



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

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# **Application Notes for configuring Imperium Call Reporter from Protocol Systems FZC with Avaya Aura® Communication Manager R6.3 to receive Call Detail Records - Issue 1.0**

## **Abstract**

These Application Notes describe the configuration steps for Protocol Systems FZC Imperium Call Reporter with Avaya Aura® Communication Manager R6.3. Imperium Call Reporter integrates with Avaya Aura® Communication Manager and collects CDR data by listening for connections on a specific TCP port.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

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 for Protocol Systems FZC Imperium Call Reporter with Avaya Aura® Communication Manager R6.3. Imperium Call Reporter integrates with Avaya Aura® Communication Manager and collects Call Detail Records (CDR) data by listening for connections on a specific TCP port.

Imperium Call Reporter provides traditional call collection, rating, and reporting for any size business. Imperium Call Reporter connects with Avaya Aura® Communication Manager to collect and interpret the detailed records of inbound, outbound, tandem, and internal telephone calls. Imperium Call Reporter then calculates the appropriate charge for local, long distance, international & special calls and allocates them to responsible parties.

## 2. General Test Approach and Test Results

This section describes the compliance testing used to verify interoperability of Imperium Call Reporter with Communication Manager and covers the general test approach and the test results. The testing covered feature and serviceability test cases. The feature testing covered the ability of Imperium Call Reporter to capture and process call records. The call records captured and displayed by Imperium Call Reporter were compared for accuracy to calls that were performed at that time for call type and call duration. This comparison was made simply by noting the call duration from the telephone display and the type of call that was made. The call types that were generated include internal calls, inbound and outbound trunk calls, PSTN calls, transferred calls, and conference calls. Calls were established using Digital, H.323 and SIP telephones.

SIP endpoints are registered with Avaya Aura® Session Manager. An assumption is made that Avaya Aura® Session Manager and Avaya Aura® System Manager are already installed and basic configuration have been performed.

The serviceability testing focused on the ability of Imperium Call Reporter to recover from adverse conditions such as loss of network connectivity.

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 included both feature functionality and serviceability testing. The feature functionality testing focused on placing and recording calls in different call scenarios with good quality audio recordings and accurate call records. The tests included:

- **Basic calls** – Test CDR was generated for basic incoming and outgoing calls on Communication Manager.
- **Call Hold/Transfer/Conference** – Test CDR was generated for all of Hold, Transfer and Conference calls.
- **Call forward** - Test CDR was generated for calls that were forwarded.
- **Missed/abandoned/unanswered calls** – Calls to busy users or calls that are not answered.
- **Failover/Service Testing** – Tests the behaviour of Imperium Call Reporter during certain failed conditions.

## 2.2. Test Results

All functionality and serviceability test cases were completed successfully. The following observations were noted.

1. During compliance testing the field on the Imperium Call Reporter reports called “comments” showed “Transferred calls” whether they are transferred or not. This field is customizable on a per customer basis.
2. During compliance testing it was noted that Imperium Call Reporter reports showed no call details on Call Pickup or Call Park, there are only details on Conference Calls. Protocol Systems FZC notes that this information is not provided by Communication Manager CDR.

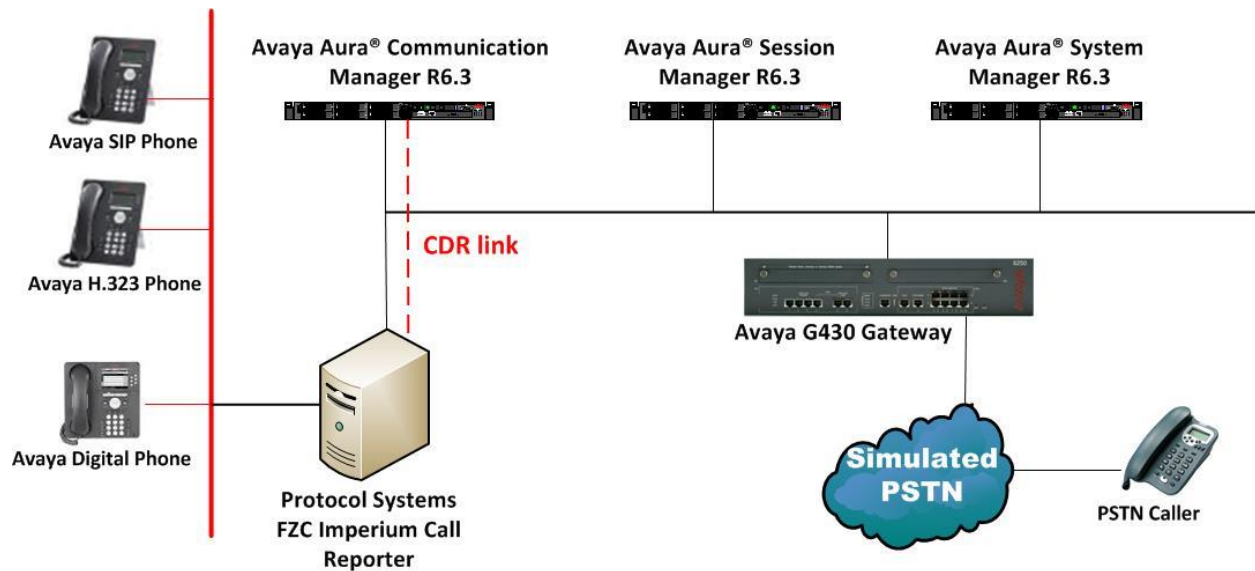
## 2.3. Support

Technical support can be obtained for Imperium Call Reporter from the website <http://imperiumapp.com/contact.aspx>

Protocol Systems FZC  
Q3-133, SAIF Zone,  
Sharjah, UAE.  
Tel: +9716 5578383  
Fax: +9716 5578384  
Email: [support@protocolsystems-me.com](mailto:support@protocolsystems-me.com)

### 3. Reference Configuration

The configuration in **Figure 1** is used to compliance test Imperium Call Reporter with Avaya Aura® Communication Manager R6.3 and Avaya Aura® Session Manager R6.3 to collect CDR records from the various Avaya endpoints as shown below.



**Figure 1: Connection of Imperium Call Reporter Server from Protocol Systems FZC with Avaya Aura® Communication Manager R6.3 and Avaya Aura® Session Manager R6.3.**

## 4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® System Manager running on Virtual Server	R6.3.9 [Build 6.3.0.8.5682-6.3.8.4414] [SW Update Rev 6.3.9.1.2482]
Avaya Aura® Session Manager running on Virtual Server	R6.3 (SP9) 6.3.9.0.639011
Avaya Aura® Communication Manager running on Virtual Server	R6.3 SP8 R016x.03.0.124.0
Avaya G430 Gateway	33.12.0 /1
Avaya 96xx/96x1H323 Deskphone	96xx H.323 Release 3.1 SP2
Avaya 9641 SIP Deskphone Avaya 9608 SIP Deskphone	96x1-IPT-SIP-R6_4_1-081114
Avaya 9408 Digital Deskphone	FW Version 2N/A
Windows 2008 Server running MS SQL 2008 on Virtual Server Imperium Call Reporter	Windows 2008 R2 SP2 MS SQL 2008 R2 R1.0

## 5. Configure Avaya Aura® Communication Manager

The information provided in this section describes the configuration of Communication Manager relevant to this solution. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**.

The configuration illustrated in this section was performed using Communication Manager System Administration Terminal (SAT).

### 5.1. Configure the Avaya Aura® Communication Manager for CDR output to Imperium Call Reporter

The following sections outline the steps necessary to configure Communication Manager to allow the correct CDR output for Imperium Call Reporter Server to display CDR records.

#### 5.1.1. Verify System Features

Use the **change system-parameters special-applications** command to verify that Special Application 8202 (SA8202) - Intra-switch CDR by COS? is set to y. Navigate to **Page 3** to check this parameter as shown below.

```
change system-parameters special-applications                               Page 3 of 10
                                SPECIAL APPLICATIONS

      (SA8141) - LDN Attendant Queue Priority? n
      (SA8143) - Omit Designated Extensions From Displays? n
      (SA8146) - Display Update for Redirected Calls? n
      (SA8156) - Attendant Priority Queuing by COR? n
      (SA8157) - Toll Free Vectoring until Answer? n
      (SA8201) - Start Time and 4-Digit Year CDR Custom Fields? y
      (SA8202) - Intra-switch CDR by COS? y
      (SA8211) - Prime Appearance Preference? n
      (SA8240) - Station User Admin of FBI? n
      (SA8312) - Meet-Me Paging? n
      (SA8323) - Idle Call Preference Display? n
      (SA8339) - PHS X-Station Mobility? n
      (SA8348) - Map NCID to Universal Call ID? n
      (SA8428) - Station User Button Ring Control? n
      (SA8434) - Delay PSTN Connect on Agent Answer? n
      (SA8439) - Forward Held-Call CPN? n
      (SA8440) - Unmodified QSIG Reroute Number? n

                                (SA8475) - SOSM? n
```

Navigate to **Page 5** and ensure that Special Application 8702 (**SA8702**) - **CDR Enhancements for Network?** is set to **y**.

```
change system-parameters special-applications
SPECIAL APPLICATIONS
```

Page 5 of 10

```
(SA8652) - No Hold Consult? n
(SA8654) - Crisis Alert Call Monitoring and Recording? n
(SA8661) - Increased Automatic Wakeup Calls? n
(SA8662) - Expanded PMS Name & Number? n
(SA8684) - PMS Wakeup Message? n
(SA8693) - Connectivity Check for Direct IP Shuffling? n

(SA8697) - 3rd Party H.323 Endpoint Support? n
(SA8701) - Net Region Support H.323 Endpoints Behind ALG? n
(SA8702) - CDR Enhancements for Network? y
(SA8731) - Block Outgoing Bridged Call Display? n
(SA8734) - Enhanced Extension Display? n
(SA8741) - CDR Identifier for IP Station Calls? n
(SA8744) - Block Name for Room to Room Calls? n
(SA8747) - Softphone Indication on DCP Terminals? n
```

### 5.1.2. Change System Parameters Features

In order to make changes to the system parameters features type in **change system-parameters features** and under the section **UNIVERSAL CALL ID** ensure that the following are set correctly.

- **Create Universal Call ID (UCID)?** is set to **Y**.
- **UCID Network Node ID:** is set to **1**.
- **Copy UCID for Station Conference/Transfer?** is set to **Y**.

```
change system-parameters features
FEATURE-RELATED SYSTEM PARAMETERS
```

Page 5 of 20

```
SYSTEM PRINTER PARAMETERS
```

```
Endpoint: Lines Per Page: 60
```

```
SYSTEM-WIDE PARAMETERS
```

```
Switch Name:
```

```
Emergency Extension Forwarding (min): 10
```

```
Enable Inter-Gateway Alternate Routing? n
```

```
Enable Dial Plan Transparency in Survivable Mode? n
```

```
COR to Use for DPT: station
```

```
EC500 Routing in Survivable Mode: dpt-then-ec500
```

```
MALICIOUS CALL TRACE PARAMETERS
```

```
Apply MCT Warning Tone? n MCT Voice Recorder Trunk Group:
```

```
Delay Sending RElease (seconds): 0
```

```
SEND ALL CALLS OPTIONS
```

```
Send All Calls Applies to: station Auto Inspect on Send All Calls? n
```

```
Preserve previous AUX Work button states after deactivation? n
```

```
UNIVERSAL CALL ID
```

```
Create Universal Call ID (UCID)? y UCID Network Node ID: 1
```

```
Copy UCID for Station Conference/Transfer? y
```

### 5.1.3. Create Node Name for Imperium Call Reporter

A Node Name needs to be created to associate the Imperium Call Reporter with Communication Manager. Use the **change node-names ip** command to configure the following:

- Name: Enter an informative name i.e. **Imperium**.
- IP address: Enter the IP address of the Imperium Server in this case **10.10.40.130**.

Press **F3** button to save the new settings.

change node-names ip		Page 1 of 2	
		IP NODE NAMES	
Name	IP Address		
AES63VM PG	10.10.40.30		
G450	10.10.40.35		
IPofficeR9	10.10.40.20		
<b>Imperium</b>	<b>10.10.40.130</b>		
PGDECT	10.10.40.50		
SM62	192.168.50.16		
SM62PG	192.168.50.16		
SM63vmpg	10.10.40.34		
Tiger	10.10.40.55		
default	0.0.0.0		
<b>procr</b>	<b>10.10.40.31</b>		
procr6	::		

### 5.1.4. Define the CDR Link

A CDR link needs to be defined between the Communication Manager and Imperium Call Reporter. Use the **change ip-services** command to configure the following:

- **Service Type** Enter **CDR1**.
- **Local Node** Enter **procr**.
- **Remote Node** Enter **Imperium** (Node name entered in **Section 5.1.3**).
- **Remote Port** Enter **6008** (port that is used by Imperium Server).

change ip-services			Page 1 of 4		
			IP SERVICES		
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port
<b>CDR1</b>		<b>procr</b>	<b>0</b>	<b>Imperium</b>	<b>6008</b>



Navigate to **Page 3** and set the **Reliable Protocol** field to **n**. This will disable Reliable Session Protocol (RSP) for CDR transmission. In this case, the CDR link will use TCP without RSP.

Press **F3** button to save the new settings.

change ip-services					Page 3 of 4
SESSION LAYER TIMERS					
Service Type	Reliable Protocol	Packet Resp Timer	Session Connect Message Cntr	SPDU Cntr	Connectivity Timer
CDR1	n	30	3	3	60

### 5.1.5. Change System-Parameters CDR

Certain parameters changes are required for Communication Manager to interoperate with Imperium Protocol. The screen shots below show the settings used during compliance testing.

Use the **change system-parameters cdr** command to configure the following:

- **CDR Date Format** - Enter **month/day**.
- **Primary Output Format** - Enter **customized**.
- **Primary Output Endpoint** - Enter **CDR1**
- **Record Outgoing Calls Only** - Enter **n**.
- **Outg Trk Call Splitting** - Enter **y**.
- **Inc Trk Call Splitting** - Enter **y**.

```

change system-parameters cdr
Page 1 of 2

CDR SYSTEM PARAMETERS

Node Number (Local PBX ID): 1
Primary Output Format: customized
Secondary Output Format:
    Use ISDN Layouts? n
    Use Enhanced Formats? n
    Use Legacy CDR Formats? n
Modified Circuit ID Display? n
Record Outgoing Calls Only? n
Suppress CDR for Ineffective Call Attempts? n
    Disconnect Information in Place of FRL? y
Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n
Record Called Vector Directory Number Instead of Group or Member? y
Record Agent ID on Incoming? n
    Inc Trk Call Splitting? y
Record Non-Call-Assoc TSC? y
    Record Call-Assoc TSC? y
    Privacy - Digits to Hide: 0
Remove '+' from SIP Numbers? y

CDR Date Format: month/day
Primary Output Endpoint: CDR1
Enable CDR Storage on Disk? y
Condition Code 'T' For Redirected Calls? y
Remove # From Called Number? y
Outg Trk Call Splitting? y
    Outg Attd Call Record? n
    Interworking Feat-flag? n
Calls to Hunt Group - Record: member-ext
    Record Agent ID on Outgoing? y
    Inc Attd Call Record? n
    Call Record Handling Option: warning
    Digits to Record for Outgoing Calls: dialed
    CDR Account Code Length: 5

```

On **Page 2** ensure that **Data Item** and **Length** are configured as shown in the screen below. This setup is specific to Imperium Call Reporter.

Press **F3** button to save the new settings

change system-parameters cdr				Page 2 of 2	
CDR SYSTEM PARAMETERS					
Data Item - Length		Data Item - Length		Data Item - Length	
1: date	- 6	17: clg-num/in-tac	- 15	33: attd-console	- 4
2: space	- 1	18: space	- 1	34: space	- 1
3: start-time	- 6	19: in-trk-code	- 4	35: space	- 20
4: space	- 1	20: space	- 1	36: space	- 1
5: end-time	- 6	21: auth-code	- 7	37: vdn	- 13
6: space	- 1	22: space	- 1	38: space	- 1
7: sec-dur	- 5	23: in-crt-id	- 3	39: frl	- 1
8: space	- 1	24: space	- 1	40: return	- 1
9: cond-code	- 1	25: out-crt-id	- 3	41: line-feed	- 1
10: space	- 1	26: space	- 1	42:	-
11: code-dial	- 4	27: isdn-cc	- 11	43:	-
12: space	- 1	28: space	- 1	44:	-
13: code-used	- 4	29: ppm	- 5	45:	-
14: space	- 1	30: space	- 1	46:	-
15: dialed-num	- 23	31: acct-code	- 7	47:	-
16: space	- 1	32: space	- 1	48:	-
Record length = 169					

### 5.1.6. Change Trunk Group

To collect call data on Trunks, CDR Reports need to set. During compliance Trunk Group **10** was used. Use the **change trunk-group 10** command to ensure that **CDR Reports** is set to **y**.

Press **F3** button to save the new settings.

change trunk-group 10			Page 1 of 21		
TRUNK GROUP					
Group Number: 10		Group Type: isdn		CDR Reports: y	
Group Name: PSTN-ETSI-IPO		COR: 1		TN: 1 TAC: *10	
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? y		TestCall ITC: rest	
		Far End Test Line No:			
TestCall BCC: 4					

### 5.1.7. Change Intra-Switch CDR

Internal CDR is activated on a per set basis. When the **Intra-switch CDR** field is set to **y** in the **CDR System Parameters** then the extensions that will be subject to CDR need to be defined. During compliance testing extensions **1000, 1001, 2015, 2016, 2500** were used. Use the **change intra-switch-cdr** command to define the extensions that will be subject to call detail records. Configure the following:

- **Extension** - Enter the extensions that will be subject to CDR.

Press **F3** button to save the new settings.

**Note:** To simplify the process of adding multiple extensions in the Assigned Members field, the **Intra-switch CDR by COS (SA8202)** feature may be utilized in the SPECIAL APPLICATIONS as shown in **Section.5.1.1**.

change intra-switch-cdr				Page	1 of	3
INTRA-SWITCH CDR						
Assigned Members: 11 of 5000 administered						
Extension	Extension	Extension	Extension			
1000						
1001						
2015						
2016						
2500						

### 5.1.8. Change COS for Intra-Switch CDR

In order to allow CDR records for internal calls the Call of Service (COS) needs to be changed to allow Intra-switch CDR. Use the command **change cos-group x** where x is the COS group assigned to the extensions. Ensure that **Intra-switch CDR** is set to **y** as shown below.

change cos-group 1											Page		1 of		2			
CLASS OF SERVICE			COS Group: 1			COS Name:												
			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Auto Callback			n	y	y	n	y	n	y	n	y	n	y	n	y	n	y	n
Call Fwd-All Calls			n	y	n	y	y	n	n	y	y	n	n	y	y	n	n	y
Data Privacy			n	y	n	n	n	y	y	y	y	n	n	n	n	y	y	y
Priority Calling			n	y	n	n	n	n	n	n	n	y	y	y	y	y	y	y
Console Permissions			n	y	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Off-hook Alert			n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Client Room			n	n	y	n	n	n	n	n	n	n	n	n	n	n	n	n
Restrict Call Fwd-Off Net			n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Call Forwarding Busy/DA			y	y	y	y	y	y	y	n	n	n	n	n	n	n	n	n
Personal Station Access (PSA)			n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Extended Forwarding All			y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
Extended Forwarding B/DA			y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
Trk-to-Trk Transfer Override			n	y	n	n	n	n	n	n	n	n	n	n	n	n	n	n
QSIG Call Offer Originations			n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Contact Closure Activation			n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Intra-switch CDR			y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y

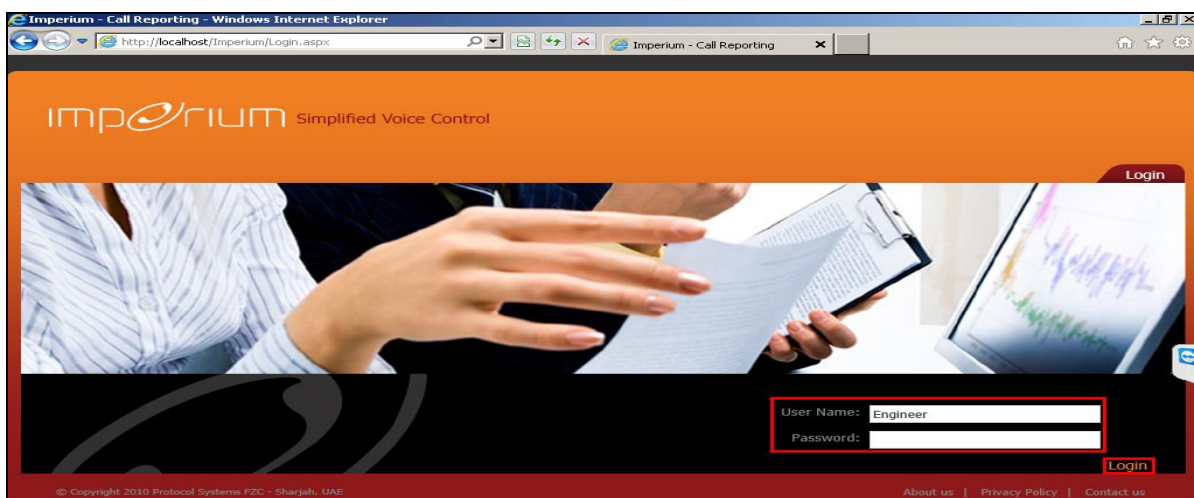
## 6. Configuration of Protocol Systems FZC Imperium Call Reporter Server

This section outlines the steps necessary to configure the Imperium Call Reporter server to enable the collection of CDR records via the CDR connection on Communication Manager.

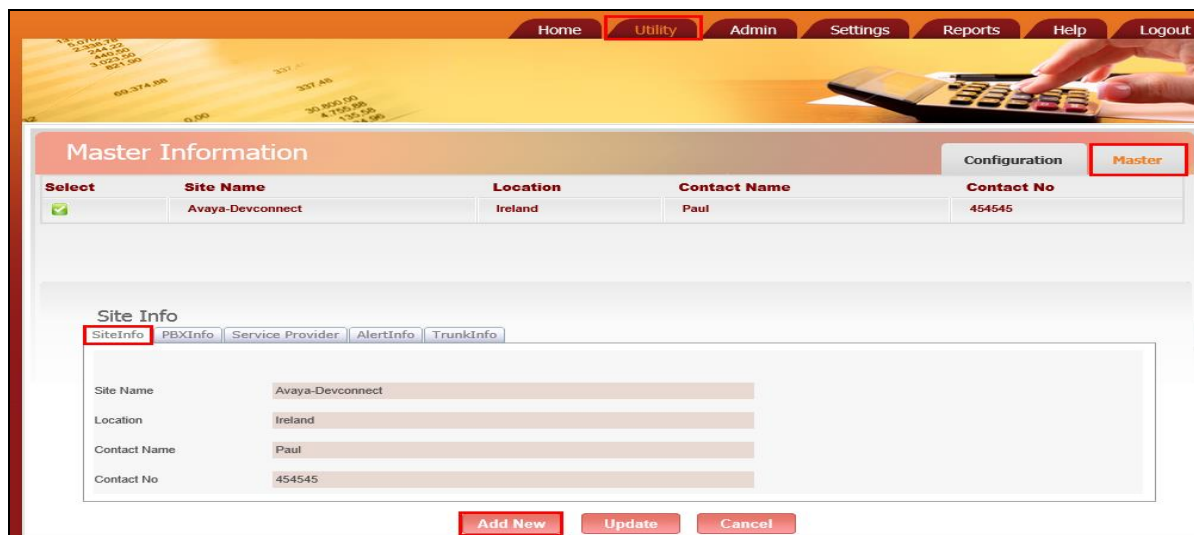
### 6.1. Imperium Call Reporter's PBX connection configuration

Open a web browser and navigate to

**http://<ImperiumServerIPAddress>/Imperium/Login.aspx**. Once the **Login** page appears enter the **User Name Engineer** with the suitable **Password**. Click on the **Login** button highlighted below.



Once logged in click on the **Utility** tab. Once there click on **Master** and the Site Info page is shown where the **Site Name**, **Location**, and contact details are added. Click on the **PBXInfo** tab once all the details are added correctly.



Click on the **PBXInfo** tab and enter the following details for the Communication Manager connection.

- **PBX Name** This can be any suitable name
- **Connection Type** Must be set to **0**
- **Data split** Must be set to **0**
- **Separator** 6, 1, 6, 1, 6, 1, 5, 1, 1, 1, 4, 1, 4, 1, 2, 3, 1, 15, 1, 4, 1, 7, 1, 3, 1, 3, 1, 11, 1, 5, 1, 7, 1, 4, 1, 20, 1, 13, 1, 1, 1, 1
- **Fields** CALL\_DATE, SP1, CALL\_TIME, SP2, CallEndTime, SP3, DURATION, SP4, DIRECTION, SP5, DIAL\_CODE, SP6, TRUNK\_ID, SP7, CALLED\_NO, SP8, CALLER\_NO, SP9, FLAG4, SP10, AUTH\_CODE, SP11, FLAG5, SP12, FLAG6, SP13, FLAG7, SP14, FLAG8, SP15, FLAG9, SP16, FLAG10, SP17, CALL\_ID, SP18, FLAG15, SP19, FLAG12, SP20, SP21

Click on the **Add New** button at the bottom of the screen once the information is entered correctly.

The screenshot shows the Imperium web application interface. At the top, there is a navigation bar with tabs: Home, Utility, Admin, Settings, Reports, Help, and Logout. Below the navigation bar is a section titled "Master Information" with a sub-tab "Master" selected. This section contains a table with columns: Select, PBX Name, ConnectionType, Data Split, and Separator. The table has two rows: one for "Avaya Communication Manager" and one for "IP Office". Below the table is a section titled "PBX Info" with a sub-tab "PBXInfo" selected. This section contains a form with fields: PBX Name (Avaya Communication Manager), Connection Type (0), Data split (0), Separator (6,1,6,1,6,1,5,1,1,1,4,1,4,1,23,1,15,1,4,1,7,1,3,1,3,1,11,1,5,1,7,1,4,1,20,1,13,1,1,1,1), and Fields (CALL\_DATE, SP1, CALL\_TIME, SP2, CallEndTime, SP3, DURAT). At the bottom of the form are three buttons: Add New, Update, and Cancel.

Click on the **Configuration** tab highlighted and the **PBXCount Info** tab. Here the **Site Name** that was created above is selected along with the **PBX Name**. The IP address for the PBX is entered along with the port number for the CDR output. All other entries can be left as default and click on **Add New** once the information is all entered correctly.

The screenshot shows the Imperium web interface. At the top, there's a navigation bar with tabs: Home, Utility, Admin, Settings, Reports, Help, and Logout. The 'Configuration' tab is highlighted. Below this, there's a table with columns: Select, SITE\_NAME, PBX\_NAME, PBX\_NO, PBX\_IP, and PORT\_NO. The table contains three rows of data. Below the table, there's a 'PBXCount Info' section with two tabs: 'PBXCount' (selected) and 'ApplnInfo'. The 'PBXCount' tab contains a form with fields for Site Name, PBX Name, PBX No, PBX\_IP, Port No, Socket Timeout, Socket Sleep, Prefix Value, Trunk Name, Prefix Status, Extension Max Len, Mls Name, Alert Name, Countrycode, Areaocode, Mobilecode, Service Code, and Status. The 'Add New' button is highlighted in red.

Select	SITE_NAME	PBX_NAME	PBX_NO	PBX_IP	PORT_NO
<input checked="" type="checkbox"/>	Protocol	Avaya Communication Manager	1	10.10.40.31	6008
<input checked="" type="checkbox"/>	Protocol	IP Office	1	192.168.10.100	8086
<input checked="" type="checkbox"/>	Protocol	IP Office	1	192.168.10.250	6005

**PBXCount Info**

**PBXCount** **ApplnInfo**

Site Name	Protocol	Prefix Status	E
PBX Name	Avaya Communication Manager	Extension Max Len	5
PBX No	1	Mls Name	MIS1
PBX_IP	10.10.40.31	Alert Name	Failure Alert
Port No	6008	Countrycode	00971
Socket Timeout	60	Areaocode	06
Socket Sleep	10800	Mobilecode	05
Prefix Value	9	Service Code	
Trunk Name	ETISALAT	Status	1

**Add New** **Update** **Cancel**

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Click on the **AppInInfo** tab highlighted. Three Applications and licenses keys must be added here.

- PBXCALLCOSTCALCULATOR
- PBXDATA LOGGER
- PBXFILEWATCHER

Add the **PBXCALLCOSTCALCULATOR** application with the necessary **License Key** available from Protocol Systems FZC. Click **Add New** once added correctly.

The screenshot shows the Imperium web interface. At the top, there's a header with the logo "imperiium Simplified Voice Control" and a navigation bar with links: Home, Utility, Admin, Settings, Reports, Help, Logout. Below the header, there's a "Configuration" section with a sub-tab "Configuration" (active) and "Master". A table lists three applications:

Select	APPLN_NAME	PBX Name	LICENSE_KEY
<input checked="" type="checkbox"/>	PBXCALLCOSTCALCULATOR	Avaya Communication Manager	BG7Uly2fOmErpsF73Lnox5OgUqDfquS0d1u2OId/m1Q=
<input checked="" type="checkbox"/>	PBXDATA LOGGER	Avaya Communication Manager	BG7Uly2fOmErpsF73Lnox5OgUqDfquS0d1u2OId/m1Q=
<input checked="" type="checkbox"/>	PBXFILEWATCHER	Avaya Communication Manager	BG7Uly2fOmErpsF73Lnox5OgUqDfquS0d1u2OId/m1Q=

Below the table, there's an "Application Info" modal. The modal has two tabs: "PBXCount" and "ApplnInfo" (active). The "ApplnInfo" tab contains the following fields:

- Application Name: PBXCALLCOSTCALCULATOR
- PBXName Count: Avaya Communication Manager (dropdown)
- License Key: BG7Uly2fOmErpsF73Lnox5OgUqDfquS0d1u2OId/m1Q=

At the bottom of the modal, there are three buttons: "Add New", "Update", and "Cancel".



Add the **PBXDATALOGGER** application with the necessary **License Key** available from Protocol Systems FZC. Click **Add New** once added correctly.

**imperium** Simplified Voice Control

!! Welcome Engineer / Login Time : 15:20

Home Utility Admin Settings Reports Help Logout

### Configuration

Configuration Master

Select	APPLN_NAME	PBX Name	LICENSE_KEY
<input checked="" type="checkbox"/>	PBXCALLCOSTCALCULATOR	Avaya Communication Manager	BG7Uly2fOmErpeF73Lnox5OgUqDfquS0d1u2OId/m1Q=
<input checked="" type="checkbox"/>	<b>PBXDATALOGGER</b>	Avaya Communication Manager	BG7Uly2fOmErpeF73Lnox5OgUqDfquS0d1u2OId/m1Q=
<input checked="" type="checkbox"/>	PBXFILEWATCHER	Avaya Communication Manager	BG7Uly2fOmErpeF73Lnox5OgUqDfquS0d1u2OId/m1Q=

### Application Info

PBXCount AppInInfo

Application Name **PBXDATALOGGER**

PBXName Count Avaya Communication Manager

License Key BG7Uly2fOmErpeF73Lnox5OgUqDfquS0d1u2OId/m1Q=

Add New Update Cancel



Add the **PBXFILEWATCHER** application with the necessary **License Key** available from Protocol Systems FZC. Click **Add New** once added correctly.

Configuration

Select	APPLN_NAME	PBX Name	LICENSE_KEY
<input checked="" type="checkbox"/>	PBXCALCULATOR	Avaya Communication Manager	BG7Uly2fOmErpsF73Lnox5OgUqDfquS0d1u2OId/m1Q=
<input checked="" type="checkbox"/>	PBXDATALOGGER	Avaya Communication Manager	BG7Uly2fOmErpsF73Lnox5OgUqDfquS0d1u2OId/m1Q=
<input checked="" type="checkbox"/>	PBXFILEWATCHER	Avaya Communication Manager	BG7Uly2fOmErpsF73Lnox5OgUqDfquS0d1u2OId/m1Q=

Application Info

PBXCount ApplnInfo

Application Name PBXFILEWATCHER

PBXName Count Avaya Communication Manager

License Key BG7Uly2fOmErpsF73Lnox5OgUqDfquS0d1u2OId/m1Q=

Add New Update Cancel

This concludes the setup of Imperium Call Reporter in order to connect to Communication Manager to listen for CDR on TCP.

## 7. Verification Steps

This section illustrates the steps necessary to verify that the Imperium Call Reporter Server is connected to Communication Manager correctly in order to receive CDR information.

### 7.1. Verify that Avaya Aura® Communication Manager CDR link is active

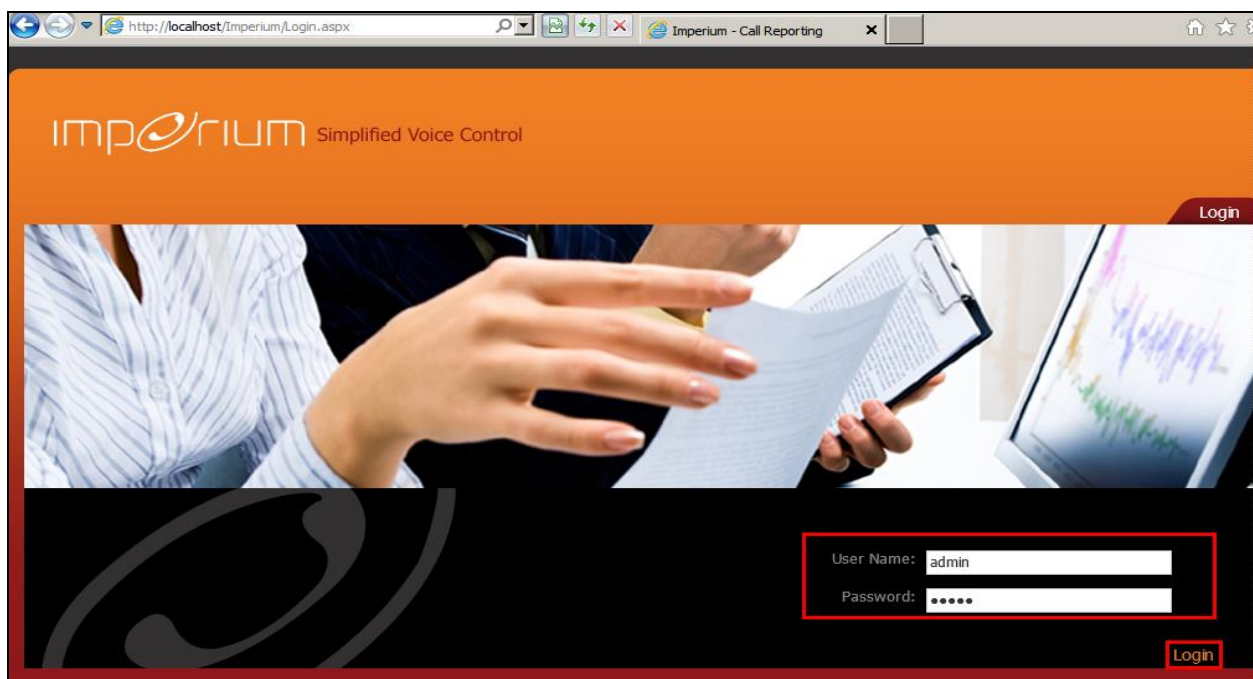
Log into Communication Manager as per **Section 5**, using something such as System Administration Terminal (SAT). From there type **status cdr link**. The result should show **Link State** as **up** as is highlighted below.

```
status cdr-link
```

CDR LINK STATUS	
Primary	Secondary
Link State: up	CDR not administered
Date & Time: 2015/01/22 16:43:33	0000/00/00 00:00:00
Forward Seq. No: 35	0
Backward Seq. No: 0	0
CDR Buffer % Full: 0.00	0.00
Reason Code: OK	

### 7.2. Verify that Imperium Call Reporter is receiving CDR data

Open a web browser and navigate to the Imperium login page <http://<ImperiumServerIPAddress>/Imperium/Login.aspx>. Once the **Login** page appears enter the **User Name Admin** with the suitable **Password**. Click on the **Login** button highlighted below.



Click on the **Reports** tab at the top of the page and click on the **Reports** tab in the Reports main window. Select the correct data range from the **Data option** and set **Direction** to **Both** so as all calls are reported on, once finished click on **Generate** to continue.

imperium Simplified Voice Control

!! Welcome admin / Login Time : 17:21

Home Admin Settings Reports Help Logout

Reports

Data Log Reports

Date Option: Date Range

From Dt: 12/23/2014 09:00

To Dt: 12/24/2014 11:59

Branch : All Branches

Department : All Departments

Extension : All Extensions

Call Type : All Calls

Trunk : All Trunks

AuthCode : All AuthCodes

Direction: Both

Cost: Disable

Highest Duration / Cost: ☐ Top

Search By Number: ☐

Group By: Date

Group By: Select

Order By: Date

Report Type: ☒ Detail ☐ Summary

Save Template as: Save

Templates: Select

Generate

The following screenshot of a report shows calls for various extensions such as **2015**, **2016**, **1000** and **1001**.

Report - Internet Explorer  
http://10.10.40.130/imperium/Modules/Reports/Display.aspx

23/12/2014

Protocol Call Report

Date From : 12/23/2014 09:00:00 AM Date To : 12/24/2014 11:59:59 PM Direction : B

Call_start	Duration	Cond.Code	Direction	Caller	Caller Name	Called No	Called Name	Call Detail	Amt	Ans	Comments
<b>23/12/2014</b>											
23/12/2014 10:37:40	00:00:08	7	Outgoing	2015		5001		500 Service	0.02	Yes	
23/12/2014 10:41:03	00:00:08	9	Incoming	5001		2016			0.00	Yes	
23/12/2014 10:54:27	00:00:06	0	Internal	2500		2016			0.00	Yes	
23/12/2014 10:54:38	00:00:04	0	Internal	2016		2016			0.00	Yes	
23/12/2014 10:55:40	00:00:04	0	Internal	2500		2016			0.00	Yes	
23/12/2014 10:56:00	00:00:03	7	Outgoing	2015		5001		500 Service	0.01	Yes	
23/12/2014 11:01:15	00:00:27	0	Internal	2015		1001			0.00	Yes	
23/12/2014 11:01:33	00:00:07	7	Outgoing	2015		5001		500 Service	0.02	Yes	
23/12/2014 11:02:31	00:00:03	9	Incoming	5001		1000			0.00	Yes	
23/12/2014 11:02:41	00:00:03	7	Outgoing	1001		5001		500 Service	0.01	Yes	
23/12/2014 11:02:41	00:00:03	9	Incoming	1001		110			0.00	Yes	
23/12/2014 11:03:55	00:00:04	9	Incoming	1000		1001			0.00	Yes	
23/12/2014 11:08:44	00:00:08	0	Internal	2500		2016			0.00	Yes	
23/12/2014 11:08:55	00:00:06	0	Internal	2015		2016			0.00	Yes	
23/12/2014 11:11:07	00:00:09	9	Incoming	5001		2016			0.00	Yes	
23/12/2014 11:11:16	00:00:02	9	Incoming	5001		2500			0.00	Yes	
23/12/2014 11:13:38	00:00:15	0	Internal	2500		2016			0.00	Yes	
23/12/2014 11:13:48	00:00:08	7	Outgoing	2500		5001		500 Service	0.02	Yes	
23/12/2014 11:22:43	00:00:23	9	Incoming	5000		2016			0.00	Yes	
23/12/2014 11:22:55	00:00:08	7	Outgoing	2015		5001		500 Service	0.02	Yes	
23/12/2014 11:24:08	00:01:26	9	Incoming	5000		2016			0.00	Yes	
23/12/2014 11:24:30	00:01:04	7	Outgoing	2016		5001		500 Service	0.15	Yes	
23/12/2014 11:28:06	00:00:13	0	Internal	2500		2016			0.00	Yes	

Call Type : ,All Calls,  
Extension : ,All Extensions,

Printed On : 20/01/2015

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## 8. Conclusion

As illustrated in these Application Notes the procedures for configuring Protocol Systems FZC Imperium Call Reporter to interoperate with Avaya Aura® Communication Manager R6.3 by listening for connections on a specific TCP port in order to receive CDR information. In the configuration described in these Application Notes, various types of calls including intra-switch, PSTN, outgoing and incoming calls were tested. During compliance testing, all test cases were completed successfully. Observations and results are outlined in **Section 2.2**.

## 9. Additional References

This section references the Avaya and Protocol Systems FZC product documentation that are relevant to these Application Notes.

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

- [1] *Avaya Aura® Communication Manager Feature Description and Implementation*,  
Document ID 555-245-205

Technical documentation can be obtained for Imperium Call Reporter from the website  
<http://imperiumapp.com>

Support for Imperium Call Reporter can be found at:

Protocol Systems FZC

Tel: +9716 5578383

Fax: +9716 5578384

Email: [support@protocolsystems-me.com](mailto:support@protocolsystems-me.com)

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