Deploying IP Office as an Avaya Cloud Office ATA Gateway

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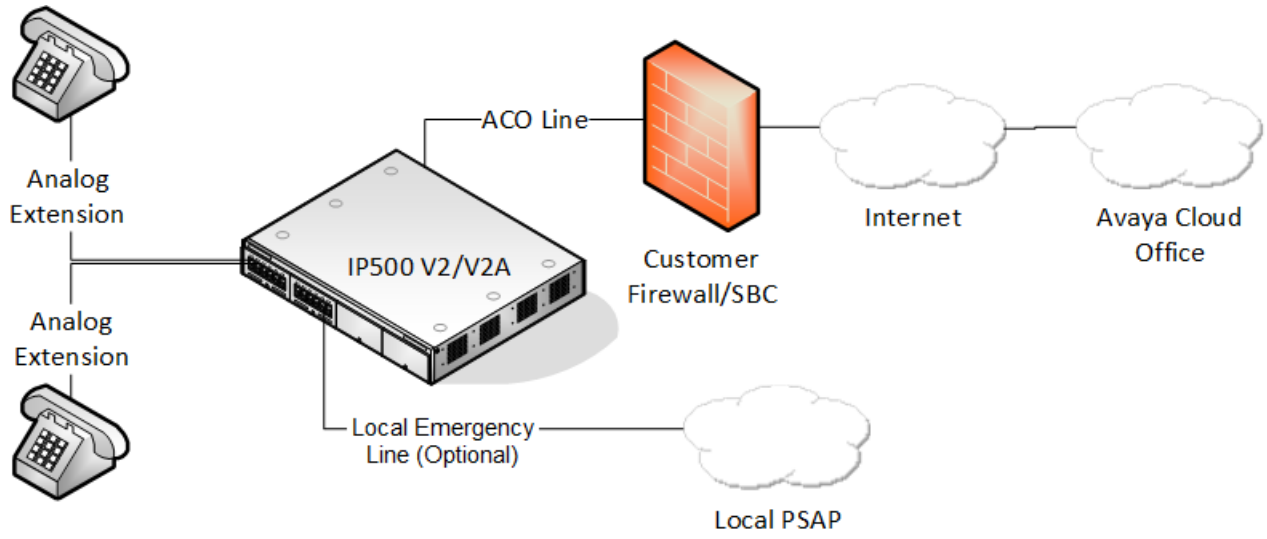
Contents

Chapter 1: Deploying IP Office as an Avaya Cloud Office™ gateway

This document covers the configuration of IP Office as an Avaya Cloud Office™ gateway (ACO ATA gateway). In this mode, IP Office analog extensions connect to Avaya Cloud Office™ as Avaya Cloud Office™ extensions. The IP Office uses an Avaya Cloud Office™ trunk to connect to Avaya Cloud Office™.



- Avaya only supports using an IP Office as an Avaya Cloud Office™ gateway with IP500 V2A control units running IP Office R11.1.2.3 or higher.
- Depending on the installed IP Office hardware, up to 376 analog extensions can connect to Avaya Cloud Office™ with a maximum of 40 simultaneous calls.
- Emergency calls use the Avaya Cloud Office™ emergency service or a local IP Office trunk (analog, PRI, or BRI).

Related links

Supported IP Office features on page 7
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IP Office hardware on page 8
Resilience on page 10
Call flow schematics on page 10
Other phones and extensions on page 13

Supported IP Office features

When using an IP Office system to support Avaya Cloud Office™ extensions, Avaya only supports the IP Office features detailed in this document. Enabling other features will cause unexpected or incorrect operation.

- Supported on IP Office IP500 V2A control units running IP Office R11.1.2.3 or higher.
- The solution supports up to 376 analog extensions.
- The solution uses SRTP for media security. This limits the maximum number of simultaneous calls to 40.
- The solution uses an ACO line to connect to Avaya Cloud Office™.
- The solution uses VCM channels for each current call. This requires the installation of VCM hardware.
- If not using the Avaya Cloud Office™ E911 emergency call service, the solution must use a local IP Office trunk for emergency calls
- The solution support fax calls using an analog extension (see Fax configuration on page 40).

Related links

Deploying IP Office as an Avaya Cloud Office gateway on page 6

Calls and call capacity

This solution supports up to 40 simultaneous calls between Avaya Cloud Office™ and IP Office analog extensions. Each call uses the following IP Office resources:

Resource Required per Call	Description
An IP Office Analog extension	Each analog extension requires an analog extension port on the IP Office system. The IP Office provides analog extension ports using base cards installed in the IP500 V2A control unit and/or external expansion modules attached to the control unit. See IP Office hardware on page 8.
An IP Office VCM Channel	The IP Office system uses VCM channels to convert audio between the analog extension and the ACO line. Each simultaneous call uses 1 VCM channel during the call. The IP Office provides VCM channels using hardware installed in the IP500 V2A control unit. See IP Office hardware on page 8.

Related links

Deploying IP Office as an Avaya Cloud Office gateway on page 6

IP Office licenses

Deploying an IP Office system as an ACO ATA gateway does not require any IP Office licenses. Instead, configured an IP Office as an ACO ATA gateway causes the generation of the two virtual licenses detailed below.

For any system configured to run in this mode, all licenses present in the system configuration except those listed below, become dormant.

Type	Description
Virtual Licenses	Initial configuration as an ACO ATA gateway automatically adds the following virtual licenses to the IP Office system: • **ACO System** • **ACO User**
Optional Licenses	By default, the IP Office system supports 8 call channels for each installed PRI port without requiring any licenses. If using a PRI trunk as a local emergency trunk, you only need this license if you want to enable additional call channels up to the maximum capacity of PRI ports installed and PRI mode selected. • **IP500 Universal PRI (Additional channels)**

Related links

Deploying IP Office as an Avaya Cloud Office gateway on page 6

IP Office hardware

The IP Office system supports up to 376 analog extensions connected to Avaya Cloud Office™ using the following hardware:

	Description
Control Unit	Avaya supports IP Office ACO ATA Gateway mode on IP500 V2A control units.
Avaya IP Office System SD Card	The IP Office uses the card's serial number to check its licenses.

Table continues…

<table>
<tr><th></th><th>Description</th></tr>
<tr><td>Analog Extension Ports</td><td>IP Office ACO ATA Gateway mode supports up to 376 analog extension ports:
IP500 Analog Phone Cards
These base cards provide either 2 or 8 analog extension ports depending on the card model.
IP500 ATM Combination Cards
Each of these base cards provides a combination of 6 digital extensions ports, 2 analog extension ports, 4 analog trunk ports and 10 VCM channels. You can install a maximum of 2 ATM combination cards. The solution does not support the digital extension ports.
IP400 Phone V2 External Expansion Modules
Each of these external expansion modules supports 16 or 30 analog extension ports depending on the module model.</td></tr>
<tr><td>VCM Channels</td><td>The IP Office system uses VCM channels to convert audio between the analog extensions and the ACO line. Each current call requires a VCM channel (up to the 40 simultaneous calls supported by this solution). The IP500 V2A supports up to 148 VCM channels using the following IP500 base cards.
IP500 ATM Combination Cards
Each combination card provides 10 VCM channels.
IP500 VCM Cards
These base cards provide 32 or 64 VCM channels depending on the card model. Note that the codec used also affects the maximum number of channels the card supports. The default IP500 V2A system codec is G.711. You can install a maximum of 2 VCM base cards.<table><tr><th>Codec</th><th>IP500 VCM 32</th><th>IP500 VCM 64</th></tr><tr><td>G.711 A-Law</td><td>32</td><td>64</td></tr><tr><td>G.711 U-Law</td><td>32</td><td>64</td></tr><tr><td>G.729ab</td><td>30</td><td>60</td></tr><tr><td>G.722</td><td>30</td><td>60</td></tr></table></td></tr>
<tr><td>Optional Hardware</td><td>Local Trunk
You can use an analog, BRI or PRI trunk to support local routing of emergency calls. For analog or PRI trunks, you can use any current IP500 V2A trunk card or external expansion module.
4-Port Expansion Card
You can use this base card to increase the number of supported external expansion modules to 12 (8 otherwise).</td></tr>
</table>

Additional Hardware Information

For additional information, refer to the Deploying an IP500 V2 IP Office Essential Edition System manual.

Related links

Deploying IP Office as an Avaya Cloud Office gateway on page 6

Resilience

For calls between IP Office and Avaya Cloud Office™ there is no IP Office resilience support.

Scenario	Description
ACO Line connection not available	The IP Office will continue attempting to register the extensions with Avaya Cloud Office™ until successful. When in this state, the IP Office system still supports emergency calls if using a local trunk.
IP Office power failure	If using a local analog trunk for emergency calls, depending on the IP Office hardware, some analog extensions can still make emergency calls. See IP Office power fail operation on page 16.

Related links

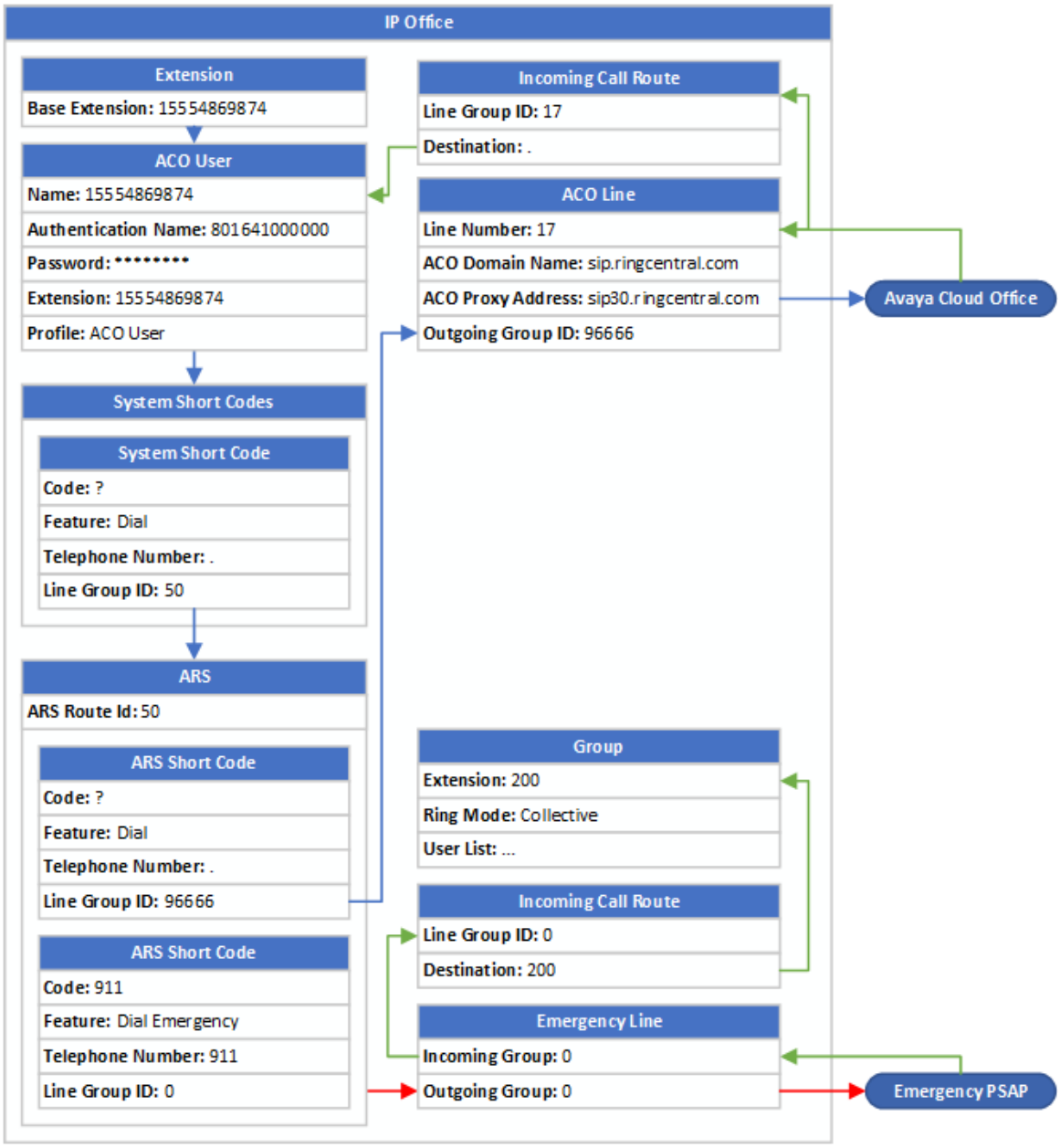
Deploying IP Office as an Avaya Cloud Office gateway on page 6

Call flow schematics

The following schematics show the call flow and configuration with the IP Office for calls to/from Avaya Cloud Office™.

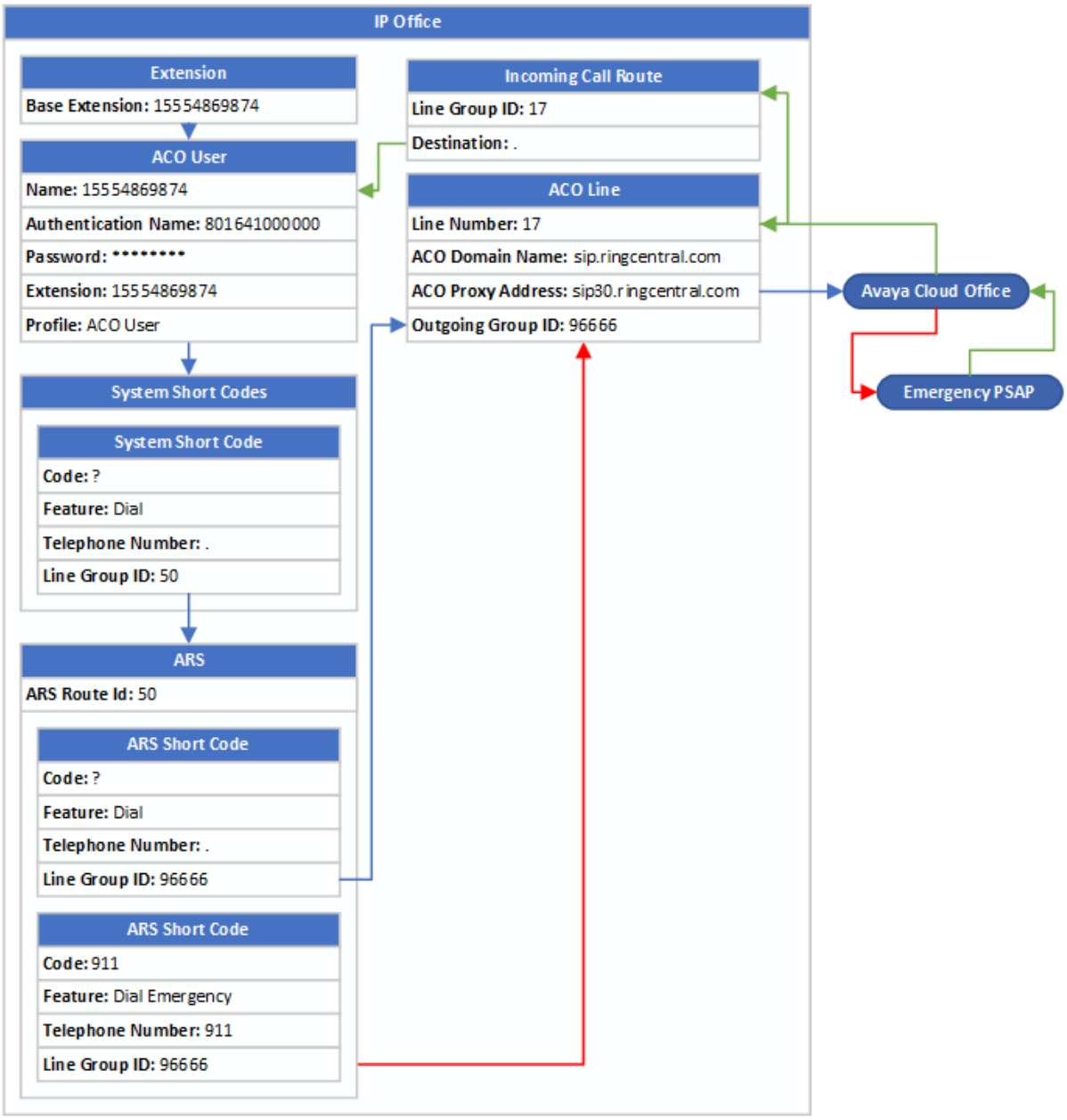
Call flow using a local emergency line

This schematic shows a simplified example of the IP Office call flow for calls to/from the Avaya Cloud Office™when using a local IP Office line for emergency calls.



Call flow using the ACO E911 emergency service

This schematic shows a simplified example of the IP Office call flow for calls to/from the Avaya Cloud Office™ when using the ACO E911 emergency service for emergency calls.



Related links

Deploying IP Office as an Avaya Cloud Office gateway on page 6

Other phones and extensions

This solution only supports analog extensions connecting to Avaya Cloud Office™.

- If the IP Office hardware used includes non-analog extension ports, Avaya does not support the use of those additional ports.
  - You must clearly label the additional extension ports as non-functional.
  - You must remove any user records created in the IP Office configuration for the non-ACO extensions.
  - Note: The system automatically creates extension records for all physical extension ports. Even if you remove these, the system automatically recreates them after any system restart.
- Other IP phones, including Avaya phones, can connect from the customer site to Avaya Cloud Office™ directly. The provisioning and operation of those phones is separate from the IP Office.

Related links

Deploying IP Office as an Avaya Cloud Office gateway on page 6

Codecs

The following codecs are supported for connections between IP Office and Avaya Cloud Office™. For the IP Office system, these are provided by the installed VCM resources. See IP Office Hardware on page 8.

- **G.711 A-Law**
- **G.711 U-Law**
- **G.722**
- **G.729ab**

Related links

Deploying IP Office as an Avaya Cloud Office gateway on page 6

Ports and protocols

The document https://support.avaya.com/public/index?page=content&id=DOCS100741 provides a summary for phones and softphones connecting to Avaya Cloud Office™. For analog extensions connecting through IP Office, the IP Office ACO line connects the analog extension using secure RTP.

Outbound traffic

Traffic Type	Protocol	Destination Port
Media - Secure	SRTP/UDP	20000 to 64999
Signaling - Secure	SIP/TLS/TCP	5096

Inbound traffic

Traffic Type	Protocol	Destination Port
Media - Secure	SRTP/UDP	20000 to 64999
Signaling - Secure	SIP/TLS/TCP	5060

Related links

Deploying IP Office as an Avaya Cloud Office gateway on page 6

Glossary

Abbreviation	Definition
ARS	*Automatic Route Selection* An IP Office ARS entry is a set of short codes used to set which telephone line or lines the system should use to route calls.
ATA	*Analog Terminal Adaptor* A device that allows an analog telephone to connect to a non-analog port. In this case, the IP Office is acting as an ATA for multiple analog extensions to connect to Avaya Cloud Office™.
FXS	*Foreign Exchange Service* A term for scenarios where one telephone system supports extensions on another telephone system as if those extensions are local to itself. In this case, Avaya Cloud Office™ supports IP Office extensions as if directly connected to Avaya Cloud Office™.
PSAP	*Public Service Access Point* The service to which calls to emergency numbers connect. The PSAP responder relays information as needed to the relevant emergency service. That information can include any address information held by the PSAP for the telephone number from which the emergency call originated.

Related links

Deploying IP Office as an Avaya Cloud Office gateway on page 6

Chapter 2: Emergency call support options

The customer solution must support emergency calls. The options are:

- Routing emergency calls to the E911 service available from Avaya Cloud Office™.
- Using a local IP Office trunk for emergency calls.

Related links

Using the Avaya Cloud Office E911 emergency service on page 15
Local IP Office emergency trunk call routing on page 16
IP Office power fail operation on page 16
Testing emergency call operation on page 16

Using the Avaya Cloud Office E911 emergency service

If not using a local IP Office trunk for emergency calls, the IP Office must use the Avaya Cloud Office™ E911 Emergency service for emergency calls. When using that service:

- The customer must comply with the Avaya Cloud Office™ **Emergency Calling Policy**. See https://www.ringcentral.com/legal/last-update-may-31-2022/emergency-services.html.
- Users must configure and maintain their correct address details. See https://onecare.avaya.com/AvayaCloudOffice/kb/public/DOCS100485.

Warning:

Certain events, including the following, can prevent you from reaching emergency services:

- An Internet or power outage.
- If your broadband, ISP, or IP telephony services are suspended or terminated.
- Suppose you are in a country other than the one in which your IP line to Avaya Cloud Office™ is provided. For example, if you have a US line and travel to the UK, you cannot reach the UK emergency services number.
- Suppose you are in a country where RingCentral is not permitted or cannot complete emergency calls.
- If there is network congestion that delays or prevents completion of calls to the emergency services.

Related links

Emergency call support options on page 15

Local IP Office emergency trunk call routing

If not using the Avaya Cloud Office™ emergency service, the IP Office must support emergency calls using a local IP Office trunk. For an IP Office connected to Avaya Cloud Office™, Avaya supports local trunk emergency calls using an analog, PRI, or BRI trunk.

For more information on IP Office emergency call operation, see the IP Office Emergency Call Configuration manual.

Related links

Emergency call support options on page 15

IP Office power fail operation

When using a local analog trunk for emergency calls, IP Office IP500 V2A systems support options for power failure scenarios. These enable some analog extensions to connect to the analog trunks to make emergency calls. See the Deploying an IP500 V2 IP Office Essential Edition System manual.

Related links

Emergency call support options on page 15

Testing emergency call operation

You must test emergency call operation following local laws and regulations. In some locations, making calls to the Public Service Access Point (PSAP) when there is no emergency is illegal.

- If the PSAP allows test calls using the emergency call numbers, do not end the calls without informing the PSAP responder that the call is a test.
- Some PSAP providers support an emergency call test number. When called, an automated response announces the address the PSAP has on record for the calling number. Where supported, configure the test number in the IP Office configuration to use the same call routing as the emergency numbers.
  - The Avaya Cloud Office™ E911 emergency service supports using 933 as an emergency call test number.

Related links

Emergency call support options on page 15

Chapter 3: Obtaining Avaya Cloud Office™ details

To configure the IP Office, you need to obtain a range of information from Avaya Cloud Office™.

Related links

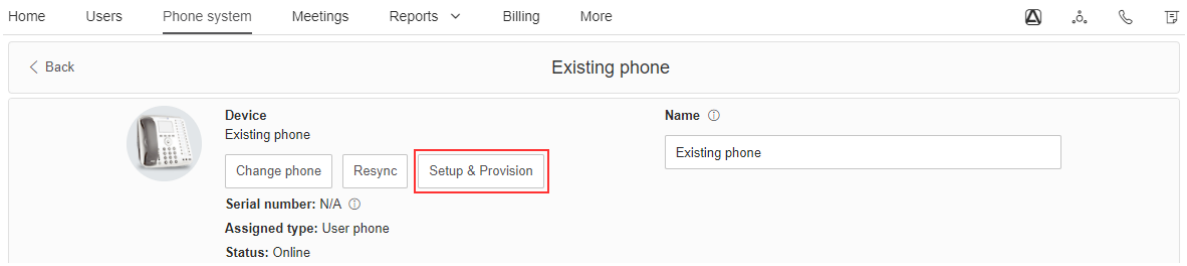
[Setting up the ACO user phone details](#) on page 17
[Downloading the ACO certificates](#) on page 19

Setting up the ACO user phone details

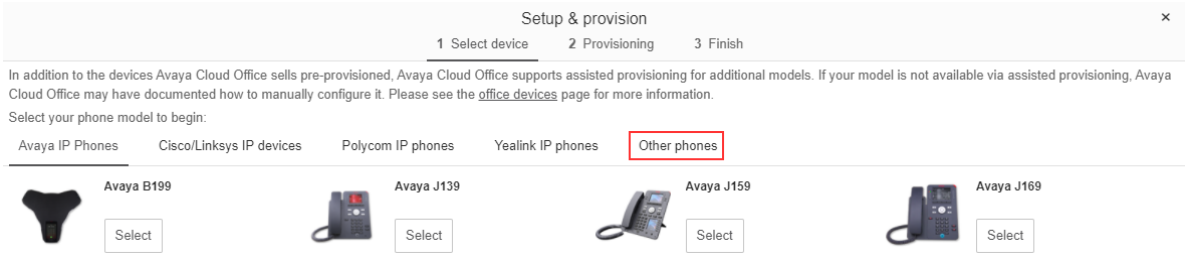
The configuration of the IP Office ACO line requires details provided by Avaya Cloud Office™.

Procedure

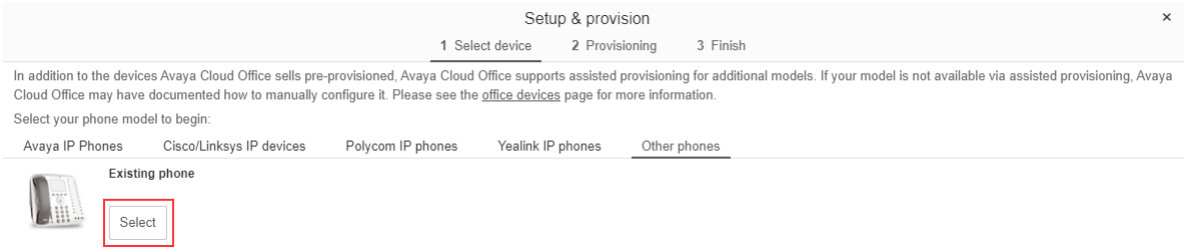
1. As a system administrator, login to Avaya Cloud Office™ at https://service.cloudoffice.avaya.com.
2. Select **Phone System** > **Phones & Devices** > **User Phones**.
3. Within the Avaya Cloud Office™ administration menus, setup the Avaya Cloud Office™ user's phone.
4. Click the **Existing Phone** link next to the required user.
5. Click **Setup & Provision**.



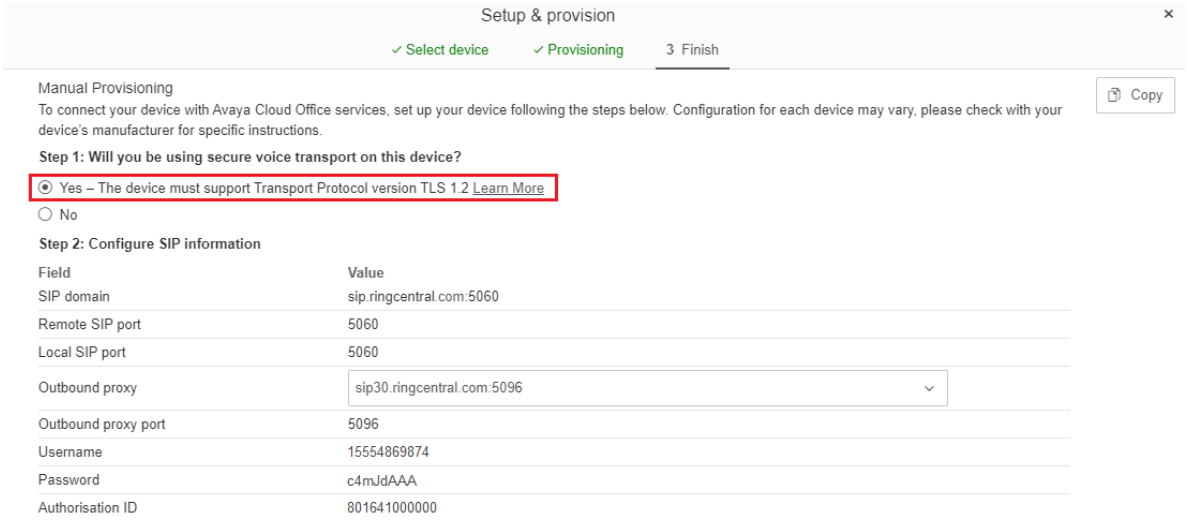
6. In the **Select device** menu, select **Other phones**.



7. Under **Existing Phone**, click **Select**.



8. In the **Provisioning** menu, set **Will you be using secure voice transport on this device?** to **Yes**.



9. Note the settings. You can use the **Copy** button to copy the details into a document. Whilst the line settings are the same for each user, the user/extension values are different for each user.

ACO Value	IP Office Line Value
SIP Domain	**ACO Line** > **ACO** > **ACO Domain Name** without the port number.
Outbound proxy	**ACO Line** > **ACO** > **ACO Proxy Address** without the port number.

ACO Value	IP Office User/Extension Value
Username	**User** > **User** > **User Name** **User** > **User** > **Extension** **Extension** > **Extension** > **Base Extension**
Password	**User** > **User** > **Password**
Authorization ID	**User** > **User** > **Authentication Name**

10. Click **Done**.

Next steps

- Go to Downloading the ACO certificates on page 19.

Related links

Obtaining Avaya Cloud Office details on page 17

Downloading the ACO certificates

The connection between the IP Office and Avaya Cloud Office™ use SRTP and TLS. To support both, you need to obtain two certificates from Avaya Cloud Office™.

Procedure

1. Using the following links, download the two certificates:

Certificate	Source
Intermediate Certificate	https://www.websecurity.symantec.com/content/dam/websitesecurity/support/digicert/thawte/ica/Thawte_EV_RSA_CA_2018.pem
Root Certificate	https://www.websecurity.symantec.com/content/dam/websitesecurity/support/digicert/thawte/root/DigiCertHighAssuranceEVRootCA.pem

2. Save the certificate files.

Next steps

- Go to Configuring the IP Office system on page 20.

Related links

Obtaining Avaya Cloud Office details on page 17

Chapter 4: Configuring the IP Office system

The processes in this section prepare the IP Office system for the configuration of the Avaya Cloud Office™ user extensions.

- This document does not cover the configuration of other equipment such as the customer network, firewalls, and any SBC equipment.

Related links

Prerequisites

Ensure that you have the following prerequisites:

- Avaya Cloud Office™ user details. See Setting up the ACO user phone details on page 17.
- Avaya Cloud Office™ certificate files. See Downloading the ACO certificates on page 19.
- IP Office license file including:
  - An **ACO System** for the system.
  - An **ACO User** instance for each Avaya Cloud Office™ analog extension user.
  - If using a local PRI trunk as the emergency line, the license file may also need an **IP500 Universal PRI (Additional channels)** license.

Next

- Assemble and install the IP Office hardware using the details in the Deploying an IP500 V2 IP Office Essential Edition System manual.
- When complete, go to Running the initial IP Office configuration utility on page 21.

Related links

Configuring the IP Office system on page 20

Running the initial IP Office configuration utility

This process runs the initial configuration menu on the IP500 V2A control unit.

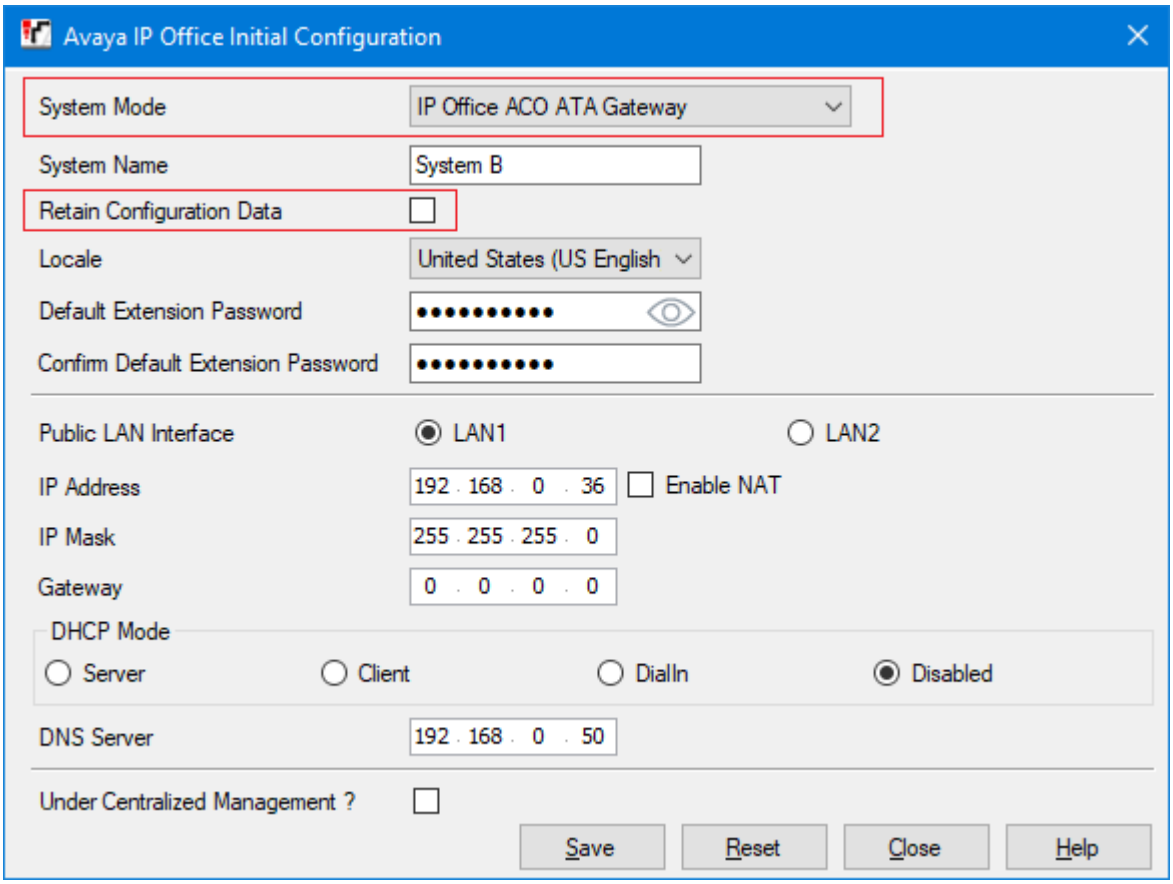
Warning:

- Running this process on an existing system erases the existing configuration and ends all current calls and services.

Procedure

1. Load the IP Office configuration in IP Office Manager.
   a. On an existing IP Office system: If using IP Office Manager, click **File** > **Initial Configuration**. If using IP Office Web Manager, select **Solution** > **Actions** > **Initial Configuration**. Click **OK**.
   b. On a new system: Set and note the new values for the system passwords.

2. In the initial configuration menu:



   a. Set the **System Mode** to **IP Office ACO ATA Gateway**.

   b. Deselect **Retain existing configuration**.

   c. Configure the settings to match the customer's locale and network. Note that this affects the default settings for the flash hook signal used by the system. For more details, see Adjusting the flash hook timers on page 39.

   d. Click **Save**.

   e. The new system configuration opens in IP Office Manager.

3. From the navigation pane, select  **System**.

4. Select the **Telephony** tab and then the **Telephony** sub-tab.

   a. Set the **Dial Delay Time (sec)** to 4 seconds.

   b. Set the **Dial Delay Count** to 15.

   c. Switch the **Inhibit Off-Switch Forward/Transfer** setting off.

5. Select the **Voicemail** tab.

   Set the **Voicemail Type** to **<None>**.

6. Click the icon.

Next steps

- Go to Adding IP Office licenses on page 23.

Related links

Configuring the IP Office system on page 20

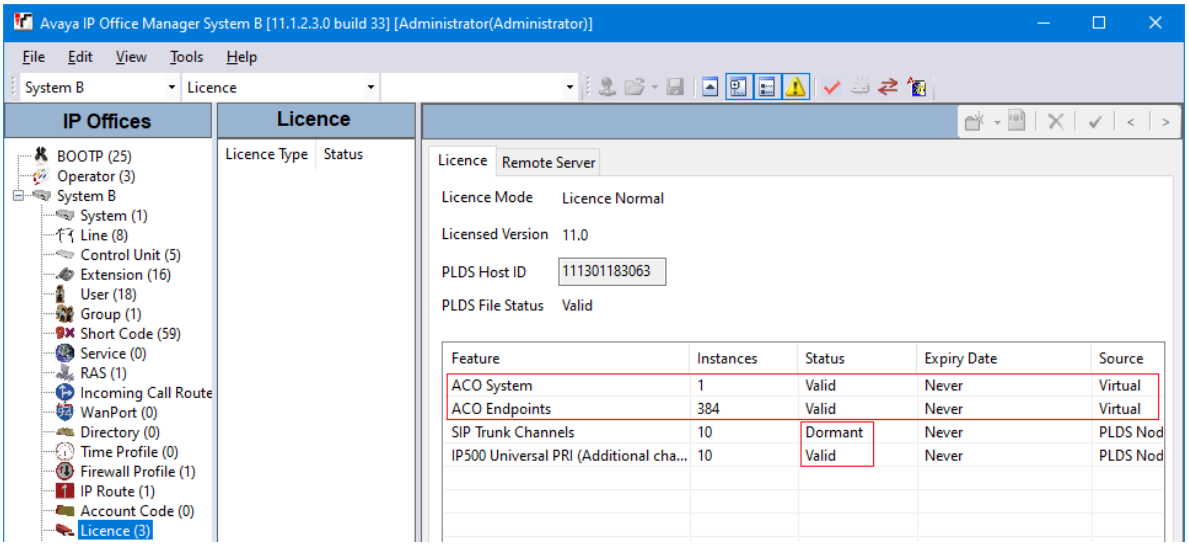
Adding IP Office licenses

You only need to follow this process if you are using a local PRI line for emergency calls and want to license additional PRI call channels above the default 8 per PRI port. Otherwise, go to Adding the ACO certificates on page 24.

The file is a single .xml file containing all the system licenses. These are issued against the serial number of the system's Avaya System SD card.

Procedure

1. Load the IP Office configuration in IP Office Manager.
2. From the navigation pane, select **License**.



- When configured as an IP Office ACO ATA Gateway system, the IP Office shows two virtual licenses:**ACO System** and **ACO User**.
- If the system already had a license file loaded, any other licenses, except **IP500 Universal PRI (Additional channels)**, should appear as **Dormant** or **Obsolete**.

3. Click **Add** and select the license .xml file for the system.

4. IP Office Manager lists the licenses in the file. However, at this stage the reported status of the new licenses is incorrect.
5. Click **File** > **Close Configuration** and then reload the configuration.
6. From the navigation pane, select  **License** again.
7. Check the status of the licenses.
   - The **ACO System** and **ACO User** licenses should appear as **Virtual**.
   - Any optional **IP500 Universal PRI (Additional channels)** license should appear as **Valid**.
   - All other licenses should appear as **Dormant** or **Obsolete**.

Next steps

- Go to Adding the ACO certificates on page 24.

Related links

Configuring the IP Office system on page 20

Adding the ACO certificates

The following process uploads the certificates needed for TLS connection to Avaya Cloud Office™ (see Downloading the ACO certificates on page 19).

⚠ Warning:

- This process causes IP500 V2A operation to slow for a minute and end any calls currently in progress.

Procedure

1. Load the IP Office configuration in IP Office Manager.
2. Select **File** > **Advanced** > **Security Settings**.
3. From the navigation pane, select  **System**.
4. Click on the **Certificates** tab.
5. In the **Trusted Certificate Store** section:
   a. Click **Add**.
   b. Select **Import Certificate** from file and click **OK**.
   c. Note the warning and click **OK**.
   d. Select the intermediate certificate file and click **OK**.
   e. Repeat the process for the root certificate file.

6. Click **OK**.
7. Click the icon.
8. Select **File** > **Configuration** to return to normal configuration editing.

Next steps

- Go to Configuring the local lines on page 25.

Related links

Configuring the IP Office system on page 20

Configuring the local lines

This document does not cover the configuration of the local IP Office line(s) other than the ACO line. For details of configuring other types of line, refer to the Deploying an IP500 V2 IP Office Essential Edition System manual.

Procedure

1. Ensure that any trunk ports not used are set as **Out of Service**. You can do this using the **Line** > **Admin Setting** setting.
2. For digital trunks, ensure that the number of channels configured matches those licensed and provided by the line provider. Depending on the trunk type, you can do this using a 'number of channels' settings or a channel specific status setting.

Next steps

- Go to Adding the ACO line on page 25.

Related links

Configuring the IP Office system on page 20

Adding the ACO line

This document does not cover the configuration of other equipment such as the customer network, firewalls, and any SBC equipment.

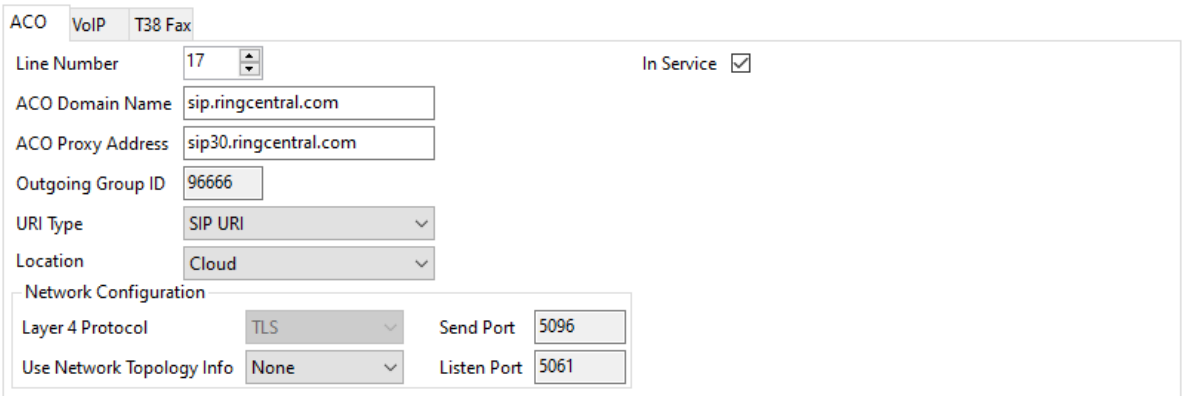
You need to configure the line using the user details obtained from Avaya Cloud Office™ (see Setting up the ACO user phone details on page 17).

This process covers adding a new ACO line to the IP Office system configuration for calls to/from Avaya Cloud Office™. The IP Office only requires a single ACO line.

Procedure

1. Load the IP Office configuration in IP Office Manager.

2. Click **Line** in the navigate pane. Click the icon and select **ACO Line**.
3. Select the **ACO** tab:



   - Use the values obtained when setting up the ACO user phone details to configure the ACO line:

ACO Value	IP Office Line Value
SIP Domain	**ACO Line** > **ACO** > **ACO Domain Name** without the port number.
Outbound proxy	**ACO Line** > **ACO** > **ACO Proxy Address** without the port number.

4. Note the **Line Number**. You need to use this value to create an incoming call route for calls from Avaya Cloud Office™. Change the value if required.
5. Set the **Use Network Topology Info** setting to match the requirements of the customer's network and internet connection:
   - **None** - The system determines routing for the line using address matches in the IP Office system's routing tables.
   - **LAN1LAN2** - Use the matching LAN's **System** > **LAN1** > **Network Topology** settings.
6. Select the **VoIP** tab. Check that the settings match the following defaults.
7. Select the **T38 Fax** tab. Check that the tab is set to **Use Default Values**.
8. Click the icon.

Next steps

- Go to Edit the system short codes on page 27.

Related links

Configuring the IP Office system on page 20

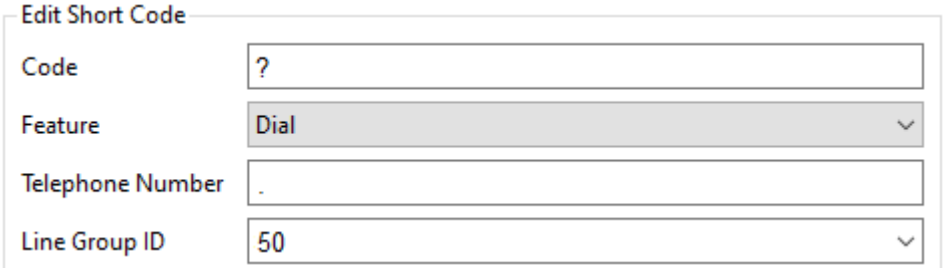
Edit the system short codes

The system short codes need 2 major changes:

- Remove all system short codes for IP Office features. Avaya do not support those features for an IP Office in IP Office ACO ATA Gateway mode.
- Add an emergency short code(s) for emergency numbers.
- Note: IP Office ACO ATA Gateway mode does not support user short codes.

Procedure

1. Load the IP Office configuration in IP Office Manager.
2. From the navigation pane, select **Short Code**.
3. **Delete the default system short codes:**
   a. Use the Group Pane (**View** > **Group Pane**).
   b. Select and highlight all the existing short codes.
   c. Right-click on the short codes and select **Delete**.
4. **Add an outgoing calls short code:**



   a. Click the icon and select **Short Code**.
   b. Set the **Code** to `?`
   c. Set the **Feature** to **Dial**.
   d. In the **Telephone Number** field, enter a `.` (a full-stop or period).
   e. Set the **Line Group ID** to `50`.
   f. Click **OK**.
5. Click **OK**.
6. Click the icon.

Next steps

- Go to Edit the outgoing automatic call route selection (ARS) on page 28.

Related links

Configuring the IP Office system on page 20

Edit the outgoing automatic call route selection (ARS)

The system short code routes all dialing to the matching IP Office automatic route selection (ARS). The ARS is configured with additional short codes that set where numbers are routed.

Procedure

1. Load the IP Office configuration in IP Office Manager.
2. From the navigation pane, select **ARS**.
3. Select the **ARS** called **Main**.
4. **Add an Outgoing Calls Short Code:** This short code routes all dialing, other than emergency calls, to the ACO line.
   a. Click the icon and select **Short Code**.
   b. Set the **Code** to `N;` The ; (semi-colon) is important for correct operation.
   c. Set the **Feature** to **Dial**.
   d. In the **Telephone Number** field, enter an `N`.
   e. Set the **Line Group ID** to 96666.
   f. Click **OK**.
5. **Add an Emergency Call Short Code:**
   a. Click the icon and select **Short Code**.
   b. Set the **Code** to **911**.
   c. Set the **Feature** to **Dial Emergency**.
   d. In the **Telephone Number** field, enter **911**.
   e. Set the **Line Group ID** as follows:
      - If using the ACO emergency service, set the **Line Group ID** to 96666.
      - If using a local IP Office emergency line, set the **Line Group ID** to match the **Outgoing Group** setting of that line.
   f. Click **OK**.
6. Repeat the process for any other emergency numbers required.
7. Click **OK**.
8. Click the  icon.

Next steps

- Go to Create a PSAP callback hunt group on page 29.

Related links

Configuring the IP Office system on page 20

Create a PSAP callback hunt group

When using a local emergency trunk, this process allows the emergency public service access point (PSAP) to make return calls. For example, when a caller to the PSAP unexpectedly disconnects. To achieve this:

- Create an emergency hunt group containing extensions staffed during normal business hours.
- Create an incoming call route from the line used for outgoing emergency calls. Configured the group as the destination.

Procedure

1. Load the IP Office configuration in IP Office Manager.
2. Create an emergency callback group: The group should contain user extensions staffed during normal business hours.
    a. From the navigation pane, select **Group**.
    b. Click on the existing group "Main".
    c. Change the **Name** to match group's function. For example, "Emergency".
    d. Check that the **Ring Mode** is set to **Collective**.
    e. Edit the list of users: By default, the system automatically adds the first 16 extensions to the group. However, these may not match the require extension users for emergency callback calls.
        a. In the **User List**, click **Edit**.
        b. Edit the list of users as needed.
        c. Click **OK**.
    f. Click **OK**.
3. Route calls to the emergency callback group: From the navigation pane, select **Incoming Call Route**.
    a. Click the icon and select **Incoming Call Route**.
    b. On the **Standard** tab, use the **Line Group ID** to select the **Incoming Group** value used for the local emergency trunk(s).
    c. Select the **Destinations** tab.
    d. For the **Destination** and **Fallback Extension** settings, select the emergency callback group.
    e. Click **OK**.
4. Click the icon.

Next steps

- Go to Configuring the IP Office ACO users on page 31.

Related links

Configuring the IP Office system on page 20

Chapter 5: Configuring the IP Office ACO users

The processes in this section configure the IP Office analog extension users.

Related links

Configuring the IP Office ACO users on page 31
Configuring the IP Office ACO extensions on page 32
Configuring incoming call routing on page 33
Checking ACO registration on page 34
Testing operation on page 35

Configuring the IP Office ACO users

When first started, the IP Office system automatically creates user and extension entries for each extension port. For the analog extension ports, use the following process to configure the extensions associated user as an ACO extension user.

You need to configure each user using the user details obtained from Avaya Cloud Office™ (see Setting up the ACO user phone details on page 17).

Important:

- You must reboot the system after any changes to any ACO extension, user or line settings. You must do this even if IP Office Manager indicates that the changes are mergeable.

Procedure

1. Load the IP Office configuration in IP Office Manager.
2. From the navigation pane, select **User**.
3. Select the required user.
4. Select the **User** tab:
   a. Set the user's **User Profile** to **ACO User**.
   b. Set the user's **Name**, **Authentication Name**, **Password** and **Extension** values to match those provided for the user by Avaya Cloud Office™.

ACO Value	IP Office User/Extension Value
Username	**User** > **User** > **User Name** **User** > **User** > **Extension** **Extension** > **Extension** > **Base Extension**
Password	**User** > **User** > **Password**
Authorization ID	**User** > **User** > **Authentication Name**

- IP Office Manager display warnings regarding the password length not matching the IP Office system requirements. Ignore those warnings.

c. Click **OK**.

5. Delete all other users not used for Avaya Cloud Office™ extension. Avaya does not support them in IP Office ACO ATA Gateway mode and removing them helps simplify system maintenance. See Other phones and extensions on page 13.
6. Repeat the process for the next user extension.
7. Click the icon.

Next steps

- Go to Configuring the IP Office ACO extensions on page 32.

Related links

Configuring the IP Office ACO users on page 31

Configuring the IP Office ACO extensions

You need to change the extension number associated with each analog extension to match the ACO user's number.

- **Other extensions:** The IP Office automatically creates an extensions entry for each physical extension ports. Those extensions not used as ACO extensions cannot be deleted but are not supported on an IP Office system in IP Office ACO ATA Gateway mode. See Other phones and extensions on page 13.

Important:

- You must reboot the system after any changes to any ACO extension, user or line settings. You must do this even if IP Office Manager indicates that the changes are mergeable.

Procedure

1. Load the IP Office configuration in IP Office Manager.
2. From the navigation pane, select **Extension**.

3. Select the required analog extension.
4. Select the **Extension** tab.
5. Change the **Base Extension** to match the ACO user's number.

ACO Value	IP Office User/Extension Value
Username	**User** > **User** > **User Name** **User** > **User** > **Extension** **Extension** > **Extension** > **Base Extension**
Password	**User** > **User** > **Password**
Authorization ID	**User** > **User** > **Authentication Name**

6. Select the **Analog** tab.
   a. Check that the **Equipment Classification** is set to **Standard Telephone**. That includes extensions used for fax machines.
   b. Check the **Flash Hook Pulse Width** is set to **Use System Defaults**. This matches the default settings for the system's configured **Locale**. See Adjusting the Flash Hook Timers on page 39 for more details.
7. Repeat the process for the next user extension.
8. Click the  icon.

Next steps

- Go to Configuring incoming call routing on page 33.

Related links

Configuring the IP Office ACO users on page 31

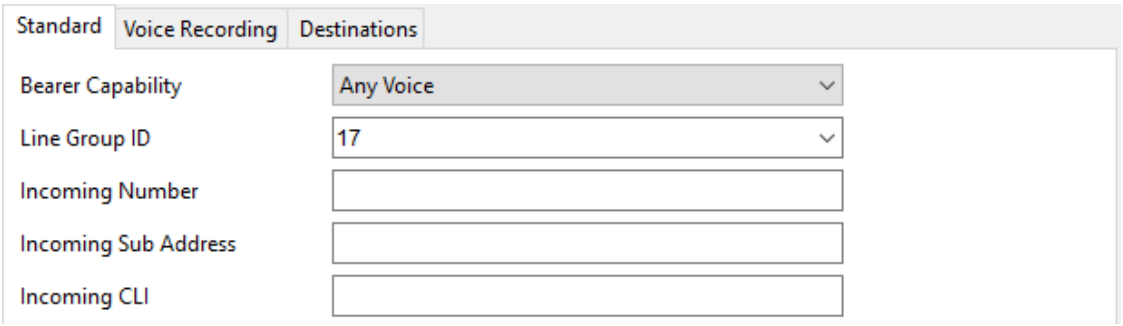
Configuring incoming call routing

You need to add an incoming call route for calls from Avaya Cloud Office™.

Procedure

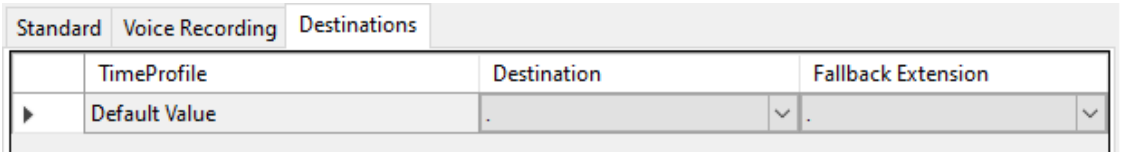
1. Load the IP Office configuration in IP Office Manager.
2. From the navigation pane, select  **Incoming Call Route**.
   a. Click the  icon and select **Incoming Call Route**.

b. On the **Standard** tab, for the **Line Group ID** , manually enter the **Line Number** shown in the configuration for the ACO Line.



c. Select the **Destinations** tab.

d. For the **Destination** and **Fallback Extension** settings, enter **.** (a period or full-stop).



e. Click **OK**.

3. Click the icon.

Next steps

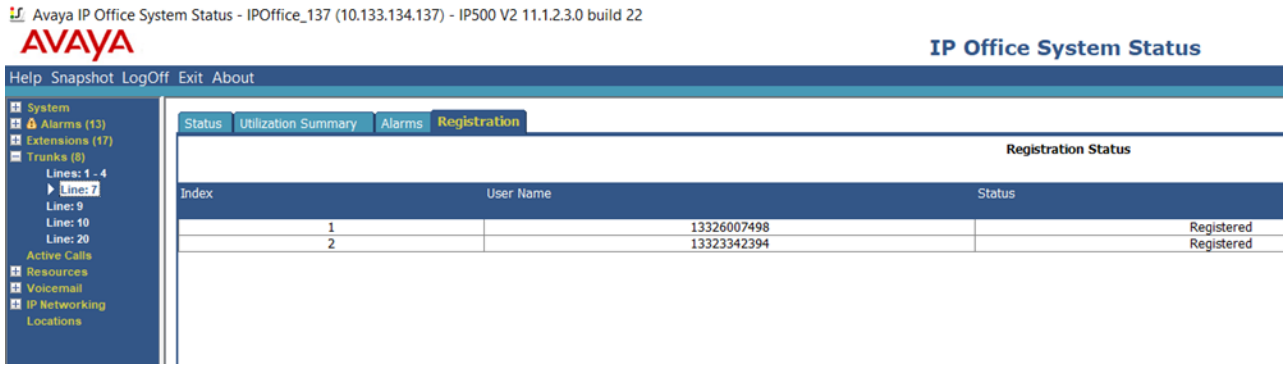
- Go to Checking ACO registration on page 34.

Related links

Configuring the IP Office ACO users on page 31

Checking ACO registration

Using the System Status Application, you can view the status of the user's registrations with Avaya Cloud Office™.



Procedure

1. Connect to the IP Office system using System Status Application.
2. Expand the **Trunks** list and select the trunk number that matches the ACO line.
3. Select the **Registration** tab. The tab displays the status of each user's registration to Avaya Cloud Office™.
4. If the tab show issues for some users, check their user settings. If the tab shows issues for all users, check the ACO line settings.

Next steps

- Go to Testing operation on page 35.

Related links

Configuring the IP Office ACO users on page 31

Testing operation

Test call operation.

Procedure

1. Test calls between the Avaya Cloud Office™ users. The calls should route to Avaya Cloud Office™ and then back to the IP Office and the called Avaya Cloud Office™ user.
2. Test calls from Avaya Cloud Office™ extensions to an external PSTN number.
3. Test calls from an external PSTN number to the Avaya Cloud Office™ extensions.
4. Test that the system blocks calls to IP Office features.
5. Using the locally allowed protocol, make test emergency calls.
   - If the PSAP allows test calls using the emergency call numbers, do not end the calls without informing the PSAP responder that the call is a test.
   - Some PSAP providers support an emergency call test number. When called, an automated response announces the address the PSAP has on record for the calling number. Where supported, configure the test number in the IP Office configuration to use the same call routing as the emergency numbers.
     - The Avaya Cloud Office™ E911 emergency service supports using 933 as an emergency call test number.

Related links

Configuring the IP Office ACO users on page 31

Chapter 6: Additional information

You need to be aware of how the analog extensions operate when using the IP Office system as an Avaya Cloud Office™ gateway.

Related links

Known issues on page 36
Limitations on page 37
Local IP Office call handling on page 37
Avaya Cloud Office feature codes on page 38
Adjusting the flash hook timers on page 39
Fax configuration on page 40
Upgrading from IP Office R11.1 FP2 SP2 on page 40

Known issues

The following known issues existed at the time of publication:

Issue	Description
Reboot Required	You must reboot the system after any changes to any ACO extension, user or line settings. You must do this even if IP Office Manager indicates that the changes are mergeable.
Audio issues	During long duration Avaya Cloud Office™ calls, if the user holds the call, when unheld the speech path is not always reestablished correctly.
Call transfer – Blind transfer	When an Avaya Cloud Office™ extension user makes a blind call transfer, they should wait for 5 seconds after dialing the transfer target before hanging up. This allows for the time that the IP Office and Avaya Cloud Office™ need for call routing. If the user drops the call too soon after dialing the transfer number, the call transfer may fail.
Voicemail Message Waiting Indication	Avaya Cloud Office™ does not provide message waiting indication (MWI) to the IP Office extensions.

Related links

Additional information on page 36

Limitations

In addition to the known issues, the following key limitations apply to the operation of the IP Office system when configured as an IP Office ACO ATA Gateway.

Limitation	Description
Call waiting tone	When call waiting is enabled on the user, the user only hears a single non-repeated tone to indicate a second incoming call.
Unplugged Extensions	After unplugging an analog extension, the IP Office system may still have an active Avaya Cloud Office™ registration for the extension. When that occurs, Avaya Cloud Office™ still attempts to route calls to the extension rather than to the extension's Avaya Cloud Office™ voicemail.
User Short Codes	IP Office systems in IP Office ACO ATA Gateway IP Office ACO ATA Gateway do not support user short codes.
Extensions and User Auto-Creation	For an existing system being reconfigured as an IP Office ACO ATA Gateway, re-running the initial configuration recreates a user for each physical extension port even if those users have previously been deleted.

Related links

Additional information on page 36

Local IP Office call handling

Analog telephones use the recall button to perform actions such as transfer, hold, unhold, answer call waiting. The button is known as the **Recall**, **Flash** or **Hook Flash** button and marked **R**, **F** or **H** respectively depending on the phone model.

- When using the recall button, the IP Office performs the call handling, not Avaya Cloud Office™.
- For example: During a call, pressing recall places that call on hold on the IP Office system. Pressing recall again reconnects the call.

Whilst this does not prevent the use of recall functions on the analog extensions, you need to be aware of the following caveats:

- The dial tone heard when the analog extension user presses the recall button is local dial tone from the IP Office.
- If during an existing call the user hears call waiting tones, they can press the recall button to switch between their current call and the waiting call.
- When the analog extension user presses recall during a current call, the existing call to/from Avaya Cloud Office™ remains connected to the IP Office. The caller hears the IP Office music-on-hold (by default a double-tone every 4 seconds).

- When transferring calls using the recall button, the IP Office performs the transfer. To allow this:
  - You must disable both the IP Office user and system **Inhibit Off-Switch Forward/Transfer** settings.
  - User trying to perform an unsupervised/blind transfer should wait at 5 seconds after entering the transfer number before hanging up. This is necessary to allow both IP Office and Avaya Cloud Office™ call routing to complete. See Known issues on page 36.

Related links

Additional information on page 36

Avaya Cloud Office™ feature codes

For non-emergency calls, the IP Office sends all digits to Avaya Cloud Office™ as DTMF. The following table lists some of the Avaya Cloud Office™ feature codes that users may be able to use. However, Avaya Cloud Office™ controls which features codes it supports for analog phones. For more details, refer to https://onecare.avaya.com/AvayaCloudOffice/kb/public/DOCS100771.

Feature	ACO Feature Code	Description
Open the ACO Interactive Menu	*	When calling your extension or Direct Number, press * to manage your Avaya Cloud Office account settings.
Call Flip	*<Flip Number>	During an active call, press *1 up to 8 to start call flip.
Call Recording	*9	During an active call, press *9 to start or end call recording.
Caller ID Block	*67<10-Digit Number>	When placing an outgoing call, dial *67 before the 10-digit number to block your outgoing caller ID on the call.
Intercom Call	*85<Ext Number>	Dial *85 to make an intercom call. For example: *85102 for extension 102. Analog extensions cannot receive intercom calls.
Voicemail	*86	Dial *86 to listen to your voicemail messages. Avaya Cloud Office™ does not provide message waiting indication.
Call Park	##*3	Press ##*3 to park an active call. Note: For calls between Avaya Cloud Office™ users, the caller cannot park the call using this code. The called user can park the call.
Call Park Retrieve	*<Park Location>	Press * and then the Park Location to pick up a parked call.

Table continues…

Feature	ACO Feature Code	Description
Call Return	*69	Initiate an outgoing call to the last incoming call in your call log.
Hold	##	Press ## to place an active call on hold. Note: For calls between Avaya Cloud Office™ users, the caller cannot hold the call using this code. The called user can hold the call.
External Transfer	##*1<10-Digit Number>	Note that transfers shown the original caller's ID, not that of the extension transferring the call.
Internal Transfer	##<Ext Number>#	
Page	*84<Group Number>#	Make an announcement to a group and hang up when finished.
Mute Conference Bridge Music	*#903#	If you are the only participant on an Avaya Cloud Office™ conferencing bridge, dialing this code mutes the hold music.

Related links

Additional information on page 36

Adjusting the flash hook timers

Analog devices use a flash hook signal during a call to indicate when they need additional services from the telephone system. For example, to put a call on hold or to transfer a call.

A flash hook signal is a short interruption in the call connection. Originally, analog telephone users would send a flash hook signal by briefly tapping the hook switch on their phone. On most modern phones, user can send a flash hook signal by pressing the key marked **R**, **Recall**, **H**, or **Hold**. The marking varies between different makes and models of phone.

The minimum and maximum interruption time for a hook flash signal vary between countries. For details of the different maximum and minimum width values used in various countries, refer to the Avaya IP Office Locale Settings manual.

For IP Office systems, you can adjust the settings to match local analog phones as follows:

Procedure

1. **System Setting:** The default settings for all analog extensions is set by the system's **System** > **System** > **Locale** setting. This set the values to match the selected country.
2. **Extension Setting:** The **Extension** > **Analog** > **Flash Hook Pulse Width** setting for each analog extension is set to either **Use System Defaults** (the default extension setting) or to specific **Minimum Width** and **Maximum Width** values.

Related links

Additional information on page 36

Fax configuration

The solution supports the use of an analog fax machine. To do this:

Procedure

1. On the ACO line, set the **Line** > **T38 Fax** settings to **Use Default Values**.
2. On the fax extension's, set the **Extension** > **Analog** > **Equipment Classification** setting to **Standard Telephone**.

Related links

Additional information on page 36

Upgrading from IP Office R11.1 FP2 SP2

Avaya previously supported IP Office to Avaya Cloud Office™ extensions using IP Office R11.1 FP2 SP2. However, to continue receiving support, those customers must upgrade to IP Office R11.1.2.3. Do that using the following process.

Procedure

1. If using a SIP trunk for the local emergency trunk, install and test a replacement using an analog, PRI or BRI trunk.
2. Upgrade the IP500 V2A from IP Office R11.1 FP2 SP2 to IP Office R11.1.2.3.
3. After running the initial IP Office configuration (see Running the initial IP Office configuration utility on page 21), ensuring that the system reboots.

Related links

Additional information on page 36

Chapter 7: Additional Help and Documentation

The following pages provide sources for additional help.

Related links

Additional Manuals and User Guides on page 41
Getting Help on page 41
Finding an Avaya Business Partner on page 42
Additional IP Office resources on page 42
Training on page 43

Additional Manuals and User Guides

The Avaya Documentation Center website contains user guides and manuals for Avaya products including IP Office.

- For a listing of the current IP Office manuals and user guides, look at the Avaya IP Office™ Platform Manuals and User Guides document.
- The Avaya IP Office Knowledgebase and Avaya Support websites also provide access to the IP Office technical manuals and users guides.
  - Note that where possible these sites redirect users to the version of the document hosted by the Avaya Documentation Center.

For other types of documents and other resources, visit the various Avaya websites (see Additional IP Office resources on page 42).

Related links

Additional Help and Documentation on page 41

Getting Help

Avaya sells IP Office through accredited business partners. Those business partners provide direct support to their customers and can escalate issues to Avaya when necessary.

If your IP Office system currently does not have an Avaya business partner providing support and maintenance for it, you can use the Avaya Partner Locator tool to find a business partner. See Finding an Avaya Business Partner on page 42.

Related links

Additional Help and Documentation on page 41

Finding an Avaya Business Partner

If your IP Office system currently does not have an Avaya business partner providing support and maintenance for it, you can use the Avaya Partner Locator tool to find a business partner.

Procedure

1. Using a browser, go to the Avaya Website at https://www.avaya.com
2. Select **Partners** and then **Find a Partner**.
3. Enter your location information.
4. For IP Office business partners, using the **Filter**, select **Small/Medium Business**.

Related links

Additional Help and Documentation on page 41

Additional IP Office resources

In addition to the documentation website (see Additional Manuals and User Guides on page 41), there are a range of website that provide information about Avaya products and services including IP Office.

- Avaya Website (https://www.avaya.com)

  This is the official Avaya website. The front page also provides access to individual Avaya websites for different regions and countries.

- **Avaya Sales & Partner Portal** *(*https://sales.avaya.com*)*

  This is the official website for all Avaya business partners. The site requires registration for a user name and password. Once accessed, you can customize the portal to show specific products and information type that you want to see.

- **Avaya IP Office Knowledgebase** *(*https://ipofficekb.avaya.com*)*

  This site provides access to an online, regularly updated version of IP Office user guides and technical manual.

- **Avaya Support** *(*https://support.avaya.com*)*

This site provide access to Avaya product software, documentation and other services for Avaya product installers and maintainers.

- **Avaya Support Forums** *(*https://support.avaya.com/forums/index.php*)*

  This site provides forums for discussing product issues.

- **International Avaya User Group** *(*https://www.iuag.org*)*

  This is the organization for Avaya customers. It provides discussion groups and forums.

- **Avaya DevConnect** *(*https://www.devconnectprogram.com/*)*

  This site provides details on APIs and SDKs for Avaya products, including IP Office. The site also provides application notes for third-party non-Avaya products that interoperate with IP Office using those APIs and SDKs.

- **Avaya Learning** *(*https://www.avaya-learning.com/*)*

  This site provides access to training courses and accreditation programs for Avaya products.

Related links

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Training

Avaya training and credentials ensure our Business Partners have the capabilities and skills to successfully sell, implement, and support Avaya solutions and exceed customer expectations. The following credentials are available:

- Avaya Certified Sales Specialist (APSS)
- Avaya Implementation Professional Specialist (AIPS)
- Avaya Certified Support Specialist (ACSS)

Credential maps are available on the Avaya Learning website.

Related links

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