



Avaya Solution & Interoperability Test Lab

Application Notes for IPC UnigyV2 with Avaya Aura® Communication Manager 6.0.1 using EC500 Features and QSIG Trunks – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for IPC UnigyV2 to interoperate with Avaya Aura® Communication Manager 6.0.1 using EC500 features and QSIG trunks.

IPC UnigyV2 is a trading communication solution. In the compliance testing, IPC UnigyV2 used E1 QSIG trunks to connect to Avaya Aura® Communication Manager.

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

1. Introduction

These Application Notes describe the configuration steps required for IPC UnigyV2 to interoperate with Avaya Aura® Communication Manager 6.0.1 using QSIG trunks.

The purpose of the compliance test is to verify using EC500 features on Avaya Aura® Communication Manager to terminate calls on IPC turrets.

IPC UnigyV2 is a trading communication solution. In the compliance testing, IPC UnigyV2 used E1 QSIG trunks to connect to Avaya Aura® Communication Manager.

2. General Test Approach and Test Results

The feature test cases were performed manually. Calls were manually established to Avaya H.323 phones and terminated on IPC turret users via E1 QSIG trunk.

The serviceability test was skipped during this compliance test.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

2.1. Interoperability Compliance Testing

The interoperability compliance test only included EC500 features.

The feature testing included basic call, G.711MU, hold/resume, call forwarding unconditional/ring-no-answer/busy, blind/attended transfer, conference, and long duration calls.

2.2. Test Results

All test cases were executed and passed.

2.3. Support

Technical support on IPC UnigyV2 can be obtained through the following:

- **Phone:** (800) NEEDIPC, (203) 339-7800
- **Email:** systems.support@ipc.com

3. Reference Configuration

As shown in the test configuration below, IPC UnigyV2 at the Remote Site consists of the Media Manager, Converged Communication Manager, Media Gateway, and Turrets. The Media Manager and Converged Communication Manager are typically deployed on separate servers. In the compliance testing, the same server hosted the Media Manager and Converged Communication Manager. There is a physical connection between the DS1 circuit pack on Communication Manager and the IPC Media Gateway. E1 QSIG trunks are used from IPC UnigyV2 to Communication Manager.

A five digit Uniform Dial Plan (UDP) was used to facilitate dialing between the Avaya and IPC sites. Unique extension ranges were associated with Communication Manager users at the Avaya site (4200x), and IPC turret users at the IPC site (7205x).

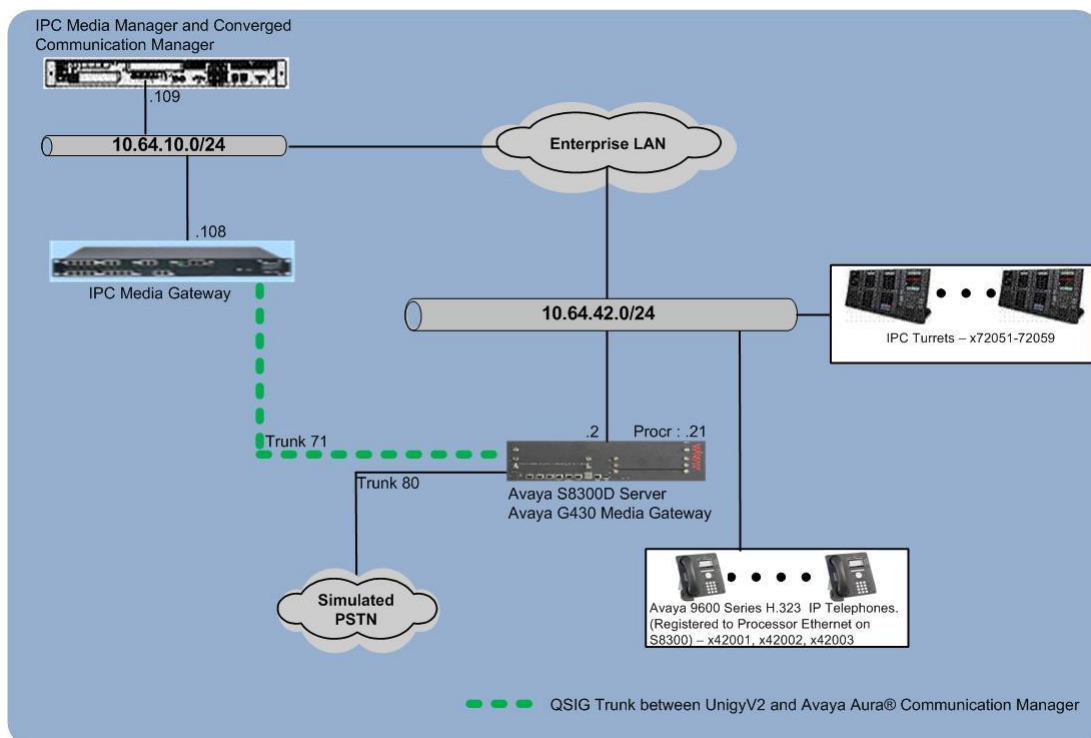


Figure 1: Test Configuration of IPC UnigyV2 with Avaya Aura® Communication Manager on S8300D Server

4. Equipment and Software Validated

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

Equipment	Software
Avaya Aura® Communication Manager on Avaya S8300D Server	6.0.1 (R016x.00.1.510.1-19940)
Avaya G430 Media Gateway <ul style="list-style-type: none">MM710AP DS1 Interface	31.26 HW02 FW019
Avaya 96xx IP Telephone (H.323)	3.1
IPC UnigyV2 <ul style="list-style-type: none">Media ManagerConverged Communication ManageMedia GatewayTurrets	02.00.00.00.1571 02.00.00.00.1571 6.40A.042.004 02.00.00.00.1571

5. Configure Avaya Aura® Communication Manager

This section provides the procedures for configuring Communication Manager. The procedures include the following areas:

- Verify Communication Manager license
- Administer system parameters features
- Administer DS1 circuit pack
- Administer ISDN trunk group
- Administer ISDN signaling group
- Administer trunk group members
- Administer route pattern
- Administer public unknown numbering
- Administer uniform dial plan
- Administer AAR analysis
- Administer Off-PBX-telephone

5.1. Verify Communication Manager License

Log into the System Access Terminal (SAT) to verify that the Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the “display system-parameters customer-options” command. Navigate to **Page 4**, and verify that **ISDN-PRI** is enabled, as shown below.

```
display system-parameters customer-options                               Page 4 of 11
                                OPTIONAL FEATURES

Emergency Access to Attendant? y                                     IP Stations? y
  Enable 'dadmin' Login? y
  Enhanced Conferencing? y                                           ISDN Feature Plus? n
    Enhanced EC500? y         ISDN/SIP Network Call Redirection? y
Enterprise Survivable Server? n                                     ISDN-BRI Trunks? y
  Enterprise Wide Licensing? n                                     ISDN-PRI? y
    ESS Administration? y         Local Survivable Processor? n
      Extended Cvg/Fwd Admin? y   Malicious Call Trace? y
External Device Alarm Admin? y         Media Encryption Over IP? n
Five Port Networks Max Per MCC? n     Mode Code for Centralized Voice Mail? n
  Flexible Billing? n
Forced Entry of Account Codes? 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? y
  IP Trunks? y

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

Navigate to **Page 8**, and verify the QSIG optional features are enabled, as shown below.

```
display system-parameters customer-options                               Page 8 of 11
                                QSIG OPTIONAL FEATURES

                                Basic Call Setup? y
                                Basic Supplementary Services? y
                                Centralized Attendant? y
                                Interworking with DCS? y
                                Supplementary Services with Rerouting? y
                                Transfer into QSIG Voice Mail? y
                                Value-Added (VALU)? y
```

5.2. Administer System Parameters Features

Use the “change system-parameters features” command to allow for trunk-to-trunk transfers.

This feature is needed to be able to transfer an incoming call from IPC back out to IPC (incoming trunk to outgoing trunk), and to transfer an outgoing call to IPC to another outgoing trunk to IPC (outgoing trunk to outgoing trunk). For ease of compliance testing, the **Trunk-to-Trunk Transfer** field was set to “all” to enable all trunk-to-trunk transfers on a system wide basis. Note that this feature poses significant security risk, and must be used with caution. For alternatives, the trunk-to-trunk feature can be implemented on the Class Of Restriction or Class Of Service levels. Refer to [1] for more details.

```
change system-parameters features                                       Page 1 of 19
                                FEATURE-RELATED SYSTEM PARAMETERS
                                Self Station Display Enabled? n
                                Trunk-to-Trunk Transfer: all
                                Automatic Callback with Called Party Queuing? n
                                Automatic Callback - No Answer Timeout Interval (rings): 3
                                Call Park Timeout Interval (minutes): 10
                                Off-Premises Tone Detect Timeout Interval (seconds): 20
                                AAR/ARS Dial Tone Required? y

                                Music (or Silence) on Transferred Trunk Calls? no
                                DID/Tie/ISDN/SIP Intercept Treatment: attd
                                Internal Auto-Answer of Attd-Extended/Transferred Calls: transferred
                                Automatic Circuit Assurance (ACA) Enabled? n

                                Abbreviated Dial Programming by Assigned Lists? n
                                Auto Abbreviated/Delayed Transition Interval (rings): 2
                                Protocol for Caller ID Analog Terminals: Bellcore
                                Display Calling Number for Room to Room Caller ID Calls? n
```

5.3. Administer DS1 Circuit Pack for QSIG Trunks to IPC

Use the “add ds1 x” command, where “x” is the slot number of the DS1 circuit pack with physical connectivity to IPC. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Name:** A descriptive name.
- **Line Coding:** “hdb3”
- **Signaling Mode:** “isdn-pri”
- **Connect:** “pbx”
- **Interface:** “peer-master”
- **Peer Protocol:** “Q-SIG”
- **Side:** “b”
- **Interface Companding:** “mulaw”
- **CRC:** “y”
- **Channel Numbering:** “timeslot”

```
change ds1 1v2                                     Page 1 of 1
DS1 CIRCUIT PACK

Location: 001V2                                     Name: QSIG to Unigy
Bit Rate: 2.048                                     Line Coding: hdb3

Signaling Mode: isdn-pri
Connect: pbx                                         Interface: peer-master
TN-C7 Long Timers? n                               Peer Protocol: Q-SIG
Interworking Message: PROgress                     Side: b
Interface Companding: mulaw                         CRC? y
Idle Code: 11111111                               Channel Numbering: timeslot
DCP/Analog Bearer Capability: 3.1kHz

T303 Timer(sec): 4
Disable Restarts? n

Slip Detection? n                                  Near-end CSU Type: other

Echo Cancellation? n
```

5.4. Administer ISDN Trunk Group

Administer an ISDN trunk group to interface with IPC. Use the “add trunk-group n” command, where “n” is an available trunk group number. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Group Type:** “isdn”
- **Group Name:** A descriptive name.
- **TAC:** An available trunk access code.
- **Carrier Medium:** “PRI/BRI”
- **Service Type:** “tie”

```
change trunk-group 71                                     Page 1 of 21
                                     TRUNK GROUP

Group Number: 71                                     Group Type: isdn                                     CDR Reports: n
Group Name: ElQSIG-Unigy                               COR: 1                                     TN: 1                                     TAC: 1071
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
TestCall BCC: 4                                     Far End Test Line No:
```

Navigate to **Page 2**. For **Supplementary Service Protocol**, enter “b” for QSIG. For **Digit Handling (in/out)**, enter “enbloc/enbloc”. Retain the default values for the remaining fields.

```
change trunk-group 71                                     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
Supplementary Service Protocol: b                               Digit Handling (in/out): enbloc/enbloc

Trunk Hunt: cyclical                                     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
Administer Timers? n                                     CONNECT Reliable When Call Leaves ISDN? n
XOIP Treatment: auto                               Delay Call Setup When Accessed Via IGAR? n
```


Navigate to **Page 3**. Enable **Send Name**, **Send Calling Number**, and **Send Called/Busy/Connected Number**. For **Format**, enter “private”.

```
change trunk-group 71                                     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: 30
                                                         Send Name: y                                           Send Calling Number: y
    Used for DCS? n                                         Hop Dgt? n                                           Send EMU Visitor CPN? n
    Suppress # Outpulsing? n                               Format: private
    Outgoing Channel ID Encoding: preferred                UII IE Treatment: service-provider

                                                         Replace Restricted Numbers? n
                                                         Replace Unavailable Numbers? n
                                                         Send Called/Busy/Connected Number: y
                                                         Hold/Unhold Notifications? y
    Send UII IE? y                                         Modify Tandem Calling Number: no
    Send UCID? n
    Send Codeset 6/7 LAI IE? y                             Dsl Echo Cancellation? n

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

5.5. Administer ISDN Signaling Group

Administer an ISDN signaling group for the new trunk group to use for signaling. Use the “add signaling-group n” command, where “n” is an available signaling group number. For **Primary D-Channel**, enter the slot number for the DS1 circuit pack from **Section 5.3** and port “16”. Set desired values for **Max number of NCA TSC** and **Max number of CA TSC**.

For **Trunk Group for NCA TSC** and **Trunk Group for Channel Selection**, enter the ISDN trunk group number from **Section 5.4**. For **TSC Supplementary Service Protocol**, enter “b” for QSIG. Retain the default values for the remaining fields.

```
change signaling-group 71                                   Page 1 of 1
SIGNALING GROUP
Group Number: 71                                         Group Type: isdn-pri
Associated Signaling? y                                   Max number of NCA TSC: 30
Primary D-Channel: 001V216                               Max number of CA TSC: 30
                                                         Trunk Group for NCA TSC: 71
Trunk Group for Channel Selection: 71                    X-Mobility/Wireless Type: NONE
TSC Supplementary Service Protocol: b                     Network Call Transfer? n
```

5.6. Administer Trunk Group Members

Use the “change trunk-group n” command, where “n” is the ISDN trunk group number added in **Section 5.4**. Navigate to **Page 3**. For **NCA-TSA Trunk Member**, enter the highest trunk group member number to use for routing of tandem QSIG call independent signaling connections.

```
change trunk-group 71                                     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: 30
                             Send Name: y            Send Calling Number: y
                             Hop Dgt? n              Send EMU Visitor CPN? n
  Used for DCS? n
  Suppress # Outpulsing? n  Format: private
  Outgoing Channel ID Encoding: preferred  UII IE Treatment: service-provider

                             Replace Restricted Numbers? n
                             Replace Unavailable Numbers? n
                             Send Called/Busy/Connected Number: y
                             Hold/Unhold Notifications? y
  Send UII IE? y            Modify Tandem Calling Number: no
  Send UCID? n
  Send Codeset 6/7 LAI IE? y          Dsl Echo Cancellation? n

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

Navigate to **Page 5** and **6**. Enter all 30 ports of the DS1 circuit pack into the **Port** fields, and the corresponding **Code** and **Sfx** fields will be populated automatically. Enter the ISDN signaling group number from **Section 5.5** into the **Sig Grp** field as shown below.

```
change trunk-group 71                                     Page 5 of 21
TRUNK GROUP
  Administered Members (min/max): 1/30
GROUP MEMBER ASSIGNMENTS  Total Administered Members: 30

  Port   Code Sfx Name      Night      Sig Grp
1: 001V201 MM710
2: 001V202 MM710
3: 001V203 MM710
4: 001V204 MM710
5: 001V205 MM710
6: 001V206 MM710
7: 001V207 MM710
8: 001V208 MM710
9: 001V209 MM710
10: 001V210 MM710
11: 001V211 MM710
12: 001V212 MM710
13: 001V213 MM710
14: 001V214 MM710
15: 001V215 MM710
```

change trunk-group 71					Page 6 of 21	
TRUNK GROUP						
					Administered Members (min/max):	1/30
GROUP MEMBER ASSIGNMENTS					Total Administered Members:	30
	Port	Code Sfx	Name	Night	Sig Grp	
16:	001V217	MM710			71	
17:	001V218	MM710			71	
18:	001V219	MM710			71	
19:	001V220	MM710			71	
20:	001V221	MM710			71	
21:	001V222	MM710			71	
22:	001V223	MM710			71	
23:	001V224	MM710			71	
24:	001V225	MM710			71	
25:	001V226	MM710			71	
26:	001V227	MM710			71	
27:	001V228	MM710			71	
28:	001V229	MM710			71	
29:	001V230	MM710			71	
30:	001V231	MM710			71	

5.7. Administer Route Pattern

Use the “change route-pattern n” command, where “n” is an available route pattern number, in this case “71”. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Pattern Name:** A descriptive name.
- **Grp No:** The ISDN trunk group number from **Section 5.4**.
- **FRL:** A level that allows access to this trunk, with 0 being least restrictive.

change route-pattern 71										Page 1 of 3	
Pattern Number: 71 Pattern Name:											
SCCAN? n Secure SIP? n											
Grp	FRL	NPA	Pfx	Hop	Toll	No.	Inserted			DCS/	IXC
No			Mrk	Lmt	List	Del	Digits			QSIG	
							Dgts			Intw	
1:	71	0								n	user
2:										n	user
3:										n	user
4:										n	user
5:										n	user
6:										n	user
BCC VALUE TSC CA-TSC ITC BCIE Service/Feature PARM No. Numbering LAR											
0	1	2	M	4	W		Request			Dgts	Format
										Subaddress	
1:	y	y	y	y	y	n	n		rest		none
2:	y	y	y	y	y	n	n		rest		none

5.8. Administer Public Unknown Numbering

Use the “change public-unknown-numbering 0” command, to define the calling party number to send to IPC. Add an entry for the trunk group defined in **Section 5.4**. In the example shown below, all calls originating from a 5-digit extension beginning with 4 and routed to trunk group 71 will result in a 5-digit calling number.

change public-unknown-numbering 0					Page 1 of 2
NUMBERING - PUBLIC/UNKNOWN FORMAT					
Ext	Ext	Trk	CPN	Total	
Len	Code	Grp(s)	Prefix	CPN	
				Len	
5	4	71		5	Total Administered: 11
					Maximum Entries: 9999

5.9. Administer Uniform Dial Plan

This section provides a sample AAR routing used for routing calls with dialed digits 7205x to IPC. Note that other methods of routing may be used. Use the “change uniform-dialplan 0” command, and add an entry to specify the use of AAR for routing digits 7205x, as shown below.

change uniform-dialplan 0					Page 1 of 2
UNIFORM DIAL PLAN TABLE					
					Percent Full: 0
Matching			Insert		Node
Pattern	Len	Del	Digits	Net Conv	Num
7205	5	0		aar	n
					n

5.10. Administer AAR Analysis

Use the “change aar analysis 0” command, and add an entry to specify how to route calls to 7205x. In the example shown below, calls with digits 7205x will be routed as an AAR call using route pattern “71” from **Section 5.7**.

change aar analysis 0					Page 1 of 2
AAR DIGIT ANALYSIS TABLE					
Location: all					Percent Full: 1
Dialed	Total	Route	Call	Node	ANI
String	Min	Max	Type	Num	Reqd
7205	5	5	71	aar	n
					n

5.11. Administer Off-PBX-telephone

Use the “change off-pbx-telephone station-mapping n” command, where “n” is the EC500 origination station. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Application:** Select “EC500”
- **Phone Number:** EC500 termination station. In this compliance test, the turret with extension, 72052, was used.
- **Trunk Selection:** Select “aar”
- **Config Set:** Select a configuration set utilized for the EC500 features. In this compliance test, the configuration set 1 was used.

change off-pbx-telephone station-mapping 42001							Page 1 of 3
STATIONS WITH OFF-PBX TELEPHONE INTEGRATION							
Station Extension	Application	Dial Prefix	CC	Phone Number	Trunk Selection	Config Set	Dual Mode
42001	EC500	-	-	72052	aar	1	-
		-	-				
		-	-				

Enter the “change off-pbx-telephone configuration-set x” command, where “x” is the Config Set designated previously. Set the **Cellular Voice Mail Detection** field to “none”, and retain the default values for the remaining fields.

change off-pbx-telephone configuration-set 1							Page 1 of 1
CONFIGURATION SET: 1							
Configuration Set Description:							
Calling Number Style: network							
CDR for Origination: phone-number							
CDR for Calls to EC500 Destination? n							
Fast Connect on Origination? n							
Post Connect Dialing Options: dtmf							
Cellular Voice Mail Detection: none							
Barge-in Tone? n							
Calling Number Verification? y							
Call Appearance Selection for Origination: primary-first							
Confirmed Answer? n							
Use Shared Voice Connections for Second Call Answered? n							
Use Shared Voice Connections for Second Call Initiated? n							

6. Configure IPC Converged Communications Manager

This section provides the procedures for configuring IPC Media Manager and Media Gateway. The procedures include the following areas:

- Launch Unigy Management System
- Administer Media Gateway
- Administer Trunk Groups
- Administer Route Lists
- Administer Dial Patterns
- Administer Route Plans
- Administer Codecs

The configuration of Media Manager is typically performed by IPC installation technicians. The procedural steps are presented in these Application Notes for informational purposes.

6.1. Launch Unigy Management System

Access the Unigy Management System web interface by using the URL “http://ip-address” in an Internet browser window, where “ip-address” is the IP address of the Media Manager. Log in using the appropriate credentials.

The screen below is displayed. Enter the appropriate credentials. Check **I agree with the Terms of Use**, and click **Login**.

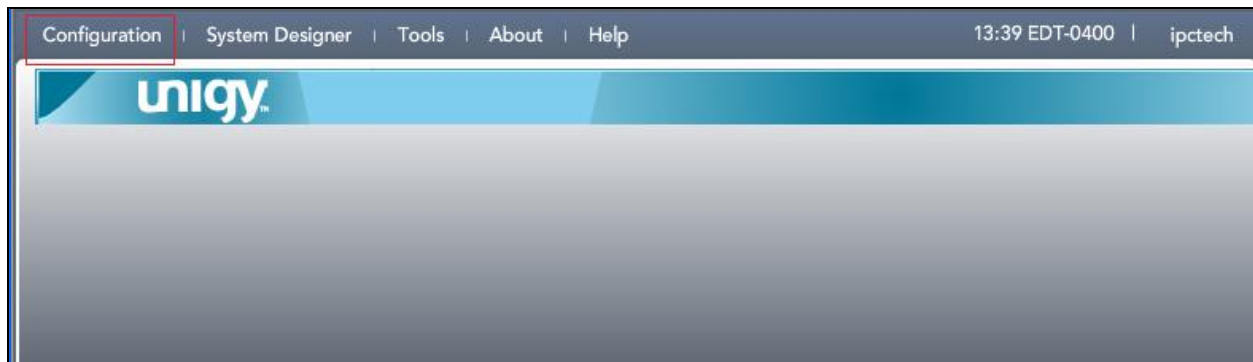
In the subsequent screen (not shown), click **Continue**.



The screenshot shows the login interface for the IPC Unigy Management System. It features the IPC logo on the left. To the right, there are two input fields: 'User Name:' and 'Password:'. Below these fields is a checkbox labeled 'I agree with the' followed by a link to 'Terms of Use'. A 'Login' button is positioned to the right of the checkbox. At the bottom of the form, the text reads: 'IPC Unigy™ Management System', 'Unigy™ Version 02.00.00.00.1571', and '© Copyright 2012 IPC Systems, Inc.'

6.2. Administer Media Gateway

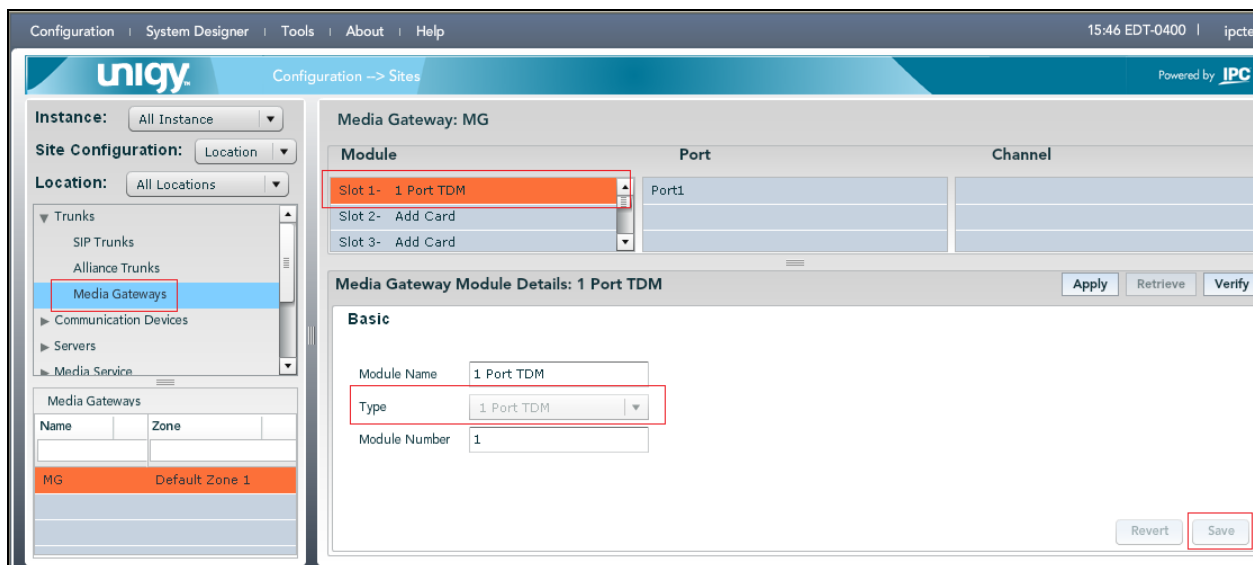
The screen below is displayed next. Select **Configuration** → **Sites** from the top menu.



The **Sites** information is displayed in the left pane. Select **Trunks** → **Media Gateways**, to display a list of media gateway in the lower left pane. Select the applicable media gateway from the listing, in this case “MG”.

The **Media Gateway** information is displayed in the upper right pane. Select the applicable physical card, in this case “Slot 1”.

The **Media Gateway Module Details** information is displayed in the lower right pane. Select “1 Port TDM” for **Type**, and click **Save**.



In the updated screen, click on a desired **Port** in the upper right pane, in this case “Port 1”.

The **Media Gateway Port Details** information is displayed in the lower right pane. Enter the following values for the specified fields, and retain the default values for the remaining fields:

- **Protocol Type:** Select “E1 QSIG”.
- **Clock Master:** Select “CLOCK-MASTER-OFF”.
- **Far End Connection:** Select “PBX”.
- **Trunk:** “ISDN”. This is the default value displayed when “E1 QSIG” is selected for **Protocol Type**.
- **Line Code:** “HDB3”. This is the default value displayed when “E1 QSIG” is selected for **Protocol Type**. This value needs to be matched with the value set in **Section 5.3**.

Click **Save** (not shown), followed by **Apply**.

The screenshot displays the UniGy Configuration application interface. The top menu bar includes Configuration, System Designer, Tools, About, and Help. The status bar shows the time as 15:49 EDT-0400 and the user as ipctech. The main window is titled "Configuration --> Sites" and is powered by IPC.

On the left, there is a navigation pane with a tree view. The "Media Gateways" section is expanded, showing a list of Media Gateways. The "MG" gateway is selected, and its details are shown in the main pane.

The main pane is divided into two sections. The top section, titled "Media Gateway: MG", contains a table with columns "Module", "Port", and "Channel". The "Port" column is highlighted, and "Port1" is selected.

The bottom section, titled "Media Gateway Port Details: Port1", contains a form with various fields. The "Port Properties" tab is active. The fields are:


- Distant End Name (text field)
- PBX Trunk Group Reference (text field)
- Trunk Info (text field)
- Protocol Type (dropdown menu, set to "E1 QSIG")
- Alliance ICM Trunk (checkbox, unchecked)
- Trunk (dropdown menu, set to "ISDN")
- Alliance Site (dropdown menu)
- Alliance Site IP Address (text field)
- Clock Master (dropdown menu, set to "CLOCK-MASTER-OFF")
- Line Code (dropdown menu, set to "HDB3")
- Far End Connection (dropdown menu, set to "PBX")
- Framing Method (dropdown menu, set to "E1-FRAMING-MFF-CR")

Buttons for "Apply", "Retrieve", and "Verify" are located at the top right of the form. A "Basic" button is also present at the bottom right of the form.

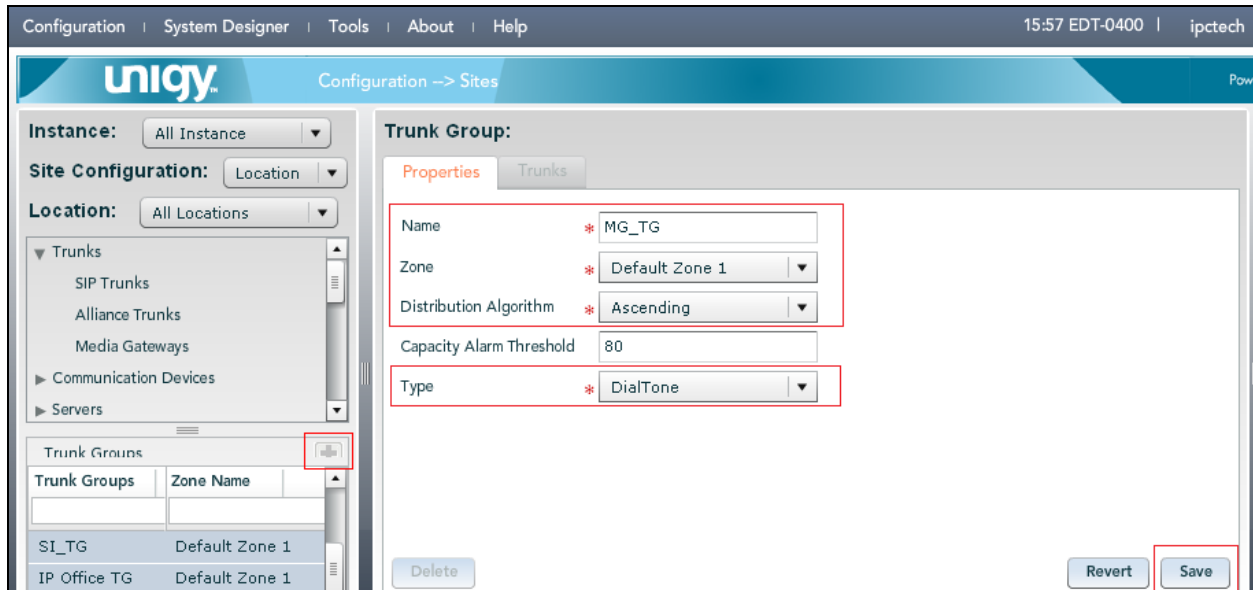
When the value for **Protocol Type** is entered, a new tab called **ISDN** is appeared as shown below. Click the **ISDN** tab, and select **Advanced**. All ISDN trunk related values shown here are defaults, and used as such.

The screenshot displays the UniV2 configuration interface. The top header shows the UniV2 logo, 'Configuration -> Sites', and 'Powered by IPC'. The left sidebar contains a navigation tree with categories like Trunks, SIP Trunks, Alliance Trunks, Media Gateways, Communication Devices, Servers, Media Service, Prototype Devices, SNMP Forwarding, and Routing. The 'Media Gateways' section is expanded, showing a table with columns 'Name' and 'Zone'. The table contains one entry: 'MG' in 'Default Zone 1'. The main content area is titled 'Media Gateway: MG' and shows a table with columns 'Module', 'Port', and 'Channel'. The first row is 'Slot 1- 1 Port TDM', 'Port1', and an empty 'Channel' field. Below this, the 'Media Gateway Port Details: Port1' section is visible. It has tabs for 'Port Properties' and 'ISDN'. The 'ISDN' tab is selected and highlighted with a red box. Within the 'ISDN' tab, there are sub-tabs for 'Basic' and 'Advanced'. The 'Advanced' sub-tab is selected and highlighted with a red box. The 'Advanced' sub-tab contains various configuration fields for ISDN, including 'Trunk Name' (QSIG/ISDN Trunk 1), 'Destination Address' (10.64.10.108), 'Destination Port' (5060), 'Connected Party Update' (UPDATE), 'SubscribeMWI' (0), 'MWI Subscription Time' (0), 'Trunk Group ID' (1), 'Diversion Header' (History-Info), 'Outgoing Transport Type' (UDP), 'Connection Type' (Dial Tone), 'Channel Select Mode' (Cyclic Ascending), 'Registration Mode' (Do Not Register), 'Echo Canceled' (Off), 'PSTN Alert Timeout' (600), 'Play Ringback Tone to Trunk' (Play On Local), and 'ISDN Termination Side' (USER-TERMINATION-). The 'Basic' sub-tab is also visible and contains fields for 'Trunk Name', 'Destination Address', 'Destination Port', 'Connected Party Update', 'SubscribeMWI', 'MWI Subscription Time', and 'Trunk Group ID'. At the bottom right of the 'ISDN' tab, there are 'Save' and 'Revert' buttons.

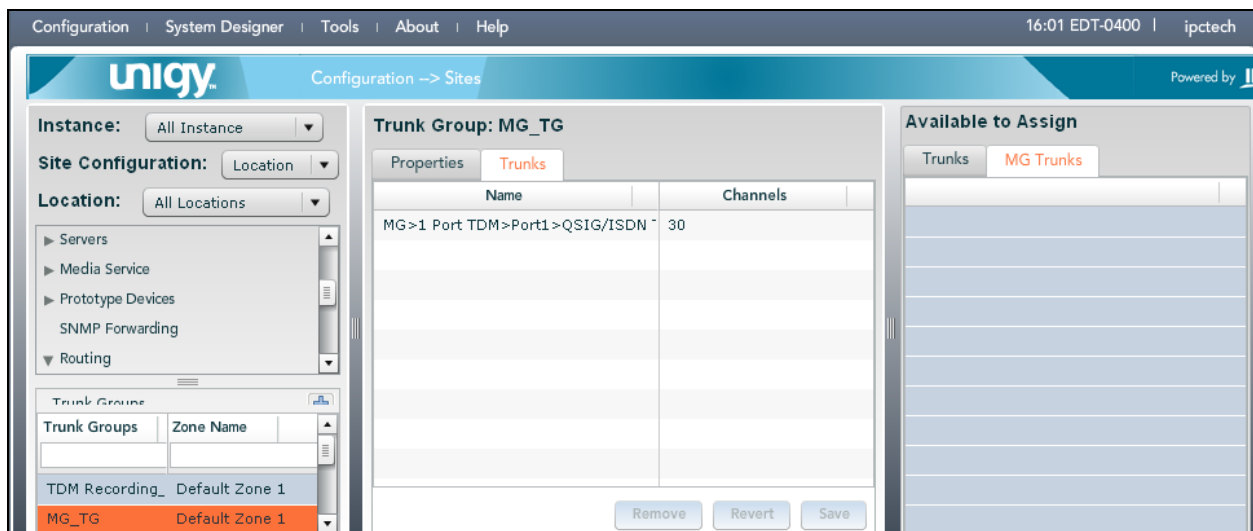
6.3. Administer Trunk Groups

Select **Routing** → **Trunk Groups** (not shown) in the left pane, and click the **Add** icon, , in the lower left pane to add a new trunk group.


The **Trunk Group** screen is displayed in the right pane. In the **Properties** tab, enter a descriptive **Name**, select “Default Zone 1” for **Zone**, and select a Distribution Algorithm. Select “DialTone” for **Type**, and click **Save**. Select the **Trunks** tab in the right pane.



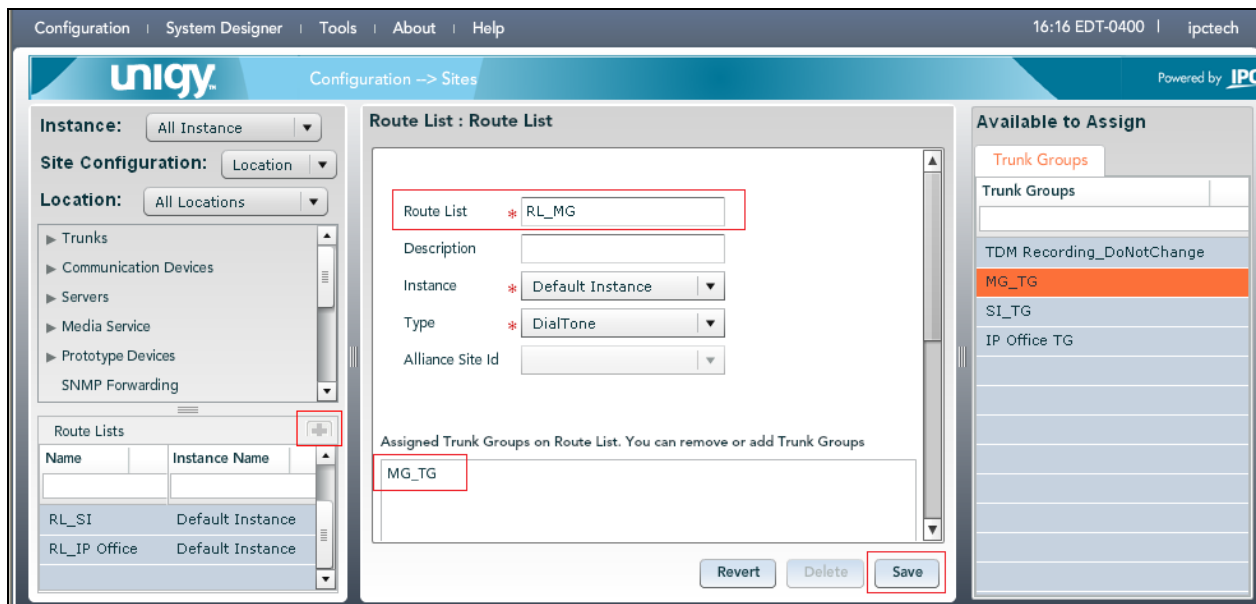
The screen is updated with three panes. In the right pane, select the **MG Trunks** tab. In the **Media Gateway Trunks** listing, select and expand the applicable media gateway slot and port from **Section 6.2**, and drag the selection to the **Name** column in the middle pane as shown below. Click **Save**.



6.4. Administer Route Lists

Select **Routing** → **Route Lists** in the left pane, and click the **Add** icon, , in the lower left pane to add a new route list.

The **Route List** screen is displayed in the middle pane. For **Route List**, enter a descriptive name. In the right pane, select the trunk group from **Section 6.3** and drag into the **Assigned Trunk Groups on Route List** sub-section in the middle pane, as shown below. Click **Save**.



The screenshot displays the UniQy Configuration -> Sites interface. The top navigation bar includes 'Configuration', 'System Designer', 'Tools', 'About', and 'Help'. The main content area is divided into three panes:

- Left Pane:** Contains a navigation tree with categories like 'Trunks', 'Communication Devices', 'Servers', 'Media Service', 'Prototype Devices', and 'SNMP Forwarding'. The 'Route Lists' section is expanded, showing a table with columns 'Name' and 'Instance Name'. A red box highlights the 'Add' icon (a plus sign in a square) next to the 'Route Lists' header.
- Middle Pane:** Titled 'Route List : Route List', it contains a form for configuring a route list. The form fields are: 'Route List' (text input with value 'RL_MG'), 'Description' (text input), 'Instance' (dropdown menu with value 'Default Instance'), 'Type' (dropdown menu with value 'DialTone'), and 'Alliance Site Id' (dropdown menu). Below the form is a section titled 'Assigned Trunk Groups on Route List. You can remove or add Trunk Groups' containing a list box with the value 'MG_TG'. A red box highlights the 'Save' button at the bottom right of the form.
- Right Pane:** Titled 'Available to Assign', it shows a list of 'Trunk Groups'. The groups listed are 'TDM Recording_DoNotChange', 'MG_TG' (highlighted in orange), 'SI_TG', and 'IP Office TG'.

6.5. Administer Dial Patterns

Select **Routing** → **Dial Patterns** in the left pane, to display the **Dial Patterns** screen in the right pane. Click **Add New** in the upper right pane.

In the **Dial pattern Details** sub-section in the lower right pane, enter the desired **Name** and **Description**. For **Pattern String**, enter the dial pattern to match for Avaya endpoints, in this case “*”, meaning any digit. For **Zone**, select “Default Zone 1”. Click **Save**.

The screenshot shows the UniQy Configuration interface. The left pane displays a navigation tree with 'Dial Patterns' selected under 'Routing'. The right pane is divided into two sections: 'Dial Patterns' and 'Dial pattern Details'.

Dial Patterns Table:

Name	Pattern String	Description	Zone Name
all	*	all	Default Zone 1

Dial pattern Details:

Properties

Name * all

Zone * Default Zone 1

Description * all

Pattern String * *

Buttons: Add New, Delete, Revert, Save

6.6. Administer Route Plans

Select **Routing** → **Route Plans** in the left pane, and click **Add New** (not shown) in the right pane to create a new route plan.

The screen is updated with three panes, as shown below. In the **Route Plan** middle pane, enter a descriptive **UI Name** and optional **Description**. For **Calling Party**, enter “*” to denote any calling party from UnigyV2. For **Destination**, enter “*” to denote any called party from UnigyV2. Select “Forward” for **Action**. Select “Default Instance” for **Instance**, and click **Save**.

The screenshot shows the Unigy Configuration interface. The left pane displays a tree view with 'Route Plans' selected. The middle pane is titled 'Route Plan' and contains a 'Create New Route Plan' form. The form fields are: UI Name (all), Description (empty), Calling Party (*), Destination (*), Action (Forward), and Instance (Default Instance). A 'Route List' table is empty. The right pane is titled 'Available to Assign' and shows a list of route lists: TDM Recording_DoNotChange, RL_SI, RL_SES, and RL_MG. The 'Save' button is highlighted with a red box.

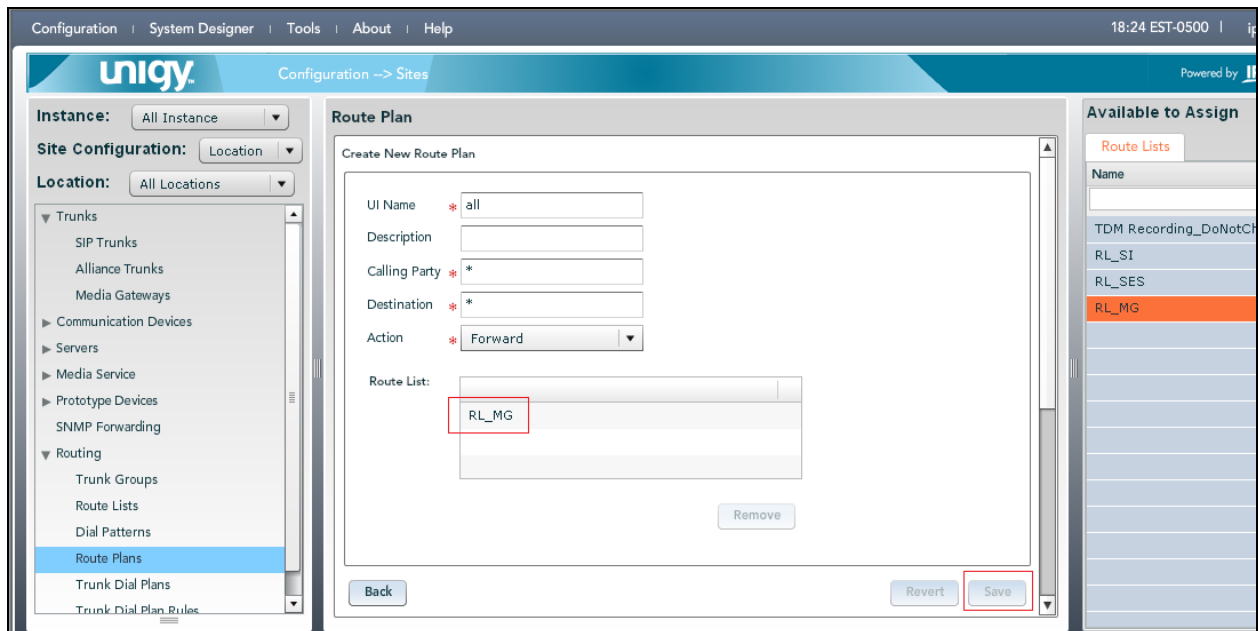
UI Name	Calling Party	Destination	Action	Instance
all	*	*	Forward	Default Instance

The screen is updated with the newly created route plan. Select the route plan, and click **Edit** under Route Plan Details section toward the bottom of the screen (not shown).

The screenshot shows the Unigy Configuration interface. The left pane displays a tree view with 'Route Plans' selected. The middle pane is titled 'Route Plan' and contains a 'List of Route Plans' table. The table has columns: UI Name, Calling Party, Destination, Action, and Instance Name. The table contains one row: all, *, *, FORWARD, Default Instance. The right pane is titled 'Route Plan Details' and shows the details for the selected route plan: Calling Party: *, Destination: *. The 'Save' button is highlighted with a red box.

UI Name	Calling Party	Destination	Action	Instance Name
all	*	*	FORWARD	Default Instance

The screen is updated with three panes again, as shown below. In the right pane, select the route list from **Section 6.4** and drag into the **Route List** sub-section in the middle pane, as shown below. Click **Save**.




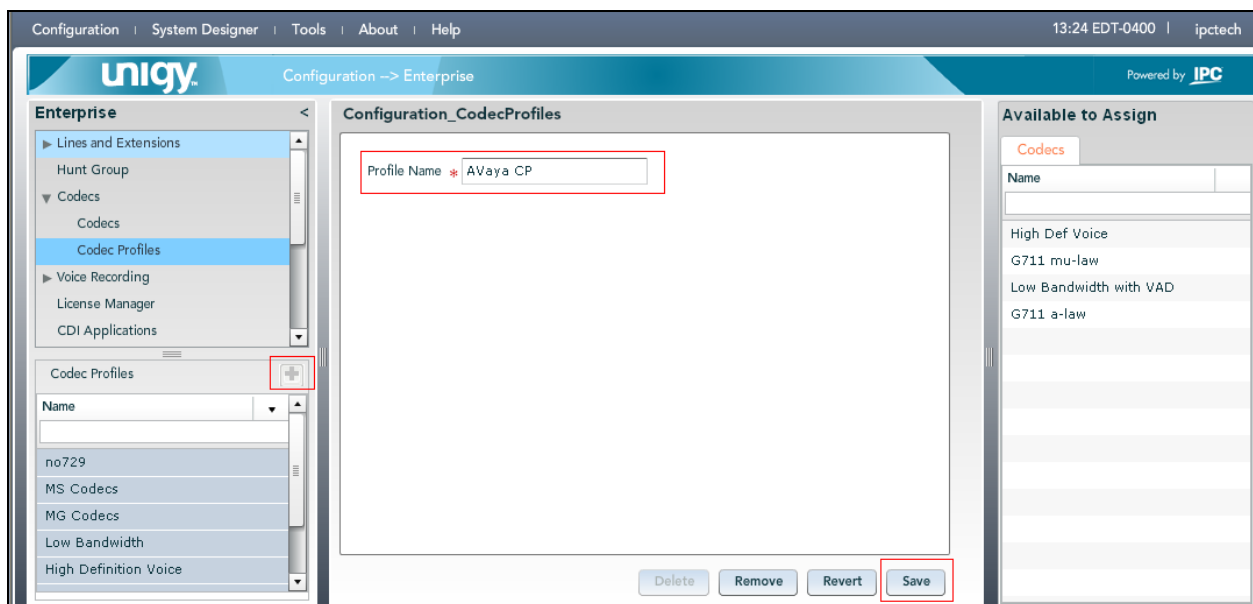
6.7. Administer Codecs

This section provides the procedures for configuring codecs. The procedures include the following areas:

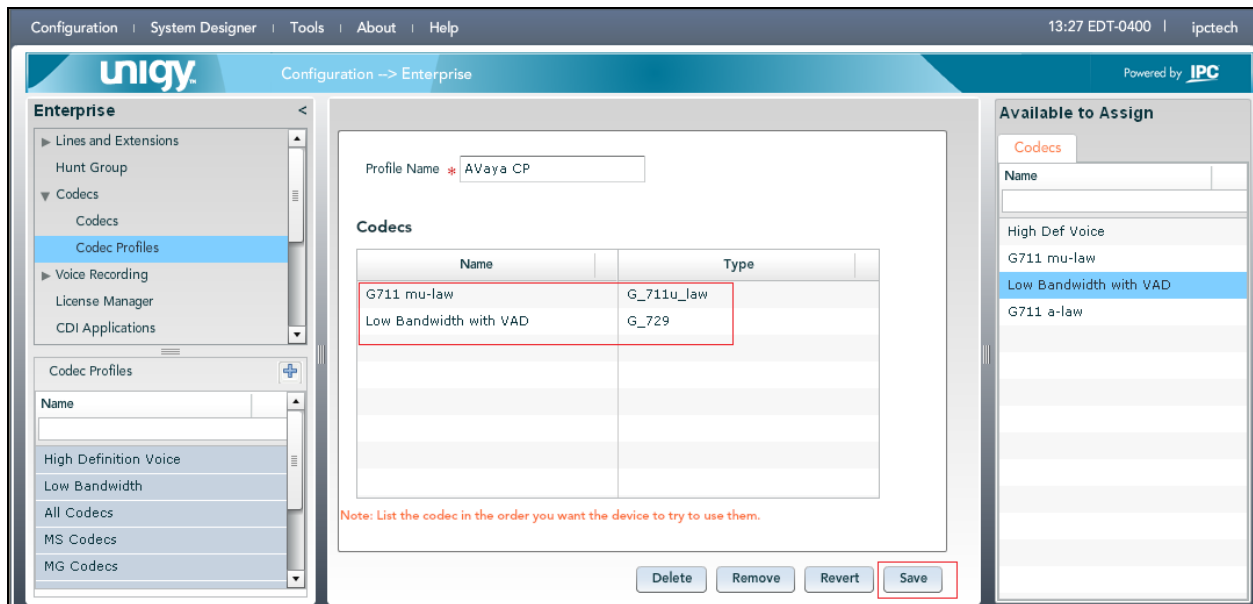
- Administer codec profile
- Assign codec profile to user
- Assign codec profile to turret

6.7.1. Administer Codec Profile

Select **Configuration → Enterprise → Codecs → Codec Profiles**, and click **Add New**, , in the left pane to create a new codec profile. Provide a profile name, and click **Save**.



After saving the codec profile, the following screen is displayed. In the right pane, select the available codecs and drag into the **Codecs** sub-section in the middle pane, as shown below. Click **Save**.



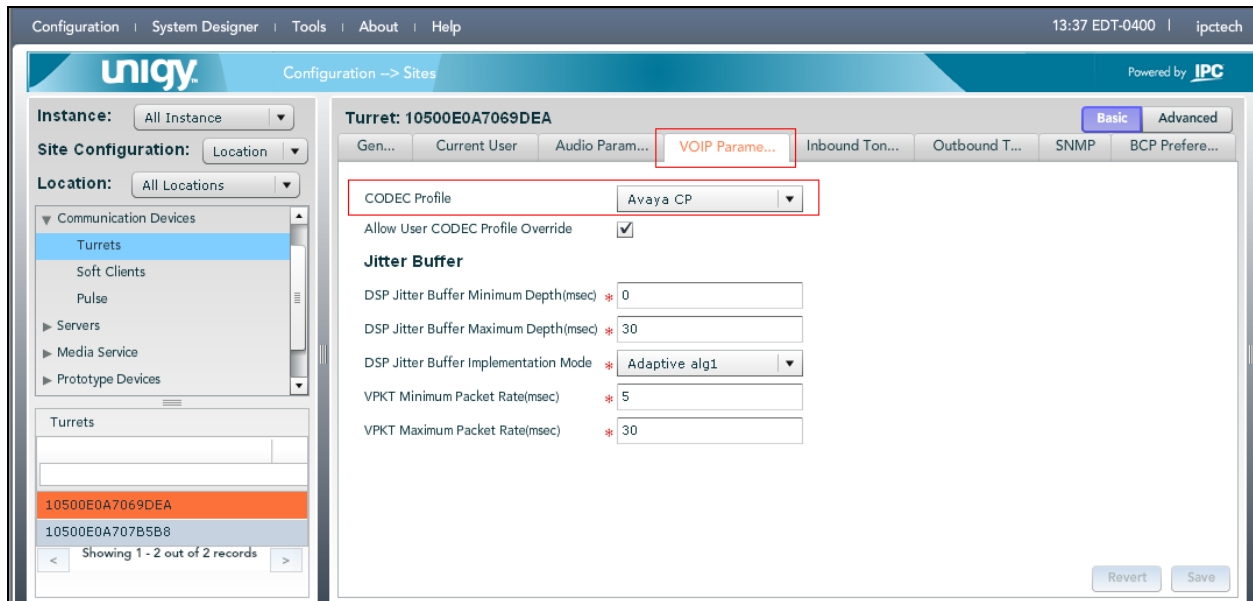
6.7.2. Assign Codec Profile to User

Select **System Designer**→ **End User Configuration**, and select a user to associate a codec profile with. Provide a profile name, and click **Save**.

The screenshot shows the UniQ System Designer interface for End User Configuration. The top navigation bar includes 'Configuration', 'System Designer', 'Tools', 'About', and 'Help'. The main header displays the UniQ logo, 'System Designer -> End User Configuration', and 'Powered by IPC'. The left sidebar contains 'End User Groups' (listing 'IPCUserGrp') and 'Users' (listing 'ipctech', 'user15000', 'user15001', 'user15002', 'user15003', 'chung', and 'chung2'). The 'chung' user is selected. The right panel shows the configuration for 'User: chung' with tabs for 'Trader...', 'Face L...', 'Speak...', 'Privilege', 'Audio', 'Display', 'Soft Cl...', 'Perso...', 'Lync/...', 'Pulse', and 'CDI A...'. The 'Audio' tab is active, showing settings for 'Maximum digit for the divert to number' (26), 'Divert Intercom Calls To', 'Condition for Intercom Calls Diversion' (None), 'Ring No Answer Duration for Intercom Diversion (sec)' (6), 'Intercom Diversion Mode' (none), 'Maintain Intercom Divert Upon Log On?' (unchecked), 'Handset Button Press and Release Actions' (HANDSET_NONE), 'CODEC Profile' (Avaya CP), 'Handset Select Mode' (left), 'Speaker Retry Time (sec)' (10), and 'Alternate Handset Selection Timeout (sec)' (5). The 'CODEC Profile' dropdown is highlighted with a red box. At the bottom right, the 'Save' button is also highlighted with a red box.

6.7.3. Assign Codec Profile to Turret

Navigate to **Configuration** → **Sites** → **Communication Devices** → **Turrets** and select a turret to associate a codec profile with. Click the **VoIP Parame...** tab in the right pane. Select a codec profile, and click **Save**.



After codecs are configured, reboot the turret.

7. Configure Codec in the IPC Media Gateway

This section provides the procedures for configuring codecs in IPC Media Gateway. The procedures include the following areas:

- Launch Gateway Web Interface
- Administer Coders Settings
- Administer TDM Bus Settings

The configuration of the Media Gateway is typically performed by IPC installation technicians. The procedural steps are presented in these Application Notes for informational purposes.

7.1. Launch Gateway Web Interface

Access the Media Gateway web interface by using the URL “http://ip-address” in an Internet browser window, where “ip-address” is the IP address of the Media Gateway. Log in using the appropriate credentials.

7.2. Administer Coders Settings

The screen below is displayed. Select **Configuration** from the top left pane. Click the radio button for **Full** in the left pane, and select **VOIP → Coders And Profiles → Coders**, to display the **Coders Table** screen. Select appropriate codecs that matches the setting in the Media Manager, and click **Submit**.

Coder Name	Packetization Time	Rate	Payload Type	Silence Suppression
G.711U-8k	20	64	0	Disabled
G.711A-8k	20	64	0	Disabled
G.729	20	8	18	Disabled

7.3. Administer TDM Bus Settings

Navigate to **VOIP → TDM → TDM Bus Settings**, and select the followings:

- PCM Law Select: Select “MuLaw”
Note: *Interface Compounding in Avaya side is set to mulaw*
- TDM Bus Clock Source: Select “Internal”.

Click **Submit**.

The screenshot shows the Unigy web interface for TDM Bus Settings. The left sidebar contains a tree view with categories like System, VoIP, Network, TDM, Security, PSTN, CAS State Machines, Trunk Settings, Signaling, Media, Services, Control Network, and SIP Definitions. The 'TDM' category is expanded, showing 'TDM Bus Settings'. The main content area is titled 'TDM Bus Settings' and contains a 'Basic Parameter List' table. The table has two columns: a parameter name and its value. The parameters are: PCM Law Select (MuLaw), TDM Bus Clock Source (Internal), TDM Bus PSTN Auto FallBack Clock (Enable), TDM Bus PSTN Auto Clock Reverting (Disable), Idle PCM Pattern (255), Idle ABCD Pattern (0x0F), TDM Bus Local Reference (1), and TDM Bus Type (Framers). A red box highlights the first two rows. A 'Submit' button is located at the bottom right of the table.

Parameter	Value
PCM Law Select	MuLaw
TDM Bus Clock Source	Internal
TDM Bus PSTN Auto FallBack Clock	Enable
TDM Bus PSTN Auto Clock Reverting	Disable
Idle PCM Pattern	255
Idle ABCD Pattern	0x0F
TDM Bus Local Reference	1
TDM Bus Type	Framers

When configuration is completed, save configuration by performing “burn to flash” and “reset” to the Media Gateway. Navigate to **Maintenance → Maintenance → Maintenance Actions** in the left pane. Set the “Burn To Flash” field to “Yes” and press the **Reset** button, to reset the Media Gateway.

The screenshot shows the Unigy web interface for Maintenance Actions. The left sidebar contains a tree view with categories like System, VoIP, Network, TDM, Security, PSTN, CAS State Machines, Trunk Settings, Signaling, Media, Services, Control Network, and SIP Definitions. The 'Maintenance' category is expanded, showing 'Maintenance Actions'. The main content area is titled 'Maintenance Actions' and contains a 'Reset Configuration' section. The section has a 'Reset' button and a 'Burn To FLASH' field set to 'Yes'. Below this is a 'LOCK / UNLOCK' section with a 'LOCK' button and a 'Graceful Option' field set to 'No'. At the bottom is a 'Save Configuration' section with a 'BURN' button. A red box highlights the 'Reset' button and the 'Burn To FLASH' field.

Section	Field	Value
Reset Configuration	Reset Board	Reset
	Burn To FLASH	Yes
LOCK / UNLOCK	Lock	LOCK
	Graceful Option	No
Save Configuration	Gateway Operational State	UNLOCKED
	Burn To FLASH	BURN

8. Configure IPC Media Manager

This section provides the procedures for administering codecs for IPC Media Manager. Access the Media Manager web interface by using the URL “http://<CCM ip-address>/swms” in an Internet browser window where <CCM ip-address> is the IP address of IPC Converged Communication Manager. Navigate to **Configuration → Node Configuration → Configure SIP Audio Codec List** and specify a list of codecs in priority order.

The screenshot shows the IPC Configuration web interface. The top bar includes the IPC logo and a 'Configuration' tab. The left sidebar lists various configuration options, with 'Configure SIP Audio Codec List' selected. The main content area is titled 'Configure SIP Audio Codec List'. It contains seven rows for configuring codecs, each with a label (Codec #1 through Codec #7) and a dropdown menu. The dropdowns are set to 'gsm', 'gsm', 'g729', 'telephone-events', 'none', 'none', and 'none' respectively. Below the dropdowns are 'Execute' and 'Reset Fields' buttons. At the bottom, there is an 'Output Messages:' text area.

After codecs are specified and prioritized, reboot the IPC Converged Communication Manager server.

9. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Aura® Communication Manager and IPC UnigyV2.

9.1. Verify Avaya Aura® Communication Manager

From the Communication Manager SAT interface, verify the status of the ISDN trunk group by using the “status trunk n” command, where “n” is the ISDN trunk group number administered in **Section 5.4**. Verify that all trunks are in the “in-service/idle” state as shown below.

status trunk 71				Page	1
TRUNK GROUP STATUS					
Member	Port	Service State	Mtce Connected Ports	Busy	
0071/001	001V201	in-service/idle	no		
0071/002	001V202	in-service/idle	no		
0071/003	001V203	in-service/idle	no		
0071/004	001V204	in-service/idle	no		
0071/005	001V205	in-service/idle	no		
0071/006	001V206	in-service/idle	no		
0071/007	001V207	in-service/idle	no		
0071/008	001V208	in-service/idle	no		
0071/009	001V209	in-service/idle	no		
0071/010	001V210	in-service/idle	no		
0071/011	001V211	in-service/idle	no		
0071/012	001V212	in-service/idle	no		
0071/013	001V213	in-service/idle	no		
0071/014	001V214	in-service/idle	no		

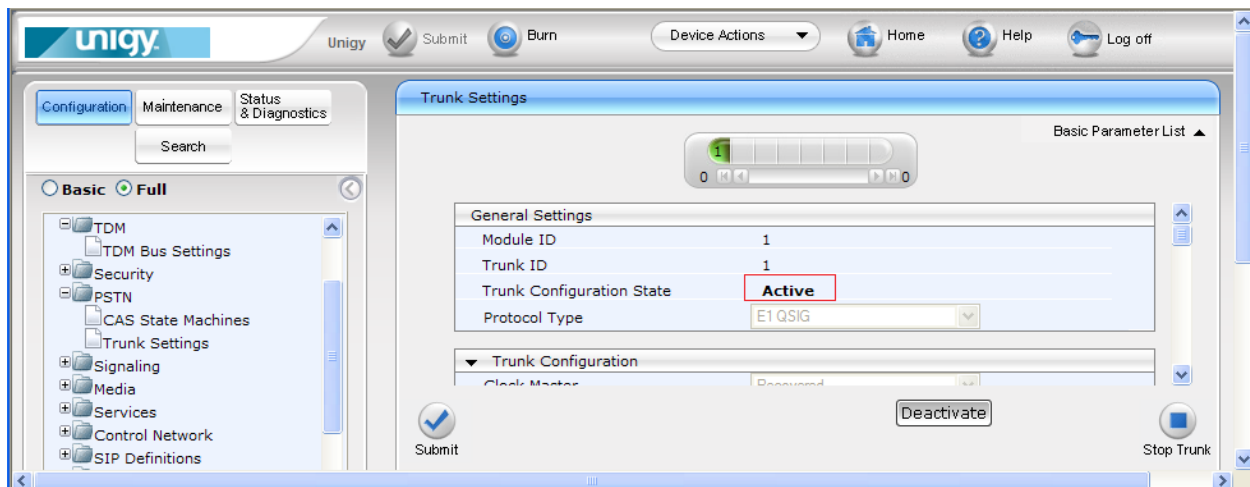
Verify the status of the ISDN signaling groups by using the “status signaling-group n” command, where “n” is the ISDN signaling group number administered in **Section 5.5**. Verify that the signaling group is “in-service” as indicated in the **Group State** and **Level 3 State** fields shown below.

status signaling-group 71	
STATUS SIGNALING GROUP	
Group ID: 71	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: 001V216	Level 3 State: in-service

9.2. Verify IPC UnigyV2

From the Media Gateway web interface, select **VoIP → PSTN → Trunk Settings** to display the **Trunk Settings** screen.

Toward the top of the screen, click the applicable trunk port from **Section 6.2**, in this case “1”. Verify that the **Trunk Configuration State** is “Active”, as shown below.



10. Conclusion

These Application Notes describe the configuration steps required for IPC UnigyV2 to successfully interoperate with Avaya Aura® Communication Manager 6.0.1 using EC500 features and QSIG trunks.

11. Additional References

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

1. *Administering Avaya Aura® Communication Manager*, Document 03-300509, Issue 6.0, Release 6.0, June 2010, available at <http://support.avaya.com>.
2. *UnigyV2 1.1 System Configuration*, Part Number B02200187, Release 00, available upon request to IPC Support.

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