



## Avaya Solution & Interoperability Test Lab

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# Application Notes for iNEMSOFT CLASSONE® iCAS IP Radio Gateway and Avaya IP Office™ – Issue 1.0

### Abstract

These Application Notes describe the procedures for configuring iNEMSOFT CLASSONE® iCAS IP Radio Gateway which were compliance tested with Avaya IP Office™.

The overall objective of the interoperability compliance testing is to verify iNEMSOFT CLASSONE® iCAS IP Radio Gateway functions in an environment comprised of Avaya IP Office™ and various Avaya Endpoints.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any 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

The overall objective of the interoperability compliance testing is to verify iNEMSOFT CLASSONE® iCAS IP Radio Gateway (Radio Gateway) functions in an environment comprised of Avaya IP Office™ (IP Office) and various Avaya Endpoints. Radio Gateway registers to IP Office via UDP or TCP.

Radio Gateway converts radio signals to SIP. Radio Gateways help link incompatible devices, so they can communicate seamlessly with push-to-talk connectivity – just as if they were on the same radio network. Radio gateways extend radio network devices reach to many vital people and organizations.

These Application Notes assume that IP Office already installed and basic configuration steps have been performed. Only steps relevant to this compliance test will be described in this document. For further details on configuration steps not covered in this document, consult references [1].

## 2. General Test Approach and Test Results

The interoperability compliance test included features and serviceability tests. The focus of the interoperability compliance testing was primarily on verifying call establishment on Radio Gateway. Radio Gateway supports operations such as inbound calls, outbound calls, hold/resume and other IP Office features. Radio Gateway interactions with IP Office were verified. The serviceability testing introduced failure scenarios to see if Radio Gateway can recover from failures.

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 Radio Gateway did not include use of any specific encryption features as requested by iNEMSOFT.

## 2.1. Interoperability Compliance Testing

The general test approach was to place calls to and from Radio Gateway and exercise basic telephone operations. The main objectives were to verify the following:

- Registration
- Codecs (G.711MU, G.711A and G.729)
- Inbound calls
- Outbound calls
- DTMF (RFC2833 and Inband)
- Call termination (origination/destination)
- Push to Talk trigger from Avaya Endpoints
- Serviceability

## 2.2. Test Results

The test objectives were verified. For serviceability testing, Radio Gateway operated properly after recovering from failures such as cable disconnects, and resets of Radio Gateway and Session Manager. Radio Gateway successfully negotiated the codec that was used. The features tested worked as expected.

## 2.3. Support

iNEMSOFT CLASSONE® iCAS IP Radio Gateway support can be obtained via following means:

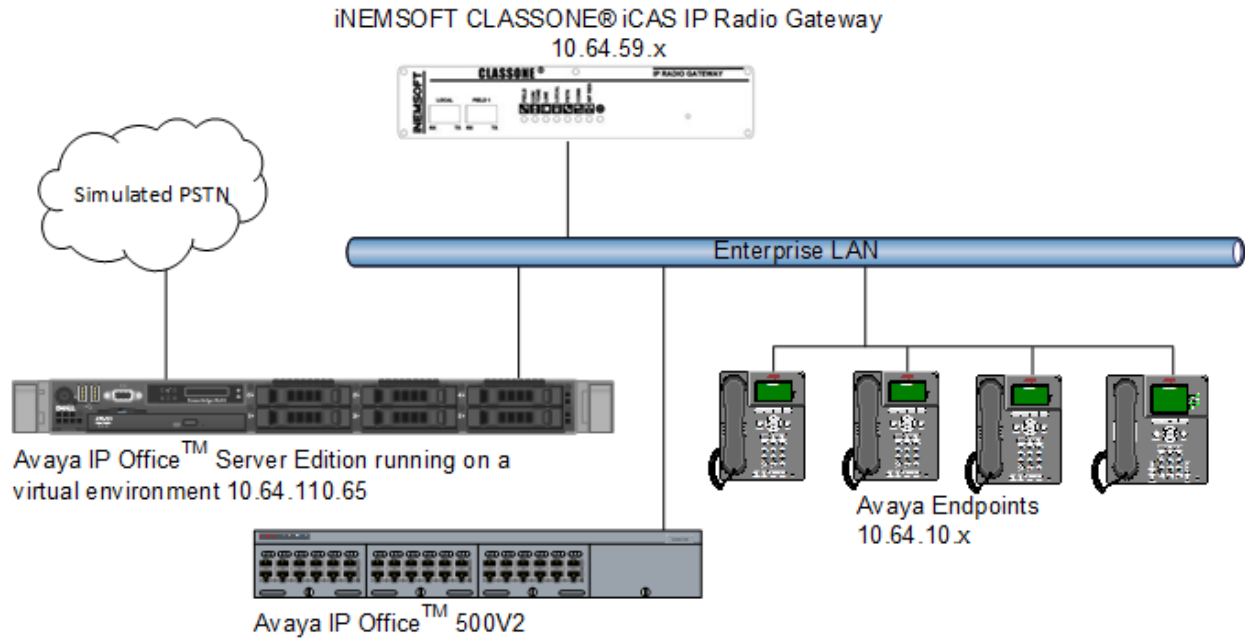
**Phone:** 214-423-2815

**Web:** [www.inemsoft.com](http://www.inemsoft.com)

**Email:** [rtisupport@inemsoft.com](mailto:rtisupport@inemsoft.com)

### 3. Reference Configuration

**Figure 1** illustrates a sample configuration consisting of an IP Office Server Edition, IP Office 500v2, Avaya Endpoints, Simulated PSTN, and Radio Gateway. The solution described herein is also extensible to Standalone IP Office systems.



**Figure 1: Test Configuration of CLASSONE® iCAS Radio Gateway by iNEMSOFT**

## 4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office Server Edition	11.0.0.1.0 Build 8
Avaya IP Office 500 V2 Expansion System	11.0.0.1.0 Build 8
Avaya IP Office Manager	11.0.0.1.0 Build 8
Avaya IP Office Monitor	11.0.0.1.0 Build 8
Avaya IP Office System Status	11.0.0.1.0 Build 8
Avaya 96x1 Series IP Deskphones	6.6604 (H.323)
Avaya J129 Deskphone	3.0.0.0.20
Avaya 1120E IP Deskphone	SIP 1120e.04.04.26.00
Avaya 1220 IP Deskphone	SIP 12x0.04.04.26.00
iNEMSOFT CLASSONE® iCAS IP Radio Gateway	3.1.06

**Note:** Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office IP500V2 and also when deployed with IP Office Server Edition in all configurations.

## 5. Configure Avaya IP Office™

This section provides the procedures for configuring IP Office. The procedures include the following areas:

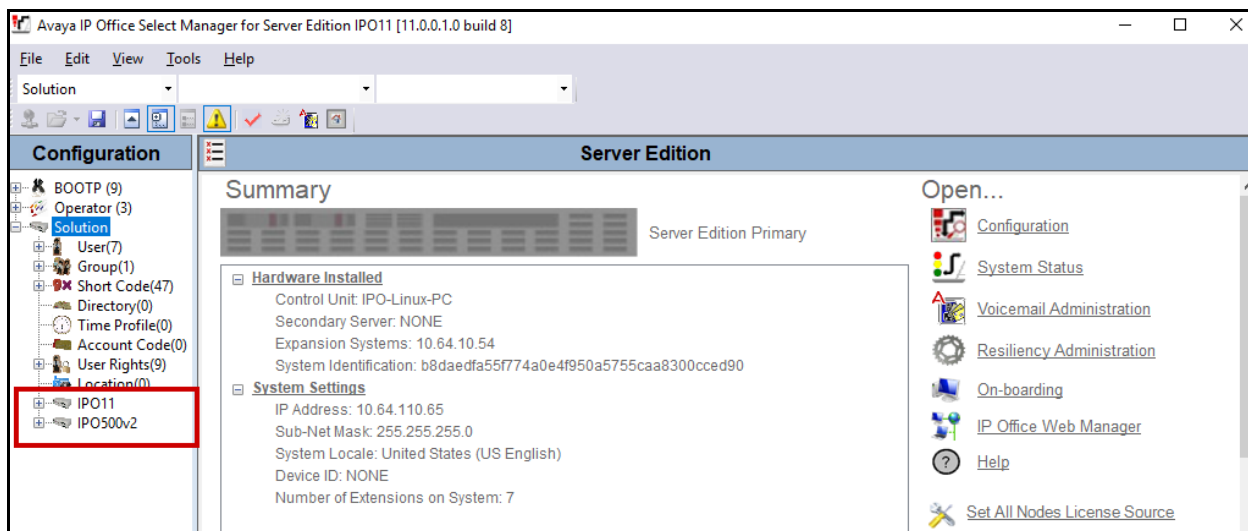
- Verify IP Office license
- Obtain LAN IP address
- Administer SIP registrar
- Administer SIP extensions
- Administer SIP users

These steps are performed from the Avaya IP Office Manager.

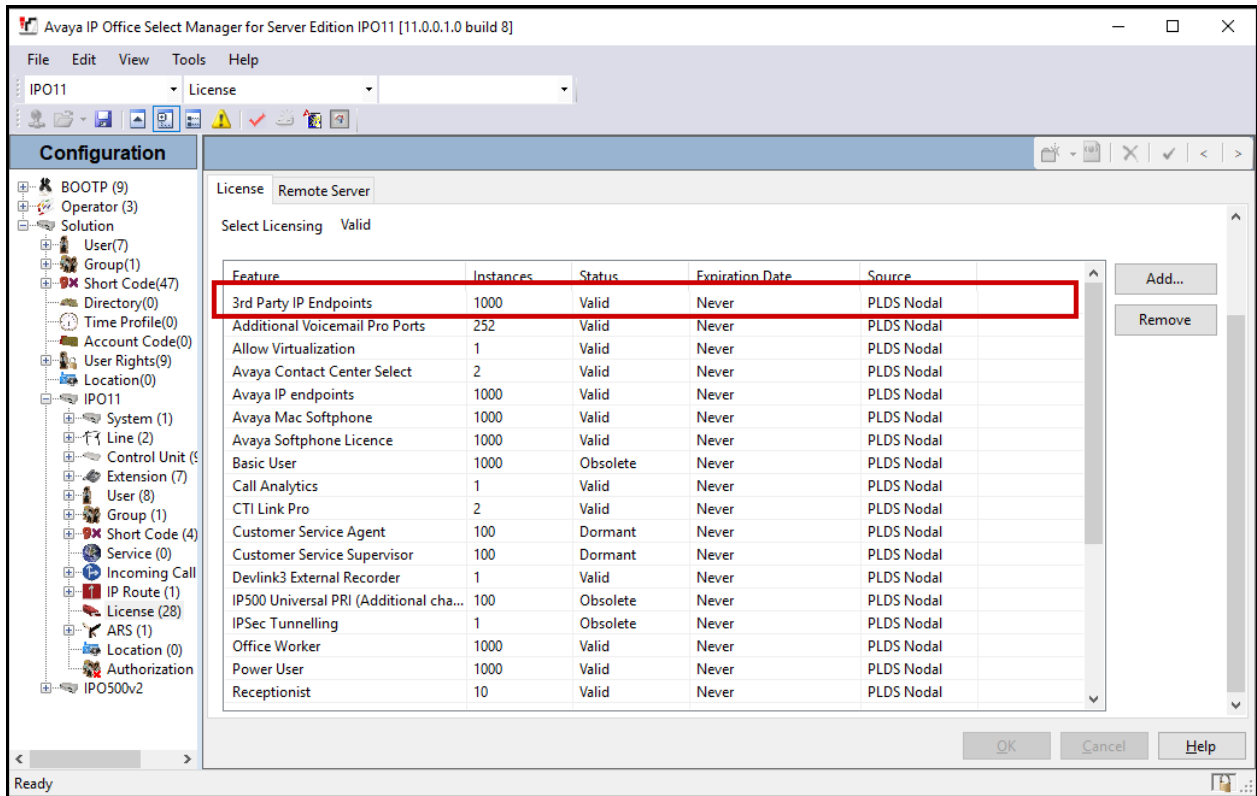
### 5.1. Verify IP Office License

From a PC running the Avaya IP Office Manager application, select **Start** → **IP Office** → **Manager** to launch the Manager application. Select the proper IP Office system if there are more than one IP Office system, and log in with the appropriate credentials.

The Avaya IP Office Manager screen is displayed. As mentioned earlier, IP Office consisted of IP Office Server Edition and IP Office 500v2.



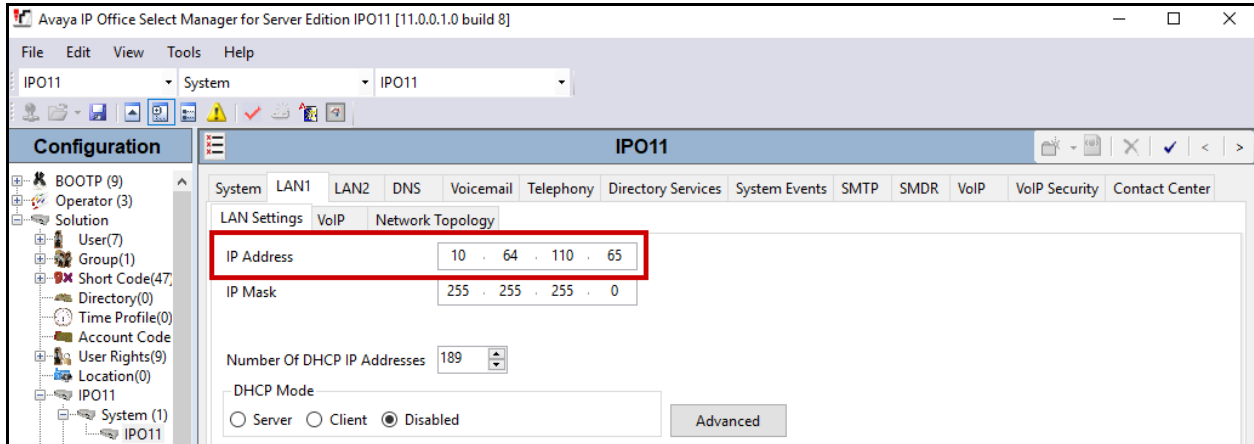
From the configuration tree in the left pane, select **License** → **3rd Party IP Endpoints** to display the License screen in the right pane. Verify that the License Status field is set to **Valid** and there are appropriate number of **Instances** available.





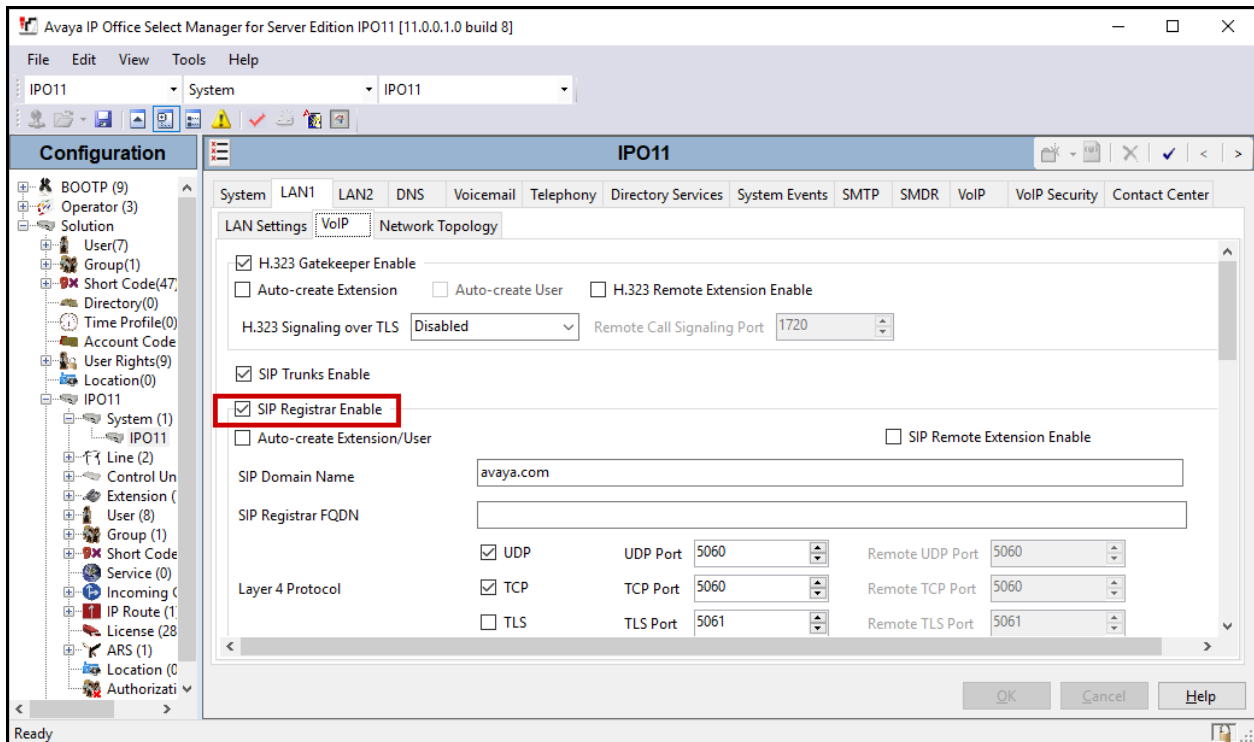
## 5.2. Obtain LAN IP Address

From the configuration tree in the left pane, select **System** to display the System screen in the right pane. Select the **LAN1** tab, followed by the **LAN Settings** sub-tab in the right pane. Make a note of the **IP Address**, which will be used Radio Gateway to register with IP Office.



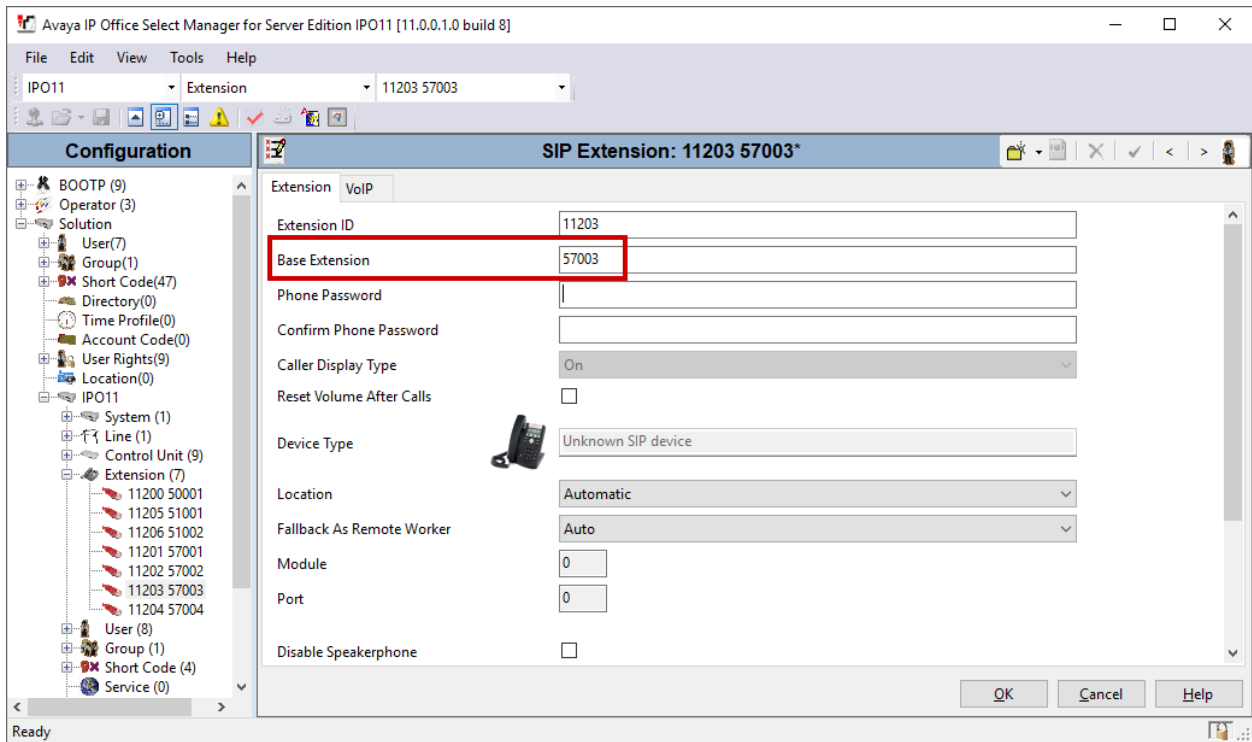
## 5.3. Administer SIP Registrar

Continuing from above, select the **VoIP** sub-tab. Ensure that **SIP Registrar Enable** is checked, as shown below.



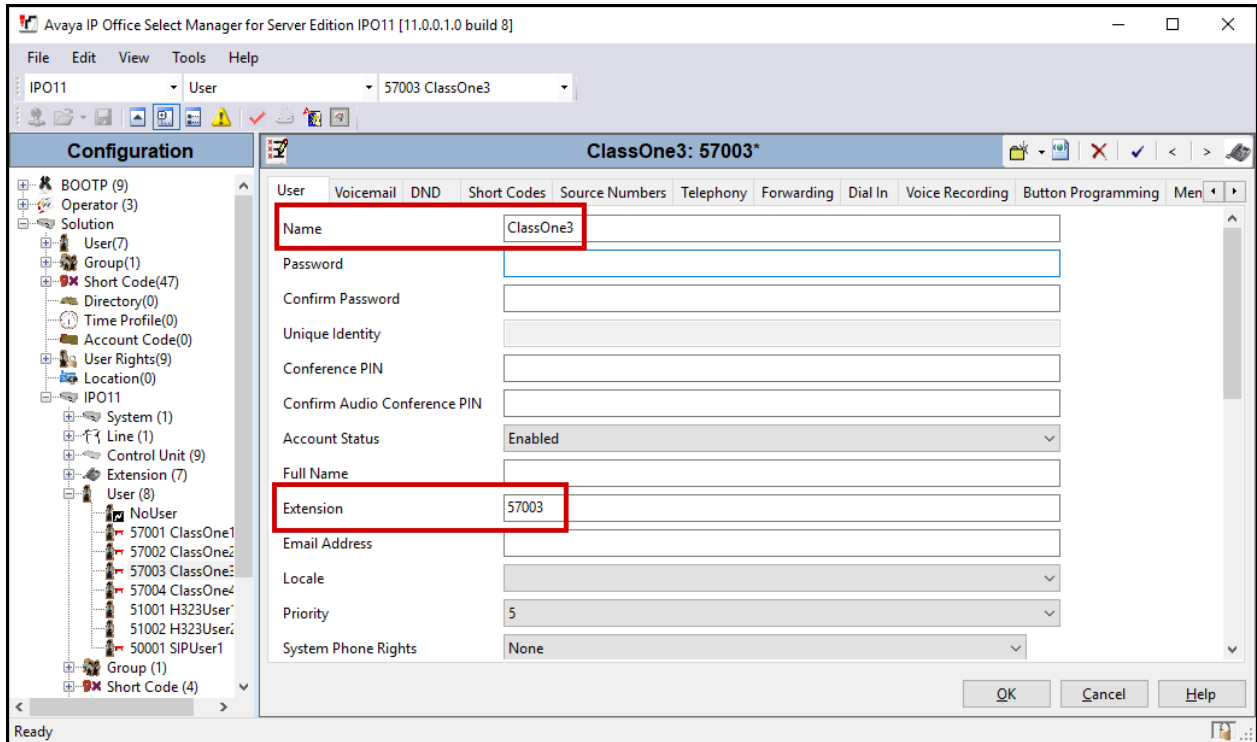
## 5.4. Administer SIP Extensions

To create a new SIP Extension, from the configuration tree in the left pane, right-click on **Extension**, and select **New → SIP Extension** from the pop-up list (not shown). Enter the desired digits for the **Base Extension** field. Two Extensions are needed for Radio Gateway. These are the Extensions that will be used for Radio Gateway to log in. During compliance testing, 57003 and 57004 were created.

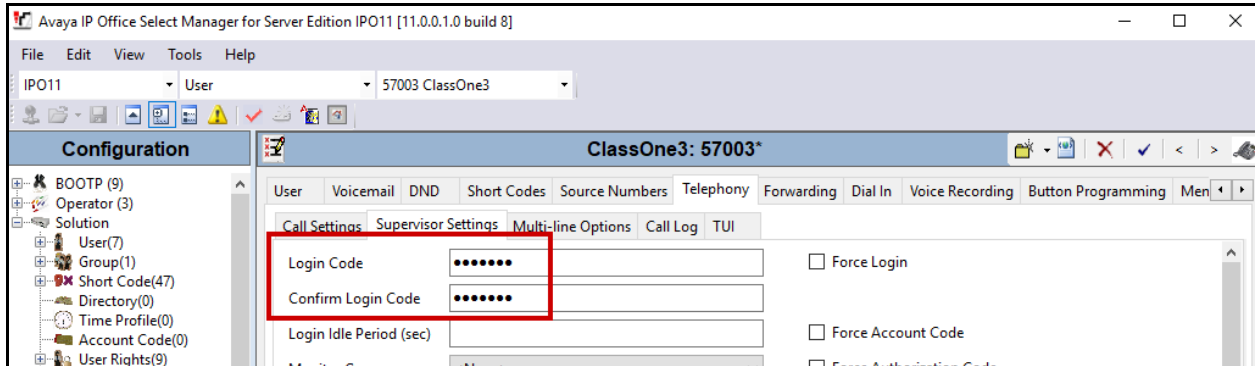


## 5.5. Administer SIP Users

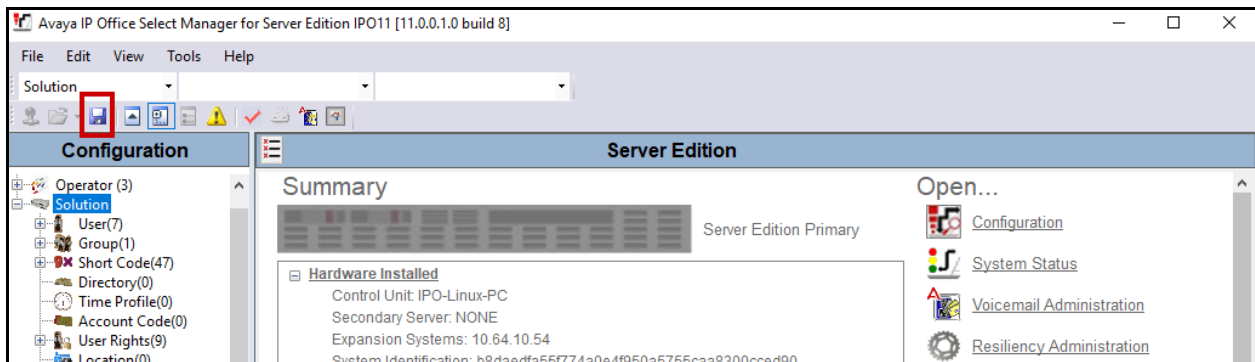
To create a new SIP User, from the configuration tree in left pane, right-click on **User**, and select **New** from the pop-up list (not shown). Enter desired values for the **Name** field. For the **Extension** field, enter the SIP extension created in **Section 5.4**. During compliance testing, two users, for 57003 and 57004, were created.



Select the **Supervisor Settings** tab and enter a desired **Login Code** and **Confirm Login Code**. This code will be used as a password for Radio Gateway.



Once done, save the configuration to IP office by selecting the save icon.



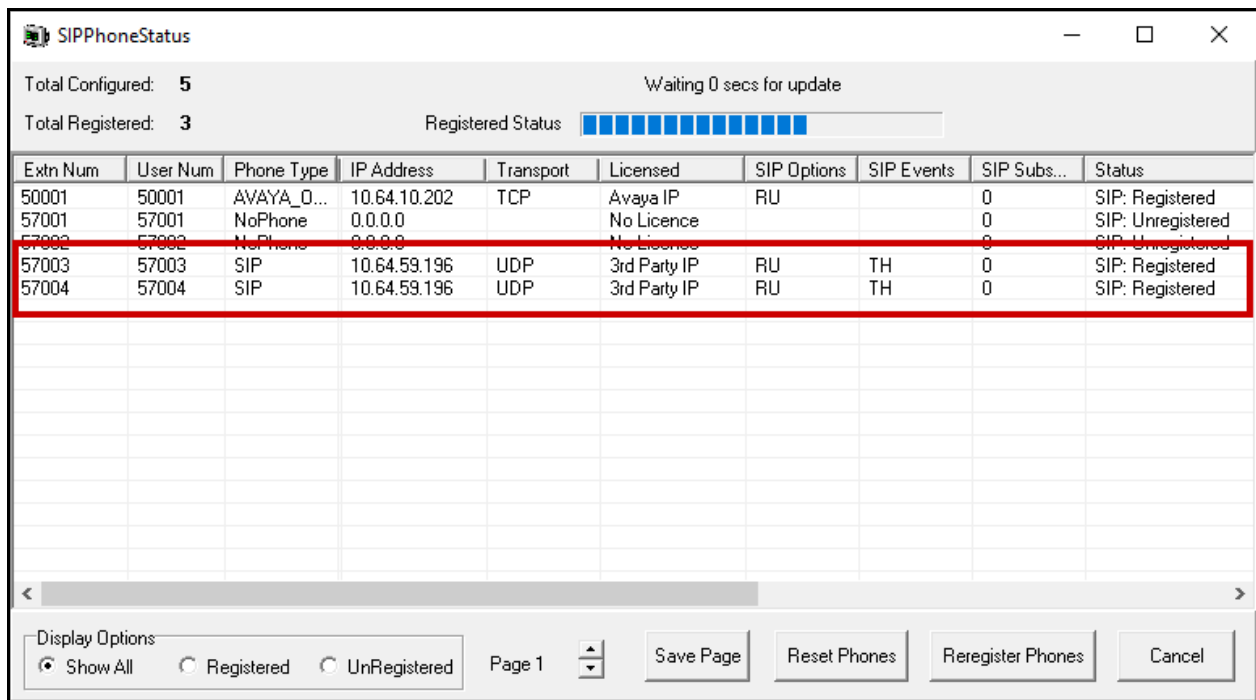
## 6. Configure iNEMSOFT CLASSONE® iCAS IP Radio Gateway

Installation and configuration of iNEMSOFT CLASSONE® iCAS IP Radio Gateway is done by designated iNEMSOFT engineers. Hence, no configuration is provided in this document.

## 7. Verification Steps

The following steps may be used to verify the configuration:

- Via Avaya IP Office SysMonitor application, SIP Messaging can be verified between Radio Gateway and IP Office
- Via Avaya IP Office SysMonitor application, the registration status of Radio Gateway can be verified. Navigate to **Status** → **SIP Phone Status**. The following screen displays successful registration of Radio Gateway Extensions with IP Office.



The screenshot shows the SIPPhoneStatus application window. At the top, it displays 'Total Configured: 5' and 'Total Registered: 3'. A progress bar indicates 'Registered Status' with 3 bars filled. Below this is a table with columns: Extn Num, User Num, Phone Type, IP Address, Transport, Licensed, SIP Options, SIP Events, SIP Subs..., and Status. The table contains five rows, with the last three rows (57003 and 57004) highlighted in red. At the bottom, there are 'Display Options' (Show All, Registered, UnRegistered), 'Page 1', and buttons for 'Save Page', 'Reset Phones', 'Reregister Phones', and 'Cancel'.

Extn Num	User Num	Phone Type	IP Address	Transport	Licensed	SIP Options	SIP Events	SIP Subs...	Status
50001	50001	AVAYA_O...	10.64.10.202	TCP	Avaya IP	RU		0	SIP: Registered
57001	57001	NoPhone	0.0.0.0		No Licence			0	SIP: Unregistered
57002	57002	NoPhone	0.0.0.0		No Licence			0	SIP: Unregistered
57003	57003	SIP	10.64.59.196	UDP	3rd Party IP	RU	TH	0	SIP: Registered
57004	57004	SIP	10.64.59.196	UDP	3rd Party IP	RU	TH	0	SIP: Registered

- Place calls to and from Radio Gateway and verify that the calls are successfully established with two-way talk path.
- Via IP Office System Status application, state of an active call can be verified. Select **Active Calls** on the left pane.

The screenshot displays the Avaya IP Office System Status application interface. The title bar reads "Avaya IP Office System Status - IPO11 (10.64.110.65) - IP Office Linux PC 11.0.0.1.0 build 8". The main window features the Avaya logo and the title "IP Office System Status". A menu bar includes "Help", "Snapshot", "LogOff", "Exit", and "About".

The left sidebar contains a navigation tree with the following items: System, Alarms (12), Extensions (5), Trunks (1), Active Calls (selected), Resources, Voicemail, IP Networking, and Locations. The "Active Calls" item is expanded to show "Call Details for Call Ref: 11".

The main content area is titled "Call Details" and displays the following information:

- Call Ref: 11      Call length: 00:00:15
- Originator**
  - Currently at: Extn 50001, SIPUser1
  - Receive Jitter: 0ms
  - Receive Packet Loss Fraction: 0%
  - Dialed Digits: 57003
  - Codec: G729 A
  - Media Stream: RTP
  - Layer 4 Protocol: TCP
- Destination**
  - Currently at: Extn 57003, ClassOne3
  - Codec: G729 A
  - Media Stream: RTP
  - Layer 4 Protocol: UDP
- Call target / Routing information**
  - Original Target: Extn ClassOne3
  - Connection Type: Direct Media
  - Call Recording: No
  - Redirected to Twin: No
  - Routed across SCN trunk: No
  - Retargeting Count: 0
- Trace Output:** (Empty text area)

At the bottom of the call details section, there is a row of control buttons: Trace Clear, Pause, Back, Disconnect, Conference Details, Print..., and Save As... The system status bar at the bottom right shows the time "6:33:12 PM" and the status "Online".

## 8. Conclusion

iNEMSOFT CLASSONE® iCAS IP Radio Gateway was compliance tested with Avaya IP Office. iNEMSOFT CLASSONE® iCAS IP Radio Gateway functioned properly for feature and serviceability. During compliance testing, iNEMSOFT CLASSONE® iCAS IP Radio Gateway successfully registered with Avaya IP Office, placed and received calls to and from SIP, non-SIP telephones, and the PSTN.

## 9. Additional References

This section references the documentation relevant to these Application Notes. Additional Avaya product documentation is available at <http://support.avaya.com>.

[1] *Administering Avaya IP Office™ Platform Manager*, Release 11.0, May 2018.

Documentation related to Radio Gateway can be obtained directly from iNEMSOFT.

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