



Avaya Solution & Interoperability Test Lab

Application Notes for the Amtelco Infinity 5.20 Centralized Attendant Solution with Avaya Communication Manager 2.1 - Issue 1.0

Abstract

The Amtelco Infinity 5.20 Centralized Attendant Solution was compliance tested with Avaya Communication Manager 2.1. The objective of the test was to evaluate interoperability of these products in a Centralized Attendant configuration. All test cases for feature functionality and performance were completed successfully. 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

Amtelco Infinity is a Centralized Attendant Solution. When calls pass from Avaya Communication Manager to the Infinity CTI server over QSIG T1 spans, screen pops are provided to attendant workstations. Attendants can answer the calls and are able to perform all required PBX call handling functions directly from their screen. This includes call answer, dial outs, blind transfer, supervised transfer, and conferencing. When a call is received from Avaya Communication Manager, Infinity reads the calling party ID, called party ID, and any available diversion information for the call. This information is used by Infinity to determine how to process calls.

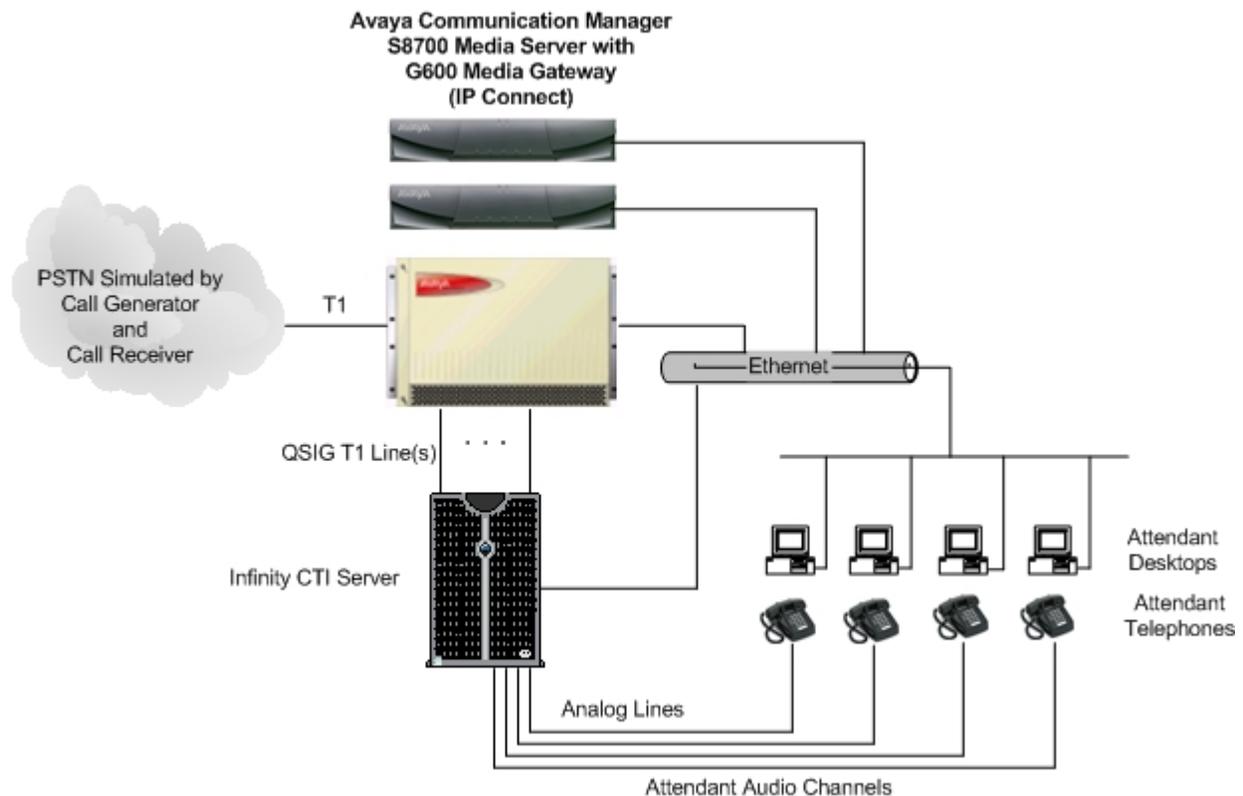


Figure 1: Avaya DeveloperConnection Compliance Test Configuration

2. Equipment and Software Validated

The following equipment and software were used for the test configuration.

Equipment	Software
Avaya S8700 Media Server with Avaya G600 Media Gateway	Avaya Communication Manager 2.1 (R012x.01.0.411.7) with Update 7216
Avaya TN464GP T1/E1 Circuit Pack	HW02 FW015
Amtelco Infinity CTI Server with Amtelco T1 Card	Version 5.20.11

3. Configure the Avaya S8700 Media Server

3.1. Verify Customer Options

The Infinity CTI Server communicates with the S8700 via a QSIG Integration link. Implementation of the required QSIG link type on Avaya Communication Manager can be achieved using the following series of steps. These steps are performed through the System Access Terminal (SAT) interface. The Avaya Site Administration application can be used to log into the SAT interface via a direct physical connection or using a Telnet session.

Step	Description
1.	<p>Type in “display system-parameters customer-options”, and on Page 4, verify that the ISDN-PRI feature is enabled. A system license file controls the settings on the customer-options form.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <pre> display system-parameters customer-options Page 4 of 11 OPTIONAL FEATURES Emergency Access to Attendant? y IP Stations? y Enable 'dadmin' Login? n Internet Protocol (IP) PNC? y Enhanced Conferencing? y ISDN Feature Plus? n Enhanced EC500? y ISDN Network Call Redirection? n Enterprise Wide Licensing? n ISDN-BRI Trunks? n Extended Cvg/Fwd Admin? n ISDN-PRI? y External Device Alarm Admin? n Local Spare Processor? n Five Port Networks Max Per MCC? n Malicious Call Trace? n Flexible Billing? n Media Encryption Over IP? n Forced Entry of Account Codes? n Mode Code for Centralized Voice Mail? n Global Call Classification? n Hospitality (Basic)? y Multifrequency Signaling? y Hospitality (G3V3 Enhancements)? n Multimedia Appl. Server Interface (MASI)? n IP Trunks? y Multimedia Call Handling (Basic)? n IP Attendant Consoles? n Multimedia Call Handling (Enhanced)? n (NOTE: You must logoff & login to effect the permission changes.) </pre> </div>

Step	Description
2.	<p>Go to Page 5. Verify that the following feature is set to “y”: Private Networking. A system license file controls the settings on the customer-options form.</p> <div data-bbox="334 373 1448 928" style="border: 1px solid black; padding: 10px;"> <pre> display system-parameters customer-options Page 5 of 11 OPTIONAL FEATURES Multinational Locations? n Station and Trunk MSP? n Multiple Level Precedence & Preemption? n Station as Virtual Extension? n Multiple Locations? n Personal Station Access (PSA)? n System Management Data Transfer? n Posted Messages? n Tenant Partitioning? n PNC Duplication? n Terminal Trans. Init. (TTI)? n Port Network Support? y Time of Day Routing? n Processor and System MSP? n Usage Allocation Enhancements? y Private Networking? y TN2501 VAL Maximum Capacity? y Processor Ethernet? n Wideband Switching? n Remote Office? n Wireless? n Restrict Call Forward Off Net? y Secondary Data Module? y (NOTE: You must logoff & login to effect the permission changes.) </pre> </div>
3.	<p>Go to Page 6. Verify that the following features is set to “y”: Vectoring (Variables). A system license file controls the settings on the customer-options form. Note that the Vectoring (Variables) feature is optional and is not required to work with Infinity.</p> <div data-bbox="334 1146 1448 1717" style="border: 1px solid black; padding: 10px;"> <pre> display system-parameters customer-options Page 6 of 11 CALL CENTER OPTIONAL FEATURES Call Center Release: 12.0 ACD? y PASTE (Display PBX Data on Phone)? y BCMS (Basic)? y Reason Codes? y BCMS/VuStats Service Level? y Service Level Maximizer? n BSR Local Treatment for IP & ISDN? n Service Observing (Basic)? y Business Advocate? n Service Observing (Remote/By FAC)? y Call Work Codes? n Service Observing (VDNs)? y DTMF Feedback Signals For VRU? y Timed ACW? y Dynamic Advocate? n Vectoring (Basic)? y Expert Agent Selection (EAS)? y Vectoring (Prompting)? y EAS-PHD? y Vectoring (G3V4 Enhanced)? y Forced ACD Calls? n Vectoring (ANI/II-Digits Routing)? y Least Occupied Agent? n Vectoring (G3V4 Advanced Routing)? y Lookahead Interflow (LAI)? n Vectoring (CINFO)? n Multiple Call Handling (On Request)? y Vectoring (Best Service Routing)? y Multiple Call Handling (Forced)? y Vectoring (Holidays)? y Vectoring (Variables)? y (NOTE: You must logoff & login to effect the permission changes.) </pre> </div>

Step	Description
4.	<p>Go to Page 8. Verify that the following QSIG features are set to “y”: Basic Call Setup, Basic Supplementary Services, and Supplementary Services with Rerouting. A system license file controls the settings on the customer-options form.</p> <div data-bbox="334 428 1448 999" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <pre> display system-parameters customer-options Page 8 of 11 QSIG OPTIONAL FEATURES Basic Call Setup? y Basic Supplementary Services? y Centralized Attendant? n Interworking with DCS? n Supplementary Services with Rerouting? y Transfer into QSIG Voice Mail? n Value-Added (VALU)? n (NOTE: You must logoff & login to effect the permission changes.) </pre> </div>

3.2. Add Infinity QSIG Link and Trunk Group

The TN464GP or equivalent circuit pack installed in the Media Gateway provides the physical interface to the Infinity CTI Server for both audio channels as well as the QSIG integration link. Implementation of the required channels on Avaya Communication Manager can be achieved using the following series of steps. These steps are performed through the System Access Terminal (SAT) interface.

Step	Description
1.	<p>Add a DS1 circuit pack to the system and enter a descriptive name in the Name field. Set the Line Coding, Framing Mode, Signaling Mode, Connect, Interface, Peer Protocol, and Side fields as shown. These values must correspond to the values programmed on the Infinity Server. Other values may be left at their defaults. Submit these changes.</p> <pre data-bbox="334 499 1450 940"> display ds1 1a01 Page 1 of 2 DS1 CIRCUIT PACK Location: 01A01 Name: Infinity Bit Rate: 1.544 Line Coding: b8zs Line Compensation: 1 Framing Mode: esf Signaling Mode: isdn-pri Connect: pbx Interface: peer-master TN-C7 Long Timers? n Peer Protocol: Q-SIG Interworking Message: PROGRESS Side: a Interface Companding: mulaw CRC? n Idle Code: 11111111 DCP/Analog Bearer Capability: 3.1kHz Slip Detection? n Near-end CSU Type: other </pre>
2.	<p>Add a signaling-group to the system. Set the Group Type, Associated Signaling, Max number of NCA TSC, and Supplementary Service Protocol fields as shown in the screen below. In the Primary D-Channel field, enter the D-Channel for the DS1 circuit pack added in Step 1. In this case, the D-Channel is "01A0124". Do not enter any values in the Trunk Group for NCA TSC field at this time, since a trunk group has not yet been defined. Other values may be left at their defaults. Submit these changes.</p> <pre data-bbox="334 1255 1450 1497"> display signaling-group 50 SIGNALING GROUP Group Number: 50 Group Type: isdn-pri Associated Signaling? y Max number of NCA TSC: 10 Primary D-Channel: 01A0124 Max number of CA TSC: 10 Trunk Group for Channel Selection: Trunk Group for NCA TSC: Supplementary Service Protocol: b X-Mobility/Wireless Type: NONE </pre>

Step	Description
3.	<p>Add a trunk group to the system and on Page 1 enter a descriptive name in the Group Name field. Enter a valid unused trunk access code into the TAC field. Set the Group Type, Service Type, Supplementary Service Protocol, and Format fields as shown. Other values may be left at their defaults.</p> <pre data-bbox="334 453 1448 995"> display trunk-group 50 Page 1 of 22 TRUNK GROUP Group Number: 50 Group Type: isdn CDR Reports: y Group Name: Infinity COR: 1 TN: 1 TAC: 150 Direction: two-way Outgoing Display? n Carrier Medium: PRI/BRI Dial Access? n 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: b Digit Handling (in/out): enbloc/enbloc Trunk Hunt: ascend Digital Loss Group: 13 Incoming Calling Number - Delete: Insert: Format: unk-unk Bit Rate: 1200 Synchronization: async Duplex: full Disconnect Supervision - In? y Out? n Answer Supervision Timeout: 0 </pre>
4.	<p>Go to Page 2. Set the NCA-TSC Trunk Member, Send Name, Send Calling Number, Format, and Send Connected Number fields as shown. The rest of the values on this page can be left at their defaults.</p> <pre data-bbox="334 1220 1448 1734"> display trunk-group 50 Page 2 of 22 TRUNK FEATURES ACA Assignment? n Measured: none Wideband Support? n Internal Alert? n Maintenance Tests? y Data Restriction? n NCA-TSC Trunk Member: 1 Send Name: y Send Calling Number: y Hop Dgt? n Used for DCS? n Format: unk-pvt Suppress # Outpulsing? n Outgoing Channel ID Encoding: preferred UUI IE Treatment: service-provider Replace Restricted Numbers? n Replace Unavailable Numbers? n Send Connected Number: y Modify Tandem Calling Number? n Send UUI IE? y Send UCID? n Send Codeset 6/7 LAI IE? y Dsl Echo Cancellation? n Path Replacement with Retention? n Path Replacement Method: better-route SBS? n Network (Japan) Needs Connect Before Disconnect? n </pre>

Step	Description
5.	<p data-bbox="277 281 1498 386">Go to the “Group Member Assignments” page. Enter the port numbers for each of the channels that correspond with the DS1 circuit pack that was added in Step 1. The Sig Grp field will be automatically populated with the correct signaling group number after the form is submitted.</p> <div data-bbox="334 453 1450 999" style="border: 1px solid black; padding: 10px;"> <pre data-bbox="350 457 1365 961"> display trunk-group 50 TRUNK GROUP Administered Members (min/max): 1/46 Total Administered Members: 46 GROUP MEMBER ASSIGNMENTS Port Code Sfx Name Night Sig Grp 1: 01A0101 TN464 G 50 2: 01A0102 TN464 G 50 3: 01A0103 TN464 G 50 4: 01A0104 TN464 G 50 5: 01A0105 TN464 G 50 6: 01A0106 TN464 G 50 7: 01A0107 TN464 G 50 8: 01A0108 TN464 G 50 9: 01A0109 TN464 G 50 10: 01A0110 TN464 G 50 11: 01A0111 TN464 G 50 12: 01A0112 TN464 G 50 13: 01A0113 TN464 G 50 14: 01A0114 TN464 G 50 15: 01A0115 TN464 G 50 </pre> </div>
6.	<p data-bbox="277 1073 1479 1142">Go to the next page. Continue entering the port numbers that correspond with the DS1 circuit pack that was added in Step 1. Submit these changes.</p> <div data-bbox="334 1188 1450 1734" style="border: 1px solid black; padding: 10px;"> <pre data-bbox="350 1192 1365 1696"> display trunk-group 50 TRUNK GROUP Administered Members (min/max): 1/23 Total Administered Members: 23 GROUP MEMBER ASSIGNMENTS Port Code Sfx Name Night Sig Grp 16: 01A0116 TN464 G 50 17: 01A0117 TN464 G 50 18: 01A0118 TN464 G 50 19: 01A0119 TN464 G 50 20: 01A0120 TN464 G 50 21: 01A0121 TN464 G 50 22: 01A0122 TN464 G 50 23: 01A0123 TN464 G 50 24: 25: 26: 27: 28: 29: 30: </pre> </div>

Step	Description
7.	<p>Change the signaling-group that was added in Step 2. In the Trunk Group for NCA TSC and Trunk Group for Channel Selection fields enter the trunk group number that was added in Step 3. Submit these changes.</p> <pre data-bbox="334 407 1450 663"> display signaling-group 50 SIGNALING GROUP Group Number: 50 Group Type: isdn-pri Associated Signaling? y Max number of NCA TSC: 10 Primary D-Channel: 01A0124 Max number of CA TSC: 10 Trunk Group for NCA TSC: 50 Trunk Group for Channel Selection: 50 X-Mobility/Wireless Type: NONE Supplementary Service Protocol: b </pre>
8.	<p>Enter “change private-numbering”. Set the Network Level and Deleted Digits fields as shown. Submit these changes.</p> <pre data-bbox="334 842 1450 1377"> display private-numbering NUMBERING - PRIVATE FORMAT Network Level: 0 PBX Identifier: Level 2 Code: Deleted Digits: 0 Level 1 Code: </pre> <p data-bbox="451 1325 1109 1371">NOTE: If after deletion and insertion the number of digits exceeds 15, no number will be sent.</p>

Step	Description
9.	<p>Enter “change system-parameters features”. Go to Page 8. Set the QSIG TSC Extension field to any extension number that is valid within the dial plan. In this case, extension 22699 was used. Set the MWI – Number of Digits Per Voice Mail Subscriber field to the digit length for local subscriber extensions. In this case, a value of “5” was used because local subscriber extensions were 5 digits in length. Set the QSIG Path Replacement Extension field to any extension number that is valid within the dial plan. In this case, extension 22700 was used.</p> <pre data-bbox="334 520 1448 1071"> display system-parameters features Page 8 of 14 FEATURE-RELATED SYSTEM PARAMETERS ISDN PARAMETERS Send Non-ISDN Trunk Group Name as Connected Name? n Display Connected Name/Number for ISDN DCS Calls? y Send ISDN Trunk Group Name on Tandem Calls? n QSIG TSC Extension: 22699 MWI - Number of Digits Per Voice Mail Subscriber: 5 National CPN Prefix: International CPN Prefix: Pass Prefixed CPN to ASAI? n Unknown Numbers Considered Internal for AUDIX? n USNI Calling Name for Outgoing Calls? n Path Replacement with Measurements? y QSIG Path Replacement Extension: 22700 Path Replace While in Queue/Vectoring? n </pre>

3.3. Routing Calls to the Infinity Server

Multiple methods exist to direct calls to the Infinity Server. First, a VDN can be administered to route calls to the Infinity QSIG link. Second, attendant-seeking calls can be directed to Infinity by placing the PBX in night service mode and entering a VDN as the night service destination. Third, calls can be directed to Infinity via the Call Coverage feature. Finally, calls can be forwarded to Infinity via the Call Forwarding feature. In each case, Infinity will determine the correct handling of the call based on the DNIS digits provided by Avaya Communication Manager as well as any Supplementary Services Features (i.e. Diversion) provided via the QSIG integration link. Ultimately, the DNIS digits presented to the Infinity Server will be controlled by the number dialed in conjunction with the routing pattern. Implementation of the required routing on Avaya Communication Manager can be achieved using the following series of steps. These steps are performed through the System Access Terminal (SAT) interface. Note that the configuration presented here is a sample configuration and can be tailored as necessary.

Step	Description
3.	<p data-bbox="277 281 1498 422">Enter “change route-pattern 100”. Each row represents a possible route for the call. For preference row 1, enter the trunk group number that was added in Step 3 of Section 3.2. Set the FRL column to “0”. Set the TSC, CA-TSC Request, and Numbering Format columns for preference row 1 as shown. Submit these changes.</p> <div data-bbox="334 443 1448 989" style="border: 1px solid black; padding: 10px;"> <pre data-bbox="350 447 1432 972"> display route-pattern 100 Pattern Number: 100 Pattern Name: Secure SIP? n Page 1 of 3 Grp FRL NPA Pfx Hop Toll No. Inserted DCS/ IXC No Mrk Lmt List Del Digits QSIG Dgts Intw 1: 50 0 2: 3: 4: 5: 6: BCC VALUE TSC CA-TSC ITC BCIE Service/Feature BAND No. Numbering LAR 0 1 2 3 4 W Request Dgts Format Subaddress 1: y y y y y n y none rest unk-unk 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 </pre> </div>
4.	<p data-bbox="277 1066 1498 1207">Enter “change variables”. On the row corresponding to variable A, enter a descriptive name in the Description field. Set the Type, Scope, Length, Start Assignment and VAC fields as shown. Submit these changes. This step sets the initial value of the “A” variable to 1. See reference [4] for more details on the Variables in Vectors feature.</p> <div data-bbox="334 1234 1448 1738" style="border: 1px solid black; padding: 10px;"> <pre data-bbox="350 1239 1432 1722"> change variables VARIABLES FOR VECTORS Page 1 of 2 Var Description Type Scope Length Start Assignment VAC A INFINITY FLOW CONTROL value G 1 1 VV1 B C D E F G H I J K L M </pre> </div>

Step	Description
5.	<p>Enter “change vector 31”. Any available vector number can be used. Enter a descriptive name in the Name field. Define the first four vector steps as shown below. Submit these changes. The first three steps are optional and use the Variables in Vectors feature to play an announcement and/or redirect calls away from the Infinity system if the value of variable A is not one. For example, if the Infinity system were going to be brought down for maintenance, callers could hear an announcement or be redirected to other destinations. See reference [4] for more details on the Variables in Vectors feature and for information on how to change the value of the variable.</p> <pre data-bbox="332 596 1448 1115"> display vector 31 Page 1 of 3 CALL VECTOR Number: 31 Name: main/attd Attendant Vectoring? n Meet-me Conf? n Lock? y Basic? y EAS? y G3V4 Enhanced? y ANI/II-Digits? y ASAI Routing? y Prompting? y LAI? n G3V4 Adv Route? y CINFO? n BSR? y Holidays? y Variables? y 01 goto step 4 if A = 1 02 announcement 24282 03 busy 04 route-to number 822223 with cov n if unconditionally 05 06 07 08 09 10 11 Press 'Esc f 6' for Vector Editing </pre>
6.	<p>Enter “add vdn 23031”. Note that 23031 must be a valid extension in the dial plan. Enter a descriptive name in the Name field. Set the Vector Number field to “31” or the vector number assigned in Step 5. Submit these changes.</p> <pre data-bbox="332 1335 1448 1787"> display vdn 23031 Page 1 of 2 VECTOR DIRECTORY NUMBER Extension: 23031 Name: Main/Attendant Seeking Call Vector Number: 31 Attendant Vectoring? n Meet-me Conferencing? n Allow VDN Override? y COR: 1 TN: 1 Measured: none VDN of Origin Annc. Extension: 1st Skill: 2nd Skill: 3rd Skill: </pre>

3.3.2. Attendant Seeking Calls

Step	Description
1.	<p>Enter “change listed-directory-number”. Enter “23031” in the Night Destination field. Submit the change.</p> <div data-bbox="332 430 1448 831" style="border: 1px solid black; padding: 10px;"> <pre> change listed-directory-numbers Page 1 of 2 LISTED DIRECTORY NUMBERS Night Destination: 23031 Ext Name TN --- --- --- 1: 1 2: 1 3: 1 4: 1 5: 1 6: 1 7: 1 8: 1 9: 1 10: 1 </pre> </div>
2.	<p>To direct attendant-seeking calls to the Infinity server, place Avaya Communication Manager in Night Service mode by pressing the Night-Service button assigned to Attendant 1. To view the Feature Button Assignments for Attendant 1, enter “display attendant 1”, then, go to Page 3. In this case, button 23 is assigned as the Night Service button.</p> <div data-bbox="332 1079 1448 1507" style="border: 1px solid black; padding: 10px;"> <pre> display attendant 1 Page 3 of 4 ATTENDANT CONSOLE FEATURE BUTTON ASSIGNMENTS 1: split 13: 2: 14: 3: 15: 4: 16: 5: 17: 6: hold 18: 7: 19: forced-rel 8: 20: 9: 21: 10: 22: 11: 23: night-serv 12: 24: pos-busy </pre> </div>

3.3.3. Call Coverage Calls

Step	Description
1.	<p>Enter “add hunt-group next”. Enter a descriptive name in the Group Name field. Enter an available extension number in the Group Extension field.</p> <pre data-bbox="337 428 1453 711"> display hunt-group 1 Page 1 of 60 HUNT GROUP Group Number: 1 ACD? n Group Name: infinity coverage Queue? n Group Extension: 23333 Vector? n Group Type: ucd-mia Coverage Path: TN: 1 Night Service Destination: COR: 1 MM Early Answer? n Security Code: ISDN Caller Display: </pre>
2.	<p>Go to Page 2. Set the Message Center, Voice Mail Number, and Routing Digits as shown. Submit the change.</p> <pre data-bbox="337 879 1453 1182"> display hunt-group 1 Page 2 of 60 HUNT GROUP Message Center: qsig-mwi Voice Mail Number: 22223 Routing Digits (e.g. AAR/ARS Access Code): 8 Send Reroute Request: y LWC Reception: none AUDIX Name: </pre>

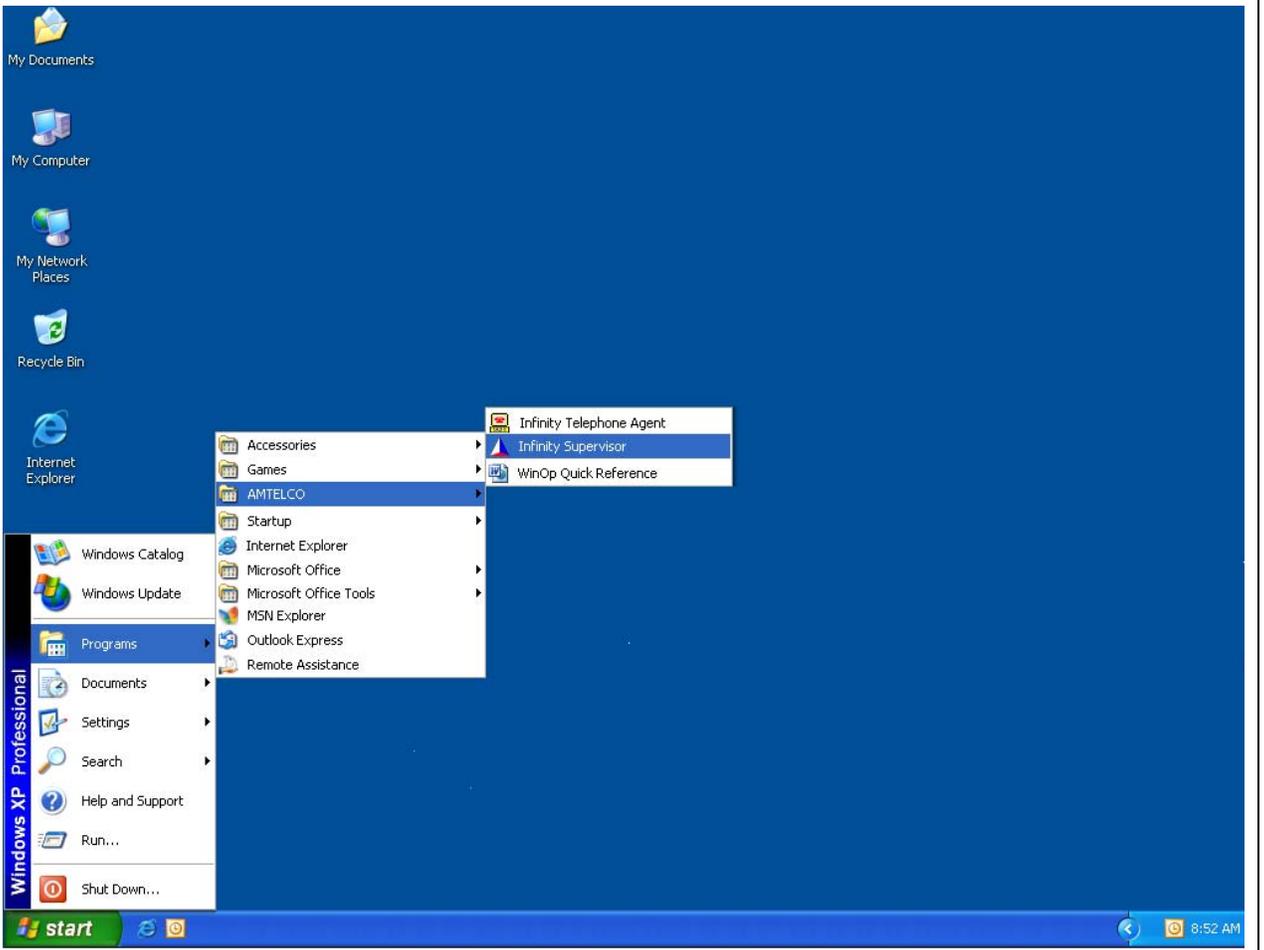
Step	Description
3.	<p>Enter “add coverage path next”. In the Point1 field, enter “h” followed by the hunt group number defined in Step 1. In this case, hunt group 1 is assigned. Calls that meet the call coverage criteria will be directed to hunt group 1. Submit the change.</p> <pre data-bbox="350 405 1463 947"> display coverage path 1 COVERAGE PATH Coverage Path Number: 1 Next Path Number: Hunt after Coverage? n Linkage COVERAGE CRITERIA Station/Group Status Inside Call Outside Call Active? n n Busy? y y Don't Answer? y y Number of Rings: 2 All? n n DND/SAC/Goto Cover? y y COVERAGE POINTS Terminate to Coverage Pts. with Bridged Appearances? n Point1: h1 Rng: Point2: Point4: Point5: Point3: Point6: </pre>
4.	<p>For each station extension where Infinity coverage is desired, set the coverage path. For example, if Infinity coverage is desired for station extension 22701, enter “change station 22701”. Set the Coverage Path 1 field to the coverage path number assigned in Step 3. In this case, coverage path 1 is assigned. Submit the change.</p> <pre data-bbox="355 1188 1471 1610"> change station 22701 STATION Extension: 22701 Lock Messages? n BCC: 0 Type: 4612 Security Code: * TN: 1 Port: S00000 Coverage Path 1: 1 COR: 1 Name: IP Station 22701 Coverage Path 2: COS: 1 Hunt-to Station: STATION OPTIONS Loss Group: 19 Personalized Ringing Pattern: 1 Message Lamp Ext: 22701 Speakerphone: 2-way Mute Button Enabled? y Display Language: english Survivable GK Node Name: Media Complex Ext: IP SoftPhone? n </pre>

4. Configure the Infinity System

Optionally, Amtelco can prepare the Infinity Servers on behalf of their customers. This includes configuration of the ISDN and QSIG transfer options. The following guide provides an overview of the incremental configuration steps necessary to enable Infinity to begin processing calls.

4.1. Infinity CTI Server Hardware administration

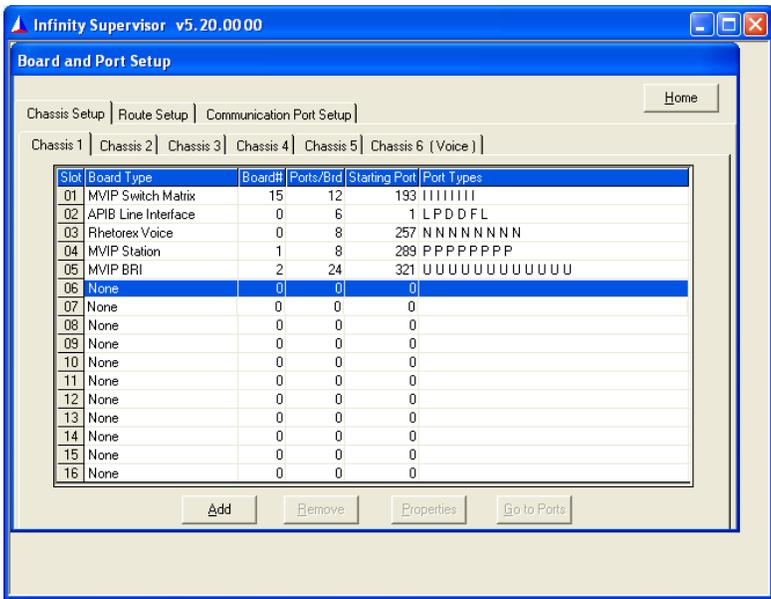
Amtelco provides an administration PC as part of the solution. Once initial configuration has been performed, changes can be made using the administration PC via the Infinity Supervisor.

Step	Description
1.	<p data-bbox="277 709 824 741">Launch the Infinity supervisor application.</p>  <p>The screenshot shows a Windows XP Professional desktop with a blue background. The Start menu is open, displaying a list of programs. The 'AMTELCO' folder is expanded, and the 'Infinity Supervisor' application is highlighted. Other visible items in the Start menu include 'Accessories', 'Games', 'Startup', 'Internet Explorer', 'Microsoft Office', 'Microsoft Office Tools', 'MSN Explorer', 'Outlook Express', and 'Remote Assistance'. The taskbar at the bottom shows the Start button, system tray icons, and the time 8:52 AM.</p>

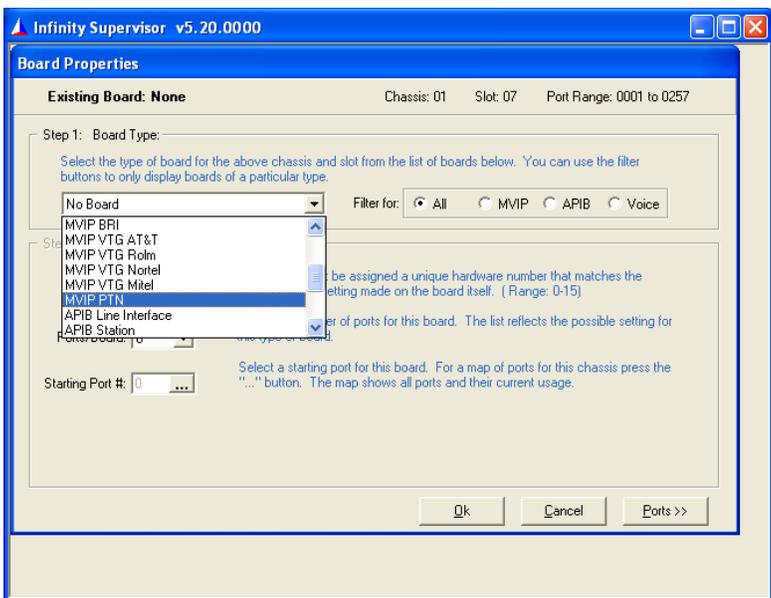
Step	Description
2.	<p>Log in using the proper credentials. The default login name is “system”; this name may not exist on all servers.</p> 
3.	<p>Move the mouse over the BOARDS and PORTS Icon, and double click.</p> 

Step	Description
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4. Click on an available card slot, do not leave any blank spaces, and press the “Add” button.

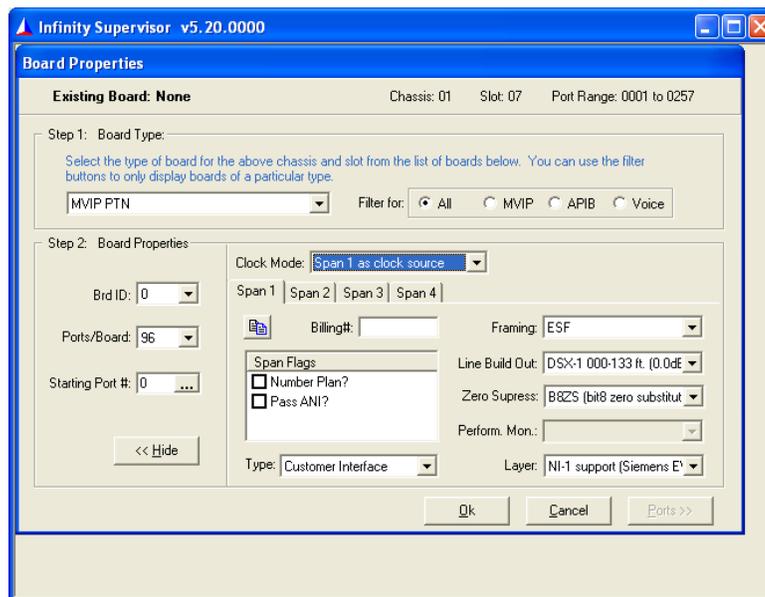


5. The following screen will appear. Select the MVIP PTN card. Press the “Ok” button.



Step	Description
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6.



The **Ports/Board** field will automatically be filled in.

Clock Mode:

If the system has not been set up with a clock source, set the clock mode to Span 0 as clock source. If there is more than one clock source, select the best clock source. Amtelco Field Engineering can assist in finding the best clock source.

Billing Number:

Fill in the billing number field with the number that you want to be displayed as the calling party number. This is the default value and can be over-ridden.

Span Flags:

Span flags are not applicable for this configuration.

Type:

The span type must be set to “Customer Interface”.

Framing:

The framing should be set to “ESF” for Extended Super Fame.

Line Build Out:

This should be set to the distance from the Infinity Server to the Avaya switch in feet.

Zero Suppression:

The Zero Suppression should be set to “B8ZS”.

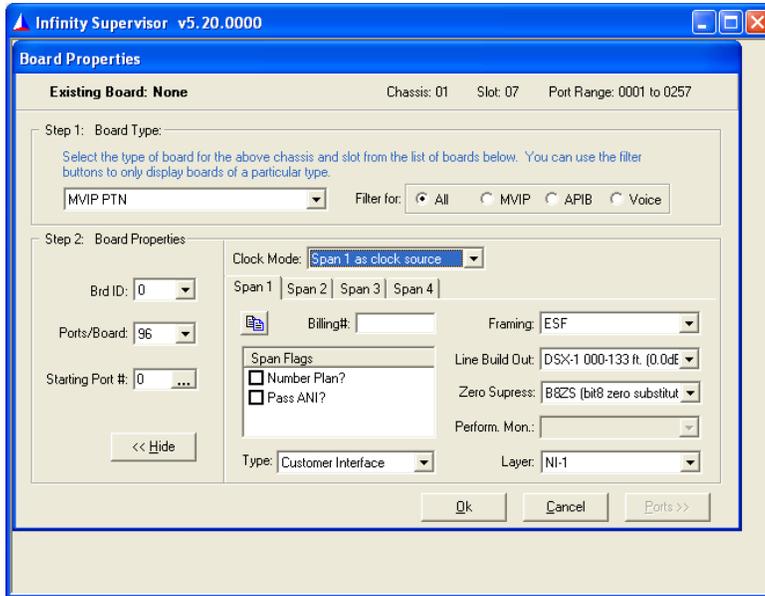
Layer:

This should be set to “NI-1”.

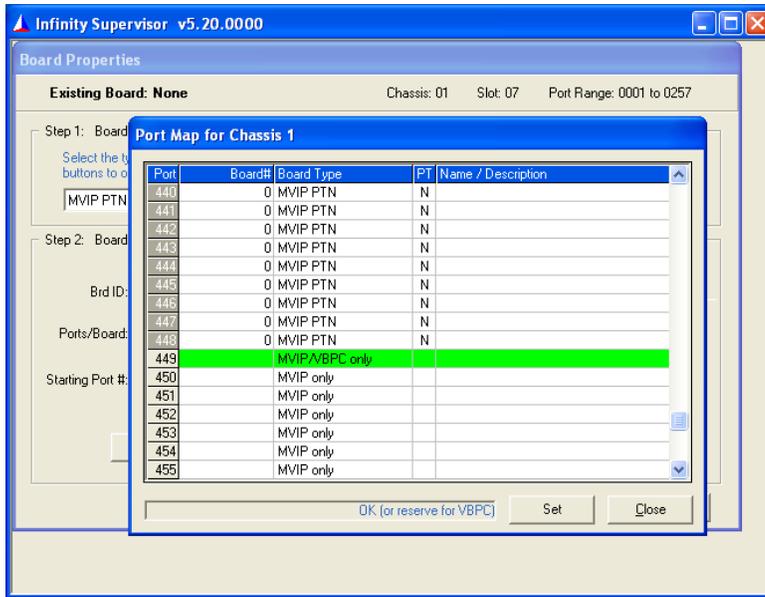
Press the Ok button when finished.

Step	Description
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7. The starting port number for the card needs to be set in this screen. From the Boards Properties screen press the ellipsis by the **Starting Port #** field.

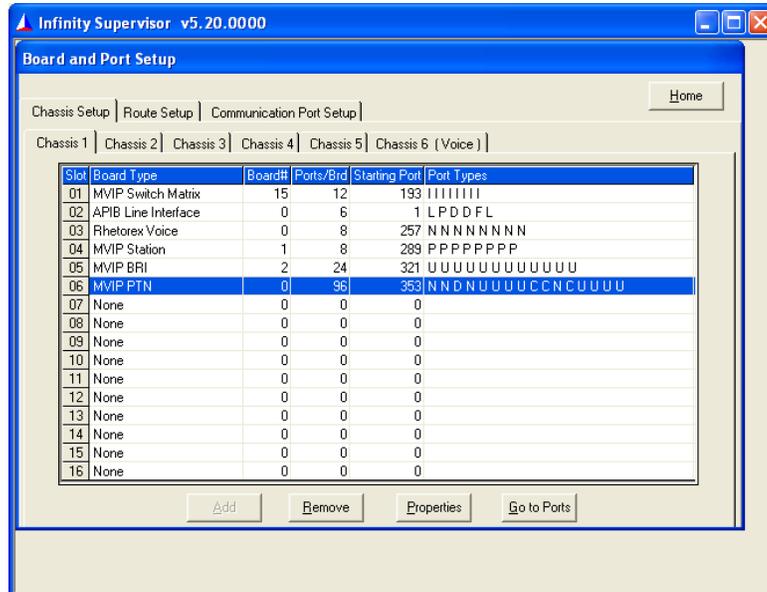


8. Select an open MVIP port. Press the “Set” button. Press the “Close” button.

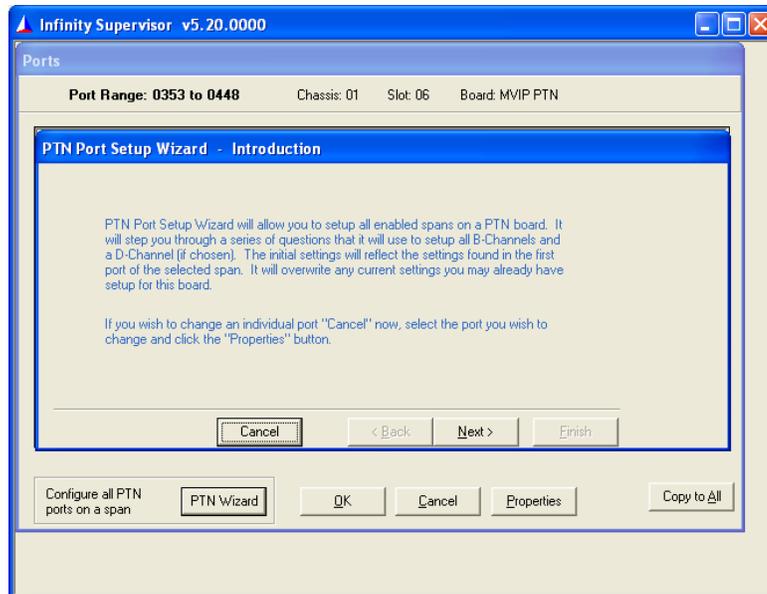


Step	Description
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9. From the Board and Port Setup screen, press the “Go to Ports” Button.

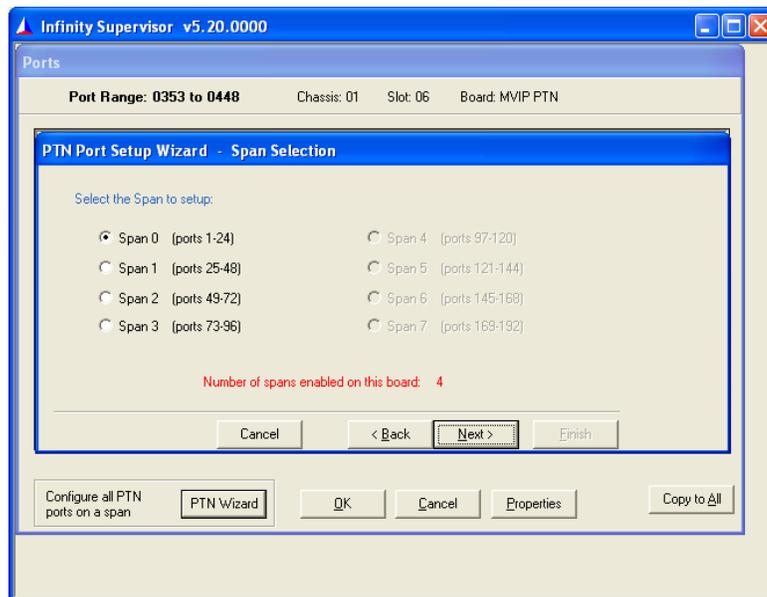


10. Press the “PTN Wizard” button. The following screen will appear. Press the “Next” button.

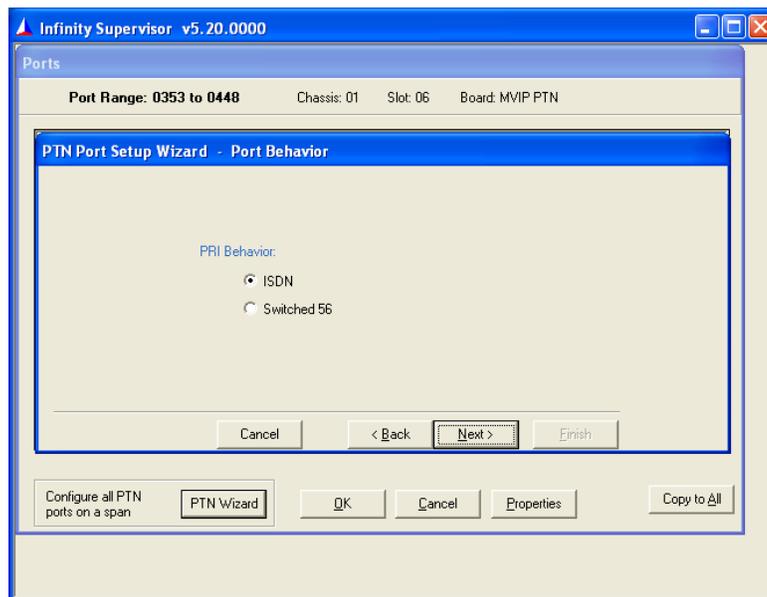


Step	Description
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11. This screen displays all of the spans that are enabled on the board. Select the span to program. If there are multiple spans, the wizard will have to be run on each span, one at a time. Press the “Next” button.

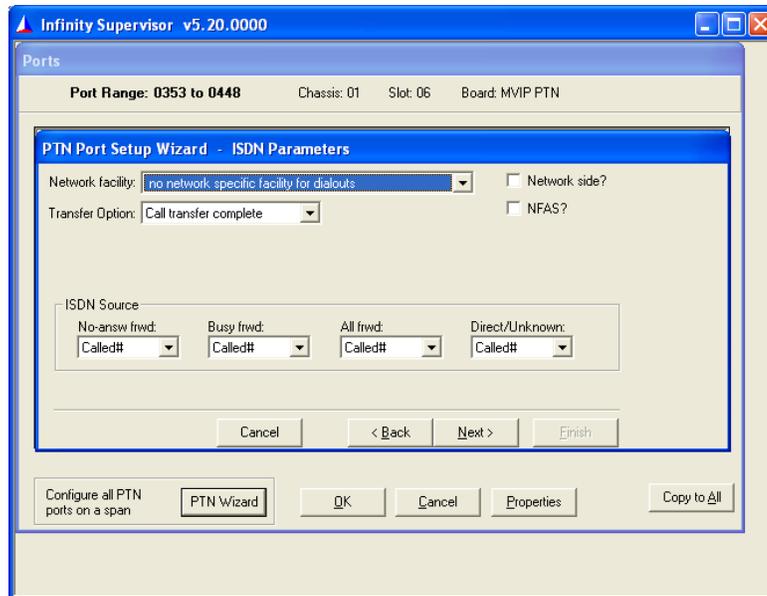


12. The behavior selected is ISDN, which is the default. Press the “Next” button.

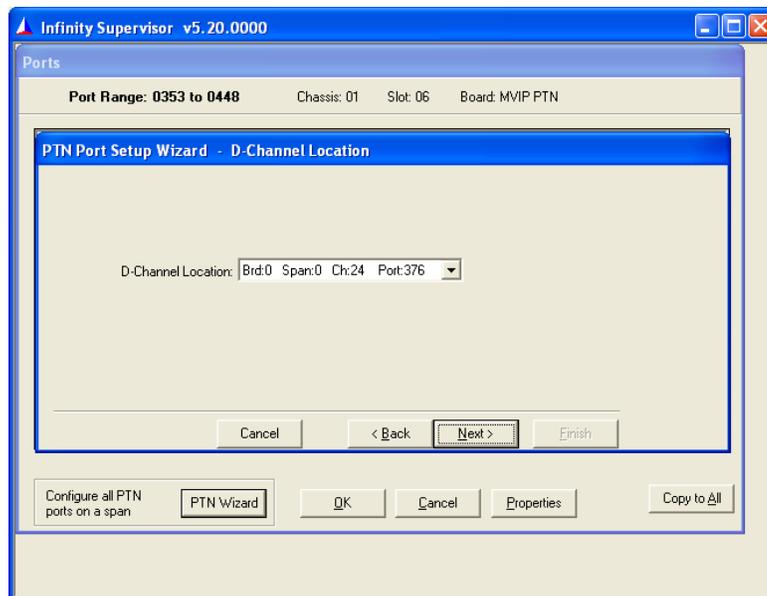


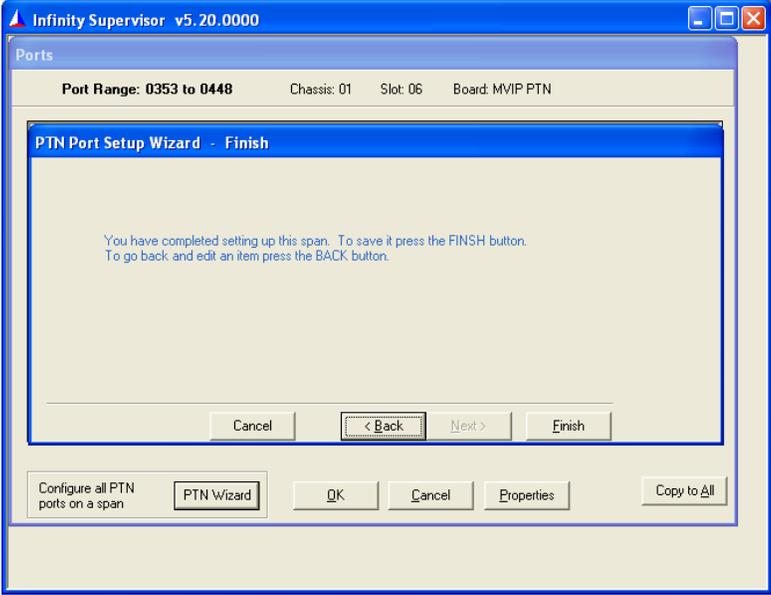
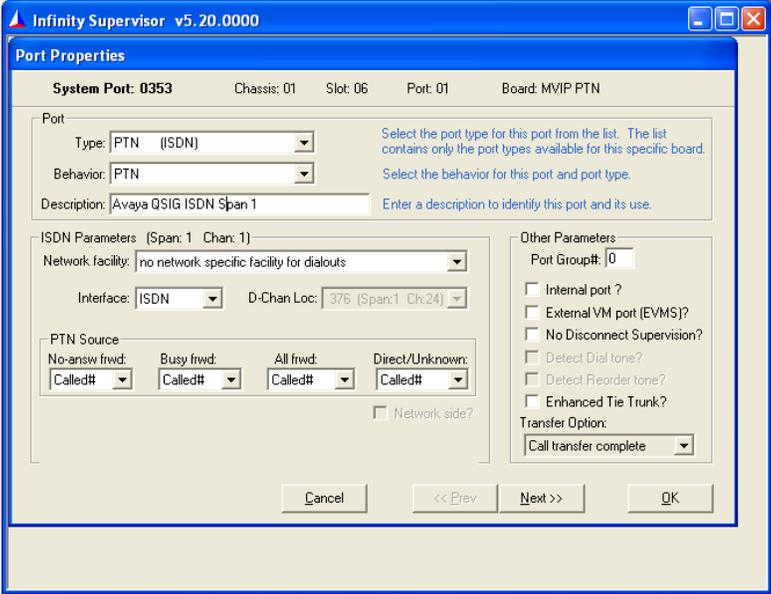
Step	Description
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13. Set the **Transfer Option** to “Call transfer complete”. All other options should be left at the defaults. Press the “Next” button.



14. Select the D-channel location. For this application we have a D-channel on each span. So the D-channel location should be the span that we are programming. Press the “Next” button.

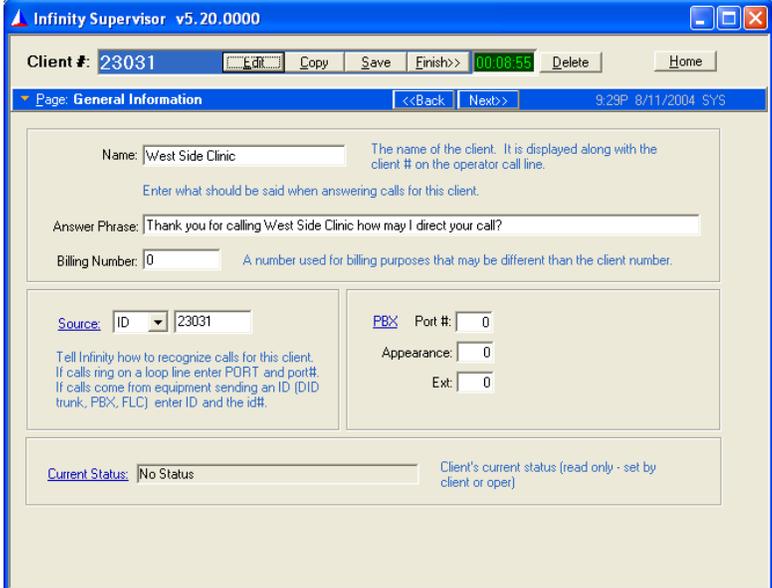


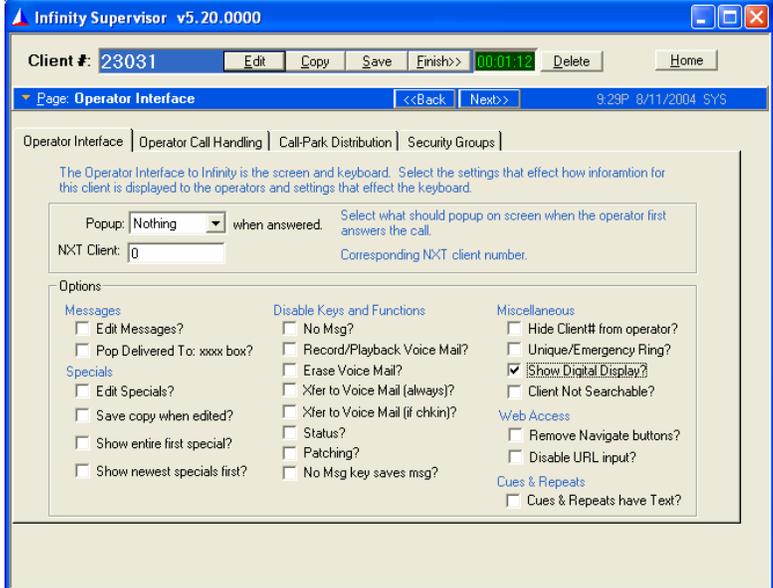
Step	Description
15.	<p>Press the “Finish” Button.</p> 
16.	<p>Select a port, and press “properties”. The following screen should be displayed; a description may be added to better describe the operation of the b channel. Avaya QSIG ISDN span 0 was entered here. Verify that the information that was entered into the wizard is now on the b-channel. Pressing “Next” will step through all ports on this span. Press “OK” when done.</p> 
17.	<p>A system reset is necessary after adding a new board. On the CTI server, press “ESC” and respond “Y” for Yes twice. Then, press the hard reset button located on the front of the CTI server.</p>

4.2. Infinity CTI Client Creation

A client must be set up for each VDN, this is done as a way to identify each call uniquely.

Step	Description
1.	<p>Highlight CLIENT on the main form and click on it.</p> 

Step	Description
2.	<p>At a minimum, the following options must be set for the call to go to the Agent for answering.</p> <p>Source: Must be set to ID, and the ID must be the Avaya VDN entered in the box to the right. This VDN should correspond to the VDN assigned in Step 2 of Section 3.3</p> <p>Enter a descriptive phrase, such as “West Side Clinic”, in the “Name” field.</p> <p>Enter an answer phrase, such as “Thank you for calling West Side Clinic how may I direct your call?”, in the “Answer Phrase” field.</p>  <p>The screenshot shows the 'General Information' page for Client # 23031. The Name field contains 'West Side Clinic'. The Answer Phrase field contains 'Thank you for calling West Side Clinic how may I direct your call?'. The Source field is set to 'ID' and the ID field contains '23031'. The PBX Port #, Appearance, and Ext fields are all set to '0'. The Current Status field is set to 'No Status'.</p>

Step	Description
3.	<p>The following screen is found by depressing the <u>P</u>age button, and selecting the Operator Interface page. Show Digital Display must be checked to see the name given to the station on the Avaya switch.</p> 

5. Interoperability Compliance Testing

This Interoperability Compliance Test included load and serviceability testing. Basic feature functionality was exercised as part of the load test scenarios. Load data was collected from the Avaya S8700 Media Server and the Infinity system.

5.1. General Test Approach

Serviceability and basic functionality test cases were performed manually. Manual tests included calling the Infinity VDN and dialing attendant seeking calls. Calls that used the Call Coverage and Call Forwarding features were verified. In addition, call transfers to local stations as well as trunk-to-trunk transfers were verified.

During the load testing, a call generator was used to generate incoming calls to multiple pilot VDN numbers for sustained periods. Infinity was programmed to transfer the calls to local extensions and talk paths were verified.

5.2. Test Results

All test cases passed. The Infinity solution was tested with two T1 spans for a total of 46 channels. No errors were detected.

6.

Verification Steps

6.1. QSIG Link and Trunk Group

The QSIG link and trunk group status can be verified through the SAT administration interface.

Step	Description
1.	<p data-bbox="277 474 1458 579">Enter “status signaling-group 50”. The signaling group number should correspond to the signaling group assigned in Step 2 of Section 3.2. Verify that the Group State field and the Level 3 State fields display “in-service”.</p> <div data-bbox="342 600 1458 1094" style="border: 1px solid black; padding: 10px;"><pre data-bbox="358 604 1458 1056">status signaling-group 50 STATUS SIGNALING GROUP Group ID: 50 Active NCA-TSC Count: 0 Group Type: isdn-pri Active CA-TSC Count: 0 Signaling Type: facility associated signaling Group State: in-service Primary D-Channel Port: 01A0124 Level 3 State: in-service Secondary D-Channel Port: Level 3 State: no-link</pre></div>

Step	Description
2.	<p>Enter “test trunk 50”. The trunk number should correspond to the trunk group assigned in Step 3 of Section 3.2. Go through all of the pages. Verify that all tests pass.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <pre> test trunk 50 Page 1 TEST RESULTS Port Maintenance Name Alt. Name Test No. Result Error Code 01A0101 ISDN-TRK 0050/001 36 PASS 01A0101 ISDN-TRK 0050/001 255 PASS 01A0101 ISDN-TRK 0050/001 256 PASS 01A0101 ISDN-TRK 0050/001 257 PASS 01A0102 ISDN-TRK 0050/002 36 PASS 01A0102 ISDN-TRK 0050/002 255 PASS 01A0102 ISDN-TRK 0050/002 256 PASS 01A0102 ISDN-TRK 0050/002 257 PASS 01A0103 ISDN-TRK 0050/003 36 PASS 01A0103 ISDN-TRK 0050/003 255 PASS 01A0103 ISDN-TRK 0050/003 256 PASS 01A0103 ISDN-TRK 0050/003 257 PASS 01A0104 ISDN-TRK 0050/004 36 PASS 01A0104 ISDN-TRK 0050/004 255 PASS 01A0104 ISDN-TRK 0050/004 256 PASS press CANCEL to quit -- press NEXT PAGE to continue </pre> </div>

6.2. Verify VDN Routing to Infinity

Step	Description
1.	Verify that an Infinity agent position is available to take calls. Dial the VDN number assigned in Step 6 of Section 3.3.1. Verify an audio talk path with the Infinity agent position.

6.3. Verify Attendant Seeking Calls Route to Infinity

Step	Description
1.	<p>Enter “status attendant 1”. Verify that the Service State field displays in-service/night service.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <pre> status attendant 1 ATTENDANT STATUS Console Number: 1 Service State: in-service/night service Port: 02A0323 Download Status: complete Connected Ports: </pre> </div>

Step	Description
2.	Verify that an Infinity agent position is available to take calls. Dial 0 or another number that normally routes to an attendant. Verify an audio talk path with the Infinity agent position.

6.4. Verify Call Coverage Calls Route to Infinity

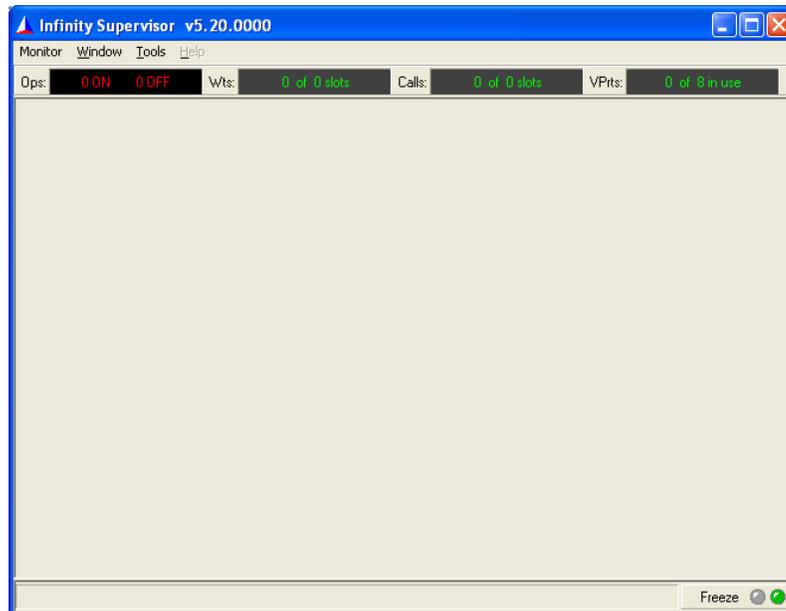
Step	Description
1.	Verify that an Infinity agent position is available to take calls. Dial an extension that has Infinity coverage as assigned in Step 4 of Section 3.3.3 and wait for the call to cover to the Infinity. Verify an audio talk path with the Infinity agent position.

6.5. Verify QSIG ISDN Channels Availability on the Infinity Server

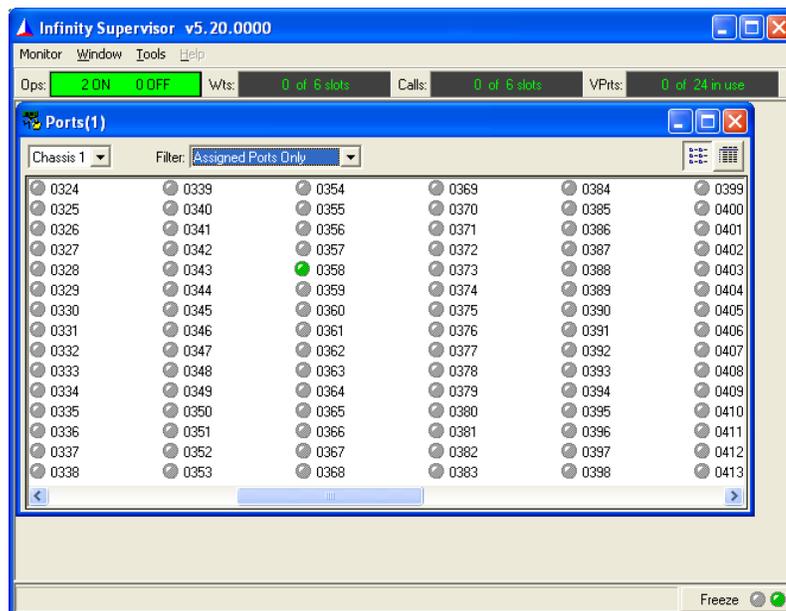
Step	Description
1.	Select MONITOR from the main supervisor screen. <div data-bbox="493 884 1284 1497" data-label="Image"> </div>

Step	Description
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2. Select Monitor from the tool bar, new and ports.



3. The port monitor screen is displayed below. Port 358 currently has a call. All other ports are in service, idle.



7. Support

For technical support on Infinity, contact the Amtelco Support Center at 1-800-553-7679. Technical support is also available at Amtelco's web site <http://www.Amtelco.com> or via e-mail at service@Amtelco.com. For sales support, call 1-800-356-9148.

Product documentation, such as User Manuals, Installation Manuals, Administration Manuals and Troubleshooting Manuals are provided on request, sent by e-mail or downloaded from a secure FTP site to which access will be given on demand. These documents can also be found on the customer system.

8. Conclusion

The Amtelco Infinity 5.20 Centralized Attendant solution was compliance tested with Avaya Communication Manager 2.1. All feature functionality and load test cases completed successfully.

9. Additional References

The following documents can be found at <http://support.avaya.com>:

1. Administrator's Guide for Avaya Communication Manager, Issue 8, June 2004; Doc ID: 555-233-506
2. Feature Description and Implementation for Avaya Communication Manager, Issue 1, June 2004; Doc ID: 555-245-205
3. Administration for Network Connectivity for Avaya Communication Manager, Issue 8, June 2004; Doc ID: 555-233-504
4. Avaya Communication Manager Call Center Software Call Vectoring and Expert Agent Selection (EAS) Guide, Issue 1, June 2004; Doc ID: 07-300186

9.1. Glossary

Technical Term	Definition as it pertains to this document.
BHCC	Busy Hour Call Completions
CTI	Computer Telephony Integration
DNIS	Dialed Number Identification Service
PBX	Private Branch Exchange
QSIG	Generic Name for a Family of Signaling Protocols in a Private Network
VDN	Vector Directory Number

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