



## Avaya Solution & Interoperability Test Lab

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# Application Notes for Configuring Computer Instruments eONE, with Avaya Aura® Experience Portal – Issue 1.0

### Abstract

These Application Notes describe the procedure for configuring Computer Instruments' eONE product to interoperate with Avaya Aura® Experience Portal.

Computer Instruments eONE is a point and click graphical interface for rapidly developing call flow experience. It provides a simple solution for managing IVR application development by enabling the ability to change caller experiences in real time without restarting services. These Application Notes focus on eONE's integration with Avaya Aura® Experience Portal in support of inbound and outbound Interactive Voice Response (IVR) calls. In this compliance test, Computer Instruments eONE was installed on a cloud.

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 procedure for configuring Computer Instruments' eONE (eONE) product to interoperate with Avaya Aura® Experience Portal (Experience Portal).

Computer Instruments eONE is a point and click graphical interface for rapidly developing call flow experience. It provides a simple solution for managing IVR application development by enabling the ability to change caller experiences in real time without restarting services. These Application Notes focus on eONE's integration with Avaya Aura® Experience Portal in support of inbound and outbound Interactive Voice Response (IVR) calls. A third party Text-To-Speech (TTS) server was used during compliance test.

The Computer Instruments eONE server used in the testing was installed on a cloud.

## 2. General Test Approach and Test Results

The interoperability compliance test included feature and serviceability tests. Both the feature test cases and serviceability test cases were performed manually. The feature test verified the feature interoperability between eONE and Experience Portal and the serviceability test verified the ability of eONE to recover under adverse conditions.

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.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with these Application Notes, the interface between Avaya systems and eOne did not include use of any specific encryption features as requested by Computer Instruments.

This test was conducted in a lab environment simulating a basic customer enterprise network environment. The testing focused on the standards-based interface between the Avaya solution and the third-party solution. The results of testing are therefore considered to be applicable to either a premise-based deployment or to a hosted or cloud deployment where some elements of

the third-party solution may reside beyond the boundaries of the enterprise network, or at a different physical location from the Avaya components.

Readers should be aware that network behaviors (e.g., jitter, packet loss, delay, speed, etc.) can vary significantly from one location to another, and may affect the reliability or performance of the overall solution. Different network elements (e.g., session border controllers, soft switches, firewalls, NAT appliances, etc.) can also affect how the solution performs.

If a customer is considering implementation of this solution in a cloud environment, the customer should evaluate and discuss the network characteristics with their cloud service provider and network organizations, and evaluate if the solution is viable to be deployed in the cloud.

The network characteristics required to support this solution are outside the scope of these Application Notes. Readers should consult the appropriate Avaya and third-party documentation for the product network requirements. Avaya makes no guarantee that this solution will work in all potential deployment configurations

## **2.1. Interoperability Compliance Testing**

The general test approach included verification of a successful integration of the eONE application with Experience Portal. IVR call flows were created using CII Voice Administrator, an element of eONE, and verified by placing inbound calls to an Experience Portal inbound application and outbound calls that invoked an Experience Portal outbound application. Both the inbound and outbound applications were developed by Computer Instruments and worked with the eONE software. Once the inbound or outbound application was connected, the eONE software worked in conjunction with Experience Portal to play a menu and the user can select various menu options using DTMF or speech recognition.

During the compliance test, the following call scenarios and call flow elements were used to verify eONE functionality.

- Inbound calls
- Outbound calls
- Play prompt using recording
- Play prompt using TTS
- User input using DTMF
- Call termination by originator
- Call termination by destination party
- Blind transfer
- Simultaneous calls

During Compliance Test, eONE was also configured to interface with Avaya Aura<sup>®</sup> Session Manager and Avaya IP Office. Application Notes for those are available separately.

## 2.2. Test Results

Computer Instruments eONE successfully passed the compliance testing.

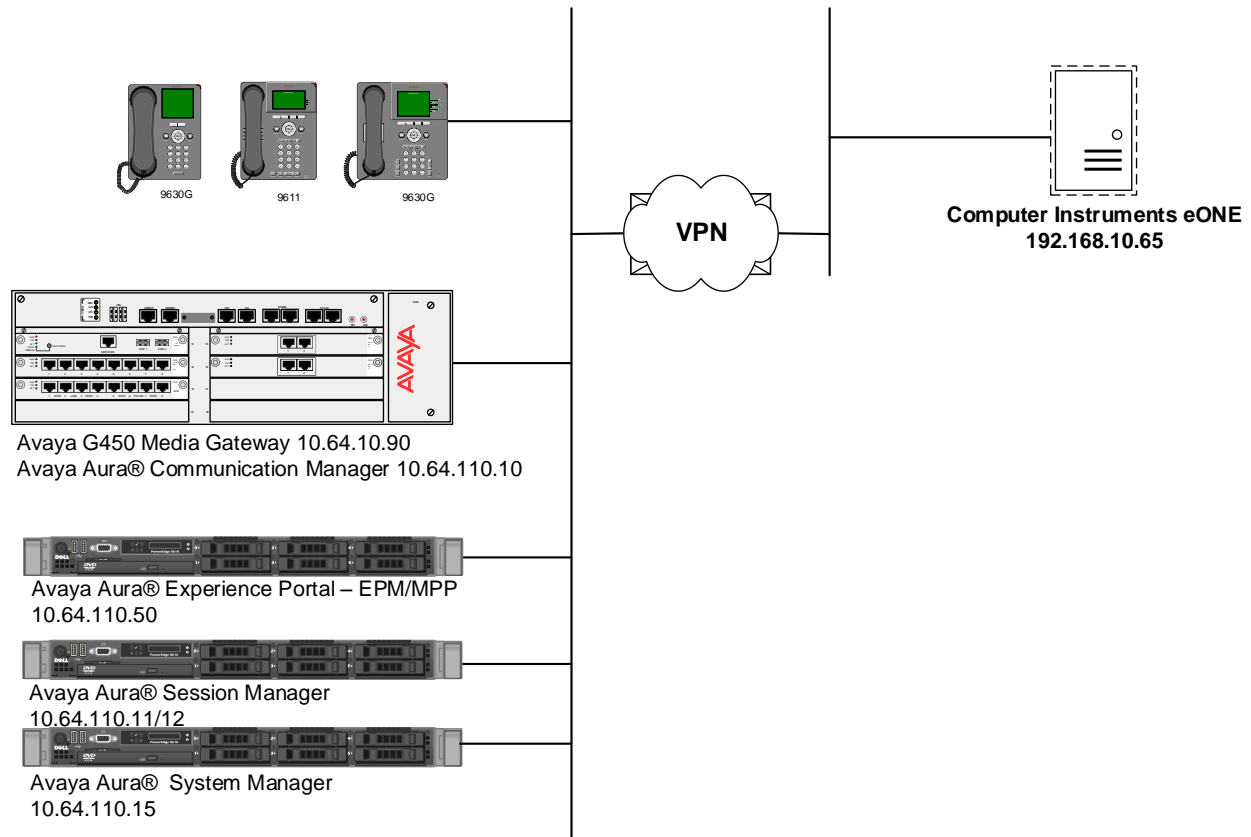
## 2.3. Support

Technical support for the eONE solution can be obtained by contacting Computer Instruments at:

- Email – [support@instruments.com](mailto:support@instruments.com)
- Phone – (888) 451-0851

### 3. Reference Configuration

**Figure 1** illustrates the reference configuration used during testing. In the reference configuration, the eONE server has an Apache Tomcat server installed to facilitate integration with Experience Portal. An incoming call from PSTN to eONE is first received by Session Manager or Communication Manager which routes the call to Experience Portal.



**Figure 1: Test Configuration of eONE**

## 4. Equipment and Software Validated

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

Equipment/Software	Version
Avaya Aura® Experience Portal running on a virtual environment	7.2.1
Avaya Aura® Communication Manager running on a virtual environment	7.1.2
Avaya G450 Media Gateway MGP MM710 T1 Module	HW 1 FW 37.19.0 HW 01 FW 013
Avaya Aura® Session Manager running on a virtual environment	7.1.2
Avaya Aura® System Manager running on a virtual environment	7.1.2
Computer Instruments eONE	6.1.6

## 5. Configure Avaya Aura® Experience Portal

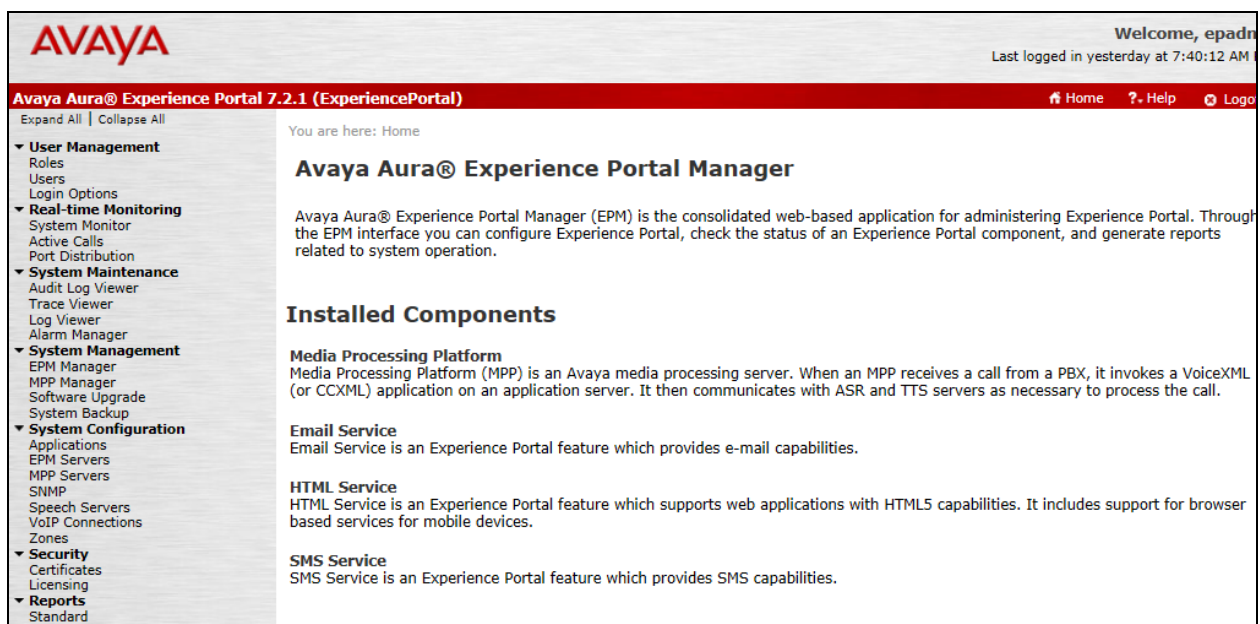
This section describes the Experience Portal configuration to support the network shown in **Figure 1**. The configuration of Experience Portal was performed using a web browser.

The Experience Portal configuration includes the following:

- Launch Experience Portal
- Add eONE inbound application
- Add eONE outbound application

### 5.1. Launch Avaya Aura® Experience Portal

From a workstation, open a web browser and enter the URL for Experience Portal. Log on using proper credentials. The **Avaya Aura® Experience Portal Manager** page is displayed.



## 5.2. Add Inbound Application

From the left pane, select **System Configuration** → **Applications**. The **Applications** page is displayed (not shown). Click **Add**.

The **Add Application** screen is displayed. Complete the fields as follows:

- Enter a descriptive name in the **Name** field. In the compliance test **CI\_EONE** was used.
- For the **Type** field, select **VoiceXML** from the dropdown menu.
- In the **URI** box, fill in the **VoiceXML URL** field:  
**http://192.168.10.65:8080/eCI\_IB\_OD/Start**, where **192.168.10.65** and **8080** are the IP Address and Tomcat Port of the eONE Server
- In the **Speech Servers** box, select **Nuance** for the **TTS** field.
- In the **Application Launch** box, select the **Inbound** radio button and the **Number** radio button. Enter the **Called Number** and select **Add**.

**AVAYA** Welcome, epac  
Last logged in yesterday at 7:40:12 AM

**Avaya Aura@ Experience Portal 7.2.1 (ExperiencePortal)** Home ? Help Lo

Expand All | Collapse All

- ▼ **User Management**
  - Roles
  - Users
  - Login Options
- ▼ **Real-time Monitoring**
  - System Monitor
  - Active Calls
  - Port Distribution
- ▼ **System Maintenance**
  - Audit Log Viewer
  - Trace Viewer
  - Log Viewer
  - Alarm Manager
- ▼ **System Management**
  - EPM Manager
  - MPP Manager
  - Software Upgrade
  - System Backup
- ▼ **System Configuration**
  - Applications
  - EPM Servers
  - MPP Servers
  - SNMP
  - Speech Servers
  - VoIP Connections
  - Zones
- ▼ **Security**
  - Certificates
  - Licensing
- ▼ **Reports**
  - Standard
  - Custom
  - Scheduled
- ▼ **Multi-Media Configuration**
  - Email
  - HTML
  - SMS

**Name:** CI\_EONE

**Enable:** ☒ Yes ☐ No

**Type:** VoiceXML

**Reserved SIP Calls:** ☒ None ☐ Minimum ☐ Maximum

**Requested:**

**URI**

☒ Single ☐ Fail Over ☐ Load Balance

**VoiceXML URL:**  **Verify**

**Mutual Certificate Authentication:** ☐ Yes ☒ No

**Basic Authentication:** ☐ Yes ☒ No

**Speech Servers**

**ASR:** No ASR

**TTS:** LumenVox

**Voices**  
en-US Chris M

**Selected Voices**  
en-US Amanda F

**Application Launch**

☒ Inbound ☐ Inbound Default ☐ Outbound


☒ Number ☐ Number Range ☐ URI

**Called Number:**  **Add**

51112  
65001 - 65005 **Remove**



After entering the URL information, click the **Verify** button to make sure the application is accessible. The following page should be displayed:



Event :error - [CheckError](#)

**Starting application : eCI\_IB\_OD**  
Application Startup Parameters  
AAI   
ANI   
DNIS   
Protocol Name   
Protocol Version   
UUI   
Call Tag   
Channel   
VP-Called Extension   
VP-Coverage Reason   
VP-Coverage Type   
VP-RDNIS   
Redirect URI   
Redirect Presentation Info   
Redirect Screening Info   
Redirect Reason   
Shared Mode   
Shared UUI ID   
[Shared UUI Value](#)

After a successful verification, click **Save**.

### 5.3. Configure Inbound properties file

On the server running eONE, modify the following file:

**\$TOMCAT\_HOME\webapps\DDHome\InboundAppConfig.properties**

- InboundVxmlUrlIP=[**IP Address of eONE server**]
- DB\_DriverClassName=com.microsoft.sqlserver.jdbc.SQLServerDriver
- DB\_IP=[**IP Address of eONE server**]
- DB\_Port=1433
- DB\_Name=VTSystem
- DB\_Url=jdbc:sqlserver:// [**IP Address of eONE server**]:1433;databaseName=VTSystem
- DB\_Username=VTSystem
- DB\_Password=\*\*\*\*\* (Contact CI for password)
- DB\_ValidationQuery=SELECT 1
- DB\_TestOnBorrow=true

## 5.4. Add Outbound Application

From the **Applications** page, click **Add**. The **Add Application** screen is displayed. Complete the fields as follows:

- Enter a descriptive name in the **Name** field. In the compliance test **CIOutbound** was used.
- For the **Type** field, select **CCXML** from the dropdown menu.
- In the **URI** box, fill in the **VoiceXML URL** field:  
**http://192.168.10.65:8080/OutCall/Start**, where **192.168.10.65** and **8080** are the IP Address and Tomcat Port of the eONE Server
- In the **Application Launch** box, select the **Outbound** radio button.

Use the **Verify** button to make sure the application is accessible and then click **Save**.

The screenshot displays the 'Add Application' configuration page in the Avaya Aura Experience Portal. The page title is 'Avaya Aura® Experience Portal 7.2.1 (ExperiencePortal)'. The sidebar on the left contains a tree view with categories: User Management, Real-time Monitoring, System Maintenance, System Configuration, Security, Reports, and Multi-Media Configuration. The main content area is for configuring an application named 'CIOutbound'. Fields include: Name (CIOutbound), Enable (radio buttons for Yes and No), Type (dropdown menu set to CCXML), Reserved SIP Calls (radio buttons for None, Minimum, and Maximum), Requested (text field), URI (radio buttons for Single, Fail Over, and Load Balance), CCXML URL (text field with 'http://192.168.10.65:8080/OutCall/Start' and a 'Verify' button), Mutual Certificate Authentication (radio buttons for Yes and No), Basic Authentication (radio buttons for Yes and No), Speech Servers (ASR dropdown set to 'No ASR'), TTS (dropdown set to 'LumenVox'), Voices (list box with 'en-US Chris M'), Selected Voices (list box with 'en-US Amanda F'), and Application Launch (radio buttons for Inbound, Inbound Default, and Outbound, with Outbound selected).

## 5.5. Configure Outbound Call Parameters

On the server running eONE, modify the following:

- Key for PlatformType = 0  
"Computer\HEKY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\CII\eCIOutbound"
- Key for PlatformLocation = [IP Address of eONE server]:8080  
"Computer\HEKY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\CII\eCIOutbound"

- Key for ScriptIP = **[IP Address of eONE server]**:  
"Computer\HEKY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\CII\eCIOOutbound"
- eCIOBService should be running.

## 5.6. Configure Outbound properties file

On the server running eONE, modify the following files:

### **\$TOMCAT\_HOME\webapps\DDHome\OutCallDriverAppConfig.properties**

- Set following parameters in properties file residing in \$TOMCAT\_HOME\webapps\DDHome\
- OBResultPageUrl=http://**[IP Address of eONE server]**/eCI/Outbound/OBResult.ashx
- OutcallAppName=<Outcall application name setup on AEP>
- VoicePortalIP=**[IP Address of Experience Portal]**
- VoicePortalOutcallUserName=**[Experience Portal Outcall Username]**
- VoicePortalOutcallPassword=**[Experience Portal Outcall Password]**
- VxmlAppUrl=http:// **[IP Address of eONE server]**:8080/eCI\_OB\_OD/Start
- ANITobeDisplayed=123456

### **\$TOMCAT\_HOME\webapps\DDHome\OutboundAppConfig.properties**

- OBResultPageUrl=http:// **[IP Address of eONE server]**/eCI/Outbound/OBResult.ashx
- DB\_DriverClassName=com.microsoft.sqlserver.jdbc.SQLServerDriver
- DB\_IP=**[IP Address of eONE server]**
- DB\_Port=1433
- DB\_Name=VTSystem
- DB\_Url=jdbc:sqlserver:// **[IP Address of eONE server]**:1433;databaseName=VTSystem
- DB\_Username=VTSystem
- DB\_Password= \*\*\*\*\* (Contact CI for password)
- DB\_ValidationQuery=SELECT 1
- DB\_TestOnBorrow=true

## 6. Configure Computer Instruments eONE

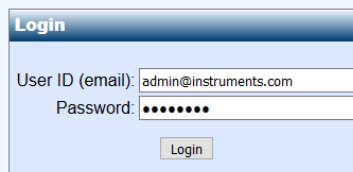
This section provides the procedures for configuring eONE.

*Note:* Prior to the actual test, a Computer Instruments engineer remotely connected to the server and installed/licensed/configured eONE. This section shows what was configured by the Computer Instruments engineer. For more information, please contact the Computer Instruments support, mentioned in **Section 2.3**.

To access the System Config page, open a web browser to the following page.

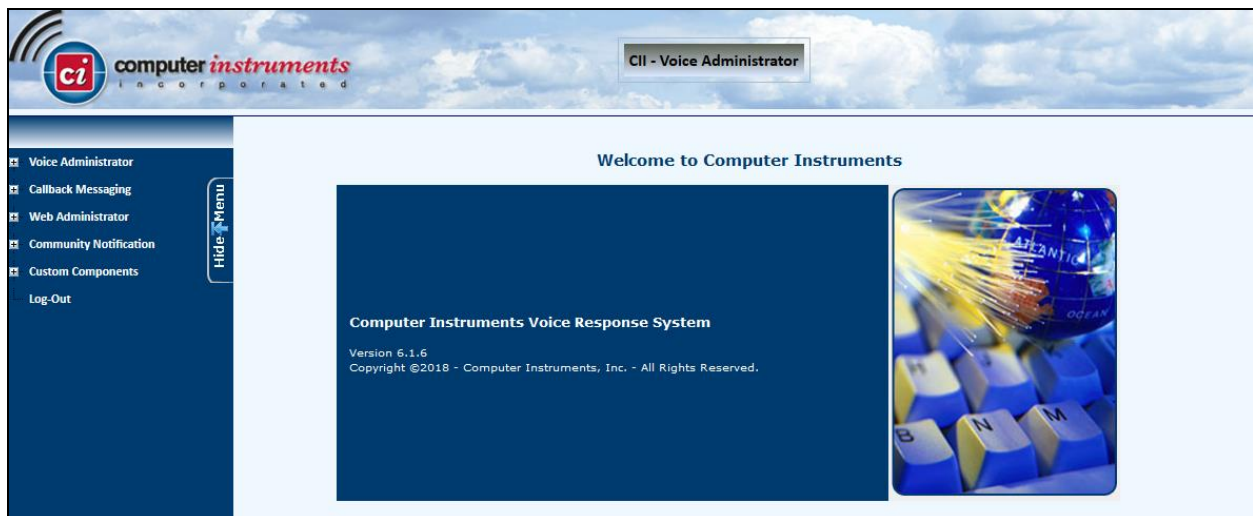
<http://192.168.10.65/eCI/VoiceAdmin/Default.aspx>

Provide appropriate credentials in the Login page.



A login form titled "Login" with a blue header. It contains two input fields: "User ID (email):" with the value "admin@instruments.com" and "Password:" with masked characters ".....". Below the fields is a "Login" button.

In the **CII-Voice Administrator** page, select **Voice Administrator** → **System Config** in the left pane to display the **Base System Configuration** screen.



Select the **Defaults** tab from the top of the **Base System Configuration** pop-up screen. Select “**Avaya CM/SM for PBX Integration**. For **Dial Plan Digits**, enter the maximum length of internal extensions on Communication Manager. For **Outside Line Access Prefix**, enter the applicable prefix for calls to the PSTN, as required by Communication Manager. For outbound calls to the PSTN, based on INI setting eONE will prepend the **Outside Line Access Prefix** value defined below, plus the digit “1” (as per setup).

**Base System Configuration**

Defaults | Application | Channel | Dialing | Installed Services

**System Defaults**

PBX Integration: **Avaya CM/SM** ☐ TDM ☐

Default Application: **1000 - Default Application**

Default Operator: **100 - OPERATOR,DEFAULT**

Default Language: **English**

Default Gender: ☐ Male ☒ Female

Default TTS Voice: **Microsoft Zira Desktop**

Dial Plan Digits: **5** Max Mode Digits: **15**

Transfer Prefix:  Transfer Suffix:

Outside Line Access Prefix: **9**

Toll Call Suffix/Code:  Local Call Suffix/Code:

Expect DNIS Digits: ☐

**Outcalling Groups**

OUTCALL GROUP	START	END
Message Lamp	1	1
Notification Outcall	1	1
Call Me Back Now!	1	4

Advanced TTS Save Settings

Save New Delete

Select the **Channel** tab from the top of the **Base System Configuration** pop-up screen.

In the **Channel Setting** sub-section, select the first channel entry. For **Extension**, enter the applicable extension used for the inbound application, in this case “51111”, “51112”, “51113” were used on channels 1, 2 and 3 respectively.

**struments**

**CII - System Configurations**

**Base System Configuration**

Defaults | Application | Channel | Dialing | Installed Services

**Channel Settings**

☐ TDM View ☒ IP View

EXTENSION	APPLICATION	REG ?	Ch. #
51111	Devconnect Test	False	1
51112	Devconnect Test	False	2
51113	Devconnect Test	False	3

Add New Channel

Application: **1003 - Devconnect Test**

Extension: **51113**

REG ? ☐ Update

**DNIS/MODE Settings**

NUMBER	APPLICATION
51111	Devconnect Test

DNIS:

Application:

Save Delete

## 6.1. Verification Steps

The following steps may be used to verify proper configuration for Experience Portal

### 6.1.1. Verify Avaya Aura® Experience Portal

From an **Experience Portal Manager** page, click **Real Time Monitoring** → **System Monitor** in the left pane. The **System Monitor** screen is displayed, as shown below. Verify that the **Mode**, **State**, and **Config** fields of the MPP being used (localMPP in the compliant test) shows **Online**, **Running**, and **OK**. Also review any alarms if they are present.

**AVAYA** Welcome, epadmin  
Last logged in yesterday at 7:40:12 AM PDT

**Avaya Aura® Experience Portal 7.2.1 (ExperiencePortal)** Home Help Logoff

Expand All | Collapse All

- ▼ **User Management**
  - Roles
  - Users
  - Login Options
- ▼ **Real-time Monitoring**
  - System Monitor
  - Active Calls
  - Port Distribution
- ▼ **System Maintenance**
  - Audit Log Viewer
  - Trace Viewer
  - Log Viewer
  - Alarm Manager
- ▼ **System Management**
  - EPM Manager
  - MPP Manager
  - Software Upgrade
  - System Backup
- ▼ **System Configuration**
  - Applications
  - EPM Servers
  - MPP Servers
  - SNMP
  - Speech Servers

You are here: [Home](#) > Real-Time Monitoring > System Monitor

### System Monitor (May 11, 2018 3:55:15 PM PDT)

Refresh Export

This page displays the current state of the local Experience Portal system plus any remote Experience Portal systems that you have configured. For information about the colored alarm symbols, click Help.

Summary ExperiencePortal Details

Last Poll: May 11, 2018 3:55:02 PM PDT

Server Name	Type	Mode	State	Config	Call Capacity			Active Calls		Calls Today	Alarms
					Current	Licensed	Maximum	In	Out		
EPM / localMPP	EPM/MPP	Online	Running	OK	5	5	10	0	0	0	✓
Summary					5	5	10			0	✓

## 7. Conclusion

Computer Instruments eONE passed compliance testing. These Application Notes describe the procedures required to configure Computer Instruments eONE to interoperate with Avaya Aura® Experience Portal to support the reference configuration shown in **Figure 1**.

## 8. Additional References

The following Avaya product documentation can be found at <http://support.avaya.com>

[1] *Administering Avaya Aura® Experience Portal*, Release 7.2.1, Issue 1, March 2018.

The following CII product documentation can be found at  
<http://www.instruments.com/doclib/index.html>

[2] *eONE User's Manual*.

[3] *eONE User's Tutorial*.



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