APPLICATION NOTES

PRODUCTS SUPPORTED:
ClearOne CONVERGE® Pro 2 and
Avaya Aura® Session Manager

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(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                                           Page   1 of   2

                          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

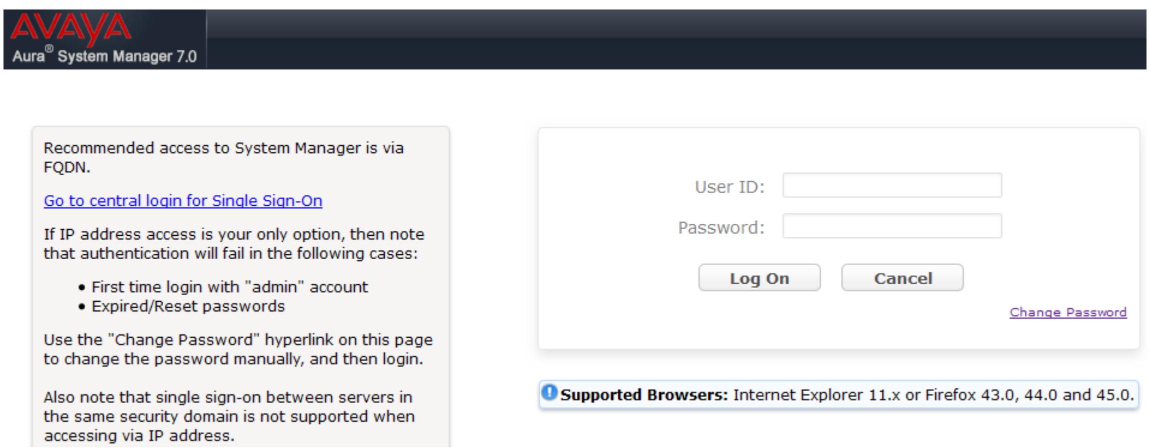
This section provides the procedure for configuring Session Manager. The procedures include the following areas:

- 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.

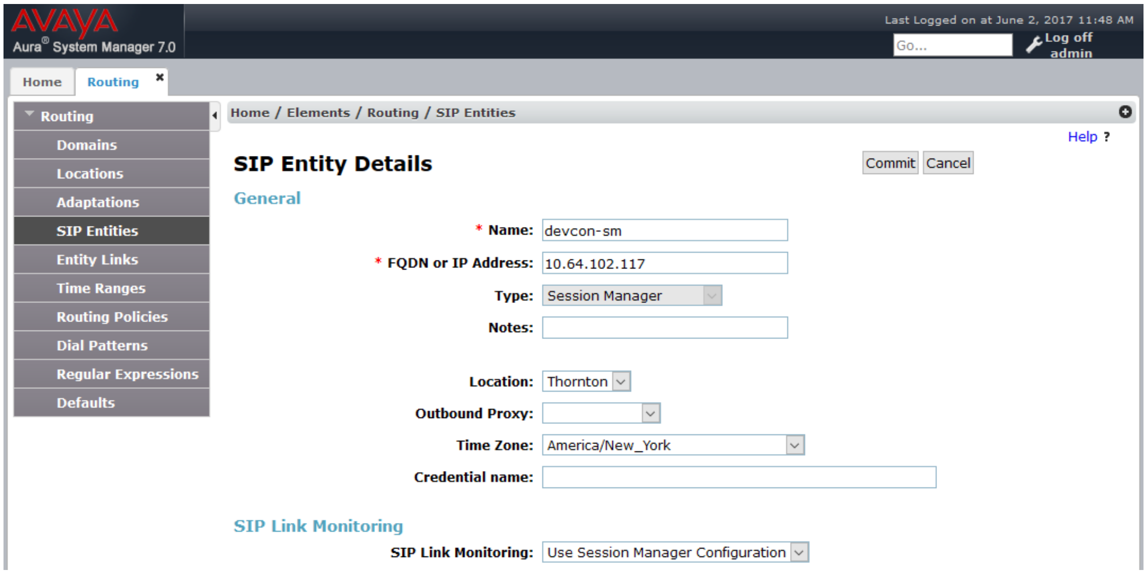
Launch System Manager

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.

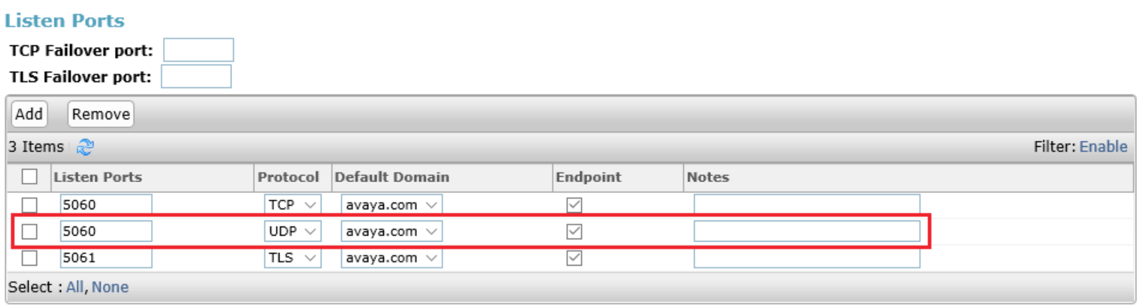


Set Network Transport Protocol for ClearOne Converge Pro 2

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

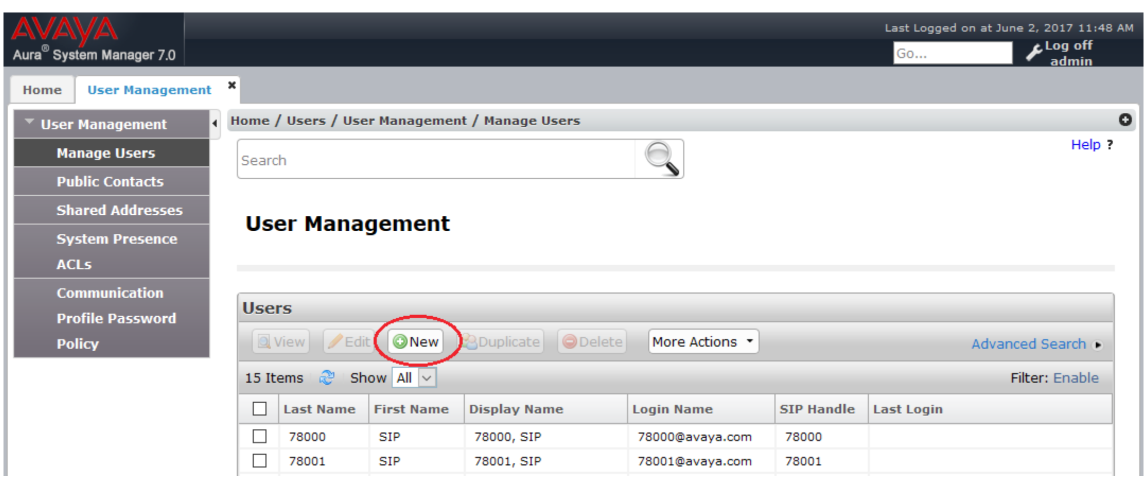


Scroll down to the Listen Ports section and verify that the transport network protocol used by Converge Pro 2 128V is specified in the list below. For the compliance test, Converge Pro 2 128V used UDP network transport.



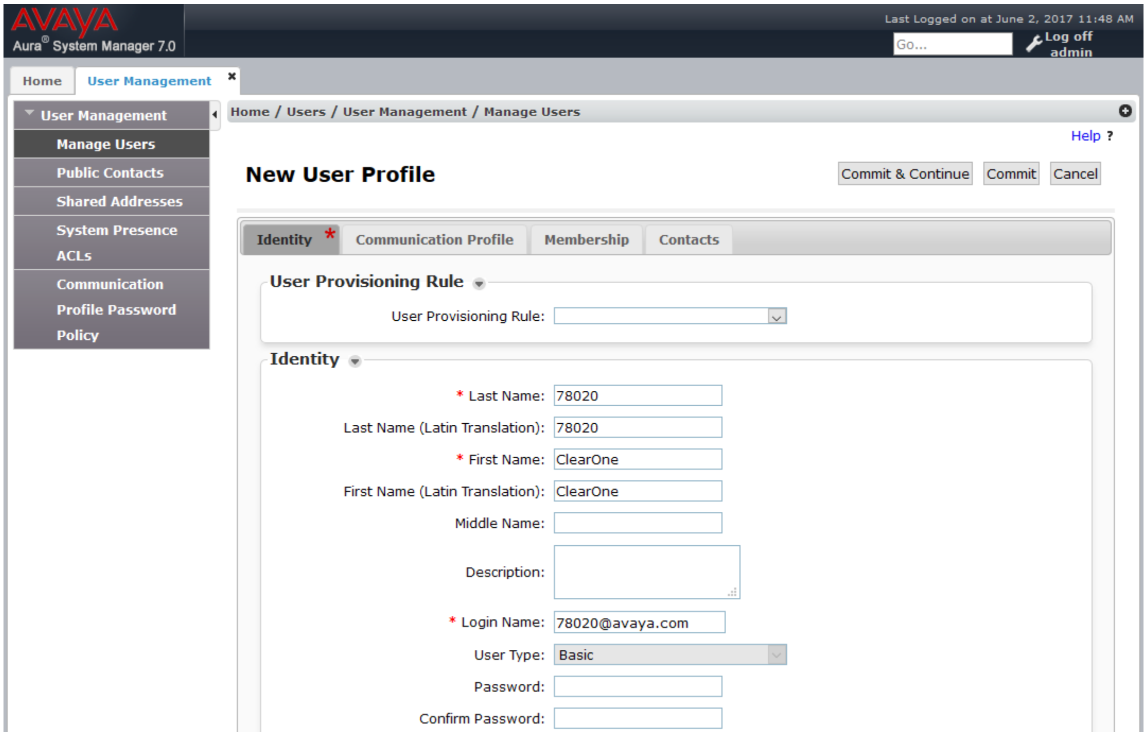
Administer SIP User

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.



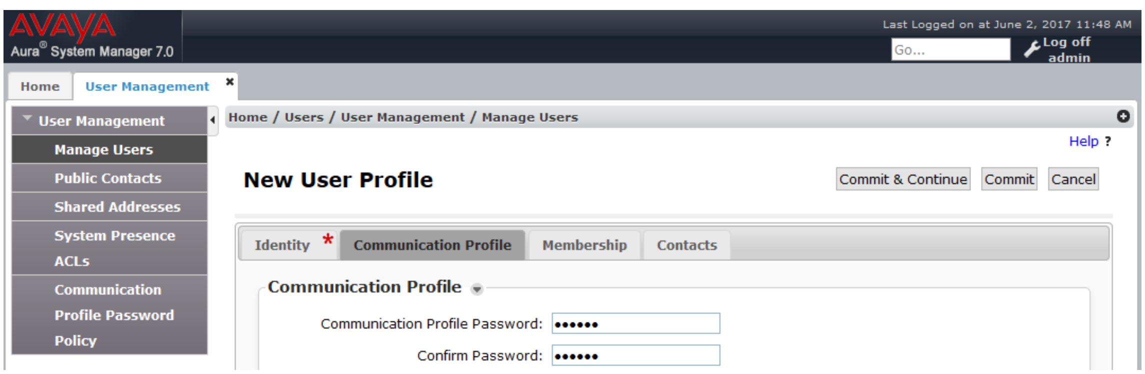
Identity

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.



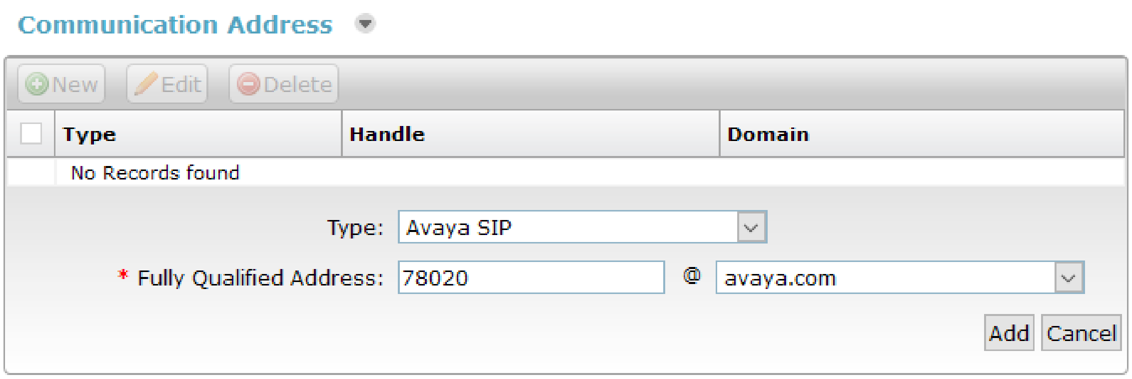
Communication Profile

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



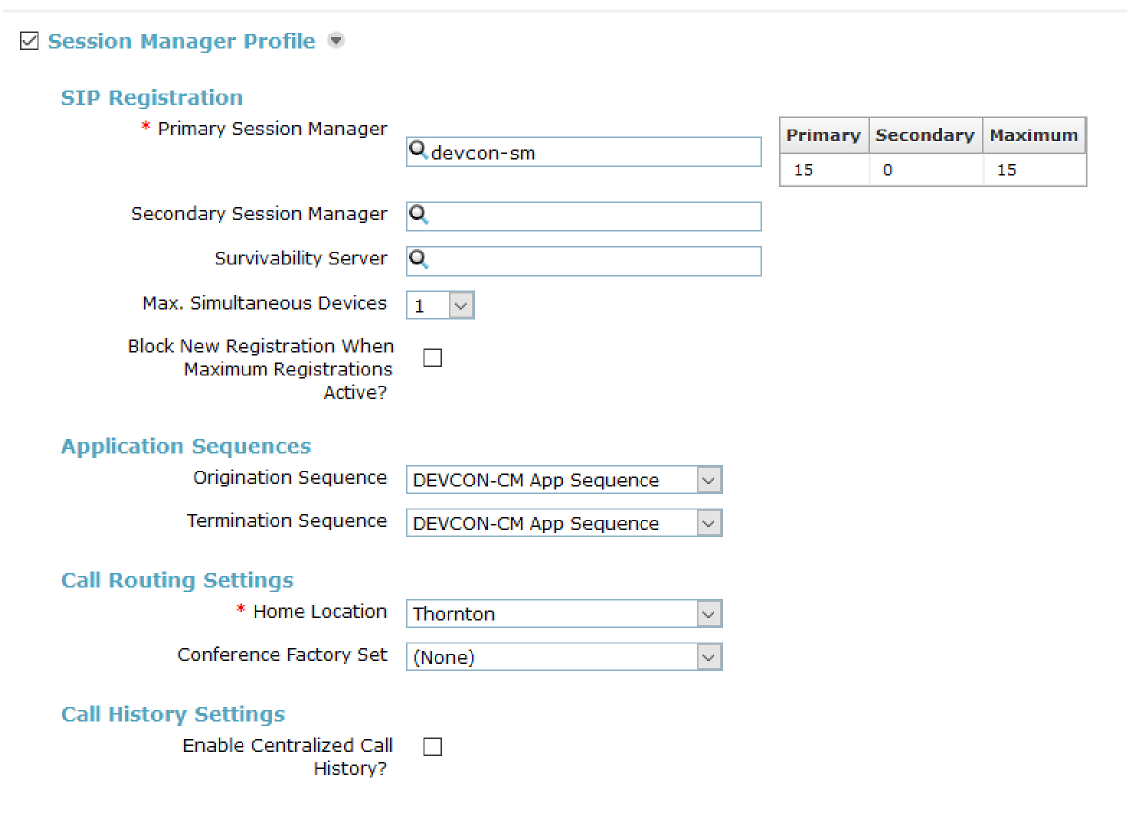
Communicaton Address

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.



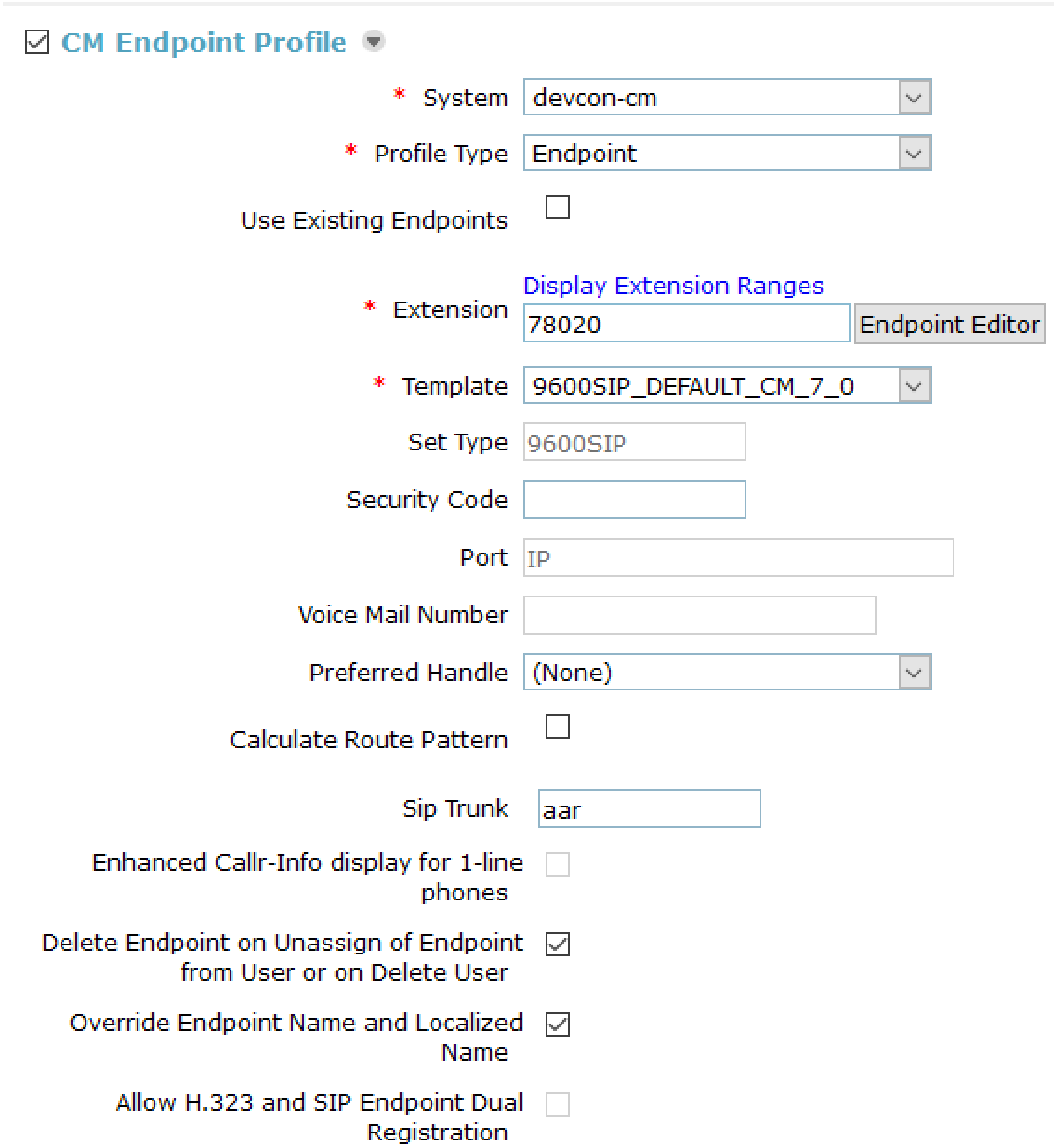
Session Manager Profile

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.



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).



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.

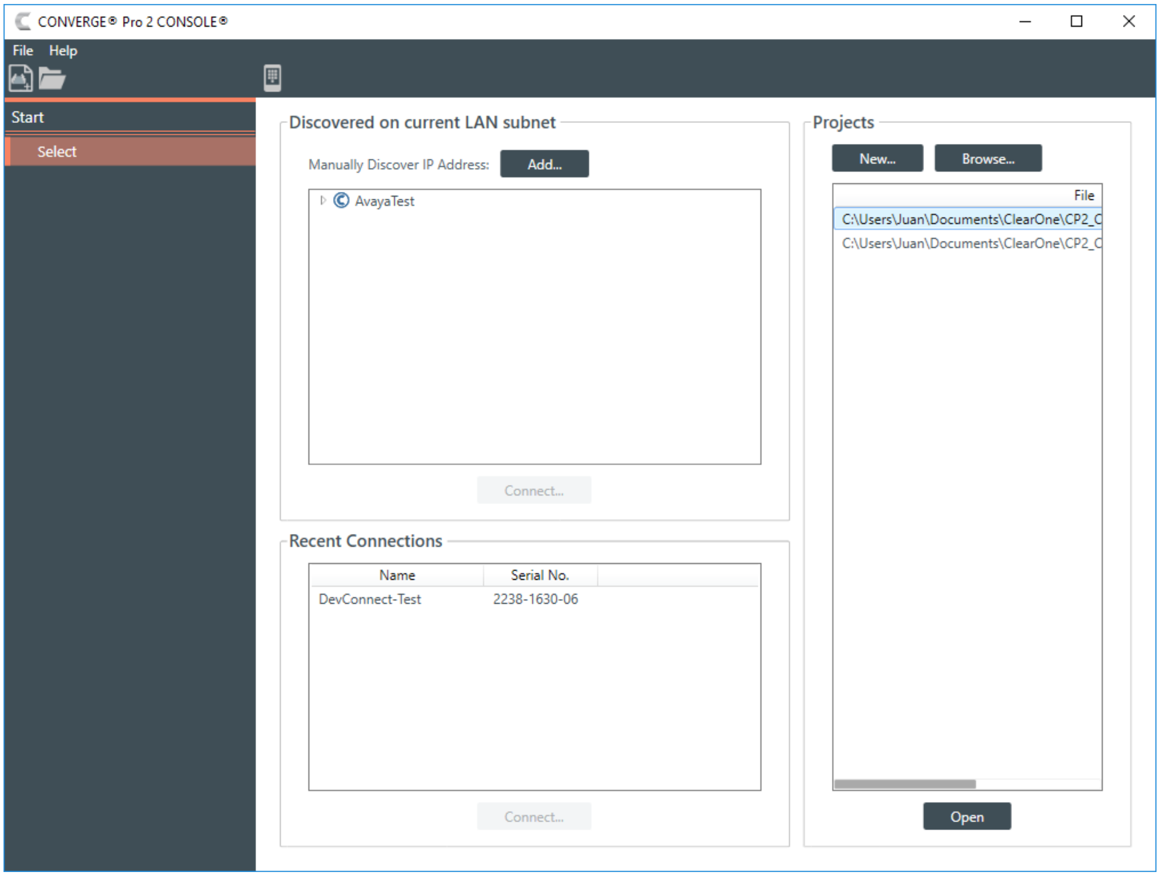
The procedure covers the following areas:

- 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

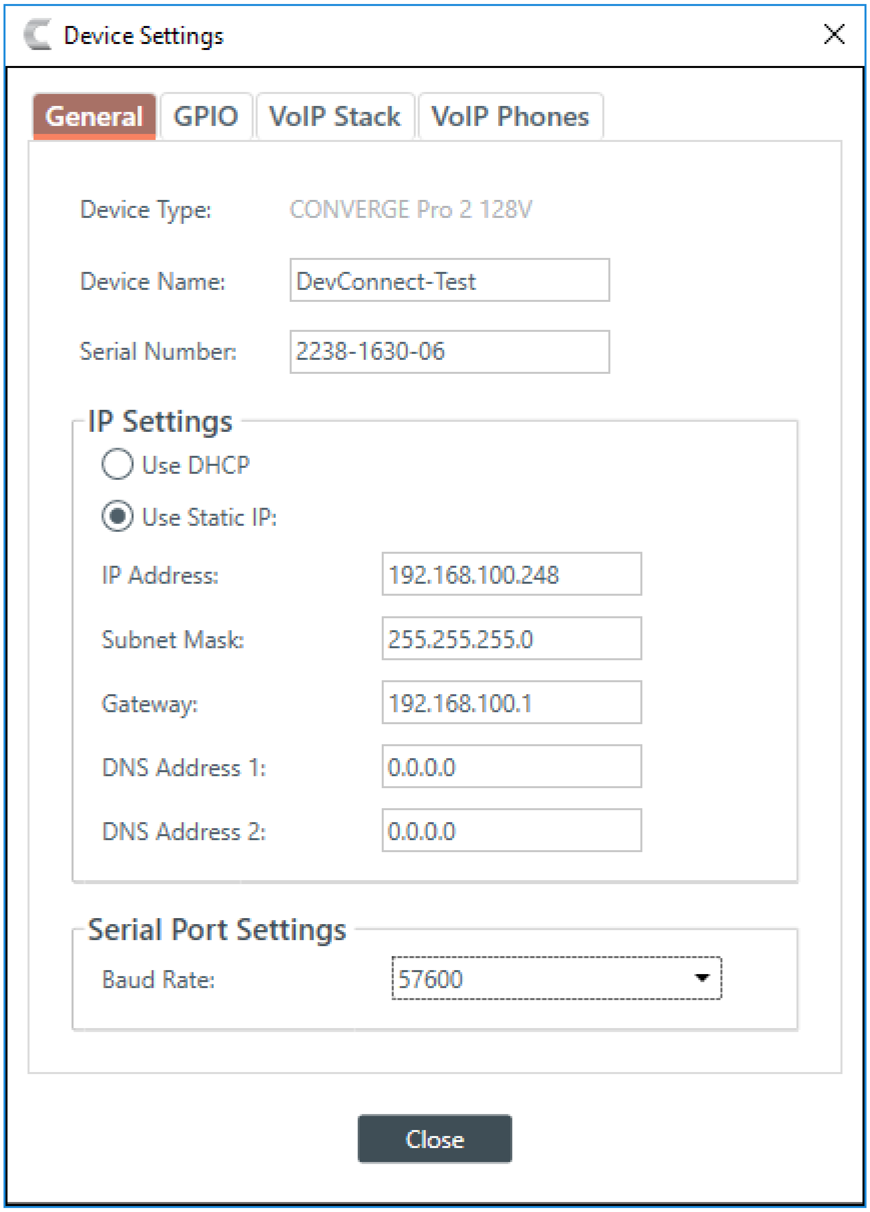
Converge Pro 2 128V is configured using the Converge Pro 2 Console. Launch the Converge Pro 2 Console to display the window shown below.



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.

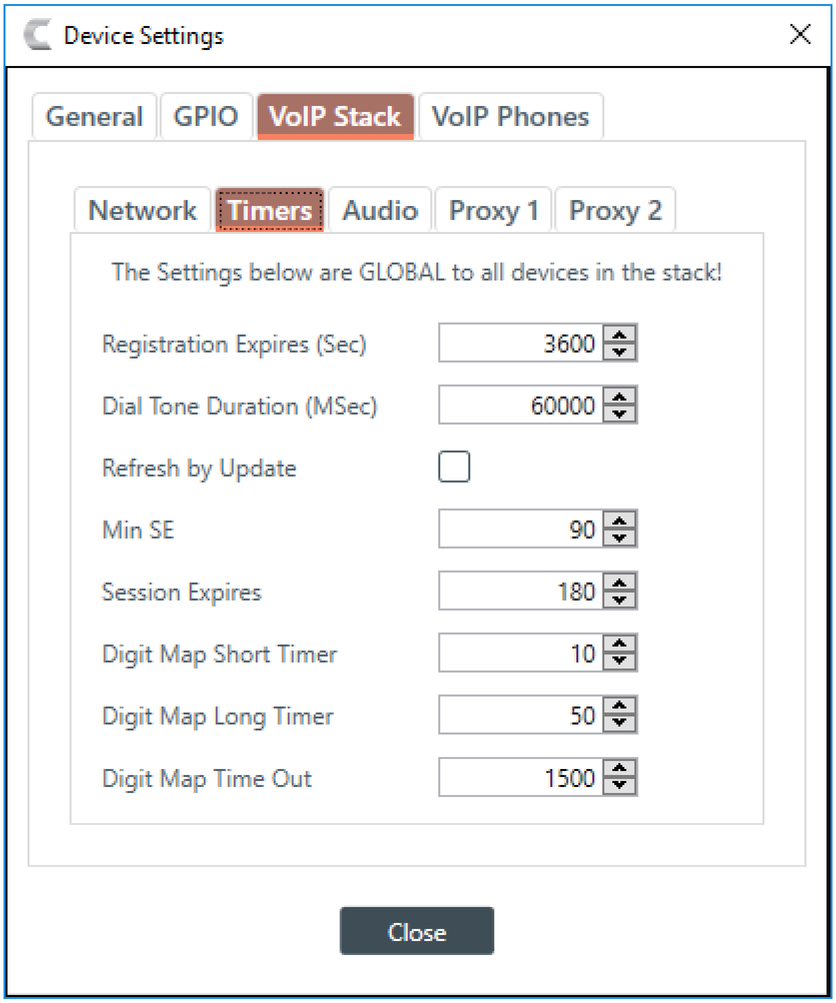
Administer IP Settings

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.



Administer VoIP Stack

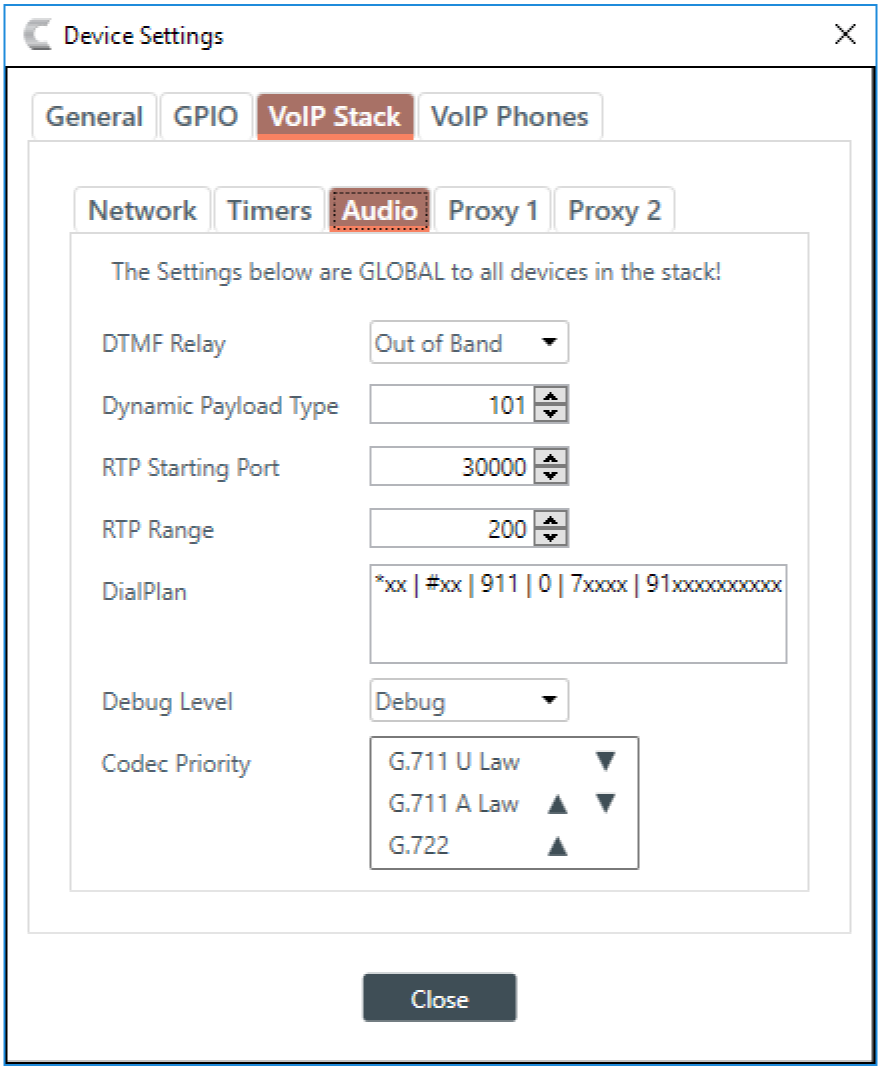
In the VoIP Stack tab, configure timers, audio codecs, dial plan, and SIP proxy. In the VoIP Stack Timers sub-tab, verify that the SIP timers are configured as desired. The default values shown below were used for the compliance test.



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

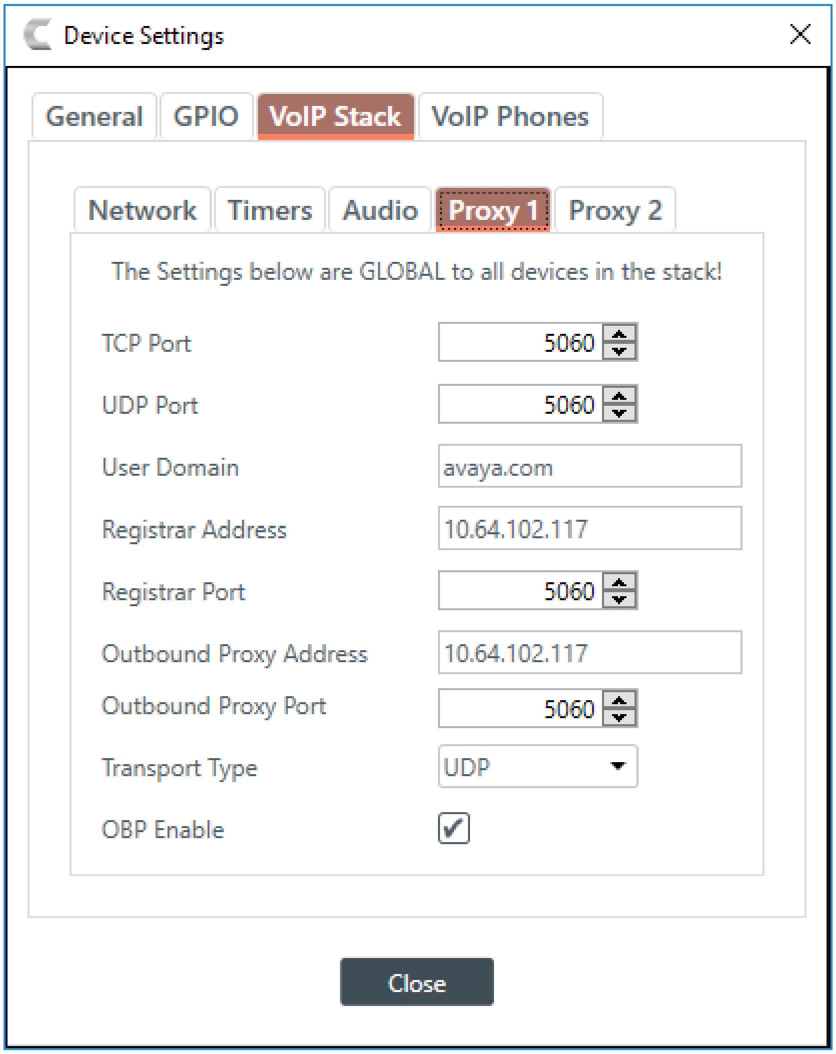
The Dial Plan included Communication Manager FACs that are 3-digits long starting with a '*' or '#', 5-digit local extensions starting with '7', 10-digit PSTN numbers prepended with the ARS access code '9' and prefix digit '1', 911, and '0' for the operator as shown below.

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



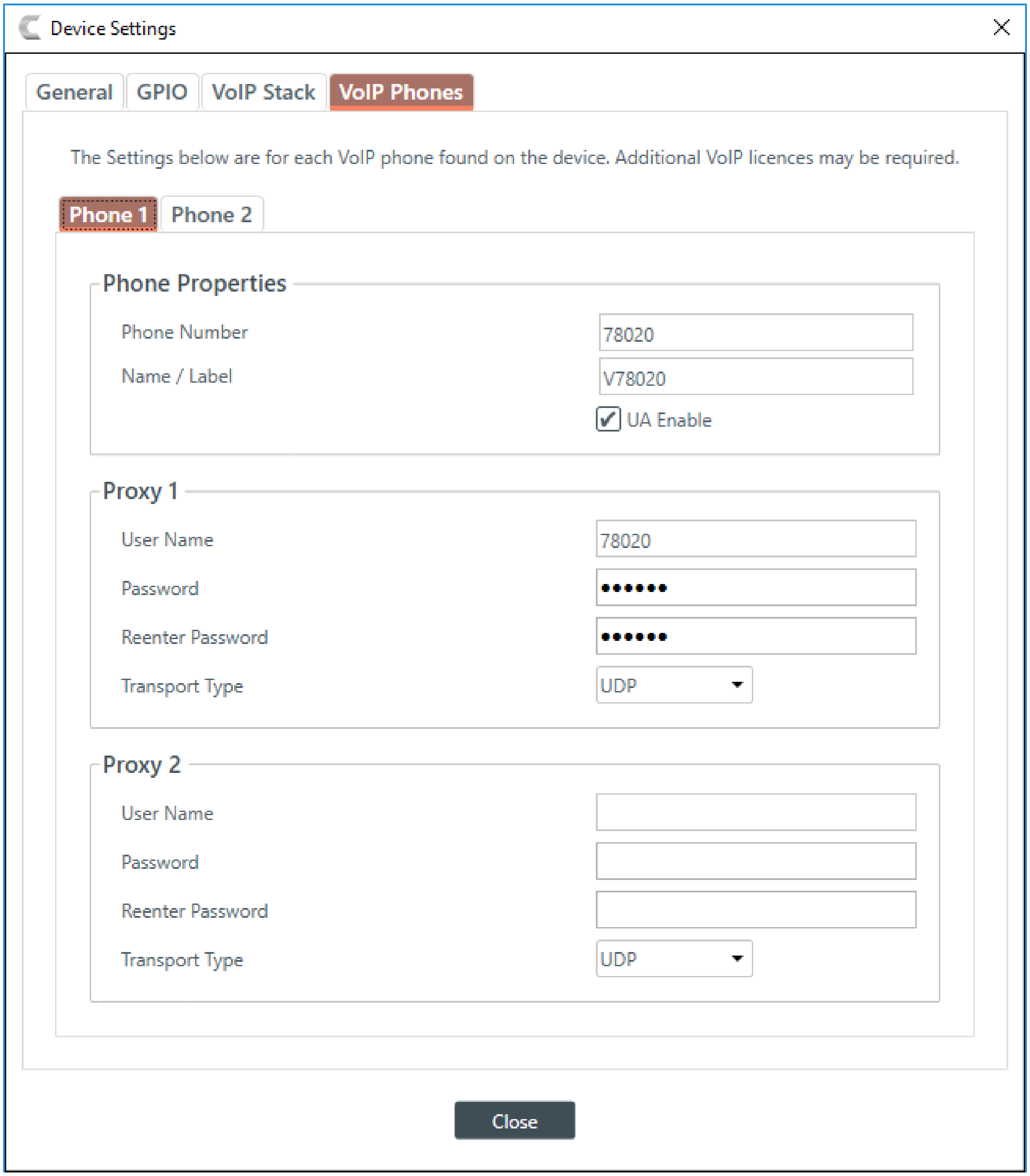
Navigate to the VoIP Stack > Proxy 1 sub-tab to configure the SIP proxy settings. In the following fields were configured:

- **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.

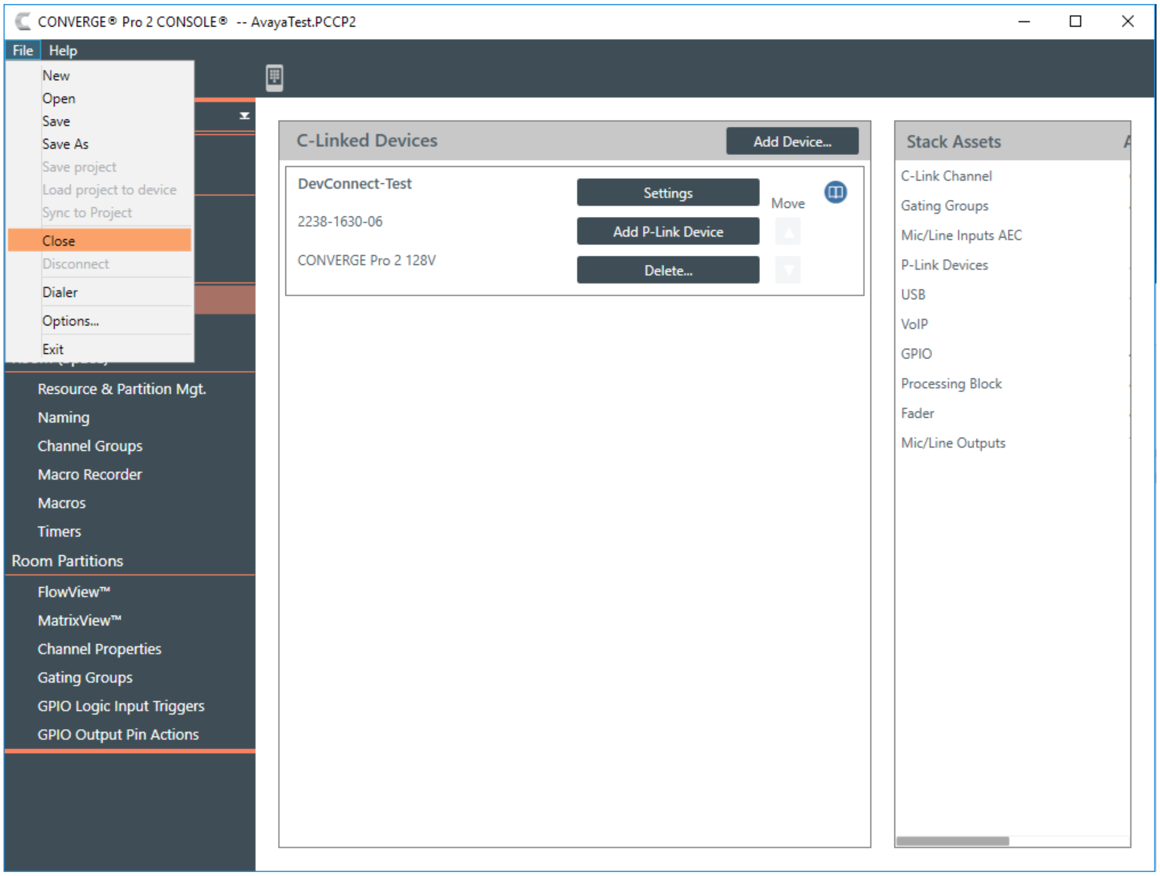


Administer VoIP Phones

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.



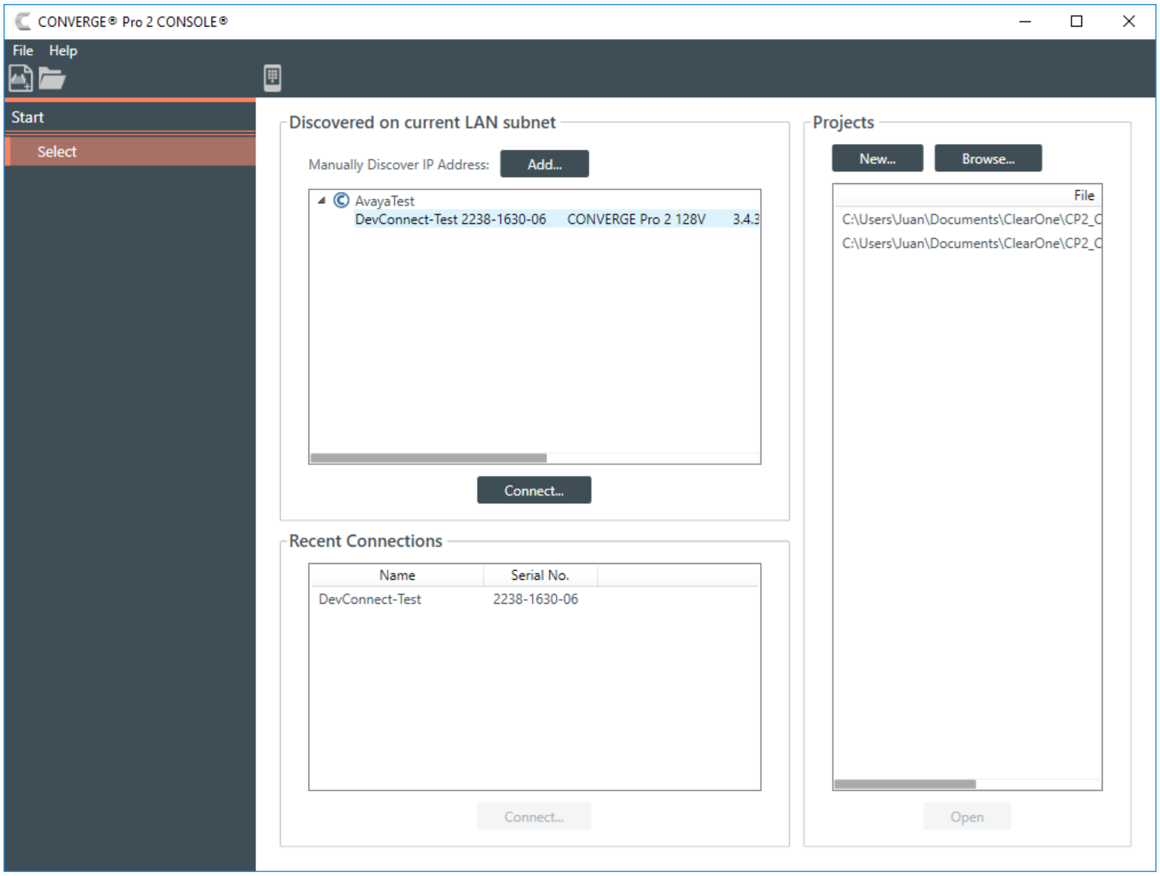
Once the Converge Pro 2 128V configuration is completed, close the configuration by selecting the File > Close menu option as shown below.



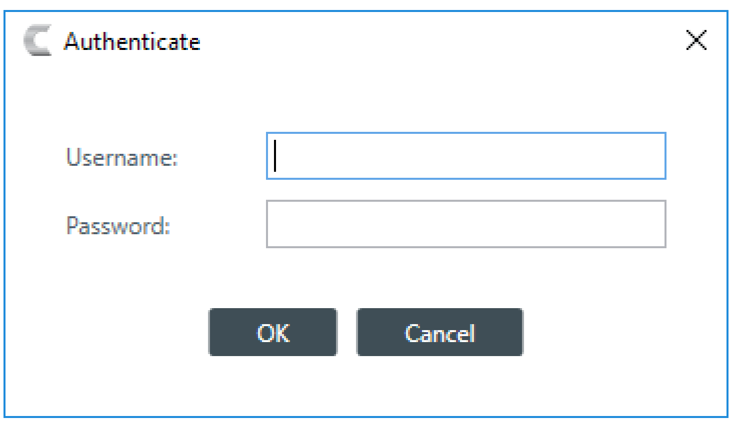
Load Configuration to CONVERGE Pro 2

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.

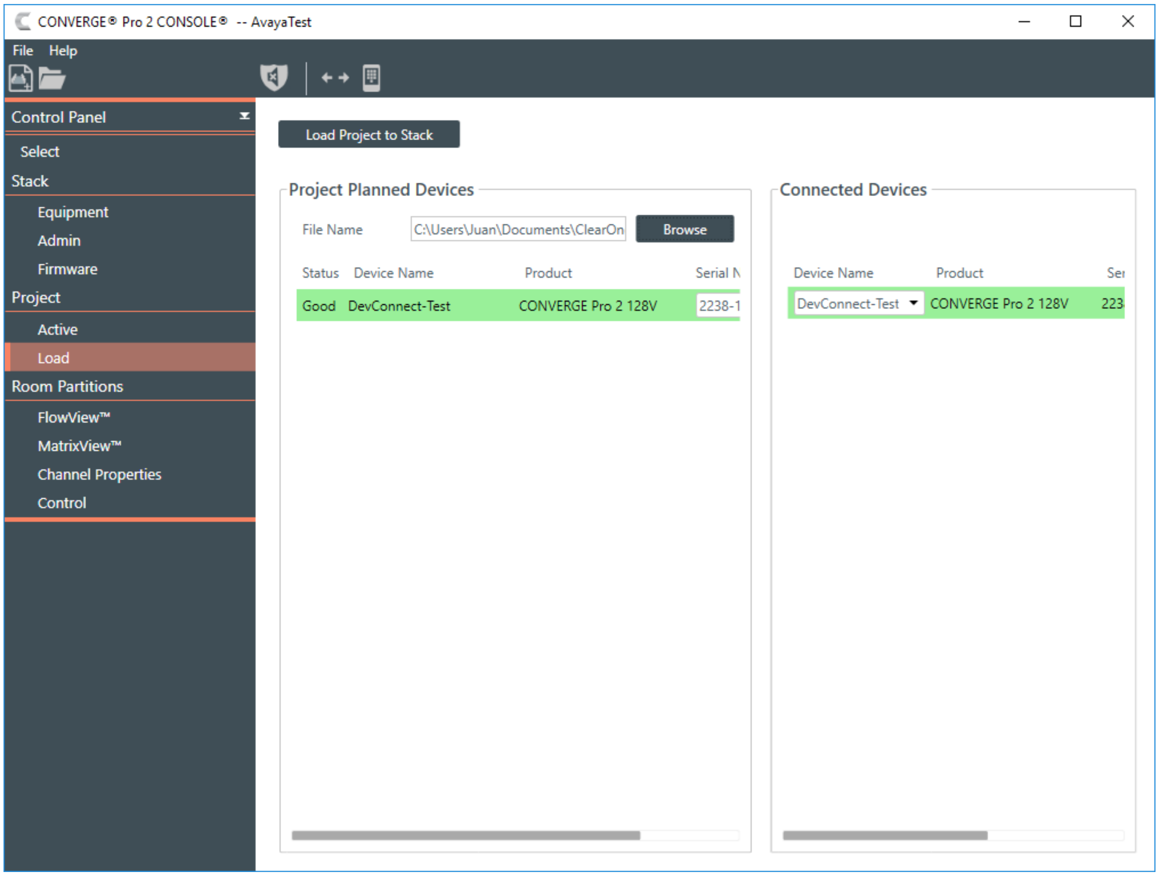
NOTE: The ClearOne Locator Service must be running in order for the Converge Pro 2 Console to discover any existing units.



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



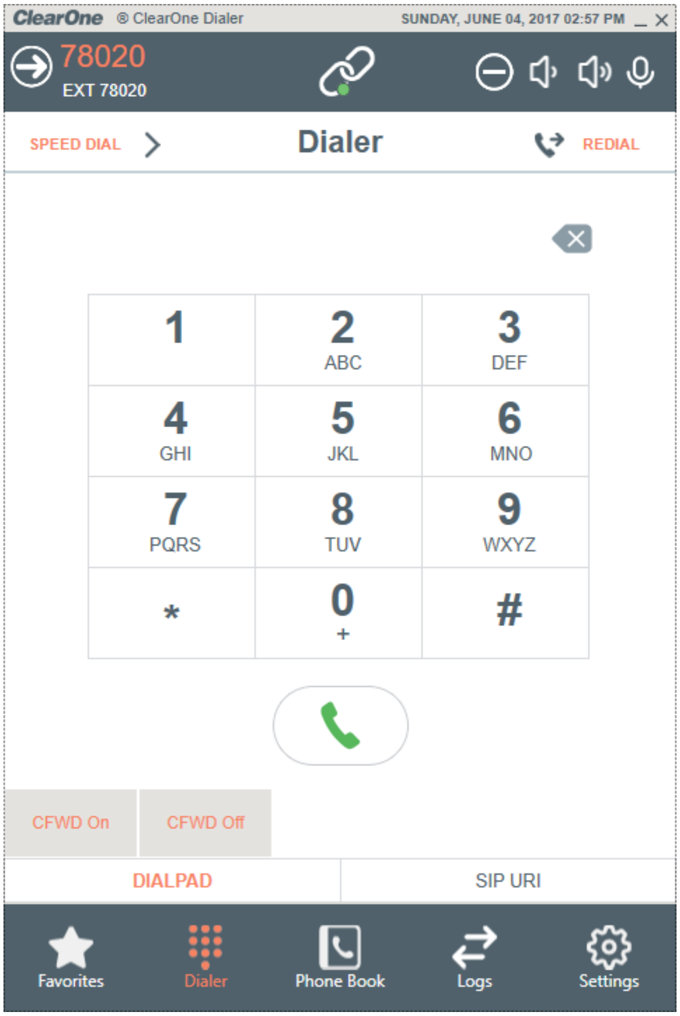
Under the Project Planned Devices section, select the File Name using the Browse button, and then click on the Load Project to Stack button.



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 green dot in the  icon in the Dialer indicates that the unit is registered.



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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