

APPLICATION NOTES

PRODUCTS SUPPORTED:

ClearOne CONVERGE® Pro 2 and Avaya Aura® Session Manager

CLEARONE DOCUMENT NTS-0050-001 (REVISION 1.0) July 2017 CONFIGURING THE CONVERGE PRO 2 WITH AVAYA AURA COMMUNICATION MANAGER AND AVAYA AURA SESSION MANAGER

Overview

This application note describes the configuration steps required to integrate ClearOne Converge Pro 2 with Avaya Aura[®] Communication Manager and Avaya Aura[®] Session Manager. Converge Pro 2 registers with Avaya Aura[®] Session Manager via SIP. This solution also includes the ClearOne Converge Pro 2 Dialer for establishing calls and the ClearOne Converge Pro 2 CONSOLE for configuring the system.

Configure Avaya Aura Communication Manager

This section provides the procedure for configuring Communication Manager. The procedure includes the following areas:

- Verify Communication Manager license
- Administer IP Network Region and IP Codec Set

Use the System Access Terminal (SAT) to configure Communication Manager and log in with appropriate credentials.

NOTE: It is assumed that basic configuration of the Communication Manager has already been completed, such as the SIP trunk to Session Manager. However, implementers should ensure sufficient Maximum Administered SIP Trunks licenses are available to accommodate the traffic between Communication Manager and the Session Manager. The SIP station configuration for ClearOne Converge Pro 2 128V is configured through Avaya Aura® System Manager in Section 6.2.

Verify License

Using the SAT, verify that the Off-PBX Telephones (OPS) option is enabled on the system-parameters customer-options form. The license file installed on the system controls these options. If a required feature is not enabled, contact an authorized Avaya sales representative.

On Page 1, verify that the number of OPS stations allowed in the system is sufficient for the number of SIP endpoints that will be deployed.

display system-parameters customer-options Page 1 of 12 OPTIONAL FEATURES G3 Version: V17 Software Package: Enterprise Location: 2 System ID (SID): 1 Platform: 28 Module ID (MID): 1 USED Platform Maximum Ports: 6400 60 Maximum Stations: 2400 22 Maximum XMOBILE Stations: 2400 0 Maximum Off-PBX Telephones - EC500: 9600 0 Maximum Off-PBX Telephones - OPS: 9600 14 Maximum Off-PBX Telephones - PBFMC: 9600 0 Maximum Off-PBX Telephones - PVFMC: 9600 0 Maximum Off-PBX Telephones - SCCAN: 0 0 Maximum Survivable Processors: 313 0 (NOTE: You must logoff & login to effect the permission changes.)

Administer IP Network Region and IP Codec Set

In the **IP Network Region** form, the **Authoritative Domain** field is configured to match the domain name configured on Session Manager. In this configuration, the domain name is avaya.com. By default, **IP-IP Direct Audio** (shuffling) is enabled to allow audio traffic to be sent directly between IP endpoints without using media resources in the Avaya G450 Media Gateway or Avaya Aura® Media Server. The **IP Network Region** form also specifies the **IP Codec Set** to be used for calls routed over the SIP trunk to Session Manager.

change ip-network-region 1 Page 1 of	20
IP NETWORK REGION	
Region: 1	
Location: 1 Authoritative Domain: avaya.com	
Name: Stub Network Region: n	
MEDIA PARAMETERS Intra-region IP-IP Direct Audio: yes	
Codec Set: 1 Inter-region IP-IP Direct Audio: yes	
UDP Port Min: 2048 IP Audio Hairpinning? n	
UDP Port Max: 3329	
DIFFSERV/TOS PARAMETERS	
Call Control PHB Value: 46	
Audio PHB Value: 46	
Video PHB Value: 26	
802.1P/Q PARAMETERS	
Call Control 802.1p Priority: 6	
Audio 802.1p Priority: 6	
Video 802.1p Priority: 5 AUDIO RESOURCE RESERVATION PARAMETERS	
H.323 IP ENDPOINTS RSVP Enabled? n	
H.323 Link Bounce Recovery? y	
Idle Traffic Interval (sec): 20	
Keep-Alive Interval (sec): 5	
Keep-Alive Count: 5	

In the **IP Codec Set** form, select the audio codec type supported for calls routed over the SIP trunk to Converge Pro 2 128V. The form is accessed via the **change ip-codec-set 1** command. Note that IP codec set '1' was specified in IP Network Region '1' shown above. The default settings of the **IP Codec Set** form are shown below. Converge Pro 2 128V was tested using G.711 and G.722 codecs.

```
change ip-codec-set 1

IP CODEC SET

Codec Set: 1

Audio Silence Frames Packet

Codec Suppression Per Pkt Size(ms)

1: G.711MU n 2 20

2:

3:

4:

5:

6:

7:
```

Configure Avaya Aura Session Manager

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

Page

1 of

2

- Launch System Manager
- Set Network Transport Protocol for Converge Pro 2 128V
- Administer SIP User

NOTE: It is assumed that basic configuration of Session Manager has already been performed. This section will focus on the configuration of a SIP user for ClearOne Converge Pro 2 128V.

Launch System Manager

Access the System Manager Web interface by using the URL "https://ip-address" in an Internet browser window, where "ip-address" is the IP address of the System Manager server. Log in using the appropriate credentials.

Avra [®] System Manager 7.0	
Recommended access to System Manager is via FQDN. <u>Go to central login for Single Sign-On</u> If IP address access is your only option, then note that authentication will fail in the following cases:	User ID:
 First time login with "admin" account Expired/Reset passwords Use the "Change Password" hyperlink on this page 	Log On Cancel
to change the password manually, and then login. Also note that single sign-on between servers in the same security domain is not supported when accessing via IP address.	Supported Browsers: Internet Explorer 11.x or Firefox 43.0, 44.0 and 45.0.

Set Network Transport Protocol for ClearOne Converge Pro 2

From the System Manager Home screen, select Elements > Routing > SIP Entities and edit the SIP Entity for Session Manager shown below.

AVAYA			Last Logged on a	at June 2, 2017 11:48 AM
Aura [®] System Manager 7.0			Go	admin
Home Routing ×				
▼ Routing	Home / Elements / Routing / SIP Entities			0
Domains				Help ?
Locations	SIP Entity Details		Commit Cancel	
Adaptations	General			
SIP Entities	* Name:	devcon-sm		
Entity Links	* FQDN or IP Address:	10.64.102.117		
Time Ranges	Туре:	Session Manager		
Routing Policies	Notes:			
Dial Patterns				
Regular Expressions	Location:	Thornton 🗸		
Defaults	Outbound Proxy:	~		
	Time Zone:	America/New_York	~	
	Credential name:			
	SIP Link Monitoring			
	SIP Link Monitoring:	Use Session Manager Configuration	~	

Scroll down to the Listen Ports section and verify that the transport network protocol used by Converge Pro 2 128V is specified in the list below. For the compliance test, Converge Pro 2 128V used UDP network transport.

Listen Ports TCP Failover port: TLS Failover port: Add Remove Filter: Enable 3 Items 😂 Listen Ports Protocol Default Domain Endpoint Notes 5060 TCP \vee avaya.com \vee 5060 UDP \vee avaya.com \vee \checkmark 5061 TLS 🗸 🛛 avaya.com 🗸 \checkmark Select : All, None

Administer SIP User

In the Home screen (not shown), select Users > User Management > Manage Users to display the User Management screen below. Click New to add a user.

AVAVA							Last Logged	on at June 2, 2017 11:48 AM
Aura [©] System Manager 7.0							Go	✓ Log off admin
Home User Management	×							
👻 User Management 🛛 4	Home	/ Users / Use	er Managemer	t / Manage Users				0
Manage Users	Searc	sh						Help ?
Public Contacts					S			
Shared Addresses	He	or Mana	aomont					
System Presence	05		gement					
ACLs								
Communication	llse	rc						
Profile Password	USC	13	\frown					
Policy		View / Edi	tONew	2 Duplicate	ete More Actions •			Advanced Search •
	15 It	ems 🍣 Sh	iow All 🗸					Filter: Enable
		Last Name	First Name	Display Name	Login Name	SIP Handle	Last Login	
		78000	SIP	78000, SIP	78000@avaya.com	78000		
		78001	SIP	78001, SIP	78001@avaya.com	78001		

Identity

The New User Profile screen is displayed. Enter desired Last Name and First Name. For Login Name, enter "<ext>@<domain>", where "<ext>" is the desired Converge Pro 2 128V SIP extension and "<domain>" is the applicable SIP domain name from Section 5.2. Retain the default values in the remaining fields.

Aura [®] System Manager 7.0	Last Logged on at June 2, 2017 11:48 AM Go FLog off admin
Home User Management *	
User Management Home / Users / User Management / Manage User	sers O
Manage Users	Help ?
Public Contacts New User Profile	Commit & Continue Commit Cancel
Shared Addresses	
System Presence Identity * Communication Profile	tembership Contacts
ACLs	
Profile Password	
Policy User Provisioning Rule:	
Identity 💿	
* Last Name:	78020
Last Name (Latin Translation):	78020
* First Name:	ClearOne
First Name (Latin Translation):	ClearOne
Middle Name:	
Description:	
* Legin Name	72020 @
- Login Name:	78020@avaya.com
User Type:	Basic
Password:	
Confirm Password:	

Communication Profile

Select the Communication Profile tab. For Communication Profile Password and Confirm Password, enter the desired password for the SIP user to use for registration.

AVAVA		Last Logged on at June 2, 2017 11:48 AM
Aura [®] System Manager 7.0		Go 🖌 Log off admin
Home User Management	×	
🔻 User Management 🖣	Home / Users / User Management / Manage Users	0
Manage Users		Help ?
Public Contacts	New User Profile	Commit & Continue Commit Cancel
Shared Addresses		
System Presence ACLs	Identity * Communication Profile Membership Contacts	
Communication	Communication Profile 💿	
Profile Password	Communication Profile Password: •••••	
Policy	Confirm Password:	

Communicaton Address

In the Communication Address sub-section, click New to add a new entry. The Communication Address sub-section is updated with additional fields as shown below. For Type, retain "Avaya SIP". For Fully Qualified Address, enter and select the SIP user extension and domain name to match the login name from Section 6.3.1. Click Add.

Communication Address 💌

New /Edit Olelete		
Туре	Handle	Domain
No Records found	·	
т	ype: Avaya SIP	~
* Fully Qualified Addr	ess: 78020 @	avaya.com 🗸
		Add Cancel

Session Manager Profile

Scroll down to check and expand Session Manager Profile. For Primary Session Manager, Origination Application Sequence, Termination Application Sequence, and Home Location, select the values corresponding to the applicable Session Manager and Communication Manager. Retain the default values in the remaining fields.

Frinary Session Hanager	Q daycon cm		Primary	Secondary	Maximum
	- devcon-siii		15	0	15
Secondary Session Manager	Q				
Survivability Server	Q				
Max. Simultaneous Devices	1 ~				
Block New Registration When Maximum Registrations Active?					
Application Sequences					
Origination Sequence	DEVCON-CM App Sequence	\sim			
Termination Sequence	DEVCON-CM App Sequence	\sim			
Call Routing Settings					
	Thornton	\sim			
* Home Location					
* Home Location Conference Factory Set	(None)	\sim			
* Home Location Conference Factory Set Call History Settings	(None)	~			

CM Endpoint Profile

Scroll down to check and expand CM Endpoint Profile. For System, select the value corresponding to the applicable Communication Manager. For Extension, enter the SIP user extension from Section 6.3.1. For Template, select 9600SIP_DEFAULT_CM_7_0. For Port, click and select IP. Retain the default values in the remaining fields. Click Commit to save the configuration (not shown).

🗹 CM Endpoint Profile 💌		
* System	devcon-cm 🗸	
* Profile Type	Endpoint 🗸	
Use Existing Endpoints		
* Extension	Display Extension Ranges	
Extension	78020 Endpoint Ed	itor
* Template	9600SIP_DEFAULT_CM_7_0 V	
Set Type	9600SIP	
Security Code		
Port	IP	
Voice Mail Number		
Preferred Handle	(None) V	
Calculate Route Pattern		
Sip Trunk	aar	
Enhanced Callr-Info display for 1-line phones		
Delete Endpoint on Unassign of Endpoint from User or on Delete User		
Override Endpoint Name and Localized Name		
Allow H.323 and SIP Endpoint Dual Registration		

Configure ClearOne Converge Pro 2

This section covers the Converge Pro 2 128V configuration using the Converge Pro 2 CONSOLE.

These instructions apply to the following CP2 models: 128V, 128VD, 48V.

The procedure covers the following areas:

- Launch Converge Pro 2 CONSOLE
- Administer IP Settings
- Administer VoIP Stack, including Timers, Audio, and SIP Proxy Settings
- Administer VoIP Phone Settings
- Load Configuration to Converge Pro 2

Refer to the CONVERGE Pro 2 CONSOLE User Manual for more information on configuring ClearOne Converge Pro 2.

Launch CONVERGE Pro 2 CONSOLE

Converge Pro 2 128V is configured using the Converge Pro 2 Console. Launch the Converge Pro 2 Console to display the window shown below.

CONVERGE® Pro 2 CONSOLE®	– 🗆 X	
File Help		
Start Select	Discovered on current LAN subnet Projects Manually Discover IP Address: Add IP @ AvayaTest File C:\Users\Uuan\Documents\ClearOne\CP2_C C:\Users\Uuan\Documents\ClearOne\CP2_C	
	Connect	
	Name Serial No.	
	DevConnect-Test 2238-1630-06	
	Connect Open	

To configure Converge Pro 2 128V, either start a new project or open an existing project by selecting the appropriate project in the Projects section and then clicking the Open button. When the project is opened, the Converge Pro 2 Console window will appear as shown below with the Project Name displayed at the top of the window.

Administer IP Settings

Converge Pro 2 128V may acquire its IP network settings through DHCP or through manual configuration using a static IP address. For the compliance test, a static IP address was used. To configure the IP settings, click on Devices in the left pane. The Device Settings window is displayed as shown below. In the General tab, configure the IP settings, including the IP Address, Subnet Mask, Gateway, and DNS Address, to correspond to the customer's network as shown below.

C Device Settings		×
General GPIO	/oIP Stack VoIP Phones	
Device Type:	CONVERGE Pro 2 128V	
Device Name:	DevConnect-Test	
Serial Number:	2238-1630-06	
IP Settings		
IP Address:	192.168.100.248	
Subnet Mask:	255.255.255.0	
Gateway:	192.168.100.1	
DNS Address 1:	0.0.0.0	
DNS Address 2:	0.0.0.0	
Serial Port Set	tings	
Baud Rate:	57600 -]
	Close	

Administer VoIP Stack

In the VoIP Stack tab, configure timers, audio codecs, dial plan, and SIP proxy. In the VoIP Stack [] Timers sub-tab, verify that the SIP timers are configured as desired. The default values shown below were used for the compliance test.

C Device Settings	:	×
General GPIO VoIP Stack	VoIP Phones	
Network Timers Audio	Proxy 1 Proxy 2	
The Settings below are GLOB	BAL to all devices in the stack!	
Registration Expires (Sec)	3600 🜩	
Dial Tone Duration (MSec)	60000 🗢	
Refresh by Update		
Min SE	90 🜩	
Session Expires	180 🜲	
Digit Map Short Timer	10 🜩	
Digit Map Long Timer	50 🜩	
Digit Map Time Out	1500 🗢	
		_
Clo	ose	

Navigate to the VoIP Stack > Audio sub-tab to configure the Dial Plan and Codec Priority as shown below.

The Dial Plan included Communication Manager FACs that are 3-digits long starting with a '*' or '#', 5-digit local extensions starting with '7', 10-digit PSTN numbers prepended with the ARS access code '9' and prefix digit '1', 911, and '0' for the operator as shown below.

For the compliance test, G.711 and G.722 were prioritized in the Codec Priority field shown below.

C Device Settings		×		
General GPIO VoIP Stack VoIP Phones				
Network Timers A	udio Proxy 1 Proxy 2 GLOBAL to all devices in the stack!			
DTMF Relay	Out of Band 🔻			
Dynamic Payload Type	101 🜩			
RTP Starting Port	30000 🜩			
RTP Range	200 🜩			
DialPlan	*xx #xx 911 0 7xxxx 91xxxxxxxxx			
Debug Level	Debug 🔻			
Codec Priority	G.711 U Law 🔻			
	G.711 A Law A V G.722 A			
	Close			

Navigate to the VoIP Stack > Proxy 1 sub-tab to configure the SIP proxy settings. In the following fields were configured:

- **UDP Port**: Set to the UDP port (e.g., 5060).
- User Domain: Set to the domain name (e.g., avaya.com) as configured in Section 6.3.
- Registrar Address: Set to the IP address of the Session Manager SIP interface (e.g., 10.64.102.117).
- **Registrar Port**: Set to the UDP port (e.g., 5060).
- Outbound Proxy Address: Set to the IP address of the Session Manager SIP interface (e.g., 10.64.102.117).
- **Outbound Proxy Port**: Set to the UDP port (e.g., 5060).
- Transport Type: Set to the transport type (e.g., UDP which was used for the compliance test).
- **OBP Enable**: Select the checkbox.

C Device Settings	×
General GPIO VolP Stack	VoIP Phones
Network Timers Audio	Proxy 1 Proxy 2 AL to all devices in the stack!
TCP Port	5060 🗢
UDP Port	5060 🗢
User Domain	avaya.com
Registrar Address	10.64.102.117
Registrar Port	5060 🜩
Outbound Proxy Address	10.64.102.117
Outbound Proxy Port	5060 🜩
Transport Type	UDP -
OBP Enable	
Clo	se

Administer VoIP Phones

Navigate to VoIP Phones > Phone 1 sub-tab to configure the SIP extension, SIP registration credentials, and transport type as shown below. Click on Close button when the configuration is complete.

Device Settings				
General GPIO VoIP Stack VoIP Phones				
Phone 1 Phone 2				
Phone Properties				
Phone Number	78020			
Name / Label	V78020			
	🖌 UA Enable			
Proxy 1				
User Name	78020			
Password	•••••			
Reenter Password	•••••			
Transport Type	UDP -			
Proxy 2				
User Name				
Password				
Reenter Password				
Transport Type	UDP -			
Clo	ose			

Once the Converge Pro 2 128V configuration is completed, close the configuration by selecting the File > Close menu option as shown below.



Load Configuration to CONVERGE Pro 2

To load the configuration to Converge Pro 2 128V, select the unit in the Discovered on current LAN subnet section, and then click the Connect button.

NOTE: The ClearOne Locator Service must be running in order for the Converge Pro 2 Console to discover any existing units.

CONVERGE® Pro 2 CONSOLE®		– 🗆 ×
File Help	₩	
Start Select	Discovered on current LAN subnet Manually Discover IP Address: Add 	New Browse File C:\Users\Uuan\Documents\ClearOne\CP2_C C:\Users\Uuan\Documents\ClearOne\CP2_C C:\Users\Uuan\Documents\ClearOne\CP2_C

Next, log in with the appropriate credentials in the Authenticate window shown below.

C Authenticate		×
Username: Password:		
	OK Cancel	

Under the Project Planned Devices section, select the File Name using the Browse button, and then click on the Load Project to Stack button.



Verification Steps

This section provides the tests that can be performed to verify proper configuration of ClearOne Converge Pro 2 128V with Avaya Aura® Communication Manager and Avaya Aura® Session Manager.

- 1. Verify that Converge Pro 2 128V has successfully registered with Session Manager. In System Manager, navigate to Elements > Session Manager > System Status > User Registrations to check the registration status.
- 2. Launch the ClearOne Converge Pro 2 Dialer and verify that it has registered with Session Manager. Note that the



icon in the Dialer indicates that the unit is registered.

ClearO	1e ® (ClearOne Dialer	SUI	NDAY, JUNE 04, 2017 02	57 PM _ X
	<mark>302(</mark> т 7802) 0	Ċ	\ominus \$	()» Q
SPEED DIAL		Dialer	4	REDIAL	
					3
		1	2 ABC	3 DEF	
		4 GHI	5 JKL	6 MNO	
		7 PQRS	8 TUV	9 wxyz	
		*	0 +	#	
CFWD	On	CFWD Off			
	[DIALPAD		SIP URI	
Favorit	tes	Dialer	Phone Book	Logs	Ettings

3. Verify basic telephony features by establishing calls between Converge Pro 2 128V and another phone using the ClearOne Converge Pro 2 Dialer application.

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