IP Office 9.1

Avaya Radvision Installation Notes

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Chapter 1.
Overview

1. Overview

This document provides notes for the interoperation of Avaya Radvision video conferencing with Avaya IP Office systems.

- Avaya Radvision products are supported with IP Office Essential Edition, IP Office Preferred Edition, IP Office Advanced Edition or 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.
- IP Office to Avaya Radvision interoperation is supported with Avaya Radvision components running Avaya Radvision Release 7.7 software and higher.

This document covers the following scenarios:

- **Small Enterprise Deployment** 13
  This scenario uses a Scopia XT5000 as the video conferencing server (MCU) for up to 9 video conference users at any time in a single conference. Those users can be H.323 and SIP video devices and applications hosted by a Scopia XT Desktop Server.
- **Large Enterprise Deployment** 14
  This scenario uses a Avaya Radvision Elite MCU (Scopia XT4200 or Scopia XT5000) as the video conferencing server.

	Small Enterprise Deployment	Large Enterprise Deployment
Conference Server (MCU)	Scopia XT5000	Elite Series MCU
Conference Capacity	1 conference only of up to 9 parties	Unlimited - according to the MCU capacity.
Conference Scheduling	No	Yes
Desktop and mobile access	Yes - via Scopia XT Desktop Server	Yes - via Scopia Desktop Server
External access (Firewall traversal)	Yes - via Scopia XT5000	Yes - via Scopia PathFinder Server
Point-to-point calls	Yes	Yes

Installer/Maintainer Knowledge

- 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.
- This document does not cover the configuration of the Avaya Radvision systems in detail. The separate Avaya Radvision documentation for the Avaya Radvision components used in the deployment cover that configuration. Avaya assume that you are either familiar with the installation and configuration of those components or supported by an experienced Avaya Radvision installer/maintainer.

1.1 Avaya Radvision Components Overview

This page gives a quick overview of the different Avaya Radvision system components supported by IP Office Release 8.1 Q3 2012 Service Pack (8.1.52). For full details of each component, refer to the relevant Avaya Radvision manual.

- IP Office to Avaya Radvision interoperation is supported with Avaya Radvision components running Avaya Radvision Release 7.7 software and higher.

Conference Servers

The central part of the video conference system is an Multipoint Conferencing Units (MCU). The MCU hosts the video conference. The MCUs supported for use with IP Office are:

- **Elite Series Conference Servers**
  These MCUs support H.323 and SIP video devices, either directly or, for external devices, via a Scopia PathFinder Server . They also support users accessing video conferences using applications on their PC or mobile who connect via a Scopia Desktop Server. The different models of MCU support different video conferencing capacities and can be expanded in capacity by the addition of licenses to their configuration. Elite MCU series supported with IP Office are:
  - **Elite 5000 MCU Series**
    Supported with Avaya Radvision Release 7.7 and higher and IP Office Release 8.1 Q3 2012 Service Pack (8.1.52) and IP Office Release 8.1 Feature Pack 1.
  - **Elite 6000 MCU Series**
    Supported with Avaya Radvision Release 8.0 and IP Office Release 8.1 Q3 2012 Service Pack (8.1.52).
- **Scopia XT5000**
  For small enterprise deployments, one Scopia XT5000 unit (see Conference Room Video Systems below) is put into MCU mode through the addition of licenses. There are two licensed MCU modes:
  - **Scopia XT Series MCU Edition**
    In this mode, the Scopia 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 Scopia 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.
- **Scopia XT5000**
  The Scopia XT5000 offers dual 1080p/60fps live video and content, HD audio, H.264 High Profile, Scalable Video Coding (SVC) and iPad control. For small enterprise deployments, a Scopia XT5000 is required to act as the conference server (see Conference Servers above).

Video Applications

- **Scopia XT Desktop Server/Scopia 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. The small enterprise deployment uses the Scopia XT Desktop Server; the large enterprise deployment uses the Scopia Desktop Server.
  - **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.

Personal Video Systems

IP Office supports the following high quality video system in a large enterprise deployment:

- **Scopia VC240**
  The Scopia VC240 is a high-resolution desktop monitor with integrated HD videoconferencing camera and microphone. The Scopia VC240 can operate as a standalone desktop HD videoconferencing device or as a 24-inch high-resolution monitor and camera in conjunction with a PC. The Scopia VC240 registers with the Avaya Radvision system as a SIP or H.323 device. It does not register to the IP Office system as an IP Office extension.

Additional Components

For the large enterprise deployment scenario, the following additional components are used:

- **iView Management**
  This application provides a single interface through which all other Avaya Radvision components can be monitored, administered and configured. It can remotely configure the other components including performing software and firmware upgrades. It also provides conference monitoring and scheduling facilities.
- **Scopia PathFinder Server**
  The Scopia PathFinder Server provides firewall and NAT traversal for external H.323 devices. This allows external H.323 video devices to join video conferences hosted in the customer's private network whilst retaining network security. The Scopia PathFinder Server works in conjunction with a Scopia Elite Series MCU.

1.2 IP Office Components Overview

Supported IP Office Releases

The following IP Office releases support IP Office to Avaya Radvision interoperation:

- **Small Enterprise Deployment:** 8.1 Q3 2012 Service Pack (8.1.52) or IP Office Release 8.1 Feature Pack 1.
- **Large Enterprise Deployment:** 8.1 Q3 2012 Service Pack (8.1.52).

Supported IP Office Platforms

The following IP Office platforms and operating modes support Avaya Radvision:

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

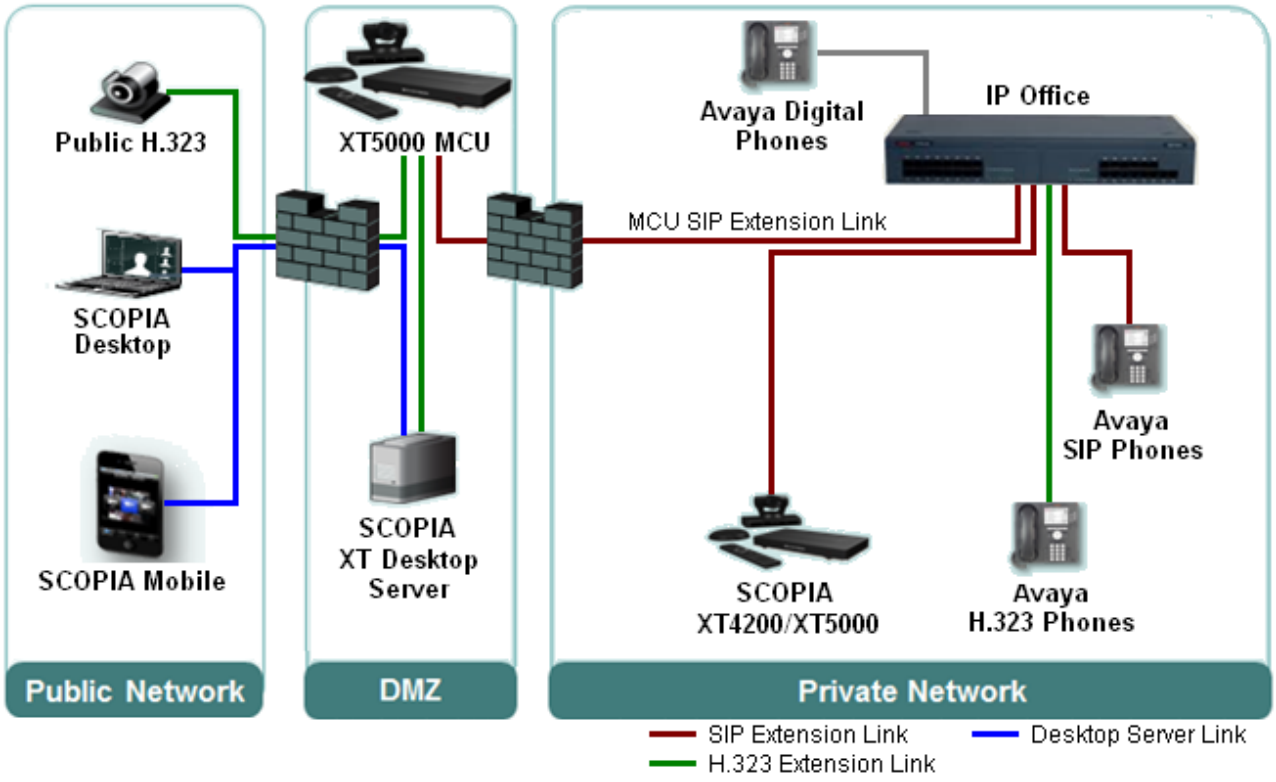
Supported IP Office Telephones

The following IP Office extension telephones supported for Avaya Radvision:

- **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 Communicator** *(audio features only)*
  Not supported in large enterprise deployments.

1.3 Small Enterprise Deployment

For customers with simple small-scale video conferencing needs, the small enterprise deployment uses a Scopia XT5000 unit licensed to act as the conferencing server. It can do this for 4 or 9 conference parties in a single video conference.



- One Scopia 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 Scopia 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 Scopia 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 Scopia 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.

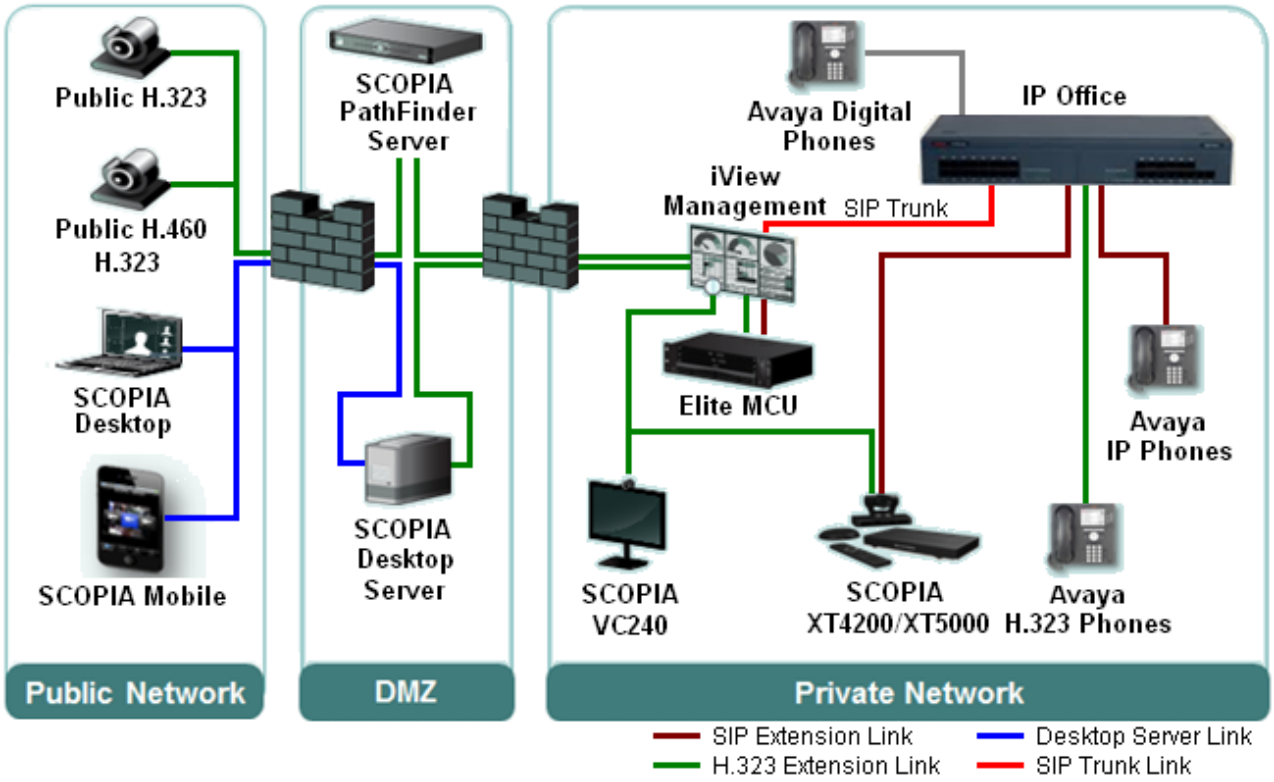
Supported IP Office Telephones

The following IP Office extension telephones supported for Avaya Radvision:

- **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 Communicator** *(audio features only)*

1.4 Large Enterprise Deployment

For customers with requirements for large scale and multiple conferences, an Elite series MCU is required (or in fact multiple Elite series MCUs). Each Elite Series MCU supports multiple conference parties in multiple conferences.



- The customer's private network includes the Elite MCU or MCUs.
- Installed on a customer server, iView Management provides centralized management of all the Avaya Radvision components and conferences including conference scheduling.
  - A SIP trunk links the IP Office system to the iView Management server.
  - The Avaya Radvision video devices on the customer's network connect to the iView Management server.
- The Scopia 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 external to the customer's private network.
- The Scopia PathFinder Server in the customer's DMZ provides NAT and firewall traversal for external H.323 video devices to join conferences whilst maintaining security of the customer network.
- In this deployment, Scopia VC240 video systems register with the Avaya Radvision system as their gatekeeper. Scopia XT4200 and Scopia XT5000 video systems register with both the IP Office and the Avaya Radvision system.

Supported IP Office Telephones

The following IP Office extension telephones supported for Avaya Radvision:

- **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**

1.5 Known Interoperation Limitations

The following are the current known limitations for Avaya Radvision interoperation.

- Connections between IP Office end points and Avaya Radvision components must use **Direct Media**.
- IP Office does not support:
  - Short code feature dialing for Avaya Radvision 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 Avaya Radvision video devices.
  - Mid-call features, such as hold and transfer, from Avaya Radvision video devices.
  - Avaya Radvision video devices as IP Office hunt group members.
- 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 Avaya Radvision video conferences.
- The use of Avaya Communicator with an Elite Series MCU and therefore in a large enterprise deployment is not support.

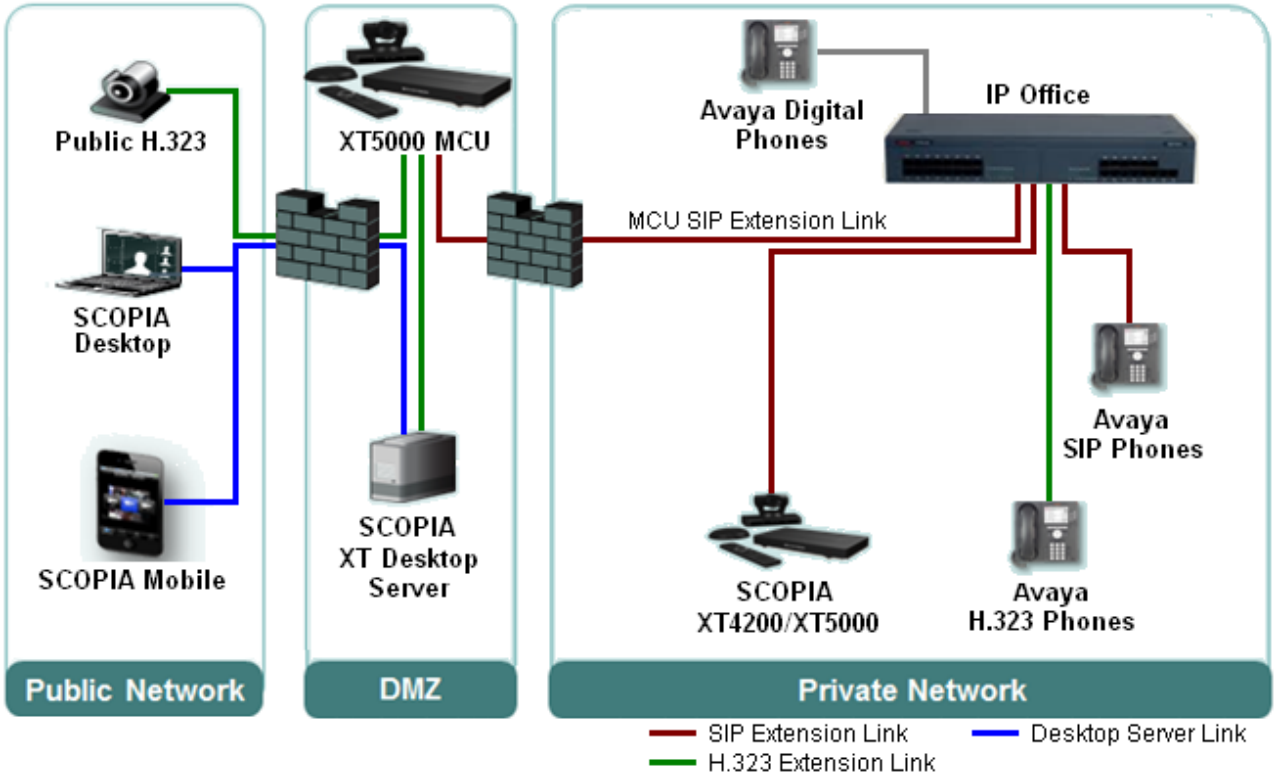
For IP Office Release 9.0, the following previous restrictions have now been removed:

- **BFCP Support**
  XT5000 DVI video port can be used to send a video stream for content sharing controlled by remote (called Binary Floor Control Protocol (BFCP)). In presentation mode, the DVI video stream has priority. That is, if the device can show both it shows both, if it can only show one is shows the content sharing stream.
- **SIP Trunks**
  Incoming video calls on SIP trunks are supported so long as the trunk uses Direct Media.

Chapter 2.
Small Enterprise Deployment

2. Small Enterprise Deployment

For customers with simple small-scale video conferencing needs, the small enterprise deployment uses a Scopia XT5000 unit licensed to act as the conferencing server. It can do this for 4 or 9 conference parties in a single video conference.



- One Scopia 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 Scopia 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 Scopia 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 Scopia 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 Avaya Radvision:

- **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 Communicator** *(audio features only)*

2.1 IP Office Deployment Process

The following stages are gone through in the process of integrating the Avaya Radvision 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 its IP Office extension number.

For this example, we assume that the Scopia 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 19.
2. Check or add the IP Office licenses 20.
3. Check IP Office SIP extension support 21.
4. Create an IP Office user 22.
5. Create an IP Office SIP extension 23.
6. Configure the Scopia XT Series SIP settings 25.

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.
- This document does not cover the configuration of the Avaya Radvision systems in detail. The separate Avaya Radvision documentation for the Avaya Radvision components used in the deployment cover that configuration. Avaya assume that you are either familiar with the installation and configuration of those components or supported by an experienced Avaya Radvision installer/maintainer.

IP Office Prerequisites

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

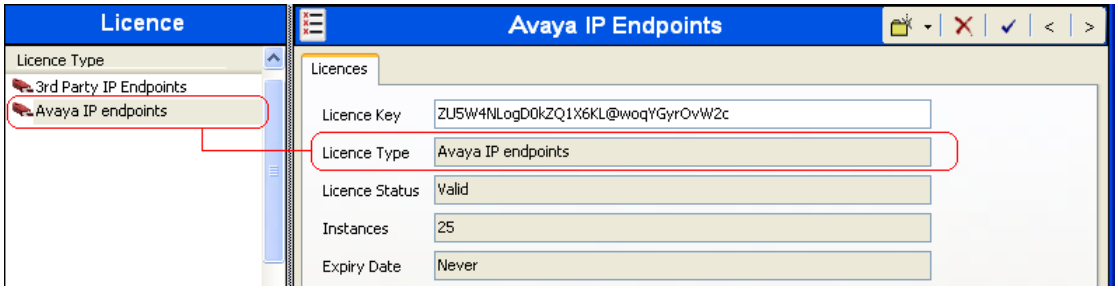
- **IP Office Platform:**
  IP Office IP500 V2 or <MIDSIZE%>.
- **IP Office Software Release:**
  The IP Office system should be running IP Office Release 8.1 Q3 2012 Service Pack (8.1.52) or IP Office Release 8.1 Feature Pack 1 or higher core software.
- **IP Office Operating Mode:**
  The IP Office system must be configured to run in either IP Office Essential Edition, IP Office Preferred Edition, IP Office Advanced Edition or Server Edition 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 Scopia 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.

Avaya Radvision Prerequisites

- IP Office to Avaya Radvision interoperation is supported with Avaya Radvision components running Avaya Radvision Release 7.7 software and higher.
- The Scopia XT5000 in the customer's DMZ requires an Avaya Radvision **SCOPIA XT Series SMB Edition** license or **SCOPIA XT Series MCU Edition** license for either 4 or 9 conference parties.
- A Scopia XT Desktop Server is required for support of **Scopia PC Desktop** and **Scopia Mobile** users.

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 Scopia 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.

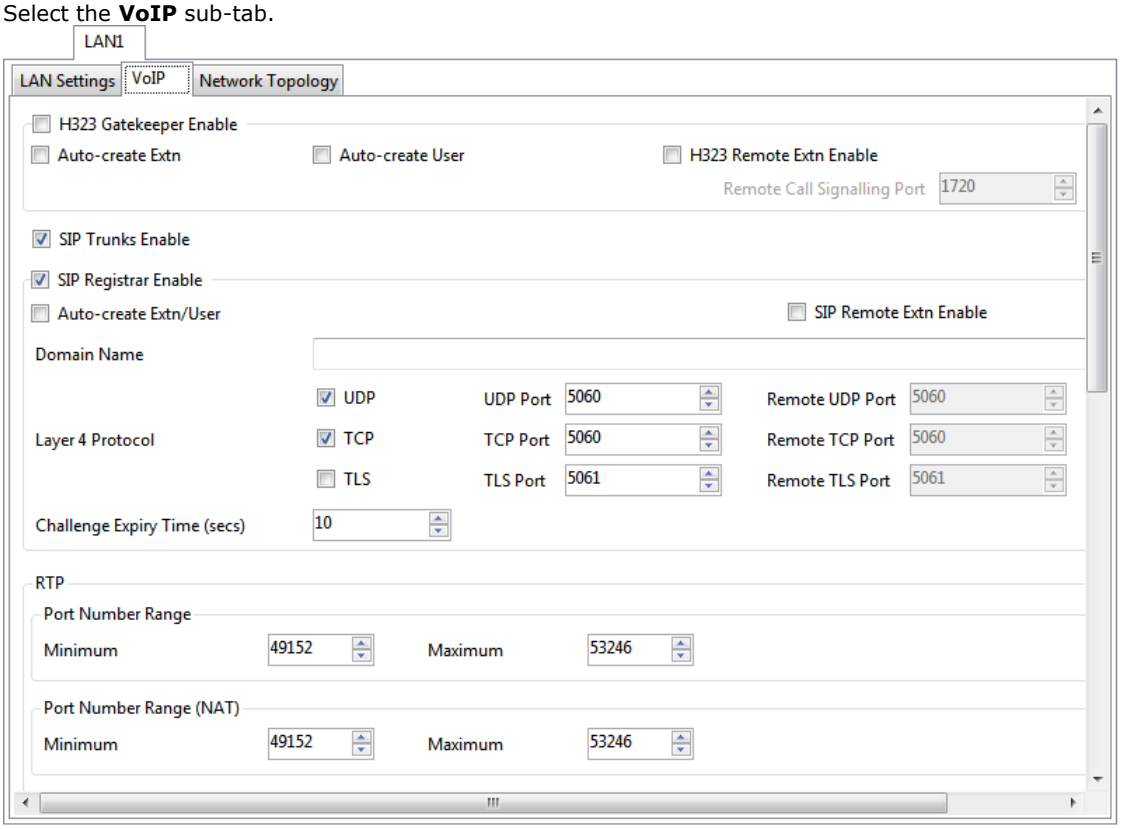
2.4 Checking IP Office SIP Support

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.



- Check that **SIP Registrar Enable** is selected. For a large enterprise deployment, check also that **SIP Trunks Enable** is also selected.
- **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.
- **TLS Port:** *Default = 5061*
  The SIP port if using TLS. The default is 5061.
- **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.

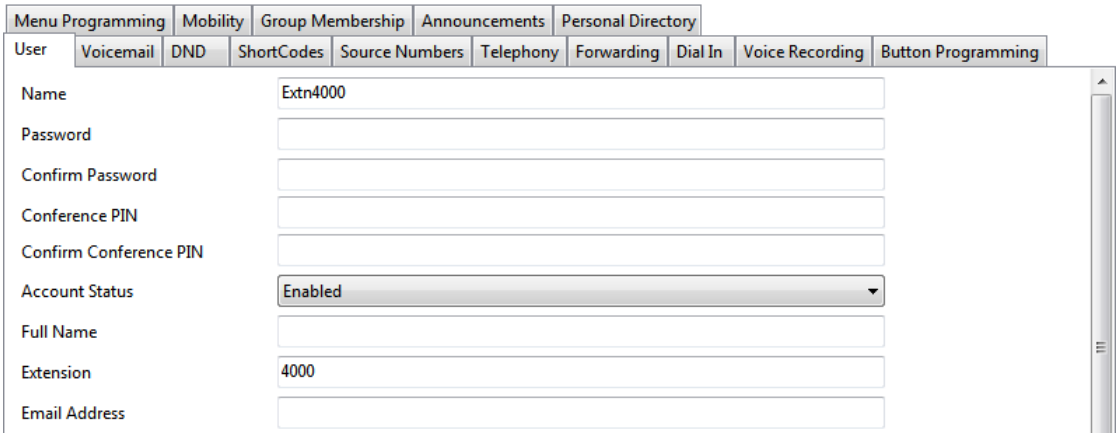
5. If you have made any changes, click the **Save Config** icon to send the configuration back to the IP Office.

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

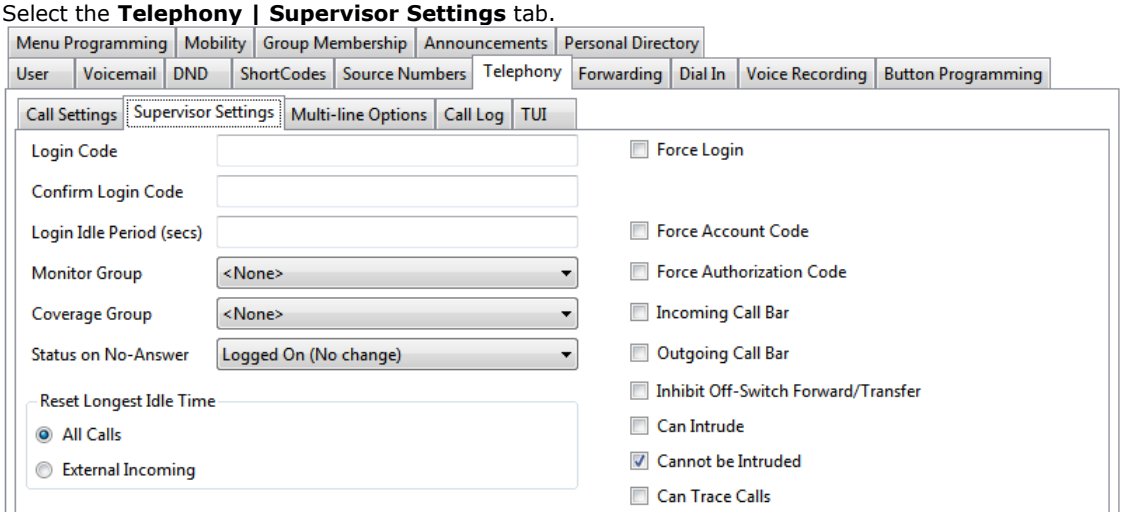
1. Using IP Office Manager, receive the configuration from the system.
2. Select **User**.
3. Click on the new entry icon and select ***User***.
4. Select the **User** tab.



- **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 | 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.

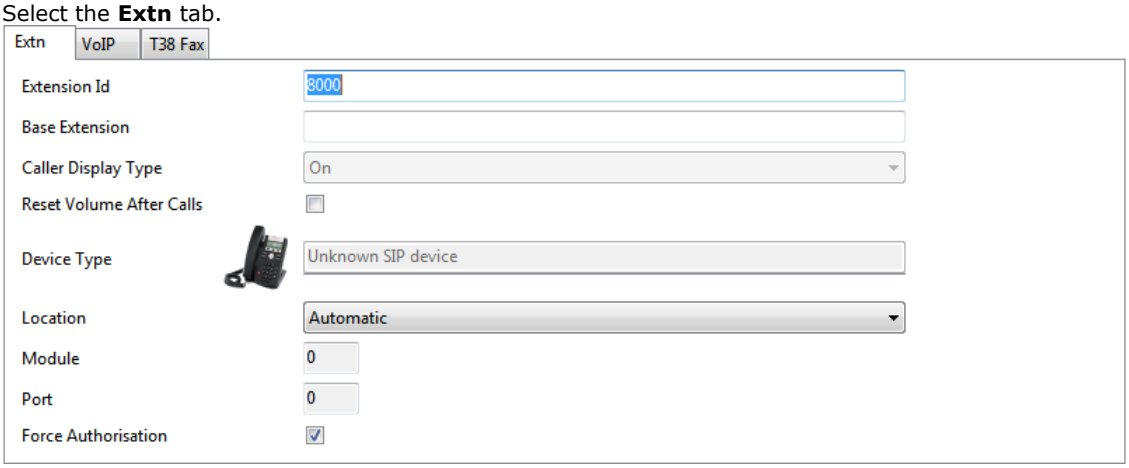
6. Click **OK**.
7. IP Office Manager prompts whether you want to create a VoIP extension for the new user. Select ***SIP Extension*** and click **OK**.
8. Click the **Save Config** to save the configuration changes.
9. You now need to configure the matching IP Office extension for the MCU user.

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.

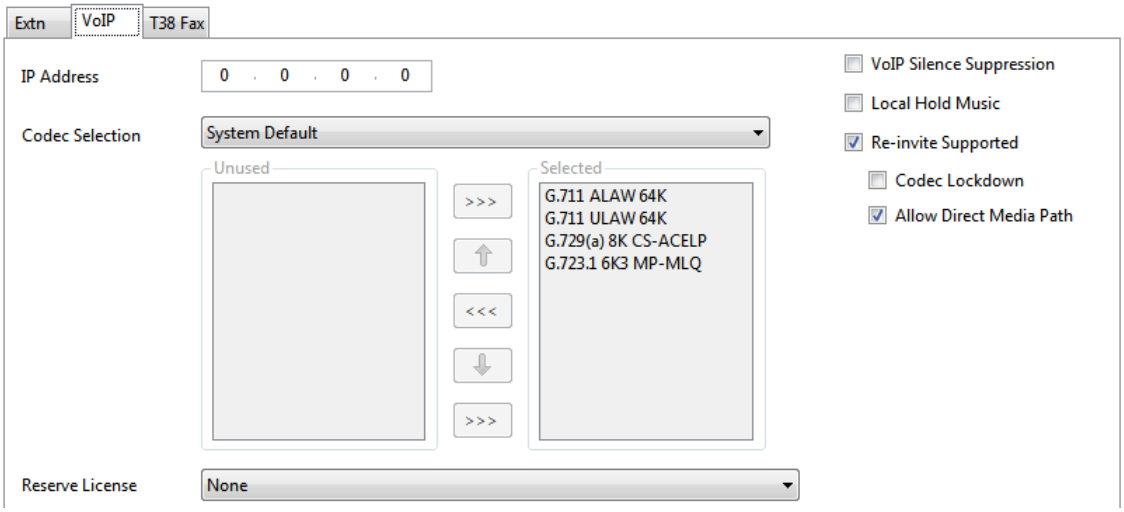
To adding a SIP extension

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.
- **Re-invite Supported/Allow Direct Media Path**
  Enable these settings. Enabling them 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 License**
  Set this field to **Avaya IP Endpoint**. 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**.

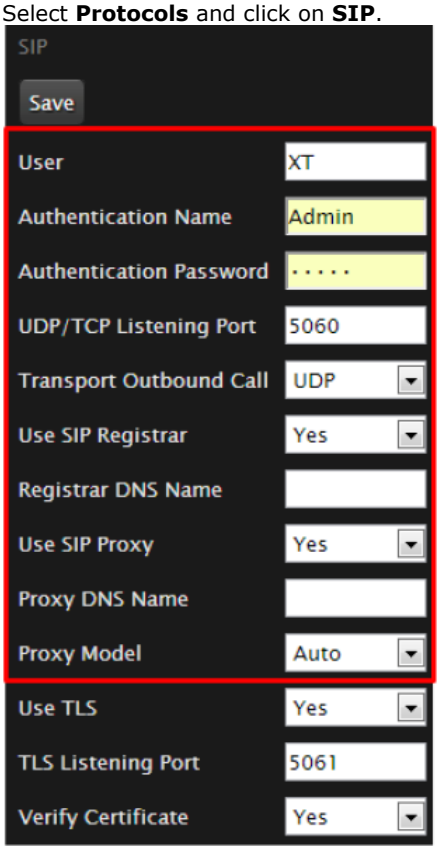
7. Repeat the processes of adding an IP Office user and a SIP extension for any other Click the **Save Config** icon to save the configuration changes to the IP Office.

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. Refer to the Avaya Radvision manuals for full details.
2. Select **Administrator Settings**.
3. Select **Protocols** and click on **SIP**.

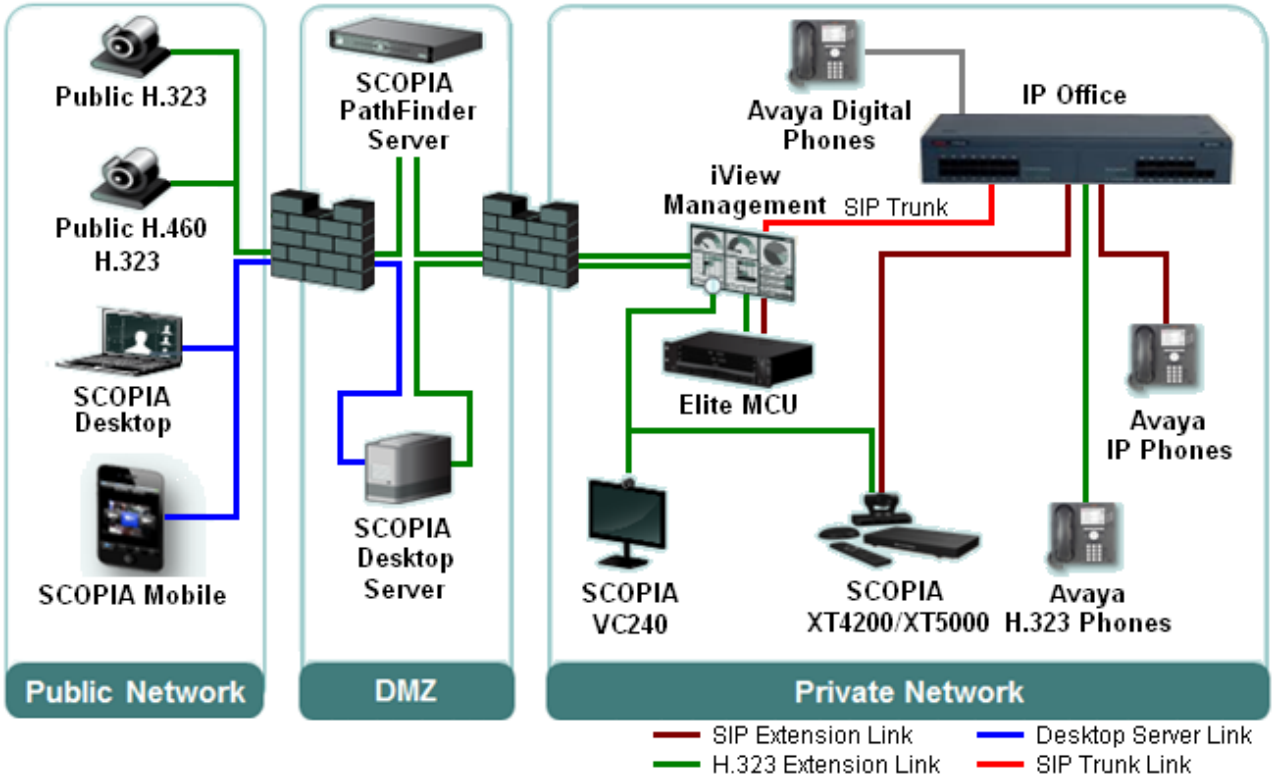


4. Change the SIP settings as follows:
   a. **User:** Set this to match the extension number of the IP Office user configured on the IP Office system.
   b. **Authentication Name:** Set this to match the **Name** set on the matching IP Office user.
   c. **Authentication Password:** Set this to match the **Login Code** set on the matching IP Office user.
   d. **UDP/TCP 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***.
   k. **Use TLS:** Set this to ***No***. If you want to use secure SIP connections using TLS certificates refer to the Scopia XT5000 Server for IP Office Administrator Guide.
5. Click **Save**.

Chapter 3.
Large Enterprise Deployment

3. Large Enterprise Deployment

For customers with requirements for large scale and multiple conferences, an Elite series MCU is required (or in fact multiple Elite series MCUs). Each Elite Series MCU supports multiple conference parties in multiple conferences.



- The customer's private network includes the Elite MCU or MCUs.
- Installed on a customer server, iView Management provides centralized management of all the Avaya Radvision components and conferences including conference scheduling.
  - A SIP trunk links the IP Office system to the iView Management server.
  - The Avaya Radvision video devices on the customer's network connect to the iView Management server.
- The Scopia 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 external to the customer's private network.
- The Scopia PathFinder Server in the customer's DMZ provides NAT and firewall traversal for external H.323 video devices to join conferences whilst maintaining security of the customer network.
- In this deployment, Scopia VC240 video systems register with the Avaya Radvision system as their gatekeeper. Scopia XT4200 and Scopia XT5000 video systems register with both the IP Office and the Avaya Radvision system.

Supported IP Office Telephones

The following IP Office extension telephones supported for Avaya Radvision:

- **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**

3.1 IP Office Deployment Process

The following stages are gone through in the process of integrating the IP Office and Avaya Radvision systems.

1. Check the prerequisites 29.
2. Check or add the IP Office licenses 30.
3. Check SIP support 31.
4. Add the SIP trunk 33.
5. Add a system short code to route calls 36.
6. For any Scopia XT4200 and Scopia XT5000 devices:
   a. Create an IP Office user 38.
   b. Create an IP Office extension 39.
   c. Configure the Scopia XT Series SIP settings 41.

3.2 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.
- This document does not cover the configuration of the Avaya Radvision systems in detail. The separate Avaya Radvision documentation for the Avaya Radvision components used in the deployment cover that configuration. Avaya assume that you are either familiar with the installation and configuration of those components or supported by an experienced Avaya Radvision installer/maintainer.

IP Office Prerequisites

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

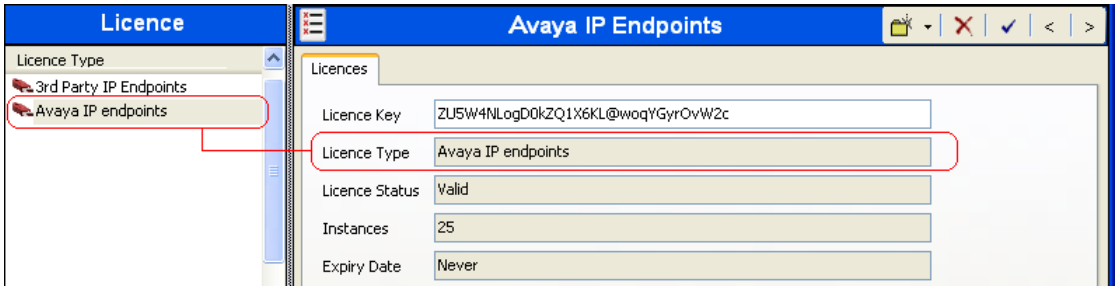
- **IP Office Platform:**
  IP500 V2 or Server Edition system.
- **IP Office Software Release:**
  The IP Office system should be running IP Office Release 8.1 Q3 2012 Service Pack (8.1.52) or higher core software.
- **IP Office Operating Mode:**
  The IP Office system must be configured to run in either 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. For Server Edition systems, VCM channels are provided without requiring any specific hardware or license.
- **IP Office Licenses:**
  The following IP Office licenses are used specifically for the deployment:
  - The SIP trunk between the IP Office system and the iView Management server requires an IP Office **SIP Trunk Channels** license.

Avaya Radvision Prerequisites

- IP Office to Avaya Radvision interoperation is supported with Avaya Radvision components running Avaya Radvision Release 7.7 software and higher.

3.3 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:

- The SIP trunk between the IP Office system and the iView Management server requires an IP Office **SIP Trunk Channels** license.
- Each Scopia XT4200 and Scopia 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.

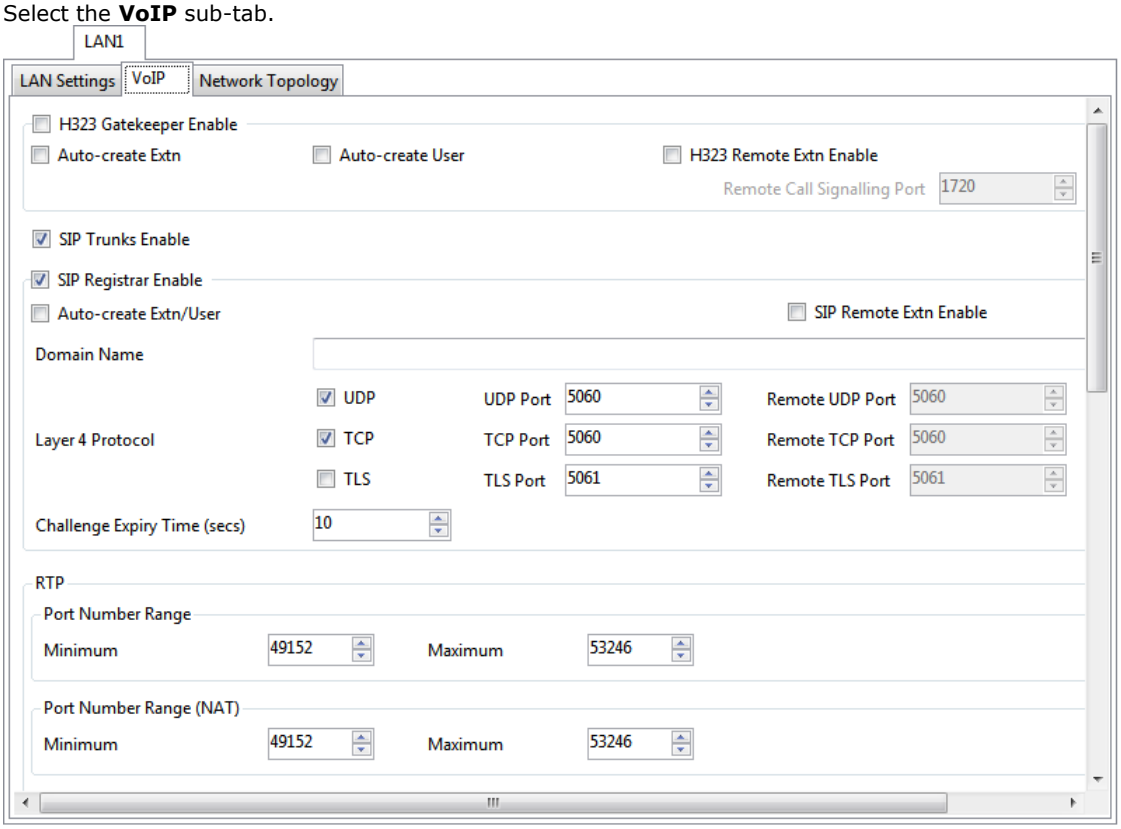
3.4 Checking IP Office SIP Support

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.



- Check that **SIP Registrar Enable** is selected. For a large enterprise deployment, check also that **SIP Trunks Enable** is also selected.
- **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.
- **TLS Port:** *Default = 5061*
  The SIP port if using TLS. The default is 5061.
- **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.

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

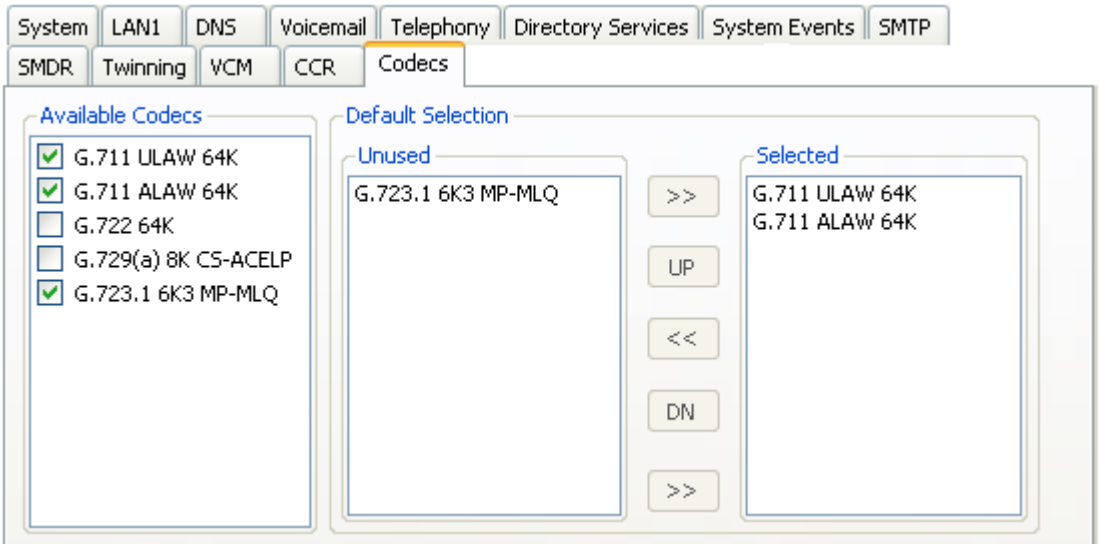
3.5 System Default Codecs

By default, all IP extensions and lines added to an IP Office system's configuration use that system's default codec preferences. This is shown by the **Codec Selection** settings the individual trunk or extension being set to ***System Default***. Using this setting simplifies configuration and ensure consistent operation. However, if necessary, the individual codec preferences for a particular extension or line can be adjusted.

The IP Office supports G.711, G.729a, G.723 and G.722. However, G.722 is not supported if the system contains any IP400 VCM cards. Avaya Radvision systems do not support G.723 and only support G.729 if additional licenses for the codec are added to the Avaya Radvision system configuration.

To check and changing the default system codec preferences

1. Using IP Office Manager, receive the configuration from the system.
2. Select **System**.
3. Select the **Codecs** sub-tab.



4. The **Available Codecs** list shows which codecs the system supports. The codecs in this list which enabled are those that can be used in other configuration forms including the adjacent default selection.

   - **! WARNING**
     Deselecting a codec from the **Available Codecs** list will automatically remove that codec from any line or extension codec lists which have been edited to use that codec. Reselecting that codec with not automatically add the codec back to those lists.

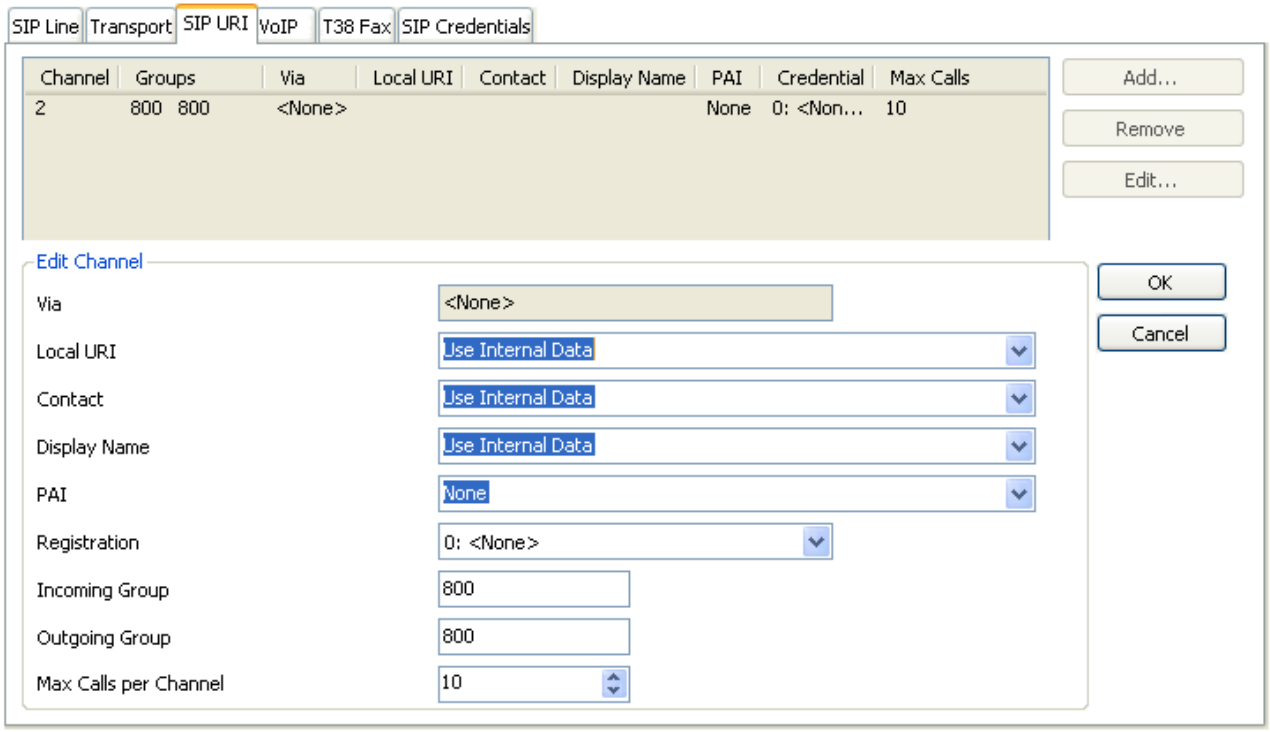
5. The **Default Selection** section is used to set the default codec preference order. This is used by all IP extensions and lines on the system that have their **Codec Selection** setting set to ***System Default***. This is the default for all new added IP extension and lines.
6. If these settings need to be changed, do so and then save the configuration back to the system.

3.6 Adding the SIP Trunk

The IP Office uses a SIP trunk to connect with the iView Management server. This trunk is used to route calls from the IP Office system to the Avaya Radvision video conferencing system.

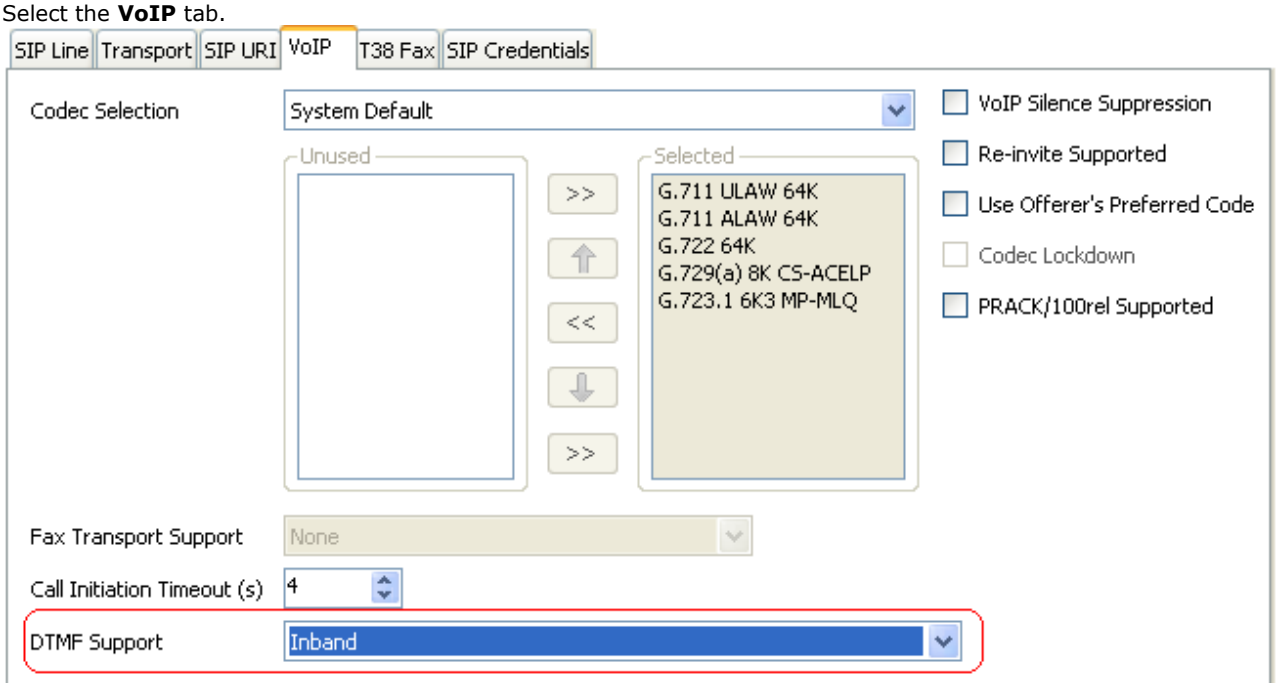
To add a SIP trunk to the IP Office

1. Using IP Office Manager, receive the configuration from the system.
2. Select **Line**.
3. Click on the new entry icon and select ***SIP Line***.
4. Select the **SIP Line** tab.
   - **ITSP Domain Name**
     Set this to the IP address or the fully qualified domain name of the iView Management server.
5. Select the **SIP URI** tab. At least one URI is required.



   a. Click **Add**.
   b. Enter a unique line group number in the **Incoming Group** field. This can then be used to setup specific incoming call routing for calls the IP Office receives that are matched to this URI. For this example we used ***800***.
   c. Enter a unique line group number in the **Outgoing Group** field. This can then be used as the destination for outgoing calls in IP Office short codes 36. For this example we used ***800***.
   d. Click **OK**.

6. Select the **VoIP** tab.



   a. Change the **DTMF Support** setting to ***Inband***. This is necessary to ensure that the entry of conference PINs works.

   b. Click **OK**.

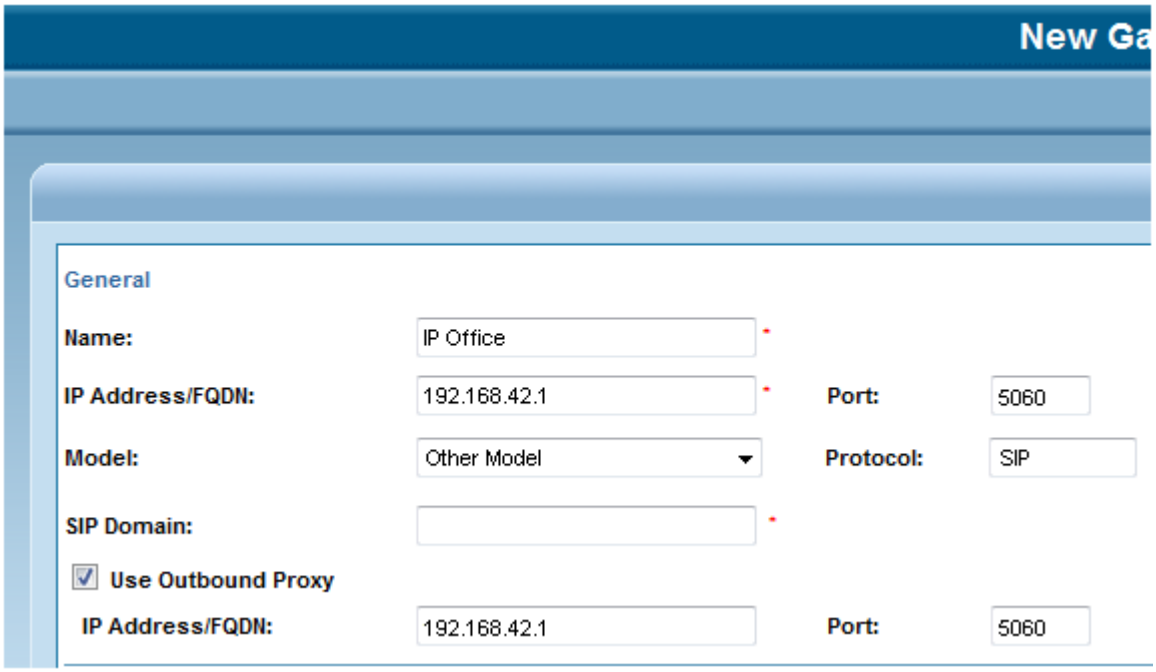
7. Click the **Save Config** icon to send the configuration back to the IP Office.

3.7 Configuring the Scopia MCU

Configure the Elite Series MCU with details of the IP Office as the gatekeeper/SIP proxy.

To configure the Scopia MCU

1. In the Scopia Management configuration menus, select **Resource Management | Gatekeeper/Sip proxy**.
2. Select **Add** and enter details that match the IP Office and its SIP settings.



3.8 Adding a Short Code

In order to route internal calls dialed on the IP Office system to the Avaya Radvision system, a system short code can be used. This short code is set with its destination as the **Outgoing Group** number of the SIP trunk to the iView Management server.

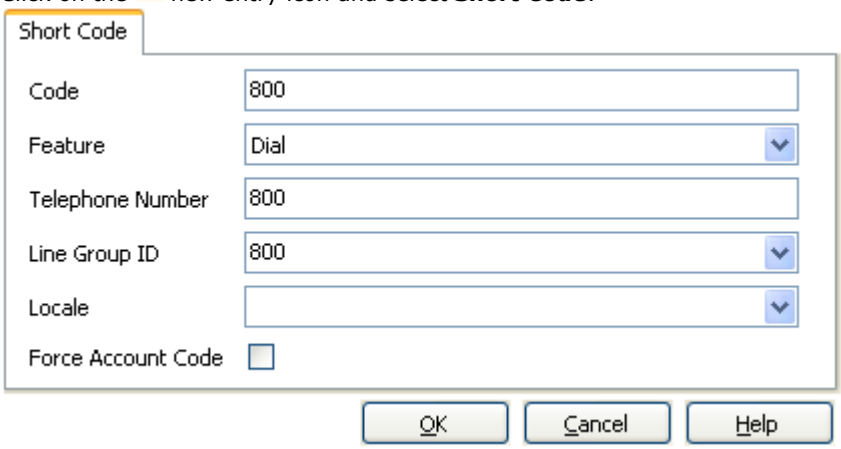
Once a short code has been created, it can be used by IP Office users to access the video conferencing system. It can also be used as the destination for external calls in IP Office Incoming Call Routes and in Voicemail Pro call flow actions.

3.8.1 Simple Short Code Example

In this example, a single system short code is used to allow users to access the auto attendant service configured on the Avaya Radvision MCU.

To add a simple system short code to route calls to the conference server

1. Using IP Office Manager, receive the configuration from the system.
2. Select **Short Code**.
3. Click on the new entry icon and select ***Short Code***.



- **Code**
  This field will be used to trigger a short code match to the dialing. For this example, we want this short code used whenever the IP Office system sees 800 dialed by a user.
- **Feature**
  The action that this short code should perform when matched is to dial a number so the **Feature** selected is ***Dial***.
- **Telephone Number**
  This number should matches the service configured as the auto attendant service on the Avaya Radvision MCU. The caller is taken to an interactive menu of conference rooms from which they can select the conference they want to enter.
- **Line Group ID**
  This field should be set to match the **Outgoing Group** number set on the SIP trunk URI added to the SIP trunk 33 to the iView Management server. For this example we used 800.

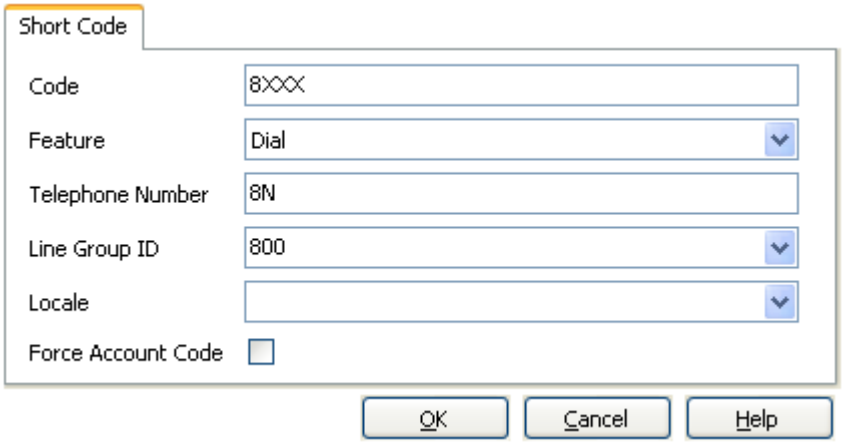
4. Click the **Save Config** icon to send the configuration back to the IP Office.

3.8.2 Flexible Short Code Example

In this example, a single system short code is used to allow users to access any service configured on the Avaya Radvision MCU. It assumes that the video services have all been given consistent numbering in the range 8000 to 8999.

To add a flexible system short code to route calls to the conference services

1. Using IP Office Manager, receive the configuration from the system.
2. Select **Short Code**.
3. Click on the new entry icon and select ***Short Code***.



- **Code**
  Setting the Code to ***8XXX*** will match the dialing of any four digit number prefixed with 8.
- **Feature**
  The action that this short code should perform when matched is to dial a number so the **Feature** selected is ***Dial***.
- **Telephone Number**
  Setting the Telephone Number to 8N will replace the ***N*** with the digits dialed for ***XXX***.
- If the number matches the service configured as the auto attendant service, the caller is taken to an interactive menu of conference rooms from which they can select the conference they want to enter,
- If the number matches another service, the user either starts or joins that conference service.
- **Line Group ID**
  This field should be set to match the **Outgoing Group** number set on the SIP trunk URI added to the SIP trunk 33 to the iView Management server. For this example we used 800.

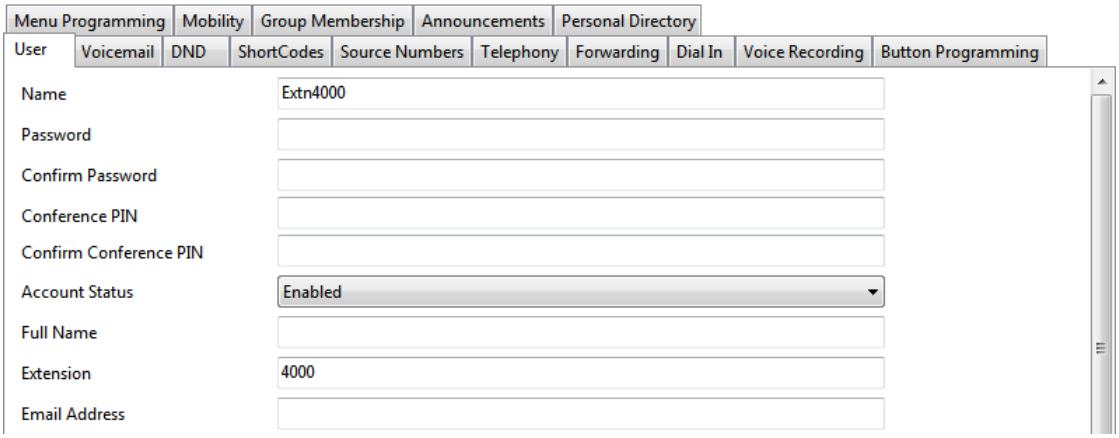
4. Click the **Save Config** icon to send the configuration back to the IP Office.

3.9 Creating IP Office Users

Create IP Office user and extension entries in the IP Office configuration for each Scopia XT4200 and Scopia XT5000 device as they register with both the IP Office system and the Avaya Radvision system. These entries are not required for the Scopia VC240 as it only registers with the Avaya Radvision system.

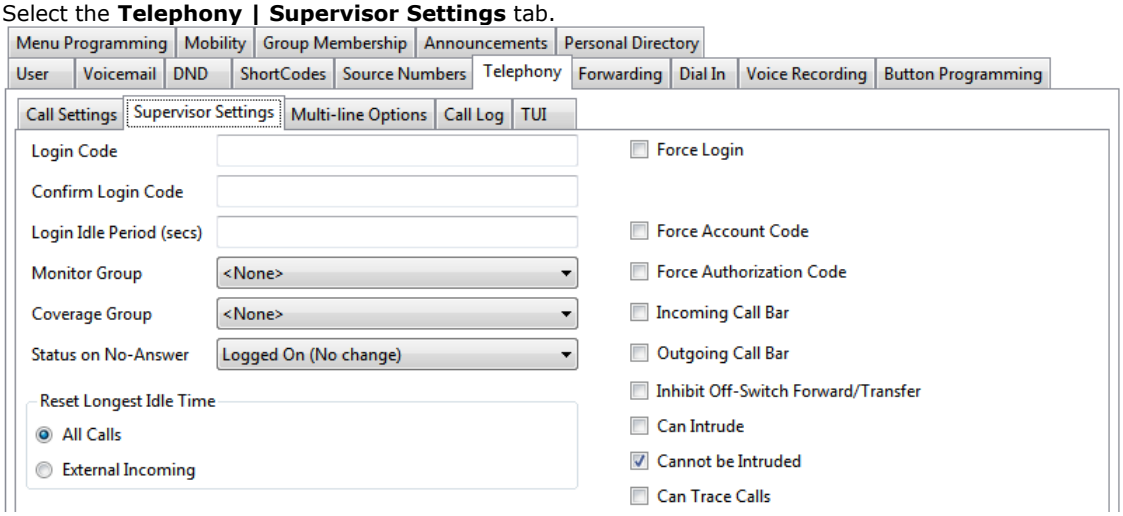
To add an extension user

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 | 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.

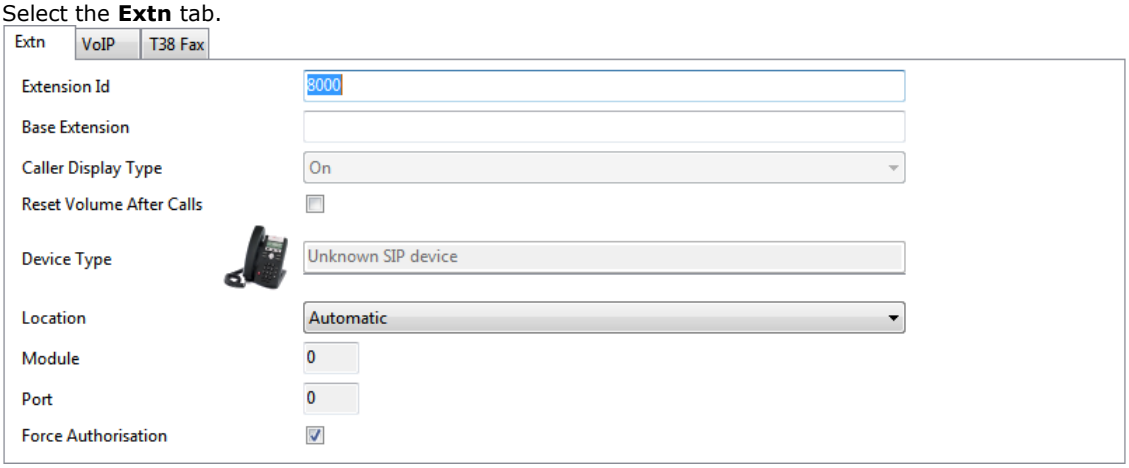
6. Click **OK**.
7. IP Office Manager prompts whether you want to create a VoIP extension for the new user. Select ***SIP Extension*** and click **OK**.
8. Click the **Save Config** to save the configuration changes.
9. You now need to configure the matching IP Office extension for the MCU user.

3.10 Creating IP Office SIP Extensions

Create IP Office user and extension entries in the IP Office configuration for each Scopia XT4200 and Scopia XT5000 device as they register with both the IP Office system and the Avaya Radvision system. These entries are not required for the Scopia VC240 as it only registers with the Avaya Radvision system.

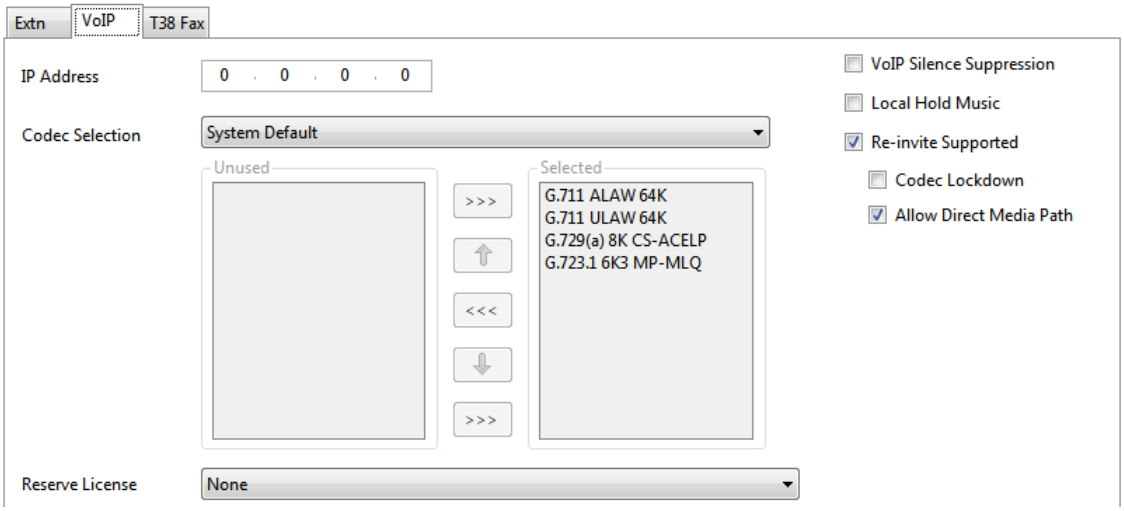
To adding a SIP extension

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.
- **Re-invite Supported/Allow Direct Media Path**
  Enable these settings. Enabling them 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 License**
  Set this field to **Avaya IP Endpoint**. 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**.

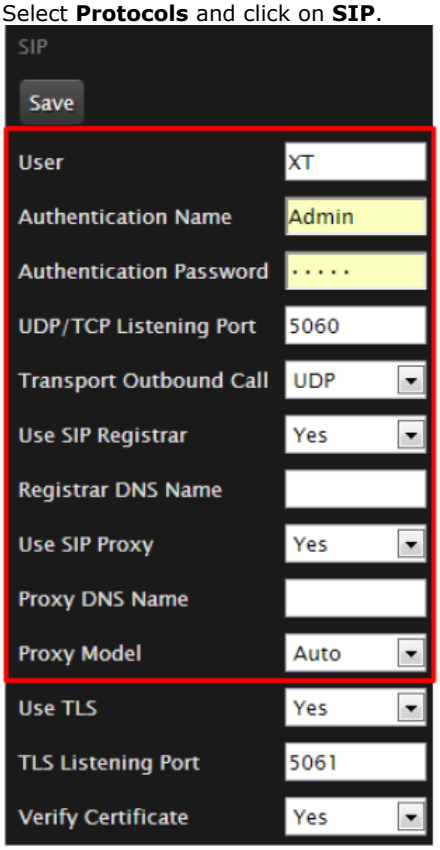
7. Repeat the processes of adding an IP Office user and a SIP extension for any other Click the **Save Config** icon to save the configuration changes to the IP Office.

3.11 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. Refer to the Avaya Radvision manuals for full details.
2. Select **Administrator Settings**.
3. Select **Protocols** and click on **SIP**.



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. **UDP/TCP 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***.
   k. **Use TLS:** Set this to ***No***. If you want to use secure SIP connections using TLS certificates refer to the Scopia XT5000 Server for IP Office Administrator Guide.
5. Click **Save**.

Chapter 4.
Document History

4. Document History

24th April 2014	**06e**	• Confirmation that with IP Office 9.0, BFCP is support. Also SIP trunk support if using Direct Media. [IPOFFICE-46974]
16th April 2015	**06f**	• Correct appearance of old Avaya Communicator product name.
2nd July 2015	**07a**	• Updated details for creating IP Office SIP extension. • SIP Registrar settings merged into LAN | VoIP settings. • Updated Scopia MCU menu for configuring SIP users.

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