarts? n	
Slip Detection? n		Near-end CSU Type: other	
Echo Cancellation? n			

**Figure 19: Ds1 Form for S8500 PRI Interface**

Use the **add trunk-group** command to configure the Trunk Group to the S8500. Assign values for this command as shown in the following table.

Parameter	Usage
Group Type (p.1)	Specify the Group Type as “isdn”
Group Name (p.1)	Select an appropriate name to identify the device.
TAC (p.1)	Specify a trunk access code that can be used to provide dial access to the trunk.
Carrier Medium (p.1)	Specify a Carrier Medium of “PRI/BRI”, as PRI will be used for this trunk.
Dial Access (p.1)	Allow dial access to the trunk by dialing the trunk access code.
Service Type (p.1)	Designate the trunk as a “tie” line to a peer system.
Supplementary Service Protocol (p.2)	Specify a Supplementary Service Protocol of “b” for QSIG.
Digit Handling (p.2)	Specify “overlap/overlap” to enable the overlapped sending of dialed digits individually.
Trunk Hunt (p.2)	Specify “ascend”.
Send Name (p.3)	Specify “y” so that the name of the caller is sent for outgoing calls.
Send Calling Number (p.3)	Specify “y” so that the number of the caller is sent for outgoing calls.
Format (p.3)	Specify “unknown” to use unknown dialing plan for both for calls in both directions.
Suppress # Outpulsing? (p.3)	Specify “y”.
Send Called/Busy/Connected Number (p.3)	Specify “y” so that the number of the connected party is sent to the caller.
QSIG Value-Added? (p.4)	Specify “y”.
Group Member Assignments (p.5,6)	Assign the interface ports on the E1 interface to the trunk group members. Note that port 16 is used for the D channel, which must be assigned to the signaling group associated with this trunk.

**Table 13: Trunk-Group Parameters for S8500 PRI Interface**

add trunk-group 2		Page 1 of 21
TRUNK GROUP		
Group Number: 2	<b>Group Type: isdn</b>	CDR Reports: y
<b>Group Name: S8500</b>	COR: 1	TN: 1 <b>TAC: *02</b>
Direction: two-way	Outgoing Display? y	<b>Carrier Medium: PRI/BRI</b>
<b>Dial Access? y</b>	Busy Threshold: 255	Night Service:
Queue Length: 0		
<b>Service Type: tie</b>	Auth Code? n	TestCall ITC: rest
	Far End Test Line No:	
TestCall BCC: 4		

**Figure 20: Trunk-Group Form for S8500 PRI Interface, Page 1**

add trunk-group 2		Page 2 of 21
Group Type: isdn		
TRUNK PARAMETERS		
Codeset to Send Display: 0	Codeset to Send National IEs: 6	
Max Message Size to Send: 260	Charge Advice: none	
<b>Supplementary Service Protocol: b</b>	<b>Digit Handling (in/out): overlap/overlap</b>	
Digit Treatment:	Digits:	
<b>Trunk Hunt: ascend</b>		
	Digital Loss Group: 13	
Incoming Calling Number - Delete:	Insert:	Format: unk-unk
Bit Rate: 1200	Synchronization: async	Duplex: full
Disconnect Supervision - In? y Out? y		
Answer Supervision Timeout: 0		
Administer Timers? n	CONNECT Reliable When Call Leaves ISDN? n	

**Figure 21: Trunk-Group Form for S8500 PRI Interface, Page 2**

add trunk-group 2		Page 3 of 21
TRUNK FEATURES		
ACA Assignment? n	Measured: none	Wideband Support? n
	Internal Alert? n	Maintenance Tests? y
	Data Restriction? n	NCA-TSC Trunk Member:
	<b>Send Name: y</b>	<b>Send Calling Number: y</b>
Used for DCS? n	Hop Dgt? y	Send EMU Visitor CPN? n
<b>Suppress # Outpulsing? y</b>	<b>Format: unknown</b>	
Outgoing Channel ID Encoding: preferred	UUI IE Treatment: service-provider	
	Replace Restricted Numbers? n	
	Replace Unavailable Numbers? n	
	<b>Send Called/Busy/Connected Number: y</b>	
	Hold/Unhold Notifications? y	
	Modify Tandem Calling Number? n	
Send UUI IE? y		
Send UCID? n		
Send Codeset 6/7 LAI IE? y	Dsl Echo Cancellation? n	
Apply Local Ringback? n		
Show ANSWERED BY on Display? y		
	Network (Japan) Needs Connect Before Disconnect? n	

**Figure 22: Trunk-Group Form for S8500 PRI Interface, Page 3**

add trunk-group 2

Page 4 of 21

QSIG TRUNK GROUP OPTIONS

TSC Method for Auto Callback: drop-if-possible

Diversion by Reroute? y

Path Replacement? y

Path Replacement with Retention? n

Path Replacement Method: better-route

SBS? n

Display Forwarding Party Name? y

Character Set for QSIG Name: eurofont

QSIG Value-Added? y

QSIG-Value Coverage Encoding: proprietary

**Figure 23: Trunk-Group Form for S8500 PRI Interface, Page 4**

add trunk-group 2

Page 5 of 21

TRUNK GROUP

Administered Members (min/max): 1/30

Total Administered Members: 30

GROUP MEMBER ASSIGNMENTS

	Port	Code	Sfx	Name	Night	Sig	Grp
1:	01A1001	TN2464	C			2	
2:	01A1002	TN2464	C			2	
3:	01A1003	TN2464	C			2	
4:	01A1004	TN2464	C			2	
5:	01A1005	TN2464	C			2	
6:	01A1006	TN2464	C			2	
7:	01A1007	TN2464	C			2	
8:	01A1008	TN2464	C			2	
9:	01A1009	TN2464	C			2	
10:	01A1010	TN2464	C			2	
11:	01A1011	TN2464	C			2	
12:	01A1012	TN2464	C			2	
13:	01A1013	TN2464	C			2	
14:	01A1014	TN2464	C			2	
15:	01A1015	TN2464	C			2	

**Figure 24: Trunk-Group Form for S8500 PRI Interface, Page 5**

add trunk-group 2					Page 6 of 21	
TRUNK GROUP						
					Administered Members (min/max): 1/30	
GROUP MEMBER ASSIGNMENTS					Total Administered Members: 30	
	Port	Code Sfx	Name	Night	Sig	Grp
16:	01A1017	TN2464	C		2	
17:	01A1018	TN2464	C		2	
18:	01A1019	TN2464	C		2	
19:	01A1020	TN2464	C		2	
20:	01A1021	TN2464	C		2	
21:	01A1022	TN2464	C		2	
22:	01A1023	TN2464	C		2	
23:	01A1024	TN2464	C		2	
24:	01A1025	TN2464	C		2	
25:	01A1026	TN2464	C		2	
26:	01A1027	TN2464	C		2	
27:	01A1028	TN2464	C		2	
28:	01A1029	TN2464	C		2	
29:	01A1030	TN2464	C		2	
30:	01A1031	TN2464	C		2	

**Figure 25: Trunk-Troup Form for S8500 PRI Interface, Page 6**

Use the **add signaling-group** command to allocate a signaling group to this trunk.

Parameter	Usage
Group Type	Specify “isdn-pri” for ISDN primary rate.
D-Channel	Assign port 16 of the DS1 interface as the D channel.
Trunk Group for Channel Selection	Specify “2” as the Trunk Group to be used for channel selection.
TSC Supplementary Service Protocol	Specify “b” to designate use of the QSIG protocol.

**Table 14: Signaling-Group Parameters for S8500 PRI Interface**

add signaling-group 2					Page 1 of 1	
SIGNALING GROUP						
Group Number: 2		Group Type: isdn-pri				
		Associated Signaling? y		Max number of NCA TSC: 10		
		Primary D-Channel: 01A1016		Max number of CA TSC: 10		
				Trunk Group for NCA TSC: 2		
		Trunk Group for Channel Selection: 2				
		TSC Supplementary Service Protocol: b		Network Call Transfer? n		

**Figure 26: Signaling-Group Form for S8500 PRI Interface**

### 3.1.4.3 Configure PRI Interface to PSTN

Use the **add ds1 <media module hardware address>** command to configure the DS1 interface card to serve as a Primary Rate ISDN interface. Assign those values for this command as shown in the following table.

Parameter	Usage
Bit Rate	Assign the bit rate to “2.048”, as required to connect to the PSTN PRI service.
Line Coding	Assign line coding to "hdb3", as required to connect to the PSTN.
Name	Assign a name to be used to identify the card.
Signaling Mode	Assign the signaling mode to “isdn-pri”.
Connect	Specify the connection is to a “network”
Country Protocol	Specify the “etsi” protocol is to be used.
Interface Companding	Specify “alaw” speech encoding is to be used.
CRC?	Specify a cyclic-redundancy-check sequence is to be sent.
Idle Code	Specify that an idle sequence of “01010101” is to be sent on the interface when no data is being transmitted.
Slip Detection?	Specify that slip detection not is to be used.

**Table 15: DS1 Parameters for PSTN PRI Interface**

add ds1 01a12		Page 1 of 1
DS1 CIRCUIT PACK		
Location: 01A12	Name: PSTN	
Bit Rate: 2.048	Line Coding: hdb3	
Signaling Mode: isdn-pri		
Connect: network		
TN-C7 Long Timers? n	Country Protocol: etsi	
Interworking Message: PROgress		
Interface Companding: alaw	CRC? y	
Idle Code: 01010101		
DCP/Analog Bearer Capability: 3.1kHz		
T303 Timer(sec): 4		
Disable Restarts? y		
Slip Detection? n		
Near-end CSU Type: other		
Echo Cancellation? n		

**Figure 27: Ds1 Form for PSTN PRI Interface**

Use the **add trunk-group** command to configure the Trunk Group to the PSTN. Assign values for this command as shown in the following table.

Parameter	Usage
Group Type (p.1)	Specify the Group Type as “isdn”
Group Name (p.1)	Select an appropriate name to identify the device.
TAC (p.1)	Specify a trunk access code that can be used to provide dial access to the trunk.
Carrier Medium (p.1)	Specify a Carrier Medium of “PRI/BRI”, as PRI will be used for this trunk.
Dial Access (p.1)	Allow dial access to the trunk by dialing the trunk access code.
Service Type (p.1)	Designate the trunk as a “public-ntwrk” line to the PSTN.
Supplementary Service Protocol (p.2)	Specify a Supplementary Service Protocol of “C” as required by the PSTN.
Digit Handling (p.2)	Specify “overlap/overlap” to send dialed digits, as they are input.
Trunk Hunt (p.2)	Specify “cyclical”.
Send Calling Number (p.3)	Specify “y” so that the number of the caller is sent for outgoing calls.
Format (p.3)	Specify “public”.
Send Connected Number (p.3)	Specify “y” so that the number of the connected party is sent to the caller.
Group Member Assignments (p.5,6)	Assign the interface ports on the E1 interface to the trunk group members. Note that port 16 is used for the D channel, which must be assigned to the signaling group associated with this trunk.

**Table 16: Trunk-Group Parameters for PSTN PRI Interface**

add trunk-group 9		Page 1 of 21
TRUNK GROUP		
Group Number: 9	<b>Group Type: isdn</b>	CDR Reports: y
<b>Group Name: PSTN</b>	COR: 1	TN: 1 <b>TAC: *9</b>
Direction: two-way	Outgoing Display? y	<b>Carrier Medium: PRI/BRI</b>
<b>Dial Access? y</b>	Busy Threshold: 99	Night Service:
Queue Length: 0		
<b>Service Type: public-ntwrk</b>	Auth Code? n	TestCall ITC: rest
	Far End Test Line No:	
TestCall BCC: 4		

**Figure 28: Trunk-Group Form for PSTN PRI Interface, Page 1**



add trunk-group 9

Page 2 of 21

Group Type: isdn

TRUNK PARAMETERS

Codeset to Send Display: 6

Codeset to Send National IEs: 6

Max Message Size to Send: 260

Charge Advice: automatic

Supplementary Service Protocol: c

Digit Handling (in/out): overlap/overlap

Digit Treatment: insertion

Digits: 0\*

Trunk Hunt: cyclical

Digital Loss Group: 13

Incoming Calling Number - Delete:

Insert: 0

Format:

Bit Rate: 1200

Synchronization: async

Duplex: full

Disconnect Supervision - In? y Out? y

Answer Supervision Timeout: 0

Administer Timers? n

CONNECT Reliable When Call Leaves ISDN? n

**Figure 29: Trunk-Group Form for PSTN PRI Interface, Page 2**

add trunk-group 9

Page 3 of 21

TRUNK FEATURES

ACA Assignment? n

Measured: none

Wideband Support? n

Maintenance Tests? y

Data Restriction? n

NCA-TSC Trunk Member:

Send Name: n

Send Calling Number: y

Send EMU Visitor CPN? n

Used for DCS? n

Format: public

Suppress # Outpulsing? n

Outgoing Channel ID Encoding: preferred

UUI IE Treatment: service-provider

Charge Conversion: 12

Replace Restricted Numbers? n

Decimal Point: comma

Replace Unavailable Numbers? n

Currency Symbol: EUR

Send Connected Number: y

Charge Type: units

Hold/Unhold Notifications? n

Network Call Redirection: none

Modify Tandem Calling Number? n

Send UUI IE? n

Send UCID? n

Send Codeset 6/7 LAI IE? n

Dsl Echo Cancellation? n

Apply Local Ringback? n

Show ANSWERED BY on Display? y

Network (Japan) Needs Connect Before Disconnect? n

**Figure 30: Trunk-Group Form for PSTN PRI Interface, Page 3**

add trunk-group 9

Page 5 of 21

TRUNK GROUP

Administered Members (min/max): 1/30

GROUP MEMBER ASSIGNMENTS

Total Administered Members: 30

	Port	Code Sfx	Name	Night	Sig	Grp
1:	01A1201	TN2464	C		9	
2:	01A1202	TN2464	C		9	
3:	01A1203	TN2464	C		9	
4:	01A1204	TN2464	C		9	
5:	01A1205	TN2464	C		9	
6:	01A1206	TN2464	C		9	
7:	01A1207	TN2464	C		9	
8:	01A1208	TN2464	C		9	
9:	01A1209	TN2464	C		9	
10:	01A1210	TN2464	C		9	
11:	01A1211	TN2464	C		9	
12:	01A1212	TN2464	C		9	
13:	01A1213	TN2464	C		9	
14:	01A1214	TN2464	C		9	
15:	01A1215	TN2464	C		9	

**Figure 31: Trunk-Group Form for PSTN PRI Interface, Page 5**

add trunk-group 9

Page 6 of 21

TRUNK GROUP

Administered Members (min/max): 1/30

GROUP MEMBER ASSIGNMENTS

Total Administered Members: 30

	Port	Code Sfx	Name	Night	Sig	Grp
16:	01A1217	TN2464	C		9	
17:	01A1218	TN2464	C		9	
18:	01A1219	TN2464	C		9	
19:	01A1220	TN2464	C		9	
20:	01A1221	TN2464	C		9	
21:	01A1222	TN2464	C		9	
22:	01A1223	TN2464	C		9	
23:	01A1224	TN2464	C		9	
24:	01A1225	TN2464	C		9	
25:	01A1226	TN2464	C		9	
26:	01A1227	TN2464	C		9	
27:	01A1228	TN2464	C		9	
28:	01A1229	TN2464	C		9	
29:	01A1230	TN2464	C		9	
30:	01A1231	TN2464	C		9	

**Figure 32: Trunk-Troup Form for PSTN PRI Interface, Page 6**

Use the **add signaling-group** command to allocate a signaling group to this trunk.

Parameter	Usage
Group Type	Specify “isdn-pri” for ISDN primary rate.
D-Channel	Assign port 16 of the DS1 interface as the D channel.
Trunk Group for Channel Selection	Specify “9” as the Trunk Group to be used for channel selection.
TSC Supplementary Service Protocol	Specify “a”.

**Table 17: Signaling-Group Parameters for PSTN PRI Interface**

add signaling-group 9		Page 1 of 5	
SIGNALING GROUP			
Group Number: 9	Group Type: isdn-pri		
	Associated Signaling? y	Max number of NCA TSC: 8	
	Primary D-Channel: 01A1216	Max number of CA TSC: 0	
		Trunk Group for NCA TSC: 9	
	Trunk Group for Channel Selection: 9		
	TSC Supplementary Service Protocol: a	Network Call Transfer? n	

**Figure 33: Signaling-Group Form for PSTN PRI Interface**

### 3.1.5. Configure Interface to AES

Use the **change ip-services** command to configure the interface to the AES server, as shown in the following table.

Parameter	Usage
Service Type (p.1)	Enter “AESVCS”.
Enabled (p.1)	Enter “y” to enable the service.
Local Node (p.1)	Enter the IP node name for the CLAN interface.
Local Port (p.1)	Enter “8765”.
AE Services Server (p.4)	Enter the name that was assigned to the AES server when it was installed.
Password (p.4)	Enter the password that was assigned to the switch connection, as shown in <b>Figure 44</b> .
Enabled (p.4)	Enter “y” to enable the connection.

**Table 18: IP Services Parameters**

change ip-services				Page	1 of	4
IP SERVICES						
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port	
AESVCS	y	clan	8765			

**Figure 34: IP Services Screen, p. 1**

change ip-services				Page	4 of	4
AE Services Administration						
Server ID	AE Services Server	Password	Enabled	Status		
1:	aes_server_1	XXXXXXXXXXXXXXXXXX	y	in use		

**Figure 35: IP Services Screen, p. 4**

Use the **add cti-link** command to add a CTI link for use by TSAPI. The link number can be any value between 1 and 64 which is not currently assigned to another link. The link number specified must be the same value that is used in the “Switch CTI Link Number” field shown in **Figure 47**. Use an unused extension as the value for the “Extension” parameter. The value chosen for the “Name” parameter is a matter of personal preference.

add cti-link 4		Page 1 of 3	
CTI LINK			
CTI Link: 4			
Extension: 69996			
Type: ADJ-IP			
COR: 1			
Name: AES-devcon223-tsapi			

**Figure 36: Cti-link Screen**

## 3.1.6. Configure Stations

### 3.1.6.1 Configure H.323 IP Stations

Use the **add station** command to create IP stations for extensions A and B, as shown in **Table 1**.

Parameter	Usage
Extension	Use an unused extension which is compatible with the dial plan.
Type	Use a type value which corresponds to the physical station to be used.
Name	Any alphanumeric string can be assigned as an extension name, which is used for identification purposes.
Security Code	Enter an appropriate numeric string to be used as a security code.

**Table 19: Configuration IP Stations**

add station 60121		Page 1 of 5
STATION		
Extension: 60121	Lock Messages? n	BCC: 0
<b>Type: 4620</b>	<b>Security Code: 12106</b>	TN: 1
Port: S00101	Coverage Path 1: 1	COR: 1
<b>Name: extn 60121</b>	Coverage Path 2:	COS: 1
	Hunt-to Station:	
STATION OPTIONS		
	Time of Day Lock Table:	
Loss Group: 19	Personalized Ringing Pattern: 1	
	Message Lamp Ext: 60121	
Speakerphone: 2-way	Mute Button Enabled? y	
Display Language: english		
Survivable GK Node Name:		
Survivable COR: internal	Media Complex Ext:	
Survivable Trunk Dest? y	IP SoftPhone? n	
	Customizable Labels? y	

**Figure 37: IP Station Screen**

### 3.1.6.2 Configure Digital Stations

Use the **add station** command to create a station for extensions C, as shown in **Table 1**.

Parameter	Usage
Extension	Use an unused extension which is compatible with the dial plan.
Type	Use a type value which corresponds to the physical station to be used.
Name	Any alphanumeric string can be assigned as an extension name, which is used for identification purposes.

**Table 20: Configuration Digital Stations**

add station 60007		Page 1 of 5
STATION		
Extension: 60007	Lock Messages? n	BCC: 0
Type: 2410	Security Code:	TN: 1
Port: 01A0507	Coverage Path 1: 999	COR: 1
Name: extn 60007	Coverage Path 2:	COS: 1
	Hunt-to Station:	
STATION OPTIONS		
	Time of Day Lock Table:	
Loss Group: 2	Personalized Ringing Pattern: 1	
	Message Lamp Ext: 60007	
Speakerphone: 2-way	Mute Button Enabled? y	
Display Language: english		
Survivable COR: internal	Media Complex Ext:	
Survivable Trunk Dest? y	IP SoftPhone? n	
	IP Video? n	
	Customizable Labels? y	

**Figure 38: Digital Station Screen**

### 3.1.7. Configure DDI Interface to Icepeak

Icepeak interprets the diverting-party extensions (hereafter referred to as “DDI numbers”) for calls that it receives from its E1 trunk connected to Avaya Communication Manager as function codes. Local extensions can initiate a call to Icepeak with a specific DDI number by calling the extension of a hunt group which is allocated for this purpose. These hunt groups are shown in **Table 21**. These DDI numbers are also configured in **Figure 59** and **Figure 65**.

Function	Hunt Group	DDI	Extension
Call Flow	55	“5555”	“65555”
Voicemail	76	“0076”	“60076”
Presence	78	“0078”	“60078”
Coverage	79	“0000”	“60000”
Voice dialing	81	“8101”	“68101”

**Table 21: Voicemail Call Interface Configuration**

Use the **add hunt-group** command to create a hunt group for each of the entries in the above table.

Parameter	Usage
Group Name (p.1)	Enter an appropriate string to identify the hunt group.
Group Extension (p.1)	Enter the extension to be assigned to the hunt group, as shown in <b>Table 21</b> .
Message Center (p.2)	Enter “qsig-mwi”.
Send Reroute Request (p.2)	Enter “y”.
Voice Mail Number (p.2)	Enter “79”, the aar code used route to Icepeak configured in <b>Figure 7</b> , followed by the DDI number for the Call Flow hunt group, as shown in <b>Table 21</b> .

**Table 22: DDI Hunt Group Parameters**

add hunt-group 55		Page 1 of 60
HUNT GROUP		
Group Number: 55	ACD? n	
Group Name: Call-Flow	Queue? n	
Group Extension: 65555	Vector? n	
Group Type: ucd-mia	Coverage Path:	
TN: 1	Night Service Destination:	
COR: 1	MM Early Answer? n	
Security Code:	Local Agent Preference? n	
ISDN/SIP Caller Display:		

**Figure 39: DDI Hunt Screen, p. 1**

add hunt-group 55		Page 2 of 60	
HUNT GROUP			
LWC Reception: bone		AUDIX Name:	
Message Center: qsig-mwi			
Send Reroute Request: y			
Voice Mail Number: 795555			
Routing Digits (e.g. AAR/ARS Access Code):		Provide Ringback? n	
TSC per MWI Interrogation? n			

**Figure 40: DDI Hunt Screen, p. 2**

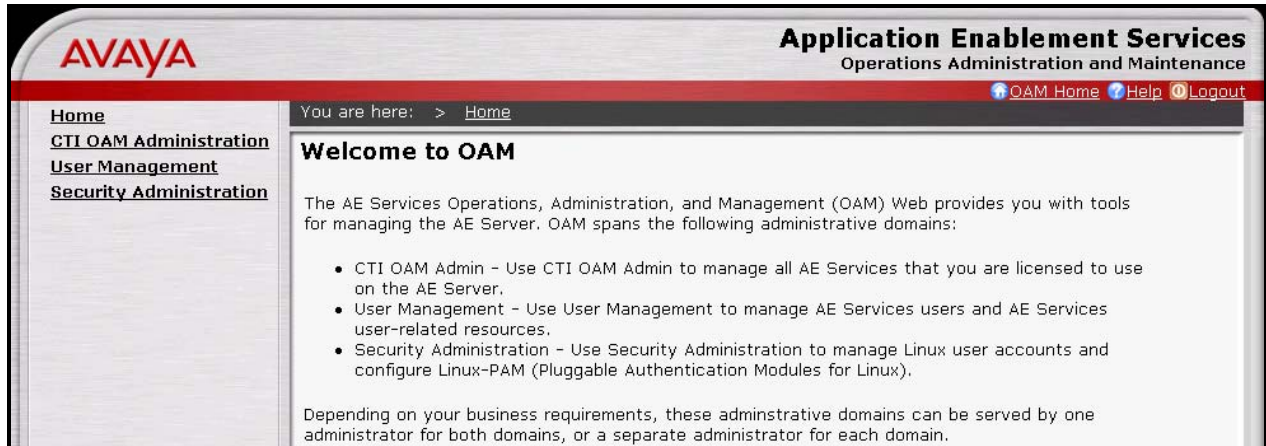


### 3.2. Configure Avaya AES

The AES server is configured via a web browser by accessing the following URL:

`https://<AES server address>:8443/MVAP/`

Once the login screen appears, enter either the appropriate login ID/password for performing administrative activities or user management.



**Figure 41: AES Welcome Screen**

After logging in, select “CTI OAM Admin” which displays the following screen. Verify that the AES server installation has a TSAPI service license. If this is not the case, please contact an Avaya representative regarding licensing.

**AVAYA** **Application Enablement Service**  
Operations Administration and Maintenance

You are here: > [CTI OAM Home](#)

**Welcome to CTI OAM Screens**

[cust] Last login: Tue Oct 14 19:17:03 2008 from 192.168.150.4

IMPORTANT: AE Services must be restarted for administrative changes to fully take effect.  
Changes to the Security Database do not require a restart.

Service	Status	State	Licenses Purchased
<b>ASAI Link Manager</b>	Running	N/A	N/A
<b>DMCC Service</b>	Running	ONLINE	Yes
<b>CVLAN Service</b>	Running	ONLINE	Yes
<b>DLG Service</b>	Running	ONLINE	Yes
<b>Transport Layer Service</b>	Running	N/A	N/A
<b>TSAPI Service</b>	Running	ONLINE	Yes
<b>SMS</b>	N/A	N/A	Yes

For status on actual services, please use [Status and Control](#).

**License Information**

You are licensed to run Application Enablement (CTI) version 4.1.

**Figure 42: AES CTI OAM Welcome Screen**

Navigate to **Administration->Switch Connections**. Enter the name of the Switch Connection to be added, and click on the “Add Connection” button. This name should match that which is used by the Visionutveckling Icepeak in **Figure 60**.

**AVAYA** **Application Enablement Service**  
Operations Administration and Maintenance

You are here: > [Administration](#) > [Switch Connections](#)

**Switch Connections**

Connection Name	Number of Active Connections	Connection Type
<input checked="" type="radio"/> S8500	1	CTI/Call Information
<input type="radio"/> S8710	1	CTI/Call Information

**Figure 43: Switch Connection Screen**

This causes the following screen to be presented. At this point, enter the screen fields as described in the following table, and click the “Apply” button.

Parameter	Usage
Switch Connection Type	Specify a type of CTI/Call Information.
Switch Password	The Switch Password must be the same as was entered into the Avaya Communication Manager AE Services Administration form via the “change ip-services” command, described in <b>Figure 35</b> . Passwords must consist of 12 to 16 alphanumeric characters.
SSL	SSL (Secure Socket Layer) is enabled by default. Keep the default setting unless you are adding a Switch Connection for a DEFINITY Server CSI.

**Table 23: Configuration of Switch Password**

**AVAYA** Application Engine Operations Administration

You are here: > Administration > Switch Connections

### Set Password - S8720

Please note the following:

- \* A password is not required for a H323 Gatekeeper Connection.
- \* Changing the password affects only new connections, not open connections.

Switch Connection Type: CTI/Call Information

Switch Password: [Masked]

Confirm Switch Password: [Masked]

SSL: ☒

**Figure 44: Set Switch Password Screen**

From the **Administration->Switch Connections** screen, click the “Edit CLAN IPs” button to display the screen show below. Enter the IP address of the CLAN which AES is to use for communication with the switch, and click the “Add Name or IP” button.



**Figure 45: CLAN Screen**

On the left margin of the screen, navigate to **Administration->CTI Link Admin->TSAPI Links**. The following screen is displayed. Click the “Add Link” button.



**Figure 46: TSAPI Links Screen**

Fill in the parameters for the link to be added. The “Link” parameter must be a value between 1 and 16 which is not assigned to another link. The “Switch Connection” parameter should be the name of the Avaya Server which is to be controlled by this link. The value for the TSAPI “Switch CTI Link Number” must be a value between 1 and 64, and must be the same that was used in the Avaya Communication Manager “add cti-link” configuration command in **Figure 36**. Click the “Apply Changes” button.

The screenshot displays the Avaya Application Operations web interface. The top header features the Avaya logo and the text 'Application Operations'. A breadcrumb trail indicates the current location: 'You are here: > Administration > CTI Link Admin > TSAPI Links'. The left sidebar contains a tree view under 'CTI OAM Home' with 'Administration' expanded, showing sub-items like 'Network Configuration', 'Switch Connections', 'CTI Link Admin' (selected), 'TSAPI Links', 'CVLAN Links', 'DLG Links', 'DMCC Configuration', 'TSAPI Configuration', 'Security Database', and 'Certificate Management'. The main content area is titled 'Add / Edit TSAPI Links' and contains the following fields:

- Link: 1
- Switch Connection: S8720
- Switch CTI Link Number: 4
- ASAI Link Version: 1
- Security: Unencrypted

At the bottom of the form are two buttons: 'Apply Changes' and 'Cancel Changes'.

**Figure 47: Add TSAPI Link Screen**



Navigate to **User Management->Add User**.

The “CT User” field for this user must be set to “Yes”. In this case, the AES user is the Icepeak application, which uses AES to monitor stations and initiate switching operations. The “User Id” and “User Password” must be the same as those configured for Visionutveckling Icepeak in **Figure 60**.

**AVAYA** Application Enablement  
Operations Administration and Monitoring [OAM Home](#)

**User Management Home**  
You are here: > [User Management](#) > [Add User](#)

**▼ User Management**  
[List All Users](#)  
[Add User](#)  
[Search Users](#)  
[Modify Default User](#)  
[Change User Password](#)  
**▶ Service Management**  
**▶ Help**

### Add User

Fields marked with \* can not be empty.

\* User Id

\* Common Name

\* Surname

\* User Password

\* Confirm Password

Admin Note

Avaya Role

Business Category

Car License

CM Home

Css Home

CT User

**Figure 48: Add User Screen**

Navigate to **Administration -> Security Database -> CTI Users -> List All Users**, and then click “Edit User” for the newly added user “Visionutveckling”. Enable “Unrestricted Access” and click “Apply Changes”.

**AVAYA** **Application Enablement Services**  
Operations Administration and Maintenance

You are here: > Administration > Security Database > CTI Users > List All Users

**CTI OAM Home**

- Administration
  - Network Configuration
  - Switch Connections
  - CTI Link Admin
  - DMCC Configuration
  - TSAPI Configuration
- Security Database
  - SDB Control
- CTI Users
  - List All Users
  - Search Users
  - Worktops
  - Devices
  - Device Groups
  - Tlinks
  - Tlink Groups
- Certificate Management
- Dial Plan

**Edit CTI User**

User ID: Visionutveckling  
Common Name: TheBoss  
Worktop Name: NONE  
Unrestricted Access: ☒ **Enable**

Call Origination and Termination: None

Device / Device: None  
Call / Device: None  
Call / Call: ☐

Allow Routing on Listed Device: None

**Apply Changes** Cancel

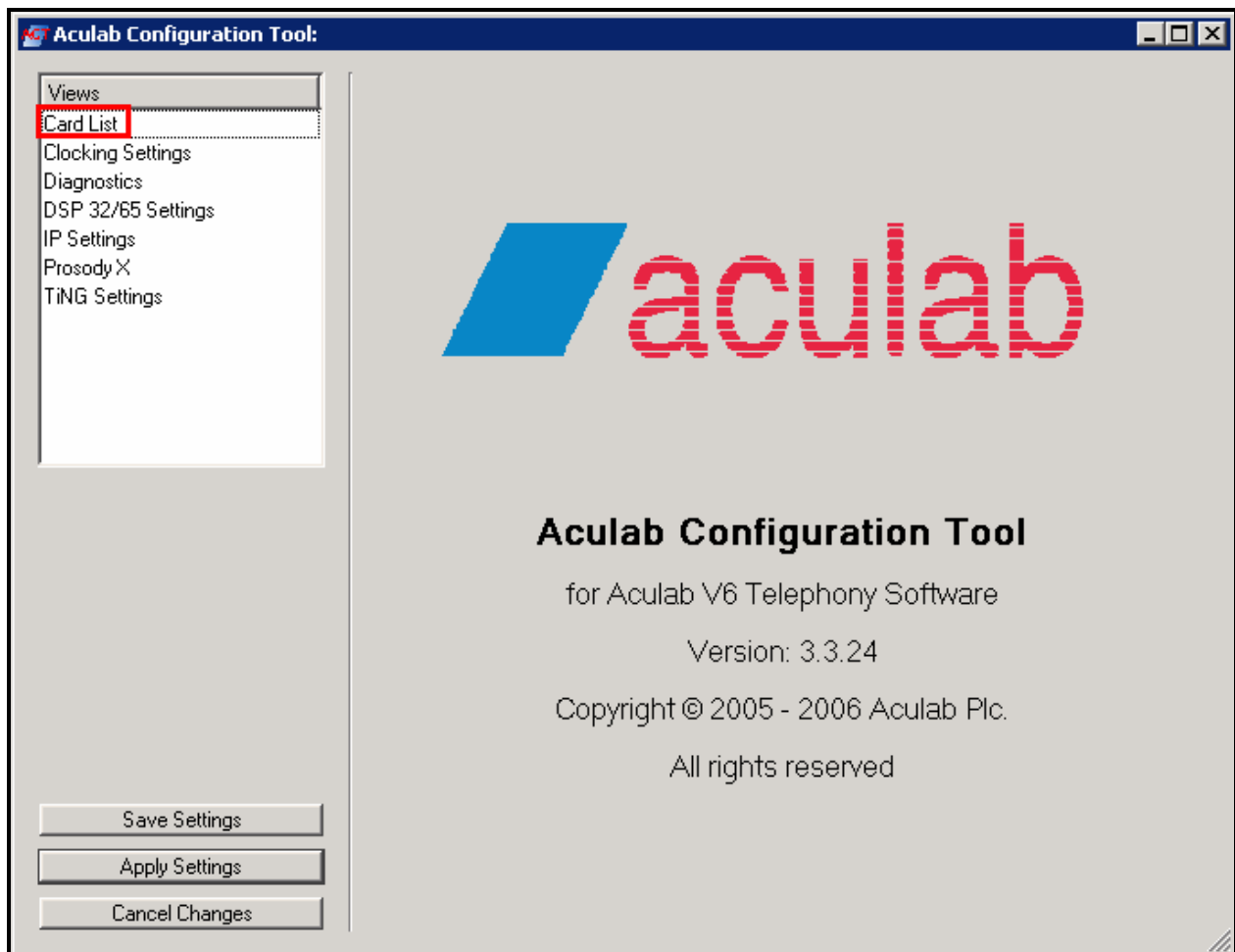
**Figure 49: Edit CTI User Screen**

### 3.3. Configure Icepeak Server

Insert the Icepeak software installation CD. When the installation wizard starts, click “Install the Icepeak Database” and accept all the default settings.

#### 3.3.1. Configure Aculab E1 Interface

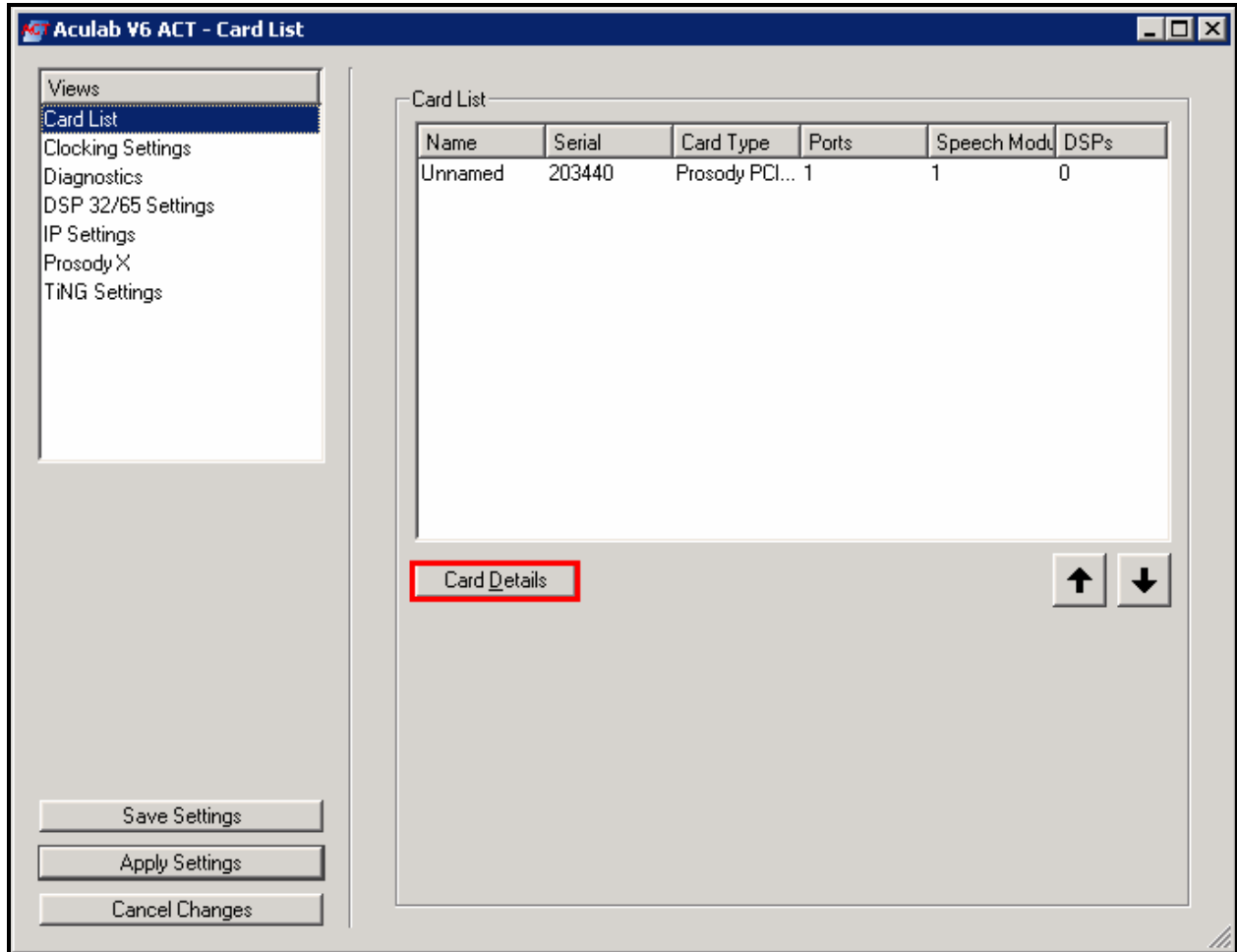
From the Windows “Start” icon, start “Programs” -> “Aculab” -> “V6” -> “ACT”. When the program starts, select “Card List” from the “Views” box.



**Figure 50: Aculab Welcome Screen**

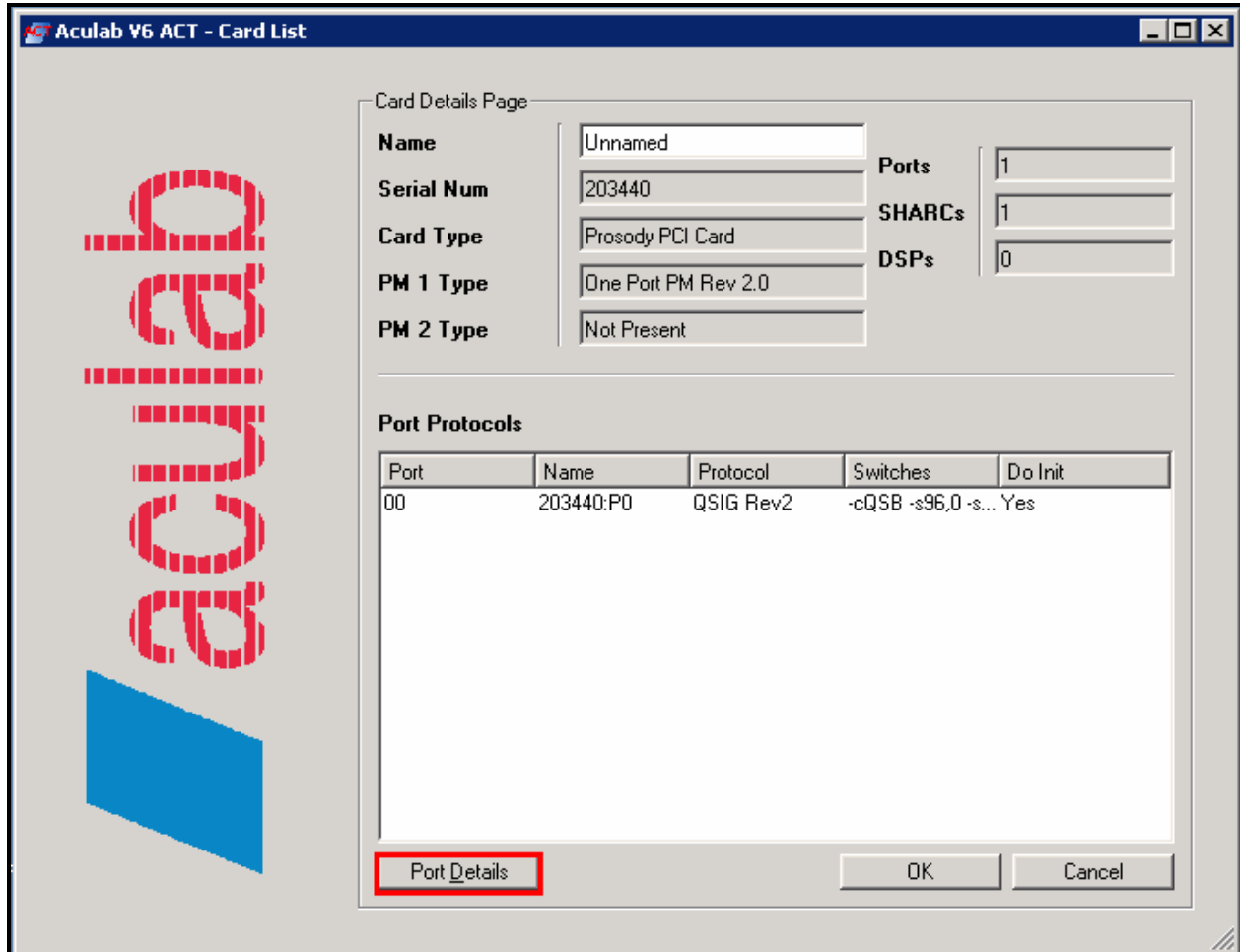


Click the “Card Details” button.



**Figure 51: Aculab Card List**

Click the “Port Details” button.



The screenshot shows a software window titled "Aculab V6 ACT - Card List". On the left is a large vertical "Aculab" logo. The main area is titled "Card Details Page" and contains several input fields for card information. To the right of these fields are three more input fields for "Ports", "SHARCs", and "DSPs". Below these is a "Port Protocols" section containing a table with one row of data. At the bottom left is a "Port Details" button, which is highlighted with a red rectangle. To its right are "OK" and "Cancel" buttons.

**Card Details Page**

**Name**  **Ports**

**Serial Num**  **SHARCs**

**Card Type**  **DSPs**

**PM 1 Type**

**PM 2 Type**

**Port Protocols**

Port	Name	Protocol	Switches	Do Init
00	203440:P0	QSIG Rev2	-cQSB -s96,0 -s...	Yes

**Port Details** **OK** **Cancel**

**Figure 52: Aculab Card Details**

Select “QSIG Rev2” from the “Protocol” list, and click “Protocol Options”.

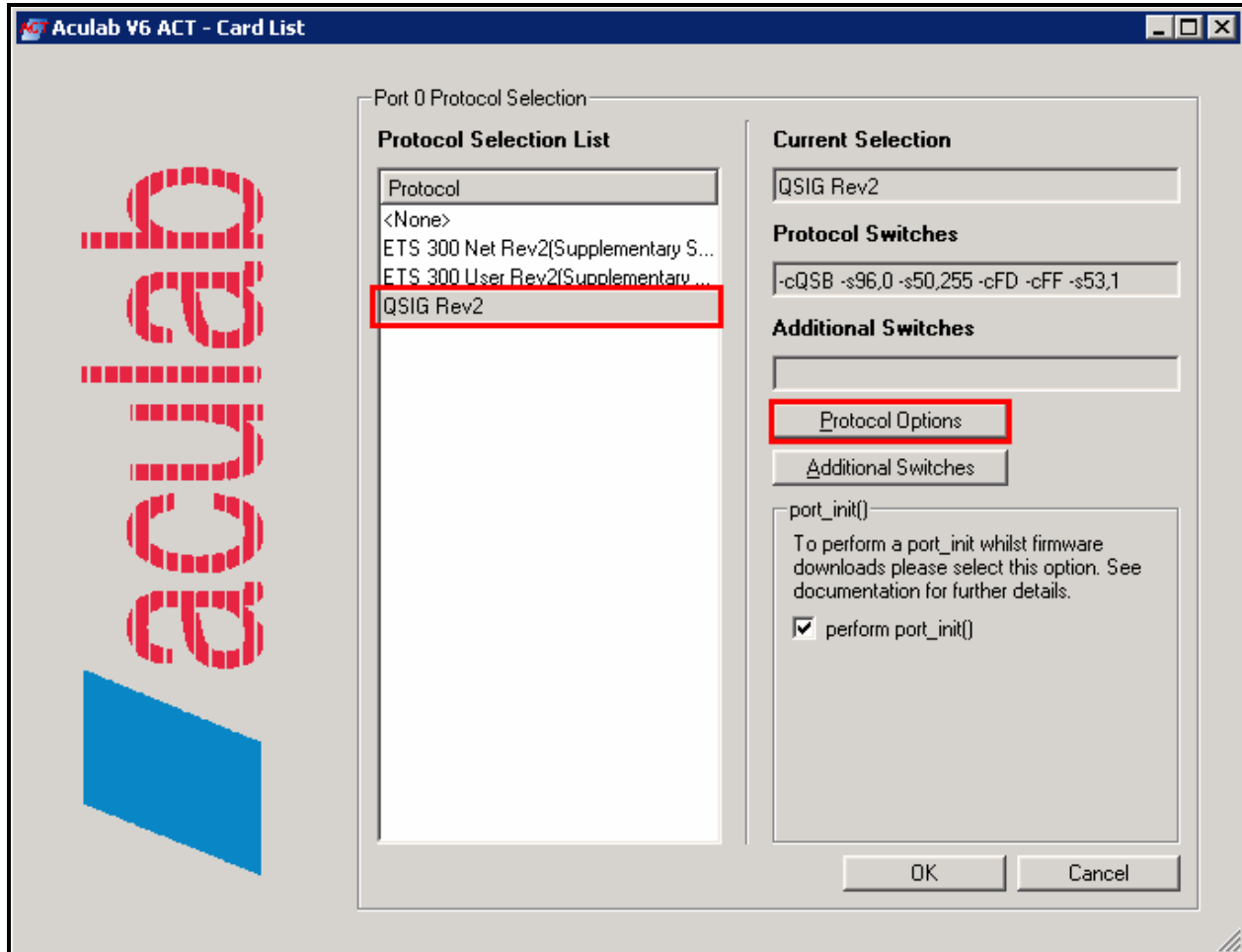
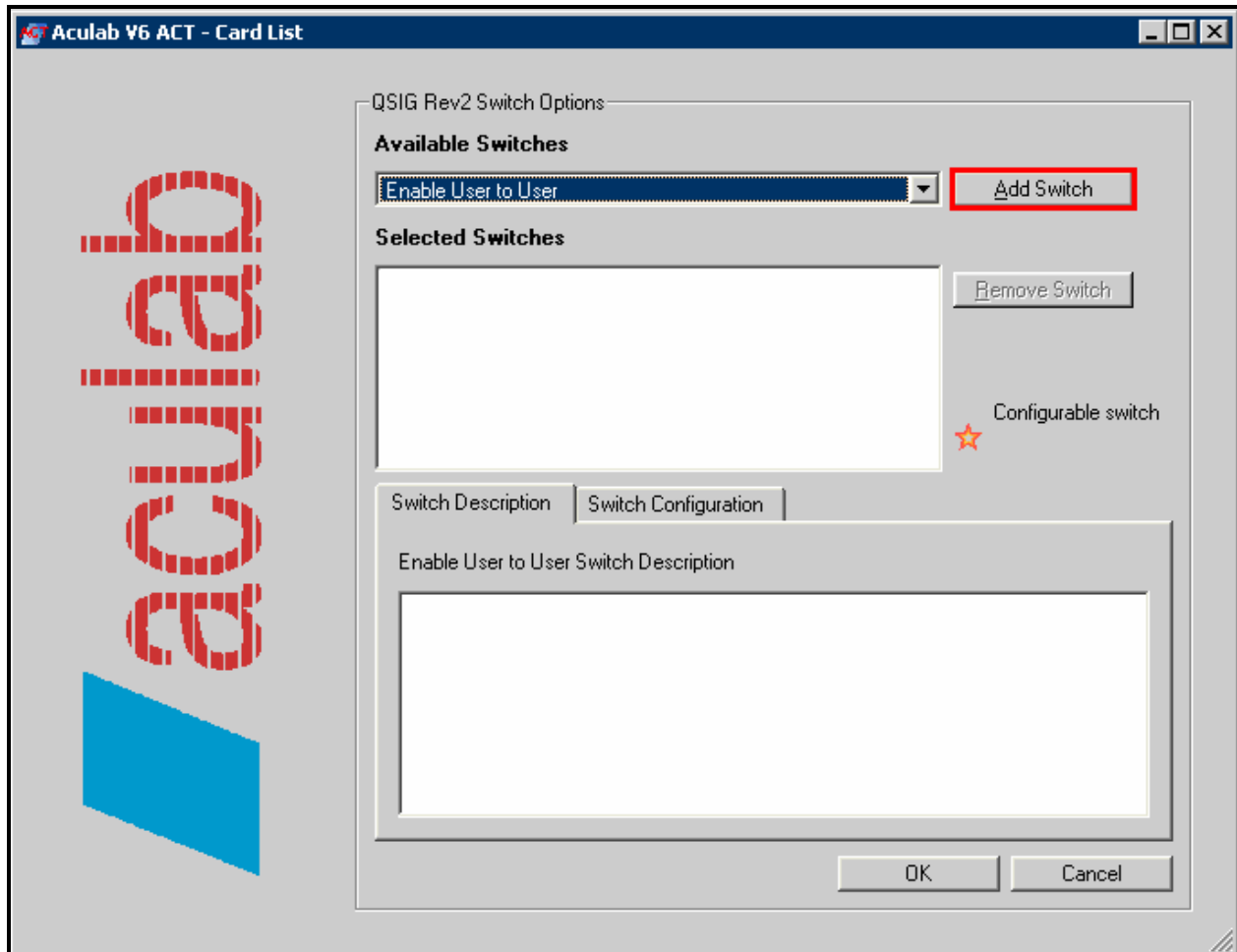


Figure 53: Aculab Card Details

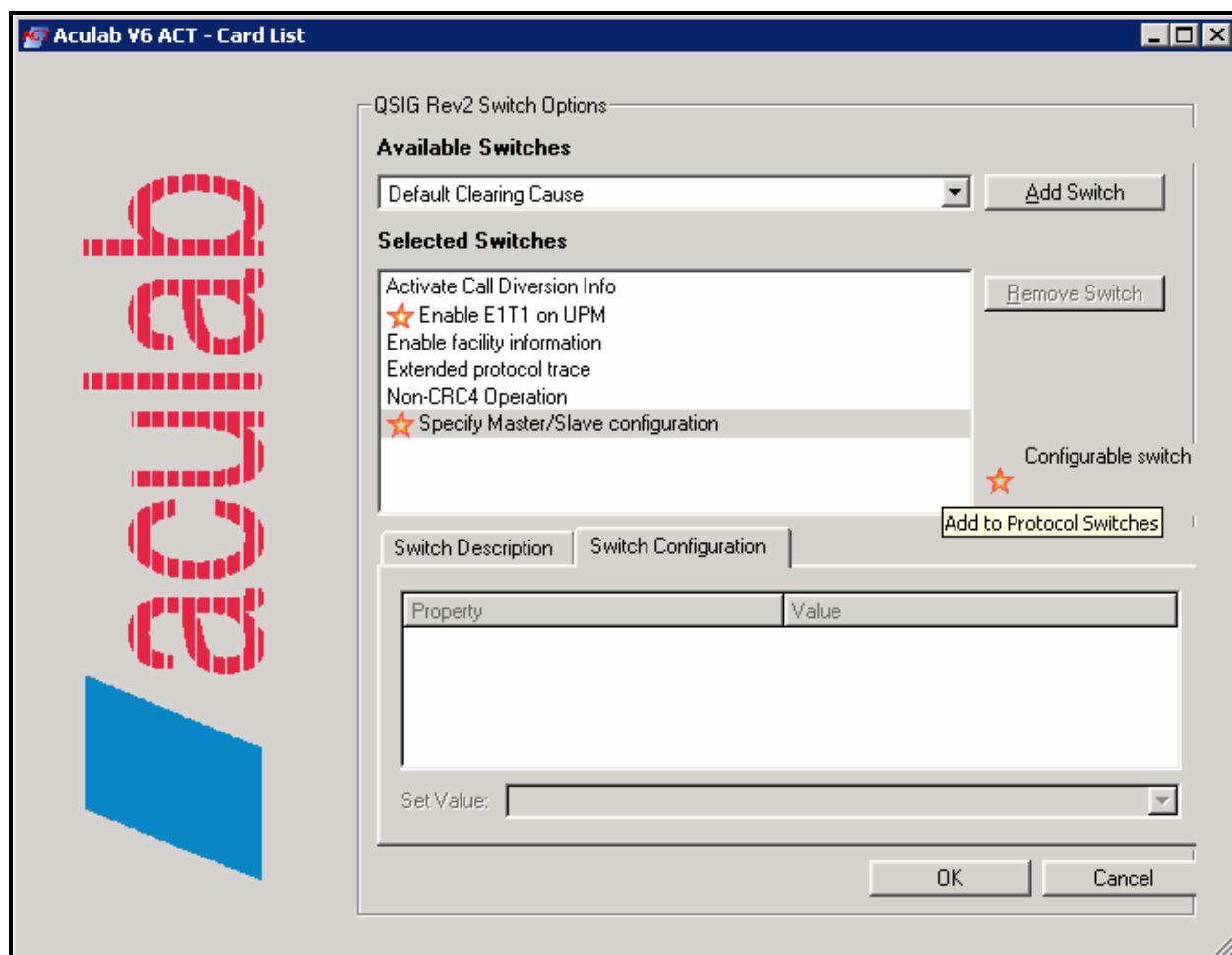
Select the following QSIG Rev2 Switch Options from the “Available Switches” drop-down list, by clicking the “Add Switch” button for each:

- Enable E1T1 on UPM
- Master/Slave: Slave, Priority B
- Non-CRC4 Operation
- Enable Facility Information
- Activate Call Diversion Info
- Extended Protocol Trace (optional)



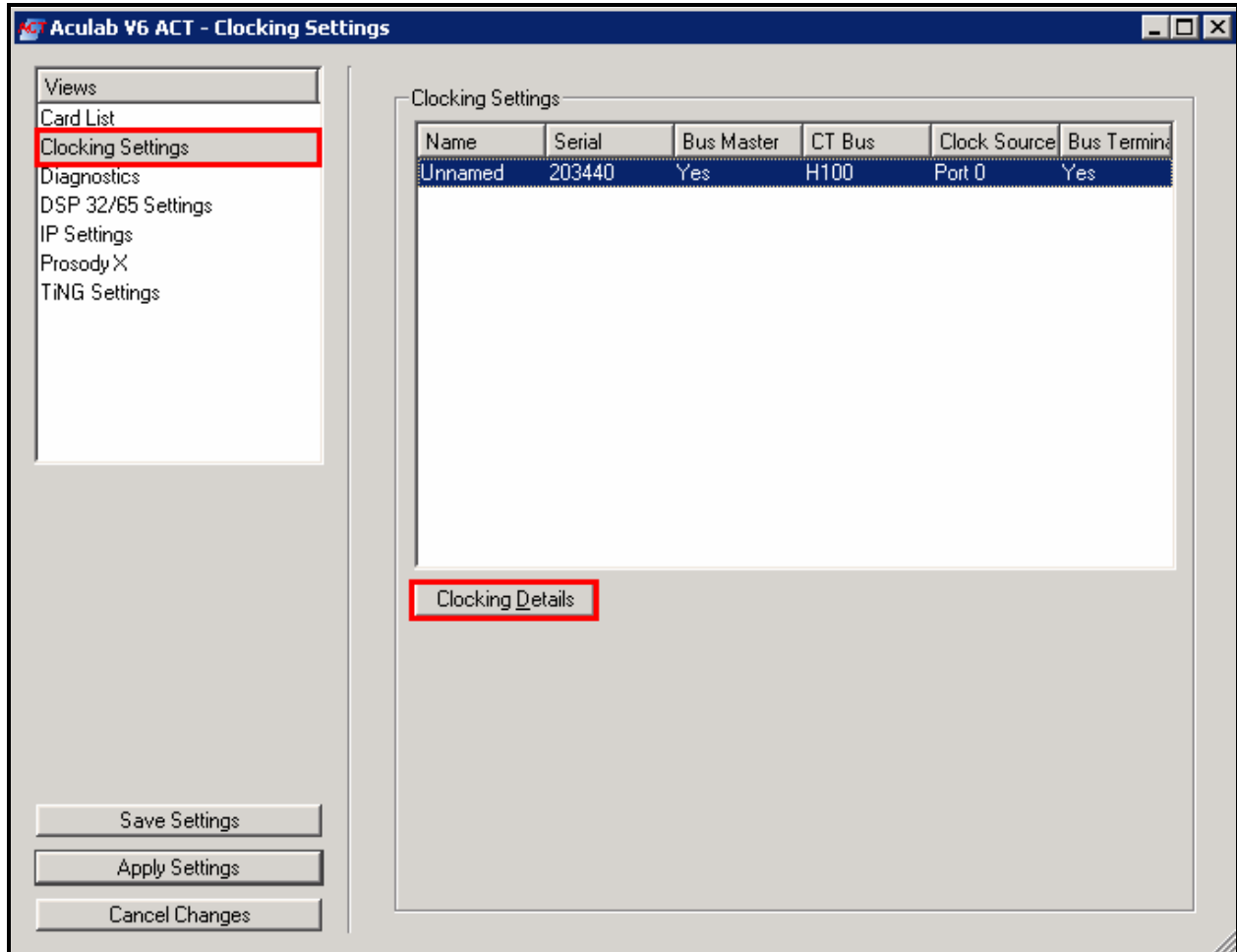
**Figure 54: Aculab Protocol Options**

After all of the options have been added, Click “OK” upon completion.



**Figure 55: Aculab Protocol Options Added**

Select “Clocking Settings” in the “Views” frame and click “Clocking Details”.

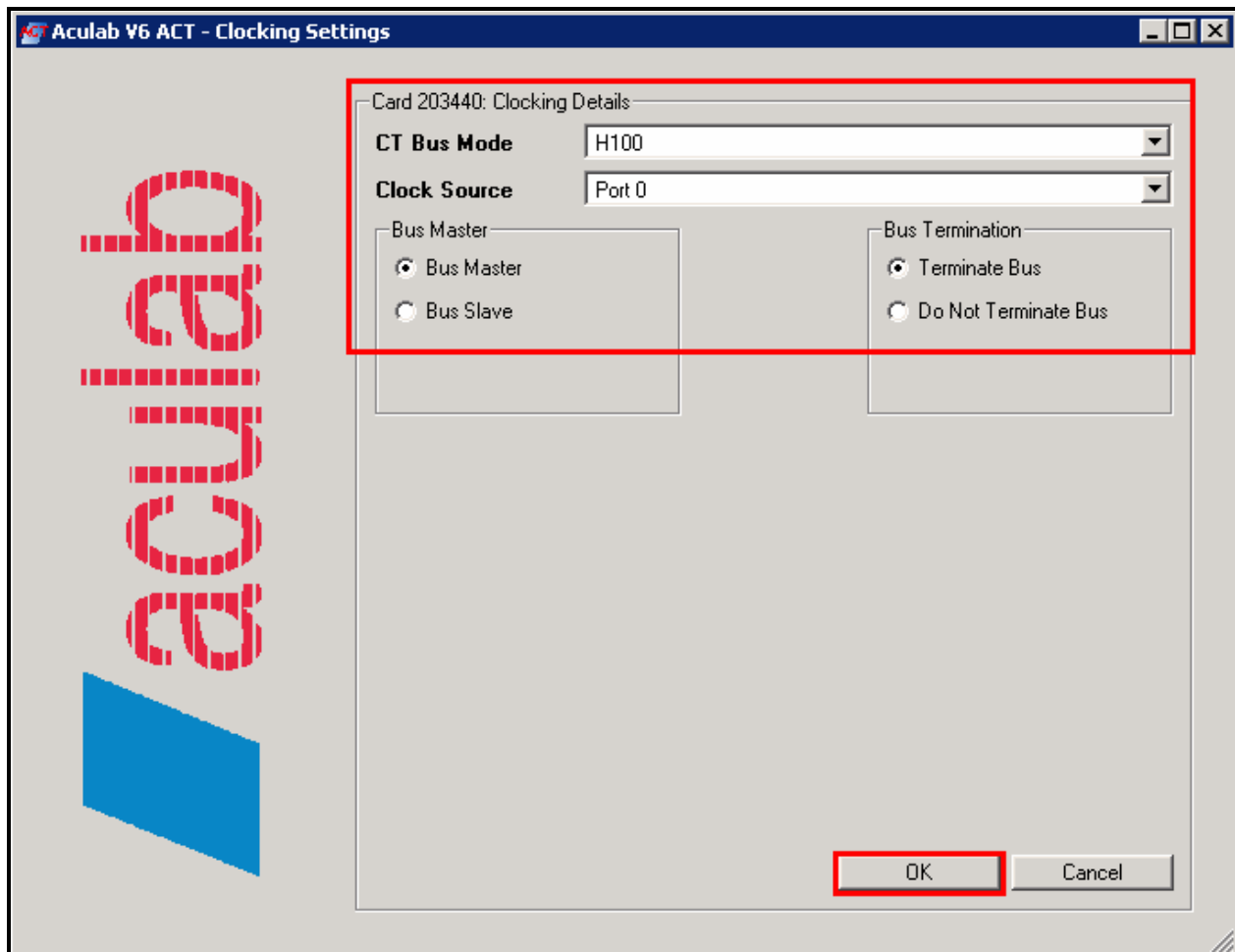


**Figure 56: Aculab Select Clock Settings**

Configure the parameters in this screen as shown in the following table and click “OK”.

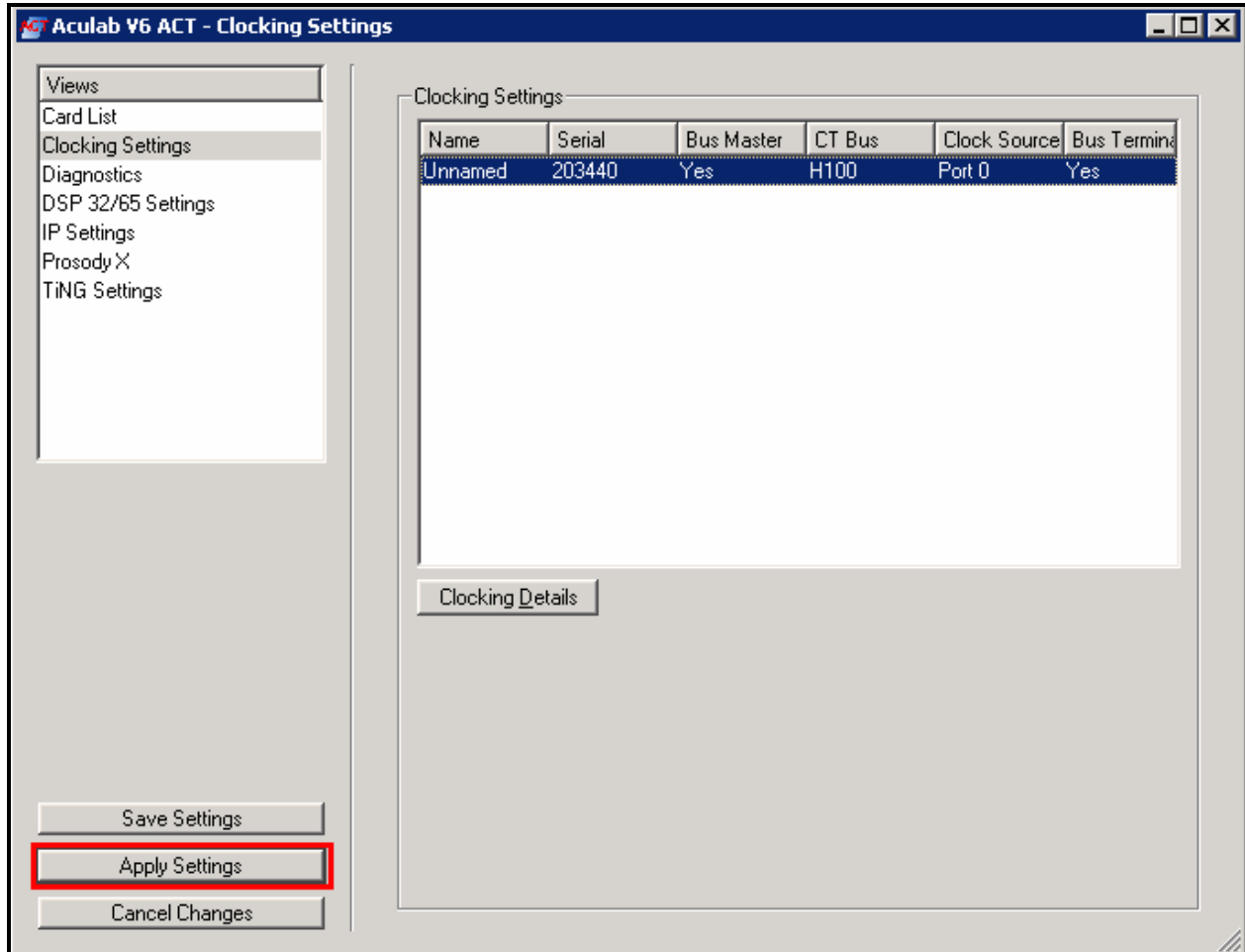
Parameter	Usage
CT Bus Mode	Select “H100” from the drop-down menu.
Clock Source	Select “Port 0” from the drop-down menu
Bus Master	Click the “Bus Master” radio button
Bus Termination	Click the “Terminate Bus” radio button

**Table 24: Parameters Clock Settings**



**Figure 57: Aculab Select Clock Settings**

Click “Apply Settings” to complete the configuration of the Aculab interface.



**Figure 58: Aculab Apply Settings**



### 3.3.2. Configure Icepeak Server E1 Interface

Use a text editor to edit the “<TELEPHONY\_INTERFACE>” section of the XML file “IVS\_Config.xti”, which is contained in the directory “\Program Files\Icepeak\IVS\conf”, as shown in the following table.

Parameter	Usage
TRUNK_NUMBER	Add an entry for each DDI contained in <b>Table 21</b> . These DDIs are also shown in <b>Figure 65</b> .
INCOMING_CALL_DIRECTION	Set this parameter to “ASCENDING”
INTERNAL_DN_LENGTH	Set this parameter to “5” the length of the number contained in the local dial plan, as shown in <b>Table 1</b> .
SET_ORIGINATING_NUMBERING_INFORMATION	Set this parameter to “TRUE”.

**Table 25: Icepeak Configuration File Parameters**

```

<?xml version ="1.0"?>
<MESSAGE>
<TRANSACTION><ID/><SERIAL_NR/></TRANSACTION>
<TYPE>Internal</TYPE>
<NAME>ConfigurationData</NAME>
<LOGGING>
  <LOGFILE>..\log\IVS.log</LOGFILE>
  <LOGLEVEL>TRACE</LOGLEVEL>
</LOGGING>
<PBX_ID>7</PBX_ID>
<XTI_SERVER>
  <IP>192.168.93.136</IP> <PORT>5569</PORT> <PROTOCOL>XTI</PROTOCOL>
  <IVS_ID>77745</IVS_ID>
  <CALLSESSION_FROM_DDI>FALSE</CALLSESSION_FROM_DDI>
</XTI_SERVER>
<CONFERENCE_HANDLER>
  <PORT>4713</PORT> <PROTOCOL>XTI</PROTOCOL>
</CONFERENCE_HANDLER>
<IVR_SERVICE>
  <IP>localhost</IP> <PORT>5569</PORT> <PROTO>XTI</PROTO>
  <SINGLE_SOCKET>TRUE</SINGLE_SOCKET>
  <CLIENT_TYPE>IVS</CLIENT_TYPE>
</IVR_SERVICE>
<CTHUB>
  <IP>127.0.0.1</IP> <PORT>5555</PORT> <PROTOCOL>XTI</PROTOCOL>
  <SINGLE_SOCKET>TRUE</SINGLE_SOCKET>
  <CLIENT_TYPE>IVS</CLIENT_TYPE>
  <PBX_ID>1</PBX_ID>
  <USER>rehan</USER> <PASSWORD>icepeak</PASSWORD>
</CTHUB>
<TELEPHONY_INTERFACE>
  <TYPE>ISDN</TYPE>
  <VENDOR>ACULAB</VENDOR>
  <BOARD></BOARD>
  <DEVICE_ID>203440</DEVICE_ID>
  <NUM_CHANNELS>32</NUM_CHANNELS>
  <TRUNK_NUMBER>0000</TRUNK_NUMBER>
  <TRUNK_NUMBER>0076</TRUNK_NUMBER>
  <TRUNK_NUMBER>0078</TRUNK_NUMBER>
  <TRUNK_NUMBER>5555</TRUNK_NUMBER>
  <TRUNK_NUMBER>8101</TRUNK_NUMBER>
  <OPEN_FOR_VIRTUAL_CALLS>TRUE</OPEN_FOR_VIRTUAL_CALLS>
  <INCOMING_CALL_DIRECTION>ASCENDING</INCOMING_CALL_DIRECTION>
  <INTERNAL_DN_LENGTH>5</INTERNAL_DN_LENGTH>
  <DEFAULT_PRESENTATION_NUMBER>77745</DEFAULT_PRESENTATION_NUMBER>
  <RINGING_TO_TRANSFER_DELAY>1200</RINGING_TO_TRANSFER_DELAY>
  <DONT_OPTIMISE>FALSE</DONT_OPTIMISE>
  <OPTIMISATION_DELAY>0</OPTIMISATION_DELAY>
  <SEND_MD110_UUI>FALSE</SEND_MD110_UUI>
  <SEND_QSIG_INFORMATION>FALSE</SEND_QSIG_INFORMATION>
  <SET_ORIGINATING_NUMBERING_INFORMATION>TRUE
  </SET_ORIGINATING_NUMBERING_INFORMATION>
  <SET_DESTINATION_NUMBERING_INFORMATION>FALSE
  </SET_DESTINATION_NUMBERING_INFORMATION>
  <TING_TRACE_LEVEL>0</TING_TRACE_LEVEL>
  <NUM_NUANCE_CHANNELS>2</NUM_NUANCE_CHANNELS>
  <CAP_HANDLER_PORT>4712</CAP_HANDLER_PORT>
  <CAP_RELEASE_STATE>CONNECTED</CAP_RELEASE_STATE>
  <CAP_TRANSFER_TYPE>OPTIMISED</CAP_TRANSFER_TYPE>
  <CAP_TRANSFER_STATE>CONNECTED</CAP_TRANSFER_STATE>
</TELEPHONY_INTERFACE>
</MESSAGE>

```

**Figure 59: Icepeak Configuration File**

### 3.3.3. Configure Icepeak AES Interface

Use a text editor to edit the “<TELEPHONY\_PROVIDER>” section of the XML file “CTHub\_config.xti” in the directory “\Program Files\Icepeak\CTHub\conf\” as shown in the following table.

Parameter	Usage
TYPE	Set this parameter to “tsapi”.
PBX_ID	Since, for this configuration, there is only one PBX, set this parameter to “1”.
IP	Enter the connection string defined in <b>Table 27</b> .
USER	Set this value to the AES user configured in <b>Figure 48</b> .
PASSWORD	Set this value to the AES password configured in <b>Figure 48</b> .

**Table 26: Icepeak AES Configuration Parameters**

Parameter	Usage
AVAYA	This is a fixed value.
S8720	This is the name that was assigned to the Switch Connection in <b>Figure 43</b> .
CSTA	This is a fixed value.
AES_SERVER1	This is the name that was assigned to the Avaya AES server when the Avaya AES software installation was performed.

**Table 27: Composition of the TSAPI Server Name Parameter**

```
...
<!-- TSAPI telephony provider - Avaya -->
<TELEPHONY_PROVIDER>
  <TYPE>tsapi</TYPE>
  <PBX_ID>1</PBX_ID>
  <IP>AVAYA#S8720#CSTA#AES-SERVER1</IP> <PORT></PORT>
  <USER>Visionutveckling</USER> <PASSWORD>#####</PASSWORD>
  <DEBUG_LEVEL>LOW</DEBUG_LEVEL>
</TELEPHONY_PROVIDER>
...
```

**Figure 60: Icepeak AES Configuration**

### 3.3.4. Icepeak Attendant Site Administration

Use a web browser to access the Icepeak Attendant at “http://<Ispeak Server IP Address>/iacd”. When prompted, enter an appropriate user name and corresponding password. Click the “System” icon from the left frame, and select “Company” from the drop-down list.

Address http://192.168.200.98/iacd/controller

**Site Administrator**

Name/Telephone:  Department:  City:

☐ Exact search ☐ Advanced search

Catalog: [All]

TeleConference

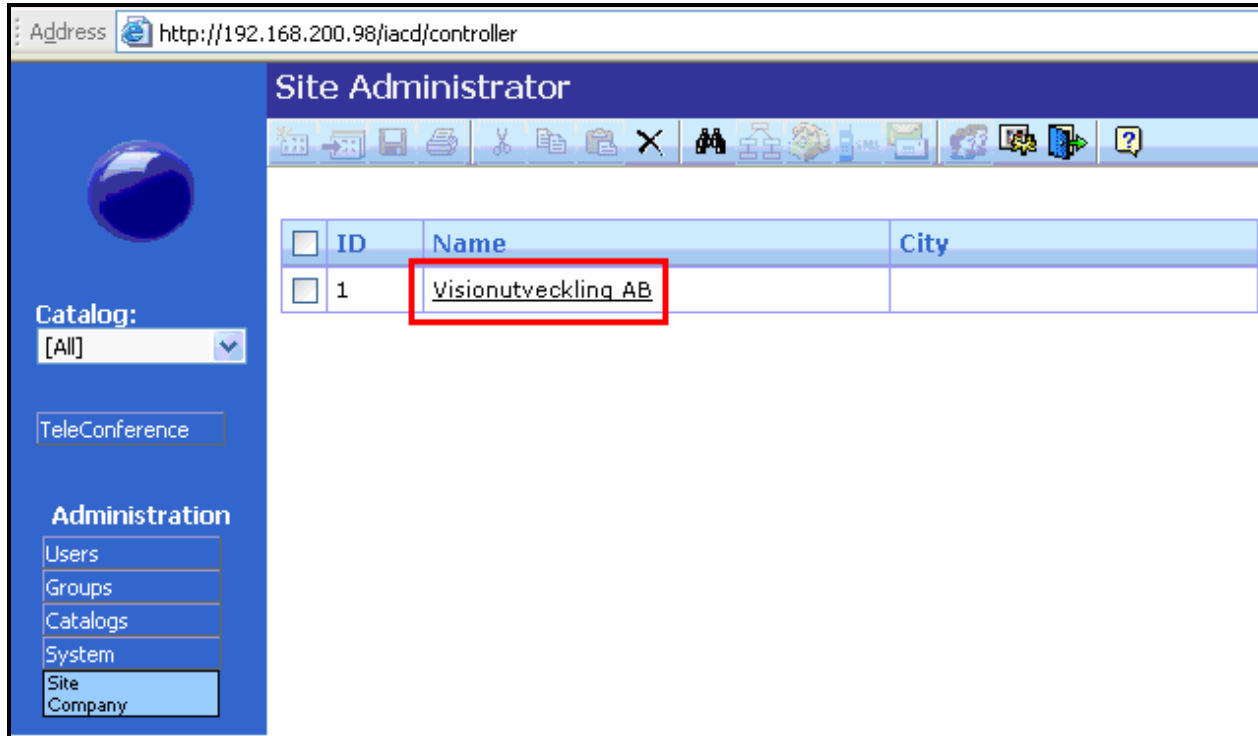
**Administration**

- Users
- Groups
- Catalogs
- System**
- Site
- Company

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
<input type="checkbox"/>	Name	Department	City	Office	Cellphone																		
<input checked="" type="checkbox"/>	Switch-Switch			9																			

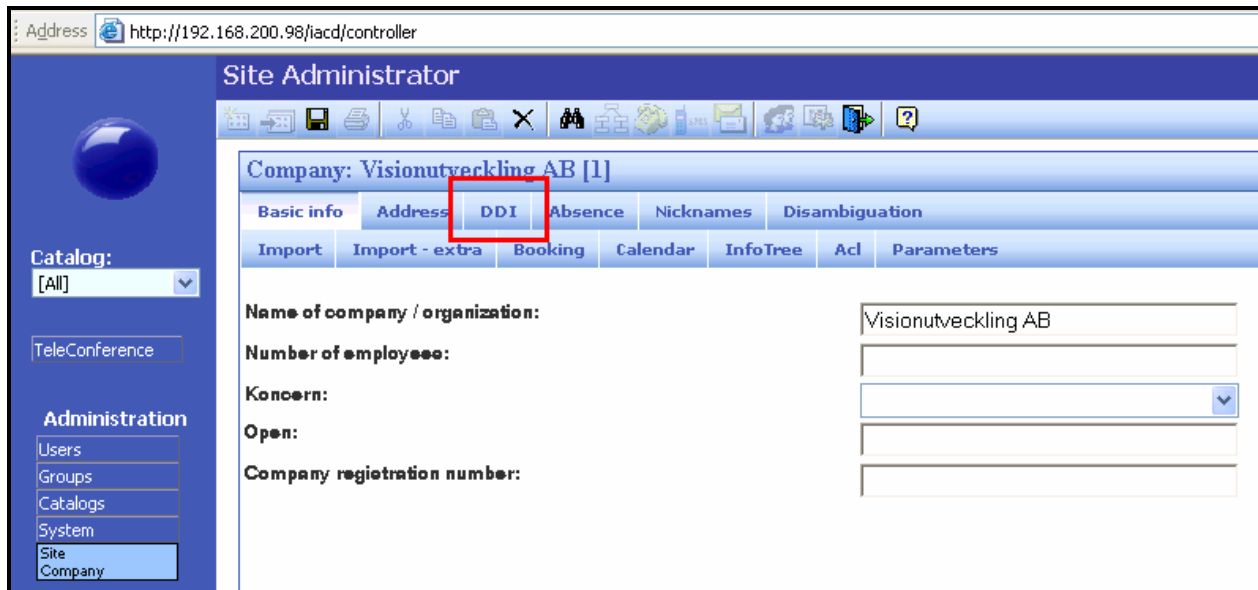
**Figure 61: Icepeak Attendant Site Administration**

Click on the name of the company which is to be administered.



**Figure 62: Company Selection**

Select the “DDI” tab.



**Figure 63: Site Administration Basic Information**

For each of the entries in **Table 21**, select an “Attendant Application” and the corresponding “DDI” which is used to start that application, and click the “ADD” button. An appropriate language should be selected prior to making the entry.

Site Administrator

Company: Visionutveckling AB [1]

Basic info Address DDI Absence Nicknames Disambiguation

Import Import - extra Booking Calendar InfoTree Acl Parameters

DDI	Application	Lang

DDI:

Attendant application: Auto Attendant

Language: Swedish

<< Add

Play English choice prompt: ☐

**Figure 64: Site Administration DDI Administration**

Click the “Save” button upon completion.

Site Administrator

Company: Visionutveckling AB [1]

Basic info Address DDI Absence Nicknames Disambiguation

Import Import - extra Booking Calendar InfoTree Acl Parameters

DDI	Application	Lang
<input type="checkbox"/> 8101	Auto Attendant	sv
<input type="checkbox"/> 0078	Presence information	sv
<input type="checkbox"/> 5555	Dialog editor	sv
<input type="checkbox"/> 0000	Record voice mail	sv
<input type="checkbox"/> 0076	Listen to voice mails	sv

DDI:

Attendant application: Auto Attendant

Language: Danish

<< Add

Play English choice prompt: ☐

Save Cancel

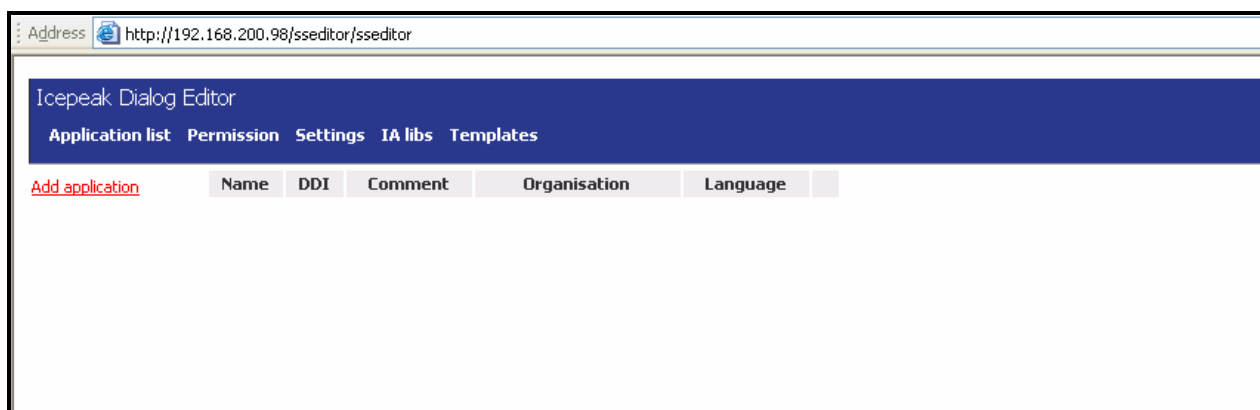
**Figure 65: Site Administration DDI Values**

### 3.3.5. Icepeak Attendant Dialog Editor

Use a web browser to access the Icepeak Dialog Editor at “http://<Ispeak Server IP Address>/sseditor”. When prompted, enter an appropriate user name and corresponding password. Click the “System” icon from the left frame, and select “Company” from the drop-down list.

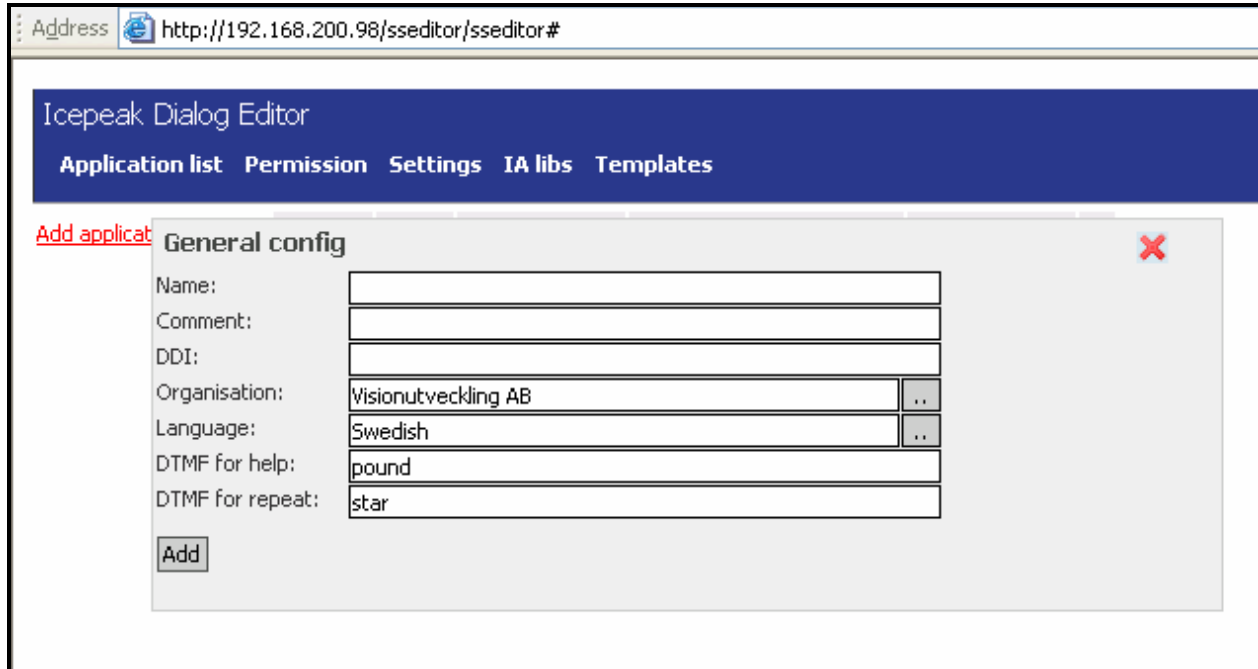
The configuration operations shown in this section illustrate a simple call flow example which allows callers to request either the “helpdesk” or “operator”, via either verbal command or DTMF input. More complex call flow scenarios can be constructed to handle real-world situations, thus providing means of routing incoming calls without an operator.


Click “Add application”.



**Figure 66: Icepeak Attendant Dialog Editor**

Enter the application information as shown in the screen below and click “Add”.




Address  http://192.168.200.98/sseditor/sseditor#

**Icepeak Dialog Editor**

**Application list** **Permission** **Settings** **IA libs** **Templates**

[Add application](#)

**General config** 

Name:

Comment:

DDI:

Organisation:  ..

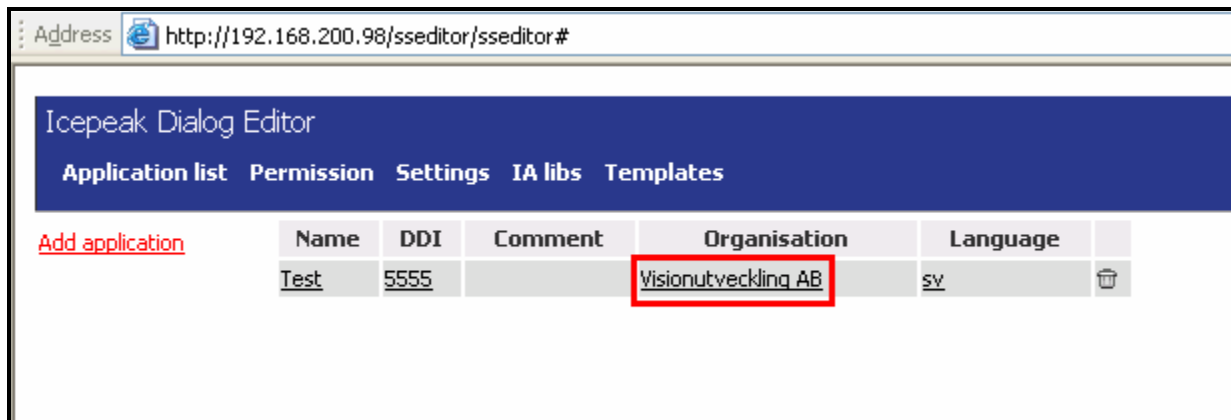
Language:  ..


DTMF for help:

DTMF for repeat:

**Figure 67: Add Application**

Click the name of the company which was added.




Address  http://192.168.200.98/sseditor/sseditor#

**Icepeak Dialog Editor**

**Application list** **Permission** **Settings** **IA libs** **Templates**

[Add application](#)

Name	DDI	Comment	Organisation	Language	
<u>Test</u>	<u>5555</u>		<u>Visionutveckling AB</u>	<u>sv</u>	

**Figure 68: Select Company**



The remainder of this document section illustrates the creation of a dialog for the number “5555”, which was assigned to the Dialog Editor in **Figure 64**. When this number is called, the caller is asked which destination is desired: “helpdesk” or “operator”. At this point, the caller can either make a verbal selection of the destination to be called or use the keypad to make the selection. Click “Add Node” to make the initial entry node for the dialog.



**Figure 69: Add Node**

Enter the values in this node as show in the following table. The various tabs for the node configuration form are shown in **Figure 70**.

Tab	Field	Value
General	Name	“Start node for 5555”
Prompts	Prompt 1	“Welcome to Avaya”
	Prompt 2	Would you like to talk to the helpdesk or the operator?
	Prompt 3	You can also press one for helpdesk or two for operator.
	Prompt is played with synthesized voice	Check this box.
	Order	“4”
Grammar	Grammar Configuration	Click this field and enter the parameters shown in last pane of <b>Figure 70</b> .
	Normal Mode	Check this box.
	Utterance 1	operator
	Utterance 2	helpdesk
	Utterance 3	DTMF – 1: go to helpdesk
	Utterance 4	DTMF – 2: go to operator
	Filler	No filler
	Jump to node	“Start node for 5555”
Action	Action	Prompt and recognition
Variable	Compare	Check this box.
Action	If	Const dummy.

**Table 28: Start Node Parameters**

Start node for 5555

**General** Prompts Grammar Action Variable action

Name:

Comment:

(NodeId: 1, ParentId: -1)

Start Node "General" Tab

Start node for 5555

**General** Prompts Grammar Action Variable action

Prompt	Prompt	File name	TTS	Language
Prompt no 1	Välkommen till Avaya.		1	sv
Prompt no 2	Vill du komma till helpdesk eller växel?		1	sv
Prompt no 3	Du kan också trycka 1 för helpdesk eller 2 för växel		1	sv

Prompt is played with synthesized voice: ☒

Prompt type:

Order:

Prompt:

Upload file:

Start Node "Prompts" Tab

Start node for 5555

**General** Prompts Grammar Action Variable action

Grammar configuration

☒ Normal mode ☐ Advanced mode

Utterance	Jump to	Delete
växel	växel	<input type="button" value="Delete"/>
helpdesk	helpdesk	<input type="button" value="Delete"/>
dtmf-1	helpdesk	<input type="button" value="Delete"/>
dtmf-2	växel	<input type="button" value="Delete"/>

User silent: ☐

Utterance:

Filler:

Jump to node:

Start Node "Grammar" Tab

Start node for 5555

**General** Prompts Grammar Action Variable action

Action:

Error handling:

Utterance rejected:

Timeout:

Start Node "Action" Tab

Start node for 5555

**General** Prompts Grammar Action Variable action

Variable actions

☒ Compare ☐ Assign

if

equals

then Jump to

Start Node "Variable Action" Tab

Start node for 5555

**General** Prompts Grammar Action Variable action

Speech timeout:

Utterance length:

Recognition timeout:

Rejection threshold:

Endpoint:

Barge in: ☐

DTMF timeout:

DTMF length:

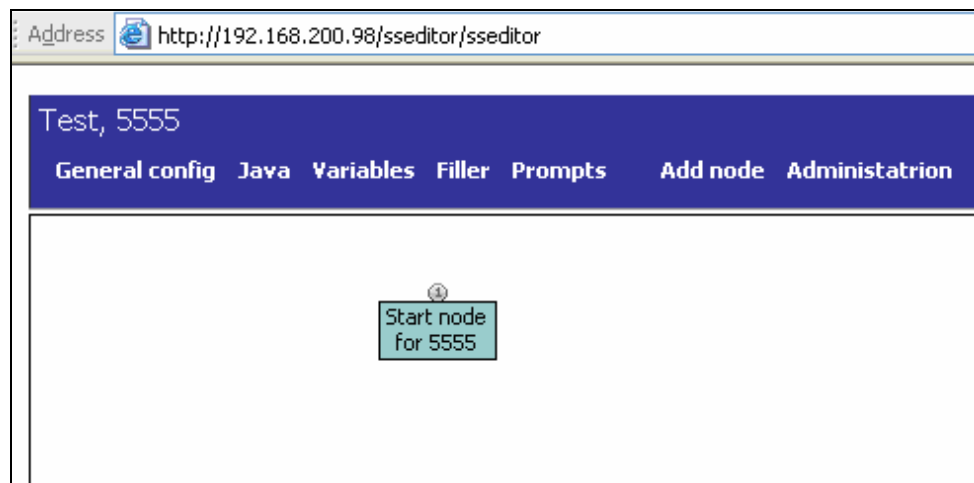
Voice recognition enabled: ☒

Play prompt again: ☐

Start Node "Grammar Configuration"

Figure 70: Start Node

After the entry node has been created, it is displayed on the editor screen as an icon. Click “Add node” to create nodes to call the helpdesk and the operator.



**Figure 71: Start Node Shown by Dialog Editor**

Enter the values in these nodes as show in the following table, selecting either “helpdesk” or “operator” as appropriate. The tabs for the helpdesk node configuration form are shown in **Figure 72**.

Tab	Field	Value
General	Name	Enter “Helpdesk” or “Operator”
Prompts	Prompt Type	“Prompt”
	Order	”1”
Grammar	Grammar Configuration	Click this field and enter the parameters shown in the last pane of <b>Figure 72</b> .
	Normal Mode	Check this box.
	Filler	No filler
	Jump to node	“Start node for 5555”
Action	Action	“Connect to number”
	Number	Enter “60007” for the helpdesk or “60093” for the operator.
Variable Action	Compare	Check this box.
	If	Const dummy.

**Table 29: Helpdesk and Operator Node Parameters**

helpdesk

General Prompts Grammar Action Variable action

Name:

Comment:

Save

(NodeId: 3, ParentId: 1)

Helpdesk Node "General" Tab

helpdesk

General Prompts Grammar Action Variable action

Prompt Prompt File name TTS Language

Prompt is played with synthesized voice: ☒

Prompt type:

Order:

Prompt:

Upload file:  Browse...

Add Record file

Helpdesk Node "Prompts" Tab

helpdesk

General Prompts Grammar Action Variable action

The chosen actions does not do recognition!

[Grammar configuration](#)

☒ Normal mode ☐ Advanced mode

Utterance	Jump to	Delete
Utterance: <input type="text"/>		
Filler: <input type="text" value="No filler"/>		
Jump to node: <input type="text" value="Start node for 5555"/>		

Add

Helpdesk Node "Grammar" Tab

helpdesk

General Prompts Grammar Action Variable action

Action:

Number:

Error handling

Busy:

Wrong number:

Technical error:

No answer:

Save

Helpdesk Node "Action" Tab

helpdesk

General Prompts Grammar Action Variable action

Variable actions Delete

☒ Compare ☐ Assign

if

equals

then Jump to

Add

Helpdesk Node "Variable Action" Tab

helpdesk

General Prompts Grammar Action Variable action

Speech timeout:

Utterance length:

Recognition timeout:

Rejection threshold:

Endpoint:

Barge in: ☐

DTMF timeout:

DTMF length:

Voice recognition enabled: ☒

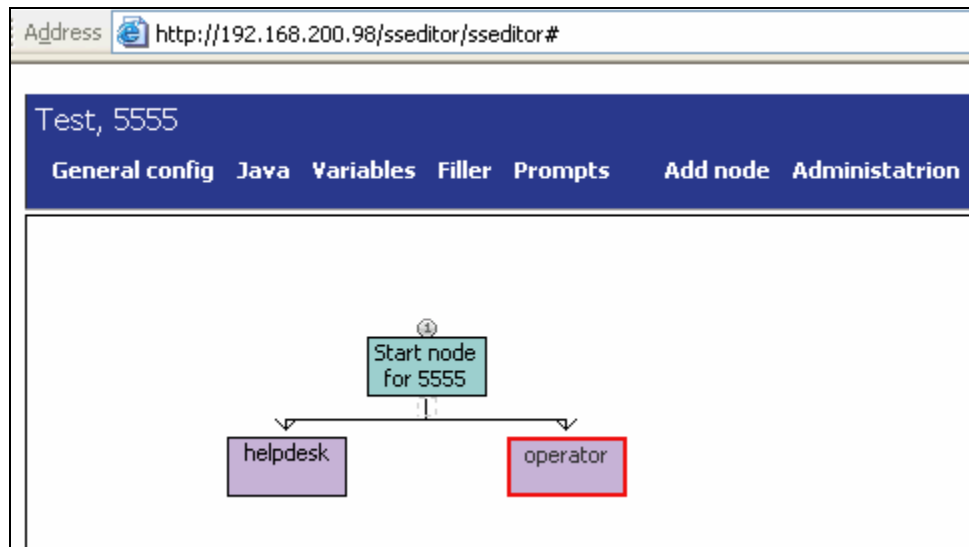
Play prompt again: ☐

Save Default

Helpdesk Node "Grammar Configuration"

Figure 72: Helpdesk Node

The dialog is now complete, and can be activated by calling the number “65555”, which corresponds to DDI “5555”.



**Figure 73: Completed Dialog Nodes**

## 4. Interoperability Compliance Testing

The objective of the compliance testing done on the Visionutveckling Icepeak product was to verify that it is compatible with Avaya Communication Manager and Avaya Application Enablement Services. This includes verifying that the essential Icepeak features function properly when used with Avaya Communication Manager, and that Avaya Communication Manager features are not hindered by the interaction with Icepeak. Furthermore, Icepeak’s ability to recover from service interruptions was verified.

### 4.1. General Test Approach

The test method employed can be described as follows:

- Avaya Communication Manager was configured to support various local IP telephones, as well as a networked PBX connection and a PSTN connection.
- A PSTN interface was attached to Avaya Communication Manager, which was used to communicate with external telephones.
- A second PBX was attached to Avaya Communication Manager via a QSIG trunk to verify the operation of QSIG Path Replacement to another PBX.
- The following test scenarios were used to test the various Icepeak features:
  - Call diversion unconditional/busy/no answer via telephone administration
  - Call rerouting via QSIG path replacement, including calls to local and external busy party.
  - Call diversion unconditional/busy/no answer via TSAPI from Icepeak
  - Call re-routing via verbal command

- Conference creation via verbal command
- Create customized call flow which responds to verbal commands
- Create customized call flow which responds to DTMF input
- Icepeak's ability to recover from interruptions to the connection to following components was verified:
  - The Icepeak server
  - The Avaya server to which Icepeak was connected.

All testing was performed manually. The tests were all functional in nature, and no performance testing was done.

## 4.2. Test Results

All test cases were executed successfully. Path Replacement is not done when calls from external endpoints are diverted by Icepeak to another external endpoint that does not pass through a path replacement link.

## 5. Verification Steps

The following steps can be performed to verify the correct installation and configuration of Icepeak:

- Log into the Avaya AES as described in Section 3.2 and perform the following:
  - Verify that CTI OAM Status and Control "Switch Connection Summary" shows that the connection between Avaya AES and Avaya Communication Manager is operational.
  - Verify that CTI OAM Status and Control "Services Summary" shows that TSAPI service is operational.
- Verify that it is possible to call the Icepeak extension and verbally request that a call be established to a local extension.
- Use the Avaya Communication Manager SAT terminal "status trunk" command to verify that the members of the trunk to Icepeak return to the "in-service/idle" state after completion of a QSIG path replacement operation optimizes the call path of local stations which were connected via the trunk.

## 6. Support

Support for Icepeak is available at:

Visionutveckling AB  
[support@visionutveckling.se](mailto:support@visionutveckling.se)  
 Phone: +46 303 389 000  
 Fax: +46 303 72 92 60

## 7. References

- [1] *Administrator Guide for Avaya Communication Manager*, January 2008, Issue 4.0, Document Number 03-300509.
- [2] *Feature Description and Implementation for Avaya Communication Manager*, January 2008, Issue 6, Document Number 555-245-205.
- [3] *4600 Series IP Telephone LAN Administrator Guide*, October 2007, Issue 7, Document Number 555-233-507.
- [4] Icepeak Brochure, December 2008 Available at [http://www.vision8020.se/misc/Vision%208020\\_eng\\_2008-11.pdf](http://www.vision8020.se/misc/Vision%208020_eng_2008-11.pdf)

## 8. Conclusion

These Application Notes describe the conformance testing of the Visionutveckling Icepeak Attendant with Avaya Communication Manager. A detailed description of the configuration required for both the Avaya and the Visionutveckling equipment is documented within these Application Notes. The Icepeak passed all of the tests performed, which included both functional and recovery tests.



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