



Avaya Solution & Interoperability Test Lab

Application Notes for configuring Imperium Budget Control Application from Protocol Systems FZC with Avaya Aura® Communication Manager R6.3 - Issue 1.0

Abstract

These Application Notes describe the configuration steps for Protocol Systems FZC Imperium Budget Control Application with Avaya Aura® Communication Manager R6.3. Imperium Budget Control Application 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 Imperium Budget Control Application from Protocol Systems to integrate with Avaya Aura® Communication Manager R6.3 in order to block outgoing calls once a threshold has been reached. Imperium Budget Control Application can examine the call data from a specific Communication Manager extension in order to determine whether this extension has exceeded its allotted call cost or call duration and then take steps to block any further calls being made to the PSTN from this extension. Imperium Budget Control Application integrates with Communication Manager using Avaya Aura® Application Enablement Services and DMCC to change the Class of Restriction (COR) of specific users who cross a threshold to block them from making further outbound calls to specific locations.

The Budget Control Application can be programmed with a number of different COR's that can then be assigned to a specific user. The Budget Control Application will receive its input from the Imperium Call Reporter which obtains Call Detail Records (CDR) from Communication Manager. For further information on this product please see **Section 10** *Application Notes for configuring Imperium Call Reporter from Protocol Systems FZC with Avaya Aura® Communication Manager R6.3*. Imperium Call Reporter provides traditional call collection, rating and reporting for any size business, and connects with 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 and special calls and allocates them to responsible parties. If a specific user/extension on Communication Manager exceeds a pre-defined duration or cost threshold the Budget Control Application then automatically will change the COR of that user/extension to another pre-defined COR limiting that user/extension to certain outbound calls. In summary Imperium Call Reporter must be installed in order for the Budget Control Application to work.

2. General Test Approach and Test Results

This section describes the compliance testing used to verify interoperability of Imperium Budget Control Application 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 Budget Control Application to analyse captured and processed call records from Imperium Call Reporter to determine whether an extension has exceeded its allotted call cost or call duration and then take steps to block any further calls being made to the PSTN from this extension. The serviceability testing focused on the ability of Imperium Budget Control Application 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

During compliance testing a threshold was set on the Imperium Budget Control Application for a specific extension on Communication Manager. This threshold can be either duration for outbound PSTN calls or the cost of these calls. Calls were then made from this extension and the threshold was monitored. Once the threshold was exceeded, the COR was then checked to see if it had been changed by the Imperium Budget Control Application and calls were also made to ensure that the COR was effectively blocking the extension from calling out.

The tests included:

- Blocking of calls from an extension that exceeds its call duration threshold.
- Blocking of calls from an extension that exceeds its call cost threshold.
- Reinstating or unblocking of extensions that get an extension on their call duration or cost.
- Reinstating or unblocking of extensions after some elapsed time.
- Showing various call scenarios to exceed the thresholds.
- Defense Tests to ensure recovery following LAN interrupts.

2.2. Test Results

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

1. There were no issues with the Imperium Budget Control Application, every time a threshold was exceeded the COR was changed as per the programming of the Budget Control Application. However for some test cases that involved trying to exceed the threshold using transfer/conference and forwarding, the CDR was not updated correctly and therefore the Budget Application could not update the COR. This is not a fault of the Budget Control Application but it demonstrates how this application is completely dependent on the CDR application that is installed and on its operation to successfully produce the correct CDR report.

2.3. Support

Technical support can be obtained for Imperium Budget Control Application 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

3. Reference Configuration

The configuration in **Figure 1** is used to compliance test Imperium Budget Control Application with Avaya Aura® Communication Manager R6.3 and Avaya Aura® Application Enablement Services R6.3 to change the Class of Restriction (COR) on specific extensions to block outgoing calls when thresholds are exceeded.

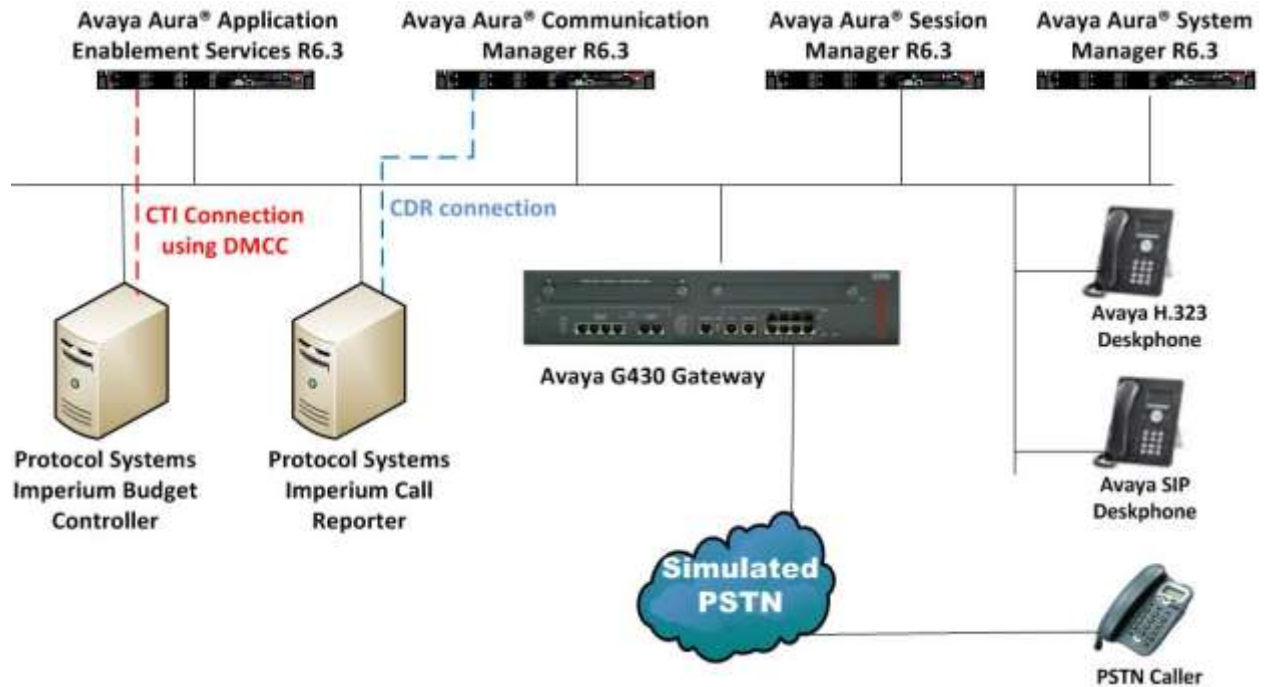


Figure 1: Connection of Imperium Budget Control Application Server from Protocol Systems FZC with Avaya Aura® Communication Manager R6.3.

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 a virtual server	System Manager 6.3.14 (SP14) Build No. – 6.3.0.8.5682-6.3.8.5304 Software Update Revision No: 6.3.14.11.3595
Avaya Aura® Communication Manager running on a virtual server	R6.3 SP11 R016x.03.0.124.0 – 22361
Avaya Aura® Session Manager running on a virtual server	Session Manager R 6.3 SP14 Build No. – 6.3.14.0.631402
Avaya Aura® Application Enablement Services running on a virtual server	R6.3 SP3 Build No – 6.3.3.1.10-0
Avaya G430 Gateway	33.12.0 /1
Avaya 9608 Series Deskphone	96x1 H323 Release 6.6.028
Avaya 9641 Series Deskphone	96x1 SIP Release 6.5.0.17
Protocol Systems Imperium Server running on Windows 2008 R2 -Imperium Call Recorder -Imperium Budget Control	V1.0

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 10**.

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 Budget Control Application

It is implied that the CDR application is installed and fully running, for further information on this product please see **Section 10** *Application Notes for configuring Imperium Call Reporter from Protocol Systems FZC with Avaya Aura® Communication Manager R6.3*.

5.2. Configure the Avaya Aura® Communication Manager connection to Avaya Aura® Application Enablement Services

It is implied that this connection is already in place and operational, for further information on this product please see **Section 10**.

5.3. Configure the Class of Restriction on Avaya Aura® Communication Manager

For compliance testing the focus was on two separate COR's, one which allowed calls to be made to the PSTN and another in which calls to the PSTN were blocked. For many organizations using this product there may be 4 or 5 different COR's setup with varying restrictions depending on the different thresholds that are exceeded, but for simplicity of testing there were only two used.

Use the command **display COR x** where x is the Class of Restriction to be displayed. In the example below the COR displayed was that which allowed PSTN calls to be made. Note that **Fully Restricted Service** is set to **n** and **Calling Party Restriction** is set to **none**.

```

display cor 1                                     Page 1 of 23
                                     CLASS OF RESTRICTION

COR Number: 1
COR Description: PaulG

FRL: 0                                           APLT? y
Can Be Service Observed? y                     Calling Party Restriction: none
Can Be A Service Observer? y                   Called Party Restriction: none
Time of Day Chart: 1                           Forced Entry of Account Codes? n
Priority Queuing? n                             Direct Agent Calling? y
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

```

Use the command **change COR x** where x is the Class of Restriction to be changed. In the example below the COR displayed was that which blocked calls to the PSTN. Note the **Fully Restricted Service** is set to **y** and **Calling Party Restriction** is set to **outward**. Setting any extension to COR 3 will therefore block that extension from making outbound calls to the PSTN.

```

change cor 3                                     Page 1 of 23
                                     CLASS OF RESTRICTION

COR Number: 3
COR Description: ImperiumBlocked

FRL: 0                                           APLT? n
Can Be Service Observed? n                     Calling Party Restriction: outward
Can Be A Service Observer? n                   Called Party Restriction: none
Time of Day Chart: 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? y
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

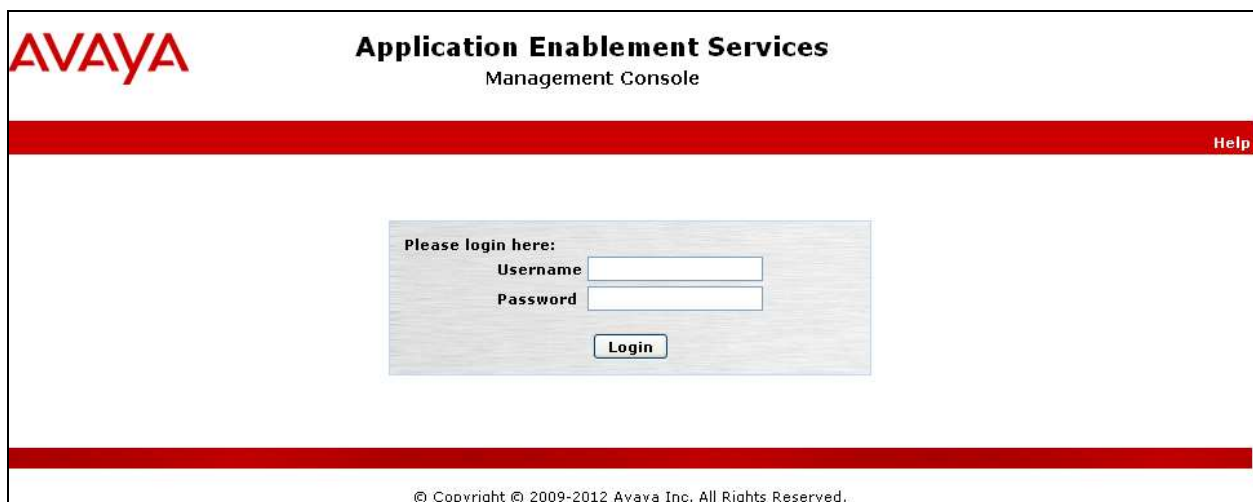
```

6. Configure Avaya Aura® Application Enablement Services

This section provides the procedures for configuring Application Enablement Services. The procedures fall into the following areas:

- Verify Licensing
- Enable TSAPI & DMCC Ports
- Create CTI User
- Associate Devices with CTI User

To access the AES Management Console, enter **https://<ip-addr>** as the URL in an Internet browser, where <ip-addr> is the IP address of AES. At the login screen displayed, log in with the appropriate credentials and then select the **Login** button.



The screenshot shows the Avaya Application Enablement Services Management Console login page. The page features the Avaya logo in the top left corner and the title "Application Enablement Services Management Console" in the top center. A red horizontal bar spans the width of the page, with the word "Help" in the top right corner. The main content area contains a login form with the text "Please login here:" followed by two input fields labeled "Username" and "Password", and a "Login" button below them. At the bottom of the page, there is a red horizontal bar and the copyright notice "© Copyright © 2009-2012 Avaya Inc. All Rights Reserved."

6.1. Verify Licensing

The Application Enablement Services Management Console appears displaying the **Welcome to OAM** screen (not shown). Select **AE Services** from the left window and verify that both the TSAPI and DMCC services are licensed by ensuring that both services are in the list of **Services** and that the **License Mode** is showing **NORMAL MODE**. If not, contact an Avaya support representative to acquire the proper license for your solution.

AVAYA Application Enablement Services Management Console

Number of prior failed login attempts: 0
 HostName: [REDACTED]
 Server Offer Type: VIRTUAL_APPLIANCE_OR_VMWARE
 SW Version: 6.3.3.1.10.0
 Server Date and Time: Fri Jan 23 11:56:56 GMT 2015
 HA Status: Not Configured

AE Services Home | Help | Logout

AE Services

Note: AE Services server is using a default installed server certificate. Default installed certificates should not be used in a production environment. It is highly recommended to replace all default installed certificates.

IMPORTANT: AE Services must be restarted for administrative changes to fully take effect. Changes to the Security Database do not require a restart.

Service	Status	State	License Mode	Config*
ASAI LMS Manager	N/A	Running	N/A	N/A
CVALM Service	ONLINE	Running	NORMAL MODE	N/A
DUB Service	OFFLINE	Running	N/A	N/A
DMCC Service	ONLINE	Running	NORMAL MODE	N/A
TSAPI Service	ONLINE	Running	NORMAL MODE	N/A
Transport Layer Service	N/A	Running	N/A	N/A
AE Services HA	Not Configured	N/A	N/A	N/A

6.2. Enable TSAPI and DMCC Ports

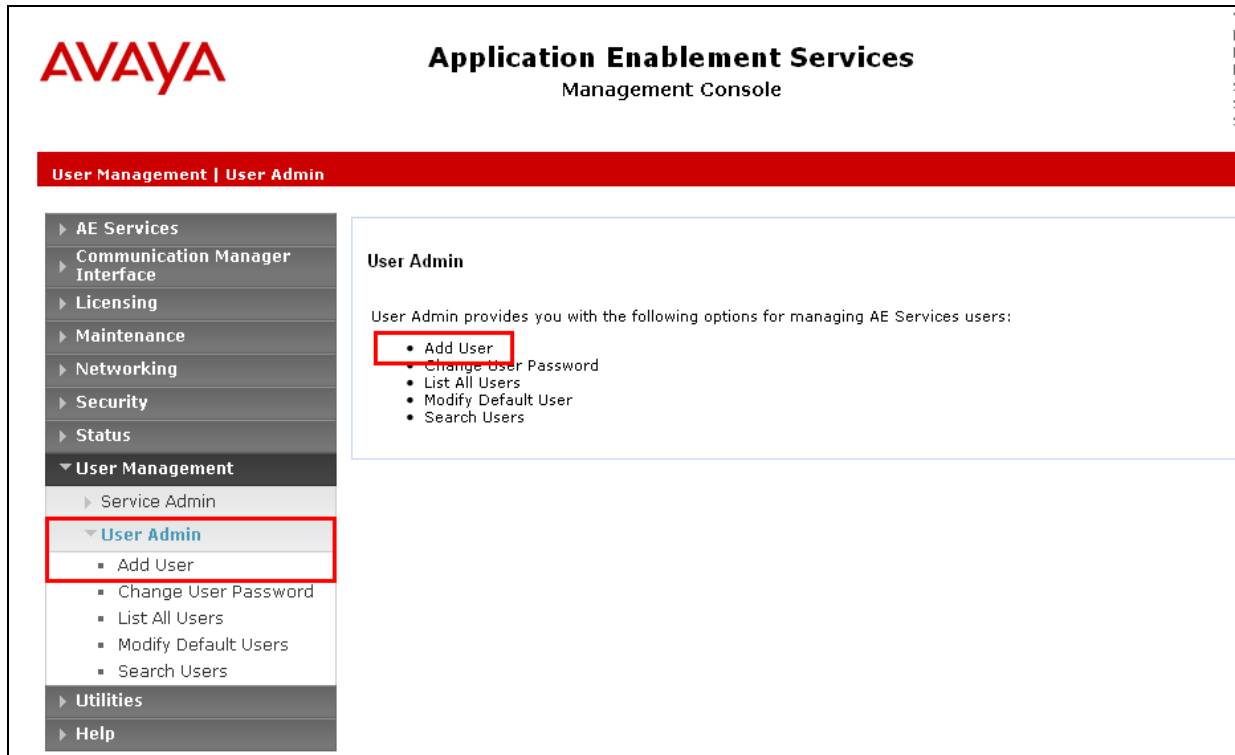
To ensure that TSAPI and DMCC ports are enabled, navigate to **Networking → Ports**. Ensure that the TSAPI ports are set to **Enabled** as shown below. Ensure that the **DMCC Server Ports** are also **Enabled** and take note of the **Unencrypted Port 4721** which will be used later in **Section 7**.

The screenshot displays the Avaya Application Enablement Services Management Console. The interface includes a navigation menu on the left with categories like AE Services, Communication Manager Interface, High Availability, Licensing, Maintenance, Networking, and Security. The 'Networking' section is expanded, and 'Ports' is selected. The main content area shows the 'Ports' configuration page, which is divided into three sections: CVLAN Ports, TSAPI Ports, and DMCC Server Ports. Each section contains various port settings and enablement controls.

Section	Port Name	Port Value	Enabled/Disabled
CVLAN Ports	Unencrypted TCP Port	9999	<input checked="" type="radio"/> Enabled
	Encrypted TCP Port	9998	<input checked="" type="radio"/> Enabled
DLG Port	TCP Port	5678	
TSAPI Ports	TSAPI Service Port	450	<input checked="" type="radio"/> Enabled
	Local TLINK Ports		
	TCP Port Min	1024	
	TCP Port Max	1039	
	Unencrypted TLINK Ports		
	TCP Port Min	1050	
Encrypted TLINK Ports			
TCP Port Min	1066		
TCP Port Max	1081		
DMCC Server Ports	Unencrypted Port	4721	<input checked="" type="radio"/> Enabled
	Encrypted Port	4722	<input checked="" type="radio"/> Enabled
	TII/87 Port	4723	<input checked="" type="radio"/> Enabled

6.3. Create CTI User

A User ID and password needs to be configured for the IMCC server to communicate as a TSAPI client with the Application Enablement Services server. Navigate to the **User Management** → **User Admin** screen then choose the **Add User** option.



In the **Add User** screen shown below, enter the following values:

- **User Id** - This will be used by the each IMCC Agent Desktop to connect to AES.
- **Common Name** and **Surname** - Descriptive names need to be entered.
- **User Password** and **Confirm Password** - This will again be used by each IMCC Agent Desktop.
- **CT User** - Select **Yes** from the drop-down menu.

Complete the process by choosing **Apply** at the bottom of the screen (not shown).

AVAYA **Application Enablement Services**
Management Console

User Management | User Admin | List All Users

AE Services
Communication Manager Interface
High Availability
Licensing
Maintenance
Networking
Security
Status
User Management
Service Admin
User Admin
Add User
Change User Password
List All Users
Modify Default Users
Search Users
Utilities
Help

Edit User

* User Id	imperium
* Common Name	imperium
* Surname	imperium
User Password	
Confirm Password	
Admin Note	
Avaya Role	None
Business Category	
Car License	
CM Home	
Css Home	
CT User	Yes
Department Number	
Display Name	
Employee Number	
Employee Type	

The next screen will show a message indicating that the user was created successfully (not shown).

6.4. Associate Devices with CTI User

Navigate to **Security** → **Security Database** → **CTI Users** → **List All Users** select the **imperium** user and click on **Edit**.

The screenshot shows the Avaya Application Enablement Services Management Console. The breadcrumb navigation is Security > Security Database > CTI Users > List All Users. A table lists CTI users with columns for User ID, Common Name, Worktop Name, and Device ID. The 'imperium' user is selected, and the 'Edit' button is highlighted.

User ID	Common Name	Worktop Name	Device ID
<input type="radio"/> asc	asc	NONE	NONE
<input type="radio"/> cube	cube	NONE	NONE
<input type="radio"/> emc	emc	NONE	NONE
<input checked="" type="radio"/> imperium	imperium	NONE	NONE
<input type="radio"/> jacada	jacada	NONE	NONE
<input type="radio"/> nice	nice	NONE	NONE
<input type="radio"/> presence	presence	NONE	NONE

In the main window ensure that **Unrestricted Access** is ticked. Once this is done click on **Apply Changes**.

The screenshot shows the 'Edit CTI User' page for the 'imperium' user. The 'Unrestricted Access' checkbox is checked. The 'Apply Changes' button is highlighted.

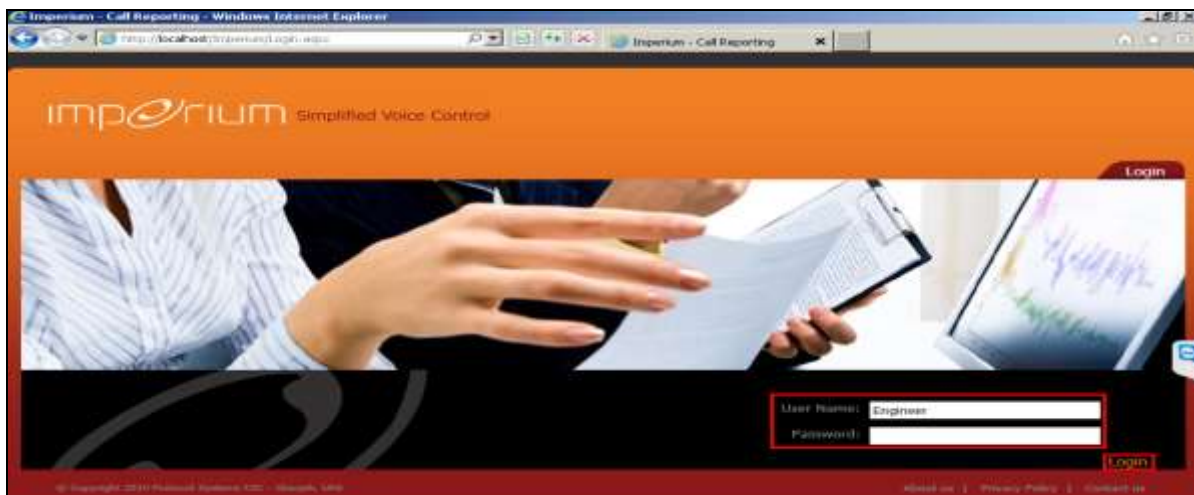
User Profile:	User ID: imperium
	Common Name: imperium
	Worktop Name: NONE
	Unrestricted Access: <input checked="" type="checkbox"/>
Call and Device Control:	Call Origination/Termination and Device Status: None
Call and Device Monitoring:	Device Monitoring: None
	Calls On A Device Monitoring: None
	Call Monitoring: <input type="checkbox"/>
Routing Control:	Allow Routing on Listed Devices: None

7. Configuration of Protocol Systems FZC Imperium Budget Control Application Server

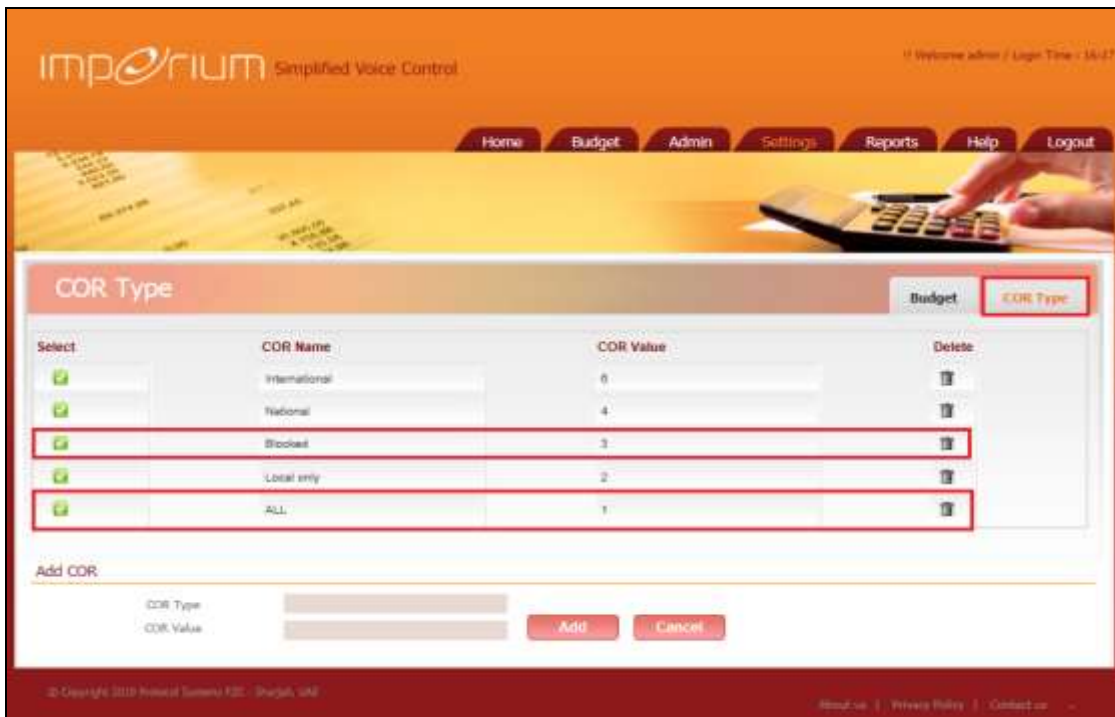
This section outlines the steps necessary to configure the Imperium Budget Control Application server to enable the Application make the necessary changes to Communication Manager in order to block certain extensions from making outbound calls.

7.1. Imperium Budget Control Application'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 **Settings** tab, these tabs are located along the top of the screen. Once there click on **COR Type** tab highlighted and changes can be made to existing COR entries or a new COR can be added. In the example below two existing COR values were changed.



Click on the icon next to the COR to be altered, the values are entered in the two boxes at the bottom of the screen. The COR name and value can be changed, click on **Update** once complete.



Click on the **Budget** tab, in this screen a Communication Manager extension can be added by clicking on **Add** at the bottom of the screen.

imp^orium Simplified Voice Control !! Welcome admin / Login Time : 16:11

Home Budget Admin Settings Reports Help Logout

Budget

Select	Extension	Bar Type	Value	Duration	Action	Status	Delete
<input checked="" type="checkbox"/>	1004	Cost	28	Daily	Bar	Released	
<input checked="" type="checkbox"/>	2014	Duration	10	Daily	Bar	Released	

Budget Settings

Extension No:

Default COR Type:

Barring Type:

Value: (Amt)

Block COR Type:

Duration:

Action:

The following all need to be set for this extension in order for the COR to be changed when a cost exceeds the value of **24**.

- Extension No** This is the Communication Manager extension number.
- Default COR Type** This is the COR when the extension is free or unblocked.
- Barring Type** This is set to either **Cost** or **Duration**.
- Value** This is the value of the cost or duration set above.
- Block COR Type** This is the COR value for the blocked COR, in this case **3**.
- Duration** This can be set to **Daily**, weekly or monthly depending on how long the extension is to remain blocked before being automatically unblocked.
- Action** This is the action to be taken, in this case it is to **Bar** the extension in question.

Click on **Update** once the information has been added correctly.

The screenshot displays the 'Budget' configuration page in the Imporium system. At the top, there is a navigation bar with buttons for Home, Budget, Admin, Settings, Reports, Help, and Logout. Below this is a table listing budget entries:

Select	Extension	Bar Type	Value	Duration	Action	Status	Delete
<input checked="" type="checkbox"/>	1004	Cost	26	Daily	Bar	Released	
<input checked="" type="checkbox"/>	2014	Duration	10	Daily	Bar	Released	

Below the table is the 'Budget Settings' form, which contains the following fields:

- Extension No: 2013
- Default COR Type: ALL (dropdown)
- Barring Type: Cost (dropdown)
- Value: 24 (amount)
- Block COR Type: Blocked (dropdown)
- Duration: Daily (dropdown)
- Action: Bar (dropdown)

At the bottom of the form are two buttons: 'Cancel' and 'Update' (highlighted in red).

8. Verification Steps

This section illustrates the steps necessary to verify that the Imperium Budget Control Application Server is connected to Communication Manager correctly in order to both receive CDR information and to be able to change the COR of specific extensions once a pre-defined threshold has been exceeded.

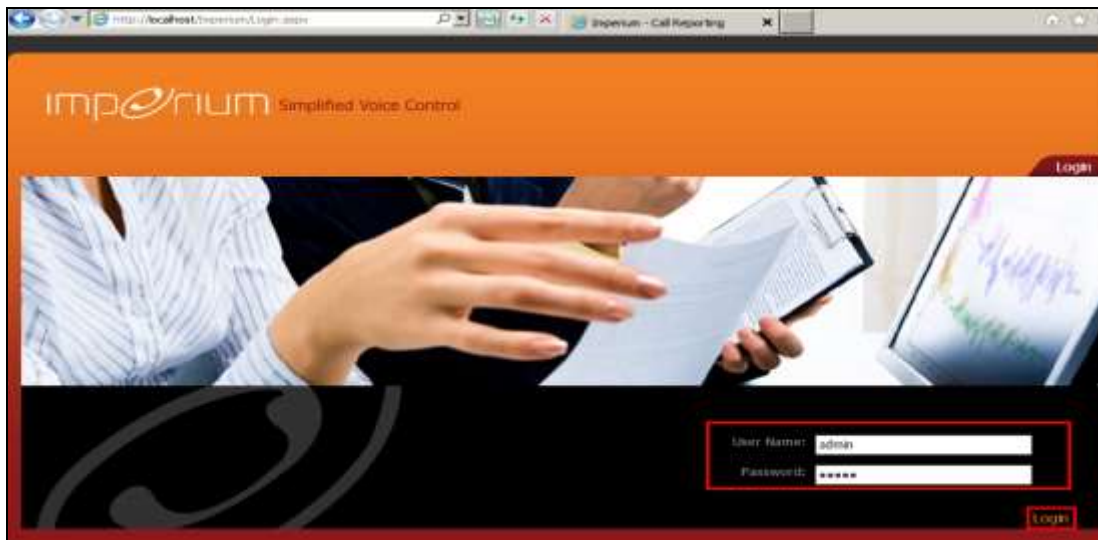
8.1. Verify that Avaya Aura® Communication Manager CDR link is active

Log into Communication Manager as per **Section 5**, using an application 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
```

8.2. Verify that Imperium Budget Control Application 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 the extension to **2013** (or of that to be scrutinised). Set **Direction** to **Outgoing** so that all the outgoing or “cost” calls are reported on, once finished click on **Generate** to continue.

The screenshot shows the 'Reports' section of the Imporium web application. The interface includes a navigation bar with tabs for Home, Budget, Admin, Settings, Reports, Help, and Logout. The 'Reports' tab is active. Below the navigation bar, there is a header for the 'Reports' section. The main content area contains several configuration fields:

- Date Option:** A dropdown menu set to 'Date Range'.
- From Dt:** A date and time selector set to '09/01/2015 12:00 AM'.
- To Dt:** A date and time selector set to '09/24/2015 11:59 PM'.
- Branch:** A dropdown menu set to 'All Branches'.
- Department:** A dropdown menu set to 'All Departments'.
- Extension:** A dropdown menu set to '2013'.
- Call Type:** A dropdown menu set to 'All Calls'.
- Trunk:** A dropdown menu set to 'All Trunks'.
- AuthCode:** A dropdown menu set to 'All AuthCodes'.
- Direction:** A dropdown menu set to 'Outgoing'.
- Cost:** A dropdown menu set to 'Disable'.
- Highest Duration / Cost:** A checkbox and a dropdown menu set to 'Top'.
- Search By Number:** A checkbox.
- Group By:** A dropdown menu set to 'Date'.
- Group By:** A dropdown menu set to 'Select'.
- Order By:** A dropdown menu set to 'Date'.
- Report Type:** Radio buttons for 'Detail' (selected) and 'Summary'.

At the bottom of the form, there is a 'Save Template as:' field with a 'Save' button, a 'Templates:' dropdown menu set to 'Select', and a prominent red 'Generate' button.

The following screenshot of a report shows outbound calls for extension **2013**, click on the icon to move to page **2** to see the total cost of these calls.

Call_start	Ring_Duration	Duration	Direction	Caller	Caller Name	Called No	Called Name	Call Detail	Avmt	Ans	Comments
15/09/2015											
15/09/2015 10:32:48		00:01:14	Outgoing	2013	Ext2013	5250			0:00	Yes	
15/09/2015 11:12:17		00:00:32	Outgoing	2013	Ext2013	5250			0:00	Yes	
15/09/2015 11:28:28		00:01:28	Outgoing	2013	Ext2013	5251			0:00	Yes	
15/09/2015 11:30:31		00:01:12	Internal	2013	Ext2013	2000			0:00	Yes	
15/09/2015 11:39:47		00:00:50	Outgoing	2013	Ext2013	5230	Island		2:00	Yes	
15/09/2015 11:39:50		00:00:11	Outgoing	2013	Ext2013	5230	Island		2:00	Yes	
15/09/2015 11:39:51		00:00:31	Internal	2013	Ext2013	2000			0:00	Yes	
15/09/2015 11:39:54		00:00:16	Outgoing	2013	Ext2013	5220	Island		2:00	Yes	
15/09/2015 11:49:24		00:00:27	Internal	2013	Ext2013	2000			0:00	Yes	
15/09/2015 11:49:25		00:00:16	Outgoing	2013	Ext2013	5220	Island		2:00	Yes	
15/09/2015 14:00:31		00:00:07	Internal	2013	Ext2013	2000			0:00	Yes	
15/09/2015 14:21:37		00:00:06	Outgoing	2013	Ext2013	5230	Island		2:00	Yes	
15/09/2015 14:23:59		00:00:28	Internal	2013	Ext2013	2000			0:00	Yes	
15/09/2015 14:24:56		00:00:16	Outgoing	2013	Ext2013	5230	Island		2:00	Yes	
15/09/2015 14:31:36		00:00:21	Internal	2013	Ext2013	2000			0:00	Yes	
15/09/2015 14:31:42		00:00:10	Outgoing	2013	Ext2013	5230	Island		2:00	Yes	
15/09/2015 14:34:40		00:00:13	Outgoing	2013	Ext2013	5230	Island		2:00	Yes	
15/09/2015 14:38:44		00:00:02	Outgoing	2013	Ext2013	5230	Island		2:00	Yes	
15/09/2015 15:34:03		00:00:37	Internal	2013	Ext2013	2000			0:00	Yes	
15/09/2015 15:34:41		00:00:29	Outgoing	2013	Ext2013	5220	Island		0:00	Yes	
15/09/2015 15:40:03		00:00:11	Internal	2013	Ext2013	2000			0:00	Yes	
15/09/2015 15:43:09		00:00:06	Outgoing	2013	Ext2013	5230	Island		0:00	Yes	
15/09/2015 17:53:08		00:01:01	Outgoing	2013	Ext2013	5230	Island		4:00	Yes	

Call Type : All Calls

The total cost of the calls is shown to be **26**, and with the threshold set for this extension to 24 this has now been exceeded and the COR should be set to block any further PSTN calls.

Call_start	Ring_Duration	Duration	Direction	Caller	Caller Name	Called No	Called Name	Call Detail	Avmt	Ans	Comments
15/09/2015											
Total Calls / Duration						23 / 00:13:16	Cost : 26.00				
Total Calls :		23	Total Duration :		00:13:16	Total Seconds : 796					
Answered Calls :		23	Not Answered Calls :		0	Total Amount : 26.00					

8.3. Verify the extension is now blocked

These are the steps that can be taken to verify that the COR on the Communication Manager station is now changed and that the station is effectively blocked from making any outbound calls.

8.3.1. Verify the COR is changed on Avaya Aura® Communication Manager

Login to Communication Manager (not shown) and type the command **display station x**, where x is the extension number that needs to be checked. Note that the **COR** is now set to **3** and not 1 as it was originally.

```
display station 2013                                     Page 1 of 5
                                                         STATION
Extension: 2013                                         Lock Messages? n          BCC: 0
Type: 9650                                             Security Code: *         TN: 1
Port: S00119                                           Coverage Path 1:         COR: 3
Name: Imperium, Ext2013                               Coverage Path 2:         COS: 1
                                                         Hunt-to Station:        Tests? n
STATION OPTIONS
Location:                                             Time of Day Lock Table:
Loss Group: 19                                       Personalized Ringing Pattern: 1
                                                         Message Lamp Ext: 2013
Speakerphone: 2-way                                   Mute Button Enabled? y
Display Language: english                             Button Modules: 0
Survivable GK Node Name:
Survivable COR: internal                               Media Complex Ext:
Survivable Trunk Dest? y                             IP SoftPhone? y
                                                         IP Video Softphone? n
                                                         Short/Prefixed Registration Allowed: default
                                                         Customizable Labels? y
```

8.3.2. Verify the extension is now set to Barred on Imperium Budget Controller Application

Log in to the Imperium Budget Controller Application as per **Section 8.2**. Click on the **Budget** tab at the top of the window and note that the extension **2013** now has a status of **Barred**.

The screenshot displays the Imperium Budget Controller Application interface. At the top, the logo "impERIUM Simplified Voice Control" is visible on the left, and the user information "Welcome admin / Login Time : 17:49" is on the right. A navigation bar contains tabs for Home, Budget, Admin, Settings, Reports, Help, and Logout. The "Budget" tab is selected and highlighted with a red box. Below the navigation bar, the main content area is titled "Budget" and contains a table with columns: Select, Extension, Bar Type, Value, Duration, Action, Status, and Delete. The table lists three budget entries: 1004 (Cost, 20, Daily, Bar, Released), 2014 (Duration, 10, Daily, Bar, Released), and 2013 (Cost, 24, Daily, Bar, Barred). The "Barred" status for extension 2013 is highlighted with a red box. Below the table is a "Budget Settings" panel with fields for Extension No, Default COR Type (International), Barring Type (Cost), Value (Amt), Block COR Type (International), Duration (Daily), and Action (Bar). At the bottom of the settings panel are "Cancel" and "Add" buttons.

Select	Extension	Bar Type	Value	Duration	Action	Status	Delete
<input checked="" type="checkbox"/>	1004	Cost	20	Daily	Bar	Released	
<input checked="" type="checkbox"/>	2014	Duration	10	Daily	Bar	Released	
<input checked="" type="checkbox"/>	2013	Cost	24	Daily	Bar	Barred	

Budget Settings

Extension No:

Default COR Type:

Barring Type:

Value: (Amt)

Block COR Type:

Duration:

Action:

9. Conclusion

These Application Notes describe the procedures for configuring Imperium Budget Control Application from Protocol Systems to integrate with Avaya Aura® Communication Manager R6.3 in order to block outgoing calls once a threshold has been reached. In the configuration described in these Application Notes, outbound calls were made to exceed a threshold set and therefore blocked that extension from making further outbound calls. During compliance testing, all test cases were completed successfully. Observations and results are outlined in **Section 2.2**.

10. 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.
- [2] *Avaya Aura® Application Enablement Services Administration and Maintenance Guide Release 6.3*.
- [3] *Application Notes for configuring Imperium Call Reporter from Protocol Systems FZC with Avaya Aura® Communication Manager R6.3*.

Technical documentation can be obtained for Imperium Budget Control Application from the website <http://imperiumapp.com>

Support for Imperium Budget Control Application can be found at:

Protocol Systems FZC

Tel: +9716 5578383

Fax: +9716 5578384

Email: support@protocolsystems-me.com

©2016 Avaya Inc. All Rights Reserved.

Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

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.