



IP Office™ Platform 9.1

Third-Party SIP Extension Installation Notes

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Chapter 1.

IP Office SIP Extensions

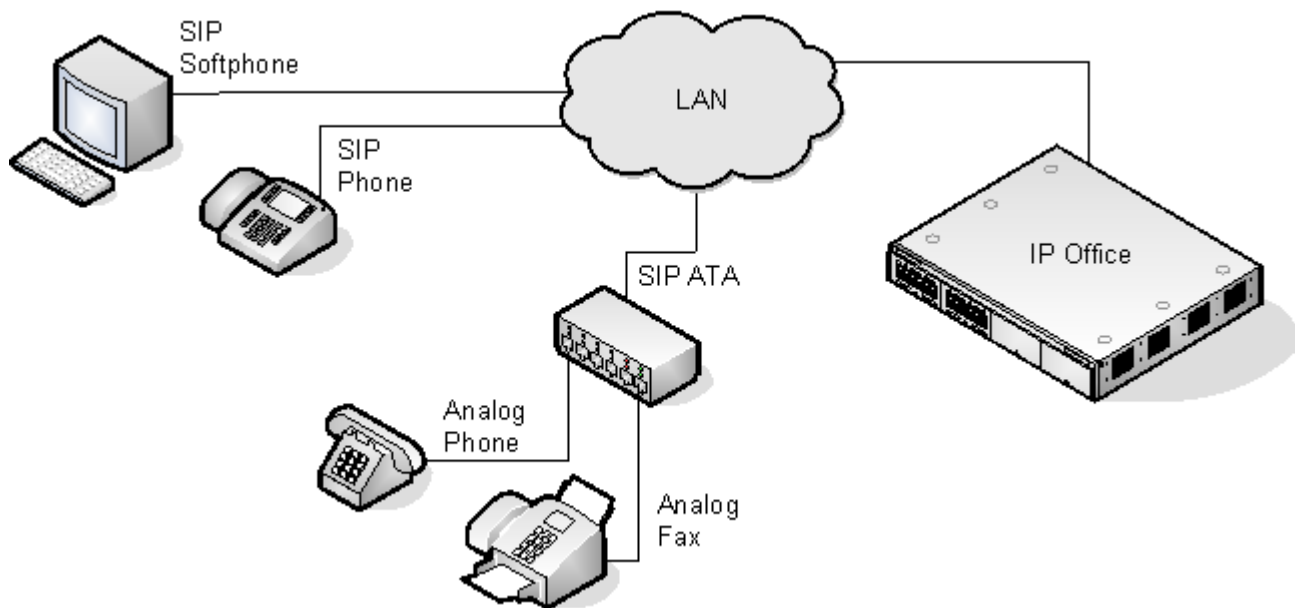
1. IP Office SIP Extensions

IP Office supports a range of SIP extension devices with the IP Office system. These can be SIP phones, SIP software clients or traditional analog devices attached to the SIP Analog Telephony Adapter (ATA).

This document provides notes on registering third-party SIP devices with an IP Office Release 9.1 or higher system. It assumes that you are familiar with IP Office configuration using IP Office Manager, System Status Application and System Monitor.

Within the IP Office configuration, SIP extensions are licensed using the **3rd Party IP End-points** license which is also used for non-Avaya H323 IP extensions. The number of SIP extensions supported is subject to available licenses and to the normal extension limits of the IP Office control unit being used.

This document only covers basic registration with the IP Office. Full configuration of the SIP extension device or client software will be covered by the manufacturer's own documentation.



- **No NAT**

Connection of SIP extension devices from locations where Network Address Translation (NAT) is applied to the connection is not supported. The IP Office does not provide NAT traversal services (for example STUN or TURN) for SIP extension devices.

- **Multiple Line SIP Devices**

Some SIP devices can support multiple lines or user accounts, each configured separately. If used with an IP Office each SIP line requires a separate IP Office SIP extension, user and license. Note this refers to a SIP device that can handle multiple simultaneous calls itself and not one that is handling multiple calls by holding them on the IP Office/receiving call waiting indication for waiting calls on the IP Office.

- **The IP Office is the SIP Registrar and SIP Proxy**

In most cases, a SIP extension device is configured with settings for a SIP registrar and a SIP proxy. For SIP devices connecting to an IP Office, the LAN1 or LAN2 IP address on which the SIP registrar is enabled is used for both roles.

- **Codec Selection**

Unlike H323 IP devices which always support at least one G711 codec, SIP devices do not support a single common audio codec. Therefore it is important to ensure that the IP Office SIP extension codecs configured match a codec for which the SIP device is configured.

- **Phone Features**

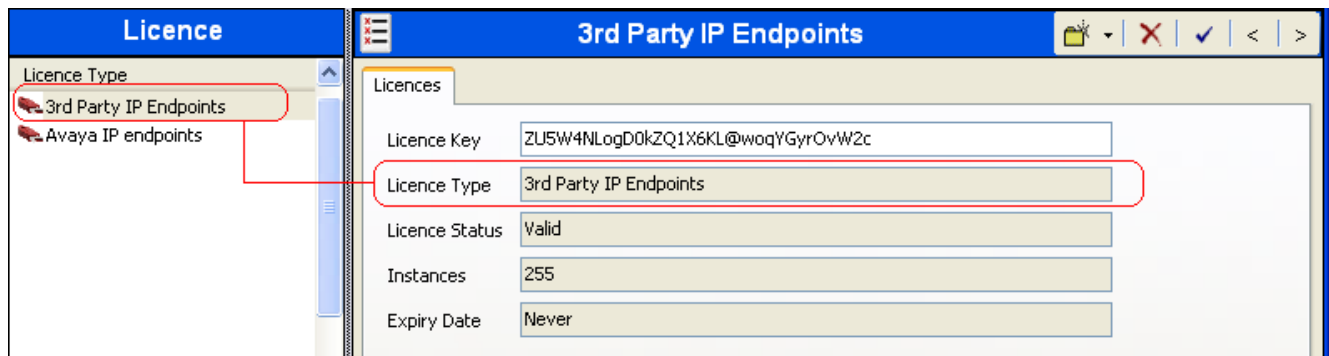
Beyond basic call handling via the IP Office (see the features listed below), the features available will vary between SIP devices and Avaya cannot make any commitments as to which features will or will not work or how features are configured.

- | | | | |
|------------------------|---------------------------------|------------------------------|--------------------------|
| • Answer calls. | • Hold. | • Voicemail Collect. | • Hear Page Calls |
| • Make calls. | • Unsupervised Transfer. | • Set Forwarding/DND. | |
| • Hang Up. | • Supervised Transfer. | • Park/Unpark. | |

1.1 Licensing

SIP Extensions are within the IP Office configuration use **3rd Party IP End-points** licenses. Successful registration consumes one license count.

This license is also used for non-Avaya H323 IP extensions. There must be sufficient licenses for the number of extensions required.




1.2 Enabling SIP Extension Support

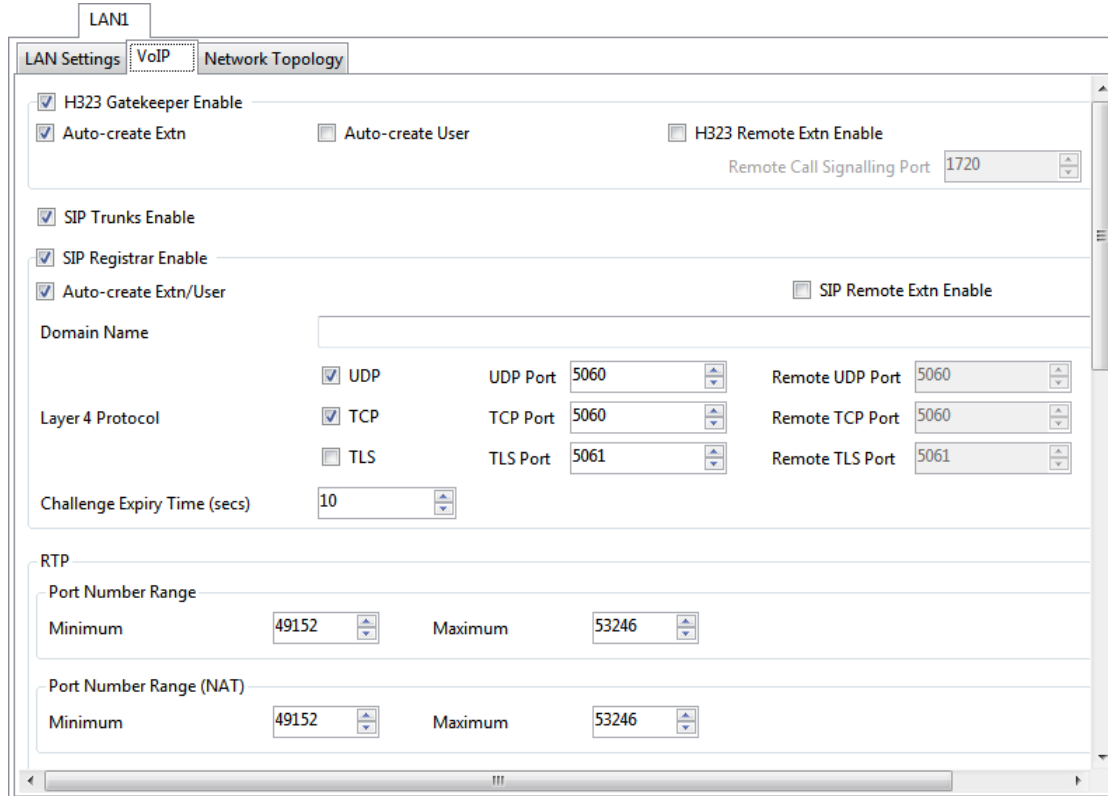
Once the IP Office system has [valid 3rd Party IP End-points licenses](#)⁽¹⁰⁾, it can support SIP extensions on its LAN1 and/or LAN2 interfaces.

- **Reboot Required**

Note that changing the SIP registrar settings of an IP Office system requires the IP Office system to be rebooted.

To enable SIP extension support:

1. Using IP Office Manager, receive the IP Office system configuration.
2. Select  **System**.
3. Select either the **LAN1** or **LAN2** tab as required.
4. Select the **VoIP** sub-tab.




- **SIP Registrar Enable**
Check that **SIP Registrar Enable** is 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.
- **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 = Off*
If this option is selected, the IP Office automatically creates 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.

- **! WARNING**

Leaving auto-create extn/user settings enabled is strongly deprecated. For Release 9.1 and higher, the system automatically disables the settings 24-hours after it is enabled.


5. If you have made any changes, send the configuration back to the IP Office.

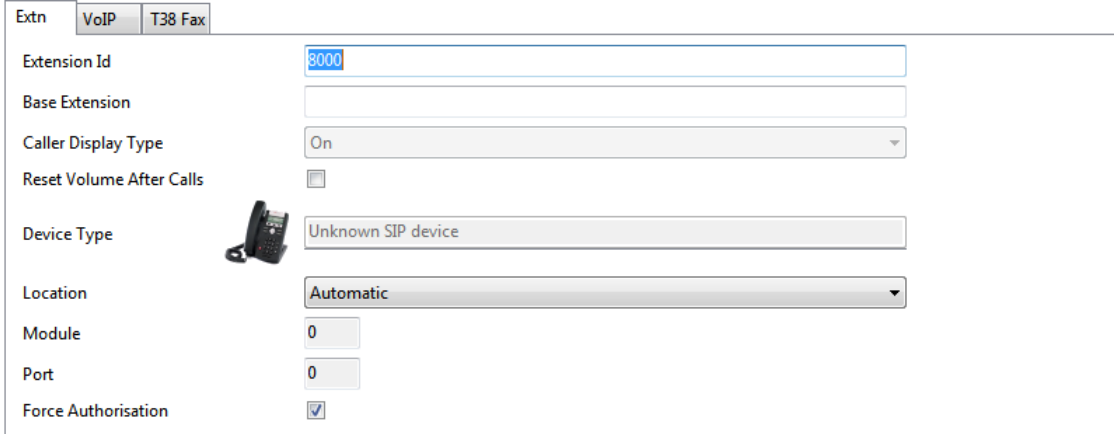
1.3 SIP Extension Settings

SIP extensions can be created manually using  | **SIP Extension** or [automatically created](#) ¹⁷ during SIP device registration. Even if auto-created, the extension settings created in the IP Office configuration should be checked after installation.

This section looks just at the key configuration settings that affect SIP extension devices. For full details of all the fields shown refer to the IP Office Manager Manual.

To configure a SIP extension:

1. Select  **Extensions** and locate the SIP extension. Select the **Extn** tab.



Extn **VoIP** T38 Fax

Extension Id

Base Extension

Caller Display Type

Reset Volume After Calls

Device Type

Location

Module

Port

Force Authorisation

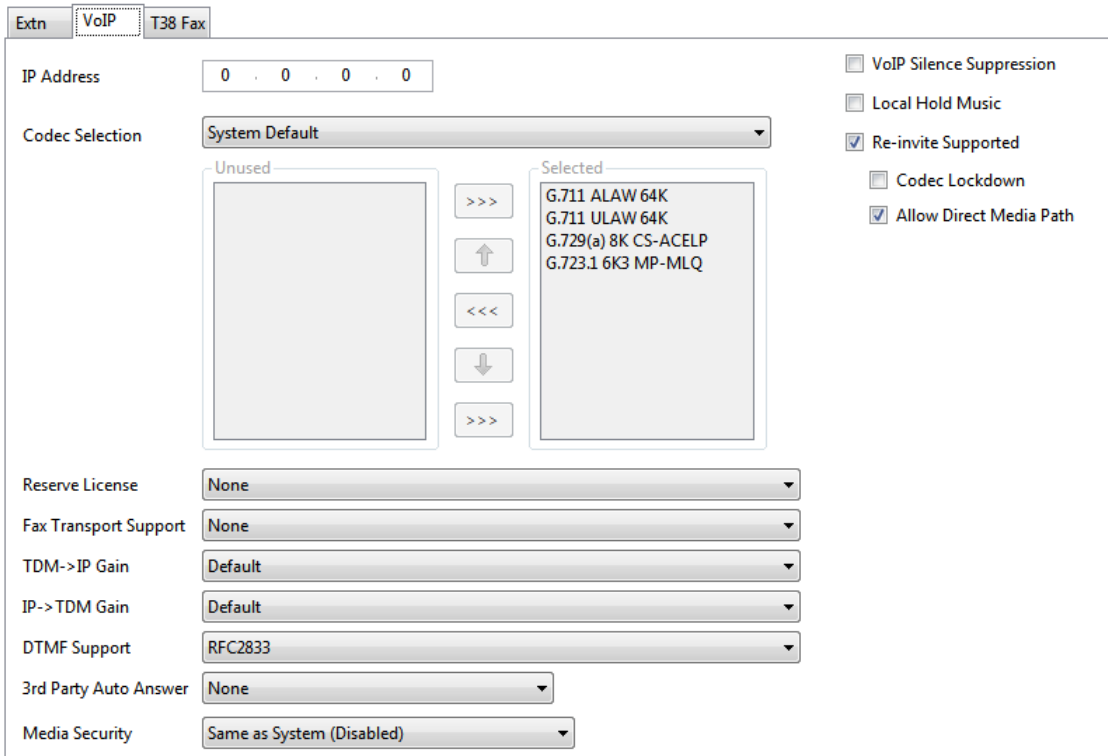
- **Base Extension**

This should match the **Extension** setting of the SIP user added to the IP Office configuration.

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

If enabled, SIP devices are required to register with the IP Office system using the **Name** and **Login** Code configured for the user within the IP Office configuration.

2. Select the **VoIP** tab.



Extn **VoIP** T38 Fax

IP Address

Codec Selection

Unused

Selected

G.711 ALAW 64K
G.711 ULAW 64K
G.729(a) 8K CS-ACELP
G.723.1 6K3 MP-MLQ

Reserve License

Fax Transport Support

TDM->IP Gain

IP->TDM Gain

DTMF Support

3rd Party Auto Answer

Media Security

VoIP Silence Suppression

Local Hold Music

Re-invite Supported

Codec Lockdown

Allow Direct Media Path

- **IP Address**

The IP address of the phone. The default setting accepts connection from any address. If an address is entered, registration is only accepted from a device with that address.


- **Codec Selection**

If the **Codec Selection** is left set to **System Default**, the extension will use the system codec preferences. In most cases this is preferred and any changes required should be made at the system level to ensure consistency for all IP trunks and extensions. However, if required, the **Codec Selection** of each individual trunk and extension can be adjusted to differ from the system defaults. See below.


- **Reserve License:**
Each non-Avaya IP phones requires an **3rd Party IP Endpoint** license. Normally the available licenses are issued in the order that devices register. This option allows an extension to be pre-licensed before the device has registered by selecting the option **Reserve 3rd party IP endpoint licence**.
- **TDM->IP Gain**
Allows adjustment of the gain on audio from the system TDM interface to the IP connection. This field is not shown on Linux based platforms.
- **IP->TDM Gain**
Allows adjustment of the gain on audio from the IP connection to the system TDM interface. This field is not shown on Linux based platforms.
- **DTMF Support**
This can be set to one of the two common methods used by SIP devices; **RFC2833** or **Inband**. The selection should be set to match the method used by the SIP device. However, if the method is not known or can vary on a per call basis, deselecting **Allow Direct Media Path** allows a VCM channel to be used for DTMF support when necessary.
- **3rd Party Auto Answer**
The ability of an extension to auto answer calls allows the system to page that extension. However, for 3rd-party SIP devices the ability to auto answer and the method used to enable that function may vary.
 - **None**
The extension device does not support auto answer.
 - **RFC 5373**
The extension device support auto answer using an RFC 5373 header added to the call invitation message.
 - **answer-after**
The extension device support auto answer using a 'answer-after' header message.
 - **device auto answers**
The IP Office system relies on the extension device auto answering calls.
- **Media Security**
These settings allow the adjustment of the settings for SRTP security if used. Normally these are adjusted at the system level for the whole system rather than at the individual extension level.
- **Codec Lockdown**
In response to a SIP offer with a list of codecs supported, some SIP user agents supply a SDP answer that also lists multiple codecs. This means that the user agent may switch to any of those codecs during the session without further negotiation. The system does not support multiple concurrent codecs for a session, so loss of speech path will occur if the codec is changed during the session. If **Codec Lockdown** is enabled, when the system receives an SDP answer with more than one codec from the list of offered codecs, it sends an extra re-INVITE using just a single codec from the list and resubmits a new SDP offer with just the single chosen codec.
- **VoIP Silence Suppression**
When selected, this option detects periods of silence during a call and does not send any data during those silences.
- **Local Hold Music**
Select this option if the SIP device supports its own hold music source.
- **Re-invite Supported**
If the SIP device is able to receive REINVITE messages select this option.
- **Codec Lockdown**
In response to a SIP offer with a list of codecs supported, some SIP user agents supply an answer that also lists multiple codecs. This means that the user agent may switch to any of those codecs during the session without further negotiation. The system does not support multiple concurrent codecs for a session, so loss of speech path will occur if the codec is changed during the session. If **Codec Lockdown** is enabled, when the system receives an SDP answer with more than one codec from the list of offered codecs, it sends an extra re-INVITE using just a single codec from the list and resubmits a new SDP offer with just the single chosen codec.
- **Allow Direct Media Path**
This settings controls whether IP calls must be routed via the system or can be routed alternately if possible within the network structure. If enabled, IP calls can take routes other than through the system. This removes the need for a voice compression channel. Both ends of the calls must support Direct Media and be using the same protocol (H.323 or SIP). Enabling this option may cause some vendors problems with changing the media path mid call. If disabled or not supported at on one end of the call, the call is routed via the system. RTP relay support allows calls between devices using the same audio codec to not require a voice compression channel.

To customize the extension codec selection:

1. Using IP Office Manager, receive the system's configuration.


2. To display the extension's settings, click  **Extension** in the left-hand panel.
3. Select the **VoIP** tab.
4. Change the **Codec Selection** to **Custom**.
5. The **Unused** and **Selected** lists can be used to select which codecs the device uses and the order of preference.
6. Save the configuration changes back to the system.

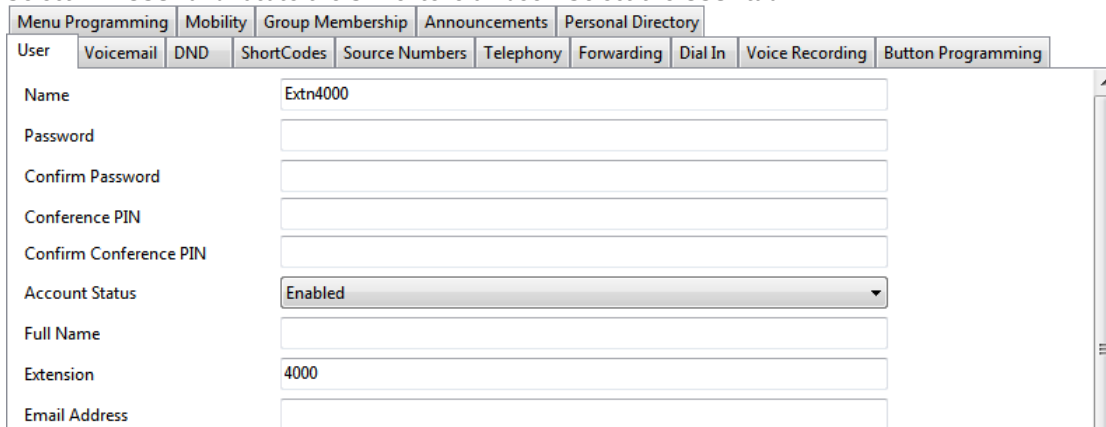
1.4 SIP User Settings

SIP users can be created manually using  **User** or [automatically created](#) ¹⁷ during SIP device registration. Even if auto-created, the user settings created in the IP Office configuration should be checked during installation.

This section looks at just the key configuration settings that affect SIP extension devices.

To configure a basic SIP user:

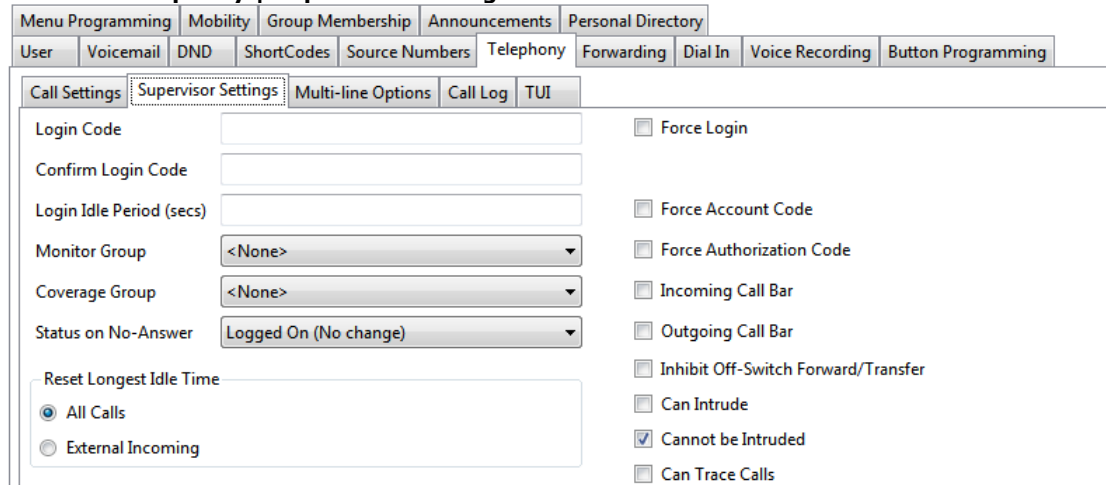
1. Select  **User** and locate the SIP extension user. Select the **User** tab.



Menu Programming	Mobility	Group Membership	Announcements	Personal Directory					
User	Voicemail	DND	ShortCodes	Source Numbers	Telephony	Forwarding	Dial In	Voice Recording	Button Programming
Name	Extn4000								
Password									
Confirm Password									
Conference PIN									
Confirm Conference PIN									
Account Status	Enabled								
Full Name									
Extension	4000								
Email Address									

- **Name**
If the SIP extension is set to **Force Authorization** (the default), this field is used as the **Authorization Name** that must be set in the SIP device's configuration.
- **Extension**
This should match the SIP ID of the SIP device and the Base Extension setting of the SIP extension in the IP Office configuration.

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



Menu Programming	Mobility	Group Membership	Announcements	Personal Directory					
User	Voicemail	DND	ShortCodes	Source Numbers	Telephony	Forwarding	Dial In	Voice Recording	Button Programming
Call Settings	Supervisor Settings	Multi-line Options	Call Log	TUI					
Login Code		<input type="checkbox"/> Force Login							
Confirm Login Code		<input type="checkbox"/> Force Account Code							
Login Idle Period (secs)		<input type="checkbox"/> Force Authorization Code							
Monitor Group	<None>	<input type="checkbox"/> Incoming Call Bar							
Coverage Group	<None>	<input type="checkbox"/> Outgoing Call Bar							
Status on No-Answer	Logged On (No change)	<input type="checkbox"/> Inhibit Off-Switch Forward/Transfer							
Reset Longest Idle Time	<input checked="" type="radio"/> All Calls	<input type="checkbox"/> Can Intrude							
	<input type="radio"/> External Incoming	<input checked="" type="checkbox"/> Cannot be Intruded							
		<input type="checkbox"/> Can Trace Calls							

- **Login Code**
If the SIP extension is set to **Force Authorization** (the default), this field is used as the **Authorization Password** that must be set in the SIP device's configuration.

1.5 Allowing SIP Extn/User Auto Creation

The IP Office system can be set to automatically create extension and user entries in its own configuration as each SIP device registers with the system. It can speed up installation to enable this setting when installing several devices and then disable the setting once the installation has been completed.


- **! WARNING**

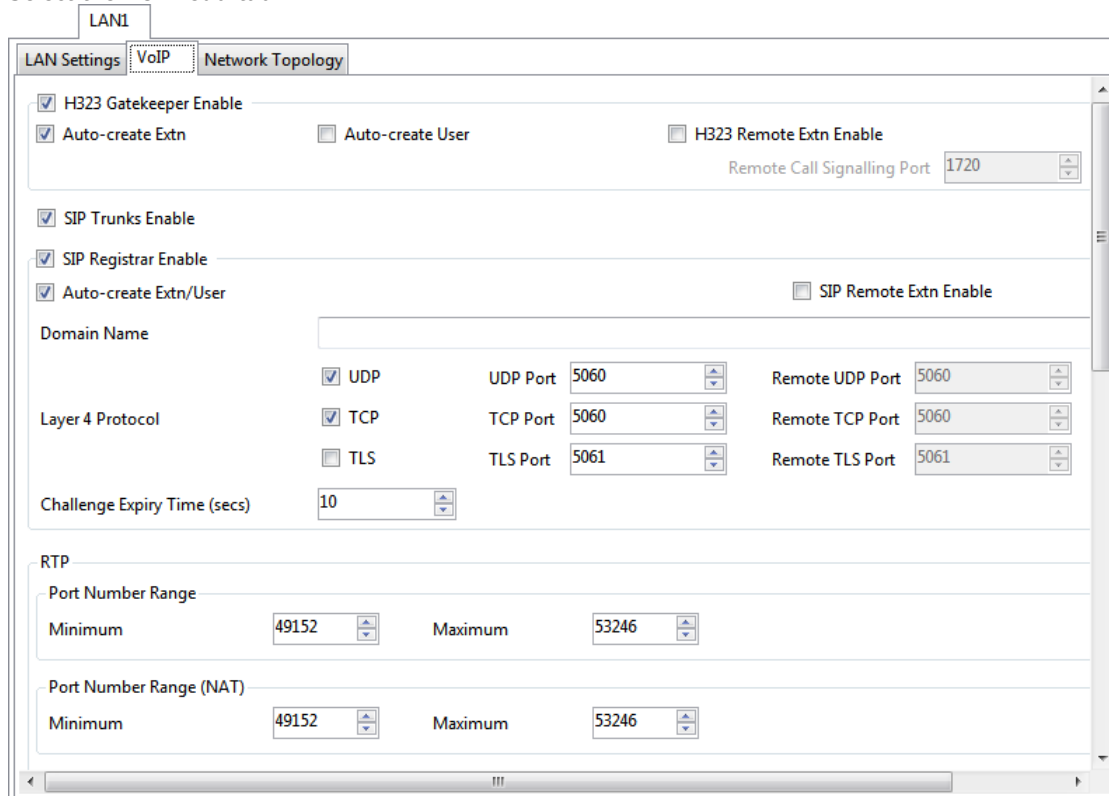
Leaving auto-create extn/user settings enabled is strongly deprecated. For Release 9.1 and higher, the system automatically disables the settings 24-hours after it is enabled.

- **Reboot Required**

Note that changing the SIP registrar settings of an IP Office system requires the IP Office system to be rebooted.

To enable SIP extension/user auto creation:

1. Using IP Office Manager, receive the IP Office system configuration.
2. Select  **System**.
3. Select either the **LAN1** or **LAN2** tab as required.
4. Select the **VoIP** sub-tab.



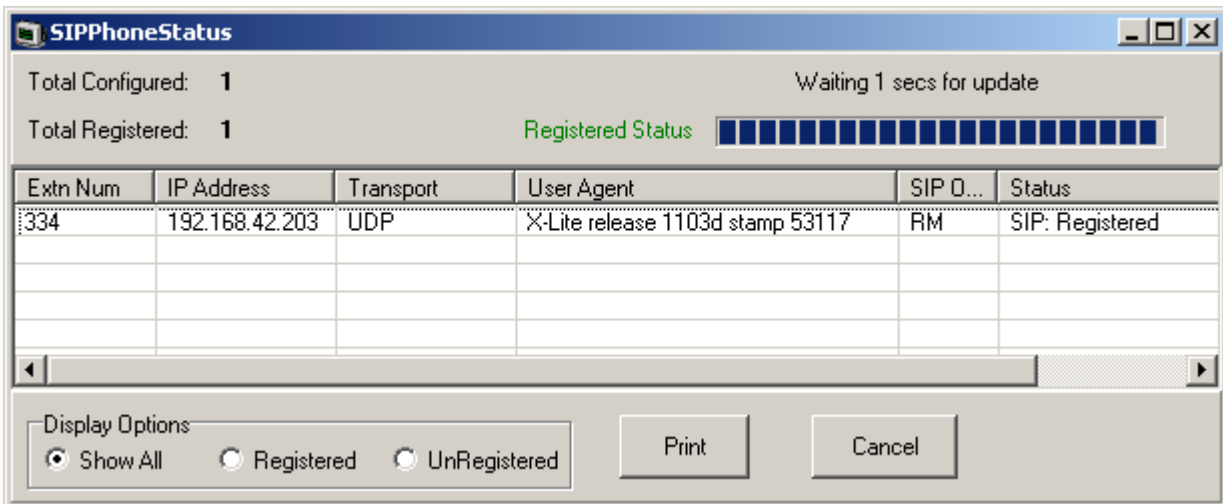
The screenshot shows the VoIP configuration window with the following settings:

- H323 Gatekeeper Enable
- Auto-create Extn
- Auto-create User
- H323 Remote Extn Enable
- Remote Call Signalling Port: 1720
- SIP Trunks Enable
- SIP Registrar Enable
- Auto-create Extn/User
- SIP Remote Extn Enable
- Domain Name: [Empty]
- Layer 4 Protocol:
 - UDP, UDP Port: 5060, Remote UDP Port: 5060
 - TCP, TCP Port: 5060, Remote TCP Port: 5060
 - TLS, TLS Port: 5061, Remote TLS Port: 5061
- Challenge Expiry Time (secs): 10
- RTP:
 - Port Number Range: Minimum 49152, Maximum 53246
 - Port Number Range (NAT): Minimum 49152, Maximum 53246

5. Change the **Auto-create Extn/User** settings to the state required.
6. Send the configuration back to the IP Office.

1.6 System Monitor

The status of the SIP extensions in the IP Office configuration can be viewed using the IP Office System Monitor application. Select **Status | SIP Phone Status** to display the SIP extension list.



The screenshot shows the SIPPhoneStatus application window. At the top, it displays 'Total Configured: 1' and 'Total Registered: 1'. A progress bar indicates 'Registered Status' with 10 blue segments. Below this is a table with the following data:

Extn Num	IP Address	Transport	User Agent	SIP O...	Status
334	192.168.42.203	UDP	X-Lite release 1103d stamp 53117	RM	SIP: Registered

At the bottom, there are 'Display Options' with radio buttons for 'Show All' (selected), 'Registered', and 'UnRegistered'. There are also 'Print' and 'Cancel' buttons.

Chapter 2.

SIP Device Configuration

2. SIP Device Configuration

This section gives examples of the installation settings used with a variety of SIP devices tested with IP Office. These are only the basic details for registration with an IP Office system. Full installation and configuration, for example assigning device IP addresses, is covered in the device or software manufacturer's own documentation.

The devices covered are:

- [Astra 9133i](#) ^[21]
- [Avaya A10 ATA](#) ^[23]
- [CounterPath Eyebeam/X-Lite Softphones](#) ^[27]
- [Grandstream GXP 2000, GXP 2020](#) ^[30]
- [Innovaphone IP22, IP24, IP28](#) ^[32]
- [Nokia S60 v3 SIP Client](#) ^[35]
- [Patton Micro ATA](#) ^[36]
- [Polycom Soundpoint](#) ^[37]

The general process for connection to the IP Office can be done in two ways. Either allowing the IP Office to auto-create extension and user entries when a SIP device registers or manually creating those entries and then registering the SIP device. The steps are summarized below.

Using Auto Create	Using Manual Configuration
<ol style="list-style-type: none">1. Add and check 3rd Party IP End-points licenses.2. Check the SIP Registrar settings.3. Enable Auto-Create Extn/User.4. Attach and configure the SIP device.5. Modify the IP Office user and extension settings.6. Disable Auto-Create Extn/User.	<ol style="list-style-type: none">1. Add and check 3rd Party IP End-points licenses.2. Check the SIP Registrar settings.3. Add SIP Extension settings to the IP Office configuration.4. Add SIP User settings to the IP Office configuration.5. Attach and configure the SIP device.

2.1 AAstra 9133i SIP

AAstra produce a range of SIP phone devices. The example used here is a 9133i phone.

A. Either enable **Auto-Create Extn/User** or otherwise manually add SIP extensions and users to the IP Office configuration.

1. Browse to the IP address of the phone.
2. Login. The default user name and password are **Admin** and **22222**.
3. Click on **Line 1** or the line that will be used for IP Office calls.

Status	Configuration Line 1	
System Information	Basic SIP Authentication Settings	
Operation	Screen Name	SIP334
User Password	Phone Number	334 <small>— User User Extension Extn Base Extension</small>
Programmable Keys	Caller ID	
Directory	Authentication Name	Extn334 <small>— User User Name</small>
Reset	Password	•••• <small>— User Telephony Call Settings Login Code</small>
Basic Settings	BLA Number	
Preferences	Line Mode	Generic <input type="button" value="v"/>
Call Forward	Basic SIP Network Settings	
Advanced Settings	Proxy Server	192.168.42.1 <small>— System LAN LAN Settings IP Address</small>
Network	Proxy Port	5060
Global SIP	Backup Proxy Server	0.0.0.0
Line 1	Backup Proxy Port	0
Line 2	Outbound Proxy Server	0.0.0.0
Line 3	Outbound Proxy Port	0
Line 4	Registrar Server	192.168.42.1 <small>— System LAN LAN Settings IP Address</small>
Line 5	Registrar Port	5060
Line 6	Backup Registrar Server	0.0.0.0
Line 7	Backup Registrar Port	0
Line 8	Registration Period	0
Line 9		
Action URI		
Configuration Server		
Firmware Update		
Troubleshooting		

4. Enter the values to match the IP Office configuration settings as indicated above.

B. If installed using extension and user auto-creation, check the settings of the IP Office SIP extension and user created by the SIP devices registration.

C. Make test calls from and to the SIP device.

D. If not installing any further SIP devices, **Disable Auto-Create Extn/User** if it is enabled.

Key Programming

The AAstra phones have a range of programmable keys that can be used to activate phone functions or to speed dial numbers. To use these to activate IP Office functions, the key must be configured to speed dial an IP Office short code.

1. Login to the phone and select **Programmable Keys**.

Status	Programmable Keys Configuration			
	Key	Type	Value	Line
System Information	Hard Key 1:	speeddial	*17	1
Operation	Hard Key 2:	do not disturb		1
User Password	Hard Key 3:	speeddial	*37*1#	1
Programmable Keys	Hard Key 4:	speeddial	*38*1#	1
Directory	Hard Key 5:	speeddial	*30	1
Reset	Hard Key 6:	none		1
Basic Settings	Hard Key 7:	none		1
Preferences	BLF List URI:			
Call Forward	<input type="button" value="Save Settings"/>			
Advanced Settings				
Network				
Global SIP				
Line 1				
Line 2				
Line 3				

2. In the example above:

- The first button on the side of the phone has been made a voicemail button by setting it to speed dial the default IP Office short code for voicemail access.
- The second button is the phones own **Do Not Disturb** function. Therefore when used it will not be reflected in the users DND status on the IP Office system.
- The third and fourth buttons are set to use the IP Office default short codes for parking and unparking a call from park slot 1 on the IP Office system. The phones own **Park** function does not work with IP Office systems.
- The fifth button is set to the IP Office default short code for Call Pickup Any.

Notes

- Appearances L1-L3 do function and auto hold will work when switching lines
- Speaker button works but release is done thru the hang up button, you cannot end a speaker call by hitting speaker button again.
- To transfer use the **xfer** key. Press **xfer**, enter the transfer destination and press **xfer** again.
- To park a call, use the **xfer** key to transfer the call to the short code for parking a call. For example in this case transfer to *38*1#. To unpark, dial the short code created for that function.
- The **Conf** button can be used to conference calls. With the first party connected, press **Conf**, dial the second party and when answered press **Conf** again.

2.2 Avaya A10 ATA

The Avaya A10 Analog Telephone Adapter provides 4 Phone/FXS ports on its rear plus a LAN port. It can be used to connect analog phone devices to the IP Office via the LAN, with the extensions appearing in the IP Office configuration as SIP extensions.

A. Either enable **Auto-Create Extn/User** or otherwise manually add SIP extensions and users to the IP Office configuration.

1. Browse to the IP address of the A10.
2. Enter the administrator name and password. The defaults are **nimdbg** and **54321**.
3. Select **Telephony** and then **SIP**.

Name	Domain	Default-Server	Registration	Authentication	Binding	State
sip		/	To /	(none)	eth0	Enabled

4. Select the **Gateways** tab and click on **sip**.

Configuration Status

IP Interface eth0

SIP Gateway Enabled

Local Call Signaling Port 5060

Call Signaling Traffic Class local-default

INVITE Transaction Timeout 32 seconds

Non-INVITE Transaction Timeout 32 seconds

Transport Protocols TCP UDP

Penalty Box 600 seconds Time for which a non-responsive destination should stay in the penalty box, i.e. should not be contacted anymore

Apply

Services

default

5. Click on default in the **Services** section. Select the **Configuration** tab.

Configuration Registration and Authentication

Domain

Default-Server (Outbound Proxy) Set manual Host Port Server Type loose-router

Set always the actual Registrar as Default Server

Force Keep-Alives 3600 seconds

Call Transfer Version: 5

Session Timer Version: 8

Create new session after redirect

Alternate Contact Address Detect NAT Address User Defined IP Address

SIP Profile default

VoIP Profile default

Apply

- Ensure that the **Domain** field is empty and the check box not selected.
- Enable the check box for **Default-Server (Outbound Proxy)** and select **Set always the actual Registrar as Default Server**.
- Click **Apply** .

6. Select the **Registration and Authentication** tab.

192.168.1.1 / Telephony / SIP / Gateway sip / Service default

Configuration **Registration and Authentication**

Registrar Ignore redirection of Registrar 192.168.42.1 Host 5060 Port Register via Default-Server

Register to redirected Registrar Host Port

Registration Lifetime 300 seconds

Apply ✓

User Name	Register	Display Name	Phone Context	Authenticate	Authentication Name	Password	Default
338	register	SIP 338	SIP	authenticate	Extn338	*****	default
	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		*****	<input type="checkbox"/>

- Enable the Registrar checkbox. Select **Ignore redirection of Registrar** and enter the IP address and SIP port of the IP Office LAN on which the SIP registrar is enabled. Click **Apply** ✓.

7. In the **Users To Register** section, create a user matching the IP Office SIP extension and user. Enter the settings and click on

8. Select **Call-Router**. Select **Interfaces** and then **FXS**.

192.168.1.1 / Telephony / Call-Router

Interfaces Routing Tables Functions Services Configuration Active Calls Status

FXS H.323 SIP

Name	Bound Port	Routing Destination
fxs-0	fxs 0 0	to-sip (Table)
fxs-1	fxs 0 1	to-sip (Table)
fxs-2	fxs 0 2	to-sip (Table)
fxs-3	fxs 0 3	to-sip (Table)

9. Click on **fxs-0**.

192.168.1.1 / Telephony / Call-Router / FXS Interface fxs-0

Configuration Status

Interface (none)

Call-Routing Destination Table to-sip Service (none)

Precall Service (none)

CID Presentation (none)

Subscriber Number 338

Call Hold

Call Waiting

Call Transfer

Additional Call Offering

PSTN Profile default

Tone Profile US

Apply ✓

- Enable the **Call-Routing Destination** checkbox. Select **Table** and in the adjacent drop down list select **to-sip**.
- Enable the **Subscriber Number** checkbox and enter the IP Office extension number for the SIP extension and user.
- Click **Apply** ✓.



10. Click on the  arrow icon after **to-sip**.

192.168.1.1 / Telephony / Call-Router / Routing Table *to-sip*

Home
Import/Export

Network
IP/DNS
NAT/NAPT
ACL
QoS
DynDNS
DHCP Server
WAN

Configuration

Looks Up For <i>called-e164 Of</i>	Destination	Execute Function (Optional)
T	sip (SIP Interface)	
<i>called-e164 value or default</i>	<input type="radio"/> Interface (none) <input type="radio"/> Table (none) <input type="radio"/> Service (none) <input type="radio"/> none	Optional function to execute (none)
(To change an entry, enter the value of an existing entry)		

- Ensure that the table contains **T** with the destination **sip (SIP Interface)**.

11. Select **Call-Router** again and then select the **Routing Tables** tab.



192.168.1.1 / Telephony / Call-Router

Home
Import/Export

Network
IP/DNS
NAT/NAPT
ACL
QoS
DynDNS

Interfaces **Routing Tables** Functions Services Configuration Active Calls Status

Routing Tables

Name	Looks up for	
from-sip	called-e164	
to-sip	called-e164	
	called-e164	


12. Select **from-sip**.


192.168.1.1 / Telephony / Call-Router / Routing Table *from-sip*

Home
Import/Export

Network
IP/DNS
NAT/NAPT
ACL
QoS
DynDNS
DHCP Server

Configuration

Looks Up For <i>called-e164 Of</i>	Destination	Execute Function (Optional)
<i>called-e164 value or default</i>	<input checked="" type="radio"/> Interface fxs-0 <input type="radio"/> Table (none) <input type="radio"/> Service (none) <input type="radio"/> none	Optional function to execute (none)
338		
(To change an entry, enter the value of an existing entry)		

- Enter the IP Office SIP extension number.
- For the **Destination** select **Interface** and select the matching fxs port for that extension number.
- Click .



13. Repeat for any other SIP extensions on the unit.

192.168.1.1 / Telephony / Call-Router / Routing Table *from-sip*

Home
Import/Export

Network
IP/DNS
NAT/NAPT
ACL
QoS
DynDNS
DHCP Server
WAN

Configuration

Looks Up For <i>called-e164 Of</i>	Destination	Execute Function (Optional)
338	fxs-0 (FXS Interface)	
<i>called-e164 value or default</i>	<input type="radio"/> Interface (none) <input type="radio"/> Table (none) <input type="radio"/> Service (none) <input type="radio"/> none	Optional function to execute (none)
(To change an entry, enter the value of an existing entry)		

14. Click Save to save the settings so that they will still apply after the unit is restarted.

192.168.1.1 / Save

Home
Import/Export

Network
IP/DNS
NAT/NAPT
ACL

Save Configuration

You are going to save the modified configuration persistently. This is needed to retain the current configuration beyond the next reload. Are you sure you want to write the current running-config to the startup-config?

Save Cancel

- B. If installed using extension and user auto-creation, check the settings of the IP Office SIP extension and user created by the SIP devices registration.
- C. Make test calls from and to the SIP device.
- D. If not installing any further SIP devices, **Disable Auto-Create Extn/User** if it is enabled.

Notes

- When calling from a phone attached to an FXS port, there is a delay of approximately 5 seconds while the unit wait for dialing to be completed before it routes the dialed digits to the IP Office. To avoid this delay dial # after dialing the digits.
- The G723 Codec should not be used with the Avaya A10 ATA. However that codec is not enabled by default.

192.168.1.1 / Telephony / VoIP Profiles / Profile *default*

Home
Import/Export

Voice Fax Modem Dejitter Buffer Status

Network

IP/DNS
NAT/NAPT
ACL
QoS
DynDNS
DHCP Server
WAN

Telephony

Call-Router
H.323
SIP
VoIP Profiles
Tone Profiles
PSTN Profiles

Ports

Ethernet
FXS

Various

System
AAA
Time

Position	Codec	Rx Length [ms]	Tx Length [ms]	Silence Suppression		
1	g711ulaw64k	20	20	<input checked="" type="radio"/> default <input type="radio"/> yes <input type="radio"/> no	✓	✗
2	g711alaw64k	20	20	<input checked="" type="radio"/> default <input type="radio"/> yes <input type="radio"/> no	✓	✗
3	g729	20	20	<input checked="" type="radio"/> default <input type="radio"/> yes <input type="radio"/> no	✓	✗
	transparent			<input checked="" type="radio"/> default <input type="radio"/> yes <input type="radio"/> no		✗

Additional Voice Parameters

Default Silence Suppression If not specified by the codec

Highpass Filter Voice input filter for A/D conversion

Post Filter Voice output filter for D/A conversion

DTMF Relay

RTP Payload Type For Tone Events (NTE)

RTP Payload Type For Signaling Events (NSE)

RTP Traffic Class

Apply ✓

2.3 CounterPath eyeBeam/X-Lite

CounterPath produce a range of VoIP products. X-Lite is a simple SIP client application that can be used as a PC softphone test SIP operation. X-Lite can be downloaded from <http://www.counterpath.com/>.

A. Either enable **Auto-Create Extn/User** or otherwise manually add SIP extensions and users to the IP Office configuration.

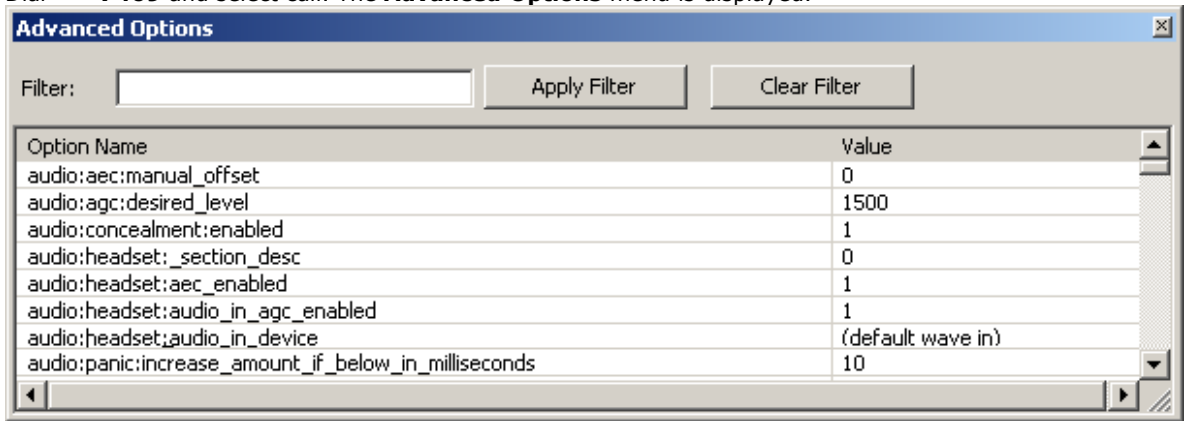
1. Either enable the IP Office to allow [automatic creation](#) ¹⁷⁾ based on SIP phone registration or manually add the SIP extension and user details to the IP Office configuration.
2. Start the X-Lite SIP client application.
3. Click on the down arrow icon and select **SIP Account Settings....**
4. Click on **Add....**

5. Set the fields to match the IP Office configuration settings are indicated above.
6. In the **Domain Proxy** section enable **Register with domain and receive incoming calls** and select **domain**.
7. When completed click on **OK**.

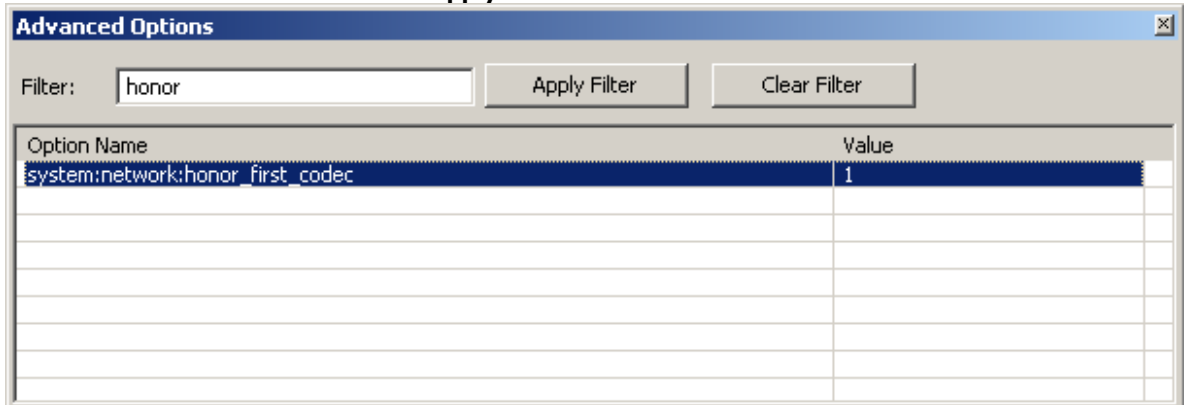
Enabled	Acct #	Domain	Username	Display Name
<input checked="" type="checkbox"/>	1	192.168.42.1 (default)	334	SIPMe
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				

8. Ensure the the account is **Enabled**.
9. Click **Close**. The X-Lite client will now attempt to register with the IP Office. The success or failure of that process will be displayed by the client.
10. If left with its default configuration, then on calls from an IP Office DS extension to the X-Lite client, the speech from the client will not be heard. The solution is to either configure the client with a single [audio codec](#) ²⁹⁾ or to perform the following process.

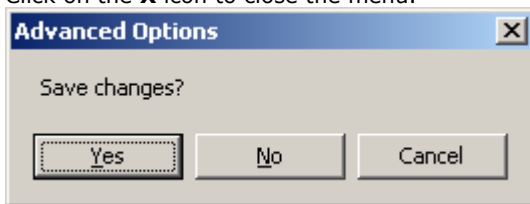
- a. Dial *****7469** and select call. The **Advanced Options** menu is displayed.



- b. Enter **honor** in the filter field and click **Apply Filter**.



- c. Set the value for **system:network:honor_first_codec** to **1**.
d. Click on the **X** icon to close the menu.



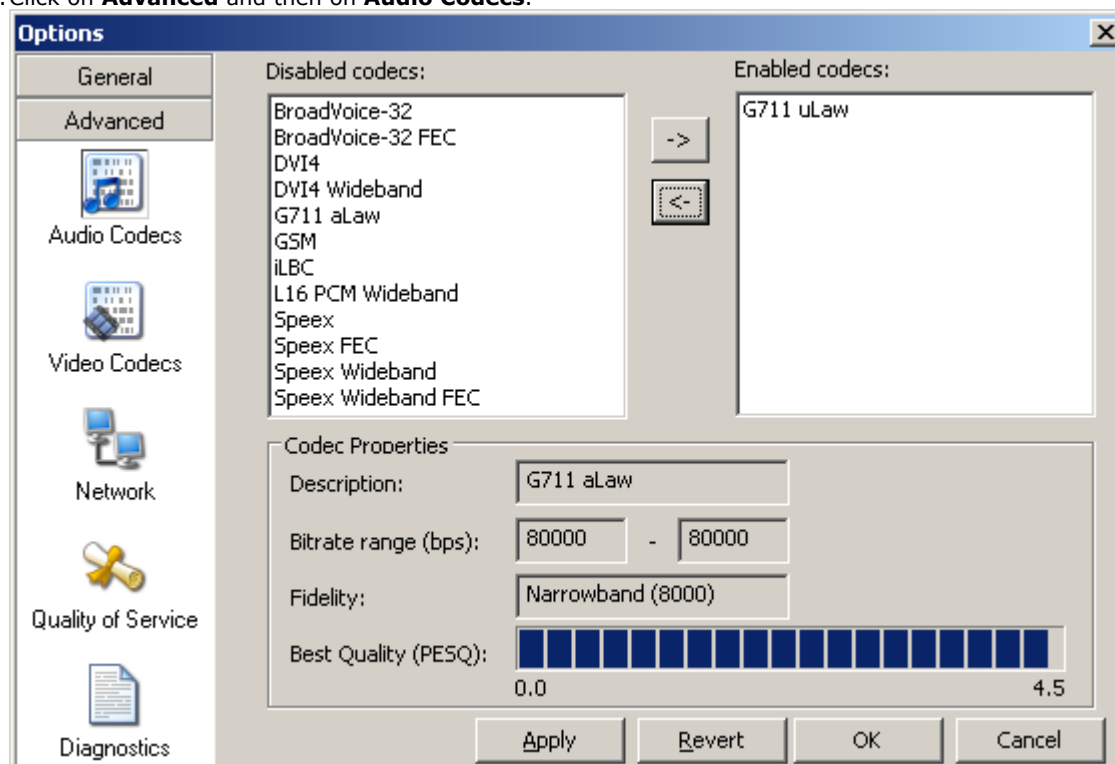
- e. Click on **Yes** to save the change.

- B.If installed using extension and user auto-creation, check the settings of the IP Office SIP extension and user created by the SIP devices registration.
C.Make test calls from and to the SIP device.
D.If not installing any further SIP devices, **Disable Auto-Create Extn/User** if it is enabled.

Codec Selection

If the X-Lite client is left configured to support multiple audio codecs, then on calls to the extension there will be no return speech from the client. This can be resolved by configuring the client to only support a single audio codec, matching one of the codecs configured for the IP Office SIP extension.

1. Click on the down arrow icon and select **Options**.
2. Click on **Advanced** and then on **Audio Codecs**.



3. Ensure that the **Enabled codecs** column contains just a single codec. That codec must be one supported by the IP Office extension configuration for the SIP extension.
4. Click **OK**.

2.4 Grandstream

Grandstream devices can support multiple user accounts for the same or different SIP provider accounts. The configured accounts are displayed on the phone display and the user can select which account is used when making a call. For IP Office operation, each account can represent a different IP Office SIP extension and user.

A. Either enable **Auto-Create Extn/User** or otherwise manually add SIP extensions and users to the IP Office configuration.

1. Browse to the IP address of the phone. By default the phone uses DHCP and displays its IP address on the display. Enter the password (the default is **admin**).
2. Click **Login**. Select **Account 1** or the account that you want to use for IP Office connection.

The screenshot shows the 'Grandstream Device Configuration' web interface. At the top, there are tabs for 'STATUS', 'BASIC SETTINGS', 'ADVANCED SETTINGS', 'ACCOUNT 1', 'ACCOUNT 2', 'ACCOUNT 3', 'ACCOUNT 4', 'ACCOUNT 5', and 'ACCOUNT 6'. The 'ACCOUNT 1' tab is selected. The configuration fields are as follows:

- Account Active:** No Yes
- Account Name:** Brad 4142
- SIP Server:** 192.168.42.1 (Annotation: System | LAN | LAN Settings | IP Address)
- Outbound Proxy:** 192.168.42.1
- SIP User ID:** 4142 (Annotation: User | User | Extension Extn | Base Extension)
- Authenticate ID:** Extn4142 (Annotation: User | User | Name)
- Authenticate Password:** (Annotation: User | Telephony | Call Settings | Login Code)
- Name:** Brad SiPhone

Below the account settings, there are SIP registration parameters:

- local SIP port:** 5060 (default 5060)
- SIP Registration Failure Retry Wait Time:** 20 (in seconds. Between 1-3600, default is 20)
- SIP T1 Timeout:** 1 sec
- SIP T2 Interval:** 4 sec
- SIP Transport:** UDP TCP
- Use RFC3581 Symmetric Routing:** No Yes
- NAT Traversal (STUN):** No No, but send keep-alive Yes
- SUBSCRIBE for MWI:** No Yes
- PUBLISH for Presence:** No Yes
- Proxy-Require:** (empty field)
- Voice Mail UserID:** *17 (UserID for voice mail system)

The **Preferred Vocoder** section is expanded, showing eight choices:

- choice 1: G.729A/B
- choice 2: PCMA
- choice 3: G.723.1
- choice 4: PCMU
- choice 5: G.726-32
- choice 6: iLBC
- choice 7: G.722 (wide band)
- choice 8: GSM

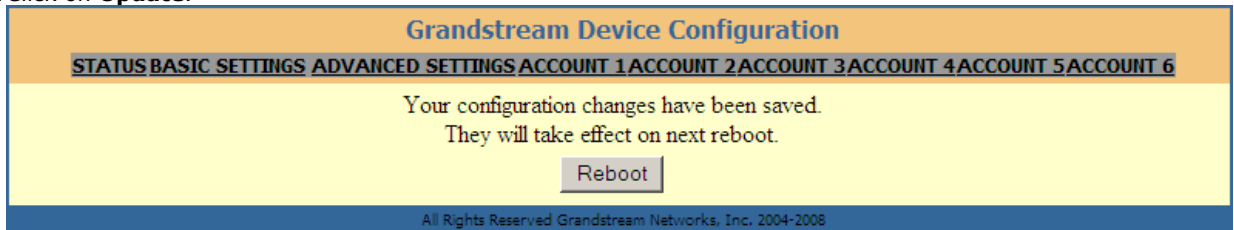
Other settings include:

- SRTP Mode:** Disabled Enabled but not forced Enabled and forced
- eventlist BLF URI:** (empty field)
- Special Feature:** Standard

At the bottom, there are buttons for 'Update', 'Cancel', and 'Reboot'. A footer note reads: 'All Rights Reserved Grandstream Networks, Inc. 2004-2008'.

3. Set the fields indicated above to match those required for the IP Office system.

4. Click on **Update**.



5. Click on **Reboot**. The phone may take up to 1 minute to reboot.



- B.If installed using extension and user auto-creation, check the settings of the IP Office SIP extension and user created by the SIP devices registration.
- C.Make test calls from and to the SIP device.
- D.If not installing any further SIP devices, **Disable Auto-Create Extn/User** if it is enabled.

2.5 Innovaphone IP22, IP24, IP28

A. Either enable **Auto-Create Extn/User** or otherwise manually add SIP extensions and users to the IP Office configuration.

1. Browse to the IP address of the unit.

Configuration	Info	Admin	License	Update	NTP	Sync	HTTP-Server	HTTP-Client	Logging	SNMP	Telnet	Certificates
General												
IP												
ETH0												
LDAP												
TEL1												
TEL2												
TEL3												
TEL4												
TEL5												

Version	7.00 hotfix3 IP28[09-70300.11], Bootcode[09-7030011], Hardware[402]
SerialNo	00-90-33-21-01-7d (9e)
DRAM	16 MB
FLASH	8 MB
Coder	8 Channels of G.711,G.726,G.729
Sync	-
SNTP Server	135.64.181.220
Time	05.06.2009 07:13
Uptime	17d 11h 37m 29s

2. In the left hand column select **GATEWAY**.

3. You will be prompted to login. The default user name is **admin**. The default password is **ip22**, **ip24** or **ip28** depending on the unit type.

Configuration	General	Interfaces	SIP	GK	Routes	CDR0	CDR1	Calls	admin	Help
General										
IP										
ETH0										
LDAP										
TEL1										
TEL2										
TEL3										
TEL4										
TEL5										

Call Logging

Route Logging

Billing CDRs only

Logging Filter(GW:Nr) :

Licenses

Name	Count	Usage

OK Cancel

4. Select **Interfaces**.

Configuration	General	Interfaces	SIP	GK	Routes	CDR0	CDR1	Calls	admin	Help
General										
IP										
ETH0										
LDAP										
TEL1										
TEL2										
TEL3										
TEL4										
TEL5										
TEL6										
TEL7										
TEL8										
Administration										
Gateway										

Interface	CGPN-In	CDPN-In	CGPN-Out	CDPN-Out	State	Alias	Registration
TEL1	+				Up		
TEL2	+				Up		
TEL3	+				Up		
TEL4	+				Up		
TEL5	+				Up		
TEL6	+				Up		
TEL7	+				Up		
TEL8	+				Up		
TEST	+						
TONE	+						
HTTP	+						
ECHO	+						

5. Select **TEL1** in the **Interfaces** page.

Name

Disable

Tones

Interface Maps

Internal Registration

Protocol

Feature Codes Support (with Feature Codes)

Dynamic Group

Direct Dial

Locked White List

OK Cancel Apply Delete Help

6. In the **Protocol** drop down list select **SIP**. Enter the details as indicated below to match your IP Office SIP extension and user.


7. Click **OK**.

Interface	CGPN-In	CDPN-In	CGPN-Out	CDPN-Out	State	Alias	Registration
TEL1	SIP4420	+			Up	:4420 → 135.64.181.220	
TEL2	SIP4421	+			Up		
TEL3	SIP4422	+			Up		
TEL4	SIP4423	+			Up		
TEL5	SIP4424	+			Up		
TEL6	SIP4425	+			Up		
TEL7	SIP4426	+			Up		
TEL8	SIP4427	+			Up		
TEST		+					
TONE		+					
HTTP		+					
ECHO		+					

8. Select **Routes**.

From	To	Counter CGPN Maps
------	----	-------------------

9. Two new routes are needed, one for dialing from the phone attached to the TEL port and one for incoming calls to the SIP account registered with the TEL port.

10. Click on the top-left  icon. For the source select the checkbox for the **TEL** port just configured. For the destination use the drop down list to select the matching **RAB** entry. Ensure that **Force enblock** is selected. This applies a 4 second timeout for dialing before the number dialed is sent to the destination.

Description Disable

TEL1 SIP4420 → RAB1 SIP4420 Cause(DISC)

RAB1 SIP4420

TEL2

RAB2

TEL3

RAB3

TEL4

RAB4

TEL5

RAB5 GW1

TEL6 GW2

RAB6 GW3

TEL7 GW4

RAB7 GW5

TEL8 GW6

RAB8

TEST

TONE

HTTP

ECHO

SIP1

SIP2

SIP3

SIP4

Add UUI

Final Route

Final Map

No Reroute on wrong No

Verify CGPN

Interworking(QSIG,SIP)

Rerouting as Deflection

Routing on Diverting No


Force enblock

Add #










Disable Echo Canceler


Call Counter max

OK Cancel Apply Help

11. Click **OK**. Click on the  next to the newly added route. This time selecting the check box for the same RAB entry and in the drop-down list selecting the TEL entry. Click **OK**.

12. The **Routes** form should show the routes just added. The b indicates the Force enblock setting of the outgoing dialing from the phone attached to the TEL1 port.

Configuration	General	Interfaces	SIP	GK	Routes	CDR0	CDR1	Calls	admin	Help
General										
IP										
ETH0										
LDAP										
		From		To		Counter	CGPN	Maps		
		TEL1:SIP4420			RAB1:SIP4420	b		→		
		RAB1:SIP4420			TEL1:SIP4420			→		

13. To edit an existing route click on the  arrow just before the To column.

- B. If installed using extension and user auto-creation, check the settings of the IP Office SIP extension and user created by the SIP devices registration.
- C. Make test calls from and to the SIP device.
- D. If not installing any further SIP devices, **Disable Auto-Create Extn/User** if it is enabled.

2.6 Nokia S60 v3 SIP Client

The Nokia S60 SIP Client is a SIP client application that can be installed and used on a range of Nokia phones. The process below was performed on a Nokia e64 but

For Nokia S60 SIP Clients, the IP Office SIP Extension setting **Force Authorization** should be disabled.

A. Either enable **Auto-Create Extn/User** or otherwise manually add SIP extensions and users to the IP Office configuration.

1. Select **Menu | Tools | Settings | Connection | Sip settings | New SIP profile.**

2. Enter the following settings:

- **Profile name:** Give the profile a name that indicates its function.
- **Service profile:** Select **IETP**.
- **Default access point:** Enter your access point.
- **Public user name:** Enter an address of the form **<IP Office extension number>@<IP Office SIP Enabled LAN IP address>**, for example **338@192.168.42.1**.
- **Use compression:** Select **no**.
- **Registration:** Select **always on**.
- **Use security:** Select **no**.
- **Proxy server:** Leave blank.
- **Registrar server:**
 - **Registrar server address:** Enter the IP Office SIP Enabled LAN IP address.
 - **Realm:** Enter an address of the form **<IP Office user name>@<IP Office SIP Enabled LAN IP address>**, for example **Extn338@192.168.42.1**.
 - **User name:** Enter the IP Office extension number.
 - **Password:** Enter the IP Office user's login code.
 - **Transport type:** Select auto.
 - **Port:** Match the port set on the IP Office LAN **SIP Registrar** tab, by default this is **5060**.

3. Select **Menu | Tools | Settings | Connection | Internet telephone | New profile.**

- Select the SIP profile just created above.

4. Select **Menu | Communication | Internet tel. | Options | Settings.**

- Change the **Default call type** to **Internet call**.

B. If installed using extension and user auto-creation, check the settings of the IP Office SIP extension and user created by the SIP devices registration.

C. Make test calls from and to the SIP device.

D. If not installing any further SIP devices, **Disable Auto-Create Extn/User** if it is enabled.

2.7 Patton Micro ATA

A. Either enable **Auto-Create Extn/User** or otherwise manually add SIP extensions and users to the IP Office configuration.

1. Browse to the IP address of the Micro ATA.
2. Login and select **SIP**.

3. Enter the values to match the settings of the IP Office LAN on which the SIP Registrar is enabled. Click **Save**.
4. Select **CODECS**.

5. Set the codecs to match those set for the IP Office SIP extension. Click **Save CODEC Configuration**.
6. Select **Phone 1**.

7. Enter the values to match the IP Office SIP extension and user settings. Click **Save**.

- B. If installed using extension and user auto-creation, check the settings of the IP Office SIP extension and user created by the SIP devices registration.
- C. Make test calls from and to the SIP device.
- D. If not installing any further SIP devices, **Disable Auto-Create Extn/User** if it is enabled.

2.8 Polycom SoundPoint Phones

A. Either enable **Auto-Create Extn/User** or otherwise manually add SIP extensions and users to the IP Office configuration.

1. Browse to the IP address of the phone. By default the phone uses DHCP and displays its IP address on the display.
2. Select **SIP**. You will be requested to enter the administrator name and password. The default values are **Polycom** and **456**.
3. in the **Outbound Proxy** and **Server 1** sections, set the **Address**, **Port** and **Transport** details to match the IP Office LAN on which the SIP registrar is enabled.

SIP Configuration Parameters:	
Servers	Local Settings
Servers	
Outbound Proxy	
Address	192.168.42.1
Port	5060
Transport	UDPonly
Server 1	
Address	192.168.42.1
Port	5060
Transport	UDPonly

4. Click **Submit**. The phone will reset and load the new settings. That can take up to 2 minutes.
5. When you can return to the administration menu, select **Lines**. In the Line 1 section, enter the details to match the IP Office SIP extension and user.

Line Parameters:	
Line 1	Line 2
Line 1	
Identification	
Display Name	SIP4637
Address	4637
Auth User ID	SIP4637
Auth Password	••••
Label	SIP4637
Type	<input checked="" type="radio"/> Private <input type="radio"/> Shared
Third Party Name	
Num Line Keys	
Calls Per Line Key	
Server 1	
Address	192.168.42.1
Port	5060
Transport	UDPonly

6. Click **Submit**. The phone will reset and load the new settings. That will take up to 2 minutes.
7. Select **Network** and then **Audio Processing**. Check that the codecs match those configured for the SIP extension on the IP Office. If you make any changes click **Submit** and wait for the phone to reset.

B. If installed using extension and user auto-creation, check the settings of the IP Office SIP extension and user created by the SIP devices registration.

C. Make test calls from and to the SIP device.

D. If not installing any further SIP devices, **Disable Auto-Create Extn/User** if it is enabled.

Chapter 3.

Document History

3. Document History

Date	Issue	Changes
14th May 2014	04a	<ul style="list-style-type: none">• General update for 9.1.• Change of auto create default and auto disablement after 24-hours.• SIP Extension auto-answer configuration options.

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