



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Avaya IP Office Server Edition Release 10 with Connected Guests InnLine IP - Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Avaya IP Office Server Edition Release 10.0 with Connected Guests InnLine IP.

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 compliance-tested configuration using a Connected Guests InnLine IP SIP Voicemail server and Avaya IP Office. Connected Guests InnLine IP SIP Voicemail is part of a hospitality solution that provides hotels with voicemail functionality. The voicemail feature is delivered via SIP and is connected to the Avaya IP Office as a SIP endpoint.

Avaya IP Office Server Edition solution consists of a primary Linux Server Edition and a 500V2 expansion. Both systems are linked by IP Office Line IP trunks that can enable voice networking across these trunks to form a multi-site network. Each system in the solution automatically learns each other's extension numbers and user names. This allows calls between systems and support for a range of internal call features.

2. General Test Approach and Test Results

The general test approach was to configure the Connected Guests InnLine IP (InnLine IP) to communicate with the Avaya IP Office (IP Office) as implemented on a customer's premises. Feature functionality testing was performed manually. Call coverage was verified when there was no answer on a dialled extension and when a dialled extension was busy. Direct access to the Voicemail system was verified with message retrieval from the extension which had message waiting. Voicemail integration with hospitality features, including check-in, room transfer and check-out was verified using Connected Guests iCharge. As a result of check-in, a voicemail box was setup for the extension and the Message Waiting Indication (MWI) lamp was turned off. As a result of check-out, the extensions MWI lamp was turned off and the voicemail box is emptied. As a result of room transfer, the old extension's MWI lamp was turned off and the voicemail was purged and new extension's MWI lamp was illuminated and the voicemail was been moved to the new extension.

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

The testing included typical voicemail functions including call coverage in the following scenarios:

- Recording messages on the voicemail system
- Retrieving messages by making a direct call to the voicemail system
- DTMF - accessing Personal Assistance via the voicemail system
- Dialling directly to the voicemail system and being redirected to known extensions
- MWI lamp/off
- Voicemail integration with hospitality features like check-in, check-out and room transfer

2.2. Test Results

Tests were performed to insure full interoperability between Connected Guests InnLine IP and Avaya IP Office. The tests were all functional in nature and performance testing was not included. All test cases passed successfully.

2.3. Support

Technical support from Connected Guests can be obtained through the following:

Phone: Technical Support Department
+44 1425 891 090

Website: <http://www.innovationtw.com/support.php>

3. Reference Configuration

Figure 1 illustrates the network topology used during compliance testing. The InnLine IP was configured to connect to the IP Office primary server as a SIP Endpoint. Analog, Digital, H323 and SIP phones were configured on the IP Office Server Edition Solution to generate intra-switch calls (calls between phones cross of IP Office Line). A SIP trunk was created in the IP Office primary server and a QSIG trunk was configured in the 500V2 expansion to connect the IP Office to the PSTN via SIP and PRI to enable outbound/inbound calls and external access to the InnLine IP.

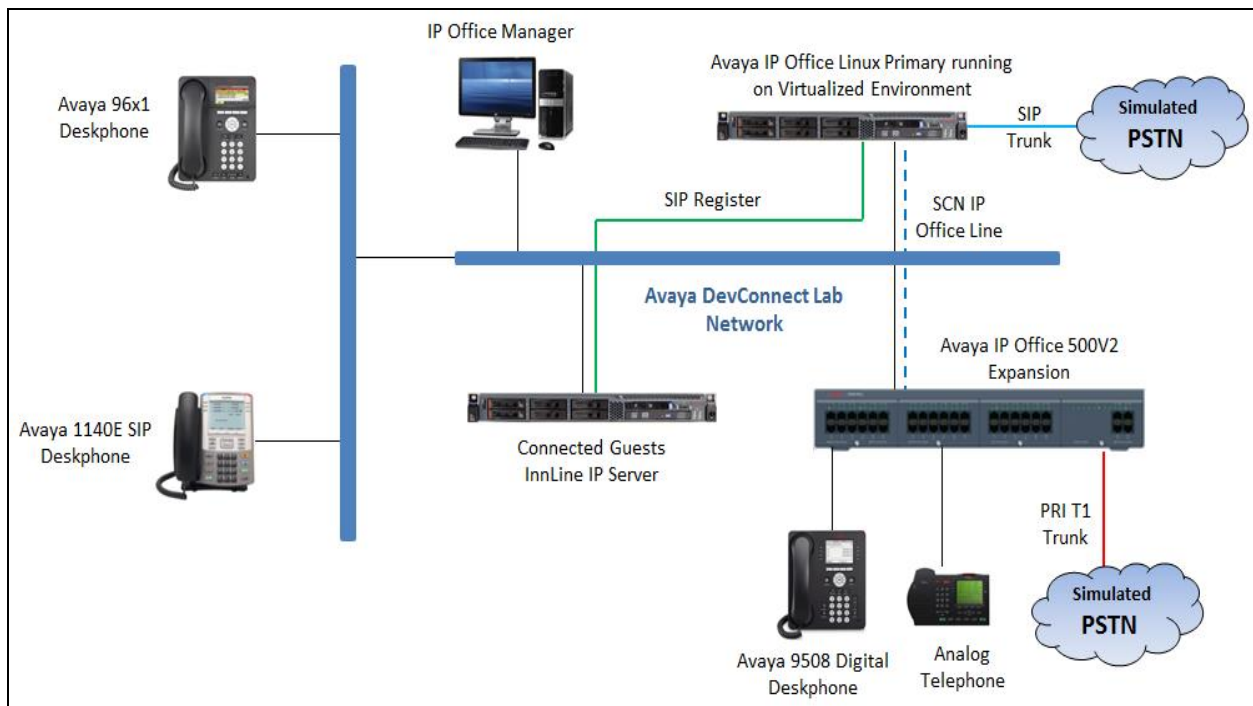


Figure 1: Avaya IP Office and Connected Guests InnLine IP Reference Configuration

4. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment/Software	Release/Version
Avaya IP Office Primary Linux Server running on Virtual Environment	10 SP3 Build 53 (10.0.0.3)
Avaya IP Office 500V2	10 SP3 Build 53
Avaya IP Office Manager	10 SP3 Build 53
Avaya 9608 H323 Telephone	6.6401
Avaya 9611 H323 Telephone	6.6401
Avaya 1140E SIP Telephone	4.0.4.23
Avaya 2420 Digital Telephones	--
Analog Telephone	--
Connected Guest InnLine IP Server running on Windows 7 SP1	Version 3.2.0

5. Avaya IP Office Configuration

Configuration and verification operations on the Avaya IP Office illustrated in this section were all performed using Avaya IP Office Manager. The information provided in this section describes the configuration of the Avaya IP Office for this solution. It is implied a working system is already in place. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**. The configuration operations described in this section can be summarized as follows:

- Launch Avaya IP Office Manager
- Configure UDP for LAN1
- Configure SIP Extensions for InnLine IP
- Configure SIP Users for InnLine IP
- Configure Hunt group
- Configure Short Codes
- Configure Voicemail and Forwarding for User
- Save Configuration

5.1. Launch Avaya IP Office Manager

From the Avaya IP Office Manager PC, go to **Start→Programs→IP Office→Manager** to launch the Manager application. Log in to Avaya IP Office using the appropriate credentials to receive its configuration (Not shown). In the IP Offices window expand the Configuration Tree and double-click **Solution** it displays **Server Edition** solution window in the right hand side. During compliance testing the Primary Server name was called IPOSE110 and Expansion System was called QTIPO.

Avaya IP Office Manager for Server Edition IPOSE110 [10.0.0.3.0 build 5]

File Edit View Tools Help

Solution

Configuration

- BOOTP (20)
- Operator (3)
- Solution**
- User (16)
- Group(2)
- Short Code (11)
- Directory(0)
- Time Profile(0)
- Account Code(0)
- User Rights(4)
- Location(0)
- IPOSE110
- QTIPO

Server Edition

Hardware Installed

System Settings

System Status

Voicemail Administration

Resiliency Administration

On-boarding

IP Office Web Manager

Help

Set All Nodes to Select

Set All Nodes License Source

Add...

Secondary Server

Description	Name	Address	Primary Link	Users Configured	Extensions Configured
Solution				16	38
Primary Server	IPOSE110	10.10.97.110		10	10
Expansion System	QTIPO	10.10.97.230	Bothway	6	28

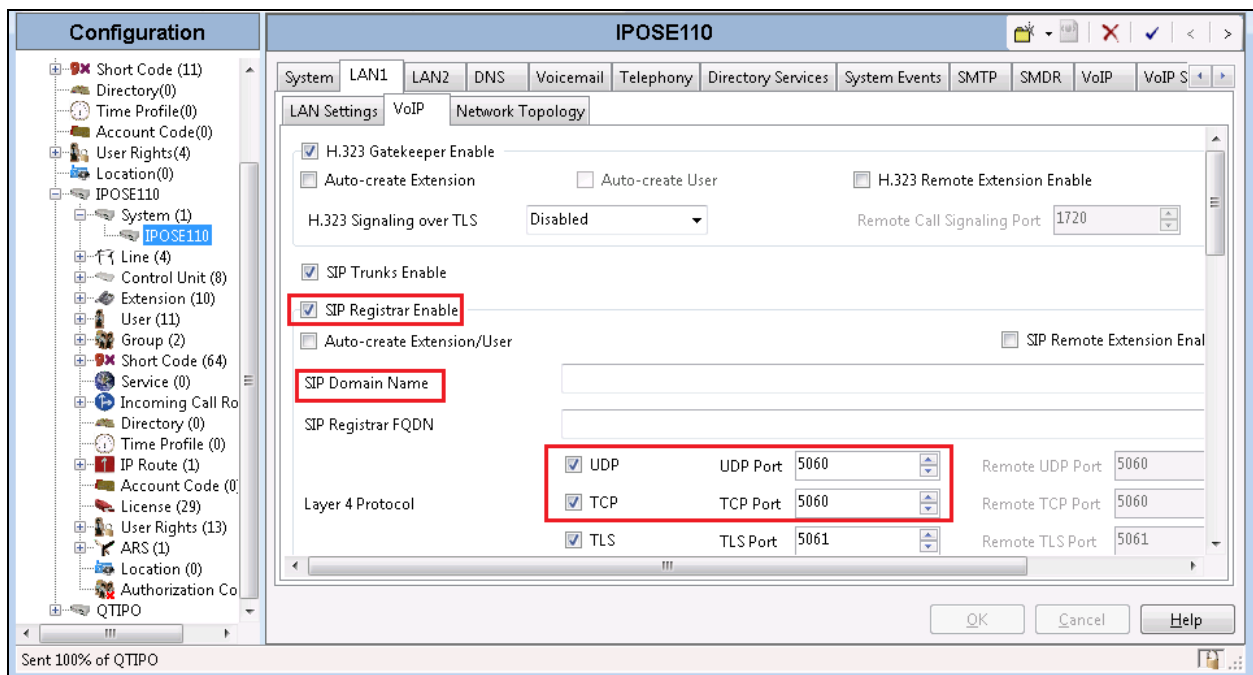
Sent 100% of QTIPO

5.2. Configure LAN1 in IP Office Primary Server

To configure UDP for LAN1 in the primary server, navigate to IPOSE → System → IPOSE. Click on the **LAN1** tab and then **VoIP** tab and enter the following:

- **SIP Registrar Enable** Check the check box
- **Domain Name** Enter the domain or leave it blank, during the compliance test the Domain Name field was left blank it used the LAN1 IP address as the domain.
- **Layer 4 protocol** Select **Both TCP and UDP** check boxes
- **UDP Port** Enter **5060**
- **TCP Port** Enter **5060**

Click the **OK** button to save.



5.3. Configure SIP Extensions for InnLine IP

A SIP extension for each voicemail port on InnLine IP needs to be configured. This section shows the configuration for extension 4501. Extensions 4502-4504 were also configured during compliance testing. In the Manager window, navigate to **IPOSE110 → Extension**, right-click **Extension** and select **New** (Not shown), in the popup that appears. Click on the **Extension** tab and enter number “4501” in the **Base Extension**.

The screenshot shows the 'SIP Extension: 11203 4501' configuration window. The 'Extension' tab is selected. The 'Base Extension' field is highlighted with a red box and contains the value '4501'. The left sidebar shows the configuration tree with '11203 4501' selected under 'Extension (10)'.

Select the **VoIP** tab, select “Requires DTMF” and select “Inband” in the **DTMF Support** field.

The screenshot shows the 'SIP Extension: 11203 4501' configuration window with the 'VoIP' tab selected. The 'Requires DTMF' checkbox is checked and highlighted with a red box. The 'DTMF Support' dropdown is set to 'Inband' and highlighted with a red box. The 'Selected' list shows 'G.711 ULAW 64K', 'G.711 ALAW 64K', and 'G.729(a) 8K CS-ACELP'. The left sidebar shows the configuration tree with '11203 4501' selected under 'Extension (10)'.

5.4. Configure SIP Users for InnLine IP

A SIP user for each voicemail extension on InnLine IP needs to be configured. This section shows the configuration for user 4501. Users 4502-4504 were also configured during compliance testing. In the Manager window, navigate to **IPOSE110 → Users**, right-click **User** and select **New** (Not shown), in the popup that appears. Click on the User tab and enter the following:

- **Name** Enter and informative name (i.e., 4501)
- **Password** Enter a password for the SIP user
- **Confirm Password** Confirm the password
- **Account Status** Select “Enabled” from the dropdown box
- **Extension** Enter “4501”

The screenshot shows the '4501 Voicemail: 4501*' configuration window with the 'User' tab selected. The left sidebar shows a tree view with 'IPOSE110' expanded, showing 'System (1)', 'Line (4)', 'Control Unit (8)', 'Extension (10)', and 'User (11)'. The 'User (11)' list includes 'NoUser', '4305 4305', '4501 4501 Voicemail', '4502 4502', '4503 4503', '4504 4504', '4300 Extn4300', '4301 Extn4301', '4302 Extn4302', '4303 Extn4303', and '4304 Extn4304'. The main configuration area has the following fields: Name (4501), Password (masked with dots), Confirm Password (masked with dots), Unique Identity (empty), Conference PIN (empty), Confirm Audio Conference PIN (empty), Account Status (Enabled), Full Name (empty), Extension (4501), Email Address (empty), Locale (dropdown), Priority (5), System Phone Rights (None), and Profile (Basic User). The fields Name, Password, Confirm Password, Account Status, and Extension are highlighted with red boxes.

Select **Telephony** tab and followed by **Supervisor Settings** sub-tab, enter a code in the **Login Code** and **Confirm Login Code** fields. This code is required by InnLine IP to connect. Note: The same password should be used for each voicemail extension. Click OK button to save.

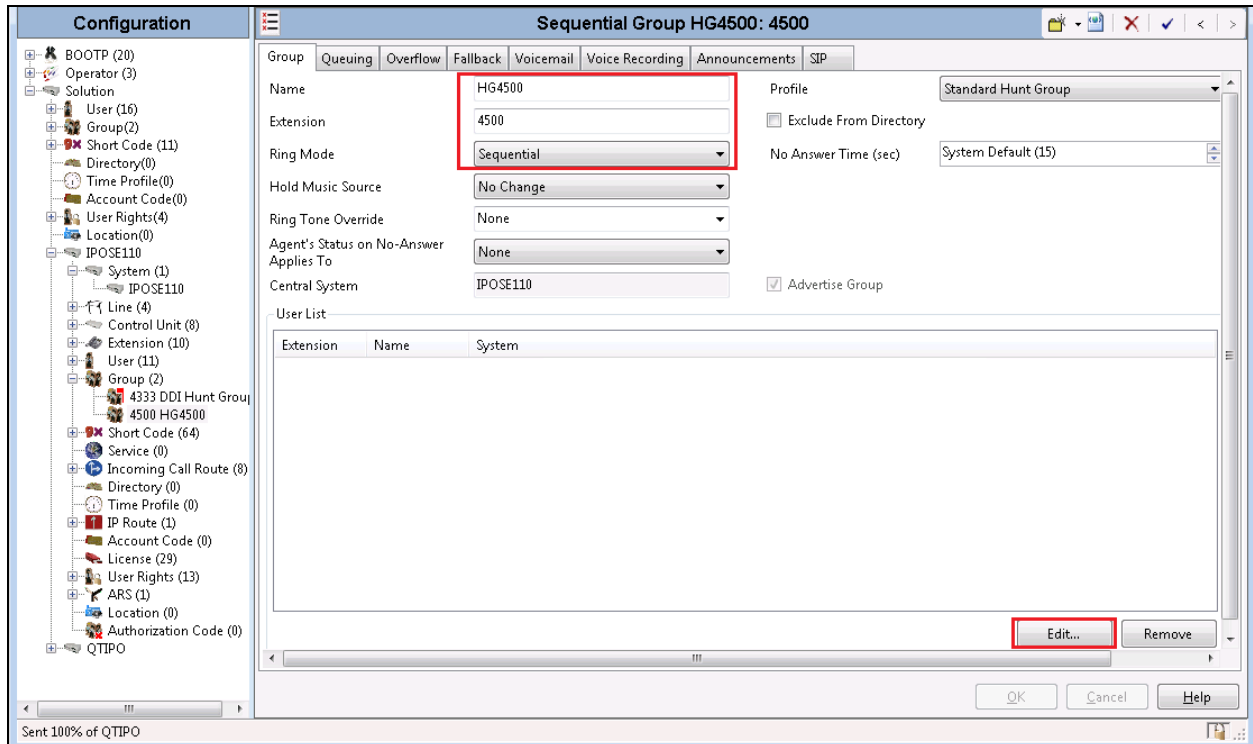
The screenshot shows the '4501 Voicemail: 4501*' configuration window with the 'Telephony' tab selected and the 'Supervisor Settings' sub-tab active. The left sidebar is the same as the previous screenshot. The main configuration area has the following fields: Call Settings (Login Code, Confirm Login Code, Login Idle Period (sec), Monitor Group, Coverage Group, Status on No-Answer), Multi-line Options (Force Login, Force Account Code, Force Authorization Code, Incoming Call Bar, Outgoing Call Bar, Inhibit Off-Switch Forward/Transfer, Can Intrude, Cannot Be Intruded, Can Trace Calls, Deny Auto Intercom Calls), and TUI (Reset Longest Idle Time, All Calls, External Incoming). The 'Login Code' and 'Confirm Login Code' fields are highlighted with red boxes.

5.5. Configure Hunt Group

In the Manager window, go to the Configuration Tree, right click **Group** and select **New** (Not shown), in the popup that appears click the **Group** tab and enter the Following:

- **Name** Enter and informative name (i.e., HG4500)
- **Extension** Enter the extension of the InnLine IP (i.e., 4500)
- **Ring Mode** Select **Sequential** from the dropdown box

Click on the **Edit** button.



Once the **Sequential HuntGroup Select Members** opens, select the Users that were configured in **Section 5.3** (4501 to 4503) in the **Available Users** frame and click on the **Append** button to add it to **Members** frame. Click the **OK** button.

Sequential | Hunt Group | 4500 HG4500 - Select Members

Filters

Extension Name Extension Number PBX Name PBX Address

0 . 0 . 0 . 0

Available Users (16/16)

Name	Extension	PBX Name	PBX Address
4305	4305	IPOSE110	10.10.97.110
4403	4403	QTIPO	10.10.97.230
4404	4404	QTIPO	10.10.97.230
4410	4410	QTIPO	10.10.97.230
4501	4501	IPOSE110	10.10.97.110
4502	4502	IPOSE110	10.10.97.110
4503	4503	IPOSE110	10.10.97.110
4504	4504	IPOSE110	10.10.97.110
Extn4300	4300	IPOSE110	10.10.97.110
Extn4301	4301	IPOSE110	10.10.97.110
Extn4302	4302	IPOSE110	10.10.97.110
Extn4303	4303	IPOSE110	10.10.97.110
Extn4304	4304	IPOSE110	10.10.97.110
Extn4400	4400	QTIPO	10.10.97.230
Extn4401	4401	QTIPO	10.10.97.230
Extn4420	4420	QTIPO	10.10.97.230

Members (3/3)

Order	Enabled	Name	Extension	PBX Name	PBX Address
1	<input checked="" type="checkbox"/>	4501	4501	IPOSE110	135.10.97.110
2	<input checked="" type="checkbox"/>	4502	4502	IPOSE110	135.10.97.110
3	<input checked="" type="checkbox"/>	4503	4503	IPOSE110	135.10.97.110

Add Before
Add After
Append
Remove

OK Cancel Help

Click on the **Queuing** tab, uncheck the **Queuing On** check box.

Configuration

Sequential Group HG4500: 4500

Group **Queuing** Overflow Fallback Voicemail Voice Recording Announcements SIP

☐ **Queuing On**

Queue Length No Limit ☒ Normalize Queue Length

Queue Type Assign Call On Agent Answer

Calls In Queue Alarm

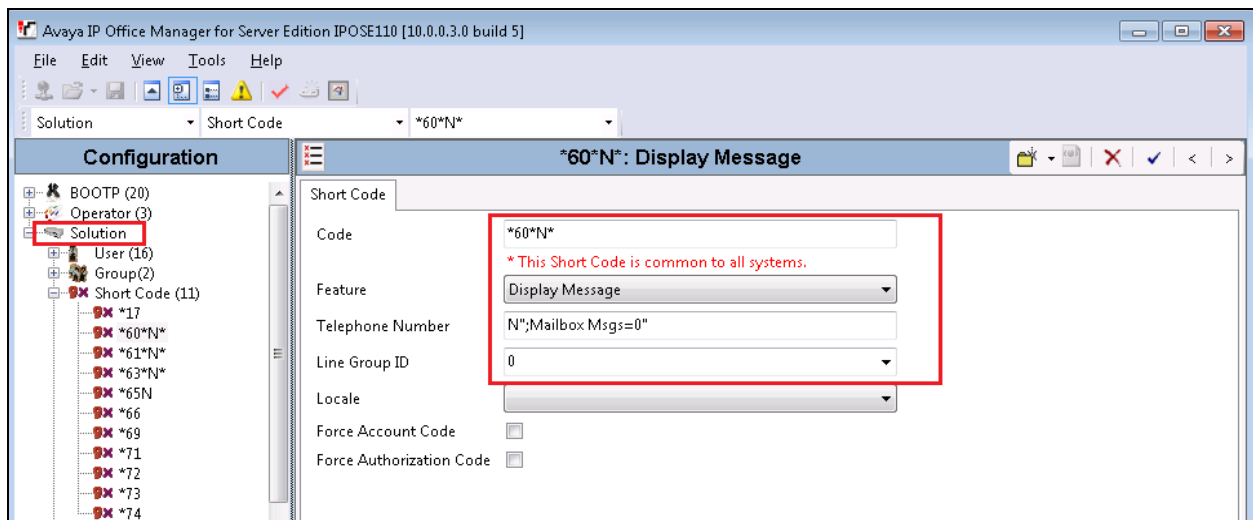
Calls In Queue Threshold 1

Analog Extension to Notify <None>

5.6. Configure Short Codes

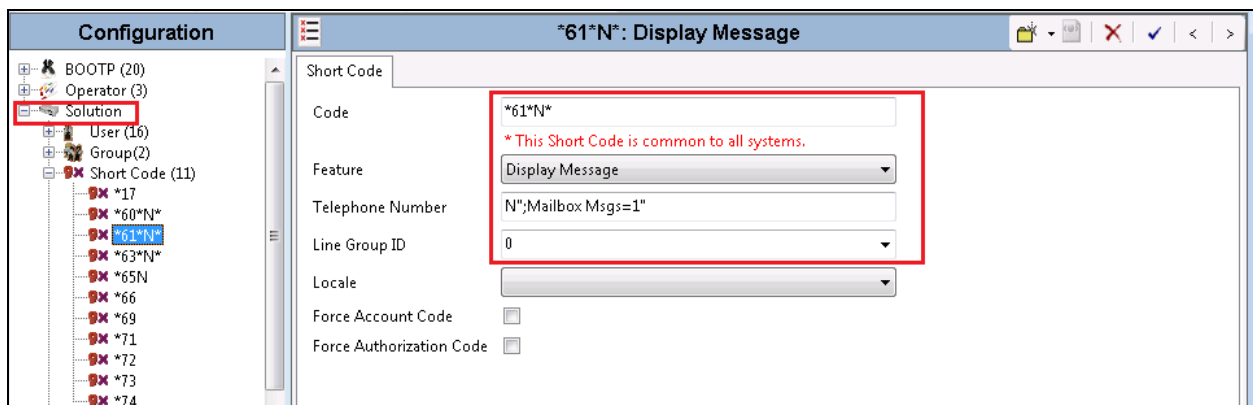
Create a Short Code used for set the MWI Lamp Off. In the Manager window, navigate to **Solution → Short Code**, right-click **Short Code** and select **New** (Not shown) and enter the following:

- **Code** Enter ***60*N***
- **Feature** Select **Display Message** from the dropdown box
- **Telephone Number** Enter **N";Mailbox Msgs=0"**
- **Line Group IP** Leave it as default



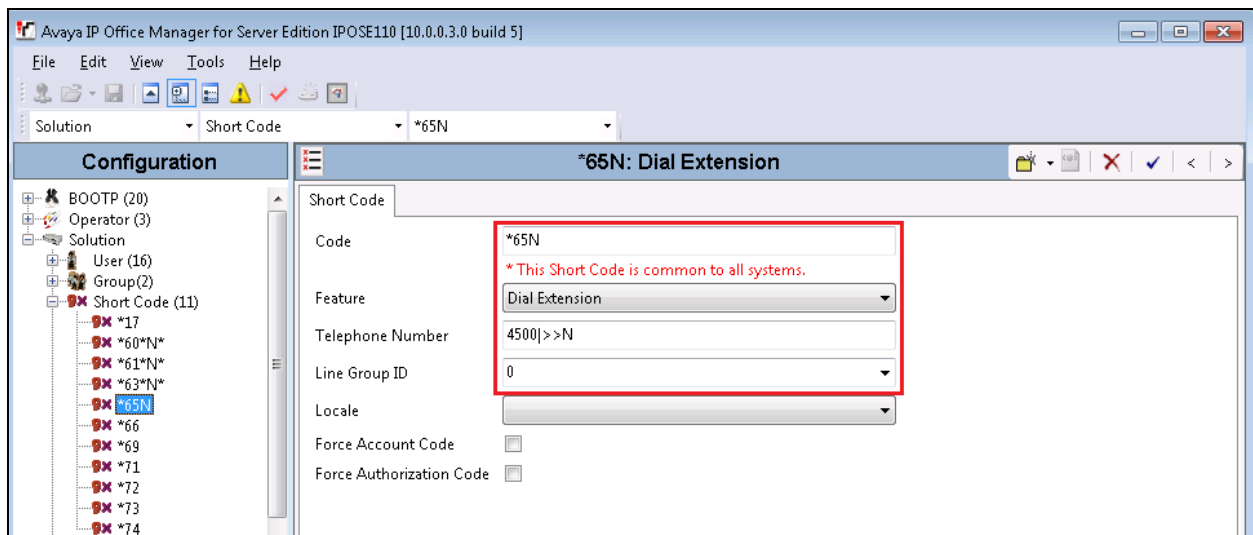
Create a Short Code used for set the MWI Lamp On. In the Manager window, navigate to **Solution → Short Code**, right-click **Short Code** and select **New** (Not shown) and enter the following:

- **Code** Enter ***61*N***
- **Feature** Select **Display Msg** from the dropdown box
- **Telephone Number** Enter **N";Mailbox Msgs=1"**



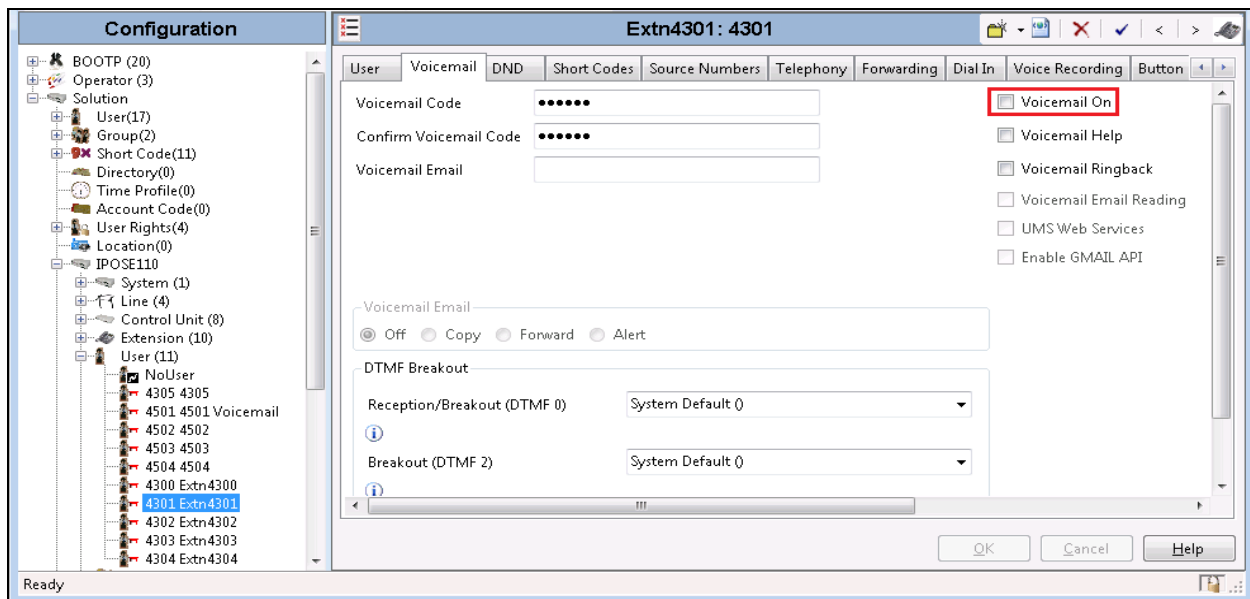
Create a short code used to forward call to the Inline IP system when the IPO user is not available to take the call, navigate to **Solution → Short Code**, right-click **Short Code** and select **New** (Not shown) and enter the following:

- **Code** Enter ***65N**
- **Feature** Select **Dial Extension** from the dropdown box
- **Telephone Number** Enter **4500|>>N** with the 4500 is the hunt group number configured in Section 5.5.

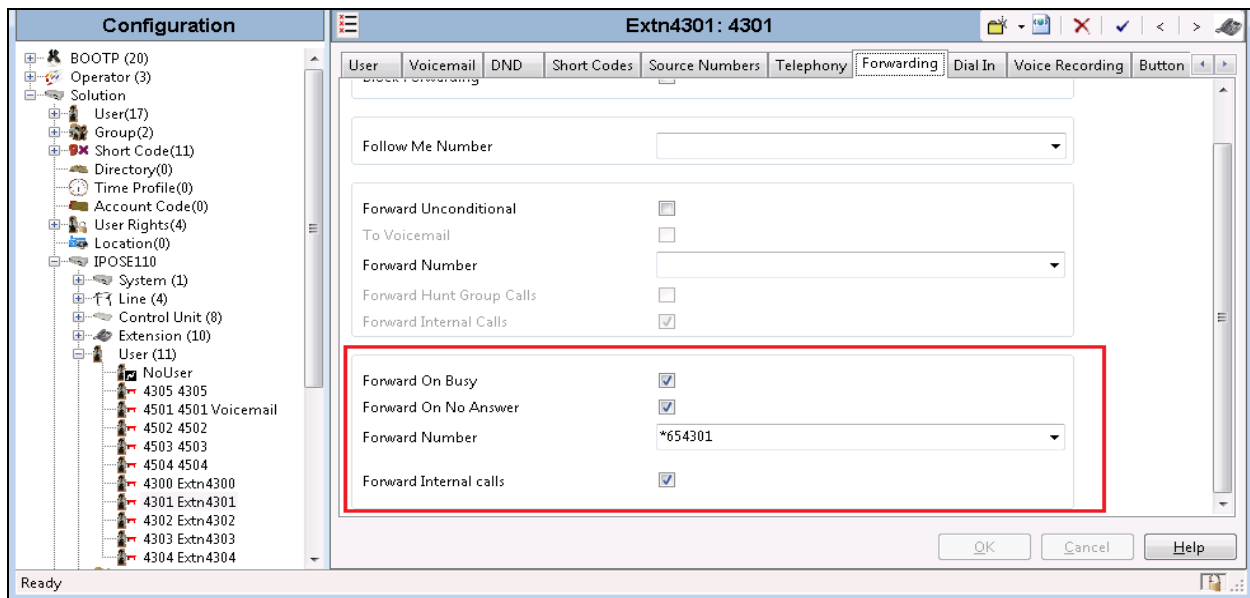


5.7. Configure Voicemail and Forwarding for User

For each user that requires an InnLine IP mail box, its embedded Voicemail must be disabled. If the Voicemail is enabled the user uses the built-in voicemail in the IP Office primary. The screenshot below shows the Voicemail configuration for User 4301. Go to the Configuration Tree and select the User that requires Voicemail (not shown). When the new window opens click on the **Voicemail** tab and uncheck the **Voicemail On** check box

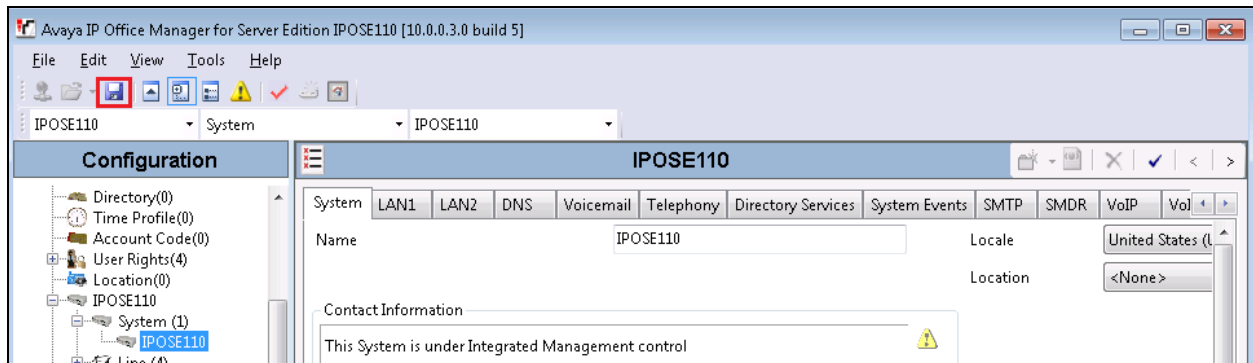


Select **Forwarding** tab, check on **Forward On Busy**, **Forward on No Answer**, **Forward Internal Calls** and enter the code ***654301** which is matching the short code ***65N** in **Forward Number** . Repeat this procedure for all users that require a voicemail in the InnLine IP.

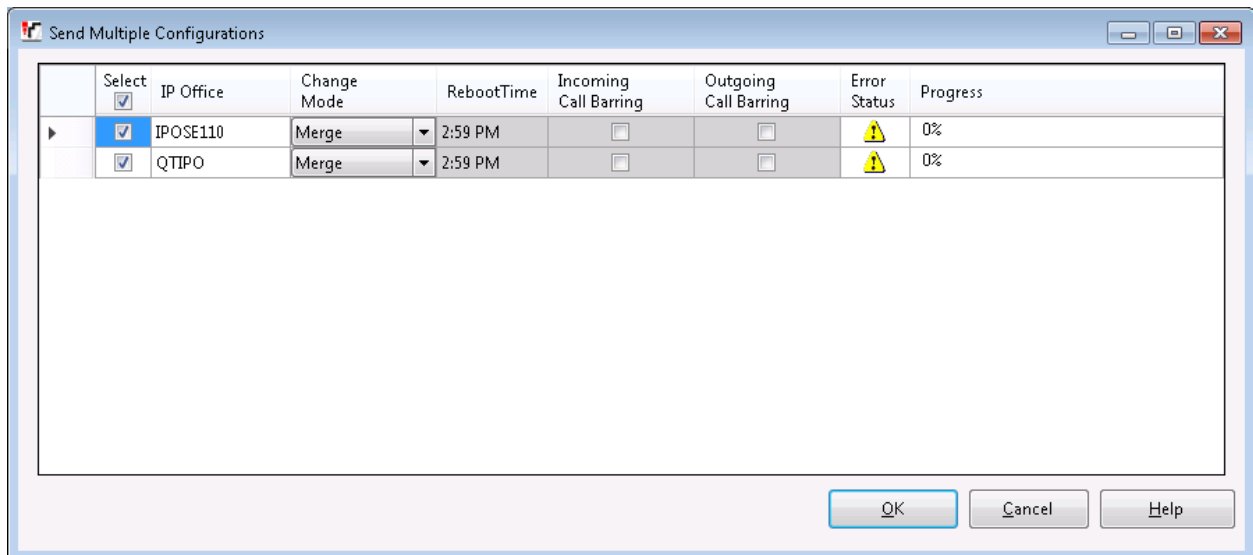


5.8. Save Configuration

Once all the configurations have been made it must be sent to the IP Office. Click on the **Save** Icon as shown below.



Once the **Send Multiple Configurations** Window opens, click the OK button.



6. Configure Connected Guests InnLine IP

This section describes the steps performed to configure the InnLine IP. It is implied that the InnLine VoIPLink software is already installed. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**. The configuration can be summarised as follows:

- Configure SIP Settings for Voicemail Server
- Configure Port Types
- Configure Voice Ports
- Configure Guest Mailboxes

6.1. Configure SIP Settings for Voicemail Server

Click on **Start → All Programs → InnLine IP Config** (Not Shown) on the desktop of the server and enter the following:

- **Local IP Address** Select the IP Address of the INNLIN IP from the dropdown box
- **SIP Proxy Address** Enter the IP Address of the IP Office
- **SIP Password** Enter the Password as configured in **Section 5.3**

Click on the **Save** button.

IIPConfig: InnLine IP Configuration Utility

INNLINE IP®
INNOVATION TECHNOLOGIES WORLDWIDE, INC.

Local IP Address: 10.10.98.83

SIP Proxy Address: 10.10.97.110

SIP Password: 123123

Authentication Realm:

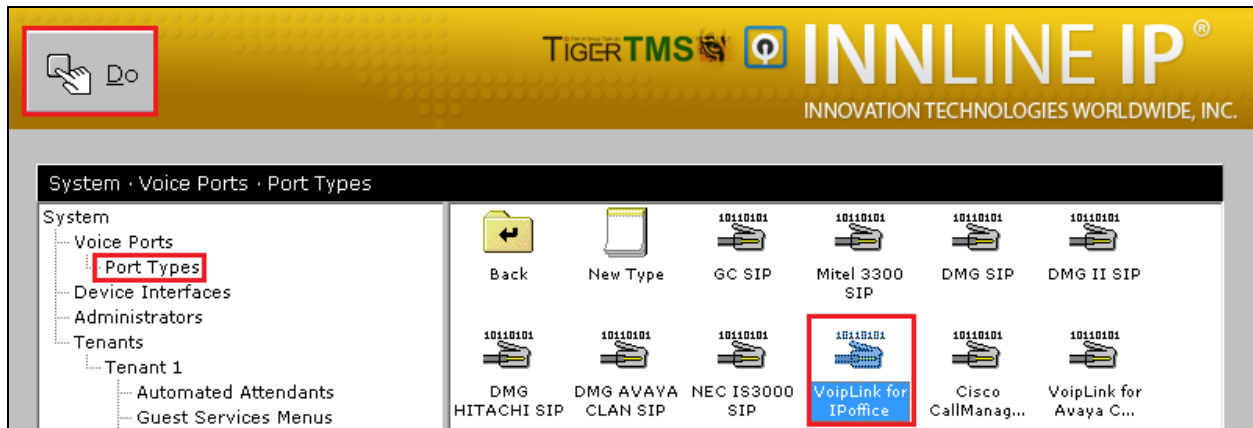
NOTE: InnLineIP must be restarted after changing these values.

Save Cancel

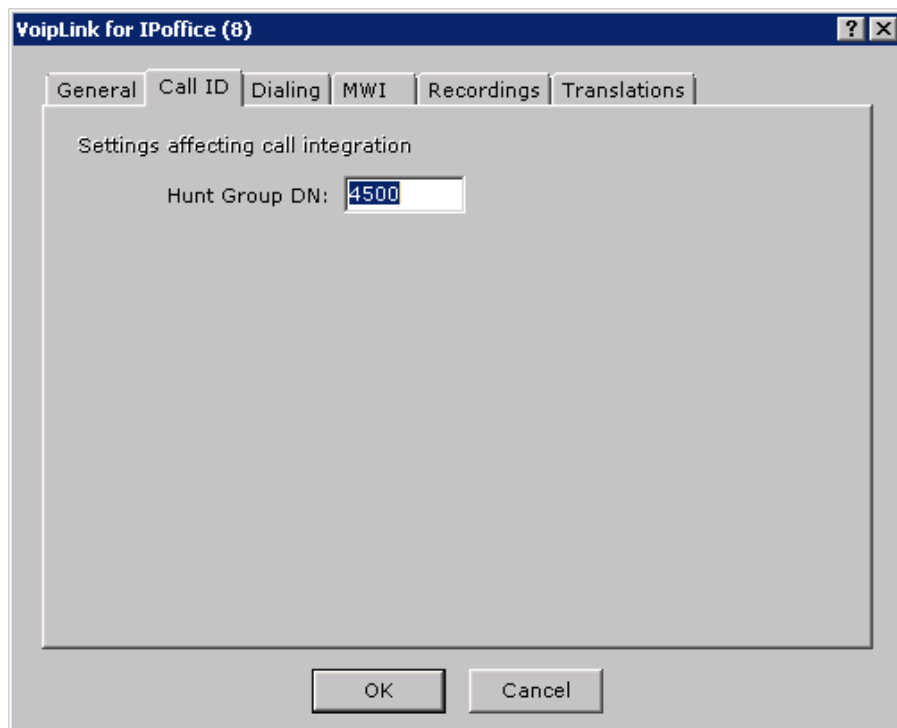
Config File Values Loaded IIPConfig V0.3

6.2. Configure Port Types

Click on **Start** → **All Programs** → **InnLine IP** (Not Shown) on the desktop of the server when the new window opens Click on the **DO** icon and select **Configure System** (not shown), and navigate to **System** → **Voice Ports** → **Port Types** and double click on the **VoipLink for IPoffice** icon.



When the new window opens click on the **Call ID** tab and enter the **Hunt Group** as configured in **Section 5.4** (i.e., 4500) in the **Hunt Group ID** box.



Click on the MWI tab and enter the following:

Indicator On

- **Dial String Prefix:** Enter the short code for MWI Lamp On as configured in **Section 5.6** minus the N* (i.e., *61*)
- **Dial String Suffix:** Enter *

Indicator Off

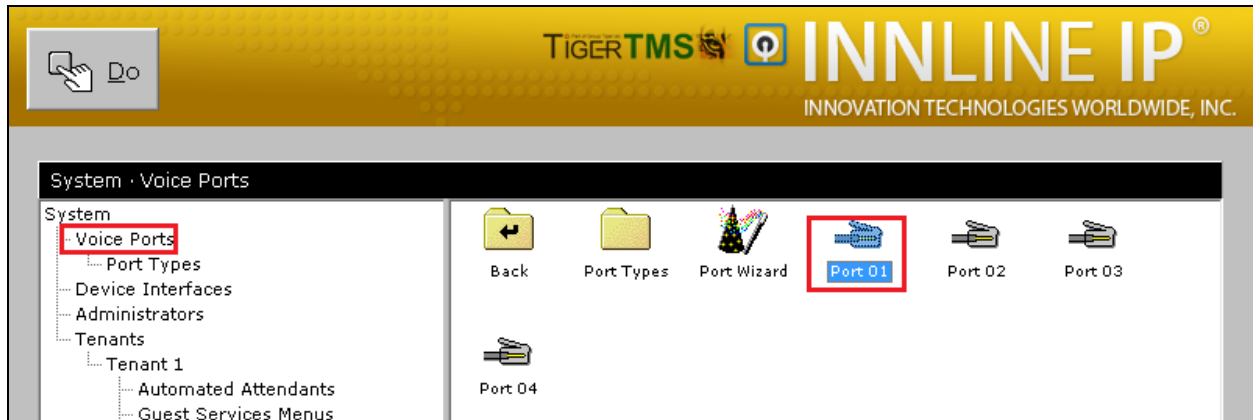
- **Dial String Prefix:** Enter the short code for MWI Lamp On as configured in **Section 5.6** minus the N* (i.e., *60*)
- **Dial String Suffix:** Enter *

Click on the **OK** button.

The screenshot shows a window titled "VoipLink for IPoffice (8)" with a tabbed interface. The "MWI" tab is selected. Inside the window, there are two sections: "Indicator On" and "Indicator Off". Each section contains two text input fields: "Dial String Prefix" and "Dial String Suffix". In the "Indicator On" section, the "Dial String Prefix" field contains the text "*61*" and the "Dial String Suffix" field contains the text "*". In the "Indicator Off" section, the "Dial String Prefix" field contains the text "*60*" and the "Dial String Suffix" field contains the text "*". At the bottom of the window, there are two buttons: "OK" and "Cancel".

6.3. Configure Voice Ports

Click on **Voice Ports** in the Configuration Tree, and double click the **Port 1** icon.



When the new window opens enter the following:

- **Port Extension:** Enter the extension of the first SIP user as configured in **Section 5.3** (4501)
- **Port Type:** Select **VoipLink for IPoffice** from the dropdown box
- **Call Direction** Select **In-bound only** from the dropdown box
- **Default Mailbox:** Enter **AA** and select **Go To** from the dropdown box
- **Guest Direct Call:** Select **Logs in to guest mailbox** from the dropdown box
- **Sip Alias:** Enter the extension of the first SIP user as configured in **Section 5.4** (4501)

Click on the OK button.

Note: Repeat this Section for all required ports. During compliance testing Port 2 used Extension 4502, Port 3 used Extension 4503, and Port 4 used Extension 4504,

Port 01

General

Port Extension: 4501

Disable? ☐

Tenant: Tenant 1

Port Type: VoipLink for IPoffice

Call Direction: In-bound only

Out-bound Actions: All Out-bound Actions

Default Mailbox: AA Go To

Guest Direct Call: Logs in to guest mailbox

Sip Alias: 4501

☐ Enabled Port Outbound Proxy

Host Name:

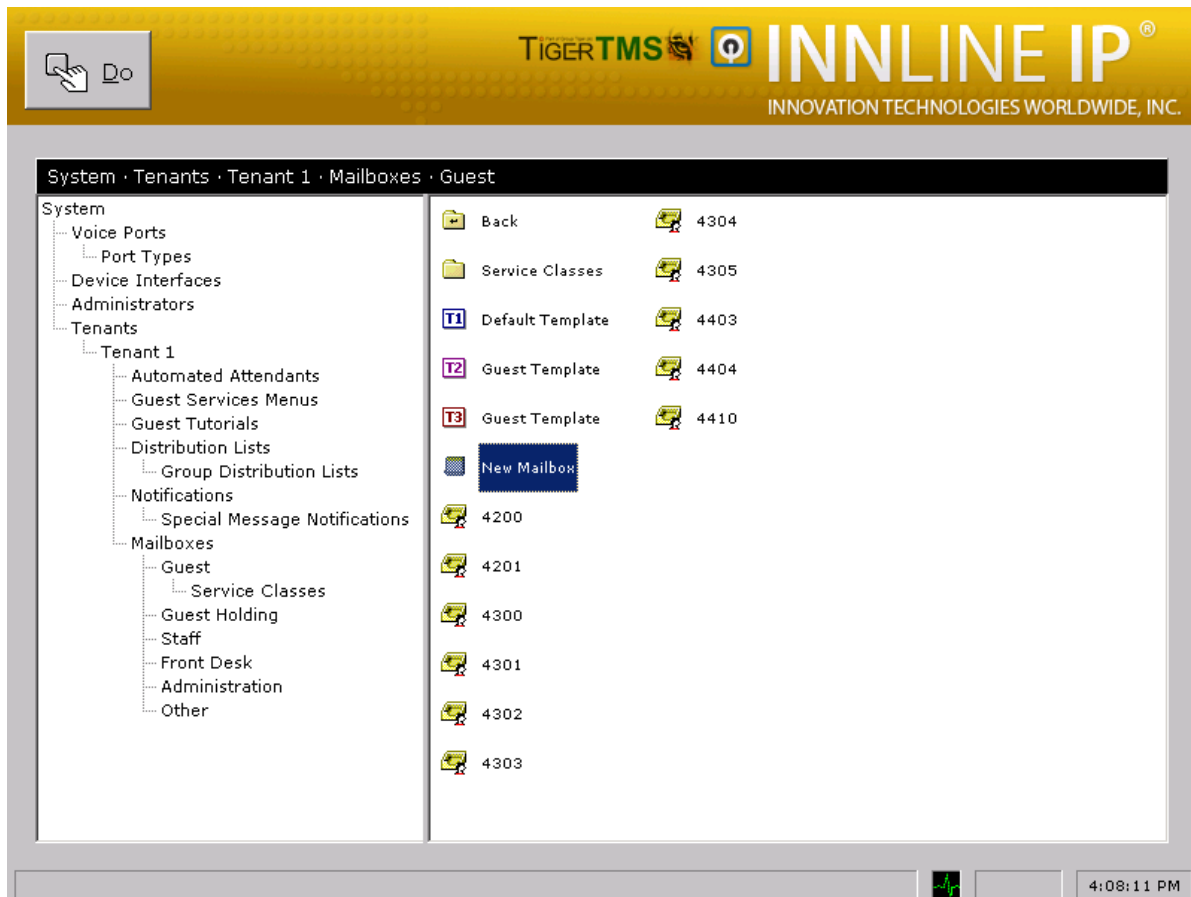
Port: 5060

Realm:

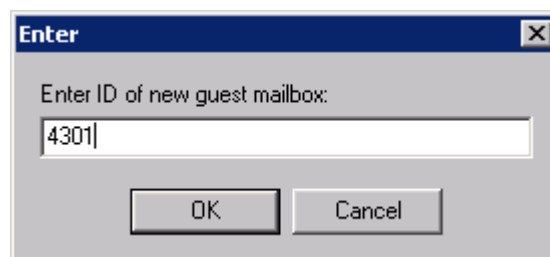
OK Cancel

6.4. Configure Guest Mailboxes

Navigate to **Mailboxes** → **Guest** and double click on the **New Mailbox**.



When the screen pop opens enter the extension of a User configured on IP Office that requires a Voicemail box. Click the **OK** button. The example bellows shows extension 3005.



7. Verification Steps

This section provides the tests that can be performed to verify correct configuration of the Avaya IP Office and Connected Guests InnLine IP solution.

Place a call to an administered extension and allow it to go to coverage.

- Verify the InnLine IP greeting answers and a message is left
- Verify that the MWI lamp of the dialled station is turned ON

Dial the InnLine IP voicemail pilot/hunt group number (i.e., 4500) from an extension administered with voicemail, verify successful login, listen to voicemails and delete voicemails, verify MWI is extinguished accordingly.

8. Conclusion

A full and comprehensive set of feature and functional test cases were performed during Compliance testing. All test cases have passed and met the objectives outlined in **Section 2.2**

9. Additional References

These documents form part of the Avaya official technical reference documentation suite. Further information may be had from <http://support.avaya.com> or from your Avaya representative.

- [1] Administering Avaya IP Office™ Platform with Manager, Release 10, Issue 10.33, October 2016.
- [2] Deploying Avaya IP Office™ Platform Servers as Virtual Machines, Release 10, November 20156.
- [3] IP Office™ Platform 9.1 Using IP Office System Monitor, Release 10, September 2016.
- [4] Administering Avaya IP Office with Manager, Release 10, September 2016.

Product Documentation for Connected Guests Products can be obtained at: <http://www.innovationtw.com/ConnectedGuest.html>

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