



# **IP Office 9.0**

## **IP Office Video Collaboration Solution - Installation Notes**

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# Chapter 1.

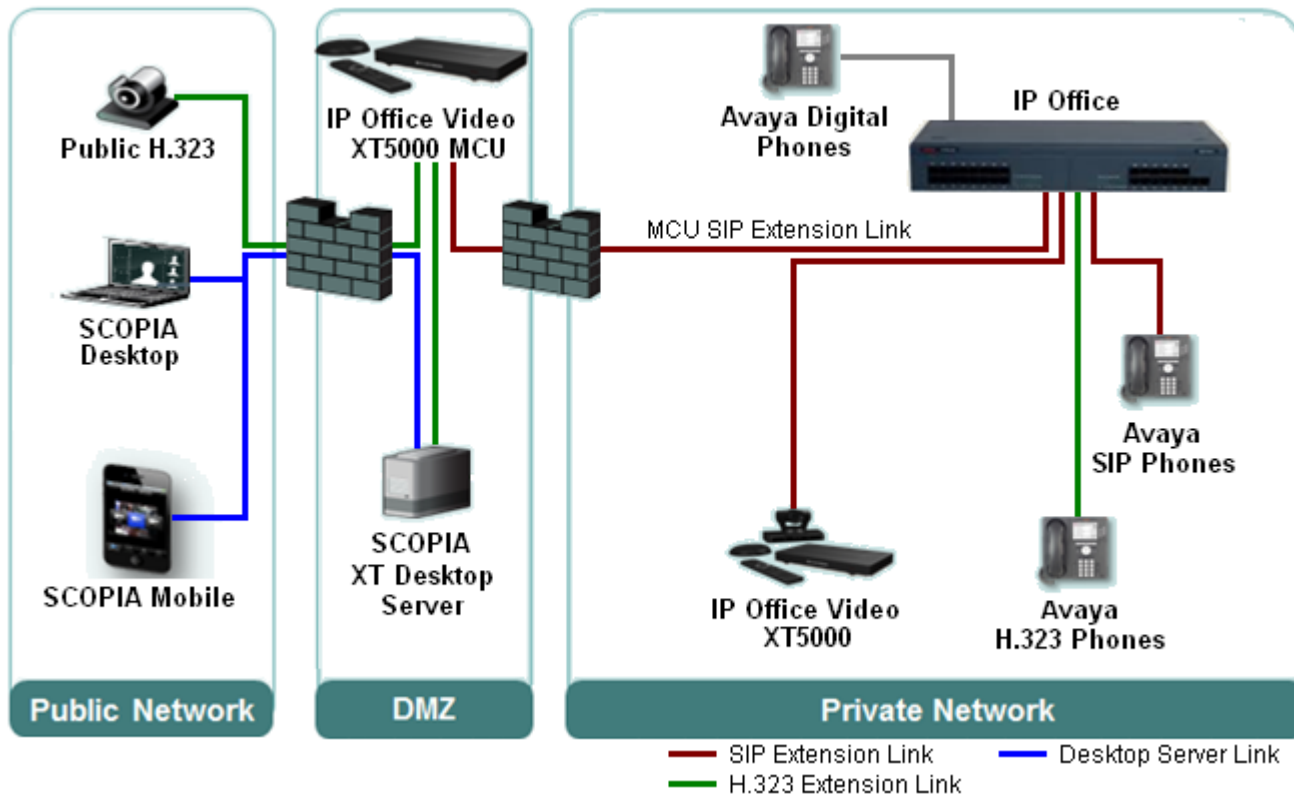
# Overview





# 1. Overview

This document provides notes for deploying a IP Office Video conferencing system with an Avaya IP Office system.



- IP Office Video is supported with IP Office Essential Edition, IP Office Preferred Edition, IP Office Advanced Edition and Server Edition systems running IP Office Release 8.1 Q3 2012 Service Pack (8.1.52), IP Office Release 8.0 FP1 and higher only.
  - **Conference Server:** IP Office Video XT5000
  - **Conference Capacity:** 1 conference only of up to 9 parties.
  - **Conference Scheduling:** No
  - **Desktop and mobile access:** Yes - via Scopia XT Desktop Server
  - **External access (Firewall traversal):** Yes - via IP Office Video XT5000
  - **Point-to-point calls:** Yes.

The IP Office Video system is based on the same hardware as the Avaya Scopia XT5000. However, it run IP Office specific firmware and so cannot be used with telephone systems other than an IP Office.

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## 1.1 IP Office Video Components Overview

This page gives a quick overview of the different IP Office Video system components supported by IP Office Release 8.1 Q3 2012 Service Pack (8.1.52). It includes those items from the Avaya Scopia product range that are compatible with IP Office Video.

### Conference Servers

The central part of the video conference system is an Multipoint Conferencing Units (MCU). The MCU hosts the video conference.

- **IP Office Video XT5000**

For IP Office Video, one IP Office Video XT5000 (see Conference Room Video Systems below) is licensed to act as an MCU. There are two licensed MCU modes:

- **Scopia XT Series MCU Edition**

In this mode, the IP Office Video XT5000 acts as a video conferencing MCU hosting video conferences for H.323 and SIP video end points. You can choose a license for up to 4 or 9 participants.

- **Scopia XT Series SMB Edition**

In this mode, the IP Office Video XT5000 acts as a video conferencing MCU hosting video conferences for H.323 and SIP video end points and for Scopia XT Desktop Server clients. The license includes the software for a Scopia XT Desktop Server. You can choose a license for up to 4 or 9 participants.

### Conference Room Video Systems

IP Office supports the following conference room systems. Each consists of a main unit, high-quality remote controllable video camera and room microphone/speaker. Each also provides ports for connection of additional microphones, multiple monitor displays and PC connections for media sharing.

- **Scopia XT4200**

The Scopia XT4200 offers dual 720p/60fps live video and content, HD audio, H.264 High Profile, Scalable Video Coding (SVC) and optional iPad control.

- **IP Office Video XT5000**

The IP Office Video XT5000 offers dual 1080p/60fps live video and content, HD audio, H.264 High Profile, Scalable Video Coding (SVC) and iPad control. For IP Office Video deployments, one IP Office Video XT5000 is required to act as the conference server (see Conference Servers above).

### Video Applications

- **Scopia XT Desktop Server**

Scopia Desktop Server is a server application that lets users use the freely distributable Scopia PC Desktop or Scopia Mobile applications to participate in conferences. While internal users can use these applications, the Scopia Desktop Server supports NAT and firewall traversal, making it ideal for external parties to join a conference when required.

- **Scopia PC Desktop**

Scopia PC Desktop is a web browser plug-in that allows PC users to participate in conferences through their PC. The plug-in connects to the MCU via the Scopia XT Desktop Server or Scopia Desktop Server.

- **Scopia Mobile**

Scopia Mobile is an app that allows users to participate in conferences using their mobile devices. The plug-in connects to the MCU via the Scopia XT Desktop Server or Scopia Desktop Server.

- Scopia Mobile iOS allows iPad, iPhone and iPod Touch users to participate in conferences. Supported on IOS 4 and above.
- Scopia Mobile Android allows Android device users to participate in conferences. Supported on Android 2.3 and above.

## 1.2 IP Office Components Overview

### Supported IP Office Releases

The following IP Office release support IP Office Video:

- 8.1 Q3 2012 Service Pack (8.1.52) or IP Office Release 8.1 Feature Pack 1.

### Supported IP Office Platforms

The following IP Office platforms and operating modes support IP Office Video:

- **IP Office IP500 V2**  
Operating in *Essential Edition*, *Preferred Edition* or *Advanced Edition* mode.
- **IP Office Server Edition**

### Supported IP Office Telephones

The following IP Office extension telephones supported for IP Office Video:

- **Avaya 96x1 Series H.323 telephones**
- **Avaya 9500 Series digital telephones**
- **Avaya 1600 Series H.323 telephones**
- **Avaya 1408 and 1416 digital telephones**
- **Avaya B179 SIP conference telephone**
- **Avaya Flare** (*audio features only*)

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## 1.3 Known Interoperation Limitations

The following are the current known limitations for IP Office Video interoperation.

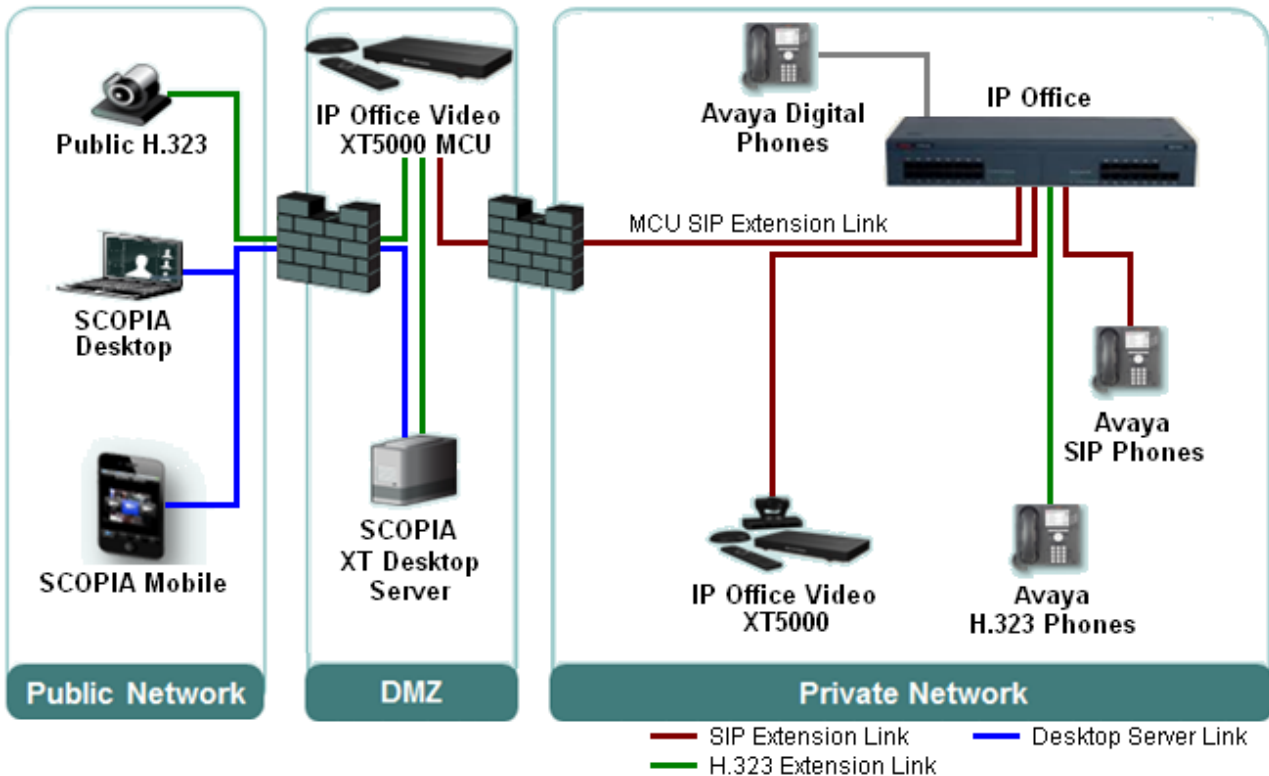
- Connections between IP Office end points and IP Office Video components must use **Direct Media**. This is currently not available for SIP trunks.
- IP Office does not support:
  - Short code feature dialing for IP Office Video video devices. That includes paging, call queue and call pickup short code features. The only exceptions are dial short code features.
  - Account codes and authorization codes for IP Office Video video devices.
  - Mid-call features, such as hold and transfer, from IP Office Video video devices.
  - IP Office Video video devices as IP Office hunt group members.
  - External video calls on SIP trunks.
- The Scopia XT Series units do not support:
  - When registered to the IP Office, the Content Sharing and Far End Camera Control features are not supported on SIP calls. They are supported on H.323 calls.
  - The G.729 audio codec is not supported with Scopia XT Series end points. Remove the codec from the IP Office configuration of those extensions.
- The IP Office Video Softphone is currently not supported as a video endpoint in IP Office Video video conferences.

# **Chapter 2.**

# **IP Office Video Deployment**

## 2. IP Office Video Deployment

One IP Office Video XT5000 unit is licensed to act as the conferencing server. It can do this for 4 or 9 conference parties in a single video conference.



- One IP Office Video XT5000 is licensed and configured for MCU operation using a **SCOPIA XT Series MCU Edition** or **SCOPIA XT Series SMB Edition** license. The license used enables either 4 or 9 parties in a video conference.
  - Placing the MCU mode IP Office Video XT5000 in the customer DMZ allows external H.323 video devices to access conferences without having to configure NAT and other firewall traversal for external devices into the customer's internal private network.
  - The MCU mode IP Office Video XT5000 is licensed and registered as a SIP extension on the IP Office system. Other IP Office users, incoming call routes and short code access the video conference by using the extension number assigned to the user created for the MCU mode IP Office Video XT5000.
- Any other Scopia XT Series systems on the customer's network registers with the IP Office as a SIP extension.
- The Scopia XT Desktop Server allows users using the Scopia PC Desktop on PCs and the Scopia Mobile application on mobile devices to join conferences. Placed in the customer's DMZ, the Scopia Desktop Server performs NAT and firewall functions for users if external to the customer's private network. This requires the **SCOPIA XT Series SMB Edition** license.

### Supported IP Office Telephones

The following IP Office extension telephones supported for IP Office Video:

- **Avaya 96x1 Series H.323 telephones**
- **Avaya 9500 Series digital telephones**
- **Avaya 1600 Series H.323 telephones**
- **Avaya 1408 and 1416 digital telephones**
- **Avaya B179 SIP conference telephone**
- **Avaya Flare** (*audio features only*)

## 2.1 Deployment Process

The following stages are gone through in the process of integrating the IP Office Video system. To allow calls between the IP Office and the MCU, the MCU registers as a SIP extension on the IP Office system. Calls to the conference then use the MCU's IP Office extension number.

For this example, we assume that the IP Office Video XT5000 MCU added to the IP Office configuration has the extension number 800. In addition, any other Scopia XT Series devices register with the IP Office system as a SIP extension.

1. [Check the prerequisites](#) <sup>[15]</sup>.
2. [Check or add the IP Office licenses](#) <sup>[16]</sup>.
3. [Check IP Office SIP extension support](#) <sup>[17]</sup>.
4. [Create an IP Office user](#) <sup>[18]</sup>.
5. [Create an IP Office SIP extension](#) <sup>[19]</sup>.
6. [Configure the Scopia XT Series SIP settings](#) <sup>[20]</sup>.

## 2.2 Prerequisites

### General Prerequisites

- This document assumes that you are familiar with using the applications in the IP Office Admin Suite (IP Office Manager, System Status Application, IP Office System Monitor) to configure and monitor an IP Office system.

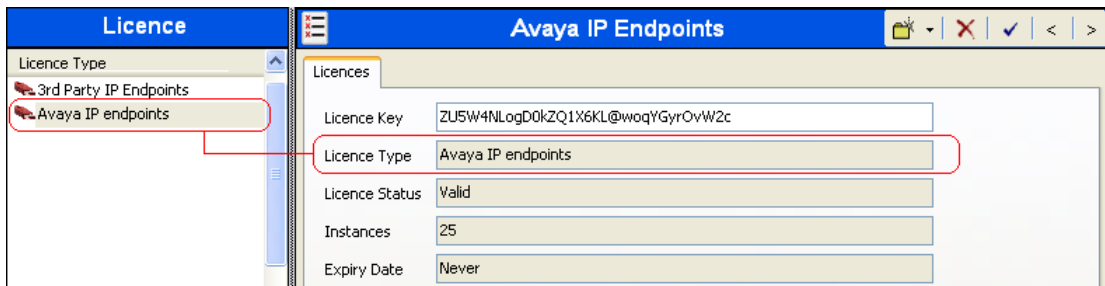
### IP Office Prerequisites

IP Office Video devices are supported on IP Office systems meeting the following prerequisites:

- **IP Office Platform:**  
IP500 V2 control unit or Server Edition.
- **IP Office Software Release:**  
The IP Office system should be running IP Office Release 8.1 Q3 2012 Service Pack (8.1.52) or higher core software.
- **IP Office Operating Mode:**  
The IP Office system must be configured to run in either IP Office Essential Edition, IP Office Preferred Edition, IP Office Advanced Edition or Server Edition operating mode.
- **VCM Resources:**  
Calls to and from IP devices (extension and trunks) require the IP Office system to support VCM channels. For IP Office IP500 V2 system those are provided by the installation of IP500 VCM cards or IP500 Combinations cards. Refer to the IP Office Installation Manual for full details.
- **IP Office Licenses:**  
The following IP Office licenses are used specifically for the deployment:
  - Each Scopia XT4200 and IP Office Video XT5000 device in the deployment is registered with the IP Office system as a SIP extension. To do this, each uses one instance of the **Avaya IP End Point** license.

## 2.3 Checking the IP Office Licenses

IP Office licenses are 32-character strings that are unique to the IP Office system. Each IP Office system has a **Dongle Serial Number** or **System Identification** which is used as the key used to validate whether a license is valid for the system.



The following IP Office licenses are used:

- Each Scopia XT4200 and IP Office Video XT5000 device in the deployment is registered with the IP Office system as a SIP extension. To do this, each uses one instance of the **Avaya IP End Point** license.

### To check the licenses

The System Status Application displays the status and usage of licenses. It can be used to display the status of licenses plus the number of licenses available and the number used.

1. Start System Status Application and login to the IP Office system.
2. Click on **Resources** in the left-hand navigation panel and select **Licenses**.
3. The information displayed details the status and usage of the licenses currently in the IP Office system's configuration.

### To adding a license


The following process is used to add a license to an IP Office system configuration.

1. Using IP Office Manager, receive the configuration from the system.

2. Select  **System**.

3. Select the System tab. The unique number used for license validation depends on the type of IP Office platform. For licenses to be valid they must have been issued against this number. The field **Dongle Serial Number** shows the serial number of the System SD card installed in the system.

4. Select  **License**.

- a. To add a license, click  and select **License**. Enter the new license and click **OK**. We recommend that add licenses by cut and pasting them from a supplied file listing each 32-character license keys. That avoids potential issues with mistyping.
- b. The **Status** of the new license should show **Unknown** and name the license as expected. If the name is **Invalid**, the most likely cause is incorrect entry of the license key characters.

5. Click on the  **Save Config** icon to send the configuration back to the IP Office.

6. Use IP Office Manager to receive the configuration again and check that the status of the license. It should now be **Valid**.



## 2.4 Checking the IP Office SIP Support

IP Office systems are by default configured to support SIP extensions on both their LAN1 and LAN2 interfaces. However, you should check the settings and be familiar with their location in the IP Office configuration.

### To check IP Office SIP registrar operation

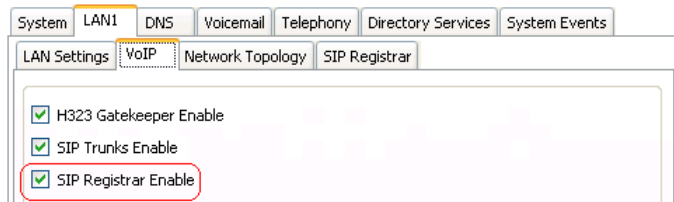
- **Note:** Changes to the LAN1 or LAN2 settings of an IP Office system will require the IP Office system to be rebooted.

1. Using IP Office Manager, receive the configuration from the system.

2. Select  **System**.

3. Select either the **LAN1** or **LAN2** tab as required.

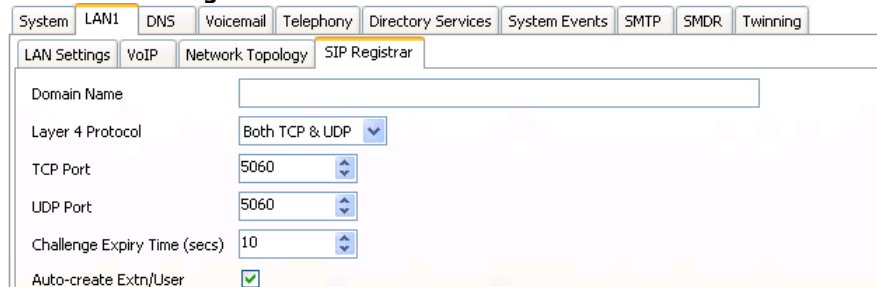
4. Select the **VoIP** sub-tab.



The screenshot shows the IP Office Manager configuration interface. The 'System' tab is selected, and the 'LAN1' sub-tab is active. Under the 'VoIP' sub-tab, the 'SIP Registrar Enable' checkbox is checked and highlighted with a red box. Other checked options include 'H323 Gatekeeper Enable' and 'SIP Trunks Enable'.

- Check that **SIP Registrar Enable** is selected.

5. Select the **SIP Registrar** sub-tab.



The screenshot shows the IP Office Manager configuration interface with the 'SIP Registrar' sub-tab selected. The settings are as follows:

|                              |                                     |
|------------------------------|-------------------------------------|
| Domain Name                  | <input type="text"/>                |
| Layer 4 Protocol             | Both TCP & UDP                      |
| TCP Port                     | 5060                                |
| UDP Port                     | 5060                                |
| Challenge Expiry Time (secs) | 10                                  |
| Auto-create Extn/User        | <input checked="" type="checkbox"/> |

- **Domain Name:** *Default = Blank*  
This is the local SIP registrar domain name that will be needed by SIP devices in order to register with the IP Office. If this field is left blank, registration is against the LAN IP address. The examples in this documentation all use registration against the LAN IP address.
- **Layer 4 Protocol:** *Default = Both TCP & UDP*  
The transport protocol for SIP traffic between the IP Office and SIP extension devices. Both TCP and/or UDP can be used.
- **TCP Port:** *Default = 5060*  
The SIP port if using TCP. The default is 5060.
- **UDP Port:** *Default = 5060*  
The SIP port if using UDP. The default is 5060.
- **Challenge Expiry Time (sec):** *Default = 10*  
The challenge expiry time is used during SIP extension registration. When a device registers, the IP Office SIP Registrar will send a challenge back to the device and waits for an appropriate response. If the response is not received within this timeout the registration is failed.
- **Auto-create Extn/User:** *Default = On*  
If this option is selected, the IP Office will automatically create user and SIP extension entries in its configuration based on SIP extension registration. If this method is being used for installation, it is important to check that the settings created match the SIP device. It is also important to deselect this option after installation of the SIP extension devices.

6. If you have made any changes, click the  **Save Config** icon to send the configuration back to the IP Office.


## 2.5 Creating IP Office Users

Create an IP Office user and an IP Office SIP extension entry in the IP Office configuration for each Scopia XT Series device, including the one acting as the MCU.

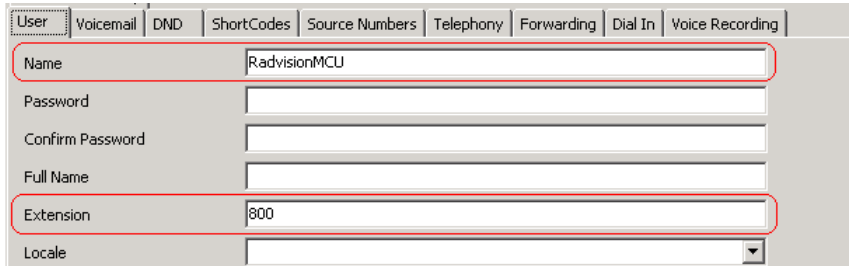
### To add an extension user

1. Using IP Office Manager, receive the configuration from the system.

2. Select  **User**.

3. Click on the  new entry icon and select **User**.

4. Select the **User** tab.



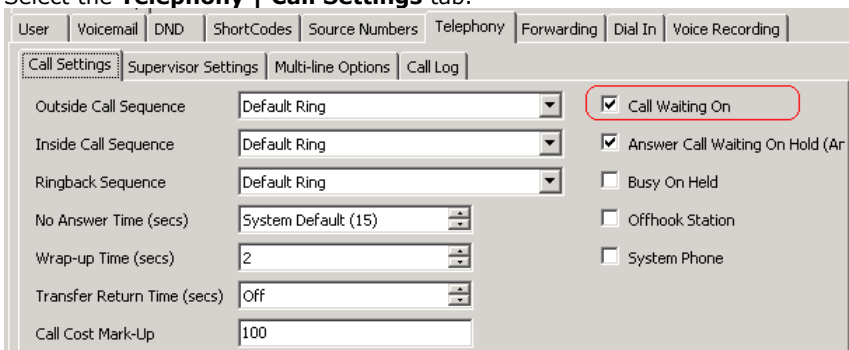
- **Name**

Set a name that clearly identifies the role of this user in the IP Office configuration. With the IP Office SIP extension set to **Force Authorization** (the IP Office default and assumed for this example), this field is used as the authorization name that must be set in the SIP device's configuration. This matches the **Authorization Name** set in the Scopia XT Series device's configuration.

- **Extension**

This is the IP Office extension number for calls to the Scopia XT Series device. This should match the SIP ID of the SIP device, which is set through the **User** field of the device's SIP configuration.

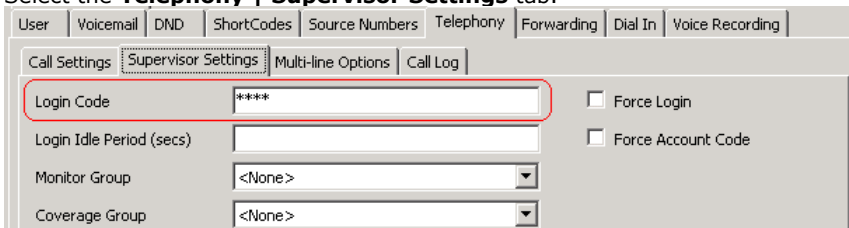
5. Select the **Telephony | Call Settings** tab.



- **Call Waiting On**

Enable this setting. This allows the Scopia XT Series device to handle multiple calls.

6. Select the **Telephony | Supervisor Settings** tab.




- **Login Code**

With the SIP extension set to **Force Authorization** (the default); this field acts as the authorization password that must be set in the SIP device's configuration. This matches the **Authorization Password** set in the Scopia XT Series device's configuration.

7. Click **OK**.

8. IP Office Manager prompts whether you want to create a VoIP extension for the new user. Select **SIP Extension** and click **OK**.

9. Click the  **Save Config** to save the configuration changes.

10. You now need to configure the matching IP Office extension for the MCU user.


## 2.6 Creating IP Office SIP Extensions

Create an IP Office user and an IP Office SIP extension entry in the IP Office configuration for each Scopia XT Series device including the one acting as the MCU.

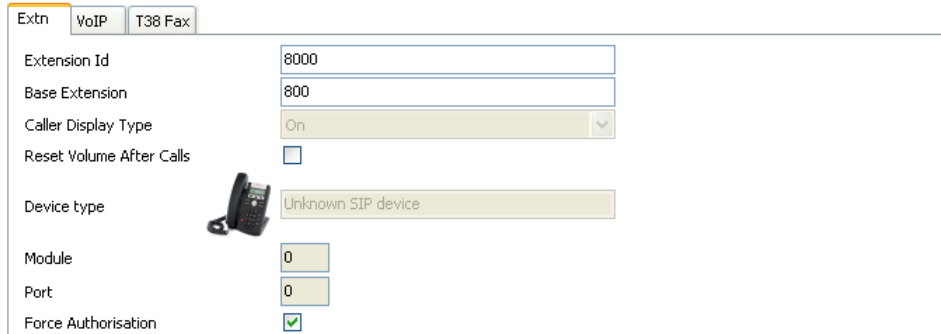
### To adding a SIP extension

1. Using IP Office Manager, receive the configuration from the system.

2. Select  **Extension**.

3. If you selected to have a SIP extension automatically created after creating the IP Office user, locate and click on that extension entry. Otherwise, to manually create a new extension, click on the  new entry icon and select **SIP Extension** from the list of possible extension types.

4. Select the **Extn** tab.



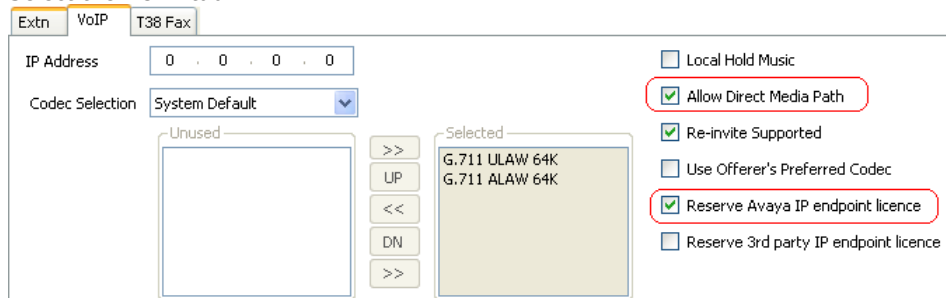
- **Base Extension**

This is used to match the extension to which IP Office user entry that is the default user of the extension. Enter the extension number created for the IP Office user.

- **Force Authorization:** *Default = On*

Leave this setting enabled. When on, SIP devices registering with the IP Office must match the **Name** and **Login Code** configured for the user within the IP Office configuration. These are equivalent to the **Authorization Name** and **Authorization Password** set in the Scopia XT Series device's configuration.

5. Select the **VoIP** tab.



- **Codec Selection**

Do not use the G.729 audio codec with Scopia XT Series extensions. If shown in the **Selected** codecs list, change the **Codec Selection** to **Custom** and move the G.729 codec to the **Unused** list.


- **Allow Direct Media Path**

Enable this setting. Enabling it helps ensure that once a video call is established between the extension and the MCU, the video traffic can be routed directly between the two ends rather than having to be routed via the IP Office system.

- **Reserve Avaya IP Endpoint License**

Enable this setting. Each Scopia XT Series needs to use an Avaya IP End Point to register with the IP Office system. Normally, following a system restart, the system issues any available licenses to devices in the order that they register with the system. Selecting this option licenses the extension before the device has registered. IP Office Manager greys out the option if there are insufficient licenses available in the configuration.

6. Click **OK**.

7. Repeat the processes of adding an IP Office user and a SIP extension for any other Click the  **Save Config** icon to save the configuration changes to the IP Office.

## 2.7 Configuring the Scopia XT Series SIP Connection

Make the following changes to the configuration of the Scopia XT Series device to register it with the IP Office as a SIP extension. The settings used match those configured for the SIP user and SIP extension it should use in the IP Office system's configuration.

### To configure the MCU SIP settings

1. Using a web browser, log in to the configuration menus of the Scopia XT Series.
2. Select **Administrator Settings**.
3. Select **Protocols** and click on **SIP**.

The screenshot displays the Scopia XT Series web interface. At the top, there is a search bar and navigation options for 'English' and 'Logout'. Below this, a menu bar includes 'Home', 'Make your Call', 'Administrator Settings', 'Basic Settings', and 'Diagnostics'. The user's current status is shown as 'XT5000-dave' with 'Mute : Off', 'Privacy : Off', and 'Do not Disturb : Off'. On the left, a sidebar menu is expanded to show 'SIP' settings, including 'H.323', 'General', 'Gatekeeper', 'ISDN', and 'Utilities'. The main configuration area for 'SIP' contains the following fields:

|                         |               |
|-------------------------|---------------|
| User                    | 800           |
| Authentication Name     | RadvisionMCU  |
| Authentication Password | ••••          |
| Listening Port          | 5060          |
| Transport Outbound Call | UDP           |
| Use SIP Registrar       | Yes           |
| Registrar DNS Name      | 135.20.218.10 |
| Use SIP Proxy           | Yes           |
| Proxy DNS Name          | 135.20.218.10 |
| Proxy Model             | Auto          |

4. Change the SIP settings as follows:
  - a. **User:** Set this to match the extension number of the IP Office user configured on the IP Office system.
  - b. **Authentication Name:** Set this to match the **Name** set on the matching IP Office user.
  - c. **Authentication Password:** Set this to match the **Login Code** set on the matching IP Office user.
  - d. **Listening Port:** Set this to match the IP Office system setting. The default is 5060.
  - e. **Transport Outbound Call:** Set this to **UDP**.
  - f. **Use SIP Registrar:** Set this to **Yes**.
  - g. **Registrar DNS Name:** Set this to the IP Office system's IP address or fully qualified domain name.
  - h. **Use SIP Proxy:** Set this to **Yes**.
  - i. **Proxy DNS Name:** Set this to the IP Office system's IP address or fully qualified domain name.
  - j. **Proxy Model:** Leave this set to **Auto**.
5. Click **Save**.

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