



Avaya Solution & Interoperability Test Lab

Application Notes for the Tel Control, Inc. iPSAP Workstation with Avaya Communication Manager and Avaya Application Enablement Services – Issue 1.0

Abstract

These Application Notes describe a compliance-tested configuration comprised of Avaya Communication Manager, Avaya Application Enablement Services, Avaya IP Telephones, and the Tel Control, Inc. (TCI) iPSAP Workstation. The iPSAP Workstation is the component of the TCI iPSAP E-911 solution that allows a 911 calltaker to operate a physical telephone and view caller Automatic Numbering Identification (ANI) and Automatic Location Identification (ALI) information through a graphical user interface (GUI). The iPSAP Workstation uses the Device and Media Control Application Programming Interface of Avaya Application Enablement Services to share control of a physical telephone and receive the same terminal and first party call control information received by the physical telephone. During compliance testing, simulated inbound 911 calls were successfully answered on Avaya IP Telephones that were controlled by iPSAP Workstations. Information in these Application Notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the DeveloperConnection Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe a compliance-tested configuration comprised of Avaya Communication Manager, Avaya Application Enablement Services, Avaya IP Telephones, and the Tel Control, Inc. (TCI) iPSAP Workstation. The iPSAP Workstation is intended for use by Public Safety Answering Point (PSAP) calltakers/dispatchers handling 911 calls. The iPSAP Workstation presents a graphical user interface (GUI) from which the calltaker can operate the physical telephone and view Automatic Number Identification (ANI) and location information of the 911 caller. The location information is obtained from an Automatic Location Identification (ALI) database that is typically maintained by the local phone company or ALI database service provider. ALI databases correlate listed directory numbers with name and address information.

Figure 1 illustrates a sample configuration consisting of an Avaya S8710 Media Server, an Avaya G650 Media Gateway, two Avaya Application Enablement Services (AES) servers, Avaya IP Telephones, a TCI InVision server, a TCI Trunk Cage, and TCI iPSAP Workstations. Avaya Communication Manager runs on the S8710 Media Server, though the solution described herein is also extensible to other Avaya Media Servers and Media Gateways. The two Avaya AES servers are provided such that if the TCI iPSAP Workstations lose connectivity to one AES server, the TCI iPSAP Workstations can attempt to connect to the other AES server. The TCI Trunk Cage receives 911 calls from the tandem office over Centralized Automatic Message Accounting (CAMA) 911 trunks, and forwards the 911 calls to the Avaya G650 Media Gateway over analog trunks. Avaya Communication Manager then routes the inbound 911 calls to "phantom" stations; calltaker telephones (Avaya 4620SW and 4625SW IP Telephones in **Figure 1**) that are configured with bridged call appearances of the phantom stations can then answer the inbound 911 calls. When a calltaker answers a 911 call, or bridges onto an active 911 call answered by another calltaker, the TCI InVision server provides the iPSAP Workstation with the ALI information associated with the 911 caller. The calltaker may also conference in external parties via "Admin" lines (TCI terminology), which are public trunks to the PSTN. Public trunks that provide disconnect supervision or similar capability, such as T1 ISDN-PRI trunks, are highly recommended for reasons discussed in Section 3.5. Inbound calls that arrive on the "Admin" lines are also routed to other phantom stations that are also configured as bridged call appearances on the calltaker telephones.

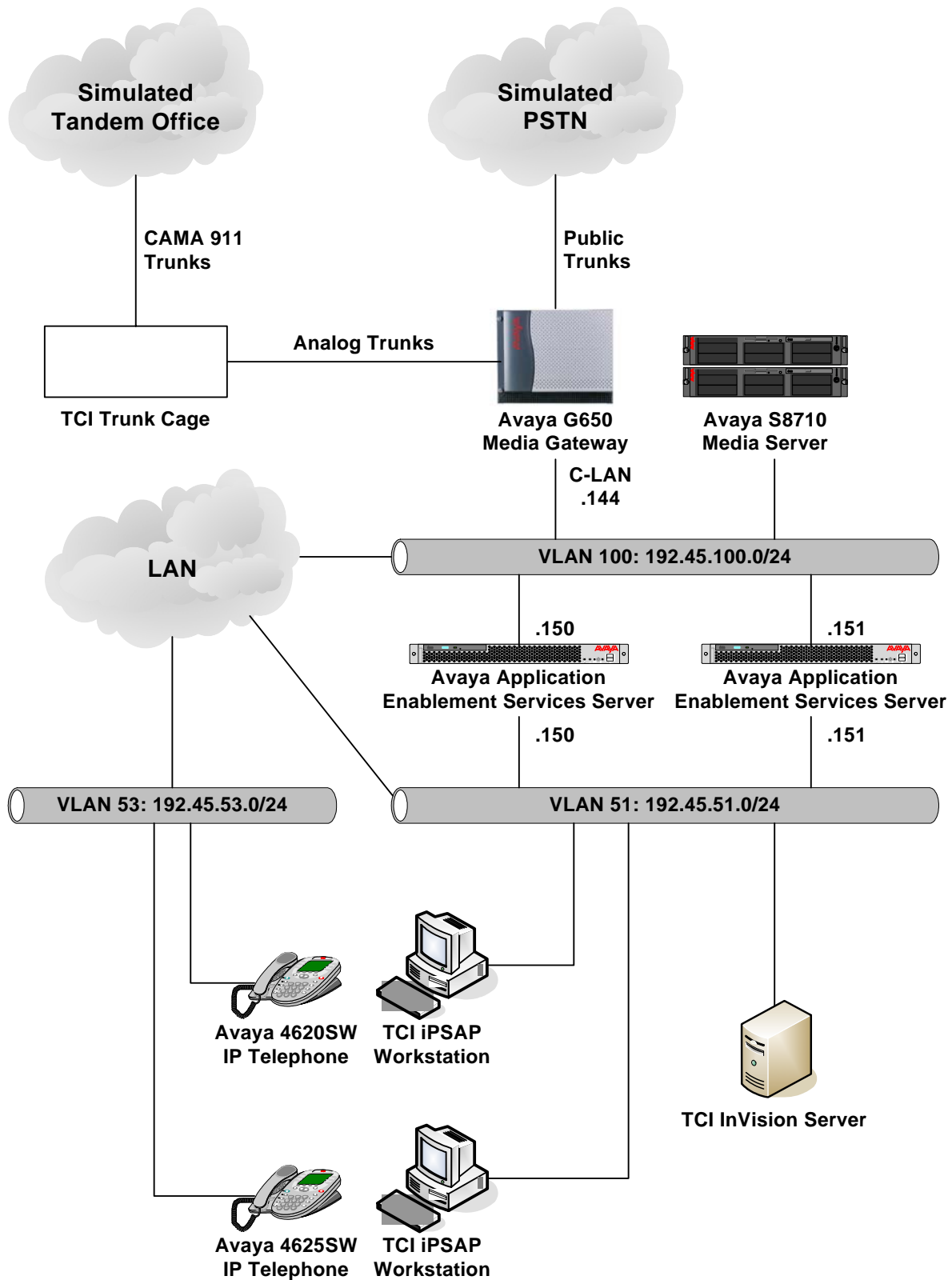


Figure 1: Sample configuration.

2. Equipment and Software Validated

The following equipment and software/firmware were used for the sample configuration provided:

Equipment	Software/Firmware
Avaya S8710 Media Server	3.0 (R013x.00.0.340.3)
Avaya G650 Media Gateway	-
TN2312BP IP Server Interface	15
TN799DP C-LAN Interface	21
TN2302AP IP Media Processor	104
Avaya Application Enablement Services Server	3.0
Avaya 4600 Series IP Telephones	2.2.3 (4620SW) 2.5 (4625SW)
TCI InVision Server	1.3.0.0
TCI InVision iPSAP WorkStation	1.3.0.0
TCI InVision UniSwitch.exe	1.3.0.0
TCI Invision TCIAvaya.dll	1.0.0.3
TCI Trunk Cage	-

3. Configure Avaya Communication Manager

As described in the Introduction, the Tel Control, Inc. (TCI) Trunk Cage forwards inbound 911 calls to Avaya Communication Manager over analog trunks. When an inbound 911 call arrives on one of those analog trunks, Avaya Communication Manager routes the call to the incoming destination extension specified for the analog trunk. In the solution described in these Application Notes, the specified extension is a “phantom” station, and bridged call appearances of the phantom station are configured on all calltaker telephones so that any calltaker telephone may answer the inbound 911 call.

Inbound calls that arrive over the “Admin” lines described in the Introduction are routed to other phantom stations and answered on other bridged call appearances on the calltaker telephones, though the mapping to phantom stations depends on the trunk types of the “Admin” lines. For example, if the “Admin” line is an analog trunk, then the inbound “Admin” call is routed to the incoming destination extension specified for the analog trunk. If the “Admin” line is a T1 ISDN-PRI trunk, and if the phantom station extension is not a DID number, then a designated incoming DID number on the trunk can be manipulated to match the extension of a phantom station; if the phantom station extension is a DID number, then no manipulation is required.

3.1. Phantom Stations

To create a phantom station, enter the **add station i** command through the System Access Terminal (SAT), where **i** is a valid extension under the provisioned dial plan. On Page 1 of the **station** form, set **Type** to “6424D+” and **Port** to “X”, and enter a descriptive **Name**. Repeat as necessary to create additional phantom stations. During compliance testing, phantom stations 35001, 35002, 36001, and 36002 were created. Inbound 911 calls were routed to 35001 and 35002, while inbound calls on the “Admin” lines were routed to 36001 and 36002.

```
add station 35001                                     Page 1 of 5
                                                    STATION
Extension: 35001                                     Lock Messages? n      BCC: 0
  Type: 6424D+                                       Security Code:         TN: 1
  Port: X                                           Coverage Path 1:      COR: 1
  Name: E911-Line1                                   Coverage Path 2:      COS: 1
                                                    Hunt-to Station:
STATION OPTIONS
  Loss Group: 2                                       Personalized Ringing Pattern: 1
  Data Option: none                                   Message Lamp Ext: 35001
  Speakerphone: 2-way                                Mute Button Enabled? y
  Display Language: english                          Expansion Module? n
                                                    Media Complex Ext:
                                                    IP SoftPhone? n
```

3.2. Analog Trunks to TCI Trunk Cage for Inbound 911 Calls

Step	Description
1.	<p>Enter the add trunk-group j command, where j is an available trunk group number. On Page 1 of the trunk-group form, configure the following:</p> <ul style="list-style-type: none"> • Group Type – set to “co”. • Group Name – enter a meaningful name/description. • Direction – set to “incoming”. • TAC – enter a Trunk Access Code that is valid under the provisioned dial plan. • Incoming Destination – set to a phantom station for receiving inbound 911 calls (see Section 3.1). • Comm Type – set to “voice”. • Trunk Type – set to “loop-start”.
	<pre> add trunk-group 51 Page 1 of 20 TRUNK GROUP Group Number: 51 Group Type: co CDR Reports: y Group Name: E911-Trunk1 COR: 1 TN: 1 TAC: 151 Direction: incoming Outgoing Display? n Dial Access? n Busy Threshold: 255 Night Service: Country: 1 Incoming Destination: 35001 Comm Type: voice Auth Code? n Digit Absorption List: Prefix-1? y Trunk Flash? n Toll Restricted? y TRUNK PARAMETERS Trunk Type: loop-start Outgoing Dial Type: tone Cut-Through? n Trunk Termination: rc Disconnect Timing(msec): 500 Auto Guard? n Call Still Held? n Sig Bit Inversion: none Analog Loss Group: 6 Digital Loss Group: 11 Trunk Gain: high Disconnect Supervision - In? y Answer Supervision Timeout: 10 Receive Answer Supervision? n </pre>
2.	<p>On Page 4 of the trunk-group form, enter the Port where the analog trunk is connected and a descriptive Name.</p> <pre> add trunk-group 51 Page 4 of 20 TRUNK GROUP Administered Members (min/max): 1/1 GROUP MEMBER ASSIGNMENTS Total Administered Members: 1 Port Code Sfx Name Night Mode Type Ans Delay 1: 01A1201 TN429 D E911-1 </pre>

Step	Description
3.	Repeat Steps 1 – 2 for each analog trunk connected to the TCI Trunk Cage.

3.3. T1 ISDN-PRI Trunks to PSTN for “Admin” Lines

Step	Description
1.	Enter the add ds1 xxxxx command, where xxxxx is the board number of a DS1 circuit pack connected to the PSTN. On Page 1 of the ds1 form, enter a descriptive Name and set Signaling Mode to “ isdn-pri ”. Configure the other parameters such as Line Coding, Framing Mode, Connect, Country Protocol, and Protocol Version according to the T1 ISDN-PRI service provider requirements.
	<pre> add ds1 01A07 Page 1 of 2 DS1 CIRCUIT PACK Location: 01A07 Name: To PSTN Bit Rate: 1.544 Line Coding: b8zs Line Compensation: 1 Framing Mode: esf Signaling Mode: isdn-pri Connect: network TN-C7 Long Timers? n Country Protocol: 1 Interworking Message: PROGRESS Protocol Version: a Interface Companding: mulaw CRC? n Idle Code: 11111111 DCP/Analog Bearer Capability: 3.1kHz T303 Timer(sec): 4 Slip Detection? n Near-end CSU Type: other </pre>

Step	Description
2.	<p>Enter the add trunk-group k command, where k is an available trunk group number. On Page 1 of the trunk-group form, configure the following:</p> <ul style="list-style-type: none"> • Group Type – set to “isdn”. • Group Name – enter a meaningful name/description. • TAC – enter a Trunk Access Code that is valid under the provisioned dial plan. • Carrier Medium – set to “PRI/BRI”. • Service Type – set to “tie”.
	<pre> add trunk-group 6 Page 1 of 19 TRUNK GROUP Group Number: 6 Group Type: isdn CDR Reports: y Group Name: T1 ISDN-PRI trunk COR: 1 TN: 1 TAC: 106 Direction: two-way Outgoing Display? n Carrier Medium: PRI/BRI Dial Access? y Busy Threshold: 255 Night Service: Queue Length: 0 Service Type: tie Auth Code? n TestCall ITC: rest Far End Test Line No: TestCall BCC: 4 TRUNK PARAMETERS Codeset to Send Display: 6 Codeset to Send National IEs: 6 Max Message Size to Send: 260 Charge Advice: none Supplementary Service Protocol: a Digit Handling (in/out): enbloc/enbloc Trunk Hunt: cyclical 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 </pre>

Step	Description
3.	<p>Enter the add signaling group m command, where m is an available signaling group number. On Page 1 of the signaling-group form, configure the following:</p> <ul style="list-style-type: none"> • Group Type – set to “isdn-pri”. • Associated Signaling – set to “y”. • Primary D-Channel – enter xxxxx24, where xxxxx is the board number of the DS1 circuit pack connected to the PSTN (24 is the D-Channel in a T1 ISDN-PRI). • Trunk Group for Channel Selection – enter the number of the trunk group configured in Step 2. <pre> add signaling-group 6 Page 1 of 5 SIGNALING GROUP Group Number: 6 Group Type: isdn-pri Associated Signaling? y Max number of NCA TSC: 0 Primary D-Channel: 01A0724 Max number of CA TSC: 0 Trunk Group for NCA TSC: Trunk Group for Channel Selection: 6 Supplementary Service Protocol: a </pre>
4.	<p>Enter the change trunk-group k command, where k is the number of the trunk group configured in Step 1. On Page 3 of the trunk-group form, add trunk members by entering:</p> <ul style="list-style-type: none"> • xxxxxzz for Port, where xxxxx is the board number of the Avaya DS1 circuit pack configured for T1 ISDN-PRI, and zz is a channel in the T1 ISDN-PRI, • the number of the signaling group associated with the trunk member (port) for Sig Grp, <p>Ensure that the trunk member assignments match the assignments on the other end of the T1 line.</p> <pre> change trunk-group 6 Page 3 of 19 TRUNK GROUP Administered Members (min/max): 0/0 GROUP MEMBER ASSIGNMENTS Total Administered Members: 0 Port Code Sfx Name Night Sig Grp 1: 01A0701 TN464 G 6 2: 01A0702 TN464 G 6 3: 01A0703 TN464 G 6 4: 01A0704 TN464 G 6 5: 01A0705 TN464 G 6 6: 01A0706 TN464 G 6 7: 01A0707 TN464 G 6 8: 01A0708 TN464 G 6 9: 01A0709 TN464 G 6 10: 01A0710 TN464 G 6 11: 01A0711 TN464 G 6 12: 01A0712 TN464 G 6 13: 01A0713 TN464 G 6 14: 01A0714 TN464 G 6 15: 01A0715 TN464 G 6 </pre>

Step	Description
5.	If the phantom station extensions for the “Admin” lines are not DID numbers, then enter the change inc-call-handling-trmt trunk-group k command, where k is the number of the trunk group configured in Step 2. Configure Called Len , Called Number , Del , and Insert such that all certain inbound DID numbers on this trunk are changed to the extensions of the phantom stations for the “Admin” lines (see Section 3.1). In the example below, incoming calls to DID numbers 22744 and 22745 are directed to 36001 and 36002, respectively.
	<pre>change inc-call-handling-trmt trunk-group 6</pre> <p style="text-align: right;">Page 1 of 30</p> <pre> INCOMING CALL HANDLING TREATMENT Service/ Called Called Del Insert Per Call Night Feature Len Number tie 5 22744 5 36001 tie 5 22745 5 36002 </pre>

3.4. Physical Stations

The physical stations controlled by the iPSAP Workstations must be configured with bridged call appearances of the phantom stations created for inbound 911 calls and “Admin” lines.

Step	Description
1.	The iPSAP Workstations appear as “virtual” stations/softphones to Avaya Communication Manager. Each of these virtual stations, hereafter called Communication Manager API stations, requires an “IP_API_A” license. Note that this is separate and independent of Avaya IP Softphone licenses, which are required for Avaya IP Softphones but not required for Communication Manager API stations. From the Avaya Communication Manager System Access Terminal (SAT) interface, enter the display system-parameters customer-options command and verify that there are sufficient IP_API_A licenses.
	<pre>display system-parameters customer-options</pre> <p style="text-align: right;">Page 10 of 11</p> <pre> MAXIMUM IP REGISTRATIONS BY PRODUCT ID Product ID Rel. Limit Used IP_API_A : 100 2 IP_API_B : 0 0 IP_API_C : 0 0 IP_Agent : 1 0 IP_IR_A : 0 0 IP_Phone : 12000 5 IP_ROMax : 12000 0 IP_Soft : 2 0 IP_eCons : 0 0 : 0 0 : 0 0 : 0 0 : 0 0 : 0 0 </pre>

Step	Description
2.	<p>Enter the change station s command, where s is the extension of a registered, physical Avaya IP Telephone. On Page 1 of the station form, enter the extension as the Security Code (TCI requirement), and set IP Softphone to “y” to allow the station to be controlled by a softphone such as the iPSAP Workstation.</p> <pre> change station 50002 Page 1 of 4 STATION Extension: 50002 Lock Messages? n BCC: 0 Type: 4620 Security Code: 50002 TN: 1 Port: S00000 Coverage Path 1: COR: 1 Name: Position-1 Coverage Path 2: COS: 1 Hunt-to Station: STATION OPTIONS Loss Group: 19 Personalized Ringing Pattern: 1 Message Lamp Ext: 50002 Speakerphone: 2-way Mute Button Enabled? y Display Language: english Expansion Module? n Survivable GK Node Name: Media Complex Ext: Survivable COR: internal IP SoftPhone? y Survivable Trunk Dest? y IP Video Softphone? n </pre>

Step	Description
3.	<p>On Page 2 of the station form, configure the following:</p> <ul style="list-style-type: none"> • Per Button Ring Control – set to “y”. • Bridged Call Alerting – set to “y”. • Active Station Ringing – set to “continuous”. • Idle Appearance Preference – set to “y”. • Restrict Last Appearance – set to “n”. • Conf/Trans on Primary Appearance – set to “y”.
	<pre> change station 50002 Page 2 of 4 STATION FEATURE OPTIONS LWC Reception: spe Auto Select Any Idle Appearance? n LWC Activation? y Coverage Msg Retrieval? y LWC Log External Calls? n Auto Answer: none CDR Privacy? n Data Restriction? n Redirect Notification? y Idle Appearance Preference? y Per Button Ring Control? y Bridged Idle Line Preference? n Bridged Call Alerting? y Restrict Last Appearance? n Active Station Ringing: continuous Conf/Trans on Primary Appearance? y H.320 Conversion? n Per Station CPN - Send Calling Number? Service Link Mode: as-needed Multimedia Mode: enhanced MWI Served User Type: Display Client Redirection? y AUDIX Name: Select Last Used Appearance? n Coverage After Forwarding? y Remote Softphone Emergency Calls: as-on-local Direct IP-IP Audio Connections? y Emergency Location Ext: 50002 Always Use? n IP Audio Hairpinning? y </pre>

Step	Description
4.	<p>On Pages 3 and 4 of the station form, configure the following buttons:</p> <ul style="list-style-type: none"> • at least two primary call appearances, one of which must be assigned to Button 1. • bridged call appearances for each of the phantom stations for inbound 911 calls and “Admin” lines, • a release button, • a flash button, • a no-hld-cnf (No Hold Conference) button, and • a conf-dsp (Conference Display) button.
	<pre> change station 50002 Page 3 of 4 STATION SITE DATA Room: Headset? n Jack: Speaker? n Cable: Mounting: d Floor: Cord Length: 0 Building: Set Color: ABBREVIATED DIALING List1: List2: List3: BUTTON ASSIGNMENTS 1: call-appr Auto-A/D? n Rg:r 5: brdg-appr Btn:1 Ext:36002 Rg:a 2: brdg-appr Btn:1 Ext:35001 Rg:a 6: call-appr Auto-A/D? n Rg:r 3: brdg-appr Btn:1 Ext:35002 Rg:a 7: release 4: brdg-appr Btn:1 Ext:36001 Rg:a 8: flash </pre>
	<pre> change station 50002 Page 4 of 4 STATION FEATURE BUTTON ASSIGNMENTS 9: no-hld-cnf 10: conf-dsp 11: 12: 13: 14: 15: 16: 17: 18: 19: 20: 21: 22: 23: 24: </pre>

Step	Description
5.	Repeat Steps 2 – 4 for each physical telephone controlled by an iPSAP Workstation.

3.5. System-Parameters Features

Enter the **display system-parameters features** command and verify that **Auto Hold** is enabled. This feature automatically places the active call appearance on hold if the user selects another call appearance.

```

display system-parameters features                               Page 6 of 16
      FEATURE-RELATED SYSTEM PARAMETERS
Public Network Trunks on Conference Call: 5                    Auto Start? n
Conference Parties with Public Network Trunks: 6              Auto Hold? y
Conference Parties without Public Network Trunks: 6           Attendant Tone? y
Night Service Disconnect Timer (seconds): 180                 Bridging Tone? n
Short Interdigit Timer (seconds): 3                           Conference Tone? n
Unanswered DID Call Timer (seconds):                          Intrusion Tone? n
Line Intercept Tone Timer (seconds): 30                       Mode Code Interface? n
Long Hold Recall Timer (seconds): 0
Reset Shift Timer (seconds): 0
Station Call Transfer Recall Timer (seconds): 0
      DID Busy Treatment: tone

      Allow AAR/ARS Access from DID/DIOD? n
      Allow ANI Restriction on AAR/ARS? n
      Use Trunk COR for Outgoing Trunk Disconnect? n
      7405ND Numeric Terminal Display? n                       7434ND? n
DISTINCTIVE AUDIBLE ALERTING
      Internal: 1 External: 2 Priority: 3
      Attendant Originated Calls: external

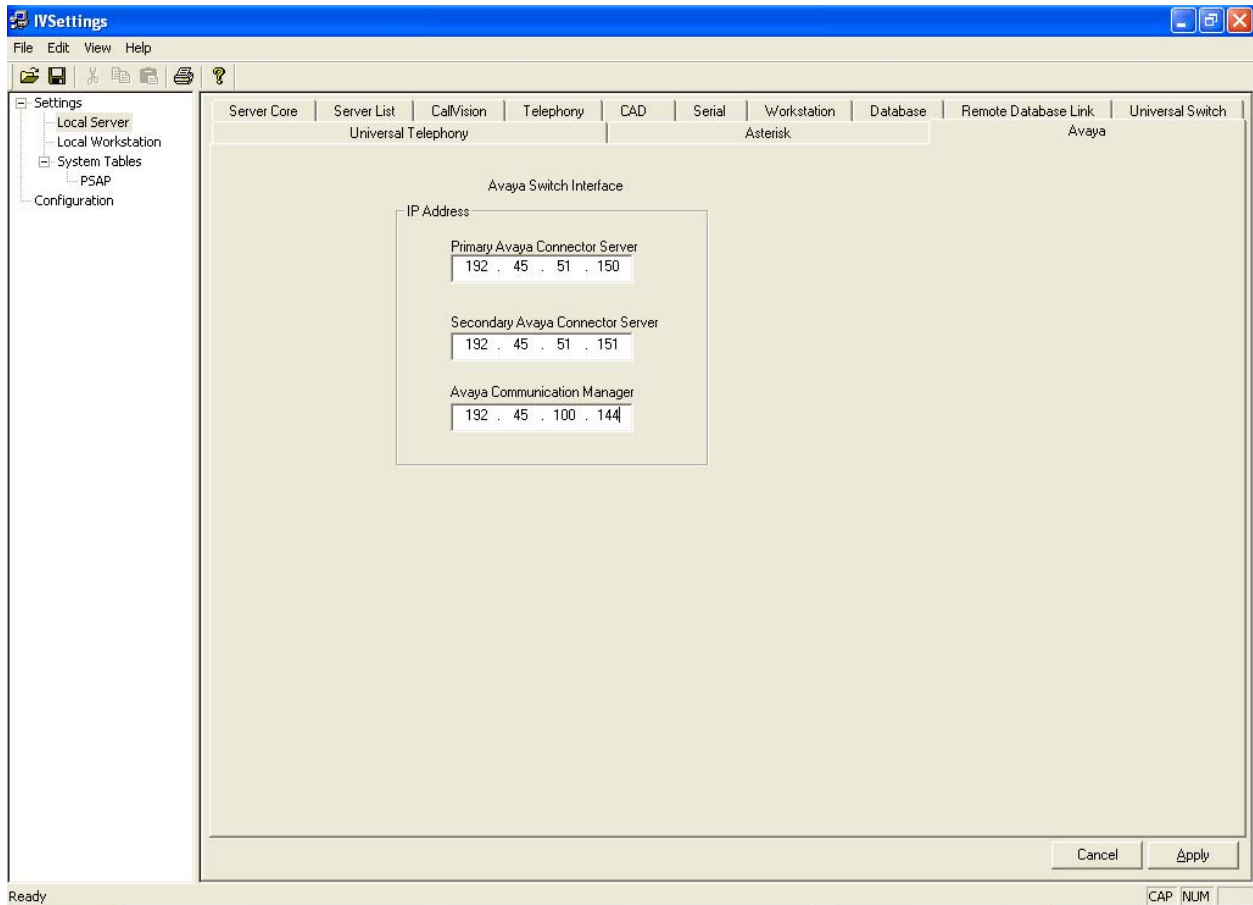
```

If transferring¹ inbound 911 calls to external parties is allowed, then verify that the **Trunk-to-Trunk Transfer** feature on Page 1 of the **system-parameter features** form is set to “**restricted**” or “**all**”. However, be advised that trunk-to-trunk transfer poses a significant security risk, so use the feature with caution. Further note that if the outbound trunk does not provide disconnect supervision, then the outbound trunk and inbound 911 trunk will not be disconnected when the external party releases the call. Many central offices in the United States do not provide disconnect supervision on loop-start analog trunks. Therefore, it is highly recommended that only trunks that provide disconnect supervision or similar capability, such as T1 ISDN-PRI trunks or ground-start analog trunks, be used for outbound calls.

¹ A transfer also occurs when the calltaker conferences in an external party and then drops off the call.

4. Tel Control, Inc. iPSAP Workstation

Tel Control, Inc. configures and customizes iPSAP Workstations according to the requirements of end customers. For reference purposes, the screenshot below shows the specification of the Avaya interface parameters in the iPSAP Workstation configuration tool. The **Primary Avaya Connector Server** and **Secondary Avaya Connector Server** fields are set to the IP addresses of the two Avaya Application Enablement Services servers, and the **Avaya Communication Manager** field is set to the IP address of a C-LAN board in the Avaya G650 Media Gateway. For Avaya G250, G350, and G700 Media Gateway platforms, the **Avaya Communication Manager** field should be set to the IP address of the Avaya S8300 Media Server residing in those Media Gateways.



5. Interoperability Compliance Testing

The interoperability compliance testing included functionality and serviceability testing. The functionality testing evaluated the ability of the iPSAP Workstation to answer and bridge onto inbound 911 and “Admin” calls, transfer/conference inbound 911 calls to/in external parties, place outbound calls, and view ANI and ALI information of inbound 911 callerse. The serviceability testing introduced failure scenarios to see if the iPSAP Workstation could resume operation after failure recovery.

5.1. General Test Approach

The general approach was to exercise basic telephone and call operations on Avaya IP telephones using iPSAP Workstations. The main objectives were to verify that:

- The calltaker successfully uses the iPSAP Workstation GUI to select primary and bridged call appearances in answering inbound 911 and “Admin” line calls, and placing outbound calls.
- The calltaker successfully uses the iPSAP Workstation GUI to perform dial, hold, retrieve, no-hold-conference, and release operations on the physical telephone.
- Manual operations performed on the physical telephones are correctly reflected in the iPSAP Workstation GUI.
- iPSAP Workstation and manual telephone operations may be used interchangeably; for example, manually answer an inbound call and use the iPSAP Workstation to conference in another party.
- For inbound 911 calls, the ANI and ALI information associated with the inbound 911 caller is accurately displayed on the iPSAP Workstation GUI.
- Display and call information on the physical telephones are accurately reflected in the iPSAP Workstation GUI.
- Call states are consistent between iPSAP Workstation and the physical telephones.

For serviceability testing, cable disconnects and reconnects, application restarts, and device resets were applied.

5.2. Test Results

The main objectives of Section 5.1 were verified. For serviceability testing, the iPSAP Workstation was able to regain control of the Avaya IP telephone after restarts of the iPSAP Workstation application and the computer on which it runs. In addition, after the iPSAP Workstation lost network connectivity, it was able to recover the existing session to the Avaya Application Enablement Services (AES) server when network connectivity was restored before the session expire, and establish a new session when network connectivity was restored after the previous session expired. Lastly, when the Avaya AES server to which the iPSAP Workstation connected was reset, the iPSAP Workstation was able to connect to the other Avaya AES server, establish a new session, register, and regain control of the Avaya IP telephone.

The following observations were made during testing:

- If the physical IP telephone is reset, then the iPSAP Workstation is unregistered, but does not re-register. The iPSAP Workstation must then be restarted. TCI provided a resolution in an interim software load that was verified. TCI intends to integrate the resolution into a future official release.
- When the physical IP telephone or iPSAP Workstation joins a conference, the iPSAP Workstation GUI did not recognize the conference. TCI provided a resolution in an interim software load that was verified. TCI intends to integrate the resolution into a future official release.
- In certain scenarios, the iPSAP Workstation GUI displays incorrect values for call appearance states, though the incorrect state values did not affect telephone or call operation. TCI intends to resolve this in a future official release.

6. Verification Steps

The following steps may be used to verify the configuration:

- From the iPSAP Workstation computer, ping IP interfaces, in particular the Avaya Application Enablement Services server and Avaya IP telephones, and verify connectivity.
- Verify that both the Avaya IP telephone and the iPSAP Workstation are registered with Avaya Communication Manager by using the **list registered-ip-stations** command on the SAT.
- Go off-hook and on-hook on primary and bridged call appearances on the controlled Avaya IP telephone manually and using the iPSAP Workstation, and verify consistency.
- Place 911 and “Admin” calls to the bridged call appearances, and answer calls from the Avaya IP telephone manually and using the iPSAP Workstation, and verify consistency.
- Place outbound calls on the primary and bridged call appearances (except 911 lines) from the controlled Avaya IP telephone and the iPSAP Workstation, and verify consistency.

7. Support

For technical support on Tel Control, Inc. products, contact Tel Control, Inc. at techsupp@telcontrol.com.

8. Conclusion

These Application Notes described a compliance-tested configuration comprised of Avaya Communication Manager, Avaya Application Enablement Services, Avaya IP Telephones, and the Tel Control, Inc. (TCI) iPSAP Workstation. The iPSAP Workstation is the component of the TCI iPSAP E-911 solution that allows a 911 calltaker to operate a physical telephone and view caller ANI and ALI information through a graphical user interface (GUI). The iPSAP Workstation uses the Device and Media Control Application Programming Interface of Avaya Application Enablement Services to share control of a physical telephone and receive the same terminal and first party call control information received by the physical telephone. During compliance testing, simulated inbound 911 calls were successfully answered on Avaya IP Telephones that were controlled by iPSAP Workstations.

9. Additional References

Product documentation for Avaya products may be found at <http://support.avaya.com>.

Product information for Tel Control, Inc. products may be found at <http://www.telcontrol.com>.

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