Avaya Solution & Interoperability Test Lab

Application Notes for Amtelco Infinity Operator Console Solution with Avaya Communication Manager using PRI QSIG – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Amtelco Infinity Version 5.50.05 to successfully interoperate with Avaya Communication Manager 5.0 using PRI QSIG.

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

1. Introduction

Amtelco Infinity is a sophisticated automated call distribution system that offers many features to help facilitate call center efficiency, and as a result, adds value to the client experience by intelligently answering callers with the dynamic client attributes.

Although the Amtelco Infinity has many enhanced features, the compliance test concentrated on the manual aspect of the Amtelco Infinity Operator Client application running on the Amtelco Infinity console. The compliance test verified the ability for an operator to:

- Answer incoming and outgoing calls
- Process the call by transferring it to any configured station or direct the call to the PSTN
- Ensure that the resources used during the process are released and are available for reuse

The network configuration illustrated in **Figure 1,** shows the Amtelco Infinity Intelligent server configured within the Avaya infrastructure**.**

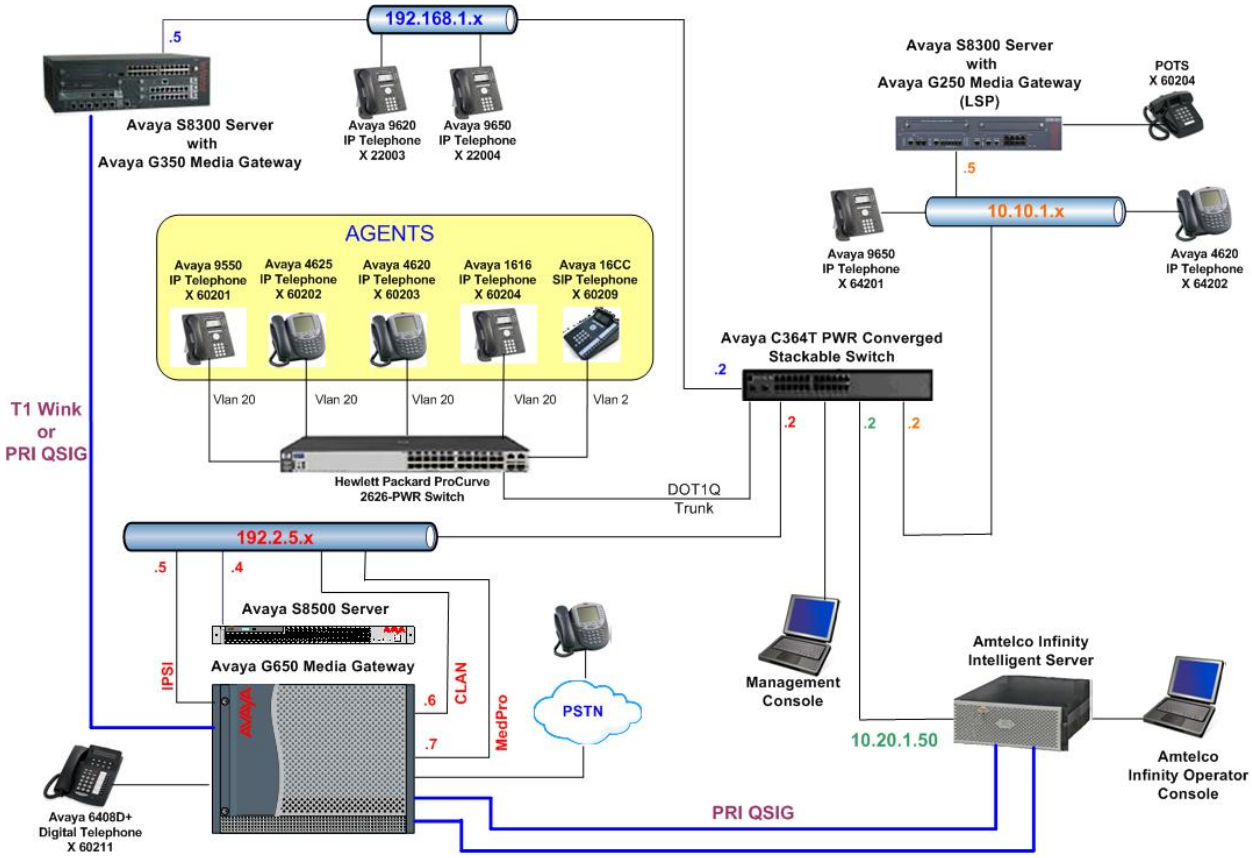

Figure 1: Amtelco Infinity with Avaya Communication Manager

The infrastructure is composed of an Avaya S8500 Server with an Avaya G650 Media Gateway, connected remotely via an H.323 interconnection to an Avaya S8300 Server with an Avaya G250 Medial Gateway, set up as a Local Survivability Processor (LSP). In addition, a PRI QSIG or T1 Wink Start connection between the Avaya S8500 server with an Avaya G650 Media Gateway, and an Avaya S8300 Server with an Avaya G350 Medial server.

All calls, whether calling between Avaya platforms, or incoming or outgoing calls, were forced through the QSIG PRI trunks connected to the Amtelco Infinity server. The Amtelco Infinity operator appropriately transfers the call to any configured endpoint or out to a PSTN remote endpoint. Path Replacement QSIG capabilities should remove all initiating channel usage when the transfer by the Amtelco Infinity operator is complete.

Compliance testing was performed on Amtelco Infinity Intelligent Server hardware platform running the latest Infinity Intelligent GA software version. Although analog telephones are also supported, compliance testing only used Digital, IP, and SIP telephones.

2. Equipment and Software Validated

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

Equipment	Software
Avaya S8500 Server	Communication Manager 5.0.0, load 825.4
Avaya G650 Media Gateway • 3 - TN464HP DS1 Interface	• HW02 FW018
Avaya S8300 Server	Communication Manager 5.0.0, load 825.4
Avaya G350 Media Gateway • MM710AP	• HW05 FW018
Avaya Application Enablement Services	SES-5.0.0.0-825.31
Avaya C363T-PWR Converged Stackable Switch	4.3.12
Avaya 4610SW IP Telephone	2.3
Avaya 4625 Series IP Telephone	2.8.3
Avaya 9650 IP Telephones	2.21
Avaya 16CC SIP Telephone	1.0.11.2
Avaya 1616 IP Telephone	1.11
Amtelco Infinity Intelligent Server	Release 5.50.05

3. Configure Avaya Communication Manager

This section provides the procedures for configuring Avaya Communication Manager. The procedures fall into the following areas:

- Administer DS1 Administration for Avaya G650 Media Gateway and Avaya G350 Media Gateway
- Administer PRI Trunk and Signaling Group between Avaya G650 Media Gateway and Amtelco Infinity Intelligent Server
- Administer PRI Trunk and Signaling Group between Avaya G650 Media Gateway and Avaya G350 Media Gateway
- Administer a T1 Wink-Start Trunk between Avaya G650 Media Gateway and Avaya G350 Media Gateway
- Establish connectivity with Avaya LSP

The detailed administration Station extensions and dial plan information is assumed to be in place and is not covered in these Application Notes.

3.1. System-Parameters Customer-Option

The Infinity CTI Server communicates with the Avaya S8500 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 using 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 interface.

1. Type in **change system-parameters customer-options**; verify that the **ISDN-PRI** feature is set to **y** as displayed in **Figure 2**. A system license file controls the settings on the customer-options form.

```
change system-parameters customer-options                      Page   4 of  10
                                       OPTIONAL FEATURES

    Emergency Access to Attendant? y                               IP Stations? y
                                  Enable 'dadmin' Login? y
           Enhanced Conferencing? y                         ISDN Feature Plus? y
                  Enhanced EC500? y          ISDN/SIP Network Call Redirection? 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? y
      External Device Alarm Admin? y                   Media Encryption Over IP? y
  Five Port Networks Max Per MCC? y       Mode Code for Centralized Voice Mail? n
                                     Flexible Billing? y
    Forced Entry of Account Codes? y                   Multifrequency Signaling? y
       Global Call Classification? y           Multimedia Call Handling (Basic)? y
             Hospitality (Basic)? y        Multimedia Call Handling (Enhanced)? y
  Hospitality (G3V3 Enhancements)? y                  Multimedia IP SIP Trunking? n
                                       IP Trunks? y

                                  IP Attendant Consoles? y
          (NOTE: You must logoff & login to effect the permission changes.)
```

Figure 2: Customer-Options Parameter - Page 4

2. Verify that the **Private Networking** feature is set to **y** as displayed in **Figure 3**. A system license file controls the settings on the customer-options form

```
change system-parameters customer-options                      Page   5 of  10
                                OPTIONAL FEATURES

                 Multinational Locations? n                Station and Trunk MSP? y
 Multiple Level Precedence & Preemption? n         Station as Virtual Extension? y
                      Multiple Locations? y
                                            System Management Data Transfer? n
          Personal Station Access (PSA)? y                  Tenant Partitioning? n
                           PNC Duplication? n          Terminal Trans. Init. (TTI)? y
                    Port Network Support? y                   Time of Day Routing? n
                         Posted Messages? y          TN2501 VAL Maximum Capacity? y
                                                           Uniform Dialing Plan? y
                      Private Networking? y       Usage Allocation Enhancements? y
                Processor and System MSP? y
                      Processor Ethernet? y                  Wideband Switching? n
                                                                     Wireless? n
                           Remote Office? y
          Restrict Call Forward Off Net? y
                  Secondary Data Module? y


    (NOTE: You must logoff & login to effect the permission changes.)
```

Figure 3: Customer-Options Parameter - Page 5

3. Verify that the following QSIG features are set: **Basic Call Setup, Basic Supplementary Services,** and **Supplementary Services with Rerouting** are set to **y** as displayed in **Figure 4**. A system license file controls the settings on the customer-options form.

```
change system-parameters customer-options                       Page   8 of  10
                            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.)
```

Figure 4: Customer-Options Parameter - Page 8

4. The Avaya S8300 must be set up with the same Customer-Options parameter as above.

3.2. System-Parameter Features

Enter **change system-parameters features** from the SAT interface.

1. Set the **Path Replacement with Measurements** field to **y** and set the **QSIG Path Replacement Extension** field to any extension number that is valid within the dial plan as displayed in **Figure 5**.

```
change system-parameters features                               Page   8 of  17
                        FEATURE-RELATED SYSTEM PARAMETERS

ISDN PARAMETERS
                                                          PARAMETERS FOR CREATING
 Send Non-ISDN Trunk Group Name as Connected Name? n      QSIG SELECTION NUMBERS
 Display Connected Name/Number for ISDN DCS Calls? y        Network Level: 0
       Send ISDN Trunk Group Name on Tandem Calls? n         Level 2 Code:
                                                             Level 1 Code:

                            QSIG/ETSI TSC Extension: 60199
 MWI - Number of Digits Per Voice Mail Subscriber: 5
                                  Feature Plus Ext:
                               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: 60198
             Path Replace While in Queue/Vectoring? n
```

Figure 5: Feature Parameter

3.3. Add Infinity QSIG Link, Signaling and Trunk Group

During the compliance test, there were two ISDN PRI trunks setup between the Avaya G650 Media Gateway and the Amtelco Infinity Intelligent Server.

1. 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**, and **Interface** fields as shown in **Figure 6**. These values must correspond to the values programmed on the Infinity Server. Other values may be left at their defaults.

```
add ds1 01a10                                              Page   1 of   2
                              DS1 CIRCUIT PACK

            Location: 01A10                          Name: QSIG-Span1
            Bit Rate: 1.544                   Line Coding: b8zs
   Line Compensation: 1                      Framing Mode: esf
      Signaling Mode: isdn-pri
             Connect: pbx                       Interface: 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
```

Figure 6: DS1 PRI Setup

2. Add a signaling-group to the system. Set the **Group Type**, **Associated Signaling, Max number of NCA TSC,** and **TSC Supplementary Service Protocol** fields as shown in **Figure 7**. 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 **01A1024**. Because a trunk group has not yet been defined, do not enter any values in the **Trunk Group for NCA TSC** and **Trunk Group for Channel Selection:** fields at this time. Other values may be left at their defaults.

```
add signaling-group 12                                     Page   1 of   1
                              SIGNALING GROUP

 Group Number: 12             Group Type: isdn-pri
                     Associated Signaling? y          Max number of NCA TSC: 10
                        Primary D-Channel: 01A1024     Max number of CA TSC: 10
                                                     Trunk Group for NCA TSC:
       Trunk Group for Channel Selection:
     TSC Supplementary Service Protocol: b          Network Call Transfer? n
```

Figure 7: Signaling Group

3. Enter a descriptive name for the **Group Name** field. Set the **Group Type**, **Service Type, TAC, Carrier Medium,** and **Service Type** fields as shown in **Figure 8**. Other values may be left at their defaults.

```
add trunk-group 12                                          Page   1 of  21
                              TRUNK GROUP

Group Number: 12                    Group Type: isdn          CDR Reports: y
  Group Name: QSIG Test                      COR: 1        TN: 1        TAC: 112
   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
```

Figure 8: Trunk Group – Page 1

4. Enter **Supplementary Service Protocol** and **Format** as shown in **Figure 9**.

```
add trunk-group 12                                          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
  Supplementary Service Protocol: b     Digit Handling (in/out): enbloc/enbloc

            Trunk Hunt: descend
                                                  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
```

Figure 9: Trunk Group – Page 2

5. Set the **Send Name, NCA-TSC Trunk Member, Send Calling Number**, and **Send Connected Number** fields as shown in **Figure 10**. The rest of the values on this page can be left at their defaults.

```
add trunk-group 12                                          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: 1
                                     Send Name: y      Send Calling Number: y
            Used for DCS? n            Hop Dgt? n     Send EMU Visitor CPN? n
   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
                                               Hold/Unhold Notifications? y
             Send UUI IE? y
               Send UCID? n
 Send Codeset 6/7 LAI IE? n                        Ds1 Echo Cancellation? n

    Apply Local Ringback? n
 Show ANSWERED BY on Display? y
                              Network (Japan) Needs Connect Before Disconnect? n
```

Figure 10: Trunk Group – Page 3

6. Set QSIG trunk group parameter. Set **Path Replacement** as shown in **Figure 11**. The rest of the values on this page can be left at their defaults.

```
change trunk-group 12                                       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
```

Figure 11: Trunk Group – Page 4

7. **Figure 12** displays 15 of the 23 members assigned to the trunk (Port assignment 16 through 23 not shown).

```
change trunk-group 12                                          Page   5 of  21
                                TRUNK GROUP
                                     Administered Members (min/max):   1/15
GROUP MEMBER ASSIGNMENTS                 Total Administered Members:  15

       Port    Code Sfx Name        Night           Sig Grp
  1: 01A1001  TN464  H                               12
  2: 01A1002  TN464  H                               12
  3: 01A1003  TN464  H                               12
  4: 01A1004  TN464  H                               12
  5: 01A1005  TN464  H                               12
  6: 01A1006  TN464  H                               12
  7: 01A1007  TN464  H                               12
  8: 01A1008  TN464  H                               12
  9: 01A1009  TN464  H                               12
 10: 01A1010  TN464  H                               12
 11: 01A1011  TN464  H                               12
 12: 01A1012  TN464  H                               12
 13: 01A1013  TN464  H                               12
 14: 01A1014  TN464  H                               12
 15: 01A1015  TN464  H                               12
```

Figure 12: Group Member Assignments

8. Complete the Signaling Group form added in **Step 2**. Enter the values for the **Trunk Group for NCA TSC** and **Trunk Group for Channel Selection** fields as displayed in **Figure 13**.

```
change signaling-group 12                                      Page   1 of   1
                              SIGNALING GROUP

 Group Number: 12             Group Type: isdn-pri
                     Associated Signaling? y          Max number of NCA TSC: 10
                        Primary D-Channel: 01A1024     Max number of CA TSC: 10
                                                  Trunk Group for NCA TSC: 12
       Trunk Group for Channel Selection: 12
     TSC Supplementary Service Protocol: b          Network Call Transfer? n
```

Figure 13: Complete Signaling Group

9. Repeat **Step 1** through **Step 8** for additional QSIG PRI trunks. Note, for compliance testing, two QSIG PRI trunks were set up between the Avaya G650 Media Gateway and Amtelco Infinity server. Another QSIG PRI trunk was set up between the Avaya G650 Media Gateway and the Avaya G350 Medial Gateway.

3.4. Configuring T1 Wink-Start

As illustrated on **Figure 1**, a T1 Wink-Start trunk was setup between the Avaya G650 and the Avaya G350 platforms. **Figure 14** through **Figure 16** display the Avaya G650 screen shots but a similar configuration must be setup on the Avaya G350 platform.

1. Add a DS1 circuit pack to the system and enter a descriptive name in the Name field. Set the **Line Coding**, **Framing Mode**, and **Signaling Mode** fields as shown in **Figure 14**. These values must correspond to the values programmed in the Avaya G350 platform. Other values may be left at their defaults.

```
change ds1 01a10                                          Page   1 of   2
                              DS1 CIRCUIT PACK

            Location: 01A10                          Name: T1 Wink
            Bit Rate: 1.544                   Line Coding: b8zs
   Line Compensation: 1                      Framing Mode: esf
      Signaling Mode: robbed-bit

Interface Companding: mulaw
           Idle Code: 11111111

      Slip Detection? n                Near-end CSU Type: other
```

Figure 14: DS1 T1 Setup

2. Add a trunk group to the system. Enter a descriptive name for the **Group Name** field. Set the **Group Type**, and **TAC** fields as shown in **Figure 15**. Other values may be left at their defaults

```
add trunk-group 12                                        Page   1 of  21
                              TRUNK GROUP

Group Number: 12                   Group Type: tie           CDR Reports: y
  Group Name: T1 Wink Test                   COR: 1        TN: 1        TAC: 112
   Direction: two-way        Outgoing Display? n Trunk Signaling Type:
 Dial Access? y              Busy Threshold: 255  Night Service:
Queue Length: 0                             Incoming Destination:
   Comm Type: voice                 Auth Code? n
                                   Trunk Flash?

Trunk Type (in/out): immed/immed
```

Figure 15: Tie Trunk Configuration - Page 1

3. **Figure 16** displays 15 of the 24 members assigned to the trunk (Port assignment 16 through 24 not shown)

```
add trunk-group 12                                          Page   5 of  21
                                TRUNK GROUP
                                     Administered Members (min/max):   0/0
GROUP MEMBER ASSIGNMENTS                 Total Administered Members:   0

       Port    Code Sfx Name        Night           Mode      Type   Ans Delay
  1: 01a1001  TN464  H                              e&m       t1-stan
  2: 01a1002  TN464  H                              e&m       t1-stan
  3: 01a1003  TN464  H                              e&m       t1-stan
  4: 01a1004  TN464  H                              e&m       t1-stan
  5: 01a1005  TN464  H                              e&m       t1-stan
  6: 01a1006  TN464  H                              e&m       t1-stan
  7: 01a1007  TN464  H                              e&m       t1-stan
  8: 01a1008  TN464  H                              e&m       t1-stan
  9: 01a1009  TN464  H                              e&m       t1-stan
 10: 01a1010  TN464  H                              e&m       t1-stan
 11: 01a1011  TN464  H                              e&m       t1-stan
 12: 01a1012  TN464  H                              e&m       t1-stan
 13: 01a1013  TN464  H                              e&m       t1-stan
 14: 01a1014  TN464  H                              e&m       t1-stan
 15: 01a1015  TN464  H                              e&m       t1-stan
```

Figure 16: **Group Member Assignments**

3.5. Class Of Restriction

COR parameters should be setup similarly on each Avaya Platform.

1. The COR used during the compliance test was 1. This value may vary. Ensure that the **Calling Party Restriction** and **Called Party Restriction** are set to **none** as displayed in **Figure 17**. Other values may be defaulted.

```
change cor 1                                                  Page   1 of  23
                              CLASS OF RESTRICTION

               COR Number: 1
          COR Description:

                      FRL: 0                                  APLT? y
  Can Be Service Observed? n           Calling Party Restriction: none
Can Be A Service Observer? y            Called Party Restriction: none
 Partitioned Group Number: 1       Forced Entry of Account Codes? n
         Priority Queuing? n                Direct Agent Calling? n
     Restriction Override: none       Facility Access Trunk Test? n
     Restricted Call List? n                 Can Change Coverage? n

            Access to MCT? y             Fully Restricted Service? n
Group II Category For MFC: 7             Hear VDN of Origin Annc.? n
         Send ANI for MFE? n              Add/Remove Agent Skills? n
            MF ANI Prefix:               Automatic Charge Display? n
Hear System Music on Hold? y   PASTE (Display PBX Data on Phone)? n
                         Can Be Picked Up By Directed Call Pickup? n
                                     Can Use Directed Call Pickup? n
                                     Group Controlled Restriction: inactive
```

Figure 17: Class Of Restriction

3.6. Public and Private Numbering

To exchange proper number plan information between Avaya platforms and the Amtelco Infinity platform, extension codes delivered to specific trunks were controlled by the **change public-unknown-numbering X** and **change public-unknown-numbering Y** commands. Where both **X** and **Y** were set to 0 during compliance test. The screen below displays the SAT command. Both public and private unknown numbering was set the same.

```
change public-unknown-numbering 0                             Page   1 of   2
                     NUMBERING - PUBLIC/UNKNOWN FORMAT
                                        Total
Ext Ext          Trk       CPN          CPN
Len Code         Grp(s)    Prefix       Len
                                                 Total Administered: 3
 5  2            7                      5          Maximum Entries: 9999
 5  2            12                     5
 5  6            12                     5
```

4. Configure Amtelco Infinity System

Amtelco optionally can prepare the Infinity Intelligent Servers on behalf of their customers and is comprised of three applications:

- The Infinity Host server application runs on a CTI server and performs automated call handling and unified messaging tasks.
- The Infinity Supervisor application usually is installed on specific agent workstations and is used to set up and maintain the system configuration and the database of client accounts.
- The Infinity Telephone Agent application runs on each workstation and is used to perform manual call-handling and messaging tasks.

This configuration also includes 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 done, changes can be made using the administration PC via the Infinity Supervisor.

1. Launch the Infinity supervisor application as displayed in **Figure 18.**

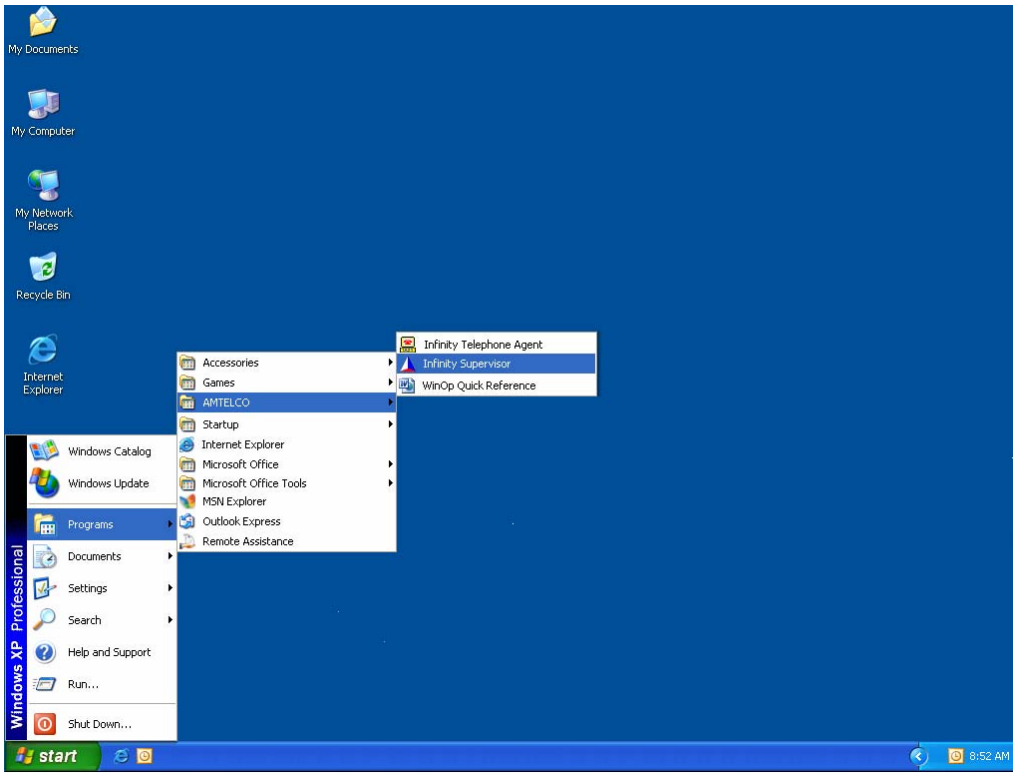

Figure 18: Start Infinity Supervisor

2. Log in using the appropriate **Login name** and **Password** as displayed in **Figure 19**.

Figure 19: Log Into Supervisor

3. Select and double-click the **BOARDS and PORTS** Icon as displayed in **Figure 20**.

Figure 20: Select Boards and Ports

4. Click on an open card slot as displayed in **Figure 21**. Do not leave any blank spaces, and press the **Add** button.

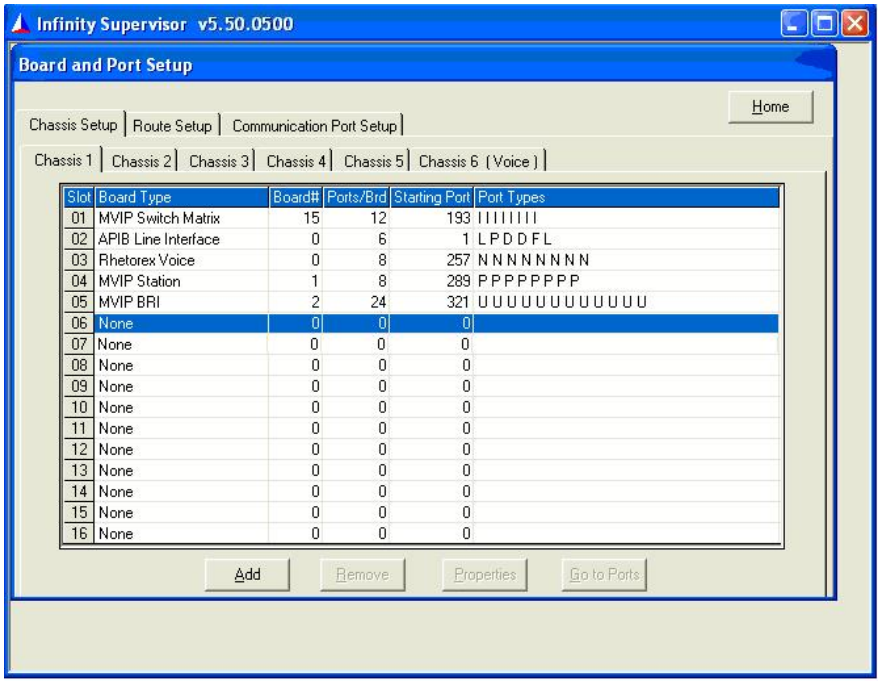

Figure 21: Select Open Slot

5. Select the **MVIP PTN** card as displayed in **Figure 22**. Press the **Ok** button.

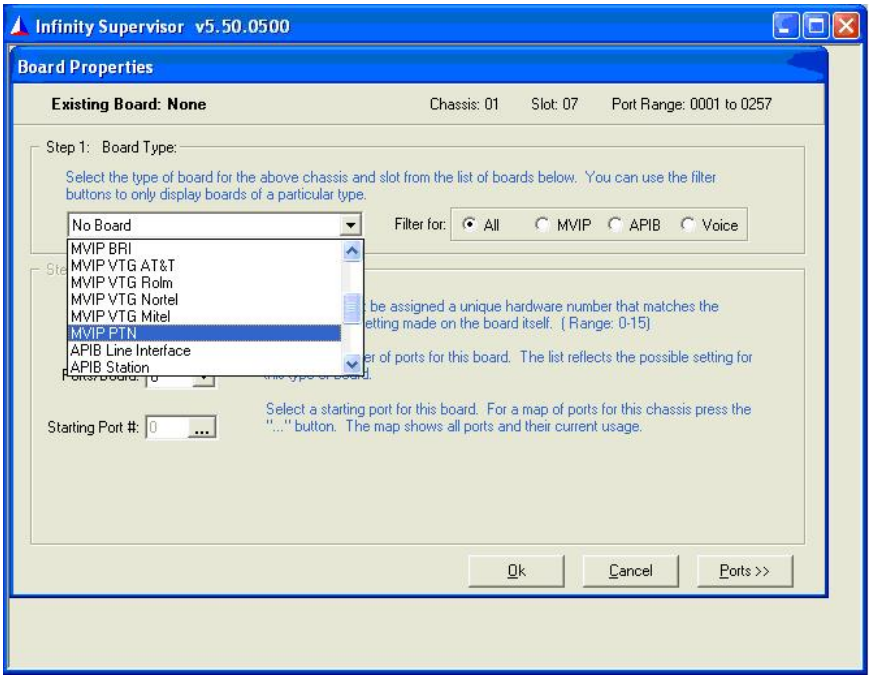

Figure 22: Select MVIP PTN

6. The Ports/Board will automatically be filled in and is displayed in **Figure 23**.

   - **Clock Source**: If the system has not been setup with a clock source, set the clock mode to Span 0 as clock source. If there is another 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 to your callers as the number they are receiving the call from. 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 Extended Super Fame. ESF
   - **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.

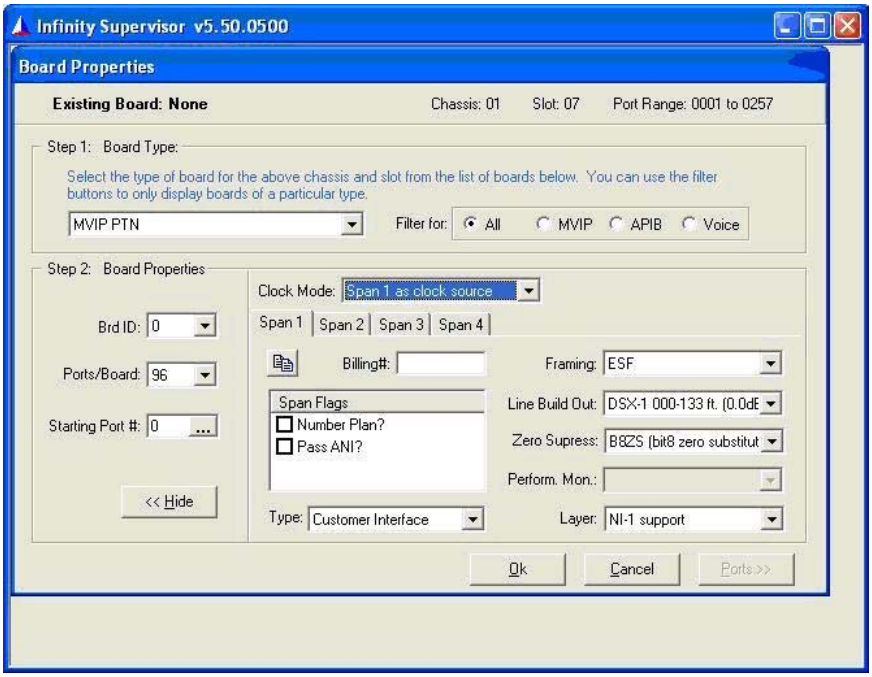

Figure 23: Board Information

7. The starting port number for the card needs to be set in this screen. From the **Boards Properties** screen displayed in **Figure 23**, press the **Starting Port #** button.

8. Select an open MVIP port as displayed in **Figure 24**. Press the **Set** button followed by the **Close** button.

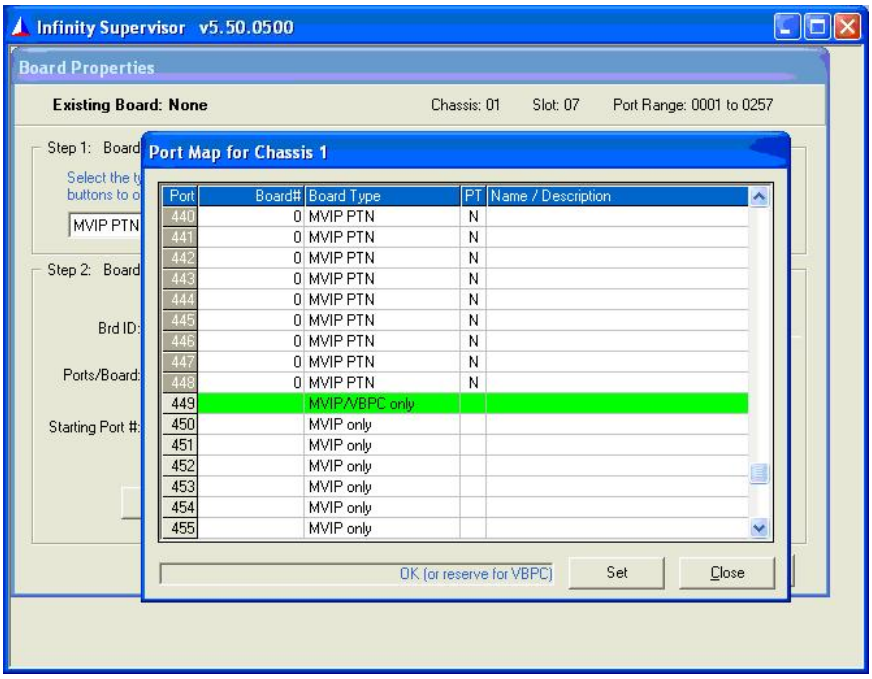

Figure 24: Board Information

9. From the **Board and Port Setup**, press the **Go to Ports** Button as displayed in **Figure 25**.

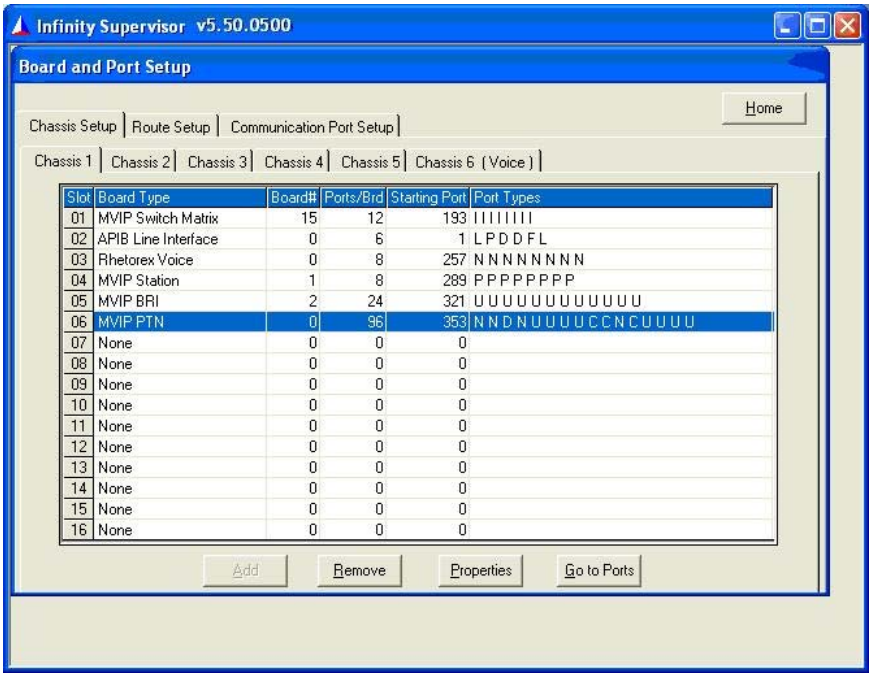

Figure 25: Go To Port

10. Press the **PTN Wizard** button and **Figure 26** will display. Press the **Next** button.

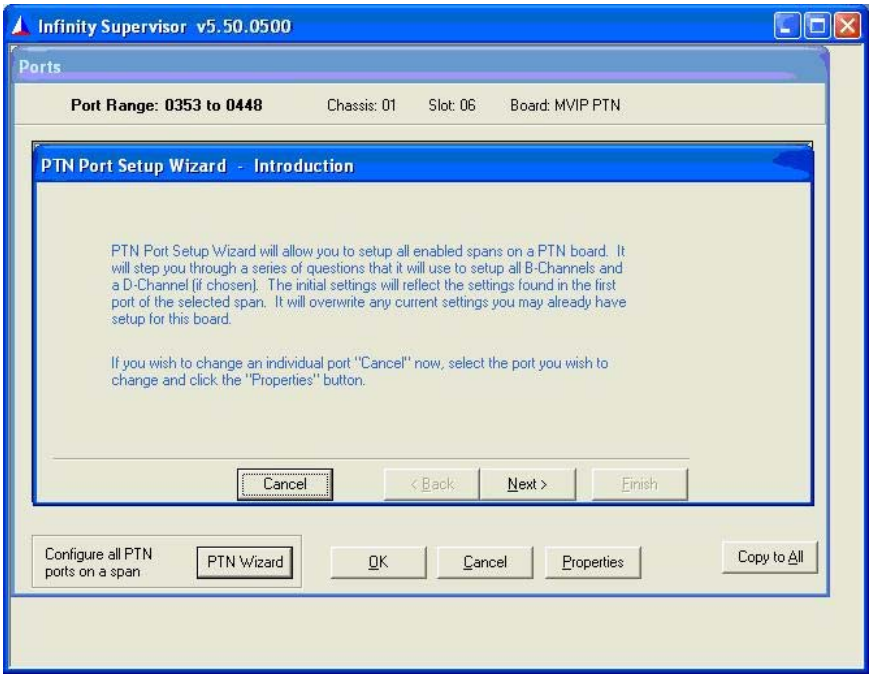

Figure 26: Board Information

11. **Figure 27** displays all of the spans that are enabled on the board. Select the span we are programming. If there are multiple spans, the wizard will have to be run on all spans, one at a time. Press the **Next** button.

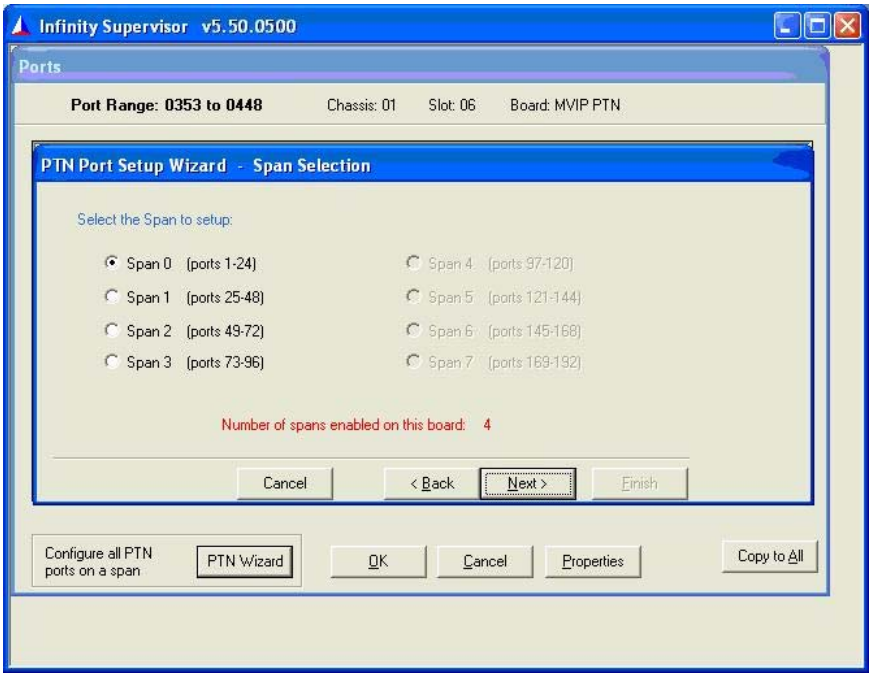

Figure 27: Board Information

12. The **PRI Behavior** displayed in **Figure 28** is defaulted to **ISDN**. Press the **Next** button.

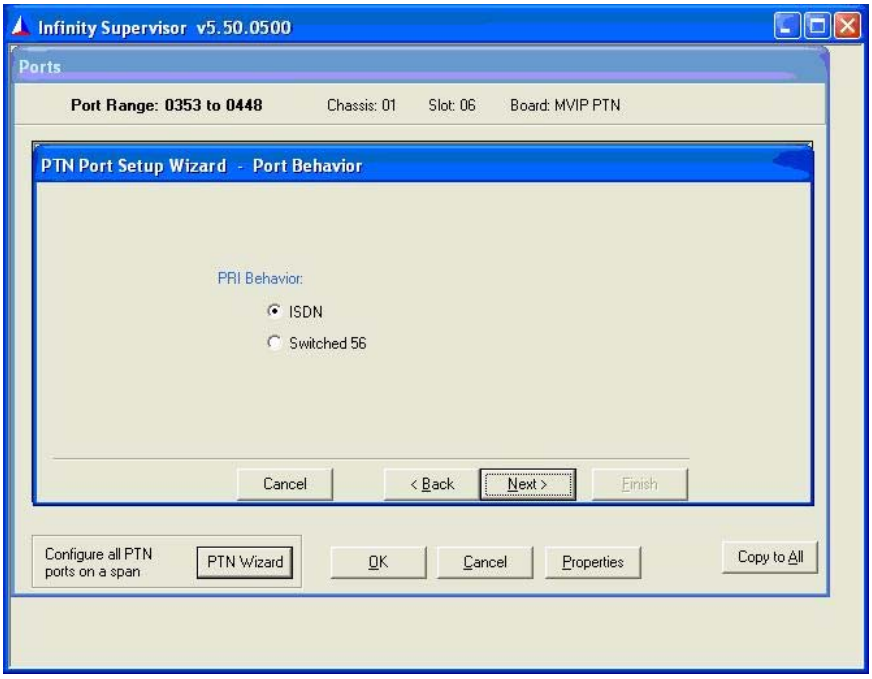

Figure 28: Port Behavior

13. Set the **Transfer Option** to **Call transfer complete** displayed in **Figure 29**. All other options should be left at default. Press the **Next** button.

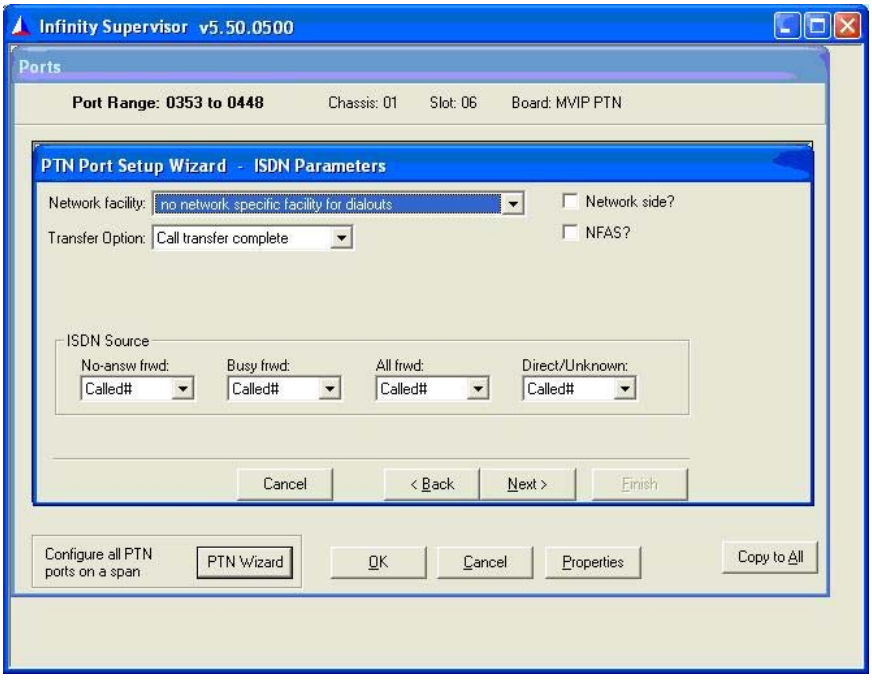

Figure 29: ISDN Parameters

14. Select the **D-channel location** as displayed in **Figure 30**. 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 then press the Finish button (not shown).

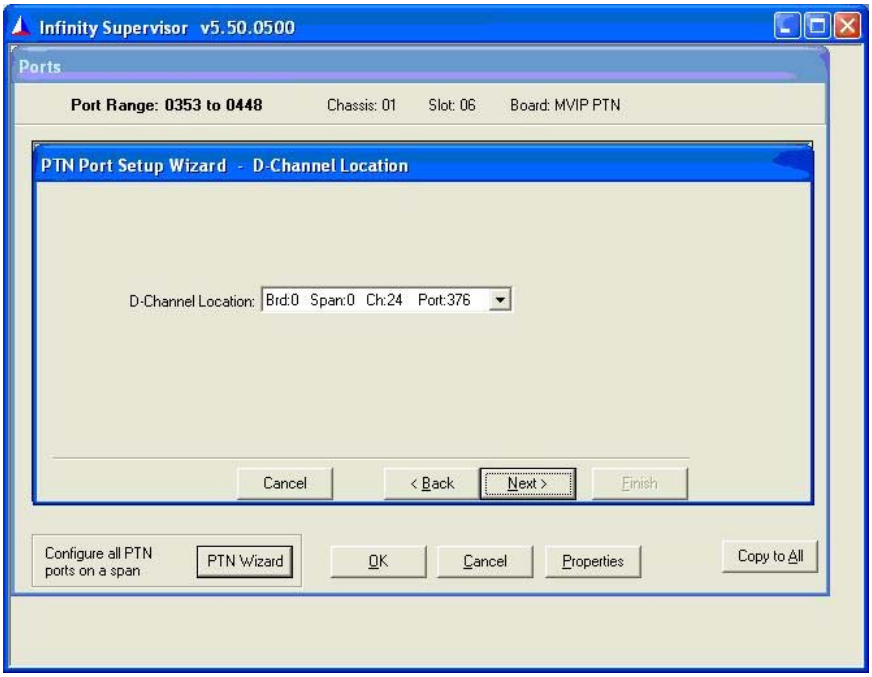

Figure 30: ISDN Parameters

15. 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 as in this case **Avaya QSIG ISDN span 1** was entered. 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.

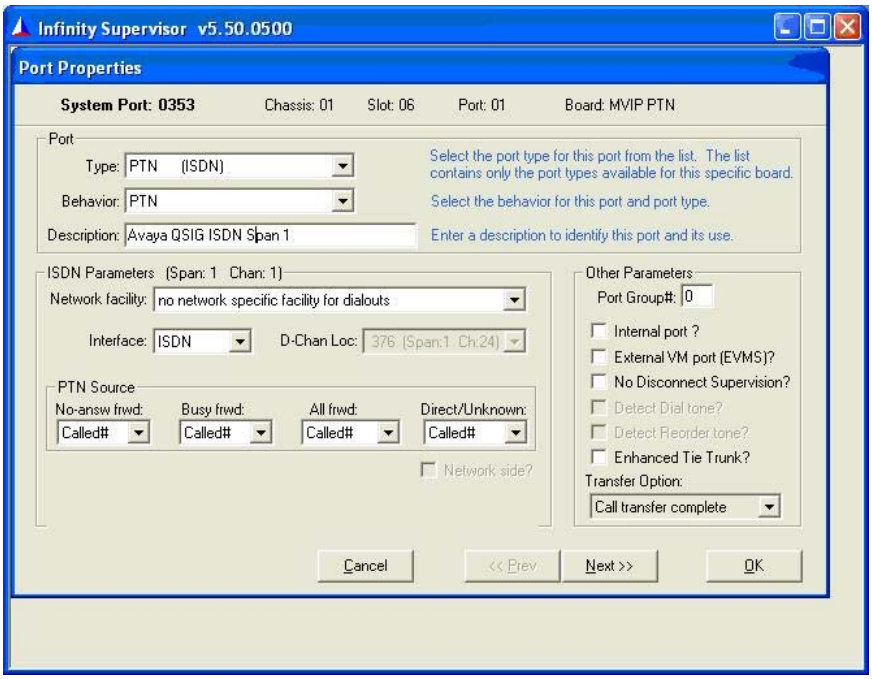

Figure 30: ISDN Parameters

16. A system reset is necessary after adding a new board. Reset the Amtelco Infinity server.

5. Interoperability Compliance Testing

This Interoperability Compliance Test included load and serviceability testing. Basic feature functionality was exercised as part of the test scenarios and data was collected from the Avaya S8500 Server and the Amtelco Infinity systems.

5.1. General Test Approach

Compliance testing took on a three phase approach that was comprised of the following:

- Installation and configuration of the Amtelco Infinity solution
- Interoperability feature test cases between Amtelco Infinity and Avaya Communication Manager
- Serviceability and performance tests of the Amtelco Infinity solution

Amtelco Infinity hardware server platform was pre-loaded prior to the compliance test.

The verification of all interoperability feature test cases included manually checking proper states at the telephone sets, and monitoring the report logs on the Amtelco Infinity application.

5.2. Test Results

All test cases have passed successfully. The Amtelco Infinity solution was tested with two PRI / QSIG spans connected to the Avaya G650 Media Gateway. Only one span is displayed in this section. No serviceability problems were detected. No errors were detected.

5.3. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Communication Manager and Amtelco Infinity.

5.4. QSIG Link and Trunk Group

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

1. Enter **status signaling-group 12.** The signaling group number should correspond to the signaling group assigned in **Section 3.3**, **Step 2**. Verify that the **Group State** field and the **Level 3 State** fields display **in-service** as displayed in Figure 31**.**

```
status signaling-group 12
                         STATUS SIGNALING GROUP

       Group ID: 12                               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: 01A1124        Level 3 State: in-service

                         Secondary D-Channel

            Port:                Level 3 State: no-link
```

Figure 31: Status Signaling Group

2. Enter **test trunk 12**. The trunk number should correspond to the trunk group assigned in **Section 3.3**, **Step 3**. Page down through all of the pages. Verify that all tests pass as displayed in **Figure 32**.

```
test trunk 12                                                    Page   1

                                TEST RESULTS

Port        Mtce Name   Alt. Name        Test No.  Result          Error Code

01A1001     ISDN-TRK    0007/001         36        PASS
01A1002     ISDN-TRK    0007/001         255       PASS
01A1003     ISDN-TRK    0007/001         256       PASS
01A1004     ISDN-TRK    0007/001         257       PASS
01A1005     ISDN-TRK    0007/002         36        PASS
01A1006     ISDN-TRK    0007/002         255       PASS
01A1007     ISDN-TRK    0007/002         256       PASS
01A1008     ISDN-TRK    0007/002         257       PASS
01A1009     ISDN-TRK    0007/003         36        PASS
01A1010     ISDN-TRK    0007/003         255       PASS
01A1011     ISDN-TRK    0007/003         256       PASS
01A1012     ISDN-TRK    0007/003         257       PASS
01A1013     ISDN-TRK    0007/004         36        PASS
01A1014     ISDN-TRK    0007/004         255       PASS
01A1015     ISDN-TRK    0007/004         256       PASS
```

Figure 32: Test Trunk Group

5.5. Verify the Transfer Process Using the Amtelco Operator Client Application

Log into the Infinity Operator Client Application (similar to **Figure 19**), and perform the following actions.

1. The Infinity Operator will be in the **ON** state and is ready to receive calls as displayed in **Figure 33**.

Figure 33: Infinity Operator is Active

2. When an incoming call is presented to the Infinity Operator, the **F1** key on the console is pressed to answer the call, and a **Dial…** dialog box is displayed. **Figure 34** displays the incoming call and a **good morning** key-word as an operator response. The Infinity Operator enters a **HB** dial prefix, followed by an extension that the incoming caller wants to be transferred to, and then presses **Dial**. In this case, **HB522002.** The **5** in the extension, signals Avaya Communication Manager to use the second administered QSIG PRI trunk.

   Many Infinity Operator modes-of-operation can be automated however only manual intervention was performed during compliance testing.

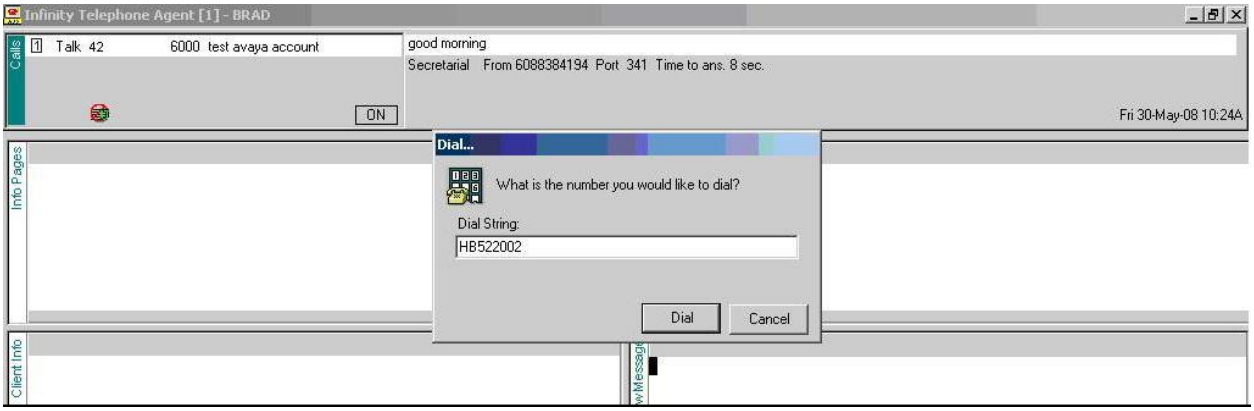

Figure 34: Incoming Call

3. After initiating the transfer dial string, the call state will change to **Tk-2** as displayed in **Figure 35**. The Infinity Operator will alert and connect to the destination of the transfer.

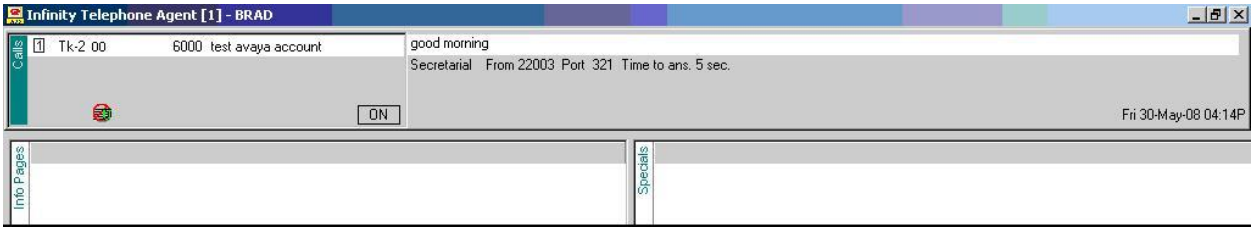

Figure 35: Transferring Call

4. By pressing the **F4**, the Infinity Operator joins the caller and the destination and call is in a **Conf** state as displayed in **Figure 36**.

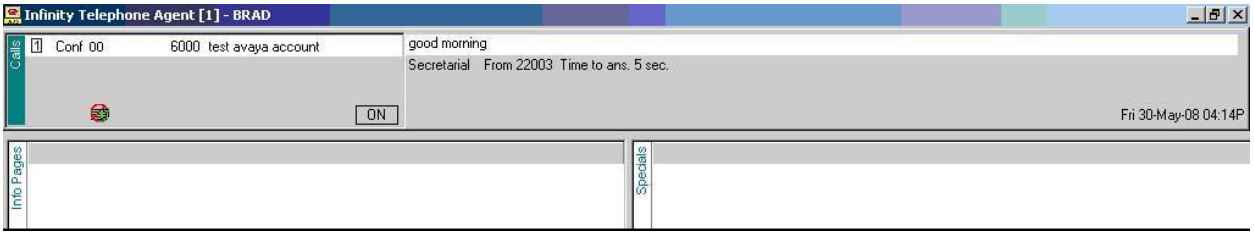

Figure 36: Call Joined

5. Pressing the **F4** key again, the call will be removed from the Infinity Operator. QSIG **path replacement** should remove all associated QSIG PRI channels used to setup and transfer the call.

5.6. Amtelco Infinity Tracing

Details trace capabilities itemized and tracked the events as an incoming call was detected, answered, connected, conferenced, and released. **Appendix A** demonstrates a small sample of a trace event used during compliance testing.

6. Support

Technical support for Amtelco Infinity can be obtained through the following:

- Call the Amtelco Infinity technical support at 1(800) 356-9148.
- Submit email question to Amtelco Infinity technical email support at info@amtelco.com.
- For more information visit http://callcenter.amtelco.com.

7. Conclusion

These Application Notes describe the configuration steps required for Amtelco Infinity Release 5.50.05 to successfully interoperate with Avaya Communication Manager 5.0. All feature functionality and serviceability test cases were completed successfully.

8. Additional References

This section references the product documentation relevant to these Application Notes.

[1] *Telephone Agent Reference Guide.* Infinity Automated Call Distribution and Unified Messaging System. 232M038A 2002.

Appendix A

```
11:01:57.831  Rcv [20]: DS08AO60202/60211^
11:01:57.831  Xmt [20]: DP08^
11:01:57.831  Rcv [20]: DF08N0RecStat-02^
11:01:57.831  Xmt [20]: DA08I^
11:01:57.831  Xmt [20]: CP083^
11:01:57.831  Rcv [20]: SL08^
11:01:59.369  Xmt [20]: DC08I^
11:01:59.369  Xmt [21]: CC0006040704^
11:01:59.369  Rcv [21]: SC00^
11:01:59.424  Rcv [20]: DC08AA6B0^
11:01:59.424  Xmt [20]: CC0810481148^
11:01:59.424  Rcv [20]: SC08^
11:01:59.424  Xmt [22]: XLI07040508^
11:01:59.424  Xmt [22]: XLI11480124^
11:02:08.542  Xmt [22]: MOH1148PFF^
11:02:08.542  Xmt [22]: MOH0704PFF^
11:02:08.542  Xmt [21]: CH00^
11:02:08.542  Rcv [21]: SH00^
11:02:08.597  Xmt [20]: DS00SN60202/60211^
11:02:08.597  Xmt [20]: CH00^
11:02:08.597  Rcv [20]: SH00^
11:02:08.597  Rcv [20]: DP00N000F^
11:02:08.597  Rcv [20]: DA00N000F^
11:02:08.597  Xmt [20]: CC0010401140^
11:02:08.597  Xmt [21]: CC0006040704^
11:02:08.597  Xmt [22]: XLI07040500^
11:02:08.597  Xmt [22]: XLI11400124^
11:02:08.597  Rcv [21]: SC00^
11:02:08.652  Rcv [20]: DF00N1Digital-1^
11:02:08.652  Rcv [20]: SC00^
11:02:10.135  Xmt [22]: MOH0704PFF^
11:02:10.190  Xmt [22]: MOH1140PFF^
11:02:10.190  Xmt [22]: MOH1148PFF^
11:02:10.190  Xmt [22]: CA011140104000^
11:02:10.190  Xmt [22]: CA011148104800^
11:02:10.190  Xmt [22]: CA010704060400^
11:02:11.014  Xmt [22]: CU01^
11:02:11.014  Xmt [21]: CH00^
```

```
11:02:11.014  Xmt [22]: XLI11400508^
11:02:11.014  Xmt [22]: XLI11480500^
11:02:11.014  Rcv [21]: SH00^
11:02:11.783  Rcv [20]: DC00D000F#60211^
11:02:11.783  Xmt [20]: CC0010401140^
11:02:11.783  Rcv [20]: DF00N2Digital-1^
11:02:11.783  Rcv [20]: SC00^
11:02:29.084  Xmt [20]: DF08C33P60211^
11:02:29.084  Xmt [20]: DF00C34S60202^
11:02:32.105  Rcv [20]: DF08P24,5-60202^
11:02:32.105  Xmt [20]: DF00P24,5-60202^
11:02:32.160  Rcv [20]: DD0010^
11:02:32.160  Xmt [20]: CD00^
11:02:32.160  Xmt [22]: MOH1140PFF^
11:02:32.160  Xmt [22]: MOH1148PFF^
11:02:32.160  Xmt [20]: CD08^
11:02:32.160  Xmt [20]: DD0810^
11:02:32.160  Rcv [20]: SI00^
11:02:32.160  Rcv [20]: SI08^
11:02:32.160  Rcv [20]: DR0000^
11:02:32.215  Rcv [20]: DR08R00^
```

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at devconnect@avaya.com.