IP Office 3.2

Manager

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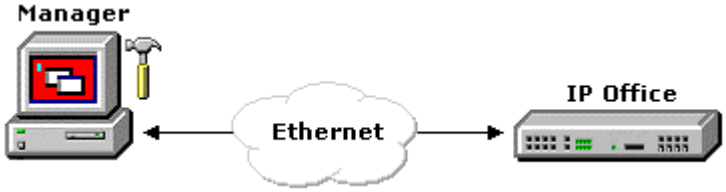
Table of Contents

Manager

Overview of Manager

IP Office Manager is an application for viewing and editing an IP Office system's configuration. It is a tool meant primarily for system installers and maintainers.

Manager runs on a Windows PC and connects to the IP Office via Ethernet LAN or WAN connections.



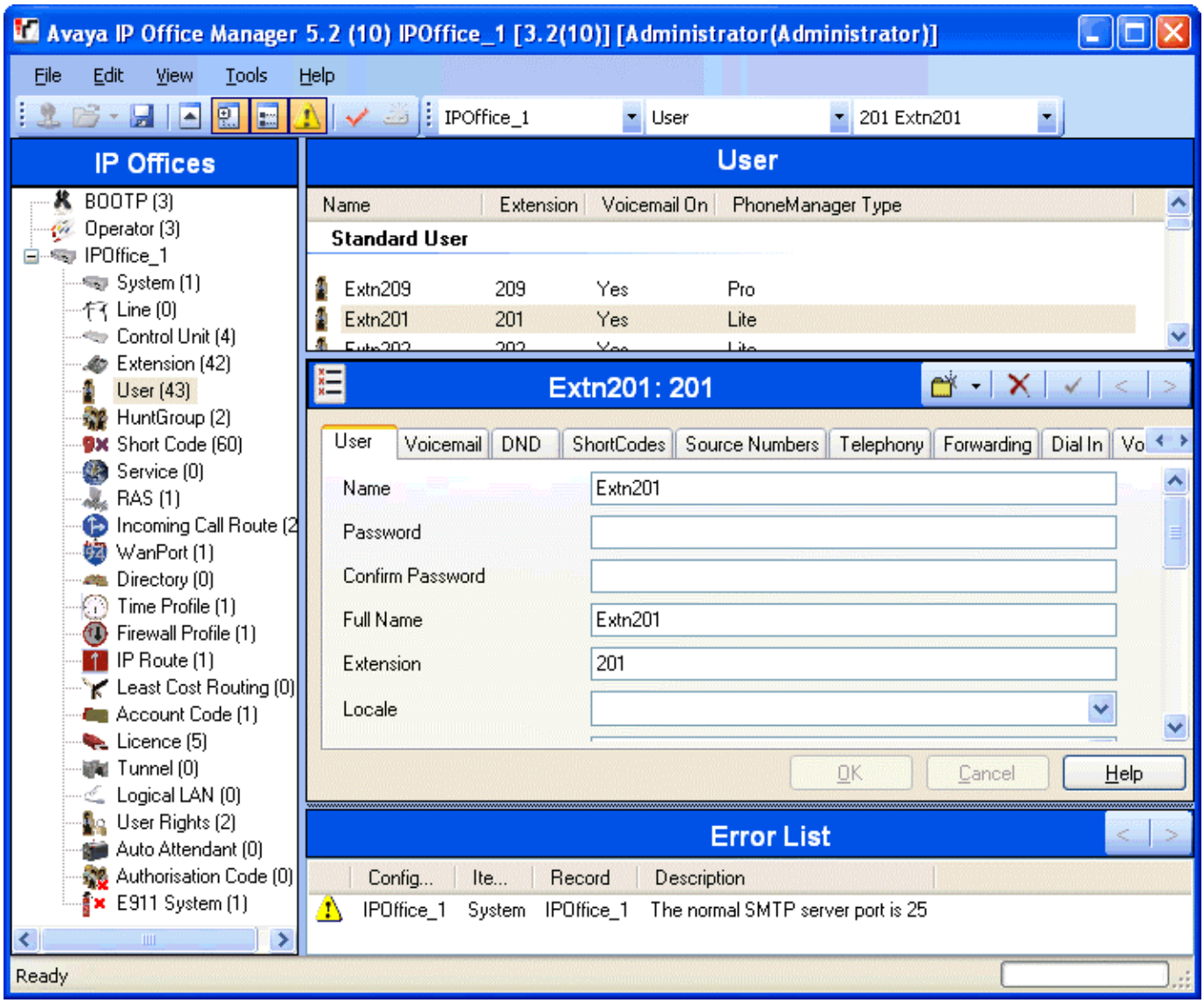
- ⚠ **WARNING - Password Change Required**
  New IP Office 3.2 systems and systems upgraded to IP Office 3.2 use default security settings. These settings must be changed to make the system secure. At minimum you must change the default passwords of the Security Administrator and the default Service Users. Failure to do so will render the IP Office system unsecure. See the **Security Mode** section for details.
- ⚠ **IMPORTANT**
  Manager is an off-line editor. It receives a copy of the IP Office system's current configuration settings. Changes are made to that copy and it is then sent back to the IP Office for those changes to become active. This means that changes to the active configuration in the system that occur between Manager receiving and sending back the copy may be overwritten. For example this may affect changes made by users through their phone or voicemail mailbox after the copy of the configuration is received by Manager.

Manager 5.2 is part of the IP Office 3.2 suite but can be used to configure IP Office systems from IP Office 2.1 upwards.

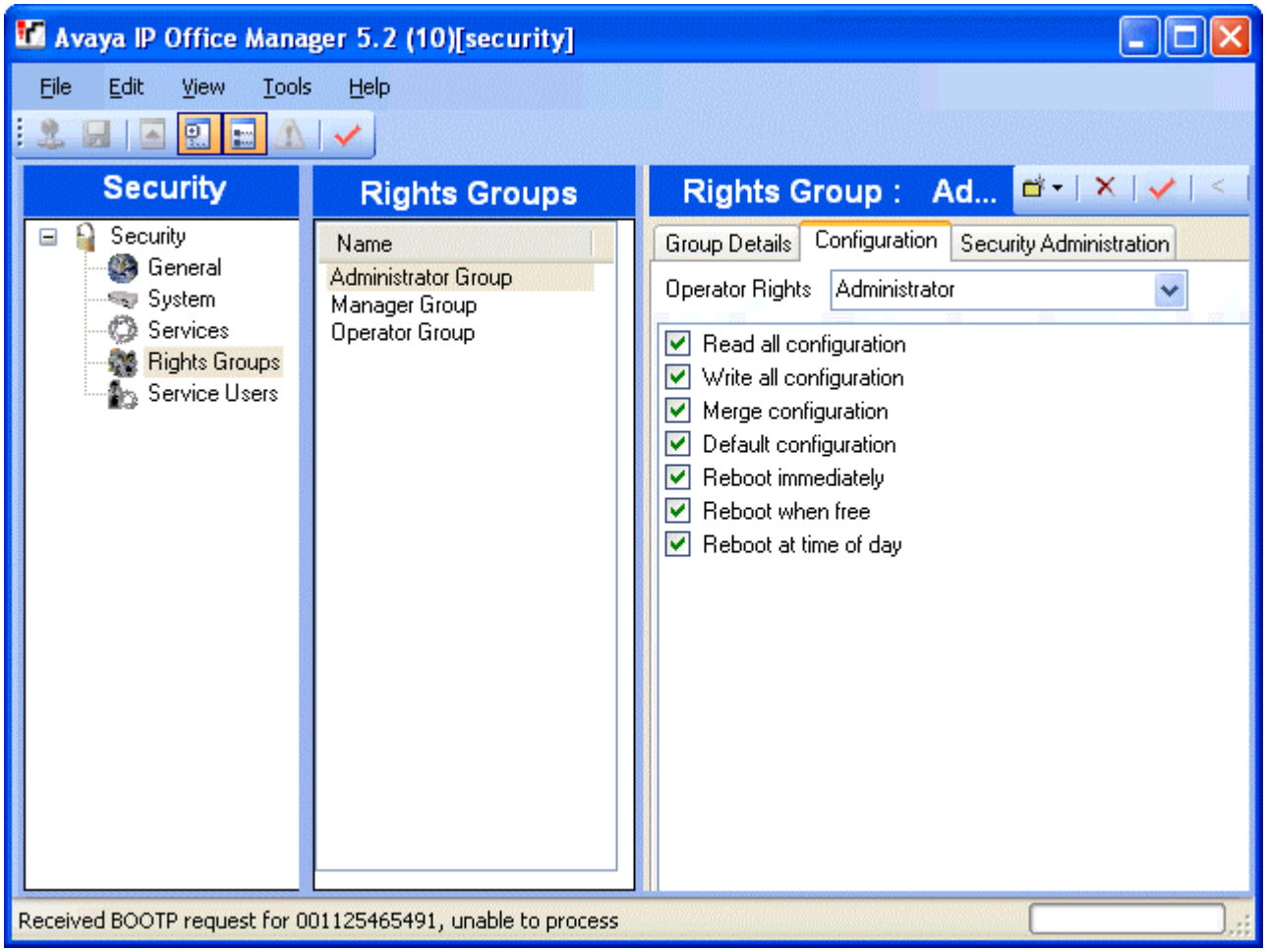
IP Office Functions

Manager performs a number of roles for IP Office systems.

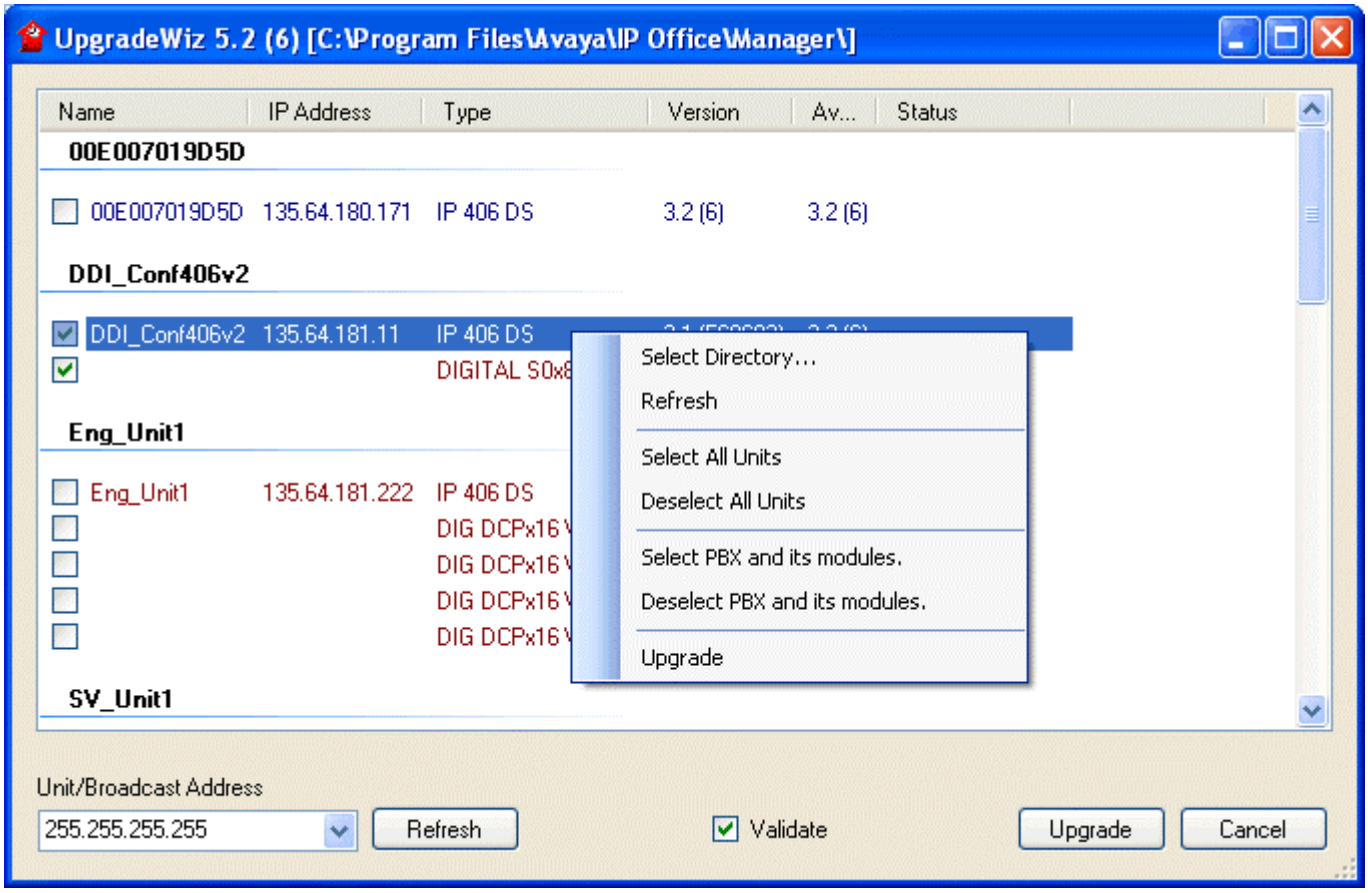
- **Configuration Settings Editor**
  In configuration mode Manager is used to edit configuration settings for IP Office systems. Those settings control the call and data function that the IP Office system provides to users and callers. Refer to the **Configuration Mode** section.



- **Security Settings Editor**
  In security mode Manager is used to edit the security settings of IP Office 3.2 systems. Those settings are used to control user access to the configuration settings of the IP Office. Refer to the **Security Mode** section.



- **Upgrade Wizard**
  The Upgrade Wizard is a component of Manager used to upgrade the firmware run by the control unit and expansion modules within an IP Office system. See **File | Advanced | Upgrade**.



- **BOOTP Server**
  Manager acts as a BOOTP server, providing software files in response to BOOTP requests from IP Office systems. This task is required for maintenance. This function can be switched off if not required.

- **Time Server**
  Manager acts as an Internet Time server (RFC868), providing the time in response to requests for IP Office systems. This function can be switched off if not required.

- **TFTP Server**
  Manager acts as a TFTP server. This protocol is used by several types of Avaya phone to load software files during installation and upgrades.

What's New in Manager 5.2

Users familiar with previous versions of IP Office Manager will find a large number of changes. This section summarizes the most major changes. Changes to the IP Office 3.2 core software are reflected in the settings displayed by Manager when it loads an IP Office 3.2 configuration.

Look and Feel

The IP Office Manager application has been significantly changed. The software used for Manager has been updated to use Microsoft's .NET2 framework. This allows greater flexibility and support for newer Windows platforms. The arrangement and display of information is more flexible to take advantage of large monitors while still being useable on small screens or when run less than full screen. Lists of entries can be sorted and the fields shown in the lists can be customized.

Wizard Features

Several features from the former IP Office Wizard application have been incorporated directly into Manager. These are:

- **Create a New Configuration**
  This tool allows an IP Office configuration to be created and edited without requiring connection to the actual system. This can be used to prepare configurations before installation.
- **CSV Import/Export.**
  The import/export as text options have been improved to allow import/export of specific sections of the IP Office configuration to files in .csv format.
- **Configuration validation.**
  Manager now performs configuration validation similar to that previously performed by the IP Office Wizard. It validates a configuration when it is loaded and whenever a field is changed. Errors are listed in a separate panel and also against the fields when the appropriate tab is visible. Entries in the list can be selected to jump directly to the tab containing the error.

Backwards Compatibility

Manager 5.2 is able to load, edit and send configurations from IP Office systems with IP Office 2.1 software upwards. The tabs and settings shown within Manager are automatically adjusted to match the software level of the system from which the configuration was received.

Upgrading

From IP Office 3.2 onwards, the IP Office Admin suite of applications can be upgraded without having to first remove the previous installation.

Security Enhancements

Systems running IP Office 3.2 software employ a number of security changes:

- Operators configured and stored on the Manager PC have been replaced by Service Users configured and stored within the IP Office system. These security settings are separate from the IP Office's configuration settings.
  - Defaulting the configuration from Manager does not default the security settings. Security settings can only be reset through the IP Office system's DTE port.
- A valid Service User name and password is required for interactions between Manager and the IP Office. For example this applies to receiving a configuration, sending a configuration, defaulting the configuration, rebooting the system, etc.
- The default set of Service Users closely matches the default set of operators previously available. However they cannot adjust the IP Office's security settings. An additional security administrator exists who has access rights to adjust security settings.
- The system password, monitor password and voicemail system password settings are no longer stored in the configuration settings. They are now part of the system's security settings.
- Previously UDP and TFTP were used for communication between the Manager and the IP Office. Systems upgraded to IP Office 3.2 use TCP.

- Configuration access and security administration access use specific TCP ports. It may be necessary to enable those ports on any intervening firewalls and network equipment between the Manager PC and the IP Office system. The TCP port numbers are configurable.

Audit Trail
The last 16 user name and password accesses to an IP Office 3.2 system are recorded as part of the configuration. These can be viewed when the configuration from that system is loaded in Manager. The audit trail includes details of actions such as writing the configuration back to the system with a merge or reboot, upgrading the system, rebooting the system. It includes details of the PC from which the action was performed and the Service User account used.

Mobile Twinning
Twinning was introduced in IP Office 3.1 but restricted to internal destinations and not available within North American locales. The addition of Mobile Twinning in 3.2 enhances this by allowing the use of external twinning destinations and is available in all locales. The use and destination of Mobile Twinning can also be controlled through short codes and programmable buttons. Mobile twinning requires entry of a license key.

Phone Manager Options
Many of the Phone Manager functions available to a user can now be controlled. Manager can be used to preset the settings for the first time a user runs Phone Manager and if necessary to lock the settings from being subsequently changed by the user.

User Rights
User Restrictions have been replaced by User Rights which allow a much greater degree of control over user settings. Selected user settings can be locked to match the value in the User Rights with which the user is associated. A time profile can also be used to control when user rights are applied to a user at any time. Where user rights lock a setting that can also be changed using short codes or Phone Manager, the setting is locked from being changed using those methods.

Forwarding
Forwarding has been enhanced to allow selection of whether internal calls should be forwarded or not. This can be applied separately to Forward Unconditional and to Forward on Busy/Forward on No Answer. The controls for this are available to users as short codes and through Phone Manager and SoftConsole.

System Alarms
The System tab SNMP has been renamed System Alarms. This reflects the ability to have IP Office SNMP alarms and traps sent to an SMTP email destination instead of being sent to an SNMP server. This allows use of the SNMP features without needing an SNMP server application.

Appearance Button Ring Delay
The audible ring or alert used with appearance buttons can be switched off or delayed. The delay used is either a system value or an per user value. The use of ring delay or ring off is controllable on a button by button basis for each call appearance, bridged appearance, line appearance and call coverage button.

Upgrading to 3.2

The process of upgrading an IP Office system to 3.2 is covered in the IP Office 3.2 Installation Manual and the Technical Bulletin for IP Office 3.2.

For those with previous experience of IP Office, this page summarizes the most noticeable changes following an upgrade the IP Office system and its related applications to IP Office 3.2

1. **Starting Manager and Receiving an IP Office System's Configuration**
   The sequence for starting Manager and receiving a configuration from a IP Office system has changed. This reflects the fact that security settings are now stored on the IP Office system.

Pre-3.2 IP Office

1. Start Manager and enter an operator name and password.
   The default is ***Administrator*** / ***Administrator***.
2. Scan for and select an IP Office system.
3. Enter the IP Office system's system password.
   The default is ***password***.

IP Office 3.2

1. Start Manager. No password is required.
2. Scan for and select an IP Office system.
3. Enter a service user name and password valid
   for that IP Office system. The default is ***Administrator*** / ***Administrator***.

2. **Where are my User Restrictions?**
   Any user restrictions within the IP Office system's configuration will be automatically converted to User Rights. This will not change operation of those restrictions.
3. **Why do some user's Phone Manager 3.2 settings keep resetting?**
   A number of Phone Manager settings can now be controlled through the IP Office configuration. They mainly control which tabs are available to the Phone Manager user in the call history area, which tabs are available in the Configure Preferences form and what screen pop and hide options are used. These settings can be applied every time the user runs Phone Manager or applied only the first time the user runs Phone Manager. In the latter case the user can then change the settings if required. These settings are found on the **User | Phone Manager Options** form and on the **User Rights | Phone Manager** form.
4. **Why can users no longer run Soft Console 3.2?**
   A new control has been added to the IP Office 3.2 system configuration that sets whether a user is allowed to run Soft Console. The setting **Soft Console User** is found on the **User | Phone Manager Options** form and can also be set through the **User Rights | Phone Manager** form of the user's associated User Rights. This is in addition to the license controls.

Installing Manager

Manager is a component of the IP Office Admin suite of applications. This suite is supplied on the IP Office 3.2 Administrator Applications CD and the IP Office 3.2 DVD. In addition to Manager the suite includes:

- **System Monitor**
  This is a tool for system installers and maintainers. Interpreting the information output by System Monitor requires detailed data and telecoms knowledge. .
- **Feature Key Server**
  Only install this application in the PC will be hosting the IP Office systems USB or parallel port license key dongle.
- **Voice Mail Lite**
  A license free voicemail application that provides mailboxes for all users and hunt groups. This should not be installed if another voicemail system such as IP Office Embedded Voicemail or Voicemail Pro is installed.
- **Call Status**
  A simple tool for maintainers that displays current calls in progress.

The Manager application can run in English, French, German, Brazilian Portuguese, Dutch, Italian and Latin Spanish. The online help is only provided in English, French and German.

PC Requirements	Minimum	Recommended
Processor	600MHz Pentium or AMD Opteron, AMD Athlon64, AMD Athlon XP.	800MHz Pentium or AMD Opteron, AMD Athlon64, AMD Athlon XP.
RAM	128MB	256MB
Hard Disk Space	1GB - 800MB for .NET2, 200MB for Manager.	1.4GB - 800MB for .NET2, 600MB for the full IP Office Admin suite.
Display	800 x 600 - 256 Colors	1024 x 768 - 16-bit High Color
Operating System	Windows XP Professional with SP2. Windows 2000 Professional with SP4. Windows 2000 Server with SP4. Windows 2003 Server. Windows 2003 SBS. Note: 64-bit versions of the operating systems above are not supported.	

- **.NET**
  IP Office Manager requires .NET2. This is installed as part of the IP Office Admin suite if not already present on the PC. If .NET1 is present it should not be removed as .NET1 is required by other IP Office applications such as Voicemail Pro and Conferencing Center.

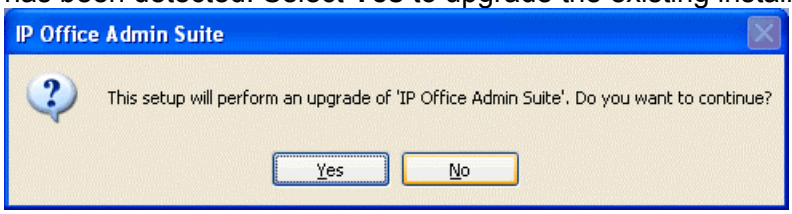
Installing Manager

If applications in the IP Office Admin Suite other than Manager are required, we strongly recommend that you refer to the IP Office Installation Manual.

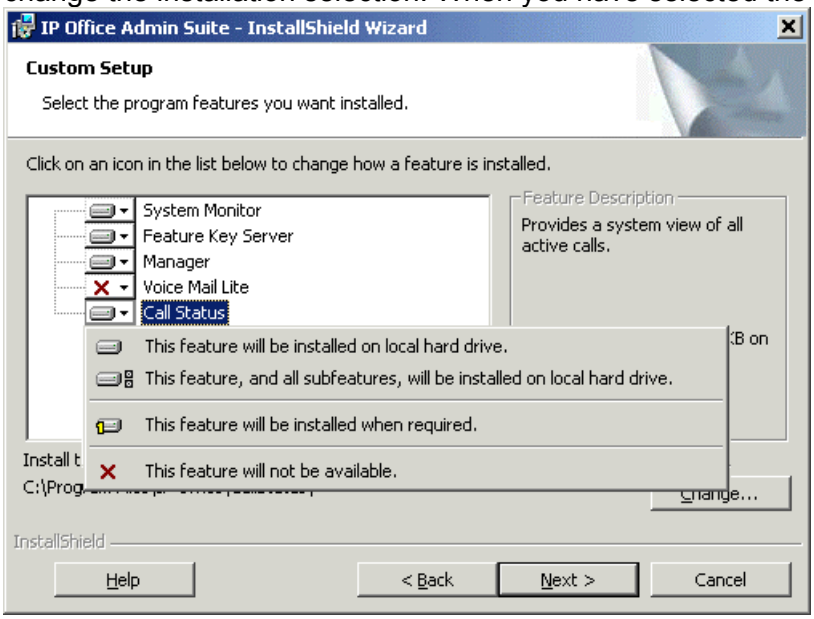
Note

- This installation process will install Windows .NET2 if not already present. The installation of .NET2 may require some systems to restart and the installation process to then be restarted.

1. If a pre-3.2 version of the IP Office Admin suite is installed it must be removed. This is done using the **Add or Remove Programs** option in the Windows **Control Panel** and selecting **IP Office Admin Suite** and then **Remove**.
2. Insert the CD. The installation process should auto start. If it does not auto start, open the CD contents and double-click **setup.exe**.
3. Select the language you want to use for the installation process. This does not affect the language used by Manager which will attempt to match the Windows regional setting. Click **Next >**.
   - If the following appears it indicates that a previous installation of the IP Office Admin suite has been detected. Select **Yes** to upgrade the existing installed applications.



4. Select whether only the current Windows logon account should be able to run the Admin Suite applications or whether they will be available to all users of the PC. Click **Next >**.
   - The previous selection does not affect the IP Office Feature key server application, if installed. That application runs as a service whenever the PC is running.
5. If required select the destination to which the applications should be installed. We recommend that you accept the default destination. Click **Next >**.
6. The next screen is used to select which applications in the suite should be installed. Clicking on each will display a description of the application. Click on the ▾ next to each application to change the installation selection. When you have selected the installations required, click **Next >**.



7. The applications selected are now ready to be installed. Click **Install**.

8. Following installation, you will be prompted whether you want to run the IP Office Admin Suite. Selecting **Yes** runs IP Office Manager.
9. On some versions of Windows, you may be required to restart the PC. Allow this to happen if required.

Changing the Installed Applications

The **Add or Remove Programs** option can be used to change the selection of IP Office Admin suite applications that are installed. Locate ***IP Office Admin Suite*** in the list of programs and select **Change**.

Starting Manager

No operator name or password is required to start this version of Manager. A name and password is only required when performing an action that requires communication with an IP Office system; for example getting the configuration, send the configuration back, rebooting the system, etc.

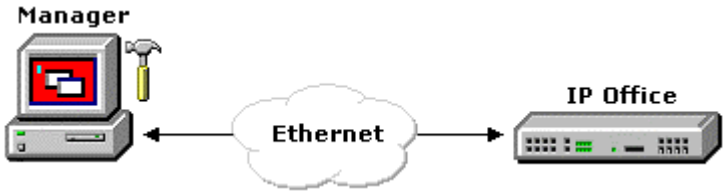
Starting Manager

1. Select **Start** and then **Programs** or **All Programs** depending on the version of Windows.
2. Select the **IP Office** program group.
3. Select **Manager**.
4. On Windows XP systems, a Windows Security Alert may appear. Select **Unblock** to allow Manager to run and provide services to IP Office systems.

5. The next section of this documentation describes the Manager interface and how to load and edit an IP Office's configuration settings.

Connecting Manager to IP Office

During IP Office installation and setup, connection should always be made using a Manager PC directly connected to the IP Office.



Following IP Office installation and setup, the Manager PC can be run from a variety of locations.

IP Addresses

- The IP Office address for connections from Manager is its LAN1 IP Address. That address is set through the **System | LAN1** tab within the IP Office configuration settings.
- If the IP address of the Manager PC is changed, Manager should be closed and restarted.

Discovery

The **Select IP Office** discovery process used by Manager to locate IP Office systems can use both UDP and TCP.

- Pre-3.2 IP Office systems respond to UDP discovery. The IP Office system listens for this type of discovery on port 69 (TFTP). TFTP is then used to send and receive configuration settings with the Manager PC.
- IP Office 3.2 systems respond to both UDP and TCP discovery. The IP Office system listens for UDP discovery on port 69 (TFTP) and TCP discovery on port 50802. Unlike pre-3.2 IP Office systems, configuration settings are accessed using TCP.
- UDP can use broadcast addresses, however broadcasts are not forwarded by routers. TCP is routable but cannot use broadcast addresses. Manager however can specify a list of TCP addresses to check.

Configuration Access

Having discovered the available IP Office systems and selected one, configuration access can be attempted.

- For pre-3.2 IP Office systems, if the correct IP Office system password is entered, the configuration is transferred using TFTP.
- Access to configuration settings of an IP Office 3.2 system, requires a valid Service User name and password. Manager does not send the name and password entered by the user to the IP Office. It sends a 'hash' of those values which are then compared against the names and passwords stored on the IP Office.
- The configuration access occurs using TCP and on port 50804 of the IP Office control unit. This port can be adjusted if required through the IP Office's security settings.

Security Settings

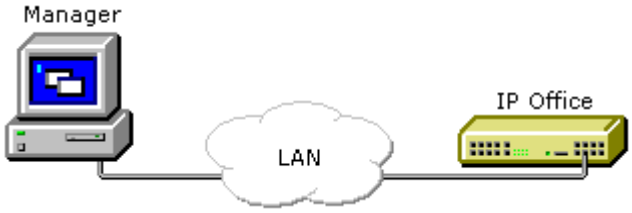
- Pre-3.2 IP Office systems do not have security settings that are separate from the configuration settings which include the system password.
- Access to the security settings of an IP Office 3.2 system is similar to accessing configuration settings. However, service user name and password used must have security access and the default port used is 50812.

Ports

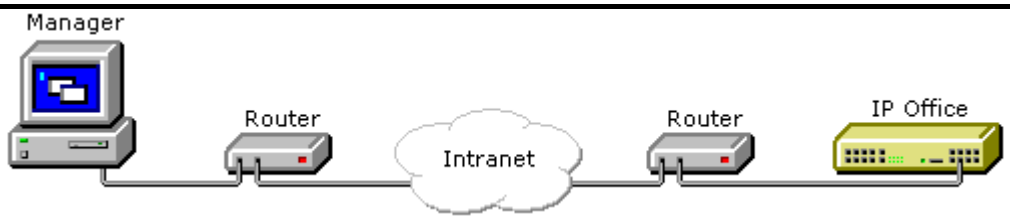
As mentioned, a number of different ports are used for access to IP Office systems. The following table lists the port on which the IP Office control unit listens for different types of access.

Port		Protocol	Function
	UDP	ICMP (Ping)	Used to confirm routing to addresses not on the same subnet as the Manager PC.
69	UDP	TFTP	Used for UDP discovery of IP Office systems and for configuration access to pre-3.2 IP Office systems.
161	UDP	SNMP	From SNMP applications.
520	UDP	RIP	To the IP Office from RIP devices.
50795	UDP	IPO Voice Networking	Small Community Network signaling (AVRIP) and BLF updates.
50796	UDP	PCPartner	From an IP Office user applications such as Phone Manager or SoftConsole.
50797	UDP	IPO TAPI	From an IP Office TAPI user PC.
50802	TCP	Discovery	Used by the IP Office to listen for discovery attempts from the Manager **Select IP Office** menu.
50804	TCP	Configuration	Manager configuration settings access to an IP Office 3.2 system.
50808	TCP	Security Settings	Manager security settings access to an IP Office 3.2 system.

Scenario
In this scenario, Manager's default behavior is used to connect to an IP Office 3.2 system on the same LAN.

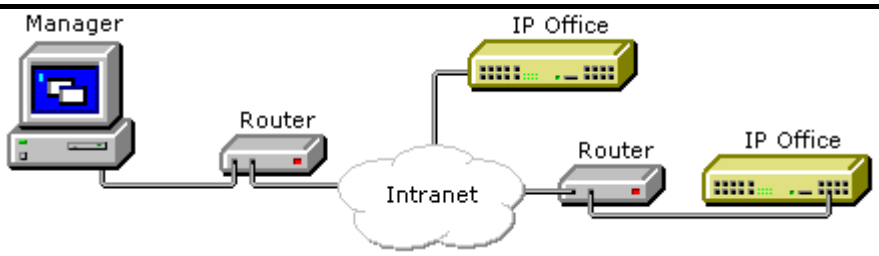
Diagram	
Sequence	1. The user starts Manager and clicks . **Select IP Office** menu appears. 2. Manager does a UDP Broadcast to 255.255.255.255, port 69 (TFTP). Since this is a broadcast, it will not be forwarded beyond the LAN by any router including the IP Office system. 3. The IP Office responds with its system details including its name, IP address and software level. 4. The **Select IP Office** menu lists the responding IP Offices. 5. The user selects the IP Office system and clicks **OK**. 6. Since the system is listed having a 3.2 software level, Manager requests the user to enter a Service User name and password. 7. Manager sends a 'hashed' version of the name and password to port 50804 at the IP Office's IP address. If valid for that IP Office system, the IP Office sends its configuration settings in the return TCP stream.
Requirements	• The IP Office must be on the same subnet as the Manager PC in order to see the UDP broadcast.
Controls	• The IP Office can be disabled from responding to UDP broadcasts if required. This is done through the IP Office's security settings. Access must then be done using TCP only.

Scenario
In this scenario, the user attempts to connect to an IP Office on another LAN using the Manager with its default settings.

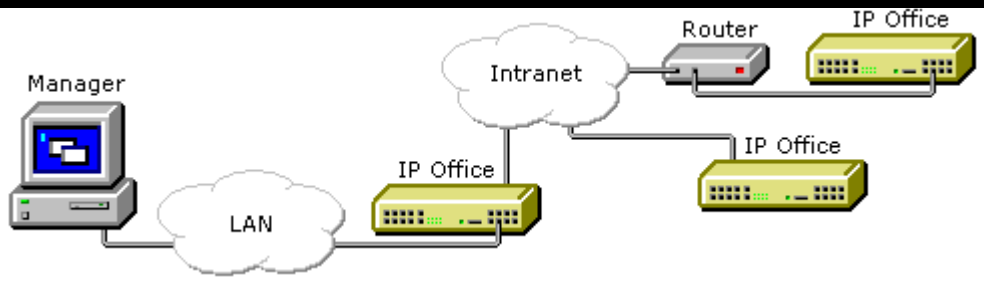
Diagram	
Sequence	1. The user starts Manager and clicks . The **Select IP Office** menu appears. 2. Manager does a UDP broadcast to 255.255.255.255. 3. The router does not forward the UDP broadcast. This is typical router behavior and would apply to any other intermediate routers. 4. The user changes the **Unit/Broadcast Address** to be the IP Office's LAN1 IP address and selects **Refresh**. 5. Manager sends an ICMP ping (UDP) to that address. 6. The router forwards the request. 7. The IP Office responds. Manager sends a TCP discovery request port 50802. 8. The IP Office responds with its system details including its name and software level. 9. The **Select IP Office** menu lists the responding IP Office. 10. The user selects the IP Office system and clicks **OK**. 11. Since the system is listed as having a 3.2 software level, Manager requests the user to enter a Service User name and password. 12. Manager sends a 'hashed' version of the name and password to port 50804 at the IP Office's IP address. If valid for that IP Office system, the IP Office sends its configuration settings in the return TCP stream.
Requirements	• The intermediate routers must be configured to route traffic for the IP Office's LAN1 IP address to that system. • The intermediate routers and any firewalls must be configured to allow pings. • The intermediate routers and any firewalls must be configured to allow a session to be started at the IP Office by incoming TCP traffic on ports 50802 (Discovery) and 50804 (Configuration settings access).
Controls	• The default port on which the IP Office system listens for TCP discovery requests from Manager (50802) cannot be changed. • The port on which the IP Office system listens for configuration access requests (50804) can be changed. This is done through the IP Office's security settings. • The port to which Manager sends configuration access requests can be changed to match the IP Office system. Select **File | Preferences** and on the **Preferences** tab change the **Services Base TCP** port. • The TCP address of the remote IP Office can be added to the default list of addresses scanned by the **Select IP Office** menu. Select **File | Preferences** and on the **Discovery** tab, enter the IP address in the **IP Search Criteria** area. See the following scenario.

Scenario: Managing Multiple Remote IP Offices
In this scenario, the user is maintaining a number of IP Office 3.2 systems located on others LAN's. Through Manager it is possible to preset the addresses of these systems rather than having to change the Unit/Broadcast Address each time the Select IP Office menu appears.

Addresses are entered through the **IP Search Criteria** on the **Preferences | Discovery** tab. On this tab, IP Office system addresses can be entered, separating each entry with a semi-colon.

Diagram	
Sequence	1. The user starts Manager and clicks . The **Select IP Office** menu appears. 2. Manager does a UDP broadcast to 255.255.255.255. The router does not forward the UDP broadcast. This is typical router behavior and would apply to any other intermediate routers. 3. Manager also sends TCP discovery requests to the addresses listed in the **IP Search Criteria** on the **Preferences | Discovery** tab. The requests are sent to port 50802. 4. The IP Office systems respond with their system details including their names and software levels. 5. The **Select IP Office** menu lists the responding IP Office. 6. The user selects the IP Office system required and clicks **OK**. 7. Since the system is listed as having a 3.2 software level, Manager requests the user to enter a Service User name and password. 8. Manager sends a 'hashed' version of the name and password to port 50804 at the IP Office's IP address. If valid for that IP Office system, the IP Office sends its configuration settings in the return TCP stream.

Scenario
This scenario combines the previous scenarios. A UDP broadcast is used to access the users own IP Office on their LAN whilst preset TCP addresses are used to access the IP Office systems that IP Office systems that they maintain on other LAN's.

Accessing an IP Office 3.2 Configuration	
Diagram	
Sequence	1. The user starts Manager and clicks . The **Select IP Office** menu appears. 2. Manager does a UDP broadcast to 255.255.255.255. The router does not forward the UDP broadcast. This is typical router behavior and would apply to any other intermediate routers. 3. Manager also sends TCP discovery requests to the addresses listed in the **IP Search Criteria** on the **Preferences | Discovery** tab. 4. The IP Office systems respond with their system details including their names and software levels. 5. The **Select IP Office** menu lists the responding IP Office. 6. The user selects the IP Office system required and clicks **OK**. 7. Since the system is listed as having a 3.2 software level, Manager requests the user to enter a Service User name and password. 8. Manager sends a 'hashed' version of the name and password to port 50804 at the IP Office's IP address. If valid for that IP Office system, the IP Office sends its configuration settings in the return TCP stream.

Backward Compatibility

IP Office Manager 5.2 is part of the IP Office 3.2 software release. However it can be used to edit configurations from IP Office systems with core software IP Office level 2.1 upwards.

When an IP Office 2.1 or higher configuration is loaded, Manager adjusts the settings and fields that it shows to match the core software level of the IP Office control unit. If you attempt to load a pre-2.1 IP Office configuration, Manager will display an error message and does not load the configuration.

To receive a pre-3.2 IP Office configuration requires entry of an operator name and the IP Office system password. To receive a 3.2 or higher IP Office configuration requires entry of a service user name and password stored by that IP Office system.

- Backwards compatibility is only supported for General Availability releases of IP Office software. It is not supported for pre-3.2 private builds.

Short Code Features

The features available for short codes change depending on the IP Office control unit software level.

Feature	2.1	3.0DT	3.0	3.1	3.2
Last Number Redial	✗	✗	✓	✓	✓
Dial Direct Hotline	✗	✗	✓	✓	✓
Disable Internal Forwards	✗	✗	✗	✗	✓
Disable Internal Forward Unconditional	✗	✗	✗	✗	✓
Disable Internal Forward Busy or No Answer	✗	✗	✗	✗	✓
Enable Internal Forwards	✗	✗	✗	✗	✓
Enable Internal Forward Unconditional	✗	✗	✗	✗	✓
Enable Internal Forward Busy or No Answer	✗	✗	✗	✗	✓
Mobile Twinned Call Pickup	✗	✗	✗	✗	✓
Set Authorization Code	✗	✗	✗	✗	✓
Set Mobile Twinning Number	✗	✗	✗	✗	✓
Set Mobile Twinning On	✗	✗	✗	✗	✓
Set Mobile Twinning Off	✗	✗	✗	✗	✓

Button Programming Actions

The actions available for button programming change depending on the IP Office control unit software level.

Feature	2.1	3.0DT	3.0	3.1	3.2
Appearance | Call Appearance	✗	✗	✓	✓	✓
Appearance | Bridged Appearance	✗	✗	✓	✓	✓
Appearance | Call Coverage	✗	✗	✓	✓	✓
Appearance | Line Appearance	✗	✗	✓	✓	✓
Advanced | Call | Call List	✗	✗	✗	✓	✓
Emulation | Twinning	✗	✗	✗	✗	✓

Configuration Settings

The fields and tabs displayed within Manager are automatically adjusted to match the software level of the control unit from which the configuration was received. Note also that the range fields that are mergeable or require a reboot varies depending of the control unit software level, see Overview.

Entry Type	Tab	Field	2.1	3.0DT	3.0	3.1	3.2
System	System	Password	✓	✓	✓	✓	✗*1
		Monitor Password	✓	✓	✓	✓	✗*1
	Voicemail	Voicemail Password	✓	✓	✓	✓	✗*1
		Maximum Record Time	✗	✗	✓	✓	✓
	Telephony	Auto Hold	✗	✗	✓	✓	✓
		Suppress Silence	✗	✗	✓	✓	✓
		Allow Outgoing Transfer	✗	✗	✓	✓	✓
		Use External Music on Hold	✗	✗	✗	✓	✓
	H.323 Gatekeeper	Auto-create User	✗	✗	✗	✗	✓
		RTP Port Number Range	✗	✗	✓	✓	✓
	System Alarms (SNMP)	SMTP Server Configuration	✗	✗	✗	✗	✓
	CDR	*All*	✗	✗	✗	✓	✓
	Twinning	*All*	✗	✗	✗	✗	✓
Line	Channel	Line Appearance ID	✗	✗	✓	✓	✓
	IP DECT	*All*	✗	✗	✗	✓	✓
Extension	VoIP	Gain	✗	✗	✓	✓	✓
	IP DECT	*All*	✗	✗	✗	✓	✓
User	User *2	Restrictions	✓	✓	✓	✓	✗
		Working Hours Time Profile	✗	✗	✗	✗	✓
		Working Hours User Rights	✗	✗	✗	✗	✓
		Out of Hours User Rights	✗	✗	✗	✗	✓
	Voicemail	Reception/Breakout (DTMF 0)	✓	✓	✓	✓	✓
		Breakout (DTMF 2)	✗	✗	✗	✗	✓
		Breakout (DTMF 3)	✗	✗	✗	✗	✓
	Telephony	Individual Coverage Time	✗	✗	✗	✓	✓
		Ringing Line Preference	✗	✗	✗	✓	✓
		Idle Line Preference	✗	✗	✗	✓	✓
		Inhibit Off-Switch Forward/Transfer	✗	✗	✗	✗	✓
	Forwarding	Forward Internal Calls	✗	✗	✗	✗	✓
	Voice Recording	Voice Recording Library (Manual)	✗	✗	✓	✓	✓
		Voice Recording Library (Auto)	✗	✗	✓	✓	✓
	Coverage	*All*	✓	✓	✗	✗	✗
	Button Programming	Delay	✗	✗	✗	✗	✓
	Twinning	Internal	✗	✗	✗	✓	✓
		Mobile	✗	✗	✗	✗	✓
	T3 Options	*All*	✗	✗	✗	✓	✓
	Phone Manager Options	*All*	✗	✗	✗	✗	✓
Hunt Group	Hunt Group	Call Waiting On	✗	✗	✓	✓	✓
	Voicemail	Broadcast	✗	✗	✓	✓	✓
	Voice Recording	Voice Recording Library	✗	✗	✓	✓	✓
Firewall Profile	Standard	H323	✗	✗	✗	✗	✓
Account Code	Voice Recording	Voice Recording Library	✗	✗	✓	✓	✓
User Restrictions	*All*	*All*	✓	✓	✓	✓	✗
User Rights	*All*	*All*	✗	✗	✗	✗	✓
Authorization Code	*All*	*All*	✗	✗	✗	✗	✓
Auto Attendant	Auto Attendant	Maximum Inactivity	✗	✗	✓	✓	✓

- *1: For IP Office 3.2 and higher, the **System**, **Voicemail** and **Monitor** passwords have been moved to the to IP Office security settings.
- *2: For IP Office 3.2 and higher, the user **Phone Manager Type** and **Book a Conference in Phone Manager** have been moved to the **User | Phone Manager Options** tab.

Manager Configuration Terms

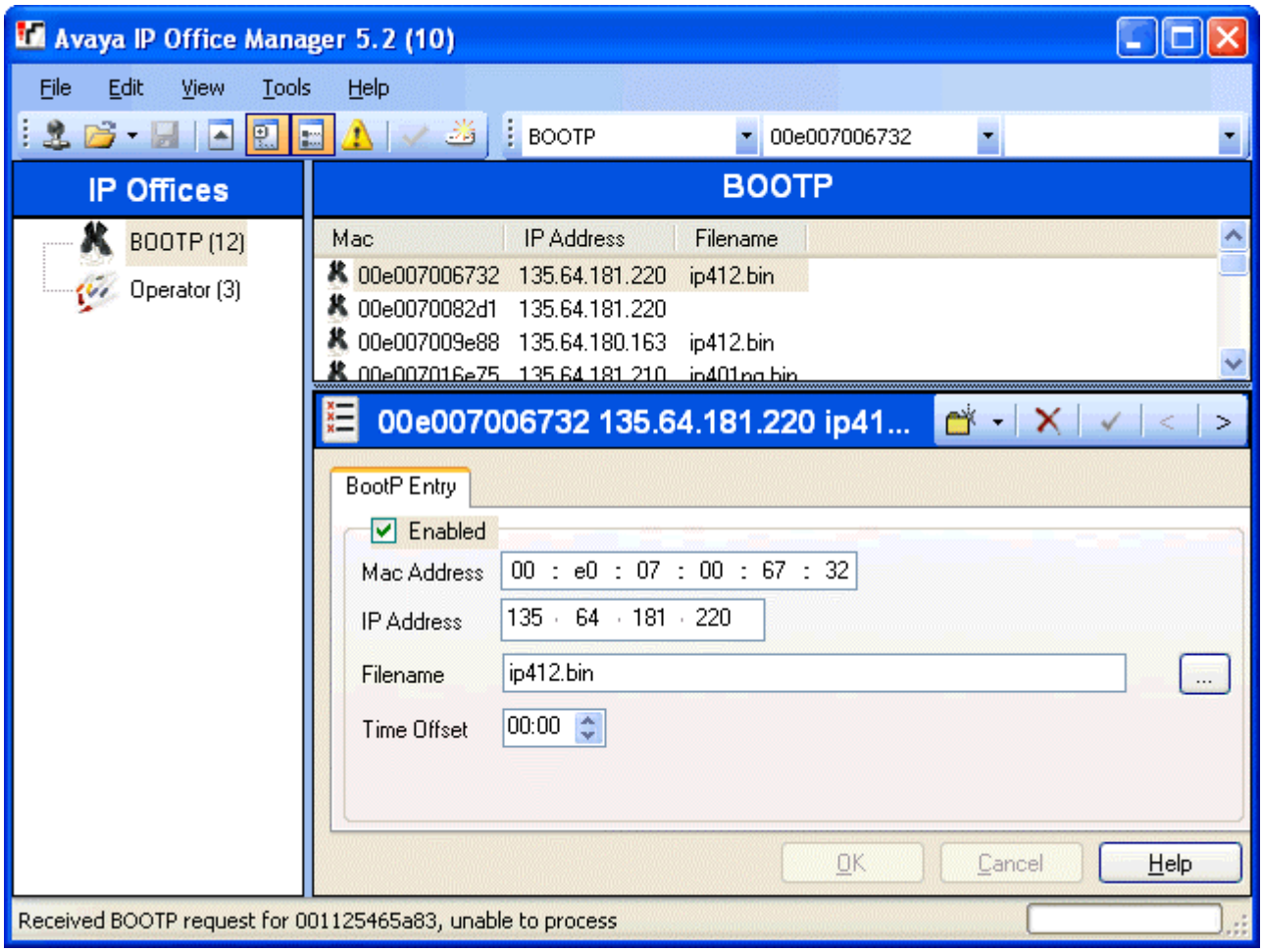
For Manager running in English, this version of Manager has been changed to use a single set of English terms. The aim is to simplify support and remove confusion caused by the some fields having different names depending on the Manager PC locale. In addition some fields has been renamed to clarify their function.

Current Term	Previous Term
Acquire Call	Call Steal
Allow Analog Trunk to Trunk Connection	Allow Forwarding
Analog	Analogue
Both Directions	Bothways
Button Programming	Digital Telephony
Caller ID	CLI
Call Pattern	Call Sequence
Cancel or Deny	Clear Call
Circular	Rotary
Ex Directory	Directory Exclude
Embedded Voicemail	Integral
Haul Length	Line Compensation
Inhibit Off-Switch Forward/Transfer	Inhibit Off-Switch Calls
Linear	Hunt
Most Idle	Idle
MSN	MSN/DDI
No Answer Time	Allocated Answer Interval
Record Inbound	Record Incoming
Record Outbound	Record Outgoing
Suppress Silence	Active Zero Suppression Cancellation
TNS	Network Selection

Configuration Mode

Configuration Mode

By default Manager starts in configuration mode with no IP Office configuration settings loaded.



This section of the documentation is divided into two parts as follows.

The Configuration Mode Interface
This part details the screen elements of Manager's configuration mode interface.

- **The Menu Bar**
- **Toolbars**
- **Using the Navigation Pane**
- **Using the Group Pane**
- **Using the Details Pane**
- **Using the Error Pane**
- **Altering the Interface**

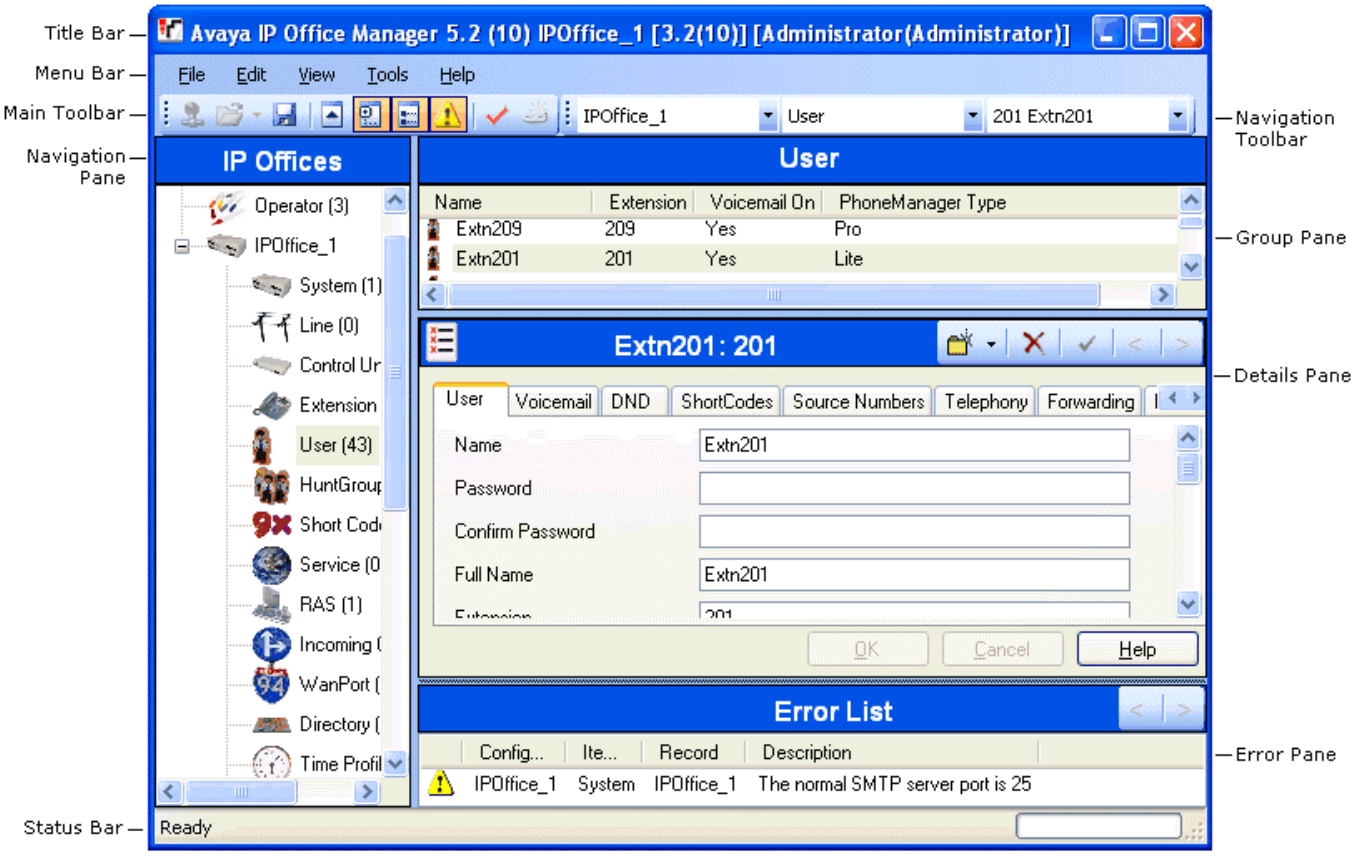
Editing Configuration Settings
This part details how Manager's configuration mode can be used for the following tasks.

- **How the Configuration is Used**
- **Loading a Configuration**
- **Creating a New Configuration**
- **Importing and Exporting Settings**
- **Sending a Configuration**
- **Saving a Configuration Offline**
- **Erasing the IP Office Configuration**

Switching Manager to Configuration Mode
Though Manager starts in configuration mode; it can also run in security mode by selecting **File | Advanced | Security Settings**. To return to configuration mode from security mode, select **File | Configuration**.

The Configuration Mode Interface

When Manager is in configuration mode, the screen elements shown are available. Some of these elements can be customized, moved and hidden.

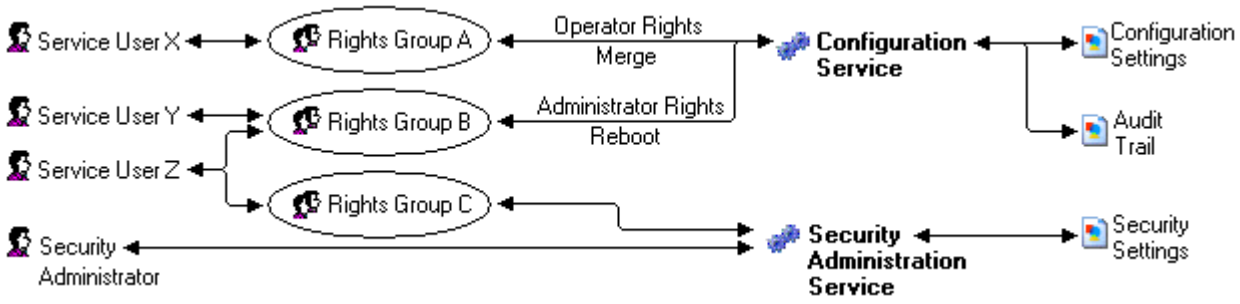


Manager Configuration Mode Screen Elements

- **Title Bar**
  In addition to the application name, when configuration settings are loaded from an IP Office system, the title bar displays the user name used to load the settings and the operator view applied.
- **Menu Bar**
  The options available with the drop down menus provided here change according to whether Manager has a set of configuration or security settings loaded or not.
- **Main Toolbar**
  This toolbar provides icon shortcuts to the most frequently required configuration setting actions.
- **Navigation Toolbar**
  This toolbar provides a set of drop downs which can be used to navigate to particular entries in the configuration settings. The selected options in the navigation pane, the group pane and the details pane are synchronized with the navigation toolbar and vice versa. This toolbar is particularly useful if you want to work with the group pane and or navigation pane hidden in order to maximize the display space for the details pane.
- **Navigation Pane**
  This pane shows icons for the different types of entry that the configuration can contain. Each type is followed by the number of entries of that type already in the configuration. Selecting an icon displays the matching entries in the group pane and navigation toolbar.
- **Group Pane**
  This pane lists all the entries that match the type selected in the navigation pane or navigation toolbar. The list can be sorted by clicking on column heading. Selecting an entry in this pane displays its details in the details pane.
- **Details Pane**
  This pane shows the configuration settings for a particular entry within the configuration. The entry is selected using the navigation toolbar or using the navigation pane and group pane.
- **Error Pane**
  This pane shows errors and warnings about the configuration settings. Selecting an item here loads the corresponding entry into the details pane.
- **Status Bar**
  This bar display messages about communications between Manager and IP Office systems.

Security Settings

Access to IP Office 3.2 system settings is controlled by Service Users and Rights Groups. All actions involving communications between the Manager user and the IP Office require a Service User name and password. That Service User must be a member of a Rights Group configured to perform that action.



In the example illustrated above:

- Service User X can read and write the configuration. However they can only edit Operator settings and can only make changes that can be merged.
- Service User Y can read and write the configuration, edit all settings and make changes that require reboots.
- Service User Z can read and write the configuration, edit all settings and make changes that require reboots. They can also access the security settings.
- The Security Administrator can only access the security settings.

Security Administrators

By default the security administrator is the only user who can access the IP Office's security settings using Manager's security mode.

Service Users

Each Service User has a name, a password and is a member of one or more Rights Groups.

Rights Groups

The Rights Groups to which a Service User belongs determine what actions they can perform. Actions available to Rights Groups include:

- **Read the configuration.**
- **Write the configuration.**
- **Merge the configuration.**
- **Default the configuration.**
- **Reboot immediately.**
- **Reboot when free.**
- **Reboot at time of day.**

Where a Service User has been configured as a member of more than one Rights Group, they combine the functions available to the separate Rights Groups.

If required, the ability to edit security settings can be given to Rights Groups. Service Users who are members of those Rights Groups can then perform the following security setting actions.

- **Read all security settings.**
- **Write all security settings.**
- **Reset all security settings.**

Operator Rights

Each Rights Group has an **Operator Rights** setting. This controls what parts of the configuration can be edited by Service Users in the Rights Group. The **Operator Rights** settings are ***Administrator***, ***Manager*** and ***Operator***. These cannot be edited.

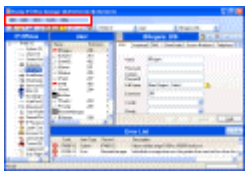
Operator Rights	Administrator				Manager				Operator			
Entry Type	View	Edit	New	Delete	View	Edit	New	Delete	View	Edit	New	Delete
System	✓	✓	✗	✗	✓	✗	✗	✗	✓	✗	✗	✗
Line	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗
Control Unit	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗
Extension	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
User	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Hunt Group	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Short Code	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✗
Service	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
RAS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Incoming Call Route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
WAN Port	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Directory	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
Time Profile	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Firewall Profile	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
IP Route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Least Cost Route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Account Code	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
License	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
E911 System	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Tunnel	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Logical LAN	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Wireless	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
User Rights	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Auto Attendant	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Authorization Codes	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗

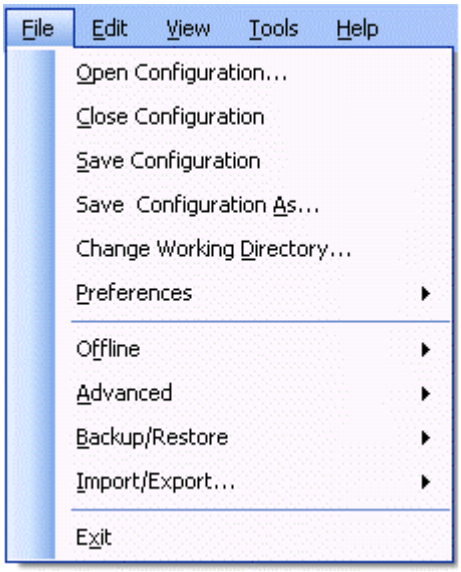
Title Bar

The IP Office Manager title bar shows several bits of information.

- The Manager application version.
- The system name of the IP Office system from which the currently loaded configuration was received.
- The software level of the IP Office system's control unit.
- For IP Office 3.2 systems, the service user name used to receive the configuration and that user's associated operator rights view level. For pre-3.2 IP Office systems this is replaced with just the operator name.

The Menu Bar





Details of all the options that may be available within the Menu Bar drop downs are contained in the section **Menu Bar Commands**.

The commands are context sensitive. Commands are grayed out when not useable.

For some commands, an ▸ symbol indicates that there are sub-commands from which a selection can be made.

File Menu	View Menu	Tools Menu
Open Configuration...	**Toolbars**	**Extension Renumber**
Close Configuration	**Navigation Pane**	**MSN Configuration**
Save Configuration	**Group Pane**	
Save Configuration As	**Details Pane**	
Change Working Directory...	**Error Pane**	
Preferences	**TFTP Log**	
Offline | Create New Config		
Offline | Open File...		
Offline | Send Config...		
Offline | Receive Config...		
Advanced | Erase Configuration (Default)		
Advanced | Reboot		
Advanced | Upgrade..		
Advanced | Audit Trail...		
Advanced | Security Settings...		
Backup/Restore | Backup Binaries and Configurations		
Backup/Restore | Restore Binaries and Configurations		
Import/Export | Export		
Import/Export | Import		
Exit		

Toolbars

The following toolbars are described here:

- **Main Toolbar**.
- **Navigation Toolbar**.
- **Details Toolbar**.

The Main Toolbar

- **Open Configuration from IP Office**
  Advertises to the address currently shown in the Manager's title bar for any available IP Office systems. A list of responding systems is then displayed. When a system is selected from this list, a valid user name and password must be entered. Equivalent to **File | Open Configuration**.
- **Open Configuration File**
  Opens an IP Office configuration file stored on a PC. The button can be clicked to display a browse window. Alternatively the adjacent ▾ arrow can be used to drop-down a list of the last 4 previously opened configuration files. Equivalent to **File | Offline | Open File**.
- **Save Configuration File**
  The action of this icon depends on whether the currently loaded configuration settings were received from an IP Office system or opened from a file stored on PC. If the former applies, the menu sending the configuration back to the system is displayed. In the latter case, the file changes are saved to the original file. Equivalent to **File | Save Configuration**.
- **Collapse All Groups**
  Causes all ⊟ symbols in the navigation pane to be collapsed to ⊞ symbols.
- **Show/Hide the Navigation Pane**
- **Show/Hide the Group Pane**
- **Show/Hide the Error Pane**
- **Validate Configuration**
  Runs a validation on all the currently loaded configuration settings. The results appear in the error pane.
- **Create New Configuration**
  Runs a series of dialogs that create a new configuration from scratch.

This toolbar is also available when Manager is in security mode. However the **Create New Configuration** and **MSN Configuration** buttons are not shown, and the **Show/Hide the Error Pane** and **Validate Configuration** buttons do not function.

The Navigation Toolbar

This toolbar provides drop down lists which can be used to navigate to particular entries in the configuration settings. The selected options in the navigation pane, group pane and the details pane are synchronized with the navigation toolbar and vice versa. This toolbar is particularly useful if you want to work with the group pane and or navigation pane hidden in order to maximize the display space for the details pane.

This toolbar is not available when Manager is in security mode.

Details Toolbar

This toolbar is shown in the top-right of the details pane.

- **Create New Record**
  The ▾ arrow is used to select the entry type to be created. For example; when adding an extension clicking ▾ may allow selection of a VoIP Extension or IP DECT Extension.
- **Delete Entry**
- **Validate Entry**
- **< > Show Previous/Next Entry**

Moving to the Previous or Next Entry

1. Click **<** or **>** at the top-right to move to the previous or next entry.

Altering the Toolbars

Showing or Hiding Toolbars

The different toolbars can be hidden if not required.

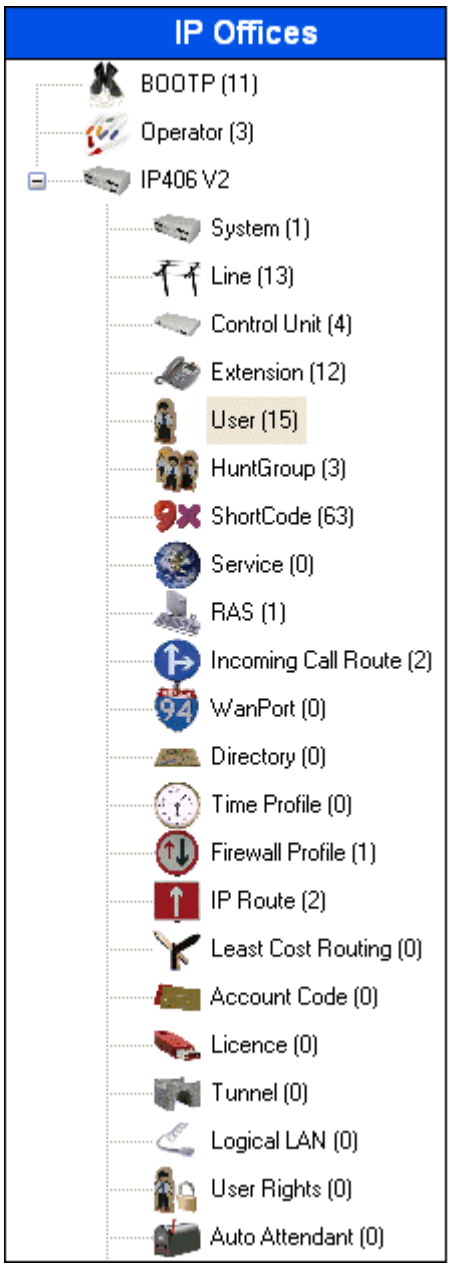
1. Select **View** and then **Toolbars**. Those toolbars currently shown are indicated by a tick mark.
2. To show or hide a toolbar, click on its name.

Moving Toolbars

The position of the Manager toolbars can be moved. Note that when moving a toolbar, the other toolbars and panes may adjust their size or position to ensure that all the toolbar icons remain visible.

1. Place the cursor over the end of the toolbar.
2. When the cursor changes to a four-way arrow, click and hold the cursor.
3. Move the toolbar to the required position and release the cursor.

Using the Navigation Pane



This pane shows icons for the different types of entry that the configuration can contain. Each type is followed by the number of entries of that type already in the configuration.

Selecting an icon displays the matching entries in the group pane and navigation toolbar.

Where ⊞ or ⊟ icons appear in the pane, they allow the structure to be expanded or collapsed. When the group pane is hidden, ⊞ and ⊟ icons are shown for each entry type and allow the entry type to be expanded to display all the existing entries of that type.

The icon in the main toolbar can also be used to collapse all the expanded entry types shown in the navigation pane.

The icons shown in this pane will vary according to the type of IP Office system loaded. For example **Wireless** is only shown for Small Office Edition systems. They may also vary for different locales, for example **E911** is only shown in the US.

The **BOOTP** and **Operator** icons are special. They represent settings stored on the Manager PC rather than configuration settings received from an IP Office system.

When Manager is used in security mode, this pane is also used by Manager in security mode to display entries for security settings.

Navigation Pane Actions

Moving the Border Between the Panes

The border between the visible panes can be adjusted. Note that this is a proportional rather than exact position. If the whole window size is altered, the border position may also move.

1. Place the cursor over the border between two panes.
2. When the cursor changes to a double headed arrow with a bar through it, click and hold the cursor.
3. Drag the border to the required position and release the cursor.

Showing or Hiding Panes

The navigation pane can be shown or hidden. To do this use either of the following methods.

1. From the main toolbar, use the icon.

or

1. Select **View**. Those panes currently shown are indicated by a tick mark.
2. To show or hide the navigation pane, click on its name.

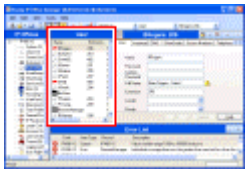
Changing the Size of Configuration Icons

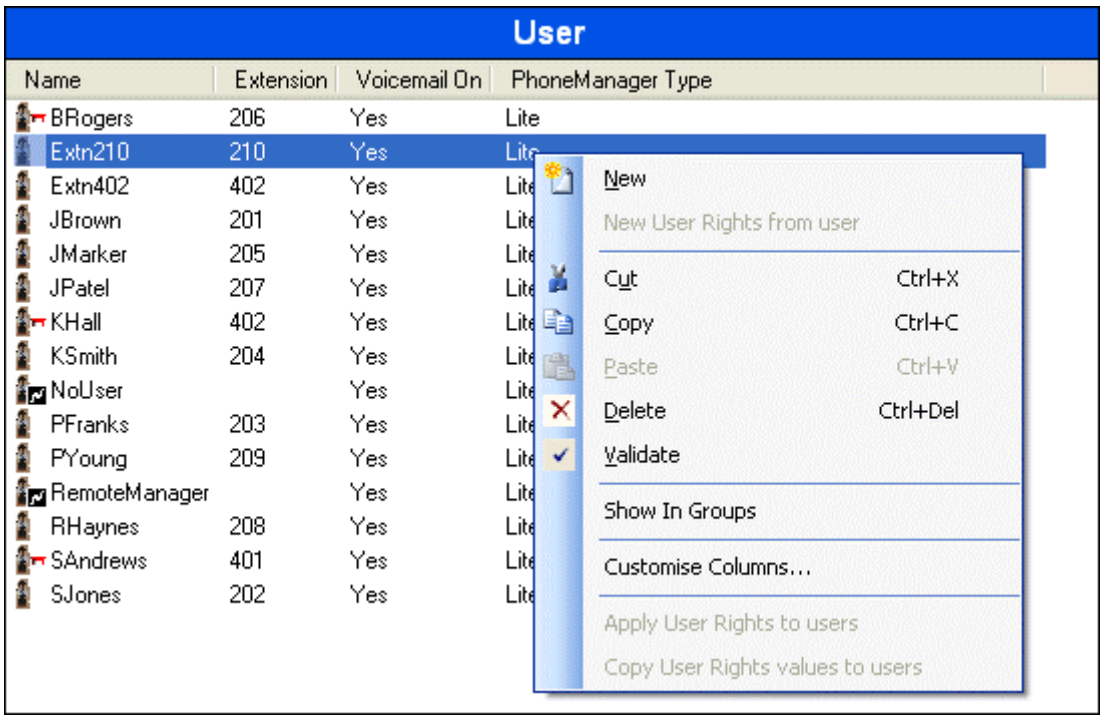
The size of the icons used on the navigation pane and details pane can be adjusted.

1. Select **File** and then **Preferences**.
2. Select **Edit**.
3. Select the **Visual Preferences** tab.
4. Select the required icon size from **Small**, **Medium** or **Large**.
5. Click **OK**.

Using the Group Pane

This pane lists all the entries that match the type selected in the navigation pane or navigation toolbar. The list can be sorted by clicking on a column heading. Selecting an entry in this pane displays its details in the details pane.





The icons used in the pane may vary according to the state of the entry. For example, some of the users shown in this example have been configured for hot desking. This pane is also used by Manager in security mode to display entries for security settings.

Group Pane Actions

Sorting the List

The entries shown in the group pane can be sorted using any of the columns displayed.

1. To sort the list using the details in a particular column, click on the column header.
2. Clicking on the same column header again reverses the sort order.

Customizing the Columns Displayed

For each entry type, which details are shown in the group pane can be customized. Also the order of the column can be adjusted. For details of the options available for each type of entry see **Appendix D: Miscellaneous**.

1. Right-click on the pane and select **Customize Columns**.
2. To add a column, selects its name in the left-hand **Available Columns** list and click **>>** to move it to the right-hand **Selected Columns** list.
3. To remove a column, select its name in the right-hand **Selected Columns** list and click **<<** to move it to the left-hand **Available Columns** list.
4. To change the order of the **Selected Columns**, click on a column name and use the **^** and **V** controls.
5. Click **OK**.

Changing the Column Widths

1. In the column headers, place the cursor over the border between two columns.
2. When the cursor changes to a double headed arrow with a bar through it, click and hold the cursor.
3. Drag the border to the required position and release the cursor.

Adding a New Entry

The group pane can be used to add a new entry of the type currently displayed.

1. Right-click on the pane and select **New**.
    - A ▸ arrow symbol next to **New** indicates that you can select a particular type of new entry to create. Click the arrow and select an option from the list.
2. Use the details pane to configure the new entry.
3. Click **OK** in the details pane.

Deleting an Entry

1. Select the entry to be deleted by clicking on it.
2. Right-click on the pane and select **Delete**.

Validating an Entry

1. Select the entry to be validated by clicking on it.
2. Right-click on the pane and select **Validate**.

Show in Groups

This command groups the items shown in the group pane. The grouping method will vary depending on the entry type being listed. For example, short codes are grouped based on short code feature type such as all forwarding short codes together.

1. Right-click on the pane and select **Show In Groups**.

Moving the Border Between the Panes

The border between the visible panes can be adjusted. Note that this is a proportional rather than exact position. If the whole window size is altered, the border position may also move.

1. Place the cursor over the border between two panes.
2. When the cursor changes to a double headed arrow with a bar through it, click and hold the cursor.
3. Drag the border to the required position and release the cursor.

Showing or Hiding Panes

The group pane can be shown or hidden. To do this use either of the following methods.

1. From the main toolbar, use the icon.

or

1. Select **View**. Those panes currently shown are indicated by a tick mark.
2. To show or hide the group pane, click on its name.

Changing the Size of Configuration Icons

The size of the icons used on the navigation pane and details pane can be adjusted.

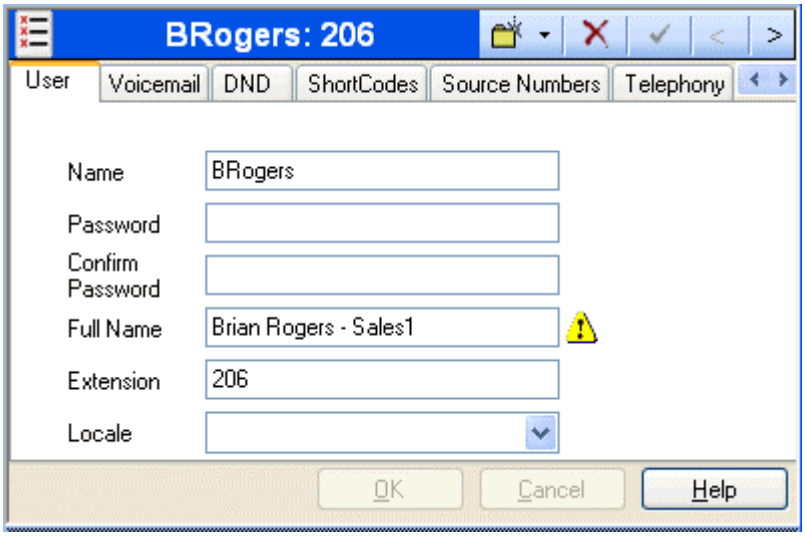
1. Select **File** and then **Preferences**.
2. Select **Edit**.
3. Select the **Visual Preferences** tab.
4. Select the required icon size from **Small**, **Medium** or **Large**.
5. Click **OK**.

Using the Details Pane

Whenever a selection is made through the group pane or the navigation toolbar, the settings for the matching entry are shown in the details pane. This pane is also used by Manager in security mode to display entries for security settings.

The details are grouped into tabs. The tabs available may vary depending on what particular type of entry is being viewed. For example, for extension entries the **Analog** tab is only shown for analog extensions.

Individual settings may also be grayed out. This indicates that they are either for information only or that they cannot be used until another setting is enabled.



The top-left icon indicates the following:

Locked
Indicates that you can view the settings cannot change them.

Editable
Indicates that you can change the settings if required.

Changed
Indicates that the settings have been changed since the tab was opened. Click **OK** to save the changes or **Cancel** to undo.

Various icons may appear adjacent to settings:

Locked Setting
The setting cannot be changed through this tab. This icon appears on user settings where the user is associated with User Rights that controls the setting.

Information
Indicates a value which does not have to be set but may be useful if set.

Warning
A warning indicates a configuration setting value that is not typical and may indicate misconfiguration.

Error
An error indicates a configuration setting value that is not supported by the IP Office. Such settings may cause the IP Office to not operate as expected.

Details Pane Actions

Editing an Entry

1. The method of entering an entry varies as different fields may use different methods. For example text entry boxes or drop down lists.
2. When changes are made, they are validated once another field is selected.
3. Clicking on **OK** at the base of the details pane to accept the changes or click on **Cancel** to undo the changes.

Adding a New Entry

1. Click at the top-right of the details pane.
2. Select the type of entry required. For example, with services you can select from **Normal**, **WAN** or **Intranet**.

Deleting an Entry

1. Click at the top-right of the details pane.

Validating an Entry

1. Click at the top-right of the details pane.

Moving to the Previous or Next Entry

1. Click **<** or **>** at the top-right to move to the previous or next entry.

Selecting a Tab

1. To view the detail stored on a particular tab, click on the name of that tab.
2. If the tab required is not shown, use the controls if shown on the right to scroll through the available tabs. The tabs available may vary depending on what particular type of entry is being viewed.

Changing the Position of the Details Pane

When the group pane is visible, the details pane is shown either below it or to its right. This position can be adjusted.

1. Select **View** and then **Details Pane**.
2. The current position setting is indicated by a tick mark.
3. To select a position, click on it.

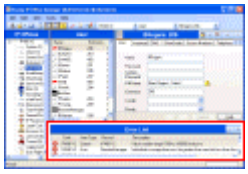
Changing How the Tabs Display

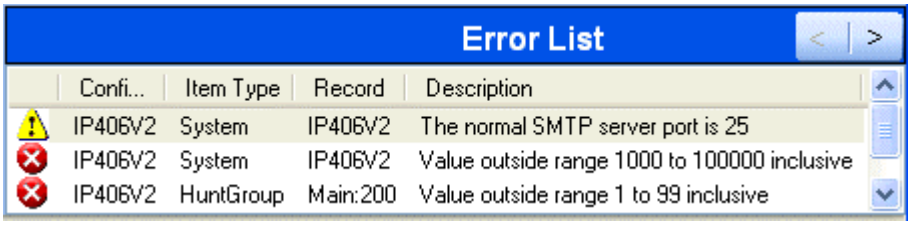
For entries with more than two tabs, you can select whether Manager should use controls or arrange the tabs as multiple rows when necessary.

1. Select **Files | Preferences | Visual Preferences**.
2. Select **Multi-Line Tabs**.
3. Click **OK**.

Using the Error Pane

The configuration settings are validated when loaded into Manager. All the errors and warnings found are summarized in the error pane. This pane is automatically displayed when a configuration containing possible errors is opened in Manager.





The icons used for errors and warnings are:

Information
Typically indicates a setting which may be useful to set.

Warning
A warning indicates a configuration setting value that is not typical and may indicate misconfiguration.

Error
An error indicates a configuration setting value that is not supported by the IP Office. Such settings may cause the IP Office to not operate as expected.

Error Pane Actions

Revalidating Configuration Settings
By default, the configuration is validated when loaded and individual entries are revalidated when changed.

1. Click on in the main toolbar.
2. Select **Tools** and then **Revalidate Configuration**.
3. For a particular entry, click the in the details pane.

Jumping to an Error or Warning

1. Clicking on an error or warning in the error pane will load the matching entry tab into the details pane.
2. The **<** and **>** can be used to move to the next error or warning in the error pane.

Showing or Hiding Panes
The error pane is automatically displayed if a configuration containing errors or warnings is loaded into Manager. However it can be manually shown or hidden using either of the following methods.

1. From the main toolbar, use the icon.

or

1. Select **View**. Those panes currently shown are indicated by a tick mark.
2. To show or hide the error pane, click on its name.

Altering the Configuration Interface

The Manager configuration settings interface can be customized in a number of ways. These changes are remembered the next time Manager is started.

Resizing the Manager Window

When the Manager window is not maximized or minimized, it size can be adjusted.

1. Place the cursor over the edge of the current window.
2. When the cursor changes to a double-headed arrow, click and hold the cursor.
3. Drag the edge to the required position and then release the cursor.

Moving the Border Between the Panes

The border between the visible panes can be adjusted. Note that this is a proportional rather than exact position. If the whole window size is altered, the border position may also move.

1. Place the cursor over the border between two panes.
2. When the cursor changes to a double headed arrow with a bar through it, click and hold the cursor.
3. Drag the border to the required position and release the cursor.

Showing or Hiding Toolbars

The different toolbars can be hidden if not required.

1. Select **View** and then **Toolbars**. Those toolbars currently shown are indicated by a tick mark.
2. To show or hide a toolbar, click on its name.

Moving Toolbars

The position of the Manager toolbars can be moved. Note that when moving a toolbar, the other toolbars and panes may adjust their size or position to ensure that all the toolbar icons remain visible.

1. Place the cursor over the end of the toolbar.
2. When the cursor changes to a four-way arrow, click and hold the cursor.
3. Move the toolbar to the required position and release the cursor.

Showing or Hiding Panes

The details pane cannot be hidden. The navigation pane, group pane and error pane can be shown or hidden. To do this use either of the following methods.

1. From the main toolbar, use the following icons:
   - **Hide/Show Navigation Pane**.
   - **Hide/Show Group Pane**.
   - **Hide/Show Error Pane**.

or

1. Select **View**. Those panes currently shown are indicated by a tick mark.
2. To show or hide a pane, click on its name.

Changing the Position of the Details Pane

When the group pane is visible, the details pane is shown either below it or to its right. This position can be adjusted.

1. Select **View** and then **Details Pane**.
2. The current position setting is indicated by a tick mark.
3. To select a position, click on it.

Changing the Size of Configuration Icons

The size of the icons used on the navigation pane and details pane can be adjusted.

1. Select **File** and then **Preferences**.
2. Select **Edit**.
3. Select the **Visual Preferences** tab.
4. Select the required icon size from **Small**, **Medium** or **Large**.
5. Click **OK**.

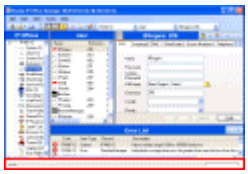
Changing How the Tabs Display

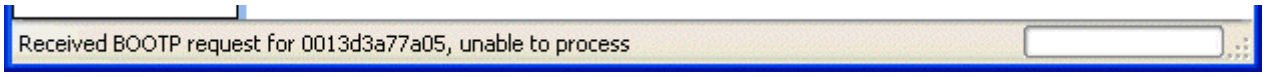
For entries with more than two tabs, you can select whether Manager should use controls or arrange the tabs as multiple rows when necessary.

1. Select **Files | Preferences | Visual Preferences**.
2. Select **Multi-Line Tabs**.
3. Click **OK**.

Status Bar Messages

The status bar at the base of the Manager screen is used to display messages about communications the Manager application receives.





Some typical status bar messages are listed below.

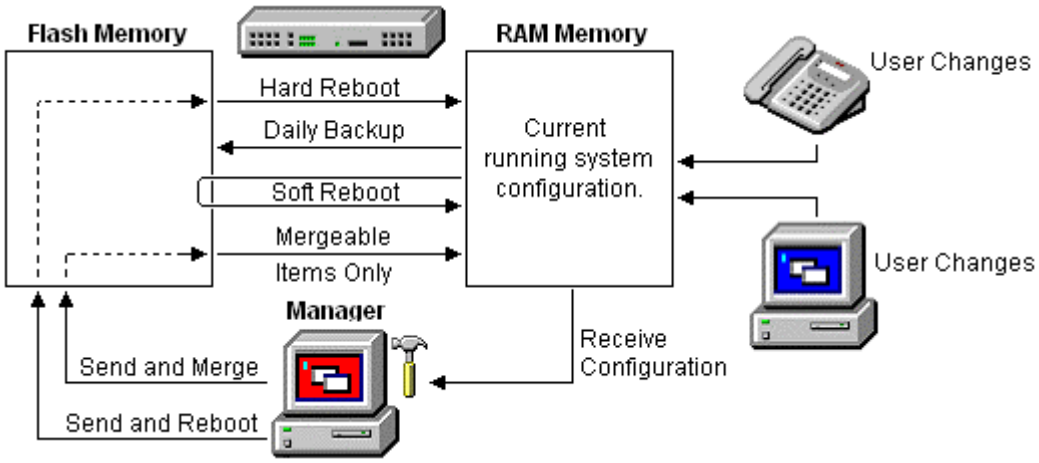
- **Ready**
  This message is normally seen when Manager has just started and no configuration has been received.
- **Received BOOTP request for 001125465ab2, unable to process**
  Manager is acting as a BOOTP server. It has received a BOOTP request that does not match an IP Office system listed in its BOOTP entries. The cause may be a device or application, other than an IP Office, that also uses BOOTP.
- **TFTP: Received TFTP Error "NotFound" from 135.64.180.171**
  An attempt to receive settings from or send settings to the IP Office failed. The most probable cause is a name or password error.
- **TFTP: Received 17408 bytes for Marks_Test**
  Manager has received configuration settings from the named system using TFTP.
- **Sent 100% of C:\Program Files\Avaya\IP Office\Manager\b10d01b2_3.bin**
  Manager has sent the indicated file in response to a BOOTP request.

Editing Configuration Settings

How the Configuration is Used

Before editing the IP Office configuration settings, it is important to understand how those settings are stored and used by the IP Office system.

- The IP Office control unit holds copies of its configuration in both Flash and RAM memory.
- The copy in Flash memory is retained even if power to the control unit is removed.
- During power up, the configuration in Flash memory is copied to the RAM memory.
- The copy in RAM memory is then used to control the IP Office system's operation.
- Users actions such as changing their forward destinations or mailbox passcode using their phone or Phone Manager are written to the configuration in RAM memory.
- Between 00:00 and 00:30, a daily backup occurs which copies the configuration in RAM back into Flash memory.



When using Manager to edit the configuration settings, the following need to be remembered:

- Manager receives the current configuration settings from RAM memory. Therefore the settings include any changes made by users up to that time.
- When sending the configuration settings back to the IP Office, Manager allows two choices, reboot or merge.
    - Reboot sends the configuration to the IP Office's Flash memory along with an instruction to reboot. Following the reboot, the new configuration in Flash memory is copied to the RAM memory and used.
    - Merge sends the configuration to the IP Office's Flash memory without rebooting. The IP Office then copies those changes that are mergeable into the RAM memory. A key point here is that not all configuration settings are mergeable, see the Reboot/Merge Configuration List that follows.

As a result of the above, it is important to bear the follow scenarios in mind:

- Changes made by users after a configuration is received by Manager may be lost when the configuration is sent back from Manager.
- If a merge is attempted with non-mergeable items, those items will be written to Flash memory but will not be copied to RAM memory. If a daily backup occurs, they will then be overwritten by the RAM. If a power loss reboot occurs, they will be written to RAM memory.

Mergeable Settings

The table below shows the configuration entries for which changes can be merged and those that require a system reboot. The **Send Configuration** menu shown when sending a configuration to the IP Office automatically indicates when the configuration is mergeable.

Mergeable		3.2	Pre-3.2
	System	–	–
	- System	✓*1	✗
	- LAN1/LAN2	✗	✗
	- DNS	✗	✗
	- Voicemail	✓*2	✗
	- Telephony	✓*3	✗
	- H.323 Gatekeeper	✗	✗
	- LDAP	✗	✗
	- System Alarms (SNMP)	✗	✗
	- CDR	✓	✗
	- Twinning	✓	–
	Line	✗	✗
	Control Unit	✗	✗
	Extension	✗	✗
	User	✓	✓
	Hunt Group	✓	✓
	Short Code	✓	✓
	Service	✓	✓
	RAS	✓	✓
	Incoming Call Route	✓	✓
	WAN Port	✗	✗
	Directory	✓	✓
	Time Profile	✓	✗
	Firewall Profile	✓	✓
	IP Route	✓	✓
	Least Cost Route	✓	✓
	Account Code	✓	✓
	License	✓	✓
	Tunnel	✗	✗
	Logical LAN	✗	✗
	Wireless	✗	✗
	User Rights	✓	✓
	Auto Attendant	✓	✗
	Authorization Code	✓	✗

- ***1 - 3.2 | System | System**
  Changes to **Locale**, **License Server IP Address** and **Favor RIP Routes over Static** require a reboot.
- ***2 - 3.2 | System | Voicemail**
  Changes to **Voicemail Type** require a reboot.
- ***3 - 3.2 | System | Telephony**
  Changes to **Companding LAW** and **Busy Tone Detection** require a reboot.

	E911 System	×	×

Configuration File Sizes

There are maximum size limits to the configuration file that can be loaded into an IP Office control unit. They are:

Control Unit	Maximum Configuration File Size
Small Office Edition	192KB
IP403	192KB
IP406 V1	192KB
IP406 V2	256KB
IP412	1.0MB

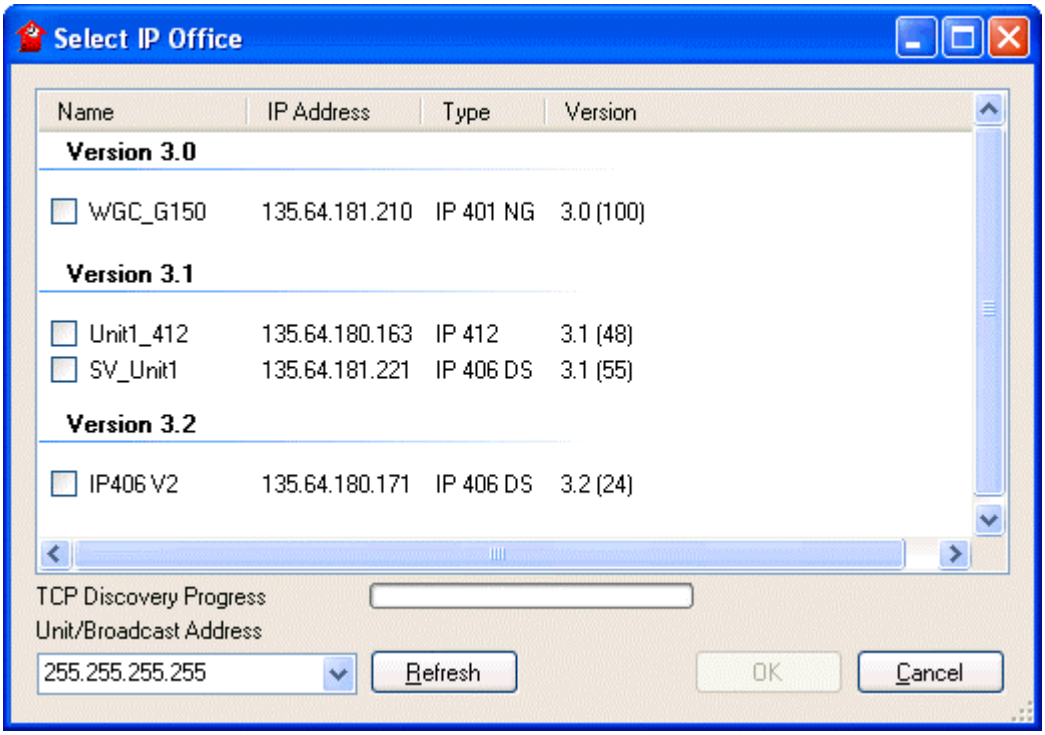
Attempting to load a configuration that exceeds the limits above will cause the system to lock and require resetting via the DTE port.

Figures for all individual entries in the configuration cannot be given as they vary between software releases. The list below gives typical values, in bytes, for common entries:

Physical Extension: 70.	**WAN Service:** 400.	**IP Route (Static):** 30.
IP Extension: 70.	**RAS Service:** 110.	**License Key:** 40.
User: 170.	**Incoming Call Route:** 30.	**Account Code:** 40.
User Short Code: 40.	**WAN Port (PPP):** 70.	**Logical LAN:** 60.
DSS Button: 20.	**WAN Port (FR):** 120.	**Tunnel (L2TP):** 200.
Hunt Group: 100.	**Directory Entry:** 70.	**Tunnel (IPSec):** 110.
Hunt Group member: 10.	**Time Profile:** 40.	
System Short Code: 10.	**Time Profile Entry:** 20.	
Normal Service: 220.	**Firewall Profile:** 40.	
Intranet Service: 240.	**Custom Firewall Entry:** 80.	

Setting the Discovery Addresses

By default, when or **File | Open configuration** is selected, Manager's **Select IP Office** menu appears. It performs a UDP broadcast to the address 255.255.255.255. This broadcast will only locate IP Office systems that are on the same network subnet as the Manager PC.



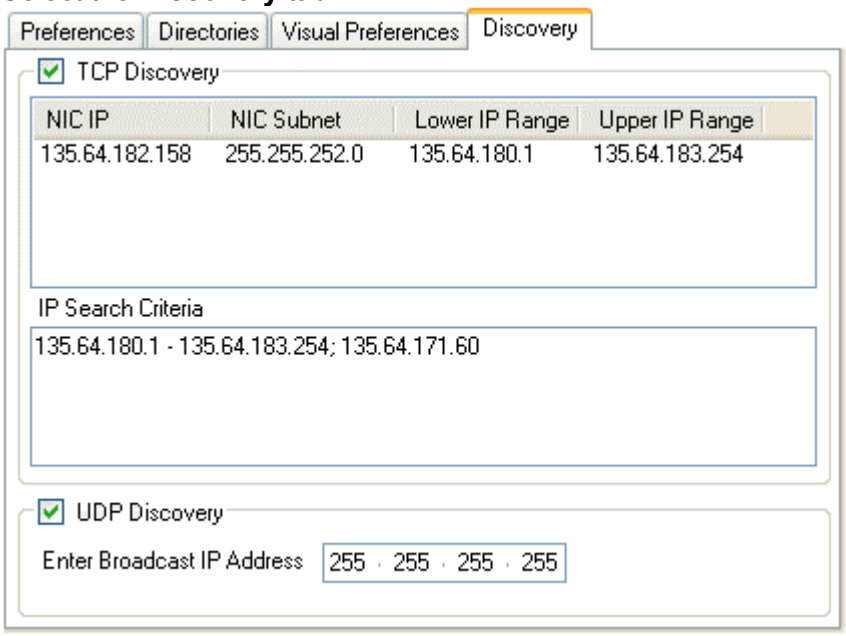
The process above is called discovery. A UDP broadcast will not be routed to other networks and subnets. Therefore to find IP Office systems not located on the same subnet as the Manager PC, the following other options are supported.

- **Specific Addressing**
  The **Unit/Broadcast Address** shown on the Select IP Office menu can be changed to the specific IP address of the required system. A single address is routable and so can be used to discover an IP Office system on another subnet.
- **TCP Address Ranges**
  IP Office 3.2 systems support discovery by TCP rather than UDP. To support this, a set of TCP addresses and address ranges can be specified for use by the **Select IP Office** discovery process.

Changing the Initial Discovery Settings

The **Discovery** tab of the Manager **Preferences** menu can be used to set the UDP and TCP addresses used by the discovery process run by the Select IP Office menu.

1. Select **File | Preferences** menu.
2. Select the **Discovery** tab.



3. Under **UDP Discovery** you can enter the default UDP broadcast address to be used by the discovery process.
4. In the **IP Search Criteria** box you can enter IP addresses and IP address ranges for TCP discovery. Addresses are should be separated by semi-colons, ranges by - dashes.

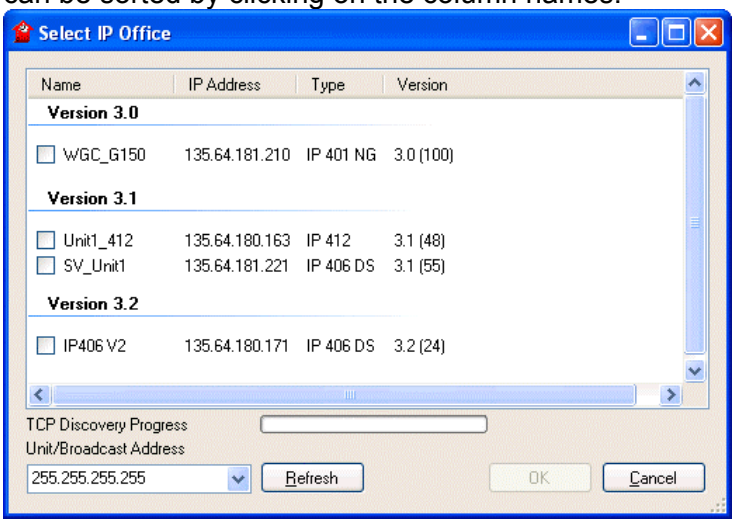
Loading a Configuration

Manager can be used to load configuration settings directly from a running IP Office system or from a configuration file previously saved on the PC.

Loading the Current Configuration from an IP Office

The initial address ranges in which Manager searches for IP Office systems are set through the Manager preferences (**File | Preferences | Edit**).

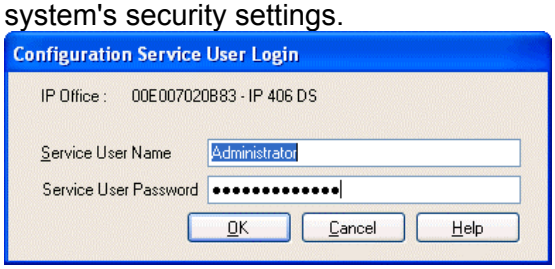
1. Click in the main toolbar or select **File | Open Configuration** from the menu bar.
2. The **Select IP Office** window appears, listing those IP Office systems that responded. The list can be sorted by clicking on the column names.



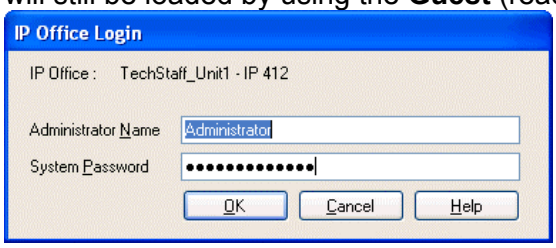
   - If the system required was not found, the address used for the search can be changed. Enter or select the required address in the **Unit/Broadcast Address** field and then click **Refresh** to perform a new search.

3. When the system required is located, check the box next to the system and click **OK**.
4. The name and password request is displayed. Enter the required details and click **OK**.

   - **IP Office 3.2 Systems:**
     The name and password used must match a Service User configured within the IP Office system's security settings.



   - **Pre-3.2 IP Office Systems:**
     The name must match a Manager operator and the password must match the IP Office system's system password. If the name does not match a Manager operator, the config will still be loaded by using the **Guest** (read-only) operator.



5. When the configuration is received, it appears within Manager.

Loading a Configuration Stored on PC

A configuration file previously saved on the PC can be reopened in Manager. This method of access does not require entry of a Service User name and password. All parts of the configuration are visible. In order to send a configuration opened this way to an IP Office 3.2 system, you must use a service user name with the **Administrator** operator rights view and rights to write with a reboot.

Use either of the following processes to load a saved configuration file:

1. If the files is one that has previously been opened offline, click the ▾ symbol next to in the main toolbar. From the list of files displayed select the file required.

or

1. Click the main toolbar or select **File | Offline | Open File** from the menu bar.
2. An **Open configuration file** window appears. Use this to browse to the required configuration file.
3. Select the file and click **Open**.

Creating a New Configuration

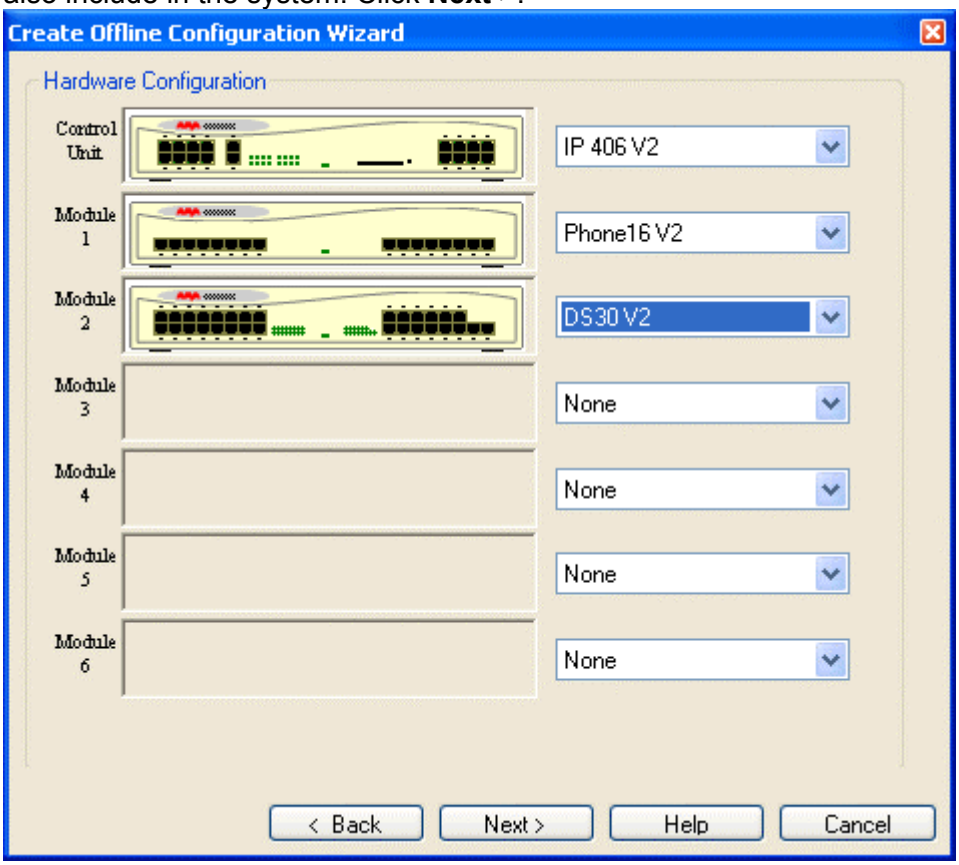
Manager can be used to create a new configuration without connecting to an IP Office system. During the process, you can specify the locale of the system, what type of trunk cards it uses and what type of control unit and expansion modules to include.

This allows the creation of a configuration prior to installation of the real system and so can be used to speed up installation.

- The configuration created must match the physical equipment in the IP Office system onto which the configuration will be loaded. Doing otherwise may cause the IP Office system to reset and experience other problems.
- The **Create Configuration** tool includes all control units, external expansion modules and trunk cards supported by IP Office. It is you responsibility to confirm what IP Office equipment is supported in your locale.

Creating a New Configuration

1. Click in the main toolbar or select **File | Offline | Create New Config** from the menu bar.
2. Select the **Locale** for the system. This defines a range of features such as default telephony settings. Click **Next >**.
3. Select the type of IP Office control unit. Then select the expansion modules, excluding WAN3, to also include in the system. Click **Next >**.



4. Select the trunks cards to be included and the IP address of a WAN3 module if required. Click **Finish**.
5. The configuration is created and loaded into Manager.
6. Once this configuration has been edited as required it can be saved on the PC. In order to send it to the matching IP Office system, **File | Offline | Send Configuration** has to be used.

Importing and Exporting Settings

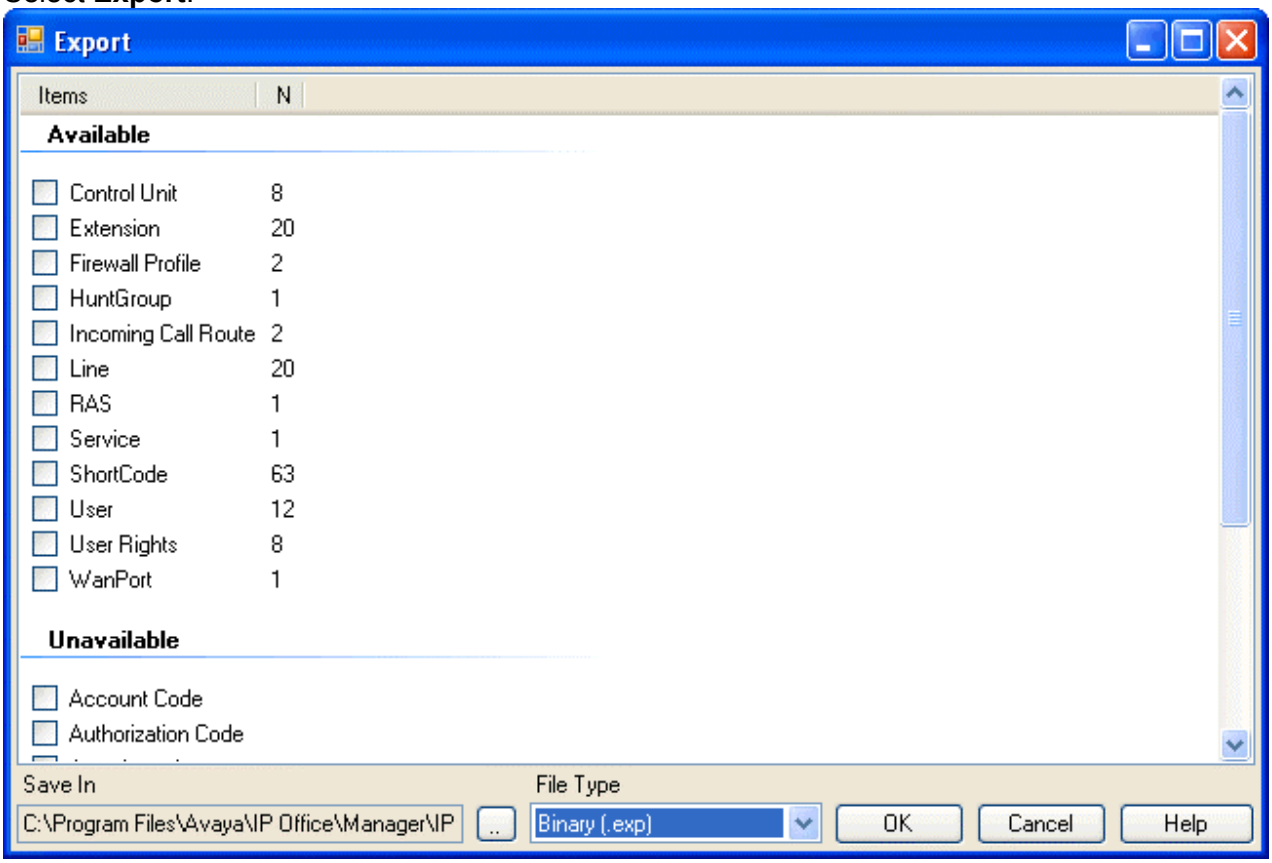
Manager can import configuration settings created elsewhere. This can be useful when setting up a new system or sharing common settings such as a directory between systems.

Settings are imported and exported in two formats:

- **Binary Files (.exp)**
  These are non-editable files. During import and export it is possible to select what types of entries should be included in the file. During import the whole file is imported.
- **Comma Separated Variable Text Files (.csv)**
  These are plain text files. In addition to being exported from an IP Office system these files can be created and edited using programs such as WordPad or Excel.

Exporting Settings

1. Select **File | Import/Export...** from the menu bar.
2. Select **Export**.

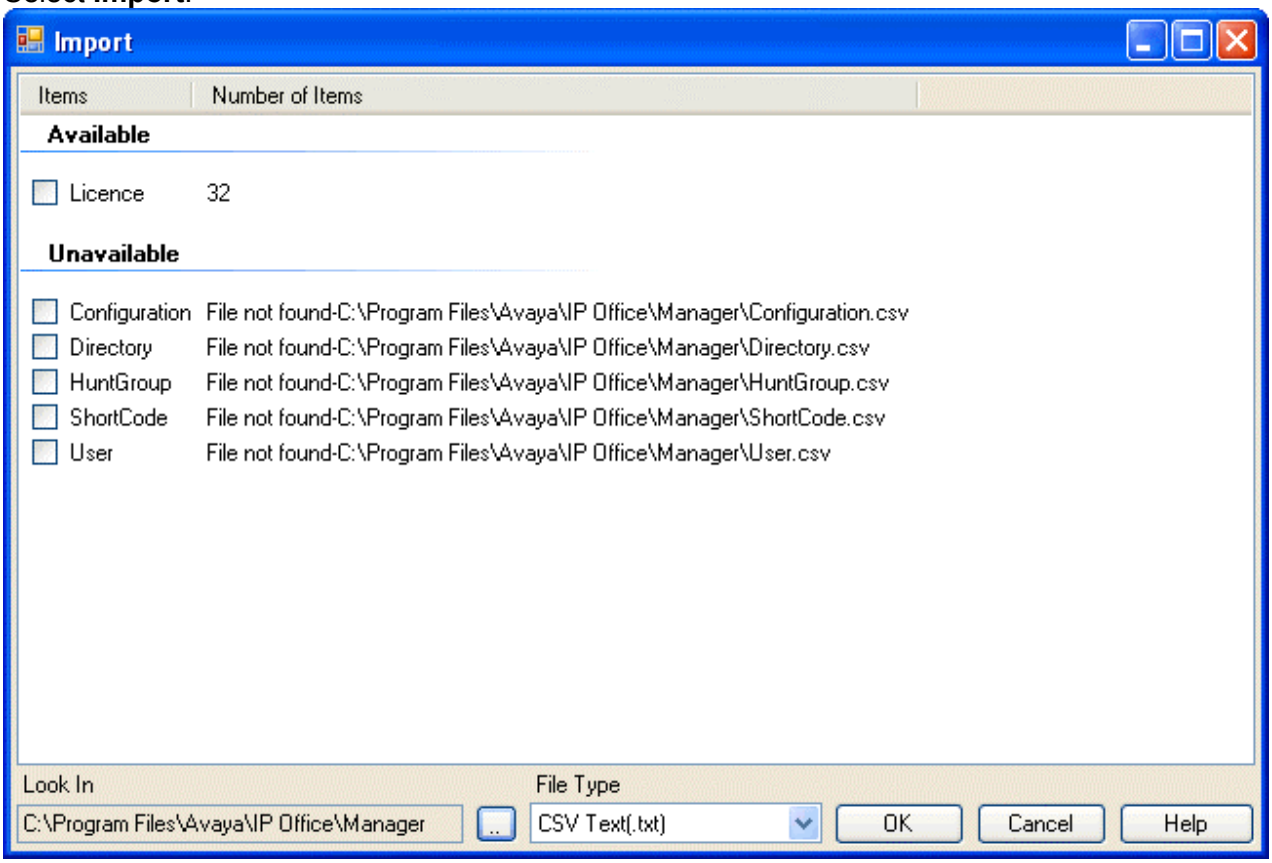


3. Select the type of file. The list of exportable entry types will change to match the file type.
4. Select the types of items that should be exported.
5. Use the **Save In** path to select the location for the exported files. The default location used is sub-directory of the Manager application directory based on system name of the currently loaded IP Office system.
6. Click **OK**.

Importing Settings

Importing settings will overwrite any existing entries that match an entry being imported.

1. Select **File | Import/Export...** from the menu bar.
2. Select **Import**.



3. Select the type of file. The list of items will change to match the type of file selected and whether a matching file or files is found in the current file path.
4. Use **Look In** to adjust the file path. The default location used is sub-directory of the Manager application directory based on system name of the currently loaded IP Office system.
5. Select the types of items that should be imported.
6. Click **OK**.

CSV File Formats

The format is CSV using commas as field separator, no text delimiters and no header row. The simplest way to check the required format for a CSV file prior to import, is to export and study the settings from an existing system.

File Name	Fields in Order
Directory	Name, Number.
HuntGroup	Name, Extension, Group, Hunt, Rotary, Idle, Queuing On, Voicemail On, Broadcast, Voicemail Email.
License	License, License Key
ShortCode	Code, Telephone Number, Feature.
User	Name, Extension, User Restriction/Rights, Voicemail Email.
Configuration	*Proprietary format*

Notes

- **Hunt Group:** Apart from Name, Extension and Voicemail Email, the fields use a 1 or 0 value for on or off.
- **License:**
  - The License field is for information only and is ignored during import.
  - Following import the License name may appear as invalid with Manager. To resolve this save and then reload the configuration file.
- **System:** The format of the system CSV is too complex to be described. It is a full export of all the IP Office system's configuration settings. This file format should only be used for export and import between systems and not for any offline editing.

Copying and Pasting

IP Office Manager supports the normal Windows methods of cutting, copying, pasting and deleting entries and settings. These can be accessed through the **Edit** menu in the menu bar or using the standard Windows keyboard shortcuts for those actions. They can also be accessed by selecting an entry or text field and then right-clicking.

Copy and paste can be used with the navigation and group panes to create a new entry with the same settings as the original. The copy will be renamed as ***Copy of ...*** to avoid conflicting with the original.

When using copy and paste between individual settings fields, whether on the same entry or a different entry, care should be taken to ensure that the fields use the same type of data. Similarly copying an entry in the navigation or group pane and then pasting it into the details pane will prompt Manager to paste the copied entries data into the first field of the current entry in the details pane. As a general rule, cut and paste actions should be used with the same pane and within similar entry types.

For users and user rights, a number of controls have been provided to copy settings between a user and a user right or vice versa. See **User Rights Overview** in the Configuration Settings section.

Saving a Configuration onto PC

The IP Office system configuration settings shown within Manager can be saved as a .cfg file on the Manager PC. These files can be used as backups or sent to other persons to aid problem diagnostics. Note however that an offline configuration file does not include the Audit Trail records for the IP Office system.

Automatically Saving Sent Configurations

By default, Manager creates a file copy of the configuration before it is sent to the IP Office. This copy is stored in Manager's Working Directory using the IP Office's system name and .cfg. This behavior is controlled by the **Save configuration file before send** setting (**File | Preferences | Edit | Preferences**).

Saving a Configuration Received from an IP Office

1. Select **File | Save Configuration as** from the menu bar.

Saving a Configuration opened on the PC

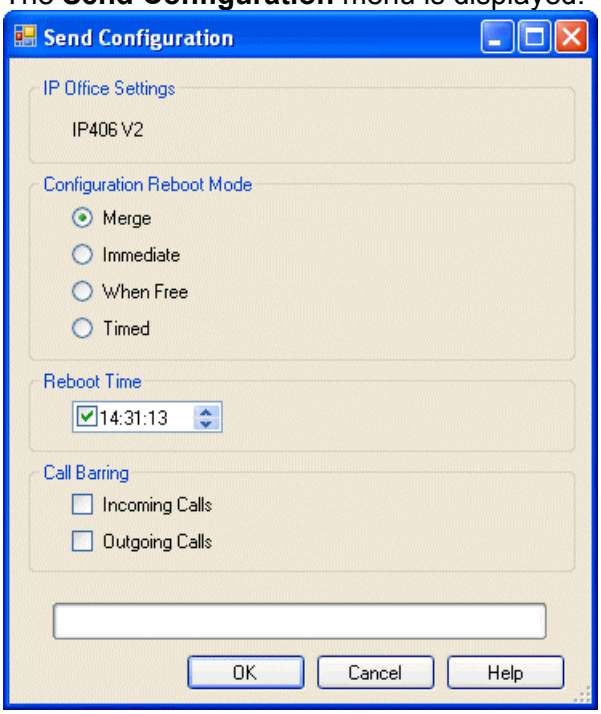
1. Click in the main toolbar or select **File | Save Configuration** from the menu bar.

Sending a Configuration

The current configuration settings open within Manager can be sent to the IP Office system.

Sending a Configuration to an IP Office

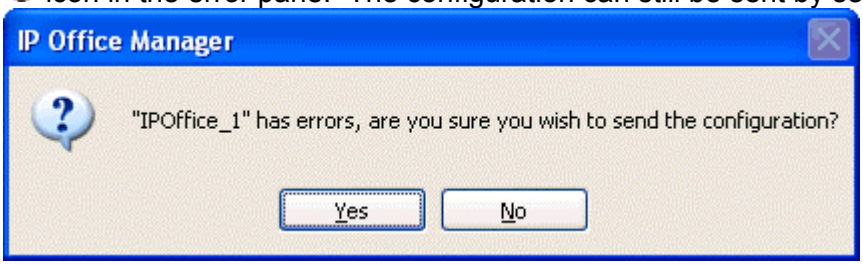
1. The first steps of this process depend on whether you are sending a configuration received from the IP Office system or sending one opened offline/created new.
   - **Received Configuration**
     Click in the main toolbar or select **File | Save Configuration** from the menu bar.
   - **Opened Offline/Newly Created Configuration**
     Select **File | Offline | Send Config** from the menu bar.
2. The **Send Configuration** menu is displayed.



   - **Password** - Pre-3.2 Systems Only
     This field appears for pre-3.2 IP Office system. The system password should be entered. If sending the configuration to an IP Office 3.2 system, a Service User name and password are requested when **OK** is clicked.
   - **Configuration Reboot Mode**
     If Manager thinks the changes made to the configuration settings are mergeable, it will select ***Merge*** by default, otherwise it will select ***Immediate***.
     - **Merge**
       Send the configuration settings without rebooting the IP Office. This mode should only be used with settings that are mergeable. Refer to the following table.
     - **Immediate**
       Send the configuration and then reboot the IP Office.
     - **When Free**
       Send the configuration and reboot the IP Office when there are no calls in progress. This mode can be combined with the **Call Barring** options.
     - **Timed**
       The same as When Free but waits for a specific time after which it then wait for there to be no calls in progress. The time is specified by the **Reboot Time**. This mode can be combined with the **Call Barring** options.

- **Reboot Time**
  This setting is used when the reboot mode **Timed** is selected. It sets the time for the IP Office reboot. If the time is after midnight, the IP Office's normal daily backup is canceled.
- **Call Barring**
  These settings can be used when the reboot mode **When Free** is selected. They bar the sending or receiving of any new calls.

3. Click **OK**. For IP Office 3.2 systems a Service User name and password will be requested.
   - If the service user name or password used do not have a match on the IP Office, *"Access Denied"* is displayed.
   - If the service user name used does not have rights to send a configuration or to request a reboot or merge, *"Insufficient service user rights"* is displayed.
   - If the service user name used does not have operator rights to make the changes that have been made to the configuration, *"Insufficient operator rights. Operator cannot modify xxxx records"* is displayed.
4. The following warning will appear if the configuration being sent contain any errors indicated by a icon in the error pane. The configuration can still be sent by selected **Yes**.



Erasing the IP Office Configuration

The configuration settings on an IP Office can be erased. During this process the IP Office is rebooted and starts with a set of default settings.

This process does not erase the security settings of the IP Office system. Those can only be reset by a separate process detailed in the IP Office Installation Manual.

Erasing the Configuration

This action returns the IP Office system to its default settings as listed below.

1. Select **File | Advanced | Erase Configuration (Default)**.
2. Enter a valid user name and password.
3. The IP Office system will be rebooted.

Default Data Settings

When a defaulted IP Office control unit is switched on, it requests IP address information from a DHCP Server on the network.

- If a DHCP server responds, the control unit defaults to being a DHCP client and uses the IP address information supplied by the DHCP server.
- If no DHCP Server responds, the control unit defaults to being the DHCP server for the LAN using the following settings:
    - For its LAN1 it allocates the IP address 192.168.42.1 and IP Mask 255.255.255.0.
    - It supports 200 DHCP clients using the addresses range 192.168.42.2 and 192.168.42.201, the IP Mask 255.255.255.0 and default gateway address 192.168.42.1 (the Control Unit's LAN1 address).
    - On IP412 and Small Office Edition control units, LAN2 is allocated the address 192.168.43.1 with IP Mask 255.255.255.0. On Small Office Edition control units, the RJ45 Ethernet WAN port is treated as LAN2.

Default Telephony Settings

- Extension and user entries are created for all physical analog and DS phone ports on the control unit and any connect expansion modules. Users are assigned extension numbers from 201 upwards.
- User names are defaulted to "Extn201", "Extn202", etc.
- A hunt group called **Main** is created, containing the first 10 user extensions.
- A default incoming call route is created for voice calls with the hunt group Main as its destination.
- A default incoming call route is created for data calls with the RAS service as its destination.

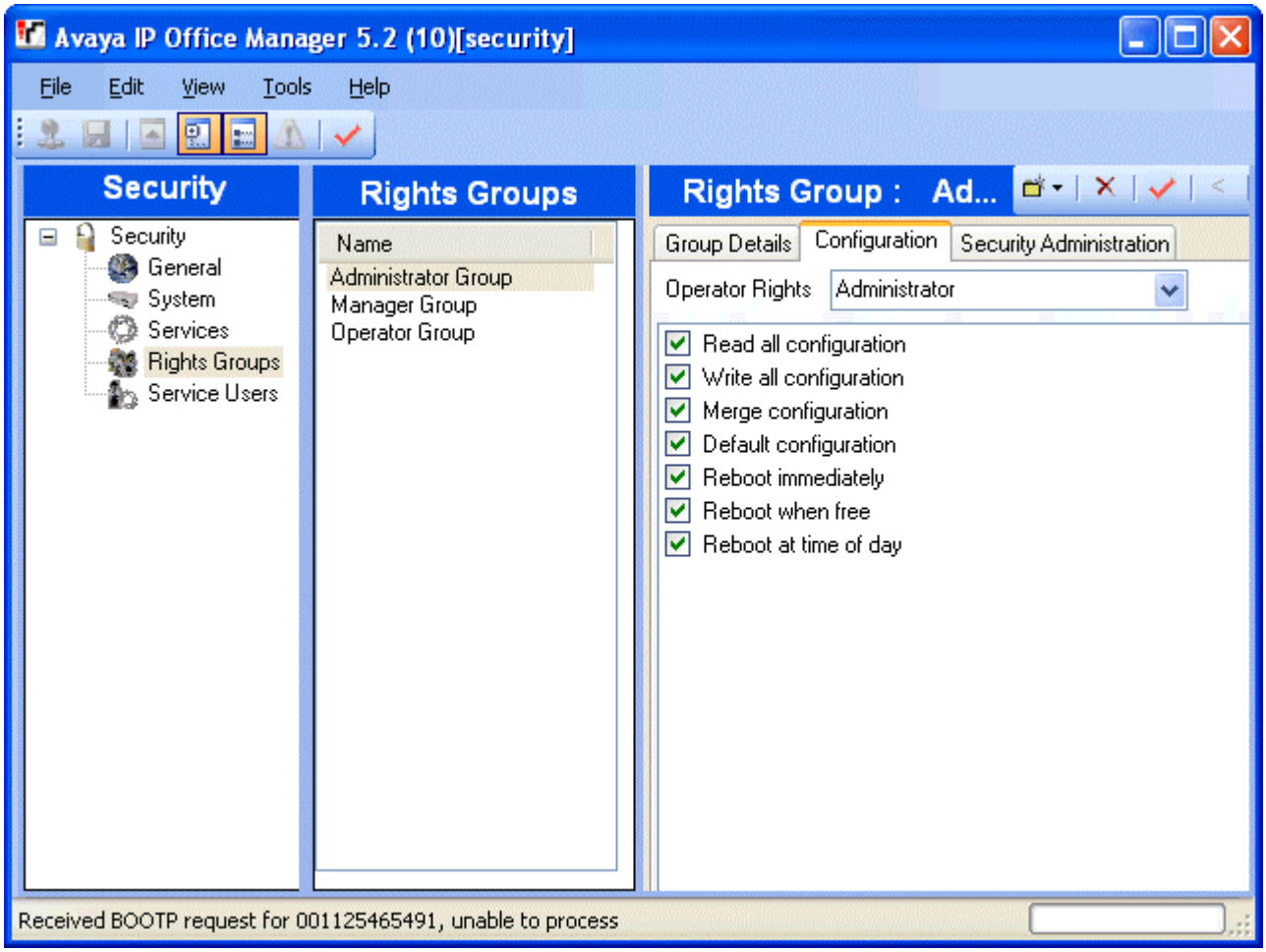
Security Mode

Overview of Security Settings

Security settings are used to control who can access the configuration settings of an IP Office system and what they are able to do with that access. They also control which applications are able to access the configuration settings.

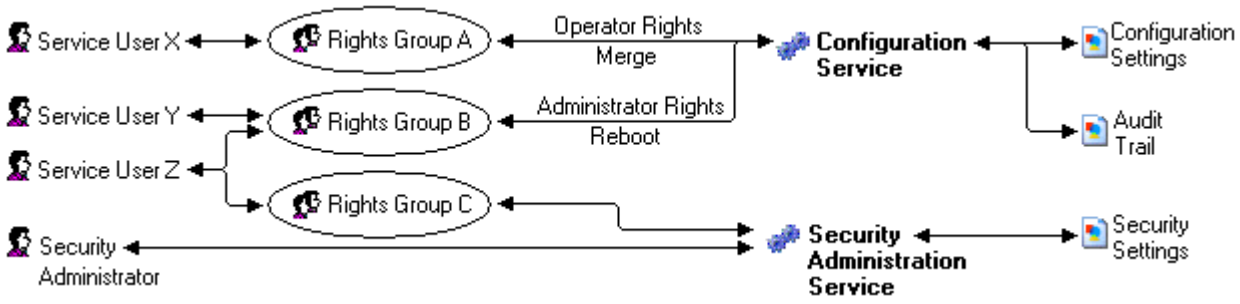
The security settings are stored on the IP Office system and are separate from the system's configuration settings.

To change a system's security settings, Manager must first be switched to security mode by selecting **File | Advanced | Security Settings** from the menu bar.



Security Settings

Access to IP Office 3.2 system settings is controlled by Service Users and Rights Groups. All actions involving communications between the Manager user and the IP Office require a Service User name and password. That Service User must be a member of a Rights Group configured to perform that action.



In the example illustrated above:

- Service User X can read and write the configuration. However they can only edit Operator settings and can only make changes that can be merged.
- Service User Y can read and write the configuration, edit all settings and make changes that require reboots.
- Service User Z can read and write the configuration, edit all settings and make changes that require reboots. They can also access the security settings.
- The Security Administrator can only access the security settings.

Security Administrators

By default the security administrator is the only user who can access the IP Office's security settings using Manager's security mode.

Service Users

Each Service User has a name, a password and is a member of one or more Rights Groups.

Rights Groups

The Rights Groups to which a Service User belongs determine what actions they can perform. Actions available to Rights Groups include:

- **Read the configuration.**
- **Write the configuration.**
- **Merge the configuration.**
- **Default the configuration.**
- **Reboot immediately.**
- **Reboot when free.**
- **Reboot at time of day.**

Where a Service User has been configured as a member of more than one Rights Group, they combine the functions available to the separate Rights Groups.

If required, the ability to edit security settings can be given to Rights Groups. Service Users who are members of those Rights Groups can then perform the following security setting actions.

- **Read all security settings.**
- **Write all security settings.**
- **Reset all security settings.**

Operator Rights

Each Rights Group has an **Operator Rights** setting. This controls what parts of the configuration can be edited by Service Users in the Rights Group. The **Operator Rights** settings are ***Administrator***, ***Manager*** and ***Operator***. These cannot be edited.

Operator Rights	Administrator				Manager				Operator			
Entry Type	View	Edit	New	Delete	View	Edit	New	Delete	View	Edit	New	Delete
System	✓	✓	✗	✗	✓	✗	✗	✗	✓	✗	✗	✗
Line	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗
Control Unit	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗
Extension	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
User	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Hunt Group	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Short Code	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✗
Service	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
RAS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Incoming Call Route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
WAN Port	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Directory	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
Time Profile	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Firewall Profile	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
IP Route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Least Cost Route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Account Code	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
License	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
E911 System	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Tunnel	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Logical LAN	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Wireless	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
User Rights	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Auto Attendant	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Authorization Codes	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗

Default Security Users

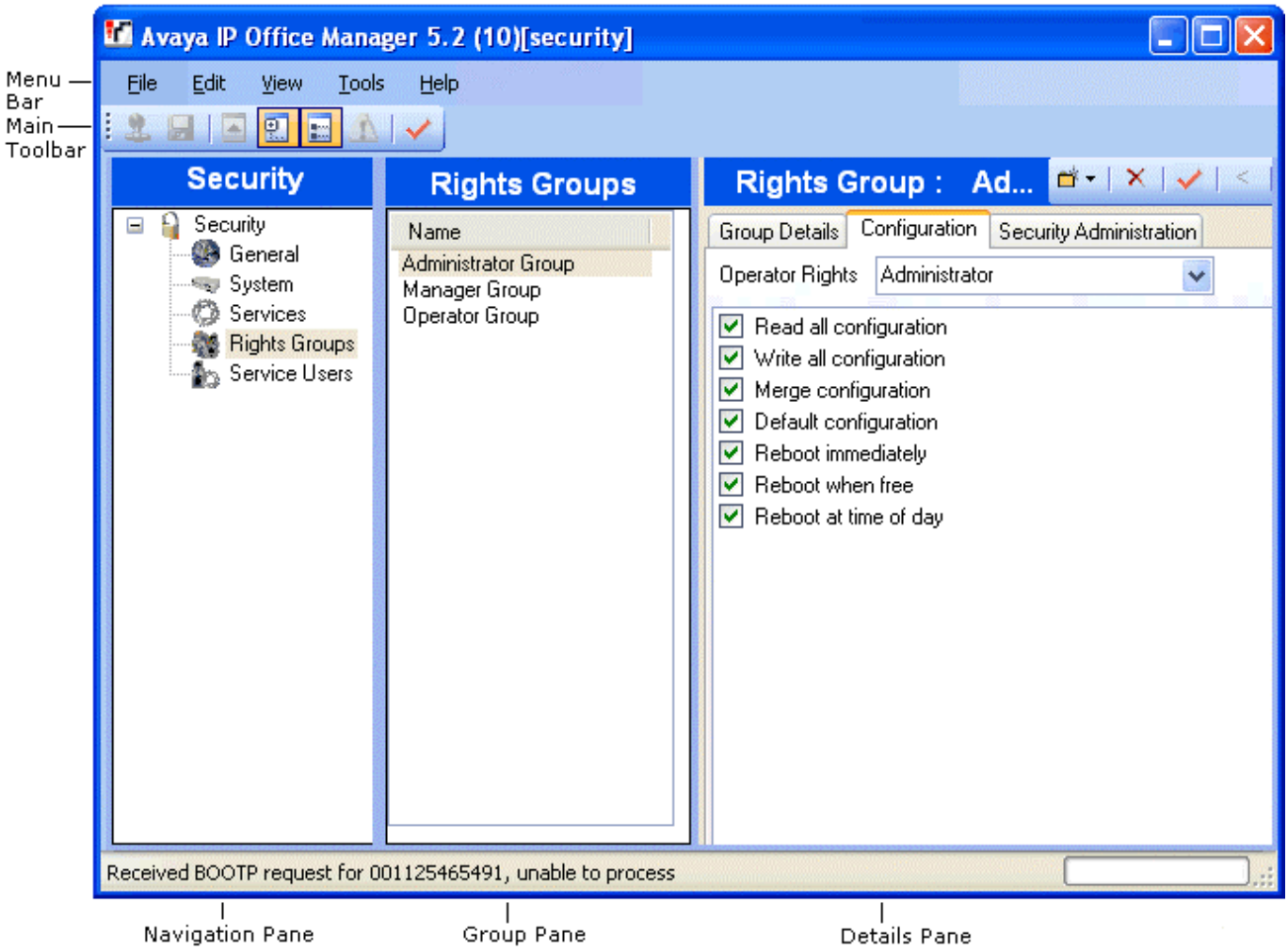
This section lists the default Rights Groups and Service Users for a new IP Office 3.2 system. These also apply to an existing system upgraded to IP Office 3.2.

- ⚠ **WARNING: Change Passwords**
  New IP Office 3.2 systems and systems upgraded to IP Office 3.2 use default security settings. These settings must be changed to make the system secure. At minimum you must change the default passwords of the Unique Security Administrator and the default Service Users. Failure to do so will render the IP Office system unsecure.

Unique Security Administrator			
Enabled	✓		
Name	security		
Password	securitypwd		
Default Service Users			
Name	Administrator	Manager	Operator
Password	Administrator	Manager	Operator
Rights Group Membership			
- Administrator Group	✓	✗	✗
- Manager Group	✗	✓	✗
- Operator Group	✗	✗	✓
Default Rights Groups			
Name	Administrator Group	Manager Group	Operator Group
Operator View	Administrator	Manager	Operator
Read Configuration	✓	✓	✓
Write Configuration	✓	✓	✓
Default Configuration	✓	✓	✓
Merge	✓	✓	✓
Reboot Immediately	✓	✓	✓
Reboot When Free	✓	✓	✓
Reboot at Time	✓	✓	✓
Read Security Settings	✗	✗	✗
Write Security Settings	✗	✗	✗
Reset Security Settings	✗	✗	✗

The Security Mode Interface

Manager can be switched to security mode. This mode it is used to load and edit the security settings of an IP Office 3.2 system. How the controls operate is the same as for Manager in configuration mode.



Switching Manager to Security Mode

1. Select **File | Advanced | Security Settings**.

Switching Manager Back to Configuration Mode

1. Select **File | Configuration**.

Manager Security Mode Screen Elements

- **Menu Bar**
  Provides commands for loading and saving security settings. See the **Menu Bar Commands** section.
- **Main Toolbar**
  The toolbar icons perform the following actions:
  - **Get the Security Settings.**
  - **Save the Security Settings.**
  - ***Not Used in security mode.***
  - **Show/Hide the Navigation Pane.**
  - **Show/Hide the Group Pane.**
  - ***Not used in security mode.***
  - ***Not used in security mode.***
- **Security Settings Pane**
  This pane is used to select the type of security entries that should be displayed in the group pane or details pane.
  - **General**
    Defines general security controls for the IP Office system. When selected, the settings are displayed in the details pane.
  - **System**
    Defines security settings for the IP Office such as application access. When selected, the settings are displayed in the details pane.
  - **Services**
    Secure services supported by the IP Office. Currently these are access to security settings and access to configuration settings.
  - **Rights Groups**
    Create groups with different access rights. When selected, the existing Rights Groups are displayed in the group pane.
  - **Service Users**
    Sets the name and password for an administrator. Also allows selection of the Rights Groups to which the user belongs. When selected, the existing Service Users are displayed in the group pane.
- **Group Pane**
  This pane is used to display the existing Right Groups or Service Users when those options are selected in the security settings pane.
- **Details Pane**
  This pane shows the settings selected in the security settings pane or the group pane.

Editing Security Settings

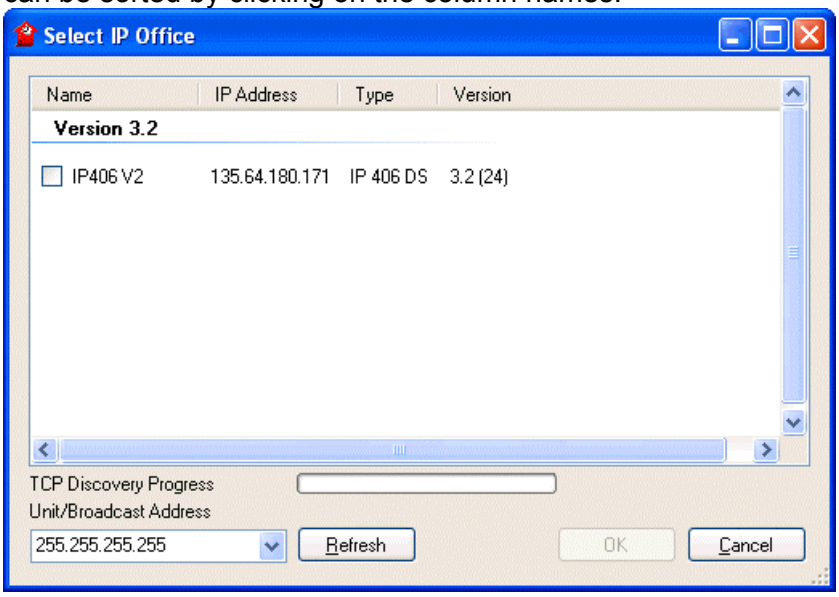
Loading and Saving Security Settings

Security settings can only be loaded directly from an IP Office system. These settings are not savable as a file on the local PC.

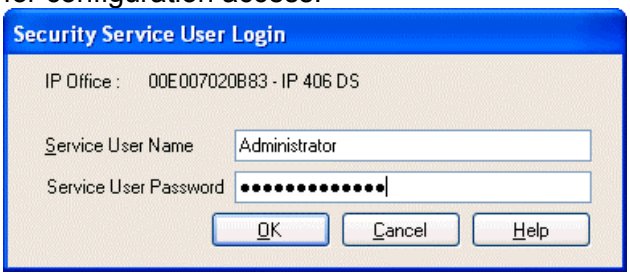
Loading and IP Office's Security Settings

The address ranges in which Manager searches for IP Office systems are set through the Manager preferences (**File | Preferences | Edit**).

1. If not already done, switch Manager to security mode by selecting **File | Advanced | Security Settings**.
   - Note: If the IP Office system's configuration settings have already been loaded using a Service User name and Password that also has security access, then the security settings are automatically loaded when Manager is switched to security mode.
2. Click in the main toolbar or select **File | Open Security Settings** from the menu bar.
3. The **Select IP Office** window appears, listing those IP Office systems that responded. The list can be sorted by clicking on the column names.



4. If the system required was not found, the address used for the search can be changed. Enter or select the required address in the **Unit/Broadcast Address** field and then click **Refresh** to perform a new search.
5. When the system required is located, check the box next to the system and click **OK**.
6. The user name and password request for the system is then displayed. Enter the required details and click **OK**. By default this is a different user name and password from those that can be used for configuration access.



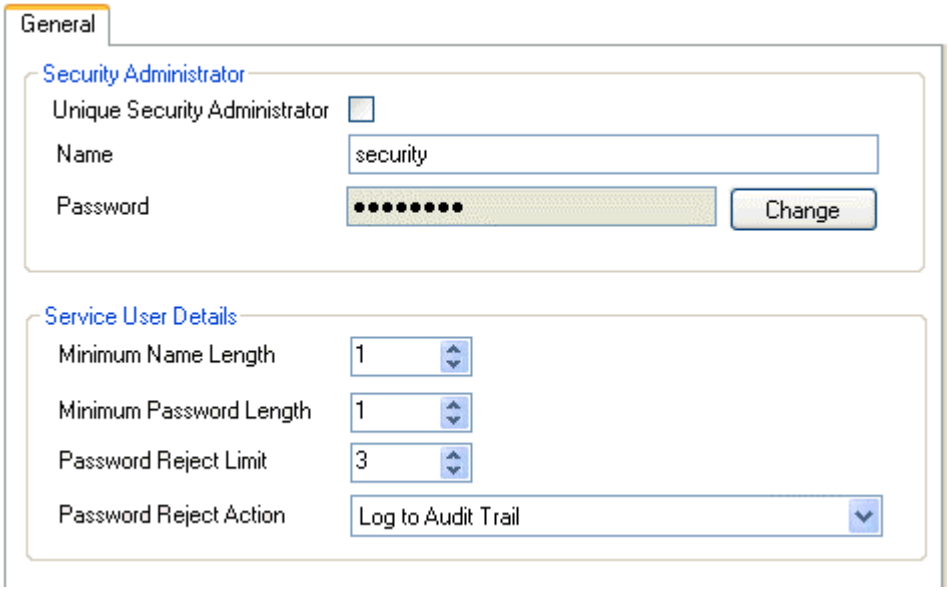
7. If the security settings are received successfully, they appear within Manager.

Saving Security Settings

1. Click in the Main Toolbar or select **File | Save Configuration Settings** from the menu bar.
2. The user name and password request for the system is then displayed. Enter the required details and click **OK**. By default this is a different user name and password from those that can be used for configuration access.

General Settings

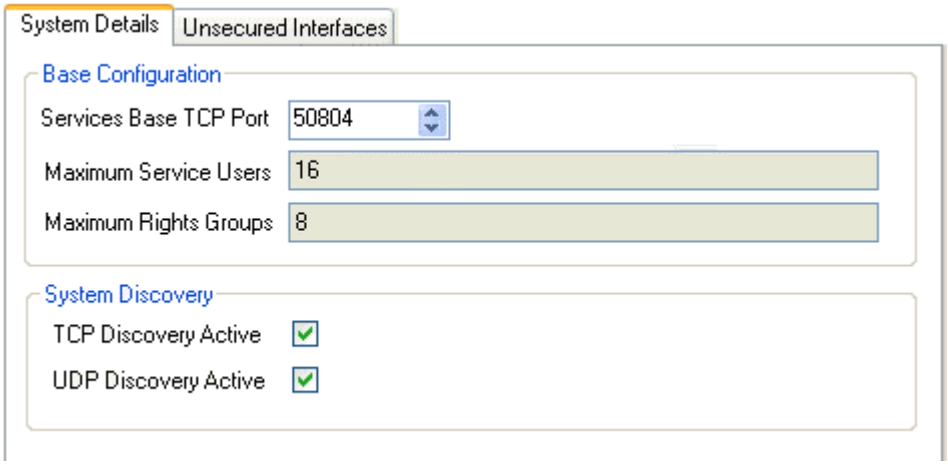
These settings are displayed when **General** is selected in the navigation pane.



- **Security Administrator**
  The Security Administrator is a special Service User who does not belong to any Rights Groups. They are able to access the IP Office system's security settings but cannot access its configuration settings. By default they are the only Service User able to access to the security settings.
  - **Unique Security Administrator:** *Default = On*
    When selected, only the Security Administrator is able to access the IP Office system's security settings. When this is selected, service users cannot access the IP Office's security settings even if they are members of a Rights Group configured for such access. When not selected, the ability to access security settings can also be assigned to Rights Groups.
  - **Name:** *Default = security. Range = 31 characters.*
    The name for the Security Administrator.
  - **Password:** *Default = securitypwd. Range = 31 characters.*
    The password for the Security Administrator.
- **Service User Details**
  These settings control Service User names and password.
  - **Minimum Name Length:** *Default = 1*
    This field sets the minimum name length for Service User names.
  - **Minimum Password Length:** *Default = 1*
    This field sets the minimum password length for Service User passwords.
  - **Password Reject Limit:** *Default = 3*
    Sets how many times an invalid name or password is allowed before the **Password Reject Action** is performed. Selecting 0 indicates never perform the **Password Reject Action**.
  - **Password Reject Action:** *Default = Log to Audit Trail*
    The action performed when a user reached the **Password Reject Limit**. Current options are ***No Action*** and ***Log to Audit Trail***.

Security | System Details

This tab is accessible when **System** is selected in the navigation pane.



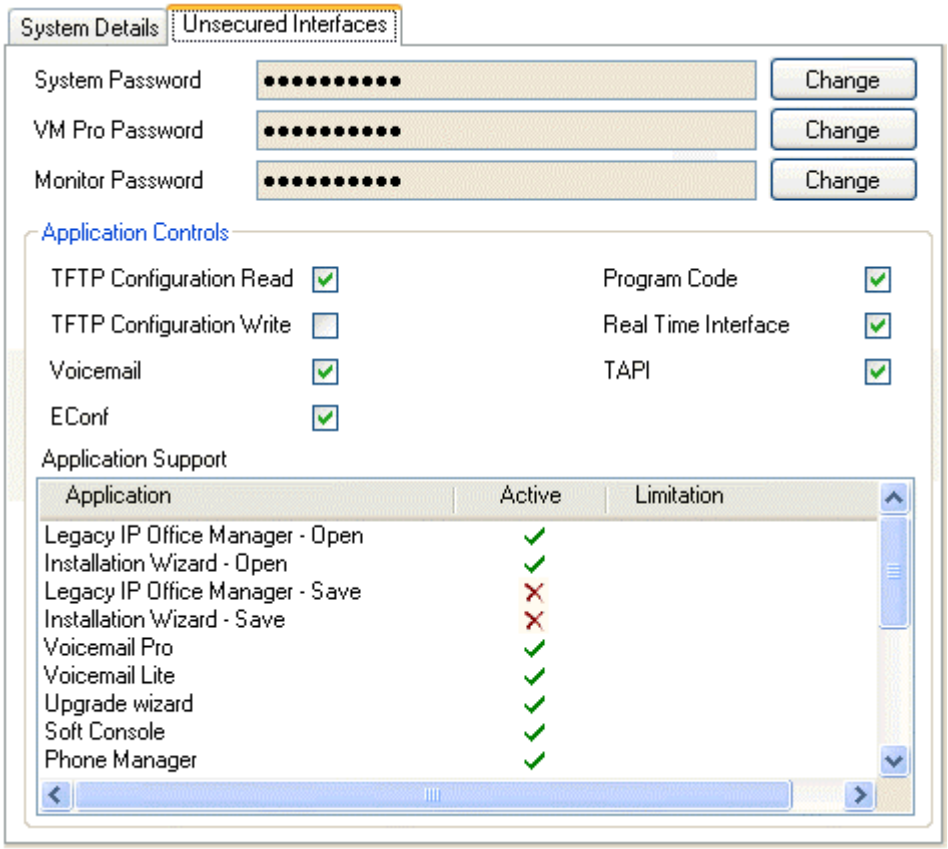
- **Base Configuration**
  - **Base TCP Port:** *Default = 50804, Range = 49152 to 65526.*
    This is the base TCP port for services provided by IP Office 3.2 systems. It sets the ports on which the IP Office listens for requests to access those services, using its LAN1 IP address. Each service uses a port offset from the base port value. If this value is changed from its default, the Manager application must be set to the same Base TCP Port through its **Services Base TCP Port** setting (**File | Preferences**).

Service	Port Used	Default
Configuration	Base TCP Port	50804
Security Administration	Base TCP Port plus 8.	50812

  - **Maximum Service Users:** *Default = 16.*
    This is a fixed value for indication purposes only. This value is the maximum number of Service Users that can be stored in an IP Office system's security settings.
  - **Maximum Rights Groups:** *Default = 8.*
    This is a fixed value for indication purposes only. This value is the maximum number of Rights Groups that can be stored in an IP Office system's security settings.
- **System Discovery**
  System discovery is the processes used by IP Office applications to locate and list available IP Office systems. The IP Office can be disabled from responding to this process if required. If this is done, access to the IP Office requires its specific IP address to be used.
  - **TCP Discovery Active:** *Default = On.*
    TCP is the discovery method used by Manager 5.2 and supported by IP Office 3.2 systems. Selecting **TCP Discovery Active** allows the IP Office system to respond to those requests.
  - **UDP Discovery Active:** *Default = On.*
    UDP is the discovery method used by previous versions of Manager and by other IP Office applications. Selecting **UDP Discovery Active** allows the IP Office system to respond to those requests.

Security | Unsecured Interfaces

This tab is accessible when **System** is selected in the navigation pane. These features relate to IP Office applications that also access the IP Office configuration settings but still use the pre-IP Office 3.2 security methods. Currently this includes all 3.2 applications except Manager.

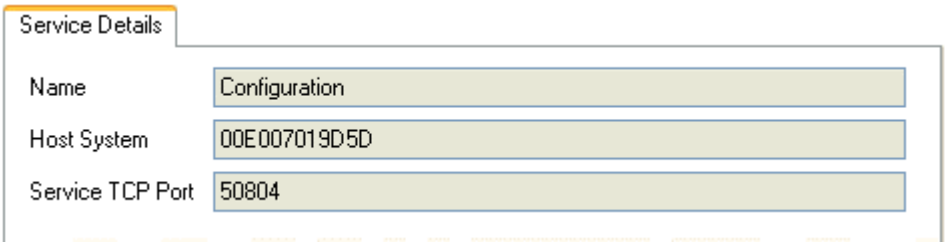


- **System Password**
  This password is required by some legacy applications such as Monitor and Call Status. It is also used for IP Office control unit software upgrades.
- **VM Pro Password**
  This password is required if a matching password is also set through the Voicemail Pro client application. Typically no password is set.
- **Monitor Password**
  This password, if set, is used by the IP Office Monitor and Call Status applications. If this password is not set, those applications use the system password.
- **Applications Controls:** *Default = All selected except TFTP Configuration Write.*
  These check boxes control which actions the IP Office will support for legacy applications. Different combinations are used by the different applications. A summary of the applications affected by changes is listed in the **Application Support** panel.
- **Application Support**
  This panel is shown for information only. It indicates the effect on various IP Office applications of the **Application Control** selections.

Security Services Settings

This tab is accessible when **Service** is selected in the navigation pane. These are secure services that the IP Office runs and to which Service Users can communicate. Currently only two services exist, both used by Manager. The **Configuration** service is used for accessing configuration settings. The **Security Administration** service is used for accessing security settings.

These fields are for information only and are not adjustable.

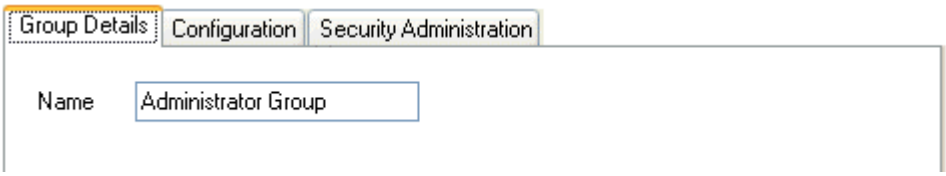


- **Name**
  The name of the secure service.
- **Host System**
  This field shows the IP Office system's name.
- **TCP Base Port**
  This is the TCP port on which the IP Office system listens for attempts to access the service. The routing of traffic to this port may need to be enabled on firewalls and network devices between the Service Users and the IP Office. The TCP Base Port for each service is offset by a fixed amount from the Base TCP Port set in **System Settings**.

Service	Port Used	Default
Configuration	Base TCP Port	50804
Security Administration	Base TCP Port plus 8.	50812

Rights Group | Group Details

These settings are displayed when **Rights Groups** is selected in the navigation pane. This tab sets the name of the Rights Group.



- **Name:** *Range = Up to 31 characters*
  The name for the Rights Group should be unique.

Rights Group | Configuration

These settings are displayed when **Rights Groups** is selected in the navigation pane. This tab sets the configuration settings access for Service User's who are members of this Rights Group.

- **Operator Rights**
  Each Rights Group also has an **Operator Rights** setting. This controls what parts of the configuration can be edited by Service Users in the Rights Group. The default **Operator Rights** settings are ***Administrator***, ***Manager*** and ***Operator***. These closely match the Operators used for pre-3.2 IP Office systems.

Operator Rights	Administrator				Manager				Operator			
Entry Type	View	Edit	New	Delete	View	Edit	New	Delete	View	Edit	New	Delete
System	✓	✓	✗	✗	✓	✗	✗	✗	✓	✗	✗	✗
Line	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗
Control Unit	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗
Extension	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
User	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Hunt Group	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Short Code	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✗
Service	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
RAS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Incoming Call Route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
WAN Port	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Directory	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
Time Profile	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Firewall Profile	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
IP Route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Least Cost Route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Account Code	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
License	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
E911 System	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Tunnel	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Logical LAN	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Wireless	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
User Rights	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Auto Attendant	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Authorization Codes	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗

Rights Group | Security Administration

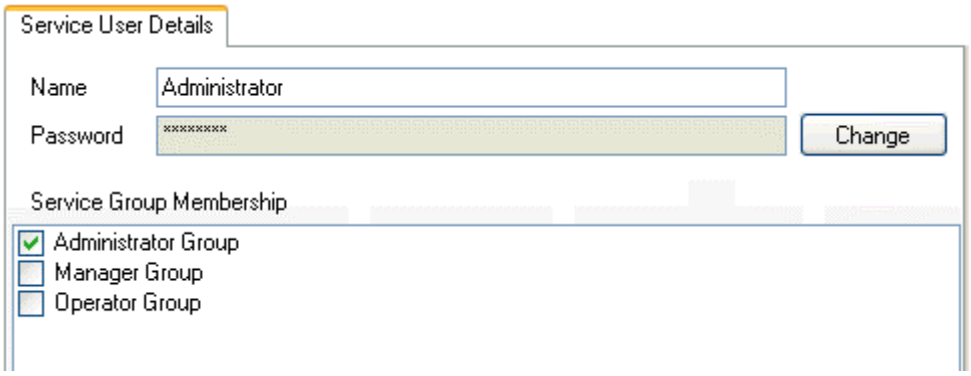
These settings are displayed when **Rights Groups** is selected in the navigation pane. This tab sets the security settings access for Service user's who are members of this Rights Group. These settings are ignored is a separate **Unique Security Administrator** has been setup in **General Settings**.

- **Read all security settings**
  Members of the Rights Group can view the IP Office system's security settings.
- **Write all security settings**
  Members of the Rights Group can edit and return changes to the IP Office systems's security settings.
- **Reset all security settings**
  This setting is currently not used.

Security Service User Settings

These settings are displayed when **Service Users** is selected in the navigation pane and a particular Service User is selected in the group pane.

Users can be created and deleted using the and icons at the top-right of the details pane. The maximum number of Service Users is 16.



- **Name:** *Range = Up to 31 characters*
  Sets the Service User's name. The minimum name and password length are controlled through **General** settings.
- **Password:** *Range = Up to 31 characters*
  Sets the Service User's password.
- **Rights Groups Membership**
  The check boxes are used to set the Rights Groups to which the user belongs. The user's rights will be a combination of the rights assigned to the groups to which they belong.

Menu Bar Commands

Menu Bar Commands

The commands available through the Manager's menu bar change according to whether Manager is running in configuration or security mode. Commands may also be grayed out if not useable.

The following sections outline the functions of each command. The **Edit** and **Help** menus are not included.

Configuration Mode		
File Menu	**View Menu**	**Tools Menu**
Open Configuration...	Toolbars	Extension Renumber
Close Configuration	Navigation Pane	MSN Configuration
Save Configuration	Group Pane	
Save Configuration As	Details Pane	
Change Working Directory...	Error Pane	
Preferences	TFTP Log	
Offline | Create New Config		
Offline | Open File...		
Offline | Send Config...		
Offline | Receive Config...		
Advanced | Erase Configuration (Default)		
Advanced | Reboot		
Advanced | Upgrade..		
Advanced | Audit Trail...		
Advanced | Security Settings...		
Backup/Restore | Backup Binaries and Configurations		
Backup/Restore | Restore Binaries and Configurations		
Import/Export | Export		
Import/Export | Import		
Exit		

Security Mode	
File	**View**
File | Open Security Settings	Toolbars
File | Close Security Settings	Navigation Pane
File | Save Security Settings	Group Pane
File | Preferences	Details Pane
File | Configuration	
File | Exit	

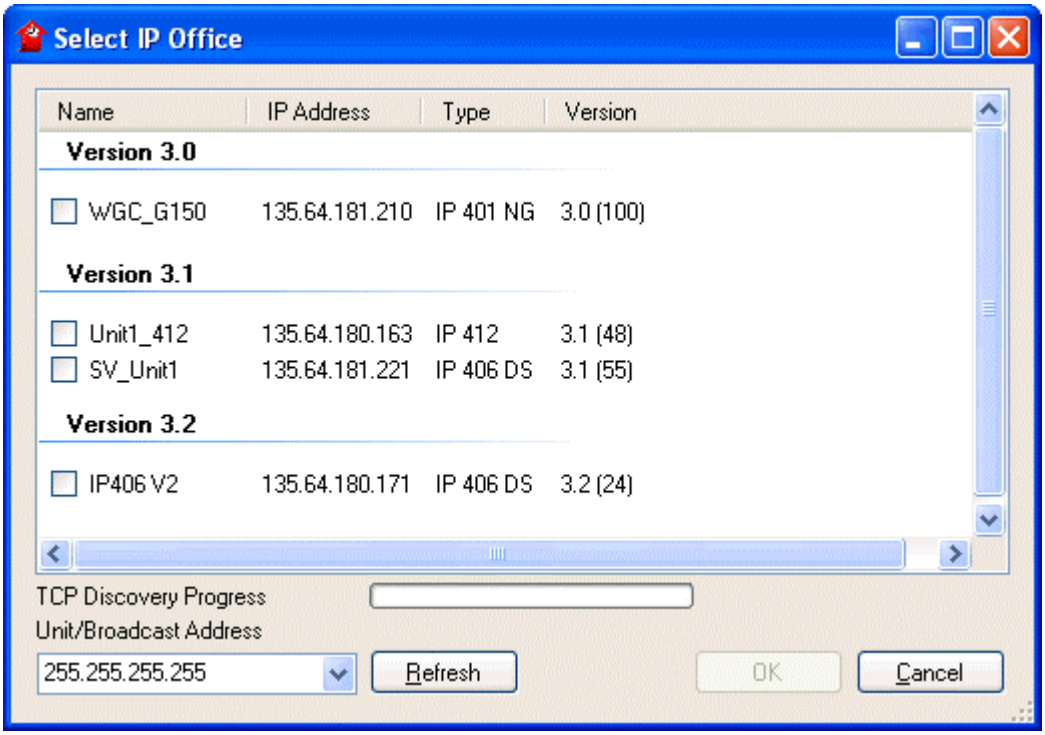
Configuration Mode

File Menu

File | Open Configuration

This command displays the Select IP Office menu used to receive an IP Office systems configuration settings. See **Loading a Configuration**.

The same action is performed by the icon in the Main Toolbar.



The Select IP Office menu is also used for other actions such as reboot and sending a configuration. If the unit required is not found, the **Unit/Broadcast Address** can be changed and then **Refresh** clicked. To change the TCP addresses scanned, select **File | Preferences | Discovery** and enter the required addresses in the **IP Search Criteria**.

File | Close Configuration

This command closes the currently loaded configuration without saving it.

File | Save Configuration

The **File | Save** command saves the amended configuration.

If the configuration has been received from an IP Office, the **Send Config** menu is displayed. See **Sending a Configuration**.

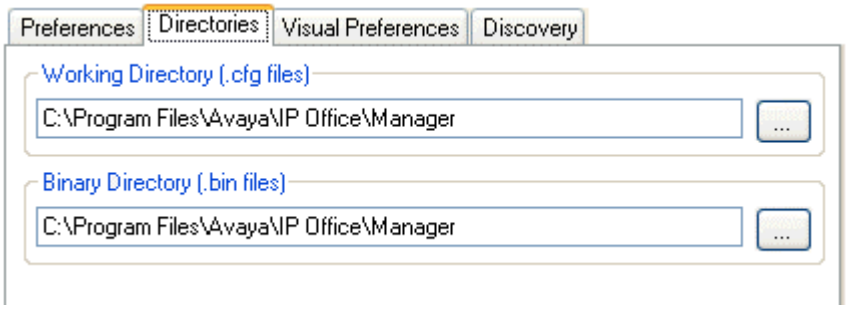
If the configuration file has been opened offline or created from new, the file is saved to disk only.

File | Save Configuration As

The **File | Save As** command allows you to save a configuration offline. The command displays the **Save File As** dialog box. You can enter the new file name, including the drive and directory.

File | Change Working Directory

This command allows you to change the default locations where Manager looks for and saves offline configuration (.cfg) files and IP Office equipment binary (.bin) files.

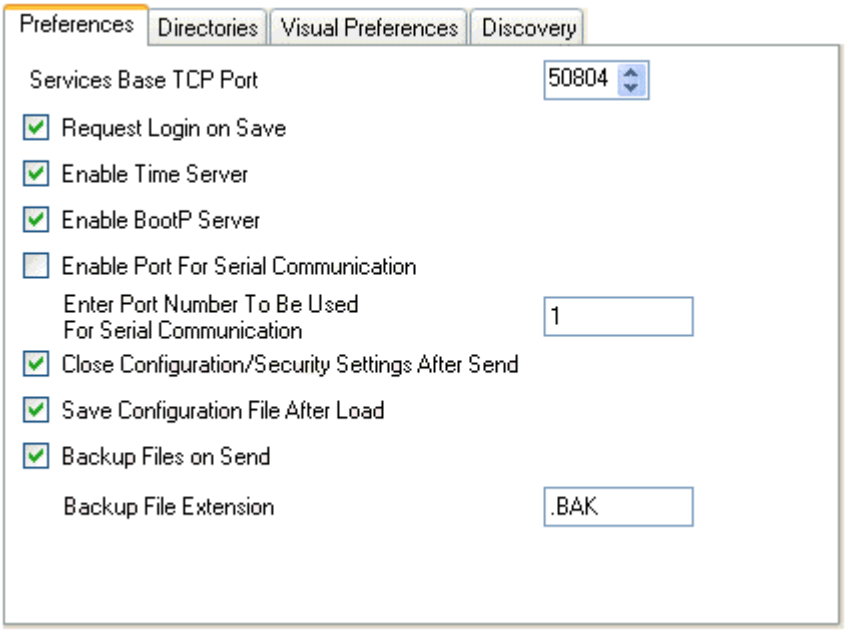


- **Working Directory (.cfg files)**
  Sets the directory into which Manager saves .cfg files. By default this is the Manager application's program directory.
- **Binary Directory (.bin files)**
  Sets the directory in which the Manager upgrade, TFTP and BOOTP functions look for .bin files. By default this is the Manager application's program directory.

File | Preferences

This command displays a menu for configuring various aspects of Manager's operation. The menu is divided into a number of tabs.

Preferences

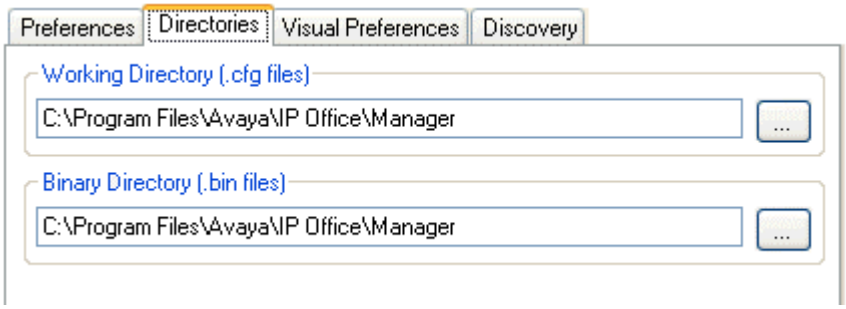


- **Service Base TCP Port:** *Default = 50804*
  Access to the configuration and security settings on an IP Office 3.2 system requires Manager to send its requests to specific ports. This setting allows the TCP Base Port used by Manager to be set to match the TCP Base Port setting of the IP Office system. The IP Office system's TCP Base Port is set through its security settings. This setting can only be changed when a configuration has been opened using a user name and password with Administrator rights or security administration rights.
- **Request Login on Save:** *Default = On*
  By default a valid user name and password is required to receive a configuration from an IP Office and also to send that same configuration back to the IP Office. Deselecting this setting allows Manager to send the configuration back without having to renter user name and password details. This does not apply to a configuration that has been saved on PC and then reopened. This setting can only be changed when a configuration has been opened using a user name and password with Administrator rights or security administration rights.
- **Enable Time Server:** *Default = On.*
  This setting allows Manager to respond to time requests from IP Office systems.
- **Enable BOOTP Server:** *Default = On.*
  This setting allows Manager to respond to BOOTP request from IP Office systems for which it also has a matching BOOTP entry.
- **Enable Port for Serial Communication**
  Not used. This is a legacy feature for some older control units that were managed via the serial port rather than the LAN.
  - **Enter Port Number to be used for Serial Communication**
    Used with the setting above to indicate which serial port Manager should use.
- **Load Last File:** *Default = Off.*
  If the last loaded configuration is available, when selected this commands automatically loads that configuration when Manager is started.

- **Close Configuration/Security Settings After Send:** *Default = On.*
  When selected, the open configuration file or security settings are closed after being sent back to the IP Office system.
- **Save Configuration File After Load:** *Default = On.*
  When selected, a copy of the configuration is saved on the Manager PC when the configuration is received from the IP Office. The copy is given the IP Office system name followed by .cfg. The saved location is set by the Working Directory setting on the preferences **Directories** tab (see below). This setting can only be changed when a configuration has been opened using a user name and password with Administrator rights or security administration rights.
- **Backup Files on Send:** *Default = On.*
  When selected, whenever a copy of the configuration is saved, if an configuration of that name already exists, the existing file is renamed using the suffix set below. The date and a version number is also added to the backup file name. This setting can only be changed when a configuration has been opened using a user name and password with Administrator rights or security administration rights.
- **Backup File Extension:** *Default = .BAK*

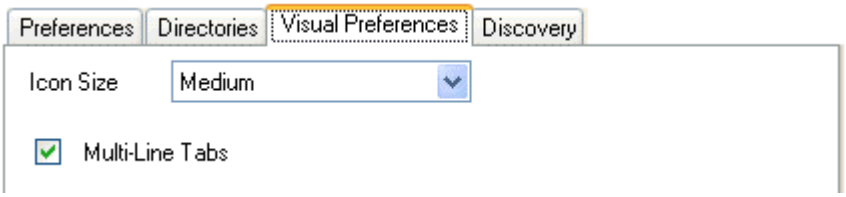
Directories

These fields set the default location where Manager will look for and save files. This tab is also accessed by the **File | Change Working Directory** command.



- **Working Directory (.cfg files)**
  Sets the directory into which Manager saves .cfg files. By default this is the Manager application's program directory.
- **Binary Directory (.bin files)**
  Sets the directory in which the Manager upgrade, TFTP and BOOTP functions look for .bin files. By default this is the Manager application's program directory. Note that in the Upgrade Wizard, right-clicking and selecting **Change Directory** also changes this setting.

Visual Preferences

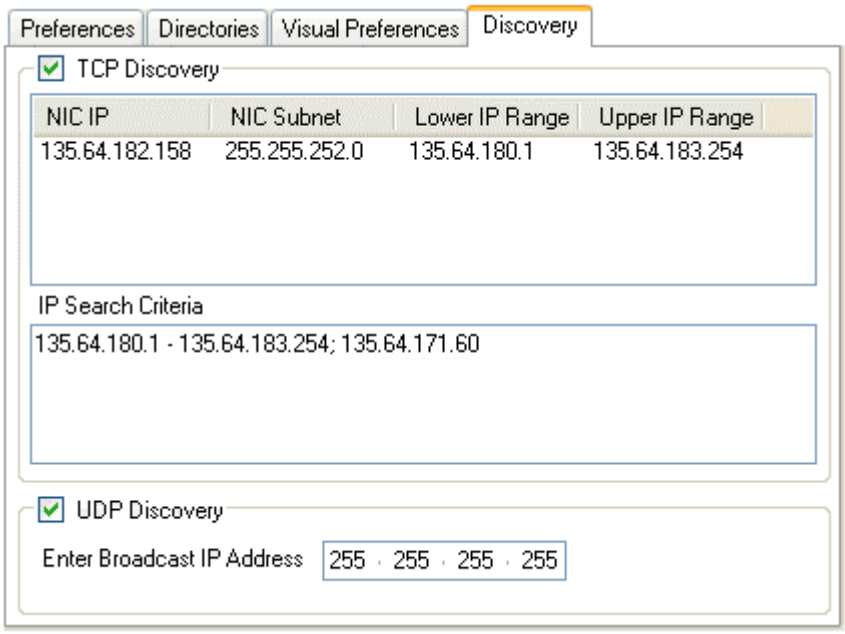


- **Icon size**
  Sets the size for the new look icons between ***Small***, ***Medium*** or ***Large***.
- **Multi-Line Tabs:** *Default = Off.*
  In the details pane, for entry types with more than two tabs, Manager can either use  buttons to scroll the tabs horizontally or arrange the tabs in multiple rows. This setting allows selection of which method Manager uses.

Discovery

When is clicked, the **Select IP Office** form appears and Manager attempts to discovery any IP Office systems. Within Preferences, the **Discovery** tab sets the IP addresses and methods used for the discovery process.

By default IP Office 3.2 systems respond to both UDP and TCP discovery. Pre-3.2 IP Office systems only support UDP discovery.



- **TCP Discovery:** *Default = On*
  This setting controls whether Manager uses TCP to discover IP Office systems. Only IP Office 3.2 and higher systems can respond to TCP discovery. The addresses used for TCP discovery are set through the **IP Search Criteria** field below.
  - **NIC IP/NIC Subnet**
    This area is for information only. It shows the IP address settings of the LAN network interface cards (NIC) in the PC running Manager. Double-click on a particular NIC to add the address range it is part of to the **IP Search Criteria**. Note that if the address of any of the Manager PC's NIC cards is changed, the Manager application should be closed and restarted.
  - **IP Search Criteria**
    This tab is used to enter TCP addresses to be used for the discovery process. Individual addresses can be entered separated by semi-colons, for example ***135.164.180.170; 135.164.180.175***. Address ranges can be specified using dashes, for example ***135.64.180.170 - 135.64.180.175***.
- **UDP Discovery:** *Default = On*
  This settings controls whether Manager uses UDP to discover IP Office systems. Pre-3.2 IP Office systems only respond to UDP discovery. By default IP Office 3.2 and higher systems also respond to UDP discovery but that can be disabled through the IP Office system's security settings.
  - **Enter Broadcast IP Address:** *Default = 255.255.255.255*
    The broadcast IP address range that Manager should used during UDP discovery. Since UDP broadcast is not routable, it will not locate IP Office systems that are on different subnets from the Manager PC unless a specific address is entered.

File | Offline | Create New Config

This command starts a dialog that allows you to create a default offline configuration by specifying the system locales, the type of IP Office control unit and expansion modules and the trunk cards fitted. See **Creating a New Configuration**.

The same action is performed by the icon in the Main Toolbar.

File | Offline | Open File

This command allows a configuration file stored on PC to be opened in Manager.

File | Offline | Send Config

This command is used to send an offline configuration to an IP Office system. See **Sending a Configuration**.

File | Offline | Receive Config

This command displays the Select IP Office menu used to receive an IP Office systems configuration settings. See **Loading a Configuration**.

Once the configuration has been received, you are prompted to save it on the PC.

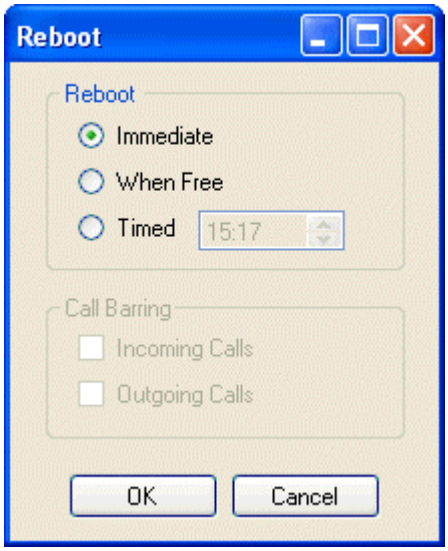
File | Advanced | Erase Configuration (Default)

This command returns the configuration settings of an IP Office system back to their default values. This action does not affect the IP Office system's security settings or audit trail record.

When this command is used, the **Select IP Office** menu is displayed. Once an IP Office system is selected, a valid user name and password are required to complete the action.

File | Advanced | Reboot

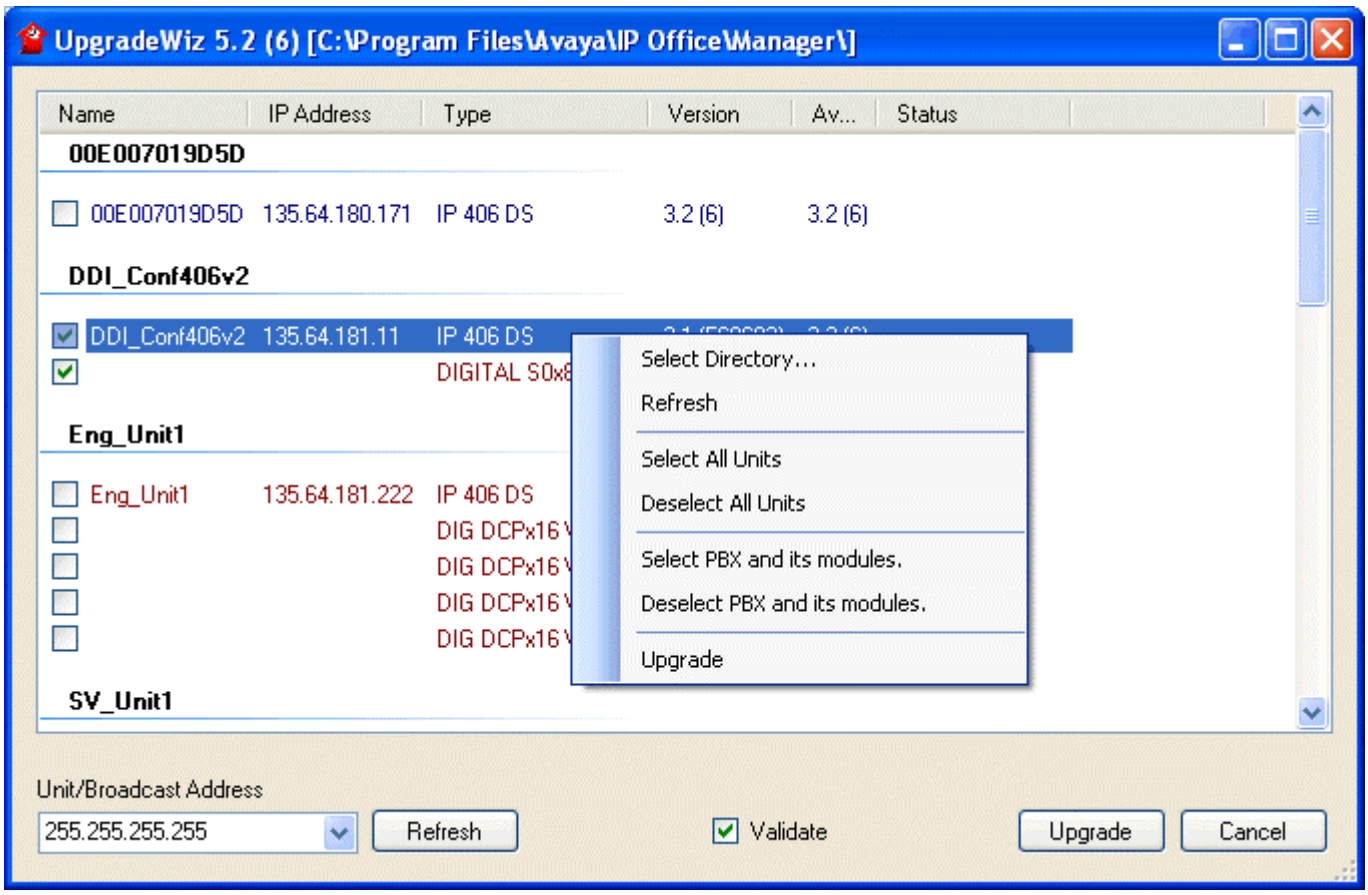
When this command is used, the **Select IP Office** menu is displayed. Once an IP Office system is selected, a valid user name and password are required. The type of reboot can then be selected.



File | Advanced | Upgrade

This command starts the Upgrade Wizard tool. This tool is used to compare the software level of the control unit and expansion modules within IP Office systems against the software level of .bin binary files Manager has available. The Upgrade Wizard can then be used to select which units to upgrade.

- ⚠**WARNING:**
  Incorrect use of the Upgrade command can halt IP Office operation and render units in the system unusable. Refer to the IP Office Installation Manual and to the IP Office Technical Bulletins for full details of performing software upgrades. Manager cannot be closed while the upgrade wizard window is open. Closing the upgrade wizard and Manager during an upgrade may render systems unusable.



The list area shows details of IP Office systems found by the Upgrade Wizard. The Version column details the current software each unit in the systems is running whilst the Available column shows the version of .bin file Manager has available for that type of unit (a – indicates no file available).

The check boxes are used to select which units should be upgraded. Upgrading will require entry of a valid name and password for the selected IP Office system.

The **Validate** option should remain selected wherever possible. When selected, the upgrade process is divided as follows: transfer new software, confirm transfer, delete old software, restart with new software. If **Validate** is not selected, the old software is deleted before the new software is transferred.

Sorting the List

1. To sort list of IP Office systems click on the Name or IP Address column headings.

Search for Particular Systems

The default address used by the Upgrade Wizard is the address shown in the Manager title bar, which is selected through **File | Preferences**. If the unit required is not found, the address used can be changed.

1. Enter or select the required address in the **Unit/Broadcast Address** field.
2. Click **Refresh** to perform a new search.

Changing the .bin File Directory Used

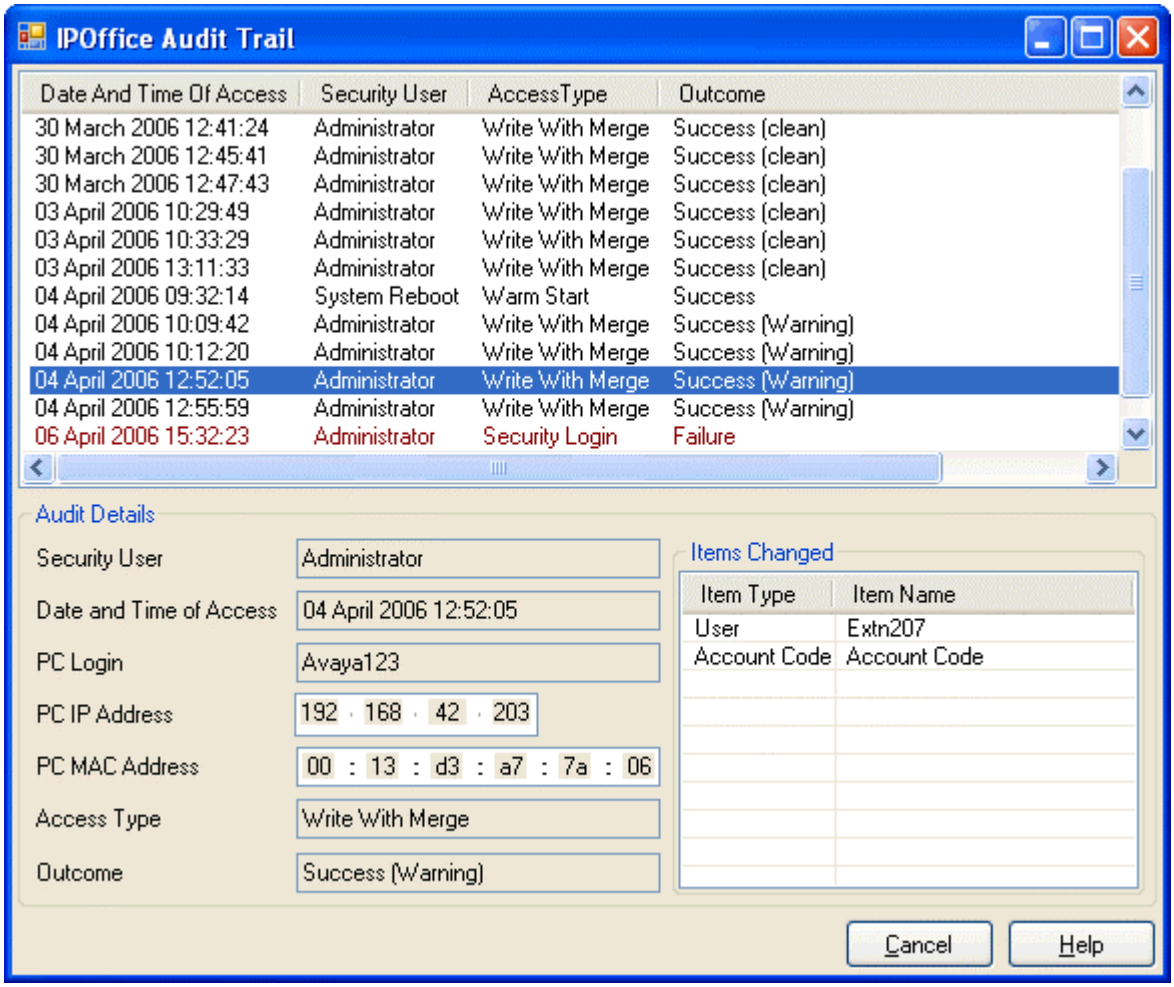
The directory in which the Upgrade Wizard looks for .bin files is set through Manager's **Binary Directory** setting. This can be changed using **Files | Change Working Directory** or **File | Preferences | Directories**. It can also be changed directly from the Upgrade Wizard as follows.

1. Right-click on the list area.
2. Select **Select Directory**.
3. Browse to and highlight the folder containing the .bin files. Click **OK**.
4. The list in the **Available** column will be updated to show the .bin files in the selected directory that match IP Office units or modules listed.

File | Advanced | Audit Trail

The audit trail lists the last 16 actions performed on the system from which the configuration loaded into Manager was received. That includes configuration files opened offline. It includes actions by Service Users such as getting the configuration, sending a configuration back, reboots, upgrades and default the system. The audit trail is not available for systems running pre-3.2 IP Office software.

The last failed action is always recorded and shown in red. It is kept even if there have been 16 subsequent successful actions.



The outcome **Success (Warning)** refers to the sending of a configuration that contains fields marked as errors or warnings by Manager's validation function. **Success (Clean)** refers to the sending of a configuration that does not contain any validation errors or warnings.

The **Items Changed** area summarizes the changes contained in a sent configuration. Where changes to a single entry of a particular type are made, the Item Name field lists the individual entry changed. Where changes are made to several entries of the same type, the **Item Name** field displays ***Multiple items***.

File | Advanced | Security Settings

This command is used to switch the Manager application to security mode. In that mode, Manager is used to edit the security settings of an IP Office system (3.2 or higher only). Refer to the section **Security Mode**.

File | Backup/Restore | Backup Binaries and Configurations

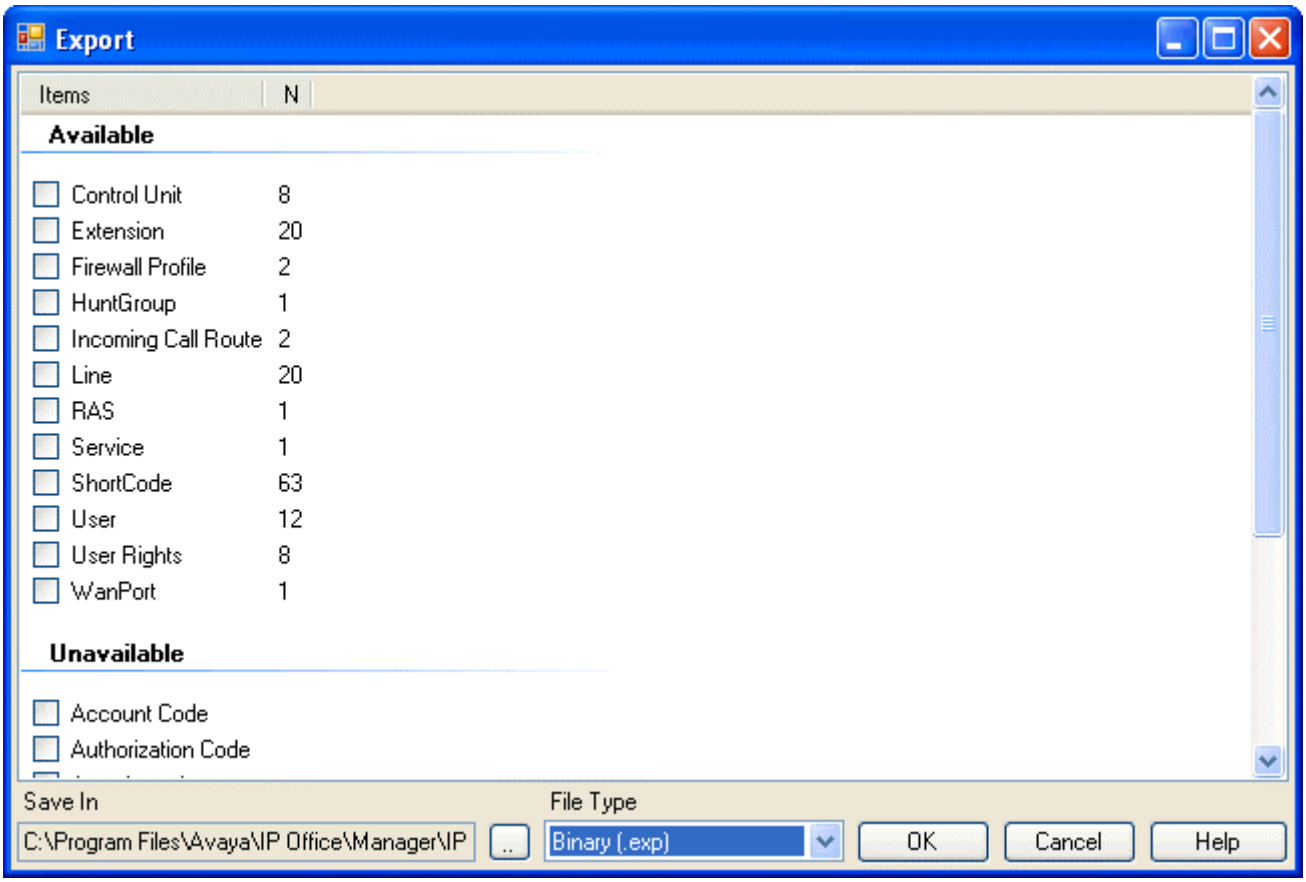
This command copies of all configuration files (***.cfg***) and software files (***.bin***) stored in Manager's working directory to a selected folder.

File | Backup/Restore | Restore Binaries and Configurations

This command copies all configuration files (***.cfg***) and software files (***.bin***) stored in a selected folder to the Manager's working directory.

File | Import/Export | Export

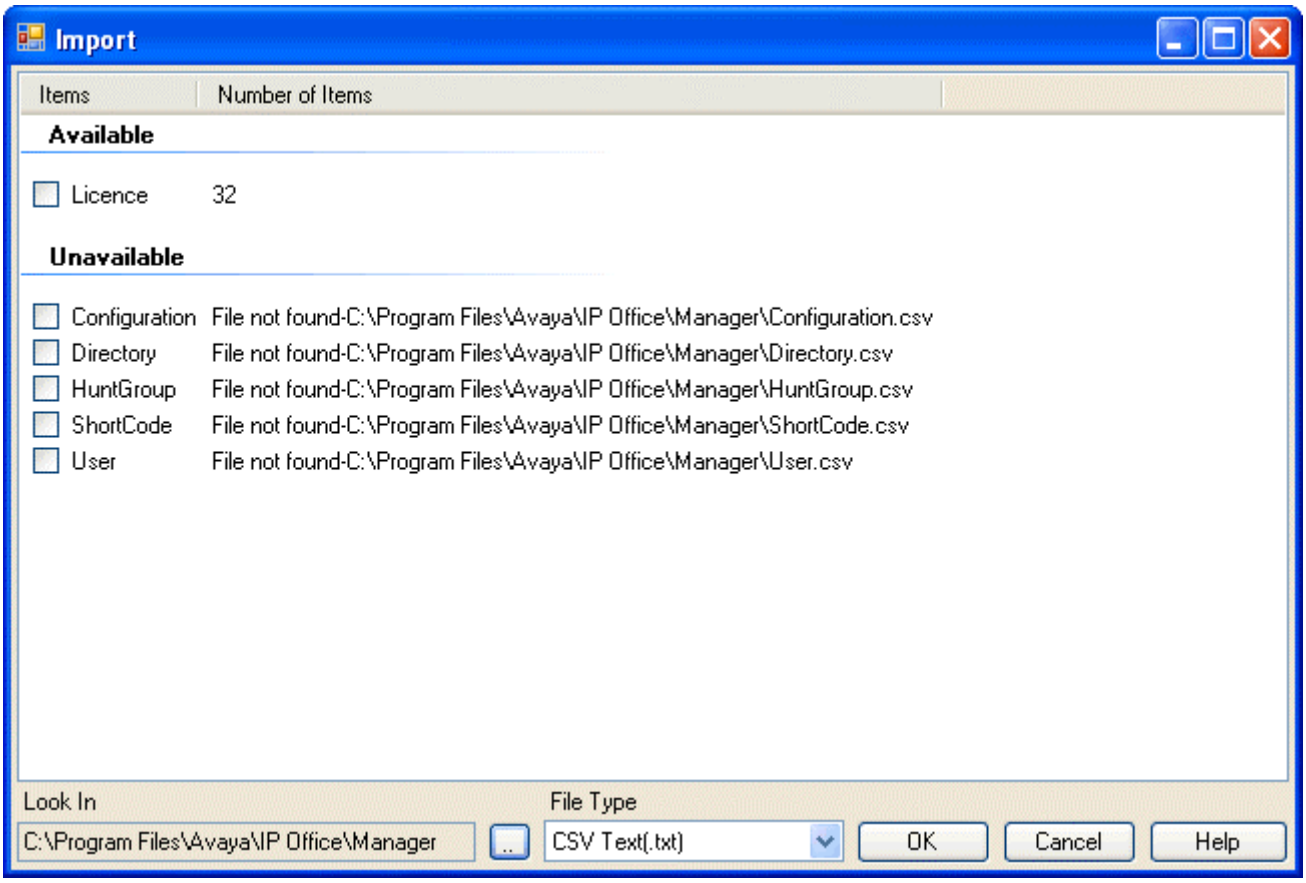
This command allows you to export the selected parts of the configuration to either a set of CSV text files (.csv) or a single binary file (.exp). See Importing and Exporting Settings.



The display shows those exportable entry types for which the configuration contains entries. The **File Type** and the **Save In** path can be selected at the base. The default location used is sub-directory of the Manager application directory based on system name of the currently loaded IP Office system.

File | Import/Export | Import

This command allows you to import configuration settings. Two formats are supported. Binary files (.exp) are settings previously exported from an IP Office system using **File | Import /Export | Export**. CSV text files (.csv) can also be exported from an IP Office system or can be created using a plain text editor. See Importing and Exporting Settings.



For the selected **File Type** and the **Look In** path, the window displays the file or files found. The default location used is sub-directory of the Manager application directory based on system name of the currently loaded IP Office system.

File | Exit

The **File | Exit** command exits the Manager application.

View

View | Toolbars

This command allows selection of which toolbars should be shown or hidden in configuration mode. A tick mark is displayed next to the name of those toolbars that are currently shown.

View | Navigation Pane

This command shows or hides the Navigation Pane. A tick mark appears next to the command when the pane is shown.

View | Group Pane

This command shows or hides the Group Pane. A tick mark appears next to the command when the pane is shown.

View | Details Pane

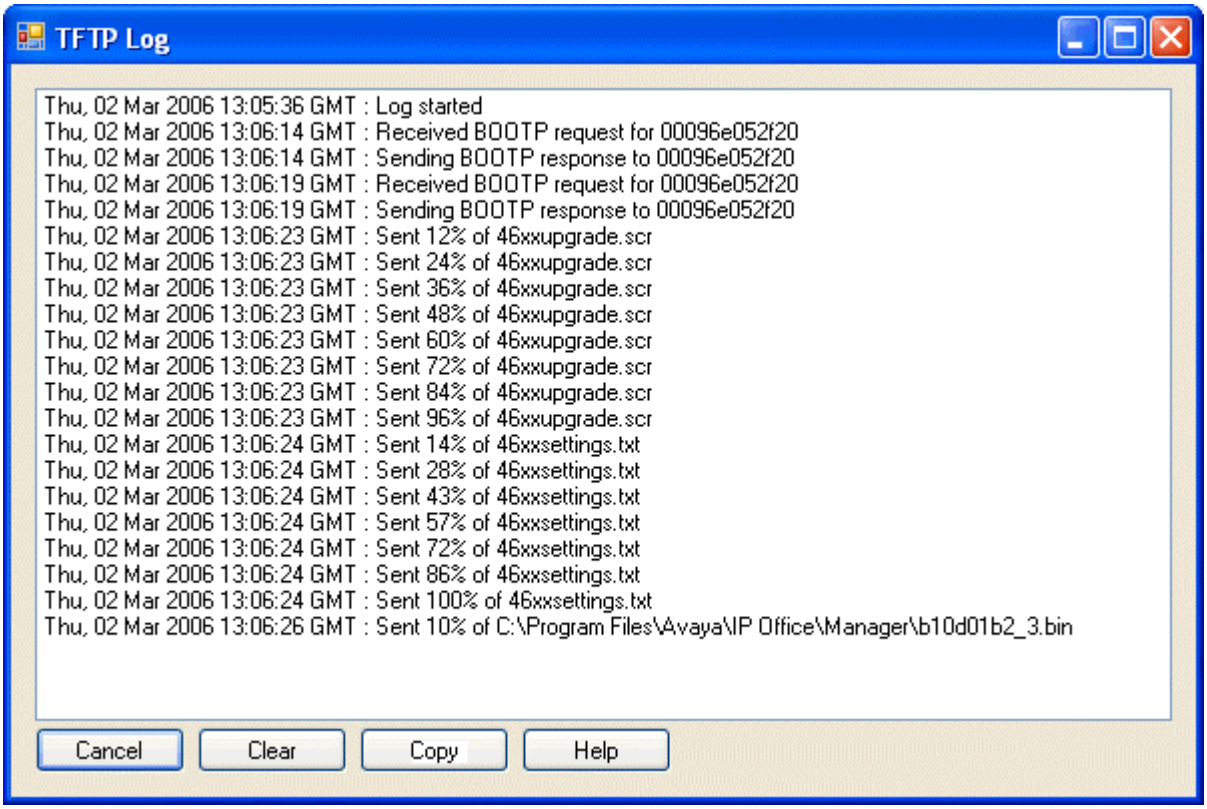
This command set the location of the Details Pane when the Group Pane is also shown. The Details Pane can be placed either below or to the right of the Group Pane.

View | Error Pane

This command shows or hides the Error Pane. A tick mark appears next to the command when the pane is shown.

View | TFTP Log

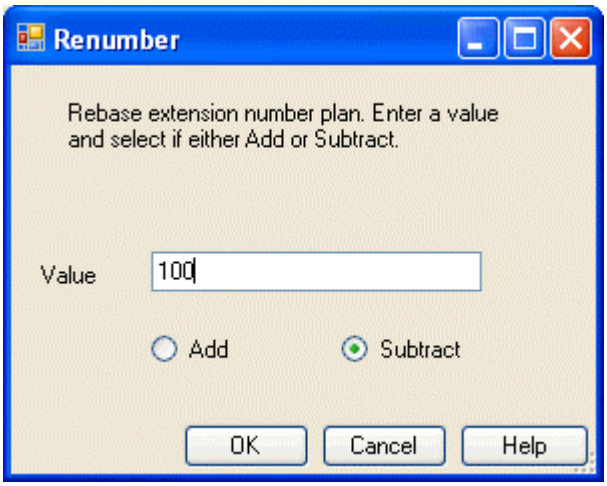
This command displays the TFTP Log window. This window shows TFTP traffic between Manager and devices that uses TFTP to send and receive files. For example, the TFTP Log below shows an Avaya IP phone requesting and then being sent its software files.



Tools Menu

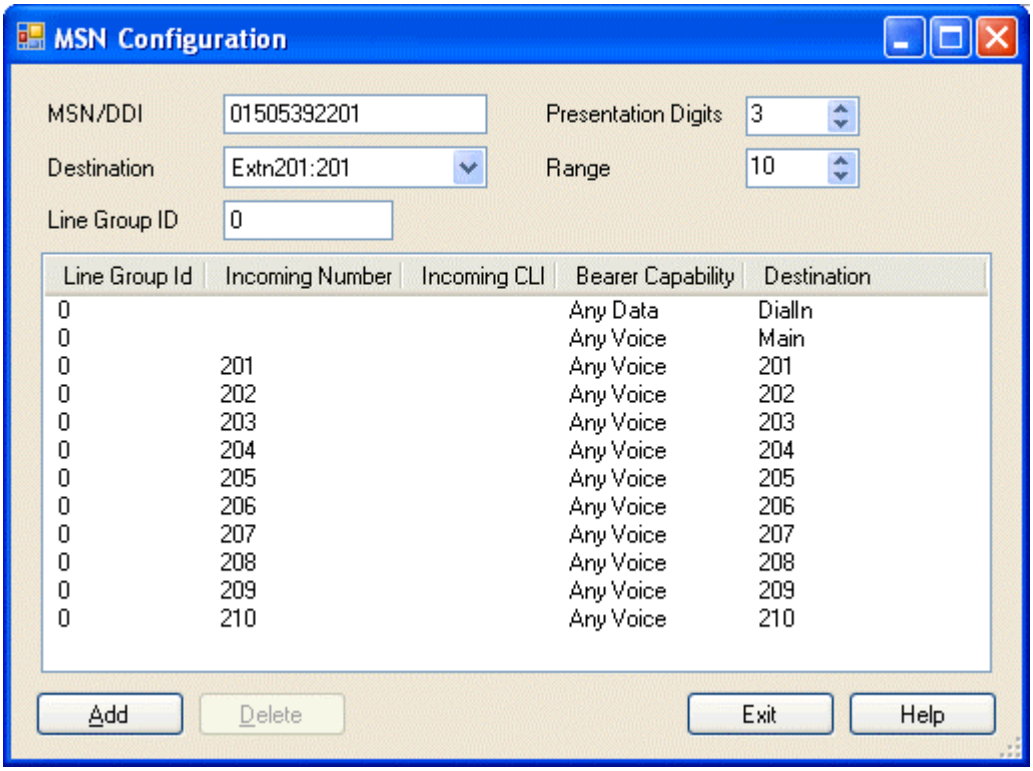
Tools | Extensions Renumber

This command allows the extension numbering of user extensions to be raised or lowered by a specified amount. The command does not alter the extension number used for hunt groups but does adjust the extension numbers of hunt group members.



MSN Configuration

This menu can be used to populate the **Incoming Call Route** table with a range of MSN or DID numbers.



In the example above, the customer has ten DID numbers starting at 01505392201 with the central office exchange passing through 3 digits for each. Having selected the number of presentation digits, set the range and selected the first destination; clicking **Add** created the ten incoming call routes.

Settings

- **MSN/DID:**
  The first number in the set of MSN numbers for which you have subscribed. Note: If you require to find an exact match between the MSN numbers and the destination numbers, enter a minus (-) sign before the first MSN number.
- **Destination:**
  Where incoming calls with matching digits should be routed. The drop-down list contains the extensions and groups on the IP Office system.
- **Presentation Digits:**
  Set to match the number of digits from the MSN number that the central office exchange will actually present to the IP Office system.
- **Range:**
  How many MSN or DID number routes to create in sequence using the selected MSN/DID and Destination as start points. Only routing to user extensions is supported when creating a range of entries.
- **Add:**
  Adds the appropriate entries to the Incoming Call Route table using the value entered above.
- **Delete:**
  Removes a specific entry.

Security Mode

File | Open Security Settings

This command displays the **Select IP Office** menu to select and load a system's security settings. This requires entry of a user name and password with rights to access security settings of the selected system.

This behavior changes when configuration settings have already be received from a system using a Service User name and password that also has security access rights for that system. In that case, the system's security settings are automatically loaded without requiring name and password entry.

File | Close Security Settings

Close the currently open set of security settings received from an IP Office system without saving those settings.

File | Save Security Settings

Send edited security settings back to the IP Office. Requires reentry of a Service User name and password with access rights for security settings.

File | Preferences

See **Preferences** in the **Menu Bar Commands | Configuration Mode | File Menu section**.

File | Configuration

This command returns the Manager application to configuration mode.

File | Exit

This command closes Manager.

Configuration Settings

Configuration Settings

This following sections detail the various configuration settings provided for different entry types within the IP Office configuration.

Depending on the type and locale of the IP Office some settings and tabs may be hidden as they are not applicable. Other settings may be grayed out. This indicates that the setting is either for information only or that another setting needs to be enabled first.

The different entry types are:

	BOOTP Manager settings for the support of IP Office systems requesting software.
	Operator Manager settings for the editing of configuration settings from pre-3.2 IP Office systems.
	System Overall settings for the data and telephony operation of the IP Office system.
	Line Settings for trunks and trunk channels within the IP Office including IP trunks.
	Control Unit Information summary of the control and expansion units in the IP Office system.
	Extension Settings for extension ports including IP extensions.
	User Settings for IP Office users. They may or may not be associated with an extension.
	Hunt Group Collections of users to which calls can be directed for answer by any one of those users.
	Short Code These are numbers which when dialed trigger specific IP Office features or are translated for external dialing.
	Service Configuration settings such as user names and passwords needed for connections to data services such as the Internet.
	RAS Remote Access Service settings for connecting incoming data calls.
	Incoming Call Route Entries here are used to match incoming call details to destinations on the IP Office system.
	WAN Port Configuration settings for the WAN ports provided on some IP Office units.
	Directory External names and numbers. Used for matching names to incoming calls and for dialing from IP Office user applications.
	Time Profile Used to control when various IP Office functions are active.
	Firewall Profile Use to control the types of data traffic that can cross into or out of the IP Office.
	IP Route These entries are used to determine where data traffic on the IP Office LAN and WAN interfaces should be routed.
	Least Cost Routing Allows numbers being dialed from the IP Office to be rerouted or blocked.
	Account Code

	Used for call logging and to control the dialing of certain numbers.
	**License** License keys are used to enable IP Office features and applications.
	**E911 System** Available of US systems to support E911 services.
	**Tunnel** Used to created IPSec and L2TP data tunnels.
	**Logical LAN** Used to allow two subnets to be run and routed on the same physical LAN.
	**Wireless** Used to provide wireless services on the Small Office Edition.
	**Auto Attendant** Used by Small Office Edition and IP406 V2 systems installed with an Embedded Voicemail card.
	**User Rights** Provide templates to control which settings users can change.

BOOTP Settings

BOOTP | BOOTP Entry

BOOTP is protocol used by devices to request software when restarting. For IP Office, it is used when upgrading the control unit within a system or when the core software within the control unit has been erased. When running, Manager can respond to BOOTP requests and, if it finds a matching BOOTP entry for the system, provide the software file indicated by that entry.

BOOTP entries are not part of an IP Office system's configuration settings; instead they are saved on the Manager PC. Normally Manager automatically creates a BOOTP entry for each system with which it has communicated. However BOOTP entries can be added and edited manually when necessary.

- **File Location**
  The location from which Manager provides files in response to BOOTP is its binaries directory. This can be changed using **File | Change Working Directory** or **File | Preferences | Working Directories**. This directory is also the directory used by Manager when providing files by TFTP.

Control Unit	Binary File
Small Office Edition	ip401ng.bin
IP403	ip403.bin
IP406 V1	ip406.bin
IP406 V2	ip406u.bin
IP412	ip412.bin
Expansion Module	**Binary File**
WAN3 10/100	ipwan3.bin
Phone	avpots16.bin
Phone V2	dvpots.bin
Analog	naatm16.bin
Digital Station	nadcp-16.bin
Digital Station V2	nadcpv2.bin
S08	nas0-16.bin

- **Disabling BOOTP**
  Manager can be disabled from providing BOOTP support for any systems. Select **File | Preferences | Edit** and untick **Enable BOOTP Server**.

Settings

- **Enabled:** *Default = Enabled*
  If unticked, BOOTP support for the matching IP Office system from this Manager PC is disabled.
- **MAC Address**
  The MAC address of the IP Office system's control unit. The address can be obtained and or verified in a number of ways:
  - When a system's configuration settings are loaded into Manager, it is shown as the **Serial Number** on the Unit form. On defaulted systems, it is also used as the system name.
  - If the system is requesting software, the MAC address is shown as part of the request in the status bar at the base of the Manager screen.
  - If the system can be pinged, it may be possible to obtain its MAC address using the command **arp -a *<ip address>***.
- **IP Address**
  The IP address of the IP Office system's LAN1.
- **Filename**
  The name of the .bin software file used by that type of control unit. For full details refer to the IP Office Installation Manual. To be transferred to the system this file must exist in the Manager applications Working Directory.
- **Time Offset:** *Default = 0.*
  In addition to performing BOOTP support for IP Office systems the Manager application can also act as a time server (RFC868). This field sets the offset between the time on the PC running Manager and the time sent to the IP Office system in response to its time requests. The field is not used if a specific **Time Server IP Address** is set through the System form in the IP Office's configuration settings.
  - Manager can be disabled from acting as an Internet Time (RFC868) server. Select **File | Preferences | Edit** and untick **Enable time server**.

Operator Settings

Operator | Operator

Operator entries are not part of an IP Office system's configuration settings. They are used when a pre-3.2 IP Office configuration is loaded to control what parts of a configuration can be edited.

The table below lists the settings for the default operators provided. The settings for each operator are stored in a .ops file in the Manager application directory. These files cannot be edited through Manager or directly.

Additional operators created using previous versions of Manager can be used by placing the appropriate .ops file into the Manager application directory.

Operator Rights	Administrator				Manager				Operator			
Entry Type	View	Edit	New	Delete	View	Edit	New	Delete	View	Edit	New	Delete
System	✓	✓	✗	✗	✓	✗	✗	✗	✓	✗	✗	✗
Line	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗
Control Unit	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗
Extension	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
User	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Hunt Group	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Short Code	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✗
Service	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
RAS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Incoming Call Route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
WAN Port	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Directory	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
Time Profile	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Firewall Profile	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
IP Route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Least Cost Route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Account Code	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
License	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
E911 System	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Tunnel	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Logical LAN	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Wireless	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
User Rights	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Auto Attendant	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗
Authorization Codes	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗

If when receiving a configuration from a pre-3.2 IP Office system an invalid operator is specified, the settings will be loaded using the **Guest** operator. This additional operator allows a read-only view.

System Settings

System Form Overview

There is only one System entry for each IP Office system.

The following tabs are part of the **System** form:

- **System**
  General settings for the IP Office system.
- **LAN1**
  Network settings for the main RJ45 Ethernet ports on the IP Office control unit. Includes DHCP and RIP settings.
- **LAN2**
  Only available on the Small Office Edition and IP412. On the Small Office Edition, LAN2 settings are used for the RJ45 Ethernet WAN port. On the IP412, LAN2 settings are used for the LAN2 RJ45 ethernet port.
- **DNS**
  Specify the Domain Name Server addresses to use for address resolution.
- **Voicemail**
  Details the type and location of the IP Office's voicemail server.
- **Telephony**
  System-wide telephony settings.
- **H.323 Gatekeeper**
  Settings used for VoIP endpoints registering with IP Office and for DiffServ QoS settings applied to VoIP traffic.
- **LDAP**
  Settings to allow the IP Office to include Lightweight Directory Access Protocol database records in its directory.
- **System Alarms**
  Simple Network Management Protocol settings for the sending of SNMP information and trap events to SNMP servers.
- **CDR**
  Call Detail Record settings for the sending of call detail records to a specified IP address.
- **Twinning**
  System wide controls for the use of Mobile Twinning.

System | System

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✓*1
New	–	–	–	–	–
Delete	–	–	–	–	–

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- *1: Changes to **Locale**, **License Server IP Address** and **Favor RIP Routes over Static Routes** require a reboot.
- **Name:** *Default = Control unit MAC address.*
  A name to identify this system. This is typically used to identify the configuration by the location or customer's company name. Some features such as Gatekeeper require the system to have a name. This field is case sensitive and within any network of IP Offices must be unique. Do not use punctuation characters such as #, ?, /, -,. and ,.
- **Locale**
  This setting sets default telephony and language settings based on the selection. See **Supported Country and Locale Settings**. For individual users the system settings can be overridden through their own locale setting (**User | User | Locale**).
- **Password:** *Default = password*
  [2.1 ✓][3.0DT ✓][3.0 ✓][3.1 ✓][3.2* ✗]
  A password for controlling access to the operation of the Control Unit. This is required to upgrade and reboot and to send or receive configurations from the Control Unit. This is a required option and a prompt is given if left blank. *For IP Office 3.2 systems this setting has become part of the security settings.
- **Monitor Password:** *Default = blank*
  [2.1 ✓][3.0DT ✓][3.0 ✓][3.1 ✓][3.2* ✗]
  This password is used by the Monitor and Call Status applications to allow communication with the main unit. If left blank these applications will use the System Password above. *For IP Office 3.2 systems this setting has become part of the security settings.
- **Time Offset:** *Default = 00:00*
  This setting can be used if the IP Office is in a different time zone from its time server. For example, if the IP Office is 5 hours behind the time server, this field should be configured with -5:00 to make the adjustment. The time offset can be adjusted in 15 minute increments. Note: If the time server is a Manager PC, the adjustment can also be done through the Manager BOOTP entry for the system.
- **TFTP Server IP Address:** *Default = 0.0.0.0 (Broadcast)*
  When Manager is running, it can act as the TFTP server for files required by the IP Office control unit and 4600/5600 Series phones. An entry here forces those devices to use the TFTP server at the indicated address. On Small Office Edition and IP406 V2 systems, the LAN1 IP Address can be entered to specify the memory card in their **PCMCIA** or **CF TII** slots respectively.
- **Time Server IP Address:** *Default = 0.0.0.0 (Default)*
  The IP Office control unit contains a battery backed clock used to maintain system time during normal operation and when mains power is removed. The time is obtained using Internet Time protocol (RFC868) requests. Entering 0.0.0.1 disables time server updates.
  - 0.0.0.0 means default operation. In this mode, following a reboot the IP Office control unit will send out a time request on its LAN1 interface. It first makes the request to the

Voicemail Server IP address in its configuration and, if it receives no reply, it then makes a broadcast request.

- The Voicemail Lite Server, Voicemail Pro Service and the Manager program can all act as time servers for the IP Office, giving the time as set on their host PC.
- If you are running Manager when the voicemail server starts, voicemail does not start as a time server. It is therefore recommended that you have no copy of Manager running when you start or restart the voicemail server. Manager can be disabled from acting as a time server by deselecting the **Enable Time Server** option (**File | Preferences | Edit | Preferences**).

- **File Writer IP Address:** *Default = 0.0.0.0 (Disabled)*
  For Small Office Edition and IP406 V2 control units only. This field sets the address of the PC allowed to send files to the memory card in their **PCMCIA** or **CF TII** slots. See Using Compact Flash.
- **License Server IP Address:** *Default = 255.255.255.255*
  This is the IP address of the server PC providing license key validation for the IP Office. For a serial license key plugged directly into the control unit, the field should be left blank. Note that separate IP Offices cannot use the same address for license validation.
- **AVPP IP Address:** *Default = 0.0.0.0 (Disabled)*
  Where Avaya 3600 Series SpectraLink wireless handsets are being used with the IP Office, this field is used to specify the IP address of the Avaya Voice Priority Processor (AVPP).
- **Conferencing Center URL:** *Default = Blank (Disabled).*
  This is the root URL of the web server being used to support Conferencing Center, for example ***http://server/***. This address is then by the Phone Manager and SoftConsole applications to launch Conference Center functions. In Phone Manager setting this value enables use of the join conference controls.
- **DSS Status:** *Default = Off*
  This setting affects Avaya display phones with programmable buttons. It controls whether pressing a DSS key set to another user who is on a call will display details of their caller. When off, no caller information is displayed.
- **Beep on Listen:** *Default = On (USA)/On (Rest of World)*
  This setting controls whether call parties hear a repeating tone when their call is monitored by another party using the **Call Listen** feature.
- **Hide auto record:** *Default = On (USA)/Off (Rest of World)*
  During call recording by Voicemail Pro, some Avaya terminals display **REC** to show that the call is being recorded. When on, **Hide auto record** suppresses this recording indication.
- **Favour RIP Routes over Static Routes:** *Default = Off*
  RIP can be enabled on the IP Office **LAN1** and **LAN2** interfaces, and on specific **Services.** When this setting is on, the RIP route to a destination overrides any static route to the same destination in the IP Office's **IP Routes**, regardless of the RIP route's metric. The only exception is RIP routes with a metric of 16 which are always ignored. Note: If a previously learnt RIP route fails, the IP Office applies a metric of 16 five minutes after the failure. When off, any RIP route to a destination for which a static route has been configured is ignored.

System | LAN1

This tab is used to configure the behavior of the RJ45 Ethernet ports labeled LAN or LAN1 on the front of the IP Office control unit.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	-	-	-	-	-
Delete	-	-	-	-	-

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **IP Address:** *Default = 192.168.42.1*
  This is the IP address of the Control Unit on LAN1. If the control unit is also acting as a DHCP server on LAN1 then this address is the starting address of the DHCP address range.
- **IP Mask:** *Default = 255.255.255.0*
  This is the IP subnet mask used with the IP address.
- **Primary Trans. IP Address:** *Default = 0.0.0.0 (Disabled)*
  This setting is only available on IP412 and Small Office Edition systems. Any incoming IP packets without a service or session are translated to this address if set.
- **RIP Mode:** *Default = None*
  Routing Information Protocol (RIP) is a method by which network routers can exchange information about device locations and routes. Routes learnt using RIP are known as 'dynamic routes'. The IP Office also supports 'static routes' though its **IP Route** entries.
  - **None**
    The LAN does not listen to or send RIP messages.
  - **Listen Only (Passive)**
    Listen to RIP-1 and RIP-2 messages in order to learn RIP routes on the network.
  - **RIP1**
    Listen to RIP-1 and RIP-2 messages and send RIP-1 responses as a sub-network broadcast.
  - **RIP2 Broadcast (RIP1 Compatibility)**
    Listen to RIP-1 and RIP-2 messages and send RIP-2 responses as a sub-network broadcast.
  - **RIP2 Multicast**
    Listen to RIP-1 and RIP-2 messages and send RIP-2 responses to the RIP-2 multicast address.
- **Enable NAT:** *Default = Off*
  This setting is only available on IP412 and Small Office Edition systems. It controls whether NAT should be used for IP traffic from LAN1 to LAN2. This setting should not be used on the same LAN interface as a connected WAN3 expansion module.
- **Number of DHCP IP Addresses:** *Default = 200, Range = 1 to 999.*
  This defines the number of sequential IP addresses, including the Control Unit IP address, available for DHCP clients.
- **DHCP Mode**
  This controls the control unit's DHCP mode for LAN1. When doing DHCP; LAN devices are allocated addresses from the bottom of the available address range upwards; Dial In users are allocated addresses from the top of the available range downwards. If the control unit is acting as

a DHCP server on LAN1 and LAN2, Dial in users are allocated their address from the LAN1 pool of addresses first.

- **Server**
  When selected the Control Unit is acting as the DHCP Server on LAN1, allocating address to other devices on the network and to PPP Dial in users.
- **Disabled**
  When selected the Control Unit will not use DHCP, therefore it will not act as a DHCP server or obtain an IP address from a DHCP server on this LAN.
- **Dial In**
  This option allows the Control Unit to allocate IP addresses to PPP Dial In users only. It will not allocate IP addresses to local devices on this LAN.
- **Client**
  The Control Unit obtains its **IP Address** and **IP Mask** from a DHCP server on the LAN.

System | LAN2

This tab is used to configure the behavior of the RJ45 Ethernet ports labeled **WAN** or **LAN2** on the front of the IP Office Small Office Edition or IP412 control units respectively. The tab is only shown for those control units.

Settings

The fields available for LAN2 are the same as for LAN1 except for the following additional field:

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	-	-	-	-	-
Delete	-	-	-	-	-

System		Level	
SOE	✓	2.1	✓
IP403	✗	3.0DT	✓
IP406 V1	✗	3.0	✓
IP406 V2	✗	3.1	✓
IP412	✓	3.2	✓

- **Firewall:** *Default = <None> (No firewall)*
  Allows the selection of an IP Office firewall to be applied to traffic routed from LAN2 to LAN1.

System | DNS

DNS is a mechanism through which the URL's requested by users, such as ***www.avaya.com***, are resolved into IP addresses. These requests are sent to a Domain Name Server (DNS) server, which converts the URL to an IP address. Typically the internet service provider (ISP) will specify the address of the DNS server their customers should use.

WINS (Windows Internet Name Service) is a similar mechanism used within a Windows network to convert PC and server names to IP addresses via a WINS server.

If the IP Office is acting as a DHCP server, in addition to providing clients with their own IP address settings for **LAN1** or **LAN2** it can also provide them with their DNS and WINS settings if requested by the client

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	–	–	–	–	–
Delete	–	–	–	–	–

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **DNS Service IP Address:** *Default = 0.0.0.0 (Do not provide DNS/Use DNS forwarding)*
  This is the IP address of an DNS Server. Your Internet service provider or network administrator provides this information. If this field is left blank, the IP office uses its own address as the DNS server for DHCP client and forward DNS requests to the service provider when **Request DNS** is selected in the service being used (**Service | IP**).
- **DNS Domain:** *Default = Blank (No domain)*
  This is the domain name for your IP address. Your Internet service provider or network administrator provides this. Typically this field is left blank.
- **WINS Server IP Address:** *Default = 0.0.0.0 (Do not provide WINS)*
  This is the IP address of your local WINS server. This is only used by Windows PCs, and normally points to an NT server nominated by your network administrator as your WINS server. Setting a value will result in also sending a mode of "hybrid".
- **WINS Scope:** *Default = Blank (no scope)*
  This is provided by your network administrator or left blank.

System | Voicemail

The following settings are used to set the IP Office's voicemail server type and location. The fields are enabled or grayed out as appropriate to the selected voicemail type.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✓*1
New	–	–	–	–	–
Delete	–	–	–	–	–

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- ***1:** Changes to **Voicemail Type** require a reboot.

- **Voicemail Type:** *Default = Voicemail Lite/Pro*
  Sets the type of voicemail system being used.
  - **None**
    No voicemail operation.
  - **Centralized Voicemail**
    Select this option when using a Voicemail Pro system installed and licensed on another IP Office in an IP Office Small Community Network. The outgoing line group for connection to the system with the Voicemail Pro should be entered as the **Voicemail Destination**.
  - **Embedded Voicemail**
    Small Office Edition and IP406 V2 control units only. Select this option to run embedded voicemail which stores messages and prompts on an Avaya memory card inserted into the control unit.
  - **Group Voicemail**
    This option is used to support third-party voicemail systems attached by extension ports in the group specified as the **Destination**.
  - **Remote Audix Voicemail**
    Select this option if using a remote Avaya Intuity Audix or MultiMessage voicemail system. Requires entry of an ***Audix Voicemail*** license in **Licenses**.
  - **Voicemail Lite/Pro**
    Select this option when using Voicemail Lite or Voicemail Pro. The IP address of the PC being used should be set as the **Voicemail IP Address**. Use of Voicemail Pro requires entry of a ***Voicemail Pro (4 ports)*** license in **Licenses**.
- **Voicemail Destination:** *Default = blank*
  This setting is used when the **Voicemail Type** is set to ***Remote Audix Voicemail*** or ***Centralized Voicemail***. It is used to enter the outgoing line group of the lines configured for connection to the remote voicemail system. It is also used for ***Group Voicemail*** to specify the group connected to the voicemail system.
- **Voicemail IP Address:** *Default = 255.255.255.255*
  This setting is used when the **Voicemail Type** is set to ***Voicemail Lite/Pro***. It is the IP address of the PC running the Voicemail Lite or Voicemail Pro server. If set as 255.255.255.255, the control unit broadcasts on the LAN for a response from a voicemail server. If set to a specific IP address, the system connects only to the voicemail server running at that specific address.

- **Voicemail Password :** *Default = blank*
  [2.1 ✓][3.0DT ✓][3.0 ✓][3.1 ✓][3.2 ✗]
  The Voicemail Password is used by the main unit to confirm connection has been made to the correct Voicemail Pro Server. The password entered must correspond to the password set via the Voicemail Pro software. This entry must be left blank when using the standard Voicemail application supplied on the Admin CD.
- **Audix UDP**
  Available if the voicemail type **Remote Audix Voicemail** is selected. Needs to be completed with a four digit number from the Universal Dial Plan of the Avaya Communication Manager system.
- **Maximum Record Time:** *Default = 120 seconds; Range = 5 to 180 seconds*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  This field is only available when ***Embedded Voicemail*** is selected as the **Voicemail Type**. The value sets the maximum record time for messages and prompts.

System | Telephony

This tab is used to set the default telephony operation of the IP Office. Some settings shown here can be overridden for individual users through their **User | Telephony** tab.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✓*1
New	–	–	–	–	–
Delete	–	–	–	–	–

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- *1: Changes to **Companding LAW** and **Busy Tone Detection** require a reboot.

- **Default Outside Call Sequence:** *Default = Normal*
  This setting is only used with analog extensions. It sets the ringing pattern used for incoming external calls. For details of the ring types see **Ring Tones** in the **Telephone Features** section. This setting can be overridden by a user's **User | Telephony | Outside Call Sequence** setting.
- **Default Inside Call Sequence:** *Default = Ring Type 1*
  This setting is only used with analog extensions. It sets the ringing pattern used for incoming internal calls. For details of the ring types see **Ring Tones** in the **Telephone Features** section. This setting can be overridden by a user's **User | Telephony | Inside Call Sequence** setting.
- **Default Ring Back Sequence:** *Default = Ring Type 2*
  This setting is only used with analog extensions. It sets the ringing pattern used for ringback calls such as hold return, park return, voicemail ringback, and Ring Back when Free. For details of the ring types see **Ring Tones** in the **Telephone Features** section. This setting can be overridden by a user's **User | Telephony | Ringback Call Sequence** setting.
- **Dial Delay Time (secs):** *Default = 4 (USA/Japan) or 1 (ROW), Range = 1 to 30 seconds.*
  This setting sets the time the system waits following a dialed digit before it starts looking for a short code match. See the **Short Codes** section.
- **Dial Delay Count:** *Default = 0 digits (USA/Japan) or 4 digits (ROW), Range = 0 to 30 digits.*
  This setting sets the number of digits dialed after which the IP Office starts looking for a short code match regardless of the **Dial Delay Time**.
- **Default No Answer Time (secs):** *Default = 15 seconds, Range = 1 to 99999 seconds.*
  This setting controls the amount of time before an alerting call is considered as unanswered. How the call is treated when this time expires depends on the call type.
  - For calls to a user, the call follows the user's Forward on No Answer settings if enabled. If no forward is set, the call will go to voicemail if available or else continues to ring. This timer is also used to control the duration of call forwarding if the forward destination does not answer. It also controls the duration of ringback call alerting. This setting is overridden by the **User | Telephony | No Answer Time** setting for a particular user if different.
  - For calls to hunt groups, this setting controls the time before the call is presented to the next available hunt group member. This setting is overridden by the **Hunt Group | Hunt Group | No Answer Time** setting for a particular hunt group if different.
- **Hold Timeout (secs):** *Default = 120 (US) or 15 (ROW), Range = 0 (Off) to 99999 seconds.*
  This setting controls how long calls remain on hold before recalling to the user who held the call. Note that the recall only occurs if the user has no other connected call.

- **Park Timeout (secs):** *Default = 300 seconds, Range 0 (Off) to 99999 seconds.*
  This setting controls how long calls remain parked before recalling to the user who parked the call. Note that the recall only occurs if the user has no other connected call.
- **Ring Delay:** *Default = 5 seconds, Range = 0 to 98 seconds.*
  [2.1 ✗][3.0DT ✗][3.0 ✗][3.1 ✗][3.2 ✓]
  This setting is used when any of the user's programmed appearance buttons is set to Delayed ringing. Calls received on that button will initially only alert visually. Audible alerting will only occur after the ring delay has expired. This setting can be overridden by a ring delay set for an individual user (**User | Telephony | Ring Delay**).
- **Local Dial Tone:** *Default = On*
  For all normal operation this setting should be left enabled as it allows the system to provide dial tone to users (essential for MSN working).
- **Local Busy Tone:** *Default = Off*
  This setting should only be used when the local exchange gives a busy signal via Q.931 but does not provide busy tone.
- **Conferencing Tone:** *Default = Off*
  This settings controls how conference tones are used. When off, a single tone is heard when a new party joins a conference and double-tone is heard when a party leaves a conference. When on, a conference tone is heard every 10 seconds by all conference parties.
- **Inhibit Off-Switch Forward/Transfer:** *Default = Off (Italy = On)*
  When enabled, this setting stops any user from transferring or forwarding calls externally. See **Off-Switch Forwarding and Transfer Controls**.
- **Allow Outgoing Transfer:** *Default = Off*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  When not enabled, users are only able to transfer or forward off-switch incoming external calls. When enabled, users can forward both incoming and outgoing external calls.
- **Dial By Name:** *Default = On*
  When on, allows the directory features on various phones to match the dialing of full names. When off, the directory features use the pre-IP Office 1.4 method of first character match only. See **Dial by Name in Appendix A: Configuration Examples**.
- **Suppress Silence:** *Default = Off*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  This setting should only be selected if voice quality problems are experienced with GSM calls to voicemail or while recording GSM calls. The problem appears only with some GSM networks that do not have echo cancellers. When on, the IP Office generates silence data packets in periods when the voicemail system is not generating data. Note that use of this option may cause some timeout routing options in voicemail to no longer work.
- **Show Account Code:** *Default = On*
  When on, when entering account codes through Phone Manager, users can select from a drop-down list of available account codes. When off, the drop-down list of available account codes is not useable, instead account codes must be entered using the Phone Managers PIN Code features.
- **Auto Hold**: *Default = On*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  Used for users with multiple appearance buttons. When on, if a user presses another appearance button during a call, their current call is placed on hold. When off, if a users presses another appearance button during a call, their current call is disconnected.
- **Companding LAW**
  These settings are used to select the method of audio compression used for external digital lines and internal digital extensions. Note that U-LAW is also called MU-LAW. Most IP Office control units are available in A-Law and U-Law models. Typically U-Law models are supplied to North American locales, A-Law models are supplied to the rest of the world. In addition to the using different companding, A-Law and U-Law models support different default short codes.

- **Busy Tone Detection:** *Default = System Frequency*
  Allows configuration of the IP Office's busy tone detection settings. The default busy tone detection options (frequency mode and width) are defined by the system locale. They should not be adjusted unless advised by the Avaya Technical Support.
- **Use External Music on Hold:** *Default = Off*
  [2.1 ✗][3.0DT ✗][3.0 ✗][3.1 ✓][3.2 ✓]
  The presence of an internal music on hold file overrides the use of any external music on hold source. When this option is selected, following a reboot the IP Office will not attempt to reload an internal music on hold file by TFTP or from the compact flash memory card if available. The only source of music on hold used will be the external port.

System | H.323 Gatekeeper

H.323 VoIP phones must register with a gatekeeper in order to send and receive H.323 calls. The gatekeeper then controls permission for the phone to make or accept calls.

IP Office can act as the gatekeeper for H.323 phones. For full details relating to Avaya H.323 phones refer to the IP Office IP Phone Installation Manual. For non-Avaya H.323 devices, entry of an ***IP End-Points*** license is required.

IP Office H.323 Gatekeeper (Call Server) operation is supported only on the IP Office LAN1 IP address.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	–	–	–	–	–
Delete	–	–	–	–	–

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Gatekeeper Enable:** *Default = On*
  This settings enables IP Office gatekeeper operation.
- **Auto-create Extn:** *Default = On*
  When this option is on, an extension entry is automatically created for H.323 phones registering themselves with the IP Office as their gatekeeper.
- **RTP Port Number Range**
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  For each VoIP call, a receive port for incoming Real Time Protocol (RTP) traffic is selected from a defined range of possible ports, using the even numbers in that range. The Real Time Control Protocol (RTCP) traffic for the same call uses the RTP port number plus 1, that is the odd numbers. For IP Office control units and Avaya H.323 IP phones, the default port range used is 49152 to 53246. On some installations, it may be a requirement to change or restrict the port range used. It is recommended that only port numbers between 49152 and 65535 are used, that being the range defined by the Internet Assigned Numbers Authority (IANA) for dynamic usage.
  - **Port Range (minimum):** *Default = 49152. Range = 1024 to 64510.*
    This sets the lower limit for the RTP port numbers used by the IP Office.
  - **Port Range (maximum):** *Default = 53246. Range = 2048 to 65534.*
    This sets the upper limit for the RTP port numbers used by the IP Office. The gap between the minimum and the maximum must be at least 1024.
- **DiffServe Settings**
  When transporting voice over low speed links it is possible for normal data packets (1500 byte packets) to prevent or delay voice packets (typically 67 or 31 bytes) from getting across the link. This can cause a very unacceptable speech quality. Therefore it is important that all traffic routers and switches in a network to have some form of Quality of Service mechanism (QoS). QoS routers are essential to ensure low speech latency and to maintain sufficient audible quality.

  IP Office supports the DiffServ (RFC2474) QoS mechanism. This uses a Type of Service (ToS) field in the IP packet header. The IP Office uses this field to prioritize voice and voice signaling packets on its WAN interfaces. Note that the IP Office does not perform QoS for its Ethernet ports including the WAN Ethernet port on the Small Office Edition.

  The hex and decimal entry fields for the following values are linked, the hex value being equal to the decimal value time 4.

- **DSCP (Hex):** *Default = B8 (Hex)/46 (decimal), Range = 00 to FC (Hex)/0 to 63 (decimal)*
  The DiffServ Code Point (DSCP) setting applied to VoIP calls. For correct operation, especially over WAN links, the same value should be set at both ends.
- **DSCP Mask (Hex):** *Default = FC (Hex)/63 (decimal), Range = 00 to FC (Hex)/0 to 63 (decimal)*
  Allows a mask to be applied to packets for the DSCP value.
- **SIG DSCP (Hex):** *Default = 88 (Hex)/34 (decimal), Range = 00 to FC (Hex)/0 to 63 (decimal)*
  This setting is used to prioritize VoIP call signaling.

- **Site Specific Option Number (SSON):** *Default = 176, Range 128 to 254.*
  Sets the site specific option number (SSON) used by the IP Office's internal DHCP server. This should match the SSON used by 4600 and 5600 Series IP phones to request installation settings.

System | LDAP

LDAP (Lightweight Directory Access Protocol) is a software protocol for enabling anyone to locate organizations, individuals, and other resources such as files and devices in a network, whether on the Internet or on a corporate intranet. LDAP is a "lightweight" (smaller amount of code) version of DAP (Directory Access Protocol), which is part of X.500, a standard for directory services in a network. LDAP is lighter because in its initial version, it did not include security features.

In a network, a directory tells you where in the network something is located. On TCP/IP networks, including the Internet, the Domain Name System (DNS) is the directory system used to relate the domain name to a specific network address. However, you may not know the domain name. LDAP allows you to search for an individual without knowing where they're located (although additional information will help with the search).

An LDAP directory is organized in a simple "tree" hierarchy consisting of the following levels:

- The "root" directory (the starting place or the source of the tree), which branches out to
- Countries, each of which branches out to
- Organizations, which branch out to
- Organizational units (divisions, departments, and so forth), which branches out to (includes an entry for)
- Individuals (which includes people, files, and shared resources such as printers)

An LDAP directory can be distributed among many servers. Each server can have a replicated version of the total directory that is synchronized periodically. An LDAP server is called a Directory System Agent (DSA). An LDAP server that receives a request from a user takes responsibility for the request, passing it to other DSA's as necessary, but ensuring a single coordinated response for the user.

LDAP Directory Synchronization allows the telephone number Directory held in the Control Unit to be synchronized with the information on an LDAP server. Although targeted for interoperation with Windows 2000 Server Active Directory, the feature is sufficiently configurable to interoperate with any server that supports LDAP version 2 or higher.

Telephone numbers obtained via the LDAP mechanism are held dynamically in the Directory. Each record retrieved creates a Directory Entry for use with Phone Manager. Please note that the entries are not stored in the configuration and therefore will not be visible via Manager. A maximum of 500 records can be retrieved due to size restraints. Records with exactly the same data in the Name and Number fields will not be duplicated.

Up to 500 LDAP directory entries can be obtained and then displayed in the Phone Manager directory for IP Office users. They do not appear in the Manager directory.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	–	–	–	–	–
Delete	–	–	–	–	–

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **LDAP Enabled:** *Default = Off*
  This option turns LDAP support on or off.
- **User Name:** *Default = blank*
  Enter the user name to authenticate connection with the LDAP database. To determine the domain-name of a particular Windows 2000 user look on the "Account" tab of the user's properties under "Active Directory Users and Computers". Note that this means that the user name required is not necessarily the same as the name of the Active Directory entry. There should be a built-in account in Active Directory for anonymous Internet access, with prefix "IUSR_" and suffix server_name (whatever was chosen at the Windows 2000 installation). Thus, for example, the user name entered is this field might be: IUSR_CORPSERV@acme.com
- **Password:** *Default = blank*
  Enter the password to be used to authenticate connection with the LDAP database. Enter the password that has been configured under Active Directory for the above user. Alternatively an Active Directory object may be made available for anonymous read access. This is configured on the server as follows:
  - In "Active Directory Users and Computers" enable "Advanced Features" under the "View" menu. Open the properties of the object to be published and select the "Security" tab. Click "Add" and select "ANONYMOUS LOGON", click "Add", click "OK", click "Advanced" and select "ANONYMOUS LOGON", click "View/Edit", change "Apply onto" to "This object and all child objects", click "OK", "OK", "OK".
    Once this has been done on the server, any entry can be made in the User Name field in the System configuration form (however this field cannot be left blank) and the Password field left blank. Other non-Active Directory LDAP servers may allow totally anonymous access, in which case neither User Name nor Password need be configured.
- **Server IP Address:** *Default = blank*
  Enter the IP address of the server storing the database.
- **Server Port:** Default = 389
  This setting is used to indicate the listening port on the LDAP server.
- **Authentication Method:** *Default = Simple*
  Select the authentication method to be used.
  - **Simple:** clear text authentication
  - **Kerberos:** Kerberos 4 LDAP and Kerberos 4 DSA encrypted authentication (for future use).
- **Resync Interval (secs):** *Default = 3600 seconds, Range = 1 to 99999 seconds.*
  The frequency at which the IP Office should resynchronize the directory with the server. This value also affects some aspects of the internal operation.
  - The LDAP search inquiry contains a field specifying a time limit for the search operation and this is set to 1/16th of the resync interval. So by default a server should terminate a search request if it has not completed within 225 seconds (3600/16).

- The client end will terminate the LDAP operation if the TCP connection has been up for more than 1/8th of the resync interval (default 450 seconds). This time is also the interval at which a change in state of the "LDAP Enabled" configuration item is checked.

- **Search Base / Search Filter:** *Default = blank*
  These 2 fields are used together to refine the extraction of directory entries. Basically the Base specifies the point in the tree to start searching and the Filter specifies which objects under the base are of interest. The search base is a distinguished name in string form (as defined in RFC1779).
  The Filter deals with the attributes of the objects found under the Base and has its format defined in RFC2254 (except that extensible matching is not supported).
  If the Search Filter field is left blank the filter defaults to "(objectClass=*)", this will match all objects under the Search Base.

  The following are some examples applicable to an Active Directory database:

  - To get all the user phone numbers in a domain:
    Search Base: cn=users,dc=acme,dc=com
    Search Filter: (telephonenumber=*)
  - To restrict the search to a particular Organizational Unit (eg office) and get cell phone numbers also:
    Search Base: ou=holmdel,ou=nj,DC=acme,DC=com
    Search Filter: (|(telephonenumber=*)(mobile=*))
  - To get the members of distribution list "group1":
    Search Base: cn=users,dc=acme,dc=com
    Search Filter:
    (&(memberof=cn=group1,cn=users,dc=acme,dc=com)(telephonenumber=*))

- **Number Attributes:** *Default = see below*
  Enter the number attributes the server should return for each entry that matches the Search Base and Search Filter. Other entries could be ipPhone, otherIpPhone, facsimileTelephoneNumber, otherfacsimileTelephone Number, pager or otherPager. The attribute names are not case sensitive. Other LDAP servers may use different attributes.

  - By default the entry is "telephoneNumber,otherTelephone,homePhone=H,otherHomePhone=H,mobile=M,other Mobile=M", as used by Windows 2000 Server Active Directory for Contacts.
  - The optional "=string" sub-fields define how that type of number is tagged in the directory. Thus, for example, a cell phone number would appear in the directory as: John Birbeck M 7325551234

System | System Alarms

Simple Network Management Protocol (SNMP) allows SNMP clients and servers to exchange information. SNMP clients are built into devices such as network routers, server PC's, etc. SNMP servers are typically PC application which receive and/or request SNMP information.

The IP Office SNMP client allows the IP Office system to respond to SNMP polling and to send alarm information to SNMP servers. In order for an SNMP server application to interact with an IP Office, the IP Office MIB files, provided on the IP Office Admin CD, must be compiled into the SNMP server's applications database. For full details refer to the IP Office Installation Manual.

The IP Office can also send alarms to an SMTP email server. This allows users to receive alarms without needing to configure an SNMP server. Using SMTP requires details of a valid SMTP email account user name and password and server address.

Alarm traps can be created specifying which alarms to include and where to send the alarms. Up to 2 traps can be configured for the sending of alarms to an SNMP server. Up to 3 traps can be configured for the sending of alarms to SMTP email.

Enabling System Alarms

1. Select  **System**.
2. Select the **System Alarms** tab.
3. Tick **SNMP Enabled**.
4. If planning to use SNMP, complete the information in the SNMP Info section by entering the SNMP port and community details to match those expected by your SNMP server. Details of installing the MIB files required for SNMP are included in the IP Office Installation manual.
5. If planning to use SMTP, complete the information in the SMTP Server Configuration section. Enter the details of the SMTP email server and the email account.
6. Click **OK**.

Editing Alarm Traps (Events)

The Events section of the System Alarms tab displays the currently created alarm traps. It shows the trap destination and the types of alarms that will trigger the trap. Up to 2 traps can be configured for the sending of alarms to an SNMP server. Up to 3 traps can be configured for the sending of alarms to SMTP email.

1. Select the **Alarms** sub-tab.
2. Use the **Add**, **Remove** and **Edit** controls to alter the traps.
3. Click **Add** or select the alarm to alter and then click **Edit**.
4. For a new alarm, set the **Destination** to either ***Trap*** (SNMP) or ***Email*** (SMTP). Note that once a trap has been saved it cannot be changed to the other sending mode.
5. The remaining details will indicate the required destination information and allow selection of the alarm events to include.
6. When completed, click **OK**.
7. Click **OK** again.

Configuration Sub-Tab Settings

- **SNMP Info**

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	–	–	–	–	–
Delete	–	–	–	–	–

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **SNMP Enabled:** *Default = Off*
  Enables support for SNMP alarms and traps by the IP Office control unit. This option must be selected even if only SMTP is being used to email the alarms.
- **SNMP Port:** *Default = 161, Range = 0 to 65534.*
  The port on which the IP Office system listens for SNMP polling.
- **Community (Read-only):** *Default = public*
  The SNMP community name to which the IP Office belongs.
- **Device ID**
  This is a text field used to add additional information to alarms.
- **Contact**
  This is a text field used to add additional information to alarms.
- **Location**
  This is a text field used to add additional information to alarms.

- **SMTP Server Configuration**

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✓
New	-	-	-	-	-
Delete	-	-	-	-	-

System	Level		
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

- **IP Address:** *Default = 0.0.0.0*
  This field sets the IP address of the SMTP server being used to forward SNMP alarms sent by email.
- **Port:** *Default = 25, Range = 0 to 65534.*
  This field set the destination port on the SMTP server.
- **Email From Address:** *Default = Blank*
  This field set the sender address to be used with mailed alarms. Depending of the authentication requirements of the SMTP server this may need to be a valid email address hosted by that server. Otherwise the SMTP email server may need to be configured to support SMTP relay.
- **Server Requires Authentication:** *Default = On*
  This field should be selected if the SMTP server being used requires authentication to allow the sending of emails. When selected, the **User Name** and **Password** fields become available.
  - **User Name:** *Default = Blank*
    This field sets the user name to be used for SMTP server authentication.
  - **Password:** *Default = Blank*
    This field sets the password to be used for SMTP server authentication.
  - **Use Challenge Response Authentication (CRAM-MD5):** *Default = Off.*
    This field should be selected if the SMTP uses CRAM-MD5.

Alarms Sub-Tab Settings

Mergeable			Administrator				Manager				Operator			
Edit	New	Delete	View	Edit	New	Delete	View	Edit	New	Delete	View	Edit	New	Delete
✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗

- **Events**
  This section is used to show and edit the alarm traps. .
  - **Destination**
    The options are **Trap** (SNMP) or **Email** (SMTP).
    - If **Trap** is selected, the details required are:

SOE	IP403	IP406 V1	IP406 V2	IP412	2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

      - **IP Address:** *Default = 0.0.0.0*
        The IP address of the SNMP server to which trap information is sent.
      - **Port:** *Default = 162, Range = 0 to 65534.*
        The SNMP transmit port
      - **Community:** *Default = Blank*
        The SNMP community for the transmitted traps. Must be matched by the receiving SNMP server.
    - If **Email** is selected, the details required are:

SOE	IP403	IP406 V1	IP406 V2	IP412	2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓	✗	✗	✗	✗	✓

      - **Email:**
        The destination email address.
  - **Events:** *Default = None*
    Sets which types of IP Office events should be collected and sent by the trap:
    - **Entity**
      Report on link up/down changes between the IP Office control unit and various entities. For IP Office 3.2 various sub-entities can be selected.
      - **Application**
      - **Compact Flash**
      - **Expansion Module**
      - **Trunk**
      - **VCM**
    - **Generic**
      Report on cold starts, warm starts and SNMP authentication failure.
    - **License**
      Report failure to connect with the License Key Server.
    - **Phone Change**
      Send a trap whenever a phone is removed or moved.
    - **Loopback**
      Only displays for systems with a ***United States*** locale. Ticking this field enables the sending of CSU loopback events, which may then be monitored by an SNMP manager application.

System | CDR

Using a specified IP address, the IP Office can send a Call Detail Record (CDR) for each completed external call. A number of different CDR formats can be selected to match the requirements of the call logging/accounting software being used at the destination address.

For further details refer to **Appendix B: CDR Records**.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✓
New	-	-	-	-	-
Delete	-	-	-	-	-

System	Level		
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Enable CDRs:** *Default = Off.*
  Enables the use of IP Office CDR.
- **Enable intra-switch CDRs:** *Default = Off.*
  When on, includes CDR records for internal calls.
- **Formatting Options**
  These fields are used to select the format and type of CDR records required. They must match the records expected by the call logging application receiving the CDR records.
  - **Record Format:** *Default = Unformatted.*
    Allows selection from a number of common CDR record formats.
  - **Record Options:** *Default = Enhanced.*
    Sets the options to include in the CDR record.
  - **Date Format:** *Default = Day\Month.*
    Sets the date format used in the CDR records.
- **Call Detail Recorder Communications**
  - **IP Address:** *Default = 0.0.0.0.*
    The destination IP address for CDR records.
  - **IP Port:** *Default = 0.*
    The destination IP port for CDR records.
  - **Max CDRs:** *Default = 500. Range = 0 to 1500.*
    The IP Office can cache up to 1500 CDR records if it detects a communications failure with destination address. If the cache is full, the IP Office will begin discarding the oldest records for each new record.
  - **Use UDP:** *Default = Off (Use TCP)*
    When selected, this field switches the sending of CDR record packets to use UDP instead of TCP. If UDP is used, the IP Office will not resend missed or corrupt records. Also when using UDP, the IP Office is less likely to detect a communications failure which would triggered record caching.

System | Twinning

These settings are used with Mobile Twinning. See the **User | Twinning** tab for further details. The use of mobile twinning requires entry of a Mobile Twinning license.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	-	✓
New	-	-	-	-	-
Delete	-	-	-	-	-

System	Level		
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

- **Send Original Party Information for Mobile Twinning:** *Default = On*
  When on, the IP Office will attempt to send the ICLID information provided with the incoming call to the twinning destination. Depending on the services provided by the line provider, this information may not be allowed in which case it may either be removed or the twinned call blocked. If this occurs, the **Calling Party Information for Mobile Twinning** field should be used to send information that is acceptable to the line provider.
- **Calling Party Information for Mobile Twinning:** *Default = Blank (Disabled)*
  This field is useable when **Send Original Part Information for Mobile Twinning** is off.

Line Settings

Line Form Overview

The line settings shown in the IP Office configuration will change according to the types of trunk cards installed in the IP Office control unit or added using external expansion modules. Some models of IP Office Small Office Edition control units include up to 4 integral analog trunk ports.

- **WARNING: Changing Trunk Cards**
  Changing the trunk card installed in an IP Office control unit will result in line settings for both the previous trunk card and the currently installed trunk card. In order to change the trunk card type in a particular card slot, the configuration must be defaulted. This does not apply if replacing an existing card with one of a higher capacity or fitting a trunk card into a previously unused slot.

General Line Operation
The following are general principles for line operation with an IP Office system. Some particular line types may operate differently.

- **Routing Calls to/from Lines - Line Groups**
  Each trunk channel belongs to an **Incoming Line Group** and an **Outgoing Line Group**. These are used as follows:
  - **Incoming Call Routes - Routing Incoming Calls**
    Within the IP Office configuration, **Incoming Call Routes** are used to determine where calls should be presented. The route used is determined by matching information received with the call such as incoming number, ICLID, call type and the **Incoming Line Group** of the line on which the call arrived.
  - **Short Codes - Routing Outgoing Calls**
    Short codes are used in several areas of the IP Office configuration to match digits dialed. Short codes that result in a number to be dialed includes a Line Group settings. A line from the matching **Outgoing Line Group** is used.
- **Clock Quality**
  Calls between systems using digital trunks, E1, E1R2, T1 ISDN and BRI, require an common clock signal. The IP Office will try to obtain this clock signal from an exchange through one of its digital trunks. This is done by setting the **Clock Quality** setting of that **Line** to ***Network***. If there are multiple trunks to public exchanges, another trunk can be set as **Fallback** should the primary clock signal fail. Other trunks should be set as **Unsuitable**.
- **Removing Unused Trunks**
  In cases where a trunk is not connected, it is important to ensure that the trunk is set as being **Out of Service** within the configuration. Failure to do this may cause the IP Office to attempt to present outgoing calls to that trunk. Similarly, where the number of channels subscribed is less than those supportable by the trunk type, the unsubscribed channels should be disabled. On E1 and BRI trunks this can be done by setting the **Number of Channels** correctly. On all trunk types it can also be done by setting the **Direction** of the unsubscribed channels to ***Incoming***.

The type of trunks supported by Avaya within different locales may vary. Consult with the locale Avaya distributor or reseller for details. The following are the different types of trunks are supported by IP Office. For full details refer to the IP Office Installation manual.

Integral Trunk Ports	Small Office	IP403		IP406 V1		IP406 V2		IP412		Channels per Trunk	Signaling Modes
Analog Trunk Ports 4 integral ports.	✓	✗		✗		✗		✗		1	Loop Start LS ICLID
Trunk Cards/Slot	A	A	B	A	B	A	B	A	B		
Analog Trunk Card Provides 4 loop-start analog lines.	✗	✓	✓	✓	✓	✓	✓	✓	✓	1	Loop Start LS ICLID
Quad BRI Trunk Card Provides 4 BRI trunks.	✓	✓	✓	✓	✓	✓	✓	✓	✓	2	ETSI AUSTS013
Single PRI E1 Provides a single E1 PRI trunk.	✗	✓	✓	✓	✓	✓	✓	✓	✓	30	ETSI QSIG
Dual PRI E1 Provides two E1 PRI trunks.	✗	✗	✗	✗	✗	✓	✗	✓	✓		
Single PRI T1 Provides a single trunk.	✓	✓	✓	✓	✓	✓	✓	✓	✓	24 23	T1 PRI QSIG
Dual PRI T1 Provides two trunk connections..	✗	✗	✗	✗	✗	✓	✗	✓	✓		
Single PRI E1R2 Provides a single E1-R2 trunk.	✗	✓	✓	✓	✓	✓	✓	✓	✓	30	E1R2 ETSI QSIG
Dual PRI E1R2 Provides two E1-R2 trunks.	✗	✗	✗	✗	✗	✓	✗	✓	✓		
Expansion Modules/Number Supported	0	3		6		6		12			
Analog Trunk Module Provides 16 loop or ground start analog lines.	✗	✓		✓		✓		✓		1	Loop Start LS ICLID Ground Start
S08 Module Provides 8 ports for ISDN BRI devices. Note that these are no for external lines though they are displayed as lines within the configuration.	✗	✓		✓		✓		✓		2	BRI-S

Line (Analog)

Analog Line Overview

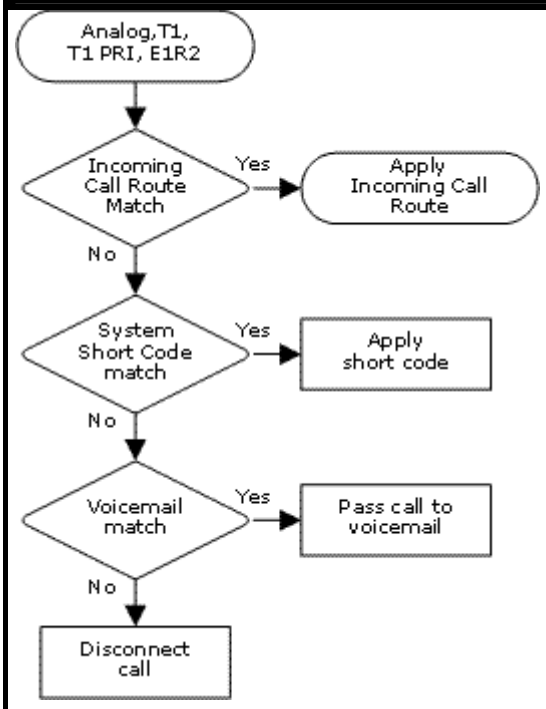
Analog trunks can be provided within the IP Office systems in the following ways. In all cases the physical ports are labeled as **Analog**. For full details of installation refer to the IP Office Installation manual.

Integral Trunk Ports	Small Office	IP403		IP406 V1		IP406 V2		IP412		Channels per Trunk	Signaling Modes
Analog Trunk Ports 4 integral ports.	✓	✗		✗		✗		✗		1	Loop Start LS ICLID
Trunk Cards/Card Slot	A	A	B	A	B	A	B	A	B		
Analog Trunk Card Provides 4 loop-start analog lines.	✗	✓	✓	✓	✓	✓	✓	✓	✓	1	Loop Start LS ICLID
Expansion Modules	0	3		6		6		12			
Analog Trunk Module Provides 16 loop or ground start analog lines.	✗	✓		✓		✓		✓		1	Loop Start LS ICLID Ground Start

Notes

- **Using ICLID**
  The IP Office can route incoming calls using the ICLID received with the call. However ICLID is not sent instantaneously. On analog trunks set to Loop Start ICLID, there will be a short delay while the IP Office waits for any ICLID digits before it can determine where to present the call.
- **Line Status**
  Analog line do not indicate call status other than whether the line is free or in use. Some IP Office features, for example retrieving unanswered forwards and making twinned calls make use of the call status indicated by digital lines. This is not possible with analog lines. Once an analog line has been seized the IP Office has to assume that the call is connected and treats it as having been answered.
- **Dialing Complete**
  The majority of North-American telephony services use en-bloc dialing. Therefore the use of a **;** is recommended at the end of all dialing short codes that use an *N*. This is also recommended for all dialing where secondary dial tone short codes are being used.

Incoming Call Routing: Analog, T1, T1 ISDN and E1R2 Trunks



The following options are used to route incoming calls received on this type of trunk.

1. **Incoming Call Route**
   Based on matching the Incoming Line Group plus if set the incoming number and or ICLID.
2. **System Short Code**
   The IP Office checks for a short code match based on the incoming number.
3. **Voicemail Match**
   The IP Office checks for a call flow start point name matching the incoming number.

Line | Line (Analog)

This tab covers general settings for a line being used with IP Office.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Line Number**
  This parameter is not configurable, it is allocated by the system.
- **Telephone Number:**
  Used to remember the external telephone number of this line to assist with loop-back testing. For information only.
- **Incoming Group ID:** *Default = 0, Range 0 to 99999.*
  The **Incoming Group ID** to which a line belongs is used to match it to incoming call routes in the IP Office configuration. The matching incoming call route is then used to route incoming calls. The same ID can be used for multiple lines.
- **Outgoing Group ID:** *Default = 0, Range 0 to 99999.*
  Short codes that specify a number to dial also specify the line group to be used. The IP Office will then seize a line with a matching **Outgoing Group ID**. The same ID can be used for multiple lines.
- **Outgoing Channels:** *Default = 1 (not changeable)*
- **Voice Channels:** *Default = 1 (not changeable)*
- **Prefix:** *Default = Blank.*
  Enter the number to prefix to any ICLID received with incoming calls. If the IP Office has been configured, using short codes, to require users to dial a prefix to make external calls, adding the same prefix to incoming ICLID numbers allows those numbers to be used for return calls.
  - When a outgoing call is presented to the line with a leading digit to dial that matches the **Prefix**, that digit is stripped from the number.
- **National Prefix:** *Default = 0 (not changeable)*
- **Line Appearance ID:** *Default = Blank, Range = 2 to 9 digits.*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  Allows a number to be assigned to the line to identify it. On phone's that support call appearance buttons, a Line Appearance button with the same number will show the status of the line and can be used to answer calls on the line. For full details refer to the IP Office Key & Lamp Manual. The line appearance ID must be unique and not match any extension number.

Line | Analog Options

This tab covers analog line specific settings.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Channel:**
  Set by the system. Shown for information only.
- **Trunk Type:** *Default = Loop Start*
  Sets the analog line type (**Ground Start**, **Loop Start**, **Loop Start ICLID**, **Out of Service**).
  - **Ground Start**
    Ground Start is only supported on trunks provided by the Analog Trunk 16 expansion module. It requires that the module and the IP Office control unit are grounded. Refer to the IP Office installation manual.
  - **Delay Waiting for Caller ID Information.**
    As the IP Office can use ICLID to route incoming calls, on analog Loop Start ICLID trunks there is a few seconds delay while ICLID is received before the call routing can be determined.
- **Signaling Type:** *Default = DTMF Dialing*
  Sets the signaling method used on the line (**DTMF Dialing** or **Pulse Dialing**).
- **Direction:** *Default = Both Directions*
  Sets the allowed direction of operation of the line (**Incoming**, **Outgoing** or **Both Directions**).
- **Bearer:** *Default = Any*
  Sets the type of traffic carried by the line (**Voice**, **Data** or **Any**).
- **Impedance:** *Default = 900R [Brazil locale only]*
- **Allow Analog Trunk to Trunk Connection:** *Default = Not selected (Off).*
  When not enabled, users cannot transfer or forward external calls back off-switch using an analog trunk if the calls was originally made or received on another analog trunk. This prevents transfers to trunks that do not support disconnect clear.
- **BCC:** *Default = Not selected [Brazil locale only]*
- **Secondary Dial Tone:** *Default = Off*
  Configures the use of secondary dial tone on analog lines. This is a different mechanism from secondary dial tone using short codes. This method is used mainly within the Russian locale. When selected, the following additional settings are accessible:
  - **Await time:** *Default = 3000ms, Range = 0 to 25500ms.*
    Used when secondary dial tone (above) is selected. Sets the delay.
  - **After n Digits:** *Default = 1, Range = 0 to 10.*
    Sets where in the dialing string, the delay for secondary dial tone, should occur.
  - **Matching Digit:** *Default =8, Range = 0 to 9.*
    The digit which, when first matched in the dialing string, will cause secondary dial tone delay.

- **Long CLI Line:** *Default = Off*
  The CLI signal on some long analog lines can become degraded and is not then correctly detected. If you are sure that CLI is being provided but not detected, selecting this option may resolve the problem.
- **Modem Enabled:** *Default = Off*
  The first analog trunk on Small Office Edition controls units and on ATM4 trunk cards can be set to modem operation (V32 with V42 error correction). This allows the trunk to answer incoming modem calls and be used for system maintenance. When on, the trunk can only be used for analog modem calls. The default system short code ***9000*** can be used to toggle this setting. For the Small Office Edition control unit, when on, the control unit status LED flashes alternate red/green.
- **Ring Persistency:** *Default = Set according to system locale, Range = 0 to 2550ms.*
  The minimum duration of signal required to be recognized.
- **Ring Off Maximum:** *Default = Set according to system locale, Range = 0 to 25500ms.*
  The time required before signaling is regarded as ended.
- **Flash Pulse Width:** *Default = 500ms, Range = 0 to 2550ms.*
- **DTMF Mark:** *Default = 80 (80ms), Range = 0 to 255.*
- **DTMF Space:** *Default = 80 (80ms), Range = 0 to 255.*
- **Intermediate Digit Pause:** *Default = 500ms, Range = 0 to 2550ms.*
- **Voicemail Recording Level:** *Default = Low*
  Used to adjust the volume level of calls recorded by voicemail. Options are ***Low***, ***Medium*** and ***High***.
- **Disconnect Clear**
  Disconnect clear (also known as Line Break and Reliable Disconnect) is a method used to signal from the line provider that the call has cleared. We recommend leaving this ticked to make use of the disconnect clear function if available. The IP Office also uses Tone Disconnect, which clears a analog call after 6 seconds of continuous busy or NU tone.
  - **Enable:** Enables the use*Default = On* of disconnect clear.
  - **Units:** *Default = 500ms, Range = 0 to 2550ms.*
    This time <u>must be</u> less than the actual disconnect time period used by the line provider by at least 150ms.
- **Pulse Width On:** *Default = 40ms, Range = 0 to 255ms.*
- **Pulse Width Off:** *Default = 60ms, Range = 0 to 255ms.*
- **Await Dial Tone:** *Default = 3000ms, Range = 0 to 25500ms.*
  Sets how long the system should wait before dialing out.
- **BCC Flash Pulse Width:** *[Brazil locale only] Default = 100 (1000ms), Range = 0 to 255.*
- **Gains:**
  - **Tx (A-D):** *Default = 0dB*
    Sets the analog to digital gain for incoming speech. Range -4.0dB to +3.5dB in 0.5dB steps.
  - **Rx (D-A):** Default = 0dB
    Sets the digital to analog gain for outgoing speech. Range -4.0dB to +3.5dB in 0.5dB steps.
- **Echo Cancellation:** *Default = 16ms.*
  Only useable with the ATM4 Universal trunk card. Allows settings of Off, 8, 16, 32, 64 and 128 milliseconds. The echo cancellation should only be adjusted as high as required to remove echo problems. Setting it to a higher value than necessary can cause other distortions.

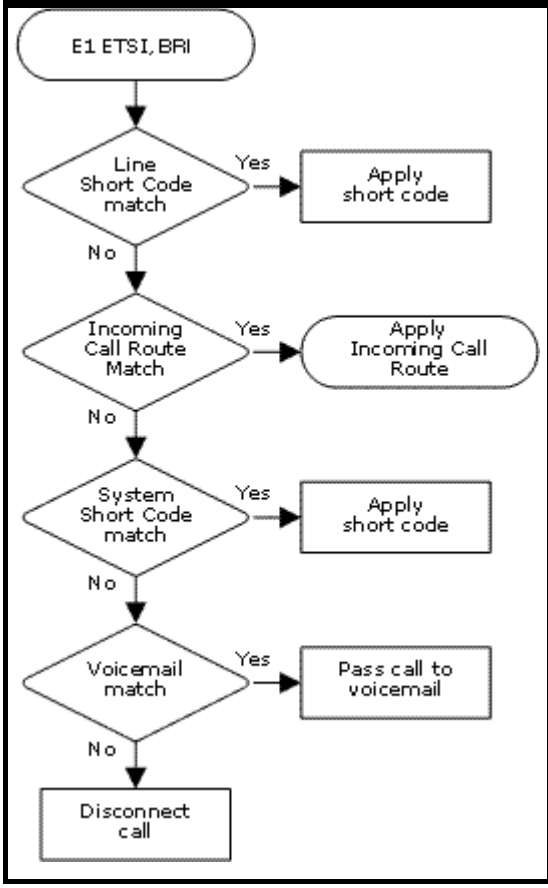
Line (BRI)

Line | BRI Overview

BRI trunks are provided by the installation of an Quad BRI trunk card into the IP Office control unit. This card provides 4 BRI ports. Each port supports 2 channels for calls. For full details of installation refer to the IP Office Installation manual.

Trunk Cards	Small Office	IP403		IP406 V1		IP406 V2		IP412		Channels per Trunk	Signaling Modes
Slots	A	A	B	A	B	A	B	A	B		
Quad BRI Trunk Card Provides 4 BRI trunks.	✓	✓	✓	✓	✓	✓	✓	✓	✓	2	ETSI AUSTS013

Incoming Call Routing: E1 ETSI, BRI



The following options are used to route incoming calls received on this type of trunk.

1. **Line Short Code**
   The IP Office checks for a short code match based on the incoming number.
2. **Incoming Call Route**
   The IP Office checks for a match to the Incoming Line Group plus, if set, the incoming number and or ICLID.
3. **System Short Code**
   The IP Office checks for a short code match based on the incoming number.
4. **Voicemail Match**
   The IP Office checks for a call flow start point name matching the incoming number.

Point-to-Point or Multipoint

BRI lines can be used in either Point-to-Point or Point-to-Multipoint mode. Point-to-Point lines are used when only one device terminates a line in a customer's office. Point-to-Multipoint lines are used when more than one device may be used on the line at the customer's premises. There are major benefits in using Point-to-Point lines: -

1. The exchange knows when the line/terminal equipment is down/dead, thus it will not offer calls down that line. If the lines are Point-to-Multipoint, calls are always offered down the line and fail if there is no response from the terminal equipment. So if you have two Point-to-Multipoint lines and one is faulty 50% of incoming calls fail.
2. You get a green LED on the Control Unit when the line is connected. With Point-to-Multipoint lines some exchanges will drop layer 1/2 signals when the line is idle for a period.
3. The timing clock is locked to the exchange. If layer 1/2 signals disappear on a line then the Control Unit will switch to another line, however this may result in some audible click when the switchover occurs.

The IP Office's default Terminal Equipment Identifier (TEI) will normally allow it to work on Point-to-Point or Point-to-Multipoint lines. However if you intend to connect multiple devices simultaneously to an BRI line, then the TEI should be set to 127. With a TEI of 127, the IP Office control unit will ask the exchange to allocate a TEI for operation.

Note: When connected to some manufactures equipment, which provides an S0 interface (BRI), a defaulted Control Unit will not bring up the ISDN line. Configuring the Control Unit to a TEI of 127 for that line will usually resolve this.

Line | BRI Line

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Line Number**
  This parameter is not configurable; it is allocated by the system.
- **Line Sub Type:**
  Select to match the particular line type provided by the line provider. BRI supports ***ETSI*** and ***AusTS013***.
- **Telephone Number:**
  Used to remember the external telephone number of this line to assist with loop-back testing. For information only.
- **Prefix:** *Default = Blank.*
  The prefix is used in the following ways:
  - For incoming calls, the ISDN messaging tags indicates the call type (National, International or Unknown). If the call type is unknown, then the number in the **Prefix** field is added to the ICLID.
  - For outgoing calls, when the number presented to the line for dialling includes the prefix, the prefix is stripped.
- **National Prefix:** *Default = 0*
  This indicates the digits to be prefixed to a incoming national call. When a number is presented from ISDN as a "national number" this prefix is added. For example 1923000000 is converted to 01923000000.
- **International Prefix:** *Default = 00*
  This indicates the digits to be prefixed to an incoming international call. When a number is presented from ISDN as an "international number" this prefix is added. For example 441923000000 is converted to 00441923000000.
- **TEI:** *Default = 0*
  The Terminal Equipment Identifier. Used to identify each device connected to a particular ISDN line. For Point-to-Point lines this is 0. It can also be 0 on a Point to Multipoint line, however if multiple devices are sharing a Point-to-Multipoint line it should be set to 127 which results in the exchange allocating the TEI's to be used.
- **Number of Channels:** *Default = 2. Range = 0 to 2.*
  Defines the number of operational channels that are available on this line.
- **Outgoing Channels:** *Default = 2. Range = 0 to 2.*
  This defines the number of channels available, on this line, for outgoing calls. This should normally be the same as Number of Channels field, but can be reduced to ensure incoming calls cannot be blocked by outgoing calls.
- **Voice Channels:** *Default = 2. Range = 0 to 2.*
  The number of channels available for voice use.
- **Data Channels:** *Default = 2. Range = 0 to 2.*
  The number of channels available for data use. If left blank, the value is 0.

- **Clock Quality:** *Default* = *Network*
  Sets whether the IP Office takes it clock source for call synchronization and signalling from this line. One line connected to the IP Office should be set to ***Network***. and wherever possible this should be a line connected to the central office exchange. Another line can be set to ***Fallback*** but all other lines should be set to ***Unsuitable***.

Line | Channels (BRI)

This tab allows settings for individual channels within the trunk to be adjusted.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Incoming Group ID:** *Default = 0, Range 0 to 99999.*
  The **Incoming Group ID** to which a line belongs is used to match it to incoming call routes in the IP Office configuration. The matching incoming call route is then used to route incoming calls. The same ID can be used for multiple lines.
- **Outgoing Group ID:** *Default = 0, Range 0 to 99999.*
  Short codes that specify a number to dial also specify the line group to be used. The IP Office will then seize a line with a matching **Outgoing Group ID**. The same ID can be used for multiple lines.
- **Line Appearance ID:** *Default = Blank, Range = 2 to 9 digits.*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  Used for configuring Line Appearances with button programming. The line appearance ID must be unique and not match any extension number. Line appearance is not supported for trunks set to QSIG operation and is not recommended for trunks be used for DID.

Line (E1)

Line Form (E1 PRI) Overview

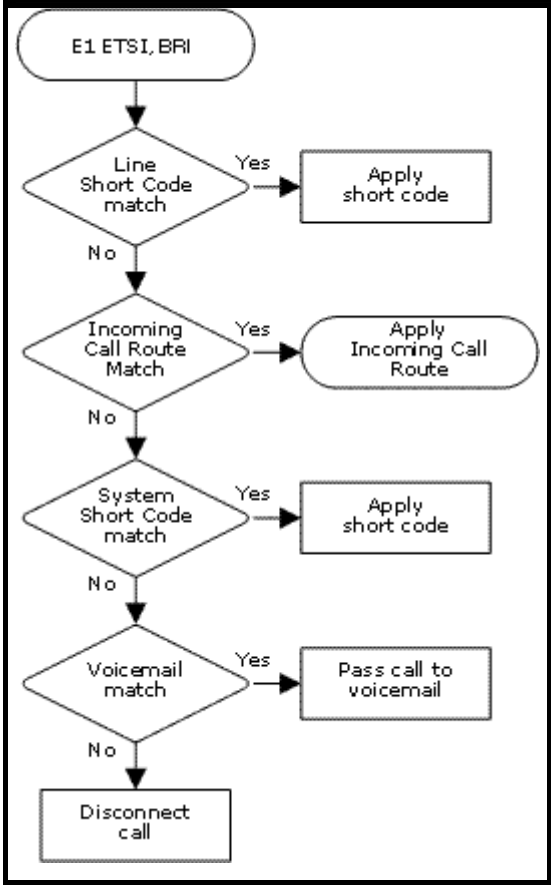
E1 PRI trunks are provided by the installation of an E1 PRI trunk card into the IP Office control unit. E1 PRI trunk cards are not supported with the IP Office Small Office Edition control unit. Dual port E1 PRI trunk cards are only supported with the IP412 control unit and in Slot A of the IP406 V2 control unit. For full details of installation refer to the IP Office Installation manual.

Each physical E1 PRI trunk port supports up to 30 channels for calls.

Trunk Cards	Small Office	IP403		IP406 V1		IP406 V2		IP412		Channels per Trunk	Signaling Modes
Slot	A	A	B	A	B	A	B	A	B		
Single PRI E1 Provides a single E1 PRI trunk.	✗	✓	✓	✓	✓	✓	✓	✓	✓	30	ETSI QSIG
Dual PRI E1 Provides two E1 PRI trunks.	✗	✗	✗	✗	✗	✓	✗	✓	✓		

E1 trunks can be set to either ETSI or QSIG operation modes. The selected mode affects how incoming calls are handled.

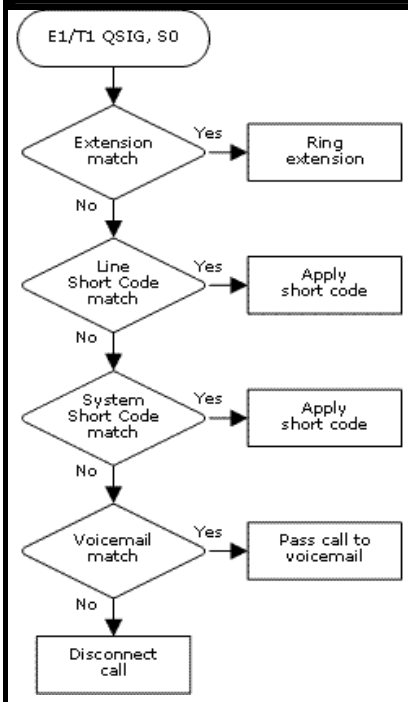
Incoming Call Routing: E1 ETSI, BRI



The following options are used to route incoming calls received on this type of trunk.

5. **Line Short Code**
   The IP Office checks for a short code match based on the incoming number.
6. **Incoming Call Route**
   The IP Office checks for a match to the Incoming Line Group plus, if set, the incoming number and or ICLID.
7. **System Short Code**
   The IP Office checks for a short code match based on the incoming number.
8. **Voicemail Match**
   The IP Office checks for a call flow start point name matching the incoming number.

Incoming Call Routing: E1 QSIG and S0 Lines



The following options are used to route incoming calls received on this type of trunk.

1. **Extension Match**
   The IP Office checks for an extension match based on the incoming number.
2. **Line Short Code Match**
   The IP Office checks for a short code match based on the incoming number.
3. **System Short Code**
   The IP Office checks for a short code match based on the incoming number.
4. **Voicemail Match**
   The IP Office checks for a call flow start point name matching the incoming number.

Line | PRI Line (E1)

These settings are also used for a US T1 PRI trunk card set to ETSI or QSIG operation.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✗	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Line Number**
  This parameter is not configurable; it is allocated by the system.
- **Line Sub Type:**
  Select to match the particular line type provided by the line provider. E1 PRI trunks support **ETSI**, **QSIG A** or **QSIG B**.
- **Telephone Number:**
  Used to remember the external telephone number of this line to assist with loop-back testing. For information only.
- **Prefix:** *Default = Blank.*
  The prefix is used in the following ways:
  - For incoming calls, the ISDN messaging tags indicates the call type; National, International or Unknown. If the call type is unknown, then the number in the **Prefix** field is added to the ICLID.
  - For outgoing calls, when the number presented to the line for dialling includes the prefix, the prefix is stripped.
- **National Prefix:** *Default = 0*
  This indicates the digits to be prefixed to a incoming national call. When a number is presented from ISDN as a "national number" this prefix is added. For example 1923000000 is converted to 01923000000.
- **International Prefix:** *Default = 00*
  This indicates the digits to be prefixed to an incoming international call. When a number is presented from ISDN as an "international number" this prefix is added. For example 441923000000 is converted to 00441923000000.
- **TEI:** *Default = 0*
  The Terminal Equipment Identifier. Used to identify each Control Unit connected to a particular ISDN line. For Point to Point lines this is typically (always) 0. It can also be 0 on a Point to Multi-Point line, however if multiple devices are sharing a Point to Multi-Point line it should be set to 127 which results in the exchange deciding on the TEI's to be used.
- **Number of Channels**
  Defines the number of operational channels that are available on this line. Up to 30 for E1 PRI, 23 for T1 PRI - depending upon the number of channels subscribed.
- **Outgoing Channels**
  This defines the number of channels available, on this line, for outgoing calls. This should normally be the same as Number of Channels field, but can be reduced to ensure incoming calls cannot be blocked by outgoing calls.
- **Voice Channels**
  The number of channels available for voice use.

- **Data Channels**
  The number of channels available for data use.
- **CRC Checking:** *Default = On*
  Switches CRC on or off.
- **Line Signalling:** *Default = CPE*
  This option is not used for lines where the **Line SubType** is set to ***QSIG***. Select either **CPE** (customer premises equipment) or **CO** (central office). The CO feature is intended to be used primarily as a testing aid. It allows PRI lines to be tested in a back-to-back configuration, using crossover cables.
  - The **CO** feature operates on this line type by modifying the way in which incoming calls are disconnected for IP Office configuration in Brazil and Argentina. In these locales, the CO setting uses **Forced-Release** instead of **Clear-Back** to disconnect incoming calls. The Brazilian **Double-Seizure** mechanism, used to police **Collect** calls, is also disabled in CO mode.
- **Clock Quality:** *Default = Network*
  Sets whether the IP Office takes it clock source for call synchronization and signalling from this line. One line connected to the IP Office should be set to ***Network***. and wherever possible this should be a line connected to the central office exchange. Another line can be set to ***Fallback*** but all other lines should be set to ***Unsuitable***.

The following fields are shown for a US T1 trunk card set to ETSI or QSIG operation. These cards have the same settings E1 PRI trunk cards set to ETSI or QSIG but only support 23 channels.

- **CSU Operation**
  Tick this field to enable the T1 line to respond to loop-back requests from the line.
- **Haul Length:** *Default = 0-115 feet*
  Sets the line length to a specific distance.
- **Channel Unit**: *Default = Foreign Exchange*
  This field should be set to match the channel signaling equipment provided by the Central Office. The options are ***Foreign Exchange***, ***Special Access*** or ***Normal***.

Line | Short Codes

Line short codes can be applied to the digits received with incoming call. The stage at which they are applied also varies depending on the trunk type. See **Line Short Codes** in the **Short Codes** section.

- **IP Trunks**
  Line short codes are used if Small Community Networking (SCN) is not being used or no SCN user extension match occurs on the digits received. If no line short code match occurs then normal incoming call routing is applied.
- **E1 and BRI ETSI Trunks**
  These types of trunks use line short codes immediately. If no short code match occurs then normal incoming call routing is applied.
- **QSIG and SO Trunks**
  S0 trunks, and E1 and T1 trunks set to QSIG mode, use line short code if the digits received do not match an internal extension number. These types of trunk do not use incoming call routing.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✗	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

Short codes can be added and edited using the **Add**, **Remove** and **Edit** buttons. Alternatively you can right-click on the list of existing short code to add and edit short codes.

Line | Channels (E1 PRI)

This tab allows settings for individual channels within the trunk to be adjusted.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✗	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Incoming Group ID:** *Default = 0, Range 0 to 99999.*
  The **Incoming Group ID** to which a line belongs is used to match it to incoming call routes in the IP Office configuration. The matching incoming call route is then used to route incoming calls. The same ID can be used for multiple lines.
- **Outgoing Group ID:** *Default = 0, Range 0 to 99999.*
  Short codes that specify a number to dial also specify the line group to be used. The IP Office will then seize a line with a matching **Outgoing Group ID**. The same ID can be used for multiple lines.
- **Line Appearance ID:** *Default = Blank, Range = 2 to 9 digits.*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  Used for configuring Line Appearances with button programming. The line appearance ID must be unique and not match any extension number. Line appearance is not supported for trunks set to QSIG operation and is not recommended for trunks be used for DID.

Line (E1R2)

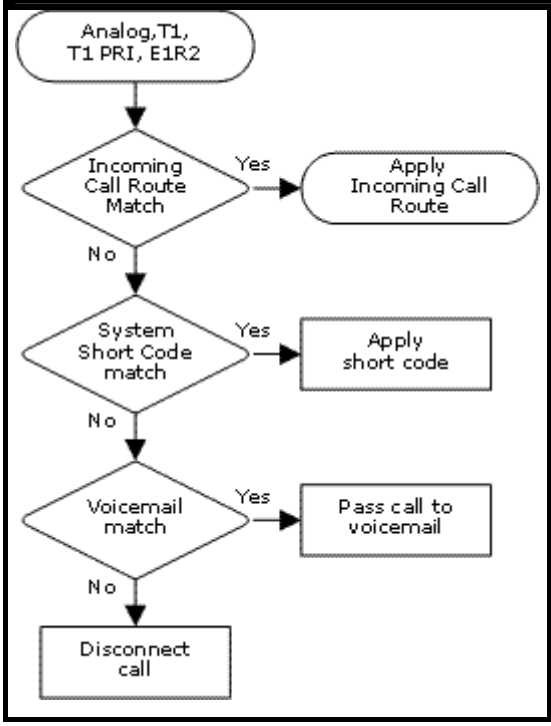
Line Form (E1-R2) Overview

E1-R2 PRI trunks are provided by the installation of an E1-R2 PRI trunk card into the IP Office control unit. E1-R2 PRI trunk cards are not supported with the IP Office Small Office Edition control unit. Dual port E1-R2 PRI trunk cards are only supported with the IP412 control unit and in Slot A of the IP406 V2 control unit. These trunk cards are available in RJ45 connector or coaxial connector versions. For full details of installation refer to the IP Office Installation manual.

Each physical E1 PRI trunk port supports up to 30 channels for calls.

Trunk Cards	Small Office	IP403		IP406 V1		IP406 V2		IP412		Channels per Trunk	Signaling Modes
Slots	A	A	B	A	B	A	B	A	B		
Single PRI E1-R2 Provides a single E1-R2 trunk.	✗	✓	✓	✓	✓	✓	✓	✓	✓	30	E1-R2 ETSI QSIG
Dual PRI E1R2 Provides two E1-R2 trunks.	✗	✗	✗	✗	✗	✓	✗	✓	✓		

Incoming Call Routing: Analog, T1, T1 ISDN and E1R2 Trunks



The following options are used to route incoming calls received on this type of trunk.

1. **Incoming Call Route**
   Based on matching the Incoming Line Group plus if set the incoming number and or ICLID.
2. **System Short Code**
   The IP Office checks for a short code match based on the incoming number.
3. **Voicemail Match**
   The IP Office checks for a call flow start point name matching the incoming number.

Line | Line (E1-R2)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✗	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Line Number:**
  Allocated by the system.
- **Line SubType:** *Default = E1-R2*
  Supported options are **E1-R2**, **ETSI**, **QSIGA** or **QSIGB**.
- **Channel Allocation:** *Default = 30 -> 1*
  The order, 30 -> 1 or 1 -> 30, in which channels are used.
- **Country (Locale):** *Default = Mexico.*
  Select the locale that matches the area of usage. Note that changing the locale will return the MFC Group settings to the defaults for the selected locale. Currently supported locales ***Argentina***, ***Brazil***, ***China***, ***India***, ***Korea***, ***Mexico*** and ***None***.

The table at the base of the form displays the settings for the individual channels provided by the line. For details of the channel settings see Edit Channel (E1-R2).

To edit a channel, either double-click on it or right-click and select **Edit**. This will display the Edit Channel dialog box. To edit multiple channels at the same time select the channels whilst pressing the Shift or Ctrl key. Then right-click and select **Edit**.

Line | Channels (E1-R2)

This tab allows settings for individual channels within the trunk to be adjusted. To edit a channel, select the required channel or channels and click **Edit**.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✗	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

The channel settings are split into two sub-tabs, **E1R2 Edit Channel** and **Timers**.

E1R2 Edit Channel Settings

- **Channel**
  The channel or channels being edited.
- **Incoming Group ID:** *Default = 0, Range 0 to 99999.*
  The Incoming Group ID to which a line belongs is used to match it to incoming call routes in the IP Office configuration. The matching incoming call route is then used to route incoming calls. The same ID can be used for multiple lines.
- **Outgoing Group ID:** *Default = 0, Range 0 to 99999.*
  Short codes that specify a number to dial also specify the line group to be used. The IP Office will then seize a line with a matching **Outgoing Group ID**. The same ID can be used for multiple lines.
- **Line Appearance ID:** *Default = Blank, Range = 2 to 9 digits.*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  Though line appearance settings are shown for E1R2 trunks, use of line appearances with E1R2 is not supported.
- **Direction:** *Default = Both Directions*
  The direction of calls on the channel (***Incoming***, ***Outgoing*** or ***Both Directions***).
- **Bearer:** *Default = Any*
  The type of traffic carried by the channel (***Voice***, ***Data*** or ***Any***).
- **Line Signaling Type:** *Default = R2 Loop Start*
  The signaling type used by the channel. Current supported options are: ***R2 Loop Start***, ***R2 DID***, ***R2 DOD***, ***R2 DIOD***, ***Tie Immediate Start***, ***Tie Wink Start***, ***Tie Delay Dial***, ***Tie Automatic***, ***WAN Service*** and ***Out of Service***.
- **Dial Type:** *Default = MFC Dialing*
  The type of dialing supported by the channel; ***MFC Dialing***, ***Pulse Dialing*** *or* ***DTMF Dialing***.

Timers Settings

This sub-tab displays the various timers provided for E1-R2 channels. These should only be adjusted when required to match the line provider's settings.

Line | MFC Group (E1-R2)

These tabs show the parameter assigned to each signal in an MFC group. The defaults are set according to the **Country (Locale)** on the **Line** tab. All the values can be returned to default by the **Default All** button on the **Advanced** tab.

To change a setting either double-click on it or right-click and select **Edit**.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✗	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

Line | Advanced (E1-R2)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✗	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Zero Suppression:** *Default = HDB3*
  Selects the method of zero suppression used (***HDB3*** or ***AMI***).
- **Clock Quality:** *Default = Network*
  Sets whether the IP Office takes it clock source for call synchronization and signalling from this line. One line connected to the IP Office should be set to ***Network***. and wherever possible this should be a line connected to the central office exchange. Another line can be set to ***Fallback*** but all other lines should be set to ***Unsuitable***.
- **Pulse Metering Bit:** *Default = A Bit*
  Sets which bit should be used to indicate the pulse metering signal; **A Bit**, **B Bit** or **C Bit**.
- **Line Signaling:** *Default = CPE*
  Select either **CPE** or **CO**. The CO feature is intended to be used primarily as a testing aid. It allows T1 and E1 lines to be tested in a back-to-back configuration, using crossover (QSIG) cables.
  - The **CO** feature operates by modifying the way in which incoming calls are disconnected for IP Office configuration in Brazil and Argentina. In these locales, the CO setting uses **Forced-Release** instead of **Clear-Back** to disconnect incoming calls. The Brazilian **Double-Seizure** mechanism used to police **Collect** calls, is also disabled in CO mode.
- **Incoming Routing Digits:** *Default = 4*
  Sets the number of incoming digits used for incoming call routing.
- **CRC Checking:** *Default = Ticked (On)*
  Switches CRC on or off.
- **Default All Group Settings**
  Default the MFC Group tab settings.
- **Line Signaling Timers:**
  To edit one of these timers, either double-click on the timer or right-click on a timer and select the action required.

Line (T1)

T1 Line Overview

T1 trunks are provided by the installation of an T1 PRI trunk card into the IP Office control unit. The trunks on these cards can be configured for T1, PRI or QSIG operation. For full details of installation refer to the IP Office Installation manual.

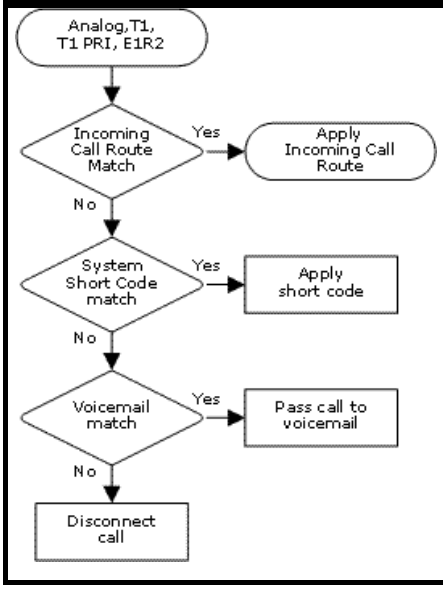
Dual port T1 PRI trunk cards are only supported with the IP412 control unit and in Slot A of the IP406 V2 control unit.

Each physical trunk port supports up to 24 channels in T1 mode, 23 channels in T1 ISDN mode.

Trunk Cards	Small Office	IP403		IP406 V1		IP406 V2		IP412		Channels per Trunk	Signaling Modes
Slots	A	A	B	A	B	A	B	A	B		
Single PRI T1 Provides a single trunk.	✓	✓	✓	✓	✓	✓	✓	✓	✓	24 23	T1 T1 PRI QSIG
Dual PRI T1 Provides two trunk connections..	✗	✗	✗	✗	✗	✓	✗	✓	✓		

- **Dialing Complete**
  The majority of North-American telephony services use en-bloc dialing. Therefore the use of a **;** is recommended at the end of all dialing short codes that use an *N*. This is also recommended for all dialing where secondary dial tone short codes are being used.

Incoming Call Routing: Analog, T1, T1 ISDN and E1R2 Trunks



The following options are used to route incoming calls received on this type of trunk.

1. **Incoming Call Route**
   Based on matching the Incoming Line Group plus if set the incoming number and or ICLID.
2. **System Short Code**
   The IP Office checks for a short code match based on the incoming number.
3. **Voicemail Match**
   The IP Office checks for a call flow start point name matching the incoming number.

Line | Line (T1)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Line Number:**
  Allocated by the system.
- **Line Sub Type:** *Default = T1*
  Set to ***T1*** for a T1 line. For ***PRI*** see **Line Form (US PRI)**. If set to **ETSI**, **QSIG A** or **QSIG B** see **Line (E1)**.
- **Channel Allocation:** *Default = 24 -> 1*
  The order, 24 to 1 or 1 to 24, in which channels are used.
- **Prefix:** *Default = Blank*
  Enter the number to prefix to all incoming numbers for callback. This is useful if all users must dial a prefix to access an outside line. The prefix is automatically placed in front of all incoming numbers so that users can dial the number back.
- **Framing:** *Default = ESF*
  Selects the type of signal framing used (***ESF*** or ***D4***).
- **Zero Suppression:** *Default = B8ZS*
  Selects the method of zero suppression used (***B8ZS*** or ***AMI ZCS***).
- **Clock Quality:** *Default = Network*
  Sets whether the IP Office takes it clock source for call synchronization and signalling from this line. One line connected to the IP Office should be set to ***Network***. and wherever possible this should be a line connected to the central office exchange. Another line can be set to ***Fallback*** but all other lines should be set to ***Unsuitable***.
- **Haul Length:** *Default = 0-115 feet*
  Sets the line length to a specific distance.
- **Channel Unit**: *Default = Foreign Exchange*
  This field should be set to match the channel signaling equipment provided by the Central Office. The options are ***Foreign Exchange***, ***Special Access*** or ***Normal***.
- **CRC Checking:** *Default = On*
  Turns CRC on or off.
- **Line Signaling:** *Default = CPE*
  This field affects T1 channels set to **Loop-Start** or **Ground-Start**. The field can be set to either ***CPE*** (Customer Premises Equipment) or ***CO*** (Central Office). This field should normally be left at its default of ***CPE***. The setting ***CO*** is normally only used in lab back-to-back testing.
- **Incoming Routing Digits:** *Default=0 (present call immediately)*
  Sets the number of routing digits expected on incoming calls. This allows the line to present the call to the system once the expected digits have been received rather than waiting for the digits timeout to expire. This field only affects T1 line channels set to ***E&M Tie***, ***E&M DID***, ***E&M Switched 56K*** and ***Direct Inward Dial***.
- **CSU Operation:**
  Tick this field to enable the T1 line to respond to loop-back requests from the line.

- **Enhanced Called Party Number:** *Default = Off*
  This option is not supported for systems set to the **United States** locale. Normally the dialed number length is limited to 15 digits. Selecting this option increases the allowed dialed number length to 30 digits.

Line | Channels (T1)

The settings for each channel can be edited. Users have the option of editing individual channels by double-clicking on the channel or selecting and editing multiple channels at the same time. Note that the **Line Appearance ID** cannot be updated when editing multiple channels.

When editing a channel or channels, the settings available are displayed on two sub-tabs; **T1 Edit Channel** and **Timers**.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

T1 Edit Channel Sub-Tab Settings

- **Channel**
  Allocated by the system.
- **Incoming Group ID:** *Default = 0, Range 0 to 99999.*
  The Incoming Group ID to which a line belongs is used to match it to incoming call routes in the IP Office configuration. The matching incoming call route is then used to route incoming calls. The same ID can be used for multiple lines.
- **Outgoing Group ID:** *Default = 0, Range 0 to 99999.*
  Short codes that specify a number to dial also specify the line group to be used. The IP Office will then seize a line with a matching **Outgoing Group ID**. The same ID can be used for multiple lines.
- **Line Appearance ID:** *Default = Blank, Range = 2 to 9 digits.*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  Used for configuring Line Appearances with button programming. The line appearance ID must be unique and not match any extension number. Line appearance is not supported for trunks set to QSIG operation and is not recommended for trunks be used for DID.
- **Direction:** *Default = Bothway*
  The direction of calls on the channel (***Incoming***, ***Outgoing*** or ***Bothway***).
- **Bearer:** *Default = Voice*
  The type of traffic carried by the channel.
- **Type:** *Default = Ground-Start*
  The T1 emulates the following connections (***Ground-Start***, ***Loop-Start***, ***E&M - TIE***, ***E&M - DID***, ***E&M Switched 56K***, ***Direct Inward Dial, Clear Channel 64K*** or ***Out of Service***). Trunks set to E&M DID will only accept incoming calls.
  - If **E&M-TIE** is selected and the **Outgoing Trunk Type** is set to **Automatic**, no secondary dial tone is provided for outgoing calls on this line/trunk.
- **Dial Type:** *Default = DTMF Dial*
  Select the dialing method required (***DTMF Dial*** or ***Pulse Dial***).
- **Incoming Trunk Type:** *Default = Wink-Start*
  Used for E&M types only. The handshake method for incoming calls (***Automatic***, ***Immediate***, ***Delay Dial*** or ***Wink-Start***).

- **Outgoing Trunk Type:** *Default = Wink-Start*
  Used for E&M types only. The handshake method for outgoing calls (***Automatic***, ***Immediate***, ***Delay Dial*** or ***Wink-Start***).
  - If the line **Type** is set to **E&M-TIE** and the **Outgoing Trunk Type** is set to **Automatic**, no secondary dial tone is provided for outgoing calls on this line/trunk.
- **Tx Gain:** *Default = 0dB*
  The transmit gain in dB.
- **Rx Gain:** *Default = 0dB*
  The receive gain in dB.

Timers Sub-Tab Settings

This sub-tab allows various timers relating to operation of an individual channel to be adjusted. These should only be adjusted to match the requirements of the line provider. **The following is just a list of the default values.**

- **Outgoing Seizure:** 10.
- **Wink Start:** 5000.
- **Wink Validated:** 80.
- **Wink End:** 350.
- **Delay End:** 5000.
- **Outgoing Dial Guard:** 590.
- **Outgoing IMM Dial Guard:** 1500.
- **Outgoing Pulse Dial Break:** 60.
- **Outgoing Pulse Dial Make:** 40.
- **Outgoing Pulse Dial Inter Digit:** 720.
- **Outgoing Pulse Dial Pause:** 1500.
- **Flash Hook Generation:** 500.
- **Outgoing End of Dial:** 1000.
- **Answer Supervision:** 300.
- **Incoming Confirm:** 20.
- **Incoming Automatic Delay:** 410.
- **Incoming Wink Delay:** 100.
- **Wink Signal:** 200.
- **Incoming Dial Guard:** 50.
- **First Incoming Digit:** 15000.
- **Incoming Inter Digit:** 5000.
- **Maximum Inter Digit:** 300.
- **Flash Hook Detect:** 240.
- **Incoming Disconnect:** 300.
- **Incoming Disconnect Guard:** 800.
- **Disconnected Signal Error:** 240000.
- **Outgoing Disconnect:** 300.
- **Outgoing Disconnect Guard:** 800.
- **Ring Verify Duration:** 220.
- **Ring Abandon:** 6300.
- **Ping Verify:** 600.
- **Long Ring Duration:** 1100.
- **Silent Interval:** 1100.

Line | Short Codes

Line short codes can be applied to the digits received with incoming call. The stage at which they are applied also varies depending on the trunk type. See **Line Short Codes** in the **Short Codes** section.

- **IP Trunks**
  Line short codes are used if Small Community Networking (SCN) is not being used or no SCN user extension match occurs on the digits received. If no line short code match occurs then normal incoming call routing is applied.
- **E1 and BRI ETSI Trunks**
  These types of trunks use line short codes immediately. If no short code match occurs then normal incoming call routing is applied.
- **QSIG and SO Trunks**
  S0 trunks, and E1 and T1 trunks set to QSIG mode, use line short code if the digits received do not match an internal extension number. These types of trunk do not use incoming call routing.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✗	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

Short codes can be added and edited using the **Add**, **Remove** and **Edit** buttons. Alternatively you can right-click on the list of existing short code to add and edit short codes.

Line (T1 PRI)

Line Form (T1 PRI) Overview

T1 PRI trunks are provided by the installation of an T1 PRI trunk card into the IP Office control unit. The trunks on these cards can be configured for T1 operation or T1 ISDN operation. For full details of installation refer to the IP Office Installation manual.

Dual port T1 PRI trunk cards are only supported with the IP412 control unit and in Slot A of the IP406 V2 control unit.

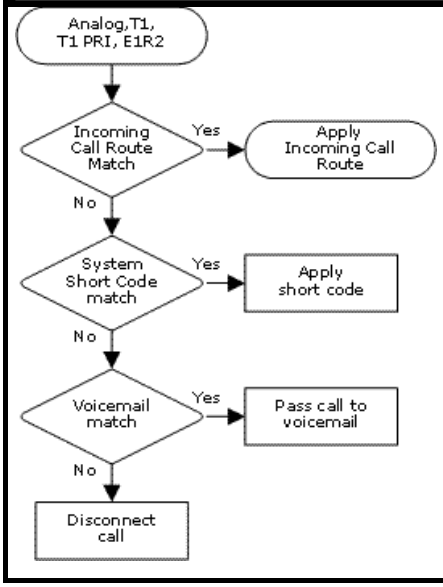
Each physical trunk port supports up to 24 channels in T1 mode, 23 channels in T1 ISDN mode.

Trunk Cards	Small Office	IP403		IP406 V1		IP406 V2		IP412		Channels per Trunk	Signaling Modes
Slots	A	A	B	A	B	A	B	A	B		
Single PRI T1 Provides a single trunk.	✓	✓	✓	✓	✓	✓	✓	✓	✓	24 23	T1 PRI QSIG
Dual PRI T1 Provides two trunk connections..	✗	✗	✗	✗	✗	✓	✗	✓	✓		

- **Dialing Complete**
  The majority of North-American telephony services use en-bloc dialing. Therefore the use of a **;** is recommended at the end of all dialing short codes that use an ***N***. This is also recommended for all dialing where secondary dial tone short codes are being used.

- **AT&T Provider Settings**
  For AT&T operation two information elements, TNS (Transit Network Selector) and NSF (Network Specific Facility), are sent in the call setup to the service provider. On IP Office, the values for TNS, NSF and the actual phone number presented to the line are determined by parsing the number dialed through, in sequence, the **TNS**, **Special** and **Call by Call** tabs. These tabs appear when the **Provider** setting on the **Line** tab is set to ***AT&T***. Note also that B-channels within the same line can be brought from different service provides. Additionally some B-channels can be used 'call by call', that is, use a different service provider for each call.

Incoming Call Routing: Analog, T1, T1 ISDN and E1R2 Trunks



The following options are used to route incoming calls received on this type of trunk.

1. **Incoming Call Route**
   Based on matching the Incoming Line Group plus if set the incoming number and or ICLID.
2. **System Short Code**
   The IP Office checks for a short code match based on the incoming number.
3. **Voicemail Match**
   The IP Office checks for a call flow start point name matching the incoming number.

Line | Line (T1 PRI)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Line Number:**
  Allocated by the system.
- **Line SubType:** *Default = PRI*
  Set to ***PRI***. If set to ***T1*** see **Line Form (T1)**. If set to **ETSI**, **QSIG A** or **QSIG B** see **Line (E1)**.
- **Channel Allocation:** *Default = 23 -> 1*
  The order, 23 to 1 or 1 to 23, in which channels are used.
- **Switch Type:** *Default = NI2*
  Options ***4ESS***, ***5ESS***, ***DMS100*** and ***NI2***.
- **Provider:** *Default = Local Telco*
  Select the PSTN service provider (***AT&T***, ***Sprint***, ***WorldCom*** or ***Local Telco***).
- **Prefix:** *Default = Blank*
  Enter the number to prefix to all incoming numbers for callback. This is useful if all users must dial a prefix to access an outside line. The prefix is automatically placed in front of all incoming numbers so that users can dial the number back.
- **Test Number:**
  Used to remember the external telephone number of this line to assist with loop-back testing. For information only.
- **Framing:** *Default = ESF*
  Selects the type of signal framing used (***ESF*** or ***D4***).
- **Zero Suppression:** *Default = B8ZS*
  Selects the method of zero suppression used (***B8ZS*** or ***AMI ZCS***).
- **Clock Quality:** *Default = Network*
  Sets whether the IP Office takes it clock source for call synchronization and signalling from this line. One line connected to the IP Office should be set to ***Network***. and wherever possible this should be a line connected to the central office exchange. Another line can be set to ***Fallback*** but all other lines should be set to ***Unsuitable***.
- **CSU Operation**
  Tick this field to enable the T1 line to respond to loop-back requests from the line.
- **Haul Length:** *Default = 0-115 feet*
  Sets the line length to a specific distance.
- **Channel Unit**: *Default = Foreign Exchange*
  This field should be set to match the channel signaling equipment provided by the Central Office. The options are ***Foreign Exchange***, ***Special Access*** or ***Normal***.
- **CRC Checking:** *Default = On*
  Turns CRC on or off.
- **Line Signaling:**
  The field can be set to either ***CPE*** (Customer Premises Equipment) or ***CO*** (Central Office). This

field should normally be left at its default of ***CPE***. The setting ***CO*** is normally only used in lab back-to-back testing.

- **Incoming Routing Digits:** *Default=0 (present call immediately)*
  Sets the number of routing digits expected on incoming calls. This allows the line to present the call to the system once the expected digits have been received rather than waiting for the digits timeout to expire. This field only affects T1 line channels set to ***E&M Tie***, ***E&M DID***, ***E&M Switched 56K*** and ***Direct Inward Dial*.**

Line | Channels (T1 PRI)

This tab allows settings for individual channels within the trunk to be adjusted.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Channel**
  Allocated by the system.
- **Incoming Group ID:** *Default = 0, Range 0 to 99999.*
  The Incoming Group ID to which a line belongs is used to match it to incoming call routes in the IP Office configuration. The matching incoming call route is then used to route incoming calls. The same ID can be used for multiple lines.
- **Outgoing Group ID:** *Default = 0, Range 0 to 99999.*
  Short codes that specify a number to dial also specify the line group to be used. The IP Office will then seize a line with a matching **Outgoing Group ID**. The same ID can be used for multiple lines.
- **Line Appearance ID:** *Default = Blank, Range = 2 to 9 digits.*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  Used for configuring Line Appearances with button programming. The line appearance ID must be unique and not match any extension number.
- **Direction:** *Default = Both Directions*
  The direction of calls on the channel (***Incoming***, ***Outgoing*** or ***Both Directions***).
- **Bearer:** *Default = Any*
  The type of traffic carried by the channel (***Voice***, ***Data*** or ***Any***).
- **Service:** *Default = No Service or None.*
  If the line provider is set to AT&T, selects the type of service provided by the channel from ***Call by Call***, ***SDN (inc GSDN)***, ***MegaCom800***, ***MegaComWats***, ***Accunet***, ***NLDS***, ***I800***, ***ETN***, ***Private Line***, ***AT&T Multiquest***. For other providers the service options are **None** or **No Service**.
- **Admin:** *Default = In Service*
  Used to indicate the channel status (***In Service***, ***Out of Service*** or ***Maintenance***).
- **Tx Gain:** *Default = 0dB*
  The transmit gain in dB.
- **Rx Gain:** *Default = 0dB*
  The receive gain in dB.

Line | TNS (T1 PRI)

This tab is shown when the line **Provider** is set to ***AT&T***. It allows the entry of the Network Selection settings. These are prefixes for alternative long distance carriers. When a number dialed matches an entry in the table, that pattern is stripped from the number before being sent out. This table is used to set field in the TNS (Transit Network Selection) information element for ***4ESS*** and ***5ESS*** exchanges. It is also used to set fields in the NSF information element.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **TNS Code:**
  The pattern for the alternate long distance carrier. For example: The pattern 10XXX is added to this tab. If 10288 is dialed, 10 is removed and 288 is placed in the TNS and NSF information.

Line | Special (T1 PRI)

This tab is shown when the line **Provider** is set to ***AT&T***. This table is used to set additional fields in the NSF information element after initial number parsing by the **TNS** tab. These are used to indicate the services required by the call. If the channel is set to Call by Call, then further parsing is done using the entries in the **Call by Call** tab.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Short code:**
  The number which results from the application of the rules specified in the User or System Short code tables and the Network Selection table and the Call-by-call table to the number dialed by the user.
- **Number:**
  The number to be dialed to line.
- **Special:** *Default = No Operator*
  (***No Operator***, ***Local Operator*** or ***Presubscribed Operator***).
- **Plan:** *Default = National*
  (***National*** or ***International***).

Typical values would be:

Short code	Number	Service
011N	N	No Operator, International
010N	N	Local Operator, International
01N	N	Local Operator, National
00N	N	Presubscribed Operator, National
0N	N	Presubscribed Operator, National
1N	1N	No operator, National

Line | Call By Call (T1 PRI)

This tab is shown when the line **Provider** is set to ***AT&T***. Settings in this tab are only used when calls are routed via a channel which has its Service set to Call by Call.

It allows short codes to be created to route calls to a different services according to the number dialed. Call By Call reduces the costs and maximizes the use of facilities. Call By Call chooses the optimal service for a particular call by including the Bearer capability in the routing decision. This is particularly useful when there are limited resources.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Short Code:**
  The number which results from the application of the rules specified in the User or System Short code tables and the Network Selection table to the number dialed by the user.
- **Number:**
  The number to be dialed to line.
- **Bearer:** *Default = Any*
  The type of channel required for the call (***Voice***, ***Data*** or ***Any***).
- **Service:** *Default = AT&T.99*
  The service required by the call (***SDN (inc GSDN)***, ***MegaCom800***, ***MegaCom***, ***Inwats***, ***Wats***, ***Accunet***, ***NLDS***, ***I800***, ***ETN***, ***Private Line***, ***AT&T Multiquest***).

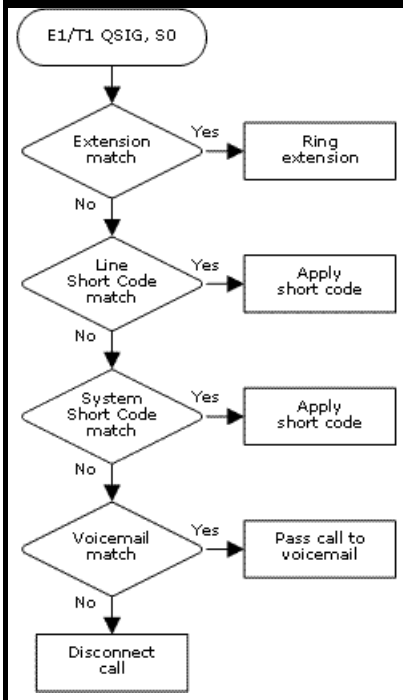
Line (S0)

Line Form (S0) Overview

These settings are used for S0 ports provided by an S08 expansion module connected to the IP Office control unit. Though displayed as lines, these BRI ports are used for connection of ISDN2 devices such as video conferencing units or ISDN PC cards. For full details of installation refer to the IP Office Installation manual.

Expansion Module	Small Office	IP403	IP406 V1	IP406 V2	IP412	Channels per Trunk	Signaling Modes
S08 Module Provides 8 ports for ISDN BR devices. Note that these are no for external lines though they are displayed as lines within the configuration.	✗	✓	✓	✓	✓	2	BRI-S

Incoming Call Routing: E1 QSIG and S0 Lines



The following options are used to route incoming calls received on this type of trunk.

1. **Extension Match**
   Based on matching an user or hunt group extension number.
2. **Line Short Code Match**
   The IP Office checks for a short code match based on the incoming number.
3. **System Short Code**
   The IP Office checks for a short code match based on the incoming number.
4. **Voicemail Match**
   The IP Office checks for a call flow start point name matching the incoming number.

Line | Line (S0)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✗	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Line Number**
  This parameter is not configurable. It is allocated by the system.
- **Telephone Number:**
  Used to remember the telephone number of this line. For information only.
- **Prefix:** *Default = Blank.*
  On Incoming Calls the ISDN messaging tags the incoming call source location as either National or International (see their respective prefixes above). This determines the addition of the relevant 0 or 00 respectively (0 is default for National and 00 is default for International). If the ISDN message flags the call source as unknown, then the number in the **Prefix** field is added to the ICLID.
  - In Outgoing Calls when a number is presented to the Line whose programming includes a Prefix number and the prefix number is present in the dialed digits, it is stripped prior to being sent out on the line.
- **National Prefix:** ***Default = 0***
  This indicates the digits to be prefixed to a incoming national call. When a number is presented from ISDN as a "national number" this prefix is added. For example 7325551234 is converted to 17325551234.
- **International Prefix:** ***Default = 00***
  This indicates the digits to be prefixed to an incoming international call. When a number is presented from ISDN as an "international number" this prefix is added. For example 441923000000 is converted to 001441923000000.
- **TEI:** ***Default = 0***
  Not used. The Control Unit will ignore any entry.
- **Number of Channels:** *Default = 2*
  Defines the number of operational channels that are available on this line. 2 for BRI and up to 30 for PRI - depending upon the number of channels subscribed.
- **Outgoing Channels:** *Default = 2*
  This defines the number of channels available, on this line, for outgoing calls. This should normally be the same as Number of Channels field, but can be reduced to ensure incoming calls cannot be blocked by outgoing calls.
- **Voice Channels:** *Default = 2*
  The number of channels available for voice use.
- **Data Channels:** *Default = 2*
  The number of channels available for data use. If left blank the value is 0.
- **Clock Quality:**
  Sets whether the IP Office takes it clock source for call synchronization and signalling from this line. One line connected to the IP Office should be set to ***Network***. and wherever possible this should be a line connected to the central office exchange. Another line can be set to ***Fallback*** but all other lines should be set to ***Unsuitable***.

Line | Short Codes

Line short codes can be applied to the digits received with incoming call. The stage at which they are applied also varies depending on the trunk type. See **Line Short Codes** in the **Short Codes** section.

- **IP Trunks**
  Line short codes are used if Small Community Networking (SCN) is not being used or no SCN user extension match occurs on the digits received. If no line short code match occurs then normal incoming call routing is applied.
- **E1 and BRI ETSI Trunks**
  These types of trunks use line short codes immediately. If no short code match occurs then normal incoming call routing is applied.
- **QSIG and SO Trunks**
  S0 trunks, and E1 and T1 trunks set to QSIG mode, use line short code if the digits received do not match an internal extension number. These types of trunk do not use incoming call routing.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✗	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

Short codes can be added and edited using the **Add**, **Remove** and **Edit** buttons. Alternatively you can right-click on the list of existing short code to add and edit short codes.

Line | Channels (S0)

This tab allows settings for individual channels within the trunk to be adjusted.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✗	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Incoming Group ID:** *Default = 0, Range 0 to 99999.*
  The Incoming Group ID to which a line belongs is used to match it to incoming call routes in the IP Office configuration. The matching incoming call route is then used to route incoming calls. The same ID can be used for multiple lines.
- **Outgoing Group ID:** *Default = 0, Range 0 to 99999.*
  Short codes that specify a number to dial also specify the line group to be used. The IP Office will then seize a line with a matching Outgoing Group ID. The same ID can be used for multiple lines.

Line (IP)

Line Form (IP) Overview

These lines are added manually. They allow voice calls to be routed over data links within the IP Office system. They are therefore dependent on the IP data routing between the IP Office and the destination having being configured and tested.

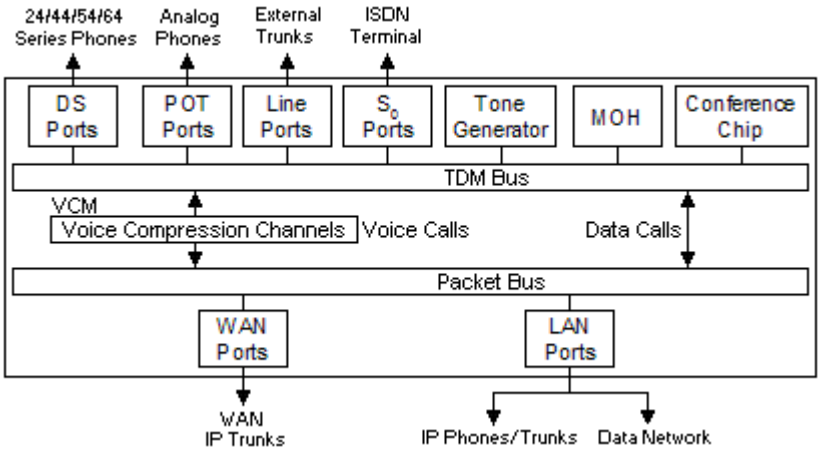
Network Assessments

Not all data connections are suitable for voice traffic. A network assessment is required for internal network connections. For external network connections a service level agreement is required from the service provider. Avaya cannot control or be held accountable for the suitability of a data connection for carrying voice traffic. Refer to the IP Office Installation Manual for further details of Network Assessments and VoIP requirements.

Voice Compression Channels

Calls being routed between non-IP and IP connections require the use of a voice compression channel for the duration of the call. For example, a call from a non-IP phone being routed over an IP line.

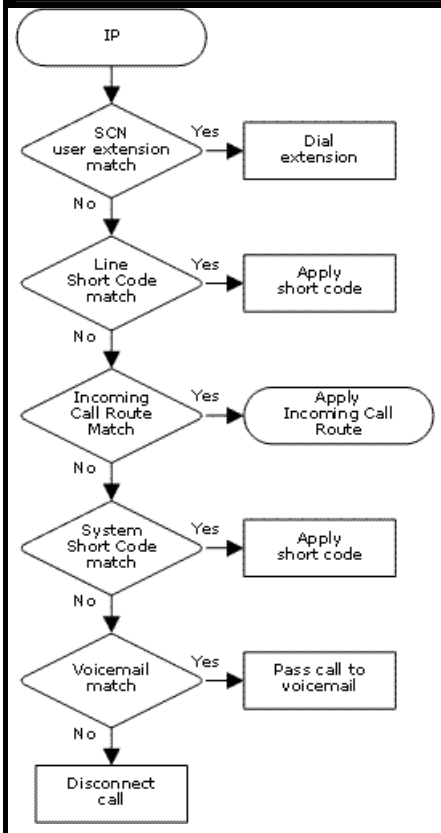
Every device involved in a call through an IP Office control unit is either connected to the IP Office's TDM bus or its IP data bus. Whenever a call crosses from one bus to another a voice compression channel is required.



For IP Office systems, voice compression channels are added by the installation of a VCM module. The number and maximum capacity also varies between different models of IP Office control unit.

IP Office Control Unit	Maximum Voice Compression Channels
Small Office Edition	Fixed at 3 or 16.
IP403	20
IP406 V1	20
IP406 V2	30
IP412	60

Incoming Call Routing: IP Lines



The following options are used to route incoming calls received on this type of trunk.

1. **SCN User Extension**
   If the line is configured for Small Community Networking, the IP Office checks the incoming digits for a match to a user extension.
2. **Line Short Code**
   The IP Office checks for a short code match based on the incoming number.
3. **Incoming Call Route**
   The IP Office checks for a match to the Incoming Line Group plus, if set, the incoming number and or ICLID.
4. **System Short Code**
   The IP Office checks for a short code match based on the incoming number.
5. **Voicemail Match**
   The IP Office checks for a call flow start point name matching the incoming number.

IP Trunk Fallback

IP Office 3.1 introduces support for IP Trunk Fallback. When setting up a call over an IP trunk, if the remote PBX fails to respond within an adjustable timeout (default 5 seconds), the IP Office can reroute the call attempt.

IP trunk fallback is performed separately for each call. The use of fallback for a preceding call does not alter the routing attempted for any following call to the same IP trunk.

Within a Small Community Network, calls to remote user are automatically routed to an IP trunk setup for connections to the appropriate remote IP Office. If the remote IP Office doesn't respond to the call attempt with the set timeout, the call is rerouted.

- First the call is rerouted to any other trunk with the same outgoing group. If this is the case, that trunk must be able to route calls to the correct remote IP Office without any further dialing. This would typically require the fallback trunk to be a private leased line.
- If the call is still not connected, an attempt is made to reroute the call via LCR short code matching of the original dialed number.
    - This later method is the preferred case as the LCR short code matching allows number manipulation to make the outgoing dialing suitable for rerouting across the PSTN. To make this the preferred case, the IP trunk should be put into its own unique **Outgoing Trunk Group ID**.

In cases where the call is routed to the IP trunk by a Least Cost Route in the first place, the timeout used for IP trunk fallback is the **Timeout** defined for the current tab of the LCR form being used. A value of 0 disables IP trunk fallback.

Setting the Default IP Trunk Fallback Timeout

The default timeout for IP trunk fallback is 5 seconds. This timeout can be changed for specific IP trunks and or all IP trunks. The required timeout is set through the **Source Numbers** tab of the **NoUser** user. The entry or entries take the form ***H323SetupTimerNoLCR line_number timeout*** where the ***line_number*** should be ***ALL*** for all IP trunks or the specific Line Number used for the IP trunk on its Line configuration tab, and the timeout is set in seconds.

Line | Line (IP)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Line Number:** *Default = 0, Range = 1 to 249.*
  Enter the line number that you wish. Note that this must be unique.
- **Telephone Number:**
  Used to remember the telephone number of this line. For information only.
- **Incoming Group ID and Outgoing Group ID:** *Default = 0, Range 0 to 99999.*
  One group can contain multiple lines. Short Codes and Incoming Call Routes use this number to indicate which line they use.
- **Prefix:** *Default = Blank.*
  On Incoming Calls the ISDN messaging tags the incoming call source location as either National or International (see their respective prefixes above). This determines the addition of the relevant 0 or 00 respectively (0 is default for National and 00 is default for International). If the ISDN message flags the call source as unknown, then the number in the **Prefix** field is added to the ICLID.
  - In Outgoing Calls when a number is presented to the Line whose programming includes a Prefix number and the prefix number is present in the dialed digits, it is stripped prior to being sent out on the line.
- **National Prefix:** *Default = 0*
  This indicates the digits to be prefixed to a incoming national call. When a number is presented from ISDN as a "national number" this prefix is added. For example 7325551234" is converted to 17325551234".
- **International Prefix:** *Default = 00*
  This indicates the digits to be prefixed to an incoming international call. When a number is presented from ISDN as an "international number" this prefix is added. For example 441923000000 is converted to 001441923000000.
- **Number of Channels:** *Default = 20, Range 0 to 60.*
  Defines the number of operational channels that are available on this line.
- **Outgoing Channels:** *Default = 20, Range 0 to 60.*
  This defines the number of channels available, on this line, for outgoing calls. This should normally be the same as Number of Channels field, but can be reduced to ensure incoming calls cannot be blocked by outgoing calls.
- **Data Channels:** *Default = 20, Range 0 to 60.*
  The number of channels available for data use. If left blank the value is 0.
- **Voice Channels:** *Default = 20, Range 0 to 60.*
  The number of channels available for voice use.
- **TEI:** *Default = 0, Range = 0 to 127.*
  The Terminal Equipment Identifier. Used to identify each Control Unit connected to a particular ISDN line. For Point to Point lines this is typically (always) 0. It can also be 0 on a Point to Multi-Point line, however if multiple devices are actually sharing a Point to Multi-Point line it should be set to 127 which will result in the exchange deciding on the TEI's to be used by this Control Unit.

Line | Short Codes

Line short codes can be applied to the digits received with incoming call. The stage at which they are applied also varies depending on the trunk type. See **Line Short Codes** in the **Short Codes** section.

- **IP Trunks**
  Line short codes are used if Small Community Networking (SCN) is not being used or no SCN user extension match occurs on the digits received. If no line short code match occurs then normal incoming call routing is applied.
- **E1 and BRI ETSI Trunks**
  These types of trunks use line short codes immediately. If no short code match occurs then normal incoming call routing is applied.
- **QSIG and SO Trunks**
  S0 trunks, and E1 and T1 trunks set to QSIG mode, use line short code if the digits received do not match an internal extension number. These types of trunk do not use incoming call routing.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✗	✗	✗	✗	✗
Delete	✗	✗	✗	✗	✗

System		Level	
SOE	✗	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

Short codes can be added and edited using the **Add**, **Remove** and **Edit** buttons. Alternatively you can right-click on the list of existing short code to add and edit short codes.

Line | VoIP (IP)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Gateway IP Address:** *Default = Blank*
  Enter the IP address of the remote Control Unit.
- **Voice Payload Size**
  This is the length of time represented by each VoIP packet in milliseconds. This is automatically defaulted to match the **Compression Mode** selected. Values are G.711/G.729 = 20ms, G.723=30ms.
- **Compression Mode:** *Default = Automatic Selection*
  This defines the compression method to be used for this line.
  - **Automatic Selection** - During call setup the IP Office negotiates the compression mode using the following order of preference: ***G729a***, ***G.723.1***, ***G711 ALAW***, ***G711 ULAW***.
  - If required a specific codec can be selected from: ***G.711 ALAW 64K***, ***G.711 ULAW 64K***, ***G.729(a) 8K CS-ACELP***, ***G.723.1 6K3 MP-MLQ***. If during connect with a specific codec, connect fails, the IP Office will fallback to using automatic selection.
- **H450 Support:** *Default = H450*
  Selects the supplementary service signaling method for use across H.323 connections. Options are ***None***, ***QSIG*** and ***H450***. Note that the selected method must be supported by the remote end. For IP Office to IP Office connections, H450 is preferred.
- **Silence Suppression:** *Default = Off*
  When selected, this option will detect periods of silence on any call over the IP line controlled by the Local Gatekeeper and will not send any data during those silent periods.
- **Enable FastStart:** *Default = Off*
  A fast connection procedure. Reduces the number of messages that need to be exchanged before an audio channel is created.
- **Local Hold Music:** *Default = Off*
  When selected, the hold music used is that on the local IP Office system where the phone is directly registered to/connected. This can help in saving bandwidth where the available bandwidth is low/in high usage.
- **Local Tones:** *Default = Off*
  When selected, the tones are generated by the local IP Office system to which the phone is registered. This option should not be used with lines being used for Small Community Networking. For the IP Office Small Office Edition control unit, this field should **not** be enabled.
- **Enable RSVP:** *Default = Disabled (Grayed out)*
- **Out of Band DTMF:** *Default = On*
  When on, DTMF is sent as a separate signal rather than as part of the encoded voice stream ("In Band"). This is recommended for low bit-rate compression modes such as G.729 and G.723 where DTMF in the voice stream can become distorted.
- **Allow Direct Media Path:** *Default = On*
  When disabled the media (voice) path always passes through the Control Unit. When enabled the remote end may be told of a new IP address for the media path if for example the call is

transferred to a H.323 extension. Enabling this option may cause some vendors problems with changing the media path in mid call.

- **Voice Networking:** *Default = Off*
  Also known as "Small Community Networking". This option enables extension number sharing with the remote IP Office system. Extensions on the remote system can then be dialed from the local system.
  - Note: This requires that extension numbers and names on the two systems are unique. Line and group extension numbers are not shared. Remote extension numbers cannot be included in local groups.
  - Full operation requires H450 Support to be enabled over the links used.
- **Fax Transport Support:** *Default = Off*
  When selected, this option will provide support for faxing over a H.323 connection to another IP Office with the same setting.

Line (IP DECT)

IP DECT Line Overview

This type of line can be manually added. They are used to route voice calls over an IP data connection to an Avaya IP DECT system. Only one IP DECT line can be added to an IP Office system. Refer to the IP Office IP DECT Installation manual for full details.

Line | Line (IP DECT)

Currently only one IP DECT line is supported on an IP Office system.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Line Number**
  This number is allocated by the system and is not adjustable.
- **Number Of Channels:** *Default = 0 (Grayed out)*
  Defines the number of operational channels that are available on this line. This will match the number of associated IP DECT extensions.
- **Outgoing Channels:** *Default = 0 (Grayed out)*
  This defines the number of channels available, on this line, for outgoing calls. This will match the number of associated IP DECT extensions.
- **Voice Channels:** *Default = 0 (Grayed out)*
  The number of channels available for voice use. This will match the number of associated IP DECT extensions.
- **Incoming Group ID:** *Default = 240 (Grayed out)*
  This number is allocated by the system and is not adjustable. The incoming group ID number should not be used for the routing of calls within IP Office incoming call routes.
- **Outgoing Group ID:** *Default = 240 (Grayed out)*
  This number is allocated by the system and is not adjustable. The outgoing group ID number should not be used to match short codes dialed on the system with trunks to use.
- **Extensions**
  Lists all the DECT extensions associated with the IP DECT line. Adding and deleting IP DECT extensions is done via the Manager extension list.

Line | Gateway (IP DECT)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Gateway IP Address:** *Default = Blank*
  Enter the IP address of the IP DECT base station that will be the Avaya IP DECT Mobility Manager (ADMM). If **Enable DHCP Support** is enabled, this address should be from the range of assignable IP Office DHCP addresses.
- **Compression Mode:** *Default = Automatic Selection*
  This defines the type of compression which is to be used for calls on this line.
  - **Automatic Selection** - During call setup, the IP Office negotiates the compression mode using the following order of preference: G729a, G.723.1, G711 ALAW, G711 ULAW. This order is an optimum balance of quality and bandwidth for most scenarios.
  - Other available options are: G.711 ALAW 64K, G.711 ULAW 64K, G.729(a) 8K CS-ACELP, G.729 Simple, G.723.1 6K3 MP-MLQ.
- **Enable DHCP Support:** *Default = Off*
  The IP DECT base stations require DHCP and TFTP support. Enable this option if the IP Office is being used to provide that support, using IP addresses from its DHCP range (LAN1 or LAN2) and its TFTP server setting. If not enabled, alternate DHCP and TFTP options must be provided during the IP DECT installation.
  - If it is desired to use the IP Office for DHCP support of the ADMM and IP DECT base stations only, the IP Office address range should be set to match that number of addresses. Those addresses are then taken during the IP Office restart and will not be available for other DHCP responses following the restart.
  - For Small Office Edition and IP406V2 control units, use of the embedded voicemail memory card slot for the TFTP server is recommended for small IP DECT installations. See **System | TFTP IP Server Address**. For other control units, or larger IP DECT installations, the use of a non-embedded TFTP software option other than Manager is recommended.

  When **Enable DHCP Support** is selected, the following fields are also enabled:
  - **Boot File:** *Default = ADMM_RFP_1_0_0.tftp, Range = Up to 31 characters.*
    The name and path of the ADMM software file. The path is relative to the TFTP server root directory.
  - **ADMM MAC Address:** *Default = 00:00:00:00:00:00*
    This field must be used to indicate the MAC address of the IP DECT base station that should load the ADMM software file and then act as the IP DECT system's ADMM. The address is entered in hexadecimal format using comma, dash, colon or period separators.
  - **VLAN ID:** *Default = Blank, Range = 0 to 4095.*
    If VLAN is being used by the IP DECT network, this field sets the VLAN address assigned to the base stations by the IP Office if **Enable DHCP Support** is selected.
    - The IP Office itself does not apply or use VLAN marking. It is assumed that the addition of VLAN marking and routing of VLAN traffic is performed by other switches within the customer network.

- An ID of zero is not recommended for normal VLAN operation.
- When blank, no VLAN option is sent to the IP DECT base station.

- **Base Station Address List:** Default = Empty
  This box is used to list the MAC addresses of the IP DECT base stations, other than the base station being used as the ADMM and entered in the **ADMM MAC Address field**. Right-click on the list to select **Add** or **Delete**. or use the **Insert** and **Delete** keys. The addresses are entered in hexadecimal format using comma, dash, colon or period separators.

- **Silence Suppression:** *Default = Off*
  When selected H.323 terminals will not send data if they are silent, this is useful when optimizing data traffic.
- **Enable RSVP:** *Default = Disabled (Grayed out)*
  This setting is allocated by the system and is not adjustable. RSVP is not support on the IP DECT system.
- **Out of Band DTMF:** *Default = On (Grayed out)*
  This setting is allocated by the system and is not adjustable. When on, DTMF is sent as a separate signal rather than as part of the encoded voice stream ("In Band"). This is recommended for low bit-rate compression modes such as G.729 and G.723 where DTMF in the voice stream can become distorted.
- **Allow Direct Media Path:** *Default = On*
  When disabled the media (voice) path always passes through the IP Office Control Unit. When enabled the remote end may be told of a new IP address for the media path if for example the call is transferred to a H.323 extension. Enabling this option may cause some vendors problems with changing the media path in mid call.

Control Unit Settings

Control Unit | Control Unit

The Control Unit configuration form gives details for devices connected to the system. This includes some modules within the control unit as well as external expansion modules.

For most units, this information is allocated by the system and is not configurable.

The **New** and **Delete** actions on this form have special functions.

- **New**
  This action is used to added a WAN3 expansion module. If when a WAN3 is added to the system, the WAN3 is not recognised following a system reboot, **New** on this form can be used to scan for the WAN3 module.
- **Delete**
  This action can only be used with external expansion modules. It cannot be applied to the control unit and modules inside the control unit. The action should used with caution as deleting an expansion module will also delete any extensions or lines associated with that expansion module. If the module is physically present, those entries will be recreated following a reboot but with default settings.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✓
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Device Number:**
  This is automatically allocated by the system.
- **Unit Type:**
  The name of the device.
- **Version:**
  The version of software running on each unit.
- **Serial Number:**
  This is the number the system uses to tie a physical Control Unit to a device configuration (device number). For the control unit and WAN3 modules this is the MAC address. For a device connected to an Expansion port it is the Expansion port number plus 1.
- **Unit IP Address:**
  This field shows the IP address for the control unit (LAN1) and if present, WAN3 expansion module.
- **Interconnect Number:**
  For external expansion modules this is the control unit expansion port used for connection. For other devices this is 0.

Extension Settings

Extension Form Overview

The IP Office supports both physical extensions and IP extensions.

By default, each extension is normally associated with a user and uses that user's directory number and other setting. Users with a login code can move between extensions by logging in and out, so the directory number is not a fixed property of the extension.

- **Physical Extensions**
  Physical extension ports are either integral to the IP Office control unit or added by the installation of an IP Office analog or digital phone expansion module. Extension entries are automatically created for each physical extension port within the system. These ports cannot be added or deleted manually.
  - **Standard Telephone**
    An analog extension port (**PHONE** or **POT**) or an Avaya digital station port (**DS**) on a unit within the IP Office system.
  - **Quiet Headset**
    Used for analog extension devices that are permanently off-hook and so should not receive dial-tone when not connected.
  - **IVR Port**
    Used for analog ports connected to devices that require a specific disconnect clear signal at the end of each call.
  - **Paging Speaker**
    An analog extension port set to be used as a paging speaker connection.
- **IP Extensions**
  These are used for H.323 IP phone devices or applications.
  - **VoIP**
    This icon indicates an IP extension. For Avaya IP hardphones the IP extensions is either added manually or by the automatic detection the phone being connected, refer to the IP Office IP Phone Installation Manual. IP extensions can also be added manually to support a Phone Manager Pro PC Softphone or a third-party IP phone device. Note that third-party IP phone devices require entry of an IP End-Points license.
  - **IP DECT**
    An extension port manually added to match extensions within an Avaya IP DECT system connected to the IP Office via an IP DECT line.

Extension | Extn

This tab contains settings applicable to most types of extension.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✗	✗
New *1	✓	✓	✗	✗	✗
Delete *1	✓	✓	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- *1: VOIP and IP DECT extensions only.

- **Extension ID**
  The physical ID of the extension port. Except for IP extensions, this settings is allocated by the system and is not configurable.
- **Base Extension:** *Range = 2 to 9 digits.*
  This is the directory number of the extension's default associated user.
  - When the IP Office is restarted, each extension returns to the settings of its default associated user, unless that user is set to **Force Login** (**User | Telephone**)
  - If another user logs onto an extension, when they log off, the extension returns to its default associated user unless they have logged on elsewhere or are set to **Force Login**.
  - In the US the **Base Extension** number is used for E911 calls. Any change to an extension's base extension must be matched by changes to the E911 adjunct database, see **E911 Overview**. Extensions without a Base Extension cannot be used with E911 and are associated with the **NoUser** user.
- **Caller Display Type:** *Default = On*
  Controls the presentation of caller display information. See **Caller Display**.
  - **Off**
    Disables caller display.
  - **On**
    Enables caller display using the caller display type appropriate to the System Locale, see **Supported Country and Locale Settings**. If a different setting is required it can be selected from the list of supported options.
- **Reset Volume after Calls:** *Default = Off.*
  Resets the phone volume after each call.
- **Device Type**
  This field is for information only. It indicates the type of phone connected to the extension port when the configuration was received from the IP Office.

Extension | Analog

This tab contains settings that are applicable to analog extensions. These extensions are provided by ports marked as **POT** or **PHONE** on IP Office control units and expansion modules.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✗	✗
New	✓	✓	✗	✗	✗
Delete	✓	✓	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Equipment Classification:** *Default = Standard Telephone*
  Only available for analog extension ports. Note that changing this settings should be followed by a system reboot.
  - **Quiet Headset**
    This option is used with analog extensions where the handset is permanently off-hook and so audio is only desired when a call is connected, for example the handset has been replaced with a headset. This option is typically also used in conjunction with the **User | Telephony Offhook Station** setting.
  - **Paging Speaker**
    Used for analog ports connected to a paging amplifier. When the extension is called, no ringing is generated and the call is answered immediately.
  - **Standard Telephone**
    Use for normal analog phones.
  - **Door Phone 1/Door Phone 2**
    These two options are currently not used and so are grayed out.
  - **IVR Port**
    Used for analog ports connected to devices that require a specific disconnect clear signal at the end of each call. When selected the **Disconnect Pulse Width** is used. For pre-3.2 IP Office systems, this option was only supported on systems with the locale set to ***United States*** or ***Saudi Arabia***.
- **Message Waiting Lamp Indication Type:** *Default = None*
  Allows the selection of the message waiting indication (MWI) mode for analog and IP DECT extensions.
  - For control unit and Phone V1 module analog extensions, the options **None**, **On**, **51V Stepped**, **81V**, ***Line Reversal A*** and ***Line Reversal B*** are available. **On** defaults the MWI using the system locale,.

'On' Method	Locale
81V	Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Netherlands, Norway, Poland, Portugal, Russia, Saudi Arabia, Sweden, Switzerland, United Kingdom.
51V Stepped	Argentina, Australia, Brazil, Canada, Chile, China, Columbia, Japan, Korea, Mexico, New Zealand, Peru, South Africa, Spain, United States.

  - For Phone V2 module extensions, the additional option **101V** is available.

- **Hook Persistency:** *Default = 100ms, Range = 50 to 255ms.*
  Defines the time frame (in milliseconds) in which the system will wait before determining that the phone is off-hook.
- **Flash Hook Pulse Width**
  The following options are only available for analog extension ports.
  - **Use System Defaults:** *Default = Selected (On)*
    Use the default values appropriate to the system's locale. See **Appendix A: Locale Settings**.
  - **Minimum Width:** *Range = 0 to 99 x 10ms.*
    Minimum hook flash length sent if **Use System Defaults** is not selected.
  - **Maximum Width:** *Range = 0 to 255 x10ms***.**
    Maximum hook flash length sent if **Use System Defaults** is not selected.
- **Disconnect Pulse Width:** *Default = 0ms, Range = 0 to 100ms*
  This setting is used with analog extensions where their **Equipment Classification** has been set to ***IVR Port***.

Extension | VoIP

This tab is only available for IP extensions. For example Avaya 3600, 4600 and 5600 Series IP phones and the Phone Manager Pro PC Softphone application.

The following are the recommended settings for Avaya IP extensions.

IP Extension	3600/4600/5600 Series IP Phones	Phone Manager Pro PC Softphone
Silence Suppression	Off	Off
Enable Faststart	Off	On
Local Hold Music	Off	Off
Local Tones	Off	Off

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✗	✗
New	✓	✓	✗	✗	✗
Delete	✓	✓	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **IP Address:** *Default = 0.0.0.0*
  The IP address of the H323 terminal. The default entry accepts connection to any address.
- **MAC Address:** *Default = 0000000000000 (Grayed out)*
  This field is grayed out and not used.
- **Voice Payload Size**
  This is the length of time represented by each VoIP packet in milliseconds. This settings is automatically defaulted to match the selected **Compression Mode** selected. Values are G.711/G.729 = 20ms, G.723=30ms. For T3 IP terminals the value 10ms is shown.
- **Compression Mode:** *Default = Automatic Selection*
  This defines the compression method to be used for this extension.
  - **Automatic Selection**
    During call setup the IP Office negotiates the compression mode using the following order of preference: **G729a**, **G.723.1**, **G711 ALAW**, **G711 ULAW**.
  - If required a specific codec can be selected from: ***G.711 ALAW 64K***, ***G.711 ULAW 64K***, ***G.729(a) 8K CS-ACELP***, ***G.723.1 6K3 MP-MLQ***. If during connect with a specific codec, connect fails, the IP Office will fallback to using automatic selection.
- **Gain:** *Default = Default*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  Allows adjustment of the received volume. The gain is selectable from -31dB to +31dB in 1 dB increments.
- **Silence Suppression:** *Default = Off*
  When selected H.323 terminals will not send data if they are silent, this is useful when optimizing data traffic.
- **Enable Faststart for non-Avaya IP Phones:** *Default = Off*
  A fast connection procedure. Reduces the number of messages that need to be exchanged

before an audio channel is created. Faststart should not be used with Avaya 4600 and 5600 series IP phones.

- **Fax Transport Support:** *Default = Off*
  When selected, this option provides support for faxing over a H.323 connection to another IP Office with the same setting.
- **Out of Band DTMF:** *Default = On*
  When on, DTMF is sent as a separate signal ("Out of Band") rather than as part of the encoded voice stream ("In Band"). The "Out of Band" signaling inserted back into the audio by the remote end. This is recommended for low bit-rate compression modes such as G.729 and G.723 where DTMF in the voice stream can become distorted.
- **Local Hold Music:** *Default = Off*
  When selected H.323 terminals use their own hold music if available.
- **Local Tones:** *Default = Off*
  When selected, the H.323 terminals generate their own tones. This option is not supported by Avaya IP phones and Phone Manager Pro PC Softphone.
- **Enable RSVP:** *Default = Disabled (Grayed out)*
- **Allow Direct Media Path:** *Default = On*
  When disabled the media (voice) path always passes through the control unit and requires a VCM channel. When enabled the remote end may be told of a new IP address for the media path if for example the call is transferred to a H.323 extension. Enabling this option may cause some vendors problems with changing the media path in mid call. When using direct media path, it is not always possible for the extension to be recorded or monitored.

Extension | IP DECT

This tab is displayed for IP DECT extensions. These are created manually after a IP DECT line has been added to the configuration. They should match the extensions configured on the IP DECT system. Refer to the IP Office IP DECT Installation manual.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✗	✗
New	✓	✓	✗	✗	✗
Delete	✓	✓	✗	✗	✗

System		Level	
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **DECT Line ID**
  Use the drop-down list to select the IP DECT line from the IP Office to the Avaya IP DECT system.
- **Message Waiting Lamp Indication Type:** *Default = On*
  Allows selection of the message waiting indication to use with the IP DECT extension. Options are: ***None***, ***On***.

User Settings

User Form Overview

Users are the people who use the IP Office system. They do not necessary have to be an extension user, for example users are used for RAS dial in data access. In addition, more users can be created than there are extensions, with users logging on to an extension when they want to receive calls.

By default, a user is automatically created to match each extension. They are numbered from 201 upwards and the first 16 are placed in the hunt group Main (200), which is the default destination for incoming calls.

-  **Standard User:** A standard user.
-  **No User:** Used to apply settings for extensions which currently have no associated user.
-  **Remote Manager:** Used as the default settings for dial in user connections.
-  **Hot Desking User:** Users with a **Login Code** can move between extensions by logging on and off.

When a user is deleted
When a user is deleted, any calls in progress continue until completed. The ownership of the call is shown as the NoUser user. Merging the deletion of a user causes all references to that deleted user to be removed from the system.

Changing a user's extension
Changing a user's extension automatically logs the user out of their current extension and into their new extension provided that this new extension exists and the user doesn't have Forced Login enabled. If Forced Login is enabled, then the user remains on the current extension being used until they logs out and login at the new extension.

Note that changing a user's extension number affects the user's ability to collect Voicemail messages from their own extension. Each user's extension is set up as a "trusted location" under the Source Numbers tab of the User configuration form. This "trusted location" allows the user to dial *17 to collect Voicemail from his own extension. Therefore if the extension number is changed so must the "trusted location".

The following related configuration items are automatically updated when a user extension is changed:

- User, Coverage and Bridged Appearance buttons associated with the user.
- Hunt group membership (disabled membership state is maintained).
- Forwards and Follow Me's set to the user as the destination.
- Incoming call routes to this destination.
- Dial in source numbers for access to the user's own voicemail.
- Direct call pickup buttons are updated.
- The extension number of an associated extension is updated.

Creating a User Rights Based on an Existing User

1. Select **User Rights**.
2. In the group pane, right-click and select **New User Rights from a User**.
3. Select the user and click **OK**.

Associating User Rights to a User

1. Select **User Rights** or **User**.
2. In the group pane, right-click and select **Apply User Rights to Users**.
3. Select the user rights to be applied.
4. On the **Members of this User Rights** sub tab select the users to which the user rights should be applied as their **Working Hours User Rights**.
5. On the **Members when out of hours** sub tab select which users should use the selected user rights as their out of hours user rights.
6. Click **OK**.

or

1. Select the required user to display their settings in the details pane.
2. Select the **User** tab.
3. Use **Working Hours User Rights** drop-down to select the user rights required.
4. If required a **Working Hours Time Profile** and **Out of Hours User Rights** can be selected.
5. Click **OK**.

Copy User Rights Settings over a User's Settings

This process replaces a user's current settings with those that are part of the selected user rights. It does not associate the user with the user rights.

1. Select **User Rights**.
2. In the group pane, right-click and select **Copy user rights values to users**.
3. Select the user rights to be applied.
4. Click **OK**.

User | User

Users are the people who use the system or are Dial In users for data access. A system User may or may not have an Extension Number that physical exists - this is useful if users do not require a physical extension but wish to use system features, for example voicemail, forwarding etc.

- **No User** is used to apply settings to extensions which have no associated user.
- **Remote Manager** is used as the default settings for dial in connections.

A symbol indicates that in IP Office 3.2 the settings can be set and locked by the user's associated user rights.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name:** *Range = Up to 15 characters*
  This is the user's account name used for RAS Dial In, Caller Display and voicemail mailbox. As the display on Caller Display telephones is normally only 16 digits long it is useful to keep the name short. Only alphanumeric characters and space are supported in this field. Do not use punctuation characters such as #, ?, /, -, _ and ,. Do not start names with a numeric character. This field is case sensitive and must be unique.
  - **Voicemail uses the name to match a user to their mailbox. Changing a user's name will route their voicemail calls to a new mailbox.**
- **Password:** *Default = Blank*
  This password is used for user's with Dial In access. It is also used for Phone manager, SoftConsole and TAPI.
- **Full Name:** *Default = Blank*
  Use this field to enter the entire user's name. This name is used by IP Office applications such as Phone Manager and SoftConsole. Only alphanumeric characters and spaces are supported in this field. Do not use punctuation characters such as #, ?, /, -, _ and ,.
- **Extension:** *Range = 2 to 9 digits.*
  Any number up to 9 digits. In general all extensions should have the same number of digits. This setting can be left blank for users used just for dial in data connections.
- **Locale:** *Default = Blank (Use system locale)*
  Configures the language used for voicemail prompts played to the user, assuming the language is available on the voicemail server. See **Supported Country and Locale Settings**. On a digital extension it also controls the display language used for messages from the IP Office. Note however that some phones have their own menu options for the selected language for the phone menus.
- **Priority:** *Default = 5, Range = 1 (Lowest) to 5 (Highest)*
  This setting is used by Least Cost Routing to determine what happens when the number being called by the user matches an LCR short code set to the Busy feature. If the user's priority is higher than the priority of the LCR tab on which the match occurred, LCR will look for an alternate match on the next LCR tab. If an alternate match is found it is used, otherwise the user receives busy. User's whose priority is not higher than the LCR tabs always receive busy.

- **Restrictions:** *Default = None*
  [2.1 ✓][3.0DT ✓][3.0 ✓][3.1 ✓][3.2 ✗]
  Sets which set of User Restrictions applies to the user. See User Restrictions.
- **Phone Manager Type:** *Default = Lite*
  [2.1 ✓][3.0DT ✓][3.0 ✓][3.1 ✓][3.2* ✗]
  Determines the mode in which the user's copy of the Phone Manager application will operate. Modes are **Lite**, **Pro** and **VoIP** (Phone Manager Pro PC Softphone). Note that the number of users able to simultaneously use Pro and VoIP modes is controlled by licenses entered into the IP Office configuration. *In IP Office 3.2 configurations this option has moved to the **Phone Manager Options** tab.
- **Book a Conferencing Center in Phone Manager:** *Default = Off*
  [2.1 ✓][3.0DT ✓][3.0 ✓][3.1 ✓][3.2* ✗]
  When enabled, displays links in the user's Phone Manager application for access to the IP Office Conferencing Center application if installed. Note that to book a conference requires the user to have a Conferencing Center user ID and password. This feature also requires the **Conference Center IP Address** and **Conference Center URL** to be set (**System | System**). *In IP Office 3.2 configurations this option has moved to the **Phone Manager Options** tab.
- **Ex Directory:** *Default = Off*
  When on, the user does not appear in the directory list shown by the Phone Manager application and on phones with a directory function.
- **User Rights View**
  [2.1 ✗][3.0DT ✗][3.0 ✗][3.1 ✗][3.2 ✓]
  This field affects Manager only. It allows you to switch between displaying the user settings as affected by their associated **Working Hours User Rights** or **Out of Hours User Rights**.
- **Working Hours Time Profile:** *Default = Blank (Continuous)*
  [2.1 ✗][3.0DT ✗][3.0 ✗][3.1 ✗][3.2 ✓]
  If set, the selected time profile defines when the user's **Working Hours User Rights** are applied. Outside the time profile, the user's **Out of Hours User Rights** are applied.
- **Working Hours User Rights:** *Default = Blank (No rights restrictions)*
  [2.1 ✗][3.0DT ✗][3.0 ✗][3.1 ✗][3.2 ✓]
  This field allows selection of user rights which may set and lock some user settings. If a **Working Hours Time Profile** has been selected, the **Working Hours User Rights** are only applied during the times defined by that time profile, otherwise they are applied at all times.
- **Out of Hours User Rights:** *Default = Blank (No rights restrictions)*
  [2.1 ✗][3.0DT ✗][3.0 ✗][3.1 ✗][3.2 ✓]
  This field allows selection of alternate user rights that are used outside the times defined by the user's **Working Hours Time Profile**.

User | Voicemail

If a voicemail server application is being used on your system, each user has use of a voicemail mailbox. You can use this form to enable this facility and various user voicemail settings.

A symbol indicates that in IP Office 3.2 the settings can be set and locked by the user's associated user rights.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Voicemail Code:** *Default = Blank*
  A code (1-15 digits) used by the voicemail server to validate access to this user's mailbox. Manager will not allow codes that match the extension number or contain sequential digits. If remote access is attempted to a mailbox that has no voicemail code set, the prompt *"Remote access is not configured on this mailbox"* is played.

  Whether the caller will be prompted to enter this code varies as follows:

  - **Embedded Voicemail**
    The voicemail code is used if set.
  - **Voicemail Lite/Voicemail Pro in IP Office mode**
    The voicemail code is required when accessing the mailbox from a location that is not set as a trusted number in the user's **Source Numbers** list. Also Voicemail Pro call flows containing an action where the action's PIN code set to $ will prompt the user for their voicemail code.
  - **Voicemail Pro in Intuity Emulation mode**
    By default the voicemail code is required for mailbox access. If the voicemail code setting is left blank, the caller will be prompted to set their own code when they next access the mailbox. The requirement to enter the voicemail code can be removed by adding a customized user or default collect call flow, refer to the Voicemail Pro manuals for full details. Also Voicemail Pro call flows containing an action where the action's PIN code set to $ will prompt the user for their voicemail code.

- **Voicemail Email:** *Default = Blank*
  When a new voicemail message is received by the user, the WAV file created can be sent to an email account. This field is used to store the user's email address. Whether to send the email is set through the Voicemail Email options below. This address is also used for Voicemail Email Reading if enabled and for Phone Manager instant messaging. This setting is not required and or used for IMS operation.

- **Voicemail On:** *Default = On*
  Controls if voicemail is active for this extension.

- **Voicemail Help:** *Default = Off*
  For voicemail systems running IP Office mailbox mode, this option controls whether users retrieving messages are automatically given an additional prompt *"For help at any time press 8."* If switched off, users can still press 8 for help. For voicemail systems running in Intuity emulation mode, this option has no effect. On those systems the default access greeting always includes the prompt *"For help at any time, press *4"* (*H in the US locale).

- **Voicemail Ringback:** *Default = Off*
  When enabled and a new message has been received, the voicemail server calls the user's extension to attempt to deliver the message each time the telephone is put down. Voicemail will not ring the extension more than once every 30 seconds.
- **Voicemail Email Reading:** *Default = Off*
  When you log into you voicemail box, it will detect your email messages and read them to you. This email text to speech feature is set-up through Voicemail Pro.
- **Voicemail Email Mode:** *Default = Off*
  Controls the method of operation of Voicemail Email above. These settings are not used by IMS.
  - **Off**
    Do not automatically send a new message to the email account
  - **Copy**
    Copy all messages to the email account
  - **Forward**
    Forward all messages to the email account and delete from the Voicemail Server.
  - **Alert**
    Send an email message without attaching the Voicemail file. This may be used with Email gateways to Pagers or Mobile telephone Short Message Services. Includes the caller's **Caller ID** if available.
- **Reception / Breakout (DTMF 0):** *Default = Blank*
  [2.1 ✓][3.0DT ✓][3.0 ✓][3.1 ✓][3.2 ✓]
  When connected to a user's voicemail, the caller can press 0 (*0 on embedded voicemail) to be transferred to either an internal number or external number. Enter here the telephone number to be used. The user should announce this facility in their greeting message, for example *"John Smith is not available today, you may leave a message or press 0 for Reception"*.
- **Breakout (DTMF 2/3):** *Default = Blank*
  [2.1 ✗][3.0DT ✗][3.0 ✗][3.1 ✗][3.2 ✓]
  On IP Office 3.2 systems with Voicemail Pro running in Intuity mode, user's can select to have two further breakout numbers in addition to the Reception number. These two additional breakouts are triggered by the caller pressing 2 or 3. These additional numbers allow a simple user attendant to be created. The options setup should be included in the users mailbox greeting.

User | DND

Do not disturb prevents the user from receiving hunt group and page calls. Direct callers hear busy tone or are diverted to voicemail if available. It overrides any call forwarding, follow me and call coverage settings. A set of exception numbers can be added to list numbers from which the user still wants to be able to receive calls when they have do not disturb in use.

The user can switch do not disturb on/off using short codes, pre-programmed keys on their phone or IP Office Phone Manager application. See **Do Not Disturb** in the **Telephone Features** section.

A symbol indicates that in IP Office 3.2 the settings can be set and locked by the user's associated user rights.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Do Not Disturb:** *Default = Off*
  When checked the user's extension is considered busy, except for calls coming from sources listed in their **Do Not Disturb Exception List**.
- **Do Not Disturb Exception List:** *Default = Blank*
  This is the list of telephone numbers that are still allowed through when Do Not Disturb is set. For example this could be an assistant or an expected phone call. Internal extension numbers or external telephone numbers can be entered. If you wish to add a range of numbers, you can either enter each number separately or make use of the wildcards "N" and "X" in the number. For example, to allow all numbers from 7325551000 to 7325551099, the DND Exception number can be entered as either 73255510XX or 73255510N.

User | Short Codes

Short codes entered in this list can only be dialed by the user. They will override any matching user rights or system short code. See Short Codes for details.

A symbol indicates that in IP Office 3.2 the settings can be set and locked by the user's associated user rights.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

Short codes can be added and edited using the **Add**, **Remove** and **Edit** buttons. Alternatively you can right-click on the list of existing short code to add and edit short codes.

- ***FWD**
  Short codes of this form are inserted by the IP Office. They are used in conjunction with the **User | Forwarding** settings to remember previously used forwarding numbers. They can be accessed on that tab by using the drop-down selector on the forwarding fields.

User | Source Numbers

This form is used to enter values that have special usages. These are entered using the **Add**, **Edit** or **Remove** buttons.

Settings

The following types of entry can be added to a user's source numbers.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **V*<Caller's ICLID>***
  For systems using Voicemail Lite or Voicemail Pro in IP Office mode, strings prefixed with a **V** indicate numbers from which access to the users mailbox is allowed without requiring entry of the mailbox's voicemail code.
- **R*<Caller's ICLID>***
  To allow data access only from a specified number prefix the number with a "R", for example ***R7325551234***.
- **H*<Group Name>***
  Allows the user to receive message waiting indication of new group messages. Enter **H** followed by the group name, for example **HMain**.
  - On suitable display extensions, the hunt group name and number of new messages is displayed. Refer to the appropriate telephone user guide.
  - If the user is using Phone Manager, the Messages tab shows the hunt group name and number of new messages.
  - If the user is not a member of the group, a voicemail code must be set for the group's mailbox. See **Voicemail Code** on the **Hunt Group | Voicemail** tab.
- **P*<Telephone Number>***
  This entry sets the destination for callback (outbound alert) calls from voicemail. Enter **P** followed by the telephone number including any necessary external dialing prefix, for example ***P917325559876***. This facility is only available when using Voicemail Pro through which a default Callback or a user specific Callback start point has been configured. Refer to the Voicemail Pro documentation. This feature is separate from voicemail ringback.
- **RESERVE_LAST_CA=**
  Used for users with multiple call appearance buttons. When present, this string stops the users last call appearance button from being used to receive incoming calls. This ensures that the user always has a call appearance button available to make outgoing calls and to initiate transfers and conferences.
- **AT<string>**
  Strings beginning with **AT** can be used with a user called ***DTEDefault*** to configure the default settings of the IP Office control unit's DTE port.

NoUser User Source Numbers

The following source numbers can also be used on the Source Numbers tab of the NoUser user. These affect all users on the system.

- **H323SetupTimerNoLCR**
  Used to set the fallback time from VoIP trunks to non-VoIP trunks within LCR. See **IP Trunk Fallback**.
- **LONGER_NAMES**
  Used to increase the length of names sent for display on DS phones. See **Caller Display**.
- **HIDE_CALL_STATE**
  Used to hide the call status information, for example ***Dial***, ***Conn***, etc, on DS phones. Used in conjunction with the **LONGER_NAMES** option.
- **ACD_QUEUE_DELAY=*nn***
  Used to change the timeout for still queued messages. The parameter ***nn*** can be replace with a time in seconds between 20 and 180.

User | Telephony

This form allows you to set telephony related features for the user. These override any matching setting in the **System | Telephony** tab. For details of the ringing tones, see Ring Tones. ***DefaultRing*** uses the system default setting set through the **System | Telephony** tab.

A symbol indicates that in IP Office 3.2 the settings can be set and locked by the user's associated user rights.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Outside Call Sequence:** *Default = Default Ring (Use system setting)*
  Applies only to analog phones. Sets the ring pattern used for external calls to the user. The distinctive ring patterns used for other phones are fixed.
- **Inside Call Sequence:** *Default = Default Ring (Use system setting)*
  Applies only to analog phones. Sets the ring pattern used for internal calls to the user. The distinctive ring patterns used for other phones are fixed.
- **Ring Back Sequence:** *Default = Default Ring (Use system setting)*
  Applies only to analog phones. Sets the ring pattern used for ringback calls to the user. The distinctive ring patterns used for other phones are fixed.
- **No Answer Time:** *Default = Blank (Use system setting), Range = 1 to 99999 seconds.*
  Sets how long a call rings the user before following forwarded on no answer if set or going to voicemail. Leave blank to use the system default setting.
- **Wrap-up Time (secs):** *Default = 2 seconds, Range 0 to 99999 seconds.*
  Specifies the amount of time after ending one call before another call can ring. You may wish to increase this in a "call center" environment where users may need time to log call details before taking the next call. It is recommended that this option is not set to less than the default of 2 seconds. 0 is used for immediate ringing.
- **Transfer return Time (secs):** *Default = Blank (Off), Range 1 to 99999 seconds.*
  Sets the delay after which any call transferred by the user, which remains unanswered, should return to the user. Note that the recall only occurs if the user has no other connected call.
- **Individual Coverage Time (secs):** *Default = 10 seconds, Range 1 to 99999 seconds.*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  This function sets how long the phone will ring at your extension before also alerting at any call coverage users. This time setting should not be equal to or greater than the **No Answer Time**.
- **Login Code:** *Default = Blank*
  The code that has to be entered, as part of the Extension Login sequence, to allow a User to make use of any telephone as if it was theirs. This Login Code can be used for Hot Desking as well as logging back onto your phone after it has been used by a hot desker. This entry must be at least 4 digits for DS port users.
- **Login Idle Period (secs):** *Default = 0 (Off), Range = 0 to 99999*
  If the telephone is not used for this period; the user currently logged in is automatically logged off. This option should be used only in conjunction with **Force Login** (see below).

- **Monitor Group:** *Default = Blank*
  Sets the Hunt Group the User can monitor. See **Call Listen**.
- **Ring Delay:** *Default = Blank (Use system setting), Range = 0 to 98 seconds.*
  [2.1 ✗][3.0DT ✗][3.0 ✗][3.1 ✗][3.2 ✓]
  This setting is used when any of the user's programmed appearance buttons is set to Delayed ringing. Calls received on that button will initially only alert visually. Audible alerting will only occur after the ring delay has expired.
- **Call Waiting On:** *Default = Off*
  Call waiting attempts to give the user a tone to indicate other calls are waiting. **Note:** If the user has call appearance buttons programmed, call waiting will not get activated. The next incoming call will appear on an available call appearance button. When there are no available call appearance buttons, the next incoming call will receive busy tone. See **Call Waiting**.
- **Answer Call Waiting on Hold (Analog):** *Default = On*
  Applies to analog and IP DECT extension users only. If the user has a call waiting and places their current call on hold, the call waiting is automatically connected.
- **Busy on Held:** *Default = On*
  If on, when the user has a call on hold, new calls receive busy tone (ringing for incoming analog call) or are diverted to voicemail if enabled, rather than ringing the user. Note this overrides call waiting when the user has a call on hold.
- **Outgoing Call Bar:** *Default = Off*
  When enabled, this setting stops a user from making any external calls. On most Avaya display phones, this causes a **B** to be displayed.
- **Offhook Station:** *Default = Off*
  If on, the user's extension can be taken on/off-hook by applications such as Phone Manager. Only use this setting if the user's main telephone is capable of full handsfree operation.
- **Can Intrude:** *Default = Off*
  Check this option if the User can interrupt other user's calls. This setting and the setting below are used to control the use of the following short code and button features: **Call Intrude**, **Call Listen**, **Call Steal** and **Dial Inclusion**.
- **Cannot be Intruded:** *Default = On (Off in Italy)*
  If checked, this user's calls cannot be interrupted or acquired. In addition to the features listed above, this setting also affects whether other users can use their appearance buttons to bridge into a call to which this user has been the longest present user.
- **Force Login:** *Default = Off*
  If checked, the user must login using their **Login Code** to use an extension. For example, if **Force Login** is ticked for User A and user B has logged onto A's phone, after B logs off A must log back. If Force Login was not ticked, A would be automatically logged back on.
- **Force Account Code:** *Default = Off*
  If checked, the user must enter a valid account code to make an external call.
- **Force Authorization Code:** *Default = Off*
  [2.1 ✗][3.0DT ✗][3.0 ✗][3.1 ✗][3.2 ✓]
  If checked, the user must enter a valid authorization code to make an external call. That authorization code must be one associated with the user or the user rights to which the user belongs. See **Authorization Codes**.
- **System Phone:** *Default = Off*
  Allows the user, on DS phones with a **Menu** key, to alter the date and time displayed on the phones. On those phones it is accessed by pressing **Menu | Menu | Func | Setup**. Also allows SoftConsole users to use the SoftConsole's **Send Message** function.
- **Inhibit Off-Switch Transfers:** *Default = Off*
  [2.1 ✗][3.0DT ✗][3.0 ✗][3.1 ✗][3.2 ✓]
  When enabled, this setting stops the user from transferring or forwarding calls externally. Note

that all user can be barred from forwarding or transferring calls externally by the **System | Telephony | Inhibit Off-Switch Transfers** setting.

- **Remote Homeworker/Agent:** *Default = Off*
  Select if the user has been configured as a remote extension on an Avaya INDeX telephone system. Refer to the INDeX Level 10 documentation for full details. Only available in Locales where INDeX is supported.
- **Can Accept Collect Calls:** *Default = Off* [Brazil Only]
  Determines whether the user is able to receive and accept collect calls.
- **Ringing Line Preference:** *Default = On*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  For users with multiple appearance buttons. When the user is free and has several calls alerting, ringing line preference assigns currently selected button status to the appearance button of longest waiting call. Ringing line preference overrides idle line preference.
- **Idle Line Preference:** *Default = On*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  For users with multiple appearance buttons. When the user is free and has no alerting calls, idle line preference assigns the currently selected button status to the first available appearance button.

User | Forwarding

This form can be used to check and adjust a user's call forwarding and follow me settings.

Follow Me is intended for use when the user is present to answer calls but for some reason is working at another extension. For example; temporarily sitting at a colleague's desk or in another office or meeting room. As a user, you would use Follow Me instead of Hot-Desking if you don't have a login code or you don't want to interrupt you colleague also receiving their own calls.

Forwarding is intended for use when, for some reason, the user is unable to answer a call. They may be busy on other calls, unavailable or simply don't answer. Calls may be forwarded to internal or, subject to the user's call barring controls, external numbers.

To bar a user from forwarding calls to an external number, the **Inhibit Off-Switch Transfers** option on the **User | Telephony** tab should be selected. To bar all users from forwarding calls to external numbers the **Inhibit Off-Switch Transfers** option on the **System | Telephony** tab should be selected.

A symbol indicates that in IP Office 3.2 the settings can be set and locked by the user's associated user rights.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Follow Me Number:** *Default = Blank. Range = Internal extension directory number.*
  Redirects the user's calls to the internal extension number entered. If the redirected call receives busy or is not answered, it follows the user's forwarding and or voicemail settings as if it had been presented to their normal extension.
- **Forward Unconditional:** *Default = Off*
  This option, when checked and a **Forward Number** is also set, forwards all external calls immediately. Additional options allow this forwarding to also be applied to internal calls and to hunt group calls if required. Using **Follow Me** overrides **Forward Unconditional**.
  - **Forward Number:** *Default = Blank. Range = Internal or External number.*
    This option sets the destination number to which calls are forwarded when **Forward Unconditional** is checked. The number can be an internal or external number. This option is also used for **Forward on Busy** and **Forward on No Answer** if no separate **Forward Number** is set for those features.
  - **Forward Internal Calls:** *Default = On*
    [2.1 ✗][3.0DT ✗][3.0 ✗][3.1 ✗][3.2 ✓]
    This option, when checked, sets that internal calls should be also be forwarded immediately when forward unconditional is active.
  - **Forward Hunt Group Calls:** *Default = Off*
    Hunt group calls are not normally presented to a user who has forward unconditional active. Instead they are presented to the next available member of the hunt group. This option, when checked, sets that hunt group calls are also forwarded when forward unconditional is active. The group's **Ring Type** must be ***Linear*** or ***Circular***, not ***Group*** or ***Most Idle***. The call is forwarded for the period defined by the hunt group's **No Answer Time** after which it returns to the hunt group if unanswered.

- **Forward On Busy:** *Default = Off*
  When checked and a forward number is set, external calls are forwarded when the user's extension is busy. The number used is either the **Forward Number** set for **Forward Unconditional** or if set, the separate **Forward Number**. Having Forward Unconditional active overrides **Forward on Busy**.
  - If the user has **Busy on Held** selected, if forward on busy is active it is applied when the user is free to receive calls but already has a call on hold.
  - If the user's phone has multiple call appearance buttons, the system will not treat them as busy until all the call appearance buttons are in use unless the last appearance button has been reserved for outgoing calls only.
- **Forward On No Answer:** *Default = Off*
  When checked and a forward number is set, calls are forwarded when the user does not answer within their set **No Answer** time (**User | Telephony**). Having Forward Unconditional active overrides **Forward on Busy**.
  - **Forward Number:** *Default = Blank*
    If set, this number is used as the destination for **Forward On Busy** and **Forward On No Answer** when on. If not set, the **Forward Number** set for **Forward Unconditional** is used.
  - **Forward Internal Calls:** *Default = On*
    [2.1 ✗][3.0DT ✗][3.0 ✗][3.1 ✗][3.2 ✓]
    When checked, this option sets that internal calls should be also be forwarded when forward on no answer or forward on busy is active.

User | Dial In

Use this dialogue box to enable dial in access for a remote user. An Incoming Call Route and RAS service must also be configured.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Dial In On:** *Default = Off*
  When enabled, dial in access into the system is available via this User account.
- **Dial In Time Profile:** *Default = Blank*
  Select the Time Profile applicable to this User account. A Time Profile (configured via the Time Profile configuration form) can be used to set time restrictions on dial in access via this User account. Dial In is allowed during the times set in the Time Profile form. If left blank, then there are no restrictions.
- **Dial In Firewall Profile:** *Default = Blank*
  Select the Firewall Profile to restrict access to the system via this User account. If blank, there are no Dial In restrictions. Firewall profiles are created in the Firewall Profile configuration form.

User | Voice Recording

This tab is used to activate the automatic recording of user's external calls. This requires Voicemail Pro to be installed and running.

This tab also allows the destination for manual triggered and automatic recordings to be changed from the normal default of the user's own mailbox.

Note

- The IP Office cannot guarantee recording of calls to or from IP extensions that are set to use Direct Media Path.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Record Outbound:** *Default = None*
  Select whether outgoing external calls are recorded. Options for recording are:
  - **On:** Record the call if possible.
  - **Mandatory:** If not possible to record, return busy tone.
  - **Percentages of calls:** Various percentages of calls made by the user will be recorded.
- **Record Inbound:** *Default = None*
  The same as Record Outbound but applied to inbound external calls to the user.
- **Record Time Profile:** *Default = None*
  Used to select a time profile during which automatic call recording setting above apply.
- **Auto Recording Mailbox:** *Default = <user's own mailbox>*
  Sets the mailbox into which automatically triggered recordings are placed.
- **Voice Recording Library (Auto):** *Default = Not Enabled*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  When checked, this setting overrides the **Auto Recording Mailbox** setting and marks the recording for collection by the Contact Store for IP Office application.
- **Manual Recording Mailbox:** *Default = <user's own mailbox>*
  Sets the mailbox into which recordings triggered by the user are placed.
- **Voice Recording Library (Manual):** *Default = Blank (Not Enabled).*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  When checked, this setting overrides the **Manual Recording Mailbox** setting and marks the recording for collection by the Contact Store for IP Office application.

User | Coverage

Call coverage allows calls ringing at one extension (the 'Sender') to also be presented and answered at other defined extensions (the 'Covering Extensions').

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✗

- **Covering Extension**
  The number of the extension that will be receiving the calls from the selected extension.
- **Covering User**
  This is the user's account name associated with the covering extension.

To add a covering extension

1. Right-click within the **Coverage** window and select Add.
2. Choose from the list of extension/users.
3. Click **OK**.

Senders

Senders are extensions that share their alerting calls with other extensions, referred to as their covering extensions.

The only calls that are not shared are:

- Hunt Group calls that alert at the sender.
- Automatic Intercom calls.
- Calls that have been forwarded/diverted to the sender.
- Paging calls.
- Calls that are being covered for another station.
- Calls from one of their covering extensions.

Covering Extensions

When the sender's extension rings, the covering extensions also ring and show the call on a free call appearance button. The display indicates that the call is from the sender by showing the incomings call's name or number and the sender's name.

Covering Extensions can receive their own calls as well as calls for the Sender. A Covering Extension can receive a call when:

- Send All Calls/Do Not Disturb is not active.
- Forwarding/Divert is not active.
- They have an available Call Appearance button to accept the call.

Notes
To help covering extensions handle coverage calls efficiently it is suggested that the following buttons are programmed.

- **Program additional Call Appearance buttons**
  Covering extensions must have enough call appearance buttons for their own calls and for the extensions they are covering. By default each extension has three call appearance buttons. A suggested minimum extra is one less than the number of call appearance buttons on the sender's extension.
- **Program a Voicemail Collect button for the Sender**
  This will allow the covering extension to transfer a call directly to the sender's voicemail.
- **Program an Automatic Intercom button for the Sender**
  This allows the covering extension to place a voice announcement. If you do not wish to make voice announcement calls, use Dial Intercom instead.
- **Program a Send All Calls button**
- **Program a Drop Button**
  This helps in transferring calls.

Call Alerting Scenarios
Listed below are examples of how calls to the sender's extension are handled in specific scenarios.

- **Sender and Covering Extensions available**
  An incoming call alerts both the sender's and covering extension's on call appearance buttons. It alert the sender's extension for their set No Answer Time and then alerts the covering extension only until the call is answered or the caller hangs up.
- **Sender available/Covering Extension not available**
  An incoming call alerts the sender only. The call remains alerting until it is answered or the caller hangs up.
- **Sender not available/Covering Extension available**
  The call will alert the covering extension but not the sender. The call remains alerting until the call is answered or the call hangs up.
- If voicemail is available and enabled for the sender, then in all the above scenarios, following the sender's No Answer Time the call is redirected to the Sender's voicemail.
- **Sender and Covering Extension not available**
  The caller hears busy tone or is redirected to the sender's voicemail.

User | Button Programming

This tab is used to assign functions to the programmable keys provided on many Avaya DS and IP telephones. For full details on Button Programming refer to the IP Office Button Programming Manual.

- **T3 Phones:** T3 phone buttons have default functions. These are not shown in the configuration file but can be overridden by settings added to the configuration file. Buttons left blank or set to call appearance will use the phone's default function for that button.

A symbol indicates that the button has been set and locked by the user's associated user rights.

Editing a Button

1. Select the button row and then click **Edit**.
2. Enter a custom label if required.
3. Click on the **...** button.
4. Use the window that appears to select the required action.
5. Enter or select the required setting for the action in the **Action Data** field.
6. Click **OK**.
7. Click **OK** again.

or

1. Select the button row.
2. Right-click on the **Action** field and select the required action.
3. Right-click on the **Action Data** field and enter or select the required value.
4. If required, right-click on the **Label** field and enter the required label.
5. Repeat for any other buttons.
6. Click **OK**.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Button No.**
  The number of the DSS key against which the function is being set. To set a function against a button double-click it or select it and then click **Edit**.
- **Label**
  This is a text label for display on the phone. It will be used on phones where the button status is indicated by the adjacent display space rather than LED's. Depending on the phone type, only up to eight characters may be displayed.
- **Action**
  Defines the action taken by the button.
- **Action Data**
  This is a parameter used by the selected action. The options here will vary according to the selected button action.
- **Display All**
  The number of button displayed is based on the phone associated with the user when the configuration was loaded. This can be overridden by selecting **Display All Buttons**. This may be necessary for users who switch between different phones using hot desking or have an expansion unit attached to their phone.

User | Menu Programming

Some Avaya DS phones have a **Menu** key, sometimes marked with an icon.

When **Menu** is pressed, a number of default functions are displayed. The **<** and **>** keys can be used to scroll through the functions while the keys below the display can be used to select the required function.

The default functions can be overwritten by selections made within this tab.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

User | Twinning

Twinning allows a user's calls to be presented to both their current extension and to another number. The IP Office supports two modes of twinning:

	Internal	Mobile
Twinning Destination	IP Office extensions only	Any external user diallable number.
Supported in	All locales except North America.	All
License Required	No	Yes

Internal Twinning

Internal twinning is available on IP Office 3.1 and higher systems. It can be used to link two IP Office extensions to act as a single extension. Typically this would be used to link a users desk phone with some form of wireless extension such as a DECT or WiFi handset. Internal twinning is not supported in North American locales.

Internal twinning is an exclusive arrangement, only one phone may be twinned with another. When twinned one acts as the primary phone and the other as the secondary phone. With internal twinning in operation, calls to the user's primary phone are also presented to their twinned secondary phone. Other users cannot dial the secondary phone directly.

- If the primary or secondary phones have call appearance buttons, they are used for call alerting. If otherwise, call waiting tone is used, regardless of the users call waiting settings. In either case, the **Maximum Number of Twinned Calls** setting applies.
- Calls to and from the secondary phone are presented with the name and number settings of the primary.
- The twinning user can transfer calls between the primary and secondary phones.
- Calls will ring at the secondary if the primary is logged off or set to do not disturb.
- Logging off or setting do not disturb at the secondary only affects the secondary.
- User buttons set to monitor the status of the primary also reflect the status of the secondary.
- Depending on the secondary phone type, calls alerting at the secondary but then answered at the primary may still be logged in the secondary's call log. This occurs if the call log is a function of the phone rather than the IP Office system.

Mobile Twinning
This licensed method of twinning can be used with external numbers. Calls routed to the secondary remain under control of the IP Office and can be pulled back to the primary if required. If either leg of an alerting twinned call is answered, the other leg is ended.

A number of controls are available in addition to those on this tab.

- **Button Programming Actions**
  The **Emulation | Twinning** action can be used to control mobile twinning operation. Set on the primary extension, when that extension is idle the button can be used to set the twinning destination and to switch twinning on/off. When a twinned call has been answered at the twinned destination, the button can be used to retrieve the call at the primary extension.
- **Short Code Features**
  The following short code actions are available for use with mobile twinning.
  - **Set Mobile Twinning Number.**
  - **Set Mobile Twinning On.**
  - **Set Mobile Twinning Off.**
  - **Mobile Twinned Call Pickup.**
- **Caller ID**
  The options on the **System | Twinning** tab can be used to control which caller ID is sent with calls sent to the twinned destination. The use of those options may be restricted by the trunk type carrying the twinned call and the services provided by the line provider.

Mobile twinning is only applied to normal calls. It is not applied to:

- Intercom, dial direct and page calls since these are answered automatically.
- Calls alerting on line appearance, bridged appearance and call coverage buttons.
- Returning held, returning parked, returning transferred and automatic callback calls.
- Follow me calls.
- Additional calls when the primary extension is active on a call or the twinning destination has a connected twinned call.

User BLF indicators and application speed dials set to the primary user will indicate busy when they are connected to a twinned call including twinned calls answered at the mobile twinning destination.

Mobile Twinning in a Small Community Network
In order for mobile twinning to be used with SCN extensions as the destination, a short code or short codes must be added in order to route the calls to the correct SCN link. For example, a primary user at site A wants to twin with an extension at Site B, the two sites being linked by an IP trunk in Outgoing Group Id of 1. At Site A, add the system short code **8N/Dial/N/1**. For the primary to twin with extension 300 at Site B, the mobile twinning number should be entered 8300.

Settings

A symbol indicates that in IP Office 3.2 the settings can be set and locked by the user's associated user rights.

- **Twinning Type:** *Default = None (North America) or Internal (Rest of World).*
  This control is only available with IP Office 3.2. IP Office 3.1 only supports internal twinning and only in locales other than North America.

Internal Twinning Settings

The following settings are available when the **Twinning Type** is set to ***Internal***.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Twinned Handset:** *Default = Blank.*
  For internal twinning, the drop-down list can be used to select an available user as the twinned calls destination. Users not displayed in the list are already twinned with another user. If the list is grayed out, the user is a twinning destination and the primary to which they are twinned is displayed. The secondary phone must be on the same IP Office.
- **Maximum Number of Twinned Calls:** *Default = 1.*
  If set to one, when either the primary or secondary phone are in use, any additional incoming call receives busy treatment. If set to two, when either phone is in use, it receives call waiting indication for any second call. Any further calls above two receive busy treatment.

Mobile Twinning Settings

The following settings are available when the **Twinning Type** is set to ***Mobile***. The use of mobile twinning requires entry of a Mobile Twinning license into the configuration.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System	Level		
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

- **Twinned Mobile Number:** *Default = Blank.*
  This field sets the destination number for mobile twinned calls. This can be an external or internal number. It is subject to normal short code processing and should include any external dialing prefix if necessary. For an SCN number, see the required short code detailed in the note above.
- **Twinning Time Profile:** *Default = Blank (24-hours)*
  This field allows selection of a time profile during which mobile twinning will be used.
- **Mobile Dial Delay:** *Default = 2000ms*
  This setting controls how long calls should ring at the user's primary extension before being routed to ring at the twinning destination number. This setting may be used at the user's choice, however it may also be a necessary control. For example, if the twinning number is a mobile device that has been switched off, the mobile service provider may immediately answer the call with their own voicemail service. This would create a scenario where the user's primary extension does not ring or ring only briefly.
- **Hunt group calls eligible for mobile twinning:** *Default = Off*
  This setting controls whether hunt group calls ringing the user's primary extension should also be presented to the mobile twinning number.
- **Forwarded calls eligible for mobile twinning:** *Default = Off*
  This setting controls whether calls forwarded to the user's primary extension should also be presented to the mobile twinning number.

User | T3 Options

This tab is only applicable to users using Avaya T3 phones. It is divided into several sub-tabs.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

Forwarding

Avaya T3 phone users can be given menu options to change the forwarding settings of other users. In addition to the following controls, this functionality is protected by the forwarding user's login code.

Settings

- **Allow Third Party Forwarding:** *Default = Off*
  Sets whether this user can change the forwarding settings of other users.
- **Protect from Third Party Forwarding:** *Default = On*
  Sets whether this user's forwarding settings can be changed by other users.

Hunt Group Settings

Avaya T3 phones are able to display the status (in-service, out-of-service or night-service) of up to 5 hunt groups. The phone user can change the service status of those groups.

T3 phones can also display the phone user's membership status (enabled or disabled) for up to 5 hunt groups and allow the user to change that status.

Settings

- **Hunt Group Service Status**
  This list shows all the hunt groups on the IP Office system. Up to 5 of these groups can be checked. The user is then able to view and change the service status of the checked groups through their T3 phones menus.
- **Hunt Group Membership Status**
  This list shows the hunt groups of which the user is a member. Up to 5 of these groups can be checked. The user is then able to view and change their membership status for the checked groups through their T3 phones menus.

Personal Directory

T3 phones are able to display a personal directory of numbers to speed dial. Each user can have up to 100 personal directory numbers. Unlike system directory numbers, these entries are not matched against incoming ICLID numbers.

Settings

- **Name**
  Enter the text, without spaces, to be used to identify the number.
- **Number**
  Enter the number, without spaces, to be dialed.

User | Phone Manager Options

This tab is used to configure the user's Phone Manager options.

A symbol indicates that in IP Office 3.2 the settings can be set by the user's associated user rights.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
				Pre-3.2	3.2
View	✓	✓	✓		
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

- **Allow user to modify Phone Manager settings:** *Default = On*
  This setting is used with the **Agent Mode**, **Phone Manager Status Options**, **Screen Pop Options** and **Hide Options** below. It controls whether those options are applied every time the user starts Phone Manager or only the first time the user starts Phone Manager.
  - If this setting is enabled, then the IP Office configuration setting of those options are only applied the first time a user starts Phone Manager on a PC. Those settings become part of the user's Phone Manager profile on that PC. They can be changed by the user through Phone Manager. On subsequent Phone Manager starts the Manager settings are ignored.
  - If this setting is not enabled, the IP Office configuration settings are applied every time the user starts Phone Manager and cannot be overridden by the user.
- **Agent Mode:** *Default = Off*
  This option controls the setting of the **Agent Mode** option on the **Configure Preferences | Agent Mode** tab within Phone Manager Pro. When enabled, the user has additional toolbar controls for **Busy Wrap Up**, **Busy Not Available** and **Select Group**. Note that the options on the Phone Manager Pro **Agent Mode** tab can be greyed out from user changes by the **Agent Mode** setting in **Configuration Options** below.
- **Phone Manager Type:** *Default = Lite*
  Determines the mode in which the user's copy of the Phone Manager application operates. Modes are **Lite**, **Pro** and **Phone Manager PC Softphone**. Note that the number of users able to simultaneously use Pro and VoIP modes is controlled by licenses entered into the IP Office configuration. This setting cannot be changed by the user. * For pre-3.2 IP Office systems this setting is located on the **User | User** tab.
  - **VoIP Mode:** *Default = On*
    This option only appears if the selected Phone Manager Type is Phone Manager PC Softphone. It sets the **Enable VoIP** control within the user's Phone Manager PC Softphone.
- **Book a Conference in Phone Manager:** *Default = Off*
  When enabled, displays links in the user's Phone Manager application for access to the IP Office Conferencing Center application if installed. Note that to book a conference requires the user to have a Conferencing Center user ID and password. This feature also requires the **Conference Center URL** to be set (**System | System**). This setting cannot be changed by the user. * For pre-3.2 IP Office systems this setting is located on the **User | User** tab.
- **Configuration Options**
  These options allow the user access to the indicated configure preferences tabs within Phone Manager. The controllable tabs for Phone Manager Lite are **Telephone** and **Do Not Disturb**. The

additional controllable tabs for Phone Manager Pro and Phone Manager PC Softphone are **Screen Pop**, **Compact Mode**, **Agent Mode** and **Voicemail** (**Voicemail** and **Voicemail Ringback** controls only).

- **Screen Pop Options**
  These options allow selection of the Phone Manager Pro/Phone Manager PC Softphone screen pop options **Ringing**, **Answering**, **Internal**, **External** and **Outlook**. The **Allow user to modify Phone Manager settings** option controls whether these settings are applied only when Phone Manager is first started or every time Phone Manager is started.

- **Phone Manager Status Options**
  These options allow selection of the tabs to show within the call history area of the user's Phone Manager. The tabs selectable for Phone Manager are **All**, **Missed**, **Status** and **Messages**. The additional tabs selectable for Phone Manager Pro and PC Softphone are **Incoming**, **Outgoing** and **Account Code**. The **Allow user to modify Phone Manager settings** option controls whether these settings are applied only when Phone Manager is first started or every time Phone Manager is started.

- **Hide Options**
  These options allow selection of the Phone Manager Pro/Phone Manager PC Softphone options **Hide on close** and **Hide on no calls**. The **Allow user to modify Phone Manager settings** option controls whether these settings are applied only when Phone Manager is first started or every time Phone Manager is started.

User | Hunt Group Memberships

This tab displays the hunt group of which the user has been made a member. The tick boxes indicate whether the user's membership of each of those group's is currently enabled or disabled.

Hunt Group Settings

Hunt Group Overview

A hunt group is a collection of users accessible through a single directory number. Calls to that hunt group can be answered by any available member of the group. The order in which calls are presented can be adjusted by selecting different group types and adjusting the order in which group members are listed. For a full overview of hunt groups, see **Hunt Groups** in the **Telephone Features** section.

Changing the name of a hunt group has the following effects:

- A new empty mailbox is created on voicemail with the new hunt group name.
- Entries in other groups' **Overflow** lists will be updated.
- **Out-of-Service** and **Night-Service** fallback references are updated.

Modifying the extension number of a hunt group updates the following:

- Group buttons.
- Overflow, Out of Service Fallback and Night Service Fallback group entries.
- Incoming call route entries.

When a hunt group is deleted, all references to the deleted group will be removed including:

- Entry in Incoming call routing table.
- Transfer target in internal auto-attendant.
- Overflow, Night-Service or Fallback-Service on other groups.
- DSS keys monitoring group status.

Note that a group will not be deleted until all calls that were established through calling the hunt group are cleared. In the meanwhile, the group is set to **Out of Service** and any new calls to that group will not be processed. The group is now set in a *Deleting* state. While in this state, updating any setting on the group using Manager or the Installation Wizard will reinstate the group, that is, the *Deleting* state is lost and the group will not be deleted.

Hunt Group | Hunt Group

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name:** *Range = Up to 31 characters*
  The name to identify this Hunt Group. Only alphanumeric characters with no spaces should be used. Do not start names with a numeric character. This field is case sensitive and must be unique.
  - Where hunt group reporting is being provided by IP Office CBC or CCC, the name must be 12 characters or less.
  - For hunt group queue announcements the name must be 12 characters or less.
  - Voicemail uses the name to match a group and its mailbox. Changing a group's name will route its voicemail calls to a new mailbox.
- **Extension:** *Range = 2 to 9 digits.*
  This sets the directory number for calls to the hunt group. For CBC and CCC the maximum supported length is 4 digits.
- **No Answer Time (secs):** *Default = Blank (Use System setting). Range = 1 to 99999 seconds.*
  The number of seconds an extension rings before the call is passed to another extension in the list. This applies to all telephones in this group and the Overflow Groups (if used). If left blank the **System** Default **No Answer Time** (15 seconds) will be used.
- **Overflow Time:** *Default = Blank, Range = 1 to 99999 seconds.*
  Calls that ring the hunt group members without being answered can be redirected to an overflow group or groups. This requires an overflow group or groups to be added to the **Overflow Group List** and for those groups to be ***In Service***. The **Overflow Time** setting is then used to determine when the overflow groups should be used as follows:
  - If **Queuing** is off, a call will overflow either when it has rung at each available hunt group member without being answered or when the overflow time expires.
  - If **Queuing** is on, a call will overflow only when the overflow time expires. Until the overflow occurs the call will continue ringing hunt group members.
  - If the **Overflow Time** is ***0*** or blank, a call will overflow when it has rung each available hunt group member without being answered. This is regardless of the **Queuing** setting.
  - If all members of the hunt group are busy, the call will overflow immediately it is presented to the group.
  - If the call is still unanswered at the overflow group, it goes to the original hunt groups voicemail if available. Otherwise it continues ringing hunt group members.
- **Call Waiting On:** *Default = Off*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  Only supported by group's set to the **Ring Type** of ***Group***. When on, user's in the group already on a call, receive call waiting indication when a new call rings the group. All the users in the group must also have their own **Call Waiting** setting set to **On**.

- **Hunt Type:** *Default = Linear*
  Sets the order in which each extension in a Hunt Group is rung.
  - **Group**
    All telephones in the Extension List ring simultaneously.
  - **Linear**
    Each extension is rung in order, one after the other, starting from the first extension in the list each time.
  - **Circular**
    Each extension is rung in order, one after the other. However, the last extension used is remembered. The next call received rings the next extension in the list.
  - **Most Idle**
    The extension that has been unused for the longest period rings first, then the extension that has been idle second longest rings, etc. For extensions with equal idle time, 'linear' mode is used.
- **Extension List**
  An ordered list of telephone extensions that form the Hunt Group. These telephones ring when the Group is In Service (See the Fallback tab). Repeated numbers can be used, for example 201, 202, 201, 203, etc. Each extension will ring for the number of seconds defined by the **No Answer Time** before moving to the next extension in the list, dependent on the **Hunt Type** chosen. The check box next to each member indicates the status of their membership. Checked boxes appear for members whose membership is enabled. The order of the users can be changed by dragging the existing entries to the required position.
  - **To alter entries**
    Select **Add**. The available users are shown in the left-hand column. Those already in the group are shown in the right-hand column. Select a user or users and use the **>>** and **<<** buttons to move them between the columns.
- **Overflow Group List**
  If a call cannot be answered by the extensions shown in the **Extension List**, the call can be passed to the available members of another hunt group or groups listed here. The hunt type and no answer time of the overflow group are applied while it rings members of that group.

Hunt Group | Voicemail

For full details see **Voicemail** in the **Hunt Group** section.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Voicemail Code:** *Default = Blank, Range = 0 to 15 digits*
  A security code used by the voicemail server for mailbox access. This is required when users retrieve voicemail messages for this hunt group remotely, for example from an extension not a member of the hunt group or from an external telephone.
- **Voicemail Email:** *Default = Blank (Disabled)*
  Messages for this hunt group can be sent to an email account. Enter the email address, for example jbloggs@bloggs.com. Select the required Voicemail Email mode below. The Voicemail message is received by the email application as a .wav file and played through the speakers of the PC. Refer to the Voicemail Installation & Administration Manual for full details. This entry is not used by IMS.
- **Voicemail On:** *Default = On*
  This field enables the use of voicemail to take messages for the hunt group.
- **Voicemail Help:** *Default = Off*
  For voicemail systems running IP Office mailbox mode, this option controls whether users retrieving messages are automatically given an additional prompt *"For help at any time press 8."* If switched off, users can still press 8 for help. For voicemail systems running in Intuity emulation mode, this option has no effect. On those systems the default access greeting always includes the prompt *"For help at any time, press *4."*
- **Broadcast:** *Default = Off*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  If a voicemail message is left for the hunt group and **Broadcast** is enabled, copies of the message are forwarded to the mailboxes of the individual group members. The original message in the hunt group mailbox is deleted.
- **Voicemail Email mode:** *Default = Off*
  If a Voicemail Email address has been entered above, select one of the following modes:
  - **Off**
    Voicemail messages or notifications are not sent to the email account automatically.
  - **Copy**
    A copy of the Voicemail message is sent to the email account.
  - **Forward**
    Voicemail messages are sent to the email account and deleted from the Voicemail server.
  - **Alert**
    Notification that a new Voicemail message has been received is sent to the email account.

Hunt Group | Fallback

Fallback settings can be used to make a hunt group unavailable and to set where the hunt group's calls should be redirected at such times. Hunt groups can be manually placed In Service, Out of Service or in Night Service. Additionally using a time profile, the group can be automatically placed in Night Service when outside the Time Profile settings. For full details see **Fallback** in the **Hunt Group** section.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
				Pre-3.2	3.2
View	✓	✓	✓		
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Time Profile:** *Default = Blank (No automatic night service)*
  This field allows selection of a previously created **Time Profile**. That profile then specifies the times at which it should use the manually selected Service Mode settings. Outside the period defined in the time profile, the hunt group behaves as if set to Night Service mode.

  Please note that when a hunt group is in Night Service due to it associated time profile, this is not reflected by the Service Mode on this tab. Note also that the manual controls for changing a hunt group's service mode cannot be used to take a hunt group out of time profile night service.

- **Out of Service Fallback Group:** *Default = Blank (Voicemail or Busy Tone)*
  This field sets the alternate hunt group destination for calls when this hunt group is in ***Out of Service*** mode. If left blank, calls are redirected to voicemail if available or otherwise receive busy tone.

- **Night Service Fallback Group:** *Default = Blank (Voicemail or Busy Tone)*
  This field sets the alternate hunt group destination for calls when this hunt group is in ***Night Service*** mode. If left blank, calls are redirected to voicemail if available or otherwise receive busy tone.

- **Service Mode:** *Default = In Service*
  This field is used to manually select the current service mode for the hunt group.

  - **Out of Service**
    When selected, calls are redirected using the **Out of Service Fallback Group** setting. This setting can also be manually controlled using the short code and button programming features **Set Hunt Group Out of Service** and **Clear Hunt Group Out of Service**.

  - **or : In Service**
    When selected the hunt group is enabled. This is the default mode.

  - **Night Service**
    When selected, calls are redirected using the **Night Service Fallback Group** setting. This setting can also be manually controlled using the short code and button programming features **Set Hunt Group Night Service** and **Clear Hunt Group Night Service**.

Hunt Group | Queuing

When the number of calls to be presented to the group exceeds the number of available members, the excess calls can be queued. For full details see **Queuing** in the **Hunt Group** section.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Queuing On:** *Default = On*

  This settings allows calls to this hunt group to be queued. The normal  icon is replaced  .

- **Queue Limit:** *Default = 0 (Disabled). Range = 1 to 999 calls.*
  This setting can be used to limit the number of calls that can be queued. Calls exceeding this limit are passed to voicemail if available or otherwise receive busy tone.

- **Queue Ring Time (secs):** *Default = 10 seconds. Range = 0 to 99999 seconds.*
  On systems with Voicemail Lite or Voicemail Pro, the voicemail system can provide announcements to queued callers. This setting controls the time before the first queued announcement is played to a queued caller.

Hunt Group | Voice Recording

When the IP Office system has a Voicemail Pro server installed, that server can be used for automatic recording of external calls. By default call recordings are placed into the hunt groups mailbox.

Note

- The IP Office cannot guarantee recording of calls to or from IP extensions that are set to use Direct Media Path.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Record Inbound:** *Default = None*
  Select whether inbound external calls to group members should be recorded. Options are **On**, **Mandatory** and then various percentages of the calls received by the group members.
  - **On**
    Record the call if possible.
  - **Mandatory**
    If not possible to record, return busy tone to the caller.
- **Record Time Profile:** *Default = Blank*
  Used to select a time profile during which automatic call recording setting above apply.

Short Code Settings

Short Code | Short Code

This form is used to create System Short Codes. System short codes can be dialed by all IP Office users. However the system short code is ignored if the user dialing matches a user short code or user restriction short code. For full details on short code usage and parameter see the section Short Codes.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✗	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Short Code**
  The dialing digits used to trigger the short code. Maximum length 31 characters.
- **Telephone Number**
  The number dialed by the short code or parameters for the short code feature. This field can contain numbers and characters. For example, it can contain Voicemail Pro start point names, user names, hunt group names and telephone numbers (including those with special characters). Maximum length 31 characters.
  - **Dialing Complete**
    The majority of North-American telephony services use en-bloc dialing. Therefore the use of a **;** is recommended at the end of all dialing short codes that use an *N*. This is also recommended for all dialing where secondary dial tone short codes are being used.
- **Line Group ID:** *Default = 0*
  For short codes that result in the dialing of a number, this field is used to enter the **Outgoing Group ID** assigned to the lines that should be used.
- **Feature**
  Select the action to be performed by the short code. See Short Code Features for a listing.
- **Locale:** *Default = Blank*
  For short codes that route calls to voicemail, this field can be used to set the prompts locale that should be used if available on the voicemail server. See
- **Force Account Code:** *Default = Off.*
  For short codes that result in the dialing of a number, this field trigger the user being prompted to enter a valid account code before the call is allowed to continue.
- **Force Authorization Code:** *Default = Off*
  This option is only shown on systems where authorization codes have been enabled, see **Authorization Codes**. If selected, then for short codes that result in the dialing of a number, the user is required to enter a valid authorization code in order to continue the call.

Service Settings

Service Form Overview

Services are used to configure the settings required when a user or device on the IP Office LAN needs to connect to a off-switch data service such as the Internet or another network. Services can be used when making data connections via trunk or WAN interfaces.

Once a service is created, it can be used as the destination for an IP Route entry. One service can also be set as the **Default Service**. That service will then be used for any data traffic received by the IP Office for which no IP Route is specified.

The IP Office supports three types of service:

- **Normal Service**
  This type of service should be selected when for example, connecting to an ISP.
- **WAN Service**
  This type of service is used when creating a WAN link. A User and RAS Service will also be created with the same name. These three entries are automatically linked and each open the same form. Note however, that this type of Service cannot be used if the Encrypted Password option is checked. In this case the RAS Service name must match the Account Name. Therefore either create each entry manually or create an Intranet Service.
- **Intranet Service**
  This type of service can be selected to automatically create a User with the same name at the same time. These two entries are linked and will each open the same form. The User's password is entered in the Incoming Password field at the bottom on the Service tab. An Intranet Services shares the same configuration tabs as those available to the WAN Service.

Service | Service

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name**
  The name of the service. It is recommended that only alphanumeric characters be used.
- **Account Name**
  The User Name that is used to authenticate the connection. This is provided by the ISP or remote system.
- **Password:** *Default = Blank*
  Enter the password that is used to authenticate the connection. This is provided by the ISP or remote system.
- **Telephone Number:** *Default = Blank*
  If the connection is to be made via ISDN enter the telephone number to be dialed. This is provided by the ISP or remote system.
- **Firewall Profile:** *Default = None*
  From the list box select the Firewall Profile that is used to allow/disallow protocols through this Service.
- **Encrypted Password:** *Default = Off*
  When enabled the password is authenticated via CHAP (this must also be supported at the remote end). If disabled, PAP is used as the authentication method.
- **Default Route:** *Default = Off*
  When enabled this Service is the default route for data packets unless a blank IP Route has been defined in the IP Office **IP Routes**. A green arrow appears to the left of the Service in the Configuration Tree. Only one Service can be the default route. If disabled, a route must be created under IP Route.
- **Incoming Password:** *Default = Blank*
  Shown on WAN and Intranet services. Enter the password that will be used to authenticate the connection from the remote Control Unit. (If this field has appeared because you have created a Service and User of the same name, this is the password you entered in the User's Password field).

Service | Bandwidth

These options give the ability to make ISDN calls between sites only when there is data to be sent or sufficient data to warrant an additional call. The calls are made automatically without the users being aware of when calls begin or end. Using ISDN it is possible to establish a data call and be passing data in less that a second. Note: the system will check Minimum Call Time first, then Idle Period, then the Active Idle Period.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Minimum No of Channels:** *Default = 1. Range = 1 to 999.*
  Defines the number of channels used to connect for an outgoing connection. The initial channel must be established and stable, before further calls are made.
- **Maximum No of Channels:** *Default = 1. Range = 1 to 999.*
  Defines the maximum number of channels to can be used. This field should contain a value equal to or greater than the Minimum Channels field.
- **Extra BW Threshold:** *Default = 50%. Range = 0 to 100%.*
  Defines the utilization threshold at which extra channels are connected. The value entered is a %. The % utilization is calculated over the total number of channels in use at any time, which may be one, two etc.
  - For example, if Minimum Channels set to 1, Maximum Channels set to 2 and Extra Bandwidth set to 50 - once 50% of first channel has been used the second channel are connected.
- **Reduce BW Threshold:** *Default = 10%. Range = 0 to 100%.*
  Defines the utilization threshold at which additional channels are disconnected. The value entered is a %. Additional calls are only dropped when the % utilization, calculated over the total number of channels in use, falls below the % value set for a time period defined by the Service-Idle Time. The last call (calls - if Minimum Calls is greater than 1) to the Service is only dropped if the % utilization falls to 0, for a time period defined by the Service-Idle Time. Only used when 2 or more channels are set above.
  - For example, if Minimum Channels set to 1, Maximum Channels set to 2 and Reduce Bandwidth is set to 10 - once the usage of the 2 channels drops to 10% the number of channels used is 1.
- **Callback Telephone Number:** *Default = Blank*
  The number that is given to the remote service, via BAP, which the remote Control Unit then dials to allow the bandwidth to be increased. Incoming Call routing and RAS Services must be appropriately configured.
- **Idle Period (secs):** *Default = 10 seconds. Range = 0 to 999999 seconds.*
  The time period, in seconds, required to expire after the line has gone idle. At this point the call is considered inactive and is completely closed.
  - For example, the 'Idle Period' is set to X seconds. X seconds before the 'Active Idle Period' timeouts the Control Unit checks the packets being transmitted/received, if there is nothing then at the end of the 'Active Idle Period' the session is closed & the line is dropped. If there are some packets being transmitted or received then the line stays up.

After the 'Active Idle Period' has timed out the system performs the same check every X seconds, until there are no packets being transferred and the session is closed and the line dropped.

- **Active Idle Period (secs):** *Default = 180 seconds. Range = 0 to 999999 seconds.*
  Sets the time period during which time the line has gone idle but there are still active sessions in progress (for example an FTP is in process, but not actually passing data at the moment). Only after this timeout will call be dropped.
  - For example, you are downloading a file from your PC and for some reason the other end has stopped responding, (the remote site may have a problem etc.) the line is idle, not down, no data is being transmitted/ received but the file download session is still active. After the set time period of being in this state the line will drop and the sessions close. You may receive a remote server timeout error on your PC in the Browser/FTP client you were using.
- **Minimum Call Time (secs):** *Default = 60 seconds. Range = 0 to 999999 seconds.*
  Sets the minimum time that a call is held up after initial connection. This is useful if you pay a minimum call charge every time a call is made, no matter the actual length of the call. The minimum call time should be set to match that provided by the line provider.
- **Extra BW Mode:** *Default = Incoming Outgoing*
  Defines the mode of operation used to increases bandwidth to the initial call to the remote Service.
  - **Outgoing Only**
    Bandwidth is added by making outgoing calls.
  - **Incoming Only**
    Bandwidth is added by the remote service calling back on the BACP number (assuming that BACP is successfully negotiated).
  - **Outgoing Incoming**
    Uses both methods but bandwidth is first added using outgoing calls.
  - **Incoming Outgoing**
    Uses both methods but bandwidth is first added using incoming BACP calls.

Service | IP

The fields in this tab are used to configure network addressing for the services you are running. Depending on how your network is configured, the use of Network Address Translation (NAT) may be required.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **IP Address:** *Default = 0.0.0.0 (address assigned by ISP)*
  An address should only be entered here if a specific IP address and mask have been provided by the Service Provider. Note that if the address is in a different domain from the IP Office then NAT is automatically enabled.
- **IP Mask:** *Default = 0.0.0.0 (use NAT)*
  Enter the IP Mask associated with the IP Address if an address is entered.
- **Primary Transfer IP Address:** *Default = 0.0.0.0 (No transfer)*
  This address acts as a primary address for incoming IP traffic. All incoming IP packets without a session are translated to this address. This would normally be set to the local mail or web server address.
  - On systems using a Small Office Edition or IP412 control unit, the primary transfer address for each LAN can be set through the **System | LAN1** and **System | LAN2** tabs.
- **Request DNS:** *Default = Off*
  When selected, DNS information is obtained from the service provider. To use this, the DNS Server addresses set in the IP Office configuration (**System | DNS**) should be blank. The PC making the DNS request should have the IP Office set as its DNS Server. For DHCP clients the IP Office will provide its own address as the DNS server.
- **Forward Multicast Messages:** *Default = On*
  By default this option is on. Multicasting allows WAN bandwidth to be maximized through the reduction of traffic that needs to be passed between sites.
- **RIP Mode:** *Default = None*
  Routing Information Protocol (RIP) is a method by which network routers can exchange information about device locations and routes. RIP can be used within small networks to allow dynamic route configuration as opposed to static configuration using.
  - **None**
    The LAN does not listen to or send RIP messages.
  - **Listen Only (Passive)**
    Listen to RIP-1 and RIP-2 messages in order to learn RIP routes on the network.
  - **RIP1**
    Listen to RIP-1 and RIP-2 messages and send RIP-1 responses as a sub-network broadcast.
  - **RIP2 Broadcast (RIP1 Compatibility)**
    Listen to RIP-1 and RIP-2 messages and send RIP-2 responses as a sub-network broadcast.

- **RIP2 Multicast**
  Listen to RIP-1 and RIP-2 messages and send RIP-2 responses to the RIP-2 multicast address.

Service | Autoconnect

Fields in this tab enable you to set up automatic connections to the specified Service.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Auto Connect Interval (mins):** *Default = Blank (disabled). Range = 0 to 99999 minutes.*
  This field defines how often this Service will automatically be called ("polled"). For example setting 60 means the system will call this Service every hour in the absence of any normally generated call (this timer is reset for every call; therefore if the service is already connected, then no additional calls are made). This is ideal for SMTP Mail polling from Internet Service Providers.
- **Auto Connect Time Profile:** *Default = Blank*
  Allows the selection of any configured Time Profiles. (The Time Profile must first be configured within the Time Profile Form configuration form.) The selected profile controls the time period during which automatic connections to the service are made. It does NOT mean that connection to that service is barred outside of these hours. For example, if a time profile called "Working Hours" is selected, where the profile is defined to be 9:00AM to 6:00PM Monday to Friday, then automatic connection to the service will not be made unless its within the defined profile. If there is an existing connection to the service at 9:00AM, then the connection will continue. If there is no connection, then an automatic connection will be made at 9:00AM.

Service | Quota

Quotas are associated with outgoing calls, they place a time limit on calls to a particular IP Service. This avoids excessive call charges when perhaps something changes on your network and call frequency increases unintentionally.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Quota Time (mins):** *Default = 240 minutes. Range = 0 to 99999 minutes.*
  Defines the number of minutes used in the quota. When the quota time is used up no further data can be passed to this service. This feature is useful to stop things like an internet game keeping a call to your ISP open for a long period.
  - **Warning:** Setting a value here without selecting a Quota period below will stop all further calls after the **Quota Time** has expired.
- **Quota:** *Default = Daily*
  Sets the period during which the quota is applied from ***None***, ***Daily***, ***Weekly*** or ***Monthly***. For example, if the **Quota Time** is 60 minutes and the **Quota** is set to ***Daily***, then the maximum total connect time during any day is 60 minutes. Any time beyond this will cause the system to close the service and prevent any further calls to this service. To disable quotas select ***None*** and set a **Quota Time** of zero.
  - Note: The **ClearQuota** feature can be used to create Short Codes to refresh the quota time.

Service | PPP

Fields in this tab enable you to configure Point to Point Protocol (PPP) in relation to this particular service. PPP is a protocol for communication between two computers using a Serial interface.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Chap Challenge Interval (secs):** *Default = 0 (disabled). Range = 0 to 99999 seconds.*
  The period between CHAP challenges. Blank or 0 disables repeated challenges. Some software such as Windows 95 DUN does not support repeated CHAP challenges.
- **Header Compression Mode:** *Default = None selected*
  Enables the negotiation and use of IP Header Compression. Supported modes are ***IPHC*** and ***VJ***. ***IPHC*** should be used on WAN links.
- **BACP:** *Default = Off*
  Enables the negotiation and use of BACP/BCP protocols. These are used to control the addition of B channels to increase bandwidth.
- **Incoming traffic does not keep link up:** *Default = On*
  When enabled, the link is not kept up for incoming traffic only.
- **Multilink/QoS:** *Default = Off*
  Enables the negotiation and use of Multilink protocol (MPPC) on links into this Service. Multilink must be enabled if there is more than one channel that is allowed to be Bundled/Multilinked to this RAS Service.
- **Compression Mode:** *Default = MPPC*
  Enables the negotiate and use of compression. Do not use on VoIP WAN links.
  - **Disable**
    Do not use or attempt to use compression.
  - **StacLZS**
    Attempt to use STAC compression (Mode 3, sequence check mode).
  - **MPPC**
    Attempt to use MPPC compression. Useful for NT Servers.
- **Callback Mode:** *Default = Disable*
  - **Disable**
    Callback is not enabled
  - **LCP:** (Link Control Protocol)
    After authentication the incoming call is dropped and an outgoing call to the number configured in the Service is made to re-establish the link.
  - **Callback CP:** (Microsoft's Callback Control Protocol)
    After acceptance from both ends the incoming call is dropped and an outgoing call to the number configured in the Service is made to re-establish the link.
  - **Extended CBCP:** (Extended Callback Control Protocol)
    Similar to Callback CP except the Microsoft application at the remote end prompts for a telephone number. An outgoing call is then made to that number to re-establish the link.

- **Access Mode:** *Default = Digital64*
  Sets the protocol, line speed and connection request type used when making outgoing calls. Incoming calls are automatically handled (see RAS services).
  - **Digital64**
    Protocol set to Sync PPP, rate 64000 bps, call presented to local exchange as a "Data Call".
  - **Digital56**
    As above but rate 56000 bps.
  - **Voice56**
    As above but call is presented to local exchange as a "Voice Call".
  - **V120**
    Protocol set to Async PPP, rate V.120, call presented to local exchange as a "Data Call". This mode runs at up to 64K per channel but has a higher Protocol overhead than pure 64K operation. Used for some bulletin board systems as it allows the destination end to run at a different asynchronous speed to the calling end.
  - **V110**
    Protocol is set to Async PPP, rate V.110. This runs at 9600 bps, call is presented to local exchange as a "Data Call". It is ideal for some bulletin boards.
  - **Modem**
    Allows Asynchronous PPP to run over an auto-adapting Modem to a service provider (requires a Modem2 card in the main unit)
- **Data Pkt. Size:** *Default = 0, Range = 0 to 2048.*
  Sets the size limit for the Maximum Transmissible Unit.

Service | Fallback

These options allow you to set up a fallback for the Service. For example, you may wish to connect to your ISP during working hours and at other times take advantage of varying call charges from an alternative carrier. You could therefore set up one Service to connect during peak times and another to act as fallback during the cheaper period.

You need to create an additional Service to be used during the cheaper period and select this service from the **Fallback Service** list box (open the Service form and select the **Fallback** tab).

If the original Service is to be used during specific hours and the Fallback Service to be used outside of these hours, a Time Profile can be created. Select this Time Profile from the Time Profile list box. At the set time the original Service goes into Fallback and the Fallback Service is used.

A Service can also be put into Fallback manually using short codes, for example:

- **Put the service "Internet" into fallback:**
  - **Short Code:** *85
  - **Telephone Number:** "Internet"
  - **Line Group ID:** 0
  - **Feature:** SetHuntGroupNightService

- **Take the service "Internet" out of fallback:**
  - **Short Code:** *86
  - **Telephone Number:** "Internet"
  - **Line Group ID:** 0
  - **Feature:** ClearHuntGroupNightService

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **In Fallback:** *Default = Off*
  This option indicates whether the Service is in Fallback or not. This can be set manually, via a Time Profile or via a Short Code.
- **Time profile:**
  Select the time profile you wish to use for the service. The time profile should be set up for the hours that you wish this service to be operational, out of these hours the Fallback Service is used.
- **Fallback Service:**
  Select the service that is used when this service is in fallback.

Service | Dial In

Only available for WAN and Intranet Services. This tab is used to define a WAN connection.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

To define a WAN connection

1. Right-click within the **DialIn** window and select **Add**.
2. Enter **WAN** if the service is being routed via a WAN port on a WAN3 expansion module.

RAS Settings

RAS Form Overview

A Remote Access Server (RAS) is a piece of computer hardware which sits on a corporate LAN and into which employees dial on the public switched telephone network to get access to their email and to software and data on the corporate LAN.

This form is used to create a RAS service that the system offers Dial In users. A RAS service is needed when configuring modem dial in access, digital (ISDN) dial in access and a WAN link. Some systems may only require one RAS service since the incoming call type can be automatically sensed.

RAS | RAS

Remote Access Server (RAS) is a piece of computer hardware which sits on a corporate LAN and into which employees dial on the public switched telephone network to get access to their email and to software and data on the corporate LAN.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name**
  A textual name for this service. If Encrypted Password (see below) is used this name must match the Account Name entered in the Service Form.
- **Extension**
  Enter an extension number if this service is to be accessed internally.
- **COM Port**
  For future use.
- **TA Enable:** *Default = Off*
  Select to enable or disable - if enabled RAS will pass the call onto a TA port for external handling.
- **Encrypted Password:** *Default = Off*
  This option is used to define whether Dial In users are asked to use PAP or CHAP during their initial logon to the RAS Service. If the Encrypted Password box is checked then Dial In users are sent a CHAP challenge, if the box is unchecked PAP is used as the Dial In Authorization method.

RAS | PPP

PPP (Point-to-Point Protocol) is a Protocol for communication between two computers using a Serial interface, typically a personal computer connected by phone line to a server.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **CHAP Challenge Interval (secs):** *Default = 0 (disabled). Range = 0 to 99999 seconds.*
  The period between successive CHAP challenges. Blank or 0 disables repeated challenges. Some software, for example Windows 95 DUN, does not support repeated CHAP challenges.
- **Header Compression:** *Default = Off*
  Enables the negotiation and use of IP Header Compression as per RFC2507, RFC2508 and RFC2509.
- **Multilink:** *Default = Off*
  Enable/Disable – When enabled the system attempts to negotiate the use of the Multilink protocol (MPPC) on the link(s) into this Service. Multilink must be enabled if the more than one channel is allowed to be Bundled/Multilinked to this RAS Service.
- **BACP:** *Default = Off*
  Enable/Disable - Allows negotiation of the BACP/BCP protocols. These are used to control the addition of additional B channels to simultaneously improve data throughput.
- **Incoming traffic does not keep link up:** *Default = On*
  When enabled, the link is not kept up for incoming traffic only.
- **Compression Mode:** *Default = MPPC*
  This option is used to negotiate compression (or not) using CCP. If set to MPPC or StacLZS the system will try to negotiate this mode with the remote Control Unit. If set to Disable CCP is not negotiated.
  - **Disable**
    Do not use or attempt to use compression.
  - **StacLZS**
    Attempt to use and negotiate STAC compression (the standard, Mode 3)
  - **MPPC**
    Attempt to use and negotiate MPPC (Microsoft) compression. Useful for dialing into NT Servers.
- **Callback Mode:** *Default = Disable*
  - **Disable:**
    Callback is not enabled
  - **LCP:** (Link Control Protocol)
    After authentication the incoming call is dropped and an outgoing call to the number configured in the Service will be made to reestablish the link.
  - **Callback CP:** (Microsoft's Callback Control Protocol)
    After acceptance from both ends the incoming call is dropped and an outgoing call to the number configured in the Service is made to reestablish the link.

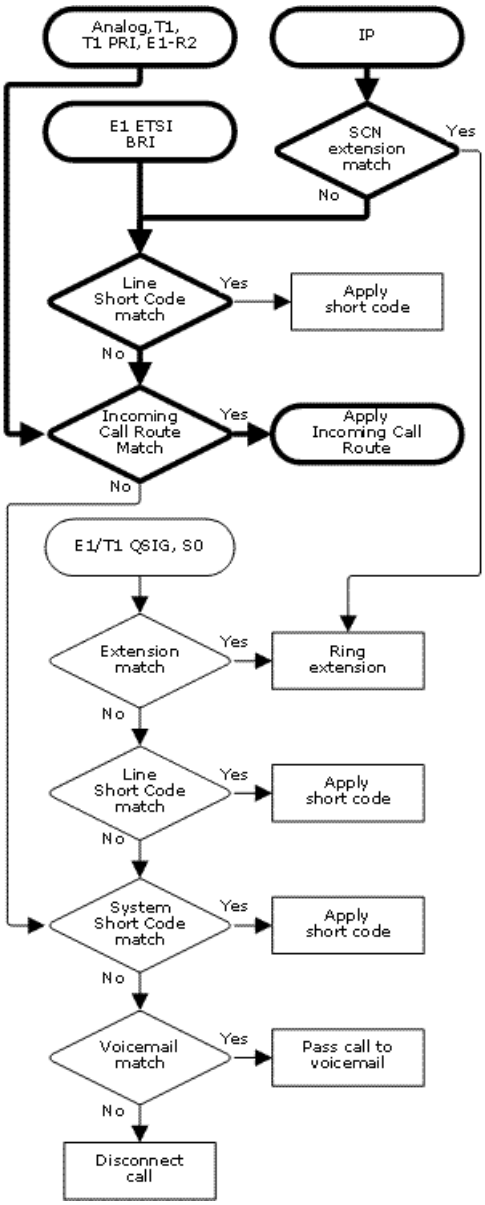
- **Extended CBCP:** (Extended Callback Control Protocol)
  Similar to Callback CP however the Microsoft application at the remote end will prompt for a telephone number. An outgoing call will then be made to that number to reestablish the link.

- **Data Pkt. Size:** *Default = 0, Range = 0 to 2048.*
  This is the number of data bytes contained in a Data Packet.

Incoming Call Route Settings

Incoming Call Route Overview

Incoming call routes are used to determine the destination of voice and data calls received by the IP Office. Determining which incoming call route is used is based on the call matching number of criteria. In order of priority, these are:



The bearer capability indicated, if any, with the call. For example voice, data, video.

- The incoming line group ID of the trunk or trunk channel on which the call was received.
- The incoming number received with the call.
- The incoming sub address received with the call.
- The incoming caller ID of the call.

Each incoming route can include a fallback destination for when the primary destination is busy. It can also include a time profile which control when the primary destination is used. Outside the time profile calls are redirected to a night service destination.

On IP Office systems where a large number incoming call routes need to be setup for DID numbers, the MSN/DID Configuration tool can be used. Select **Tools | MSN Configuration**.

Incoming Call Routing Examples

Example: Simple DID Routing

In this example, the customer has subscribed to receive three-digit DID in the range 200 to 299 which matches the range of their extension numbers.

Line Group	Incoming Number	Destination
0	*	.
0	*blank*	Main

The entry ***** matches any incoming number. The destination **.** takes the incoming number and uses it as the destination. This allows a single incoming route to be used for a range of numbers.

Example: Area Code Matching

Suppose the customer want to attempt to route all calls where the ICLID is in the same area code, for this example 732 .

Line Group	Incoming Number	Incoming Caller ID	Destination
0	*	732	LocalSales
0	*blank*	*blank*	Main

The 732 reads any ICLID received from left-to-right for a leading match on 732, the required area code. Those calls are routed to a group called ***LocalSales*** while all other calls are route to the group ***Main***.

Example: Incoming Numbers

For this example, the customer has subscribes to receive two 2-digit DID numbers. They want calls on one routed to a Sales hunt group and calls on the other to a Services hunt group. Other calls should use the normal default route to hunt group Main.

The following incoming call routes were added to the configuration to achieve this:

Line Group	Incoming Number	Destination
0	77	Sales
0	88	Services
0	*blank*	Main

Note that the incoming numbers could have been entered as the full dialed number, for example 7325551177 and 7325551188 respectively. The result would still remain the same as incoming number matching is by default performed on the right hand digits.

Right-hand matching gets complicated when the number of incoming digits is greater than the number of digits specified in the Incoming Number field. Consider the example below for when the incoming number digits 77 are received. The entries 677 and 77 have the same number of matching digit places and no non-matching places. However the 77 entry is the shorter match and so is used by the IP Office.

Line Group	Incoming Number	Destination
0	677	Support
0	**77**	**Sales**
0	7	Services
0	*blank*	Main

In the following example the 677 entry is used as the match for 77 as it has more matching digits than the 7 entry and no non-matching digits.

Line Group	Incoming Number	Destination
0	**677**	**Support**
0	7	Services
0	*blank*	Main

If this case the digits 777 are received. The 677 entry had a non-matching digit, so it isn't a match. The entry 7 is used as it has one matching digit and no non-matching digits.

Line Group	Incoming Number	Destination
0	677	Support
0	**7**	**Services**
0	*blank*	Main

Outgoing Caller ID Matching

In cases where a particular **Incoming Number** is routed to a specific user, the IP Office will attempt to use that Incoming Number as the user's caller ID when they make outgoing calls. This requires that the Incoming Number is a full number suitable for user as outgoing caller ID and acceptable to the line provider.

When the case above is applicable, the character **i** can also be added to the **Incoming Number** field. This character does not affect the incoming call routing. However when the same **Incoming Number** is used for an outgoing caller ID, the calling party number plan is set to ISDN and the type is set to National. This option may be required by some network providers.

Incoming Call Route | Standard

Incoming call routes are used to match call received with destinations. Routes can be based on the incoming line group, the type of call, incoming digits or the caller's ICLID. If a range of MSN/DID numbers has been issued, this form can be populated using the MSN Configuration tool (see **MSN Configuration**).

- **Default Blank Call Routes**
  By default the configuration contains two incoming calls routes; one set for Any Voice calls (including analog modem) and one for Any Data calls. Whilst the destination of these default routes can be changed it is strongly recommended that they are not deleted.
  - Deleting the default call routes, may cause busy tone to be returned to any incoming external call that does not match another incoming call route.
  - Setting any route to a blank destination field, may cause the incoming number to be matched against system short codes for a match. This may lead to the call being rerouted off-switch.
- Calls received on S0 trunks and PRI E1 trunks set to QSIG operation do not use incoming call routes. Routing for these is based on incoming number received as if dialed on-switch. Line short codes on those trunks can be used to modify the incoming digits.
- If there is no matching incoming call route for a call, matching is attempted against system short codes and finally against voicemail nodes before the call is dropped.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✓	✓	✓

System	Level		
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Bearer Capability**
  The type of call selected from the list of standard bearer capabilities: **Any**, **Any Voice**, **Any Data**, **Speech**, **Audio 3K1**, **Data 56K**, **Data 64K**, **Data V110**, **Video**.
- **Line Group ID:** *Default = 0, Range = 0 to 99999.*
  Matches against the Incoming Line Group to which the trunk receiving the call belongs.
- **Incoming Number**
  Matches to the digits presented by the line provider. A blank entry matches all calls that do not match other entries. By default this is a right-to-left match.
  - **– :** Using a **-** in front of the number causes a left-to-right match.
  - *** :** Use a * to match any number for which a more specific match doesn't exist.
    - Combining * in the Incoming Number field and . in the Destination field allow a single incoming call route to direct a range of incoming numbers which match internal destinations.
  - **X or x :** Use **X**'s to enter a single digit wild card character. For example - *91XXXXXXXXXXX* will only match when 13 digits, starting with 91, are received. **N**, **n** and **?** cannot be used.
  - **i :** The **i** character does not affect the incoming number matching. It is used for Outgoing Caller ID Matching, see below.

- **Incoming Sub Address:** *Default = Blank*
  Matches any sub address component sent with the incoming call. If this field is left blank, it matches all calls.
- **Incoming CLI**
  Enter a number to match the caller's ICLID provided with the call. This field is matched left-to-right. Number options are:
  - Full telephone number.
  - Partial telephone number, for example just the area code.
  - **! :** Matches calls where the ICLID was withheld.
  - **? :** for number unavailable.
  - Blank for all.
  - To match on just the **Incoming Caller ID**, use a ***** in the **Incoming Number** field and leave the **Incoming Sub Address** blank.
- **Destination**
  Select the destination for the call from the list box. This contains all available extensions, users, groups, RAS services and voicemail. System short codes and dialing numbers can be entered manually. Once the incoming call is matched the call is passed to that destination.
  - **Drop-Down List Options**
    The following options appear in the drop-down in the following order:
    - **Voicemail** allows remote mailbox access with Embedded Voicemail, Voicemail Lite and Voicemail Pro. Callers are asked to enter the extension ID of the mailbox required and then the mailbox access code.
    - **User Names**
    - **Hunt Groups Names**
    - **AA:*Name*** directs calls to an Embedded Voicemail auto-attendant services.
  - **Manually Entered Options**
    The following options can be entered manually into the field.
    - **VM:*Name*** Directs calls to the matching start point in Voicemail Pro.
    - A **.** matches the **Incoming Number** field. This can be used even when a ***** (match all) or **X** wildcards are being used in the **Incoming Number** field.
    - A **#** matches all **X** wildcards in the Incoming Number field. For example, if the Incoming Number was *-91XXXXXXXXXXX*, the Destination would be *XXXXXXXXXXX*.
    - Text and number strings entered here are passed through to system short codes.
- **Locale**
  This option specifies the language prompts, if available, that voicemail should use for the call if it is directed to voicemail.
- **Priority:** *Default = 1, Range = 1 (lowest) to 3 (highest).*
  This setting allows calls to be assigned a priority. In situations where calls are queued, high priority calls are placed before calls of a lower priority. Internal calls are always assigned priority 1. Note that using priority is not recommended for destinations where queue ETA and position messages are being provided by Voicemail Pro.
- **Fallback Extension:** *Default = Blank*
  Defines an alternate destination which should be used when the current destination, set in the **Destination** or **Night Service Destination** field, cannot be obtained. For example if the primary destination is a hunt group returning busy and without queuing or voicemail.

- **Night Service Profile:** *Default = Blank*
  A time profile during which the **Night Service Destination** should be used rather than the **Destination**.
- **Night Service Destination:** *Default = Blank*
  Set the destination to be used during periods defined by the **Night Service Profile**. The same range of values can be used as for the **Destination** field

WAN Port Settings

WAN Port Overview

These entries are used to configure the operation of IP Office WAN ports. These are the 37-way D-type WAN ports found on the rear of all IP Office control units except the Small Office Edition.

Additional WAN ports can be added by the installation of up to two WAN3 expansion modules, each module providing 3 additional WAN ports. On the Small Office Edition control unit, a single WAN port can be added by the installation of a WAN trunk card at the rear of the unit. For full details of installing additional WAN ports, refer to the IP Office Installation Manual.

Creating a Virtual WAN Port

WAN services can be run over a T1 PRI trunk connection. This requires creation of a virtual WAN port. For full details refer to **Using a Dedicated T1/PRI ISP Link** in **Appendix A**.

1. Select **WAN Port**.
2. Click and select PPP.
3. In the **Name** field, enter either ***LINEx.y*** where:
   - ***LINE*** must be in uppercase.
   - ***x*** is the line number. For a PRI/T1 module in Slot A, this will be ***1***. For a PRI/T1 module in Slot B, this will be ***5***.
   - ***y*** is the lowest numbered channel number to be used by the WAN link minus 1. For example, if the lowest channel to be used is channel 1 then y = 1 - 1 = 0.
4. In the **Speed** field, enter the total combined speed of the maximum number of channels sets in the Service. In this example, 12 channels x 64000 bits = 76800.
   - Note: The maximum number of channels that can be used will be limited by the number of data channels supported by the IP Office Control Unit and not already in use.
5. In the **RAS Name** field, select the RAS name created when the new Service of that name was created.
6. Click **OK**.

WAN Port | WAN Port

Use this form to configure the leased line connected to the WAN port on the Control Unit. Normally this connection is automatically detected by the IP Office control unit. If a WAN Port is not displayed, connect the WAN cable, reboot the Control Unit and receive the configuration. The WAN Port configuration form should now be added.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name**
  The physical ID of the Extension port,. This parameter is not configurable; it is allocated by the system.
- **Speed**
  The operational speed of this port. For example for a 128K connection, enter 128000. This should be set to the actual speed of the leased line as this value is used in the calculation of bandwidth utilization. If set incorrectly, additional calls may be made to increase Bandwidth erroneously.
- **Mode:** *Default = SyncPPP*
  Select the protocol required:
  - **SyncPPP**
    For a data link.
  - **SyncFrameRelay**
    For a link supporting Frame Relay.
- **RAS Name**
  If the **Mode** is ***SyncPPP***, selects the RAS service to associate with the port. If the **Mode** is ***SyncFrameRelay***, the RAS Name is set through the **DCLIs** tab.

WAN Port | Frame Relay

This tab is only available for Frame Relay entries. These show **SyncFrameRelay** as the **Mode** on the WAN Port tab.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Frame Management Type**
  This must match the management type expected by the network provider. Selecting **AutoLearn** allows the IP Office to automatically determine the management type based on the first few management frames received. If a fixed option is required the following are supported: **Q933 AnnexA 0393**, **Ansi AnnexD** , **FRFLMI** and **None**.
- **Frame Learn Mode**
  This parameter allows the DLCIs that exist on the given WAN port to be provisioned in a number of different ways.
  - **None**
    No automatic learning of DLCIs. DLCIs must be entered and configured manually.
  - **Mgmt**
    Use LMI to learn what DLCIs are available on this WAN.
  - **Network**
    Listen for DLCIs arriving at the network. This presumes that a network provider will only send DLCIs that are configured for this particular WAN port.
  - **NetworkMgmt**
    Do both management and network listening to perform DLCI learning and creation.
- **Max Frame Length**
  Maximum frame size that is allowed to traverse the frame relay network.
- **Fragmentation Method**
  Options are **RFC1490** or **RFC1490+FRF12**.

WAN Port | DLCIs

This tab is only available for Frame Relay entries. These show **SyncFrameRelay** as the **Mode** on the WAN Port tab.

The tab lists the DLCIs created for the connection. These can be edited using the **Add**, **Edit** and **Remove** buttons.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Frame Link Type:** *Default = PPP*
  Data transfer encapsulation method. Set to the same value at both ends of the PVC (Permanent Virtual Channel).
  - **None**
  - **PPP**
    Using PPP offers features such as out of sequence traffic reception, compression and link level connection management.
  - **RFC 1490**
    RFC 1490 encapsulation offers performance and ease of configuration and more inter-working with third party CPE.
  - **RFC1490 + FRF12**
    Alternate encapsulation to PPP for VoIP over Frame Relay. When selected all parameters on the **Service | PPP** tab being used are overridden.
- **DLCI:** *Default = 100*
  This is the Data Link Connection Identifier, a unique number assigned to a PVC end point that has local significance only. Identifies a particular PVC endpoint within a user's physical access channel in a frame relay.
- **RAS Name**
  Select the RAS Service you wish to use.
- **Tc:** *Default = 10*
  This is the Time Constant in milliseconds. This is used for measurement of data traffic rates. The Tc used by the IP Office can be shorter than that used by the network provider.
- **CIR:** (Committed Information Rate) *Default = 64000 bps*
  This is the Committed Information Rate setting. It is the maximum data rate that the WAN network provider has agreed to transfer. The committed burst size (***Bc***) can be calculated from the set Tc and CIR as *Bc = CIR x Tc*. For links carrying VoIP traffic, the ***Bc*** should be sufficient to carry a full VoIP packet including all its required headers. See the example below.
- **EIR:** (Excess Information Rate) *Default = 0 bps*
  This is the maximum amount of data in excess of the CIR that a frame relay network may attempt to transfer during the given time interval. This traffic is normally marked as ***De*** (discard eligible). Delivery of De packets depends on the network provider and is not guaranteed and therefore they are not suitable for UDP and VoIP traffic. The excess burst size (***Be***) can be calculated as *Be = EIR x Tc*.

Example: Adjusting the Tc Setting

G.729 VoIP creates a 20 byte packet every 20ms. Adding typical WAN PPP headers results in a 33 byte packet every 20ms.

For a Committed Information Rate (CIR) of 14Kbps, with the Time Constant (Tc) set to 10ms; we can calculate the Committed Burst size:

Bc = CIR x Tc = 14,000 x 0.01 = 140 bits = 17.5 bytes.

Using 10ms as the **Tc**, a full G.729 VoIP packet (33 bytes) cannot be sent without exceeding the Bc. The most likely result is lost packets and jitter.

If the Tc is increased to 20ms:

Bc = CIR x Tc = 14,000 x 0.02 = 280 bits = 35 bytes.

The Bc is now sufficient to carry a full G.729 VoIP packet.

Notes

1. Backup over Frame Relay is not supported when the Frame Link Type is set to RFC1490.
2. When multiple DLCIs are configured, the WAN link LED is switched off if any of those DLCIs is made inactive, regardless of the state of the other DLCIs. Note also that the WAN link LED is switched on following a reboot even if one of the DLCIs is inactive. Therefore when multiple DLCIs are used, the WAN link LED cannot be used to determine the current state of all DLCIs.
3. When the Frame Link Type is set to RFC1490, the WAN link LED is switched on when the WAN cable is attached regardless other whether being connected to a frame relay network.

WAN Port | Advanced

The settings on this tab are used for Frame Relay connections.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Address Length:**
  The address length used by the frame relay network. The network provider will indicate if lengths other than two bytes are to be used.
- **N391:** *Full Status Polling Counter*
  Polling cycles count used by the CPE and the network provider equipment when bidirectional procedures are in operation. This is a count of the number of link integrity verification polls (T391) that are performed (that is Status Inquiry messages) prior to a Full Status Inquiry message being issued.
- **N392:** *Error Threshold Counter*
  Error counter used by both the CPE and network provider equipment. This value is incremented for every LMI error that occurs on the given WAN interface. The DLCIs attached to the given WAN interface are disabled if the number of LMI errors exceeds this value when N393 events have occurred. If the given WAN interface is in an error condition then that error condition is cleared when N392 consecutive clear events occur.
- **N393:** *Monitored Events Counter*
  Events counter measure used by both the CPE and network provider equipment. This counter is used to count the total number of management events that have occurred in order to measure error thresholds and clearing thresholds.
- **T391:** *Link Integrity Verification Polling Timer*
  The link integrity verification polling timer normally applies to the user equipment and to the network equipment when bidirectional procedures are in operation. It is the time between transmissions of Status Inquiry messages.
- **T392:** *Polling Verification Timer*
  The polling verification timer only applies to the user equipment when bidirectional procedures are in operation. It is the timeout value within which to receive a Status Inquiry message from the network in response to transmitting a Status message. If the timeout lapses an error is recorded (N392 incremented).

Directory Settings

Directory | Directory Entry

Directory entries are used to store external telephone numbers and to associate names with those numbers. They have two main functions:

- **Making External Calls**
  Directory entries can displayed and then used to make calls from IP Office applications such as Phone Manager, SoftConsole and Conference Center. They can also be used to make calls from Avaya digital phones that support the **Dir** function on a programmable key.
- **Name Matching**
  Directory entries can be used to match the ICLID received with an incoming call to a name. That name is then display by IP Office applications and phones receiving the call. Note that the Phone Manager and SoftConsole applications have their own directories which are also used for name matching and, for that user, can override the system directory name match.
  - Name matching is not performed on trunks where a name is supplied with the incoming call, for example QSIG trunks.

A maximum of 1000 entries are supported in the IP Office system directory. The IP Office also supports LDAP (Lightweight Directory Access Protocol). Directory entries obtained by LDAP are only shown in the directory of the Phone Manager and SoftConsole applications. They are not shown or used in the IP Office configuration.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✗	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✓	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name**
  Enter the text, without spaces, to be used to identify the number.
- **Number**
  Enter the number, without spaces, to be matched with the above name. Any brackets or - characters used in the number string are ignored. The directory number match is done on reading from the left-hand side of the number string. Note that if the system has been configured to use an external dialing prefix, that prefix should be added to directory numbers.
- ? Wild-card characters can be used at the right-hand end of the number string. For example:
  - **Name:** ***Holmdel***
  - **Number:** ***732555????***
    The number must be padded with question marks to the correct length; in this example local numbers are 10 digits long so 4 question marks are required. This displays ***Holmdel:1234*** for a call from ***7325551234***.

Time Profile Settings

Time Profile Overview

Time Profiles are used by different IP Office services to change their operation when required. In most areas where time profiles can be used, not setting a time profile is taken as meaning 24-hour operation.

Time profiles are used by the following entry types:

Hunt Group can use time profiles in the following ways:

- A time profile can be used to determine when a hunt group is put into night service mode. Calls then go to an alternate Night Service Fallback group if set, otherwise to voicemail if available or busy tone if not. See **Hunt Group | Fallback**.
- For automatic voice recording, a time profile can be used to set when voice recording is used. See **Hunt Group | Voice Recording**.

Service can use time profiles in the following ways:

- A time profile can be used to set when a data service is available. Outside its time profile, the service is either not available or uses an alternate fallback service if set.
- For services using auto connect, a time profile can be used to set when that function is used. See **Service | Autoconnect**.

User can use time profiles in the following ways:

- Users being used for Dial In data services such as RAS can have an associated time profile that defines when they can be used for that service. See **User | Dial In**.
- Users can be associated with a working hours and an out of hours user rights. A time profile can then be used to determine which user rights is used at any moment. See **User | User**.
- For automatic voice recording, a time profile can be used to set when that voice recording is used. See **User | Voice Recording**.
- For mobile twinning, a time profile can be used to define when twinning should be used. See **User | Twinning**.

Incoming Call Routes can use an alternate night service destination. A time profile is then used to set when that destination is used. See **Incoming Call Route | Incoming Call Route**.

Least Cost Route use time profiles to determine when the routes should be used. See **Least Cost Route | LCR**.

Account Codes can use automatic voice recording triggered by calls with particular account codes. A time profile can be used to set when this function is used. See **Account Code | Voice Recording**.

Auto Attendant supported by embedded voicemail on IP406 V2 and Small Office systems, use time profiles to control the different greetings played to callers. See **Auto Attendant | Actions**.

Time Profile | Time Profile

A Time Entry is used to stipulate the specific hours you wish the time profile to be active, for example 9:00 - 12:00, Monday to Friday.

A Time Entry cannot span over two days. For example you cannot have a time profile starting at 18:00 and ending 8:00. If this time period is required two Time Entries should be created - one starting at 18:00 and ending 11:59, the other starting at 00:00 and ending 8:00.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✗	✗	✓
New	✓	✓	✗	✗	✓
Delete	✓	✓	✓	✗	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name:** *Range = Up to 31 characters*
  This name is used to select the time profile from within other tabs.
- **Time Entry List**
  This list shows the current periods during which the profile is active. These can be edited using the Add and Remove buttons.
- **Recurrent Pattern**
  When a new time entry is required, click Add and then enter the settings for the entry using these fields.
  - **Start Time**
    The time at which the time period starts.
  - **End Time**
    The time at which the time period ends.
  - **Days of Week**
    The days of the week to which the time period applies.

Firewall Profile Settings

Firewall Profile Form Overview

The IP Office can act as a firewall, allowing only specific types of data traffic to start a session across the firewall and controlling in which direction such sessions can be started.

IP Office firewall profiles can be applied in the following areas of IP Office operation.

- **System**
  A firewall profile can be selected to be applied to traffic between LAN1 and LAN2 on IP Office Small Office Edition and IP412 systems.
- **User**
  Users can be used as the destination of incoming RAS calls. For those users a firewall profile can be selected on the user's **Dial In** tab.
- **Service**
  Services are used as the destination for IP routes connection to off-switch data services such as the internet. A Firewall Profile can be selected for use with a service.
- **Logical LAN**
  Where a logical LAN is created for use as an IP Route destination, a Firewall Profile can be selected for use with the logical LAN.

If Network Address Translation (NAT) is used with the firewall (which it typically is), then you must also configure a Primary Incoming Translation Address (see IP tab of the Service configuration form) if you wish sessions to be started into your site (typically for SMTP) from the Internet.

Firewall | Standard

By default, any protocol not listed in the standard firewall list is dropped unless a custom firewall entry is configured for that protocol.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name:** *Range = Up to 31 characters*
  Enter the name to identify this profile.
- **Protocol Control**
  For each of the listed protocols, the options **Drop**, **In**, **Out** and **Both Directions** can be selected. Once a session is started, return traffic for that session is also able to cross the firewall.

Drop	All matching traffic is dropped.
In	Incoming traffic can start a session.
Out	Outgoing traffic can start a session.
Both Directions	Both incoming and outgoing traffic can start sessions.

Protocol	Default	Description
TELNET	Out	Remote terminal login.
FTP	Out	File Transfer Protocol.
SMTP	Out	Simple Mail Transfer Protocol.
TIME	Out	Time update protocol.
DNS	Out	Domain Name System.
GOPHER	Drop	Internet menu system.
FINGER	Drop	Remote user information protocol.
RSVP	Drop	Resource Reservation Protocol.
HTTP	Out	Hypertext Transfer Protocol.
POP3	Out	Post Office Protocol.
NNTP	Out	Network News Transfer Protocol.
SNMP	Drop	Simple Network Management Protocol.
IRC	Out	Internet Relay Chat.
PPTP	Drop	Point to Point Tunneling Protocol.
IGMP	Drop	Internet Group Membership Protocol.
H323	Drop	This option is not supported and so is grayed out.

Firewall | Custom

The tab lists custom firewall settings added to the firewall profile. The Add, Edit and Remove controls can be used to amend the settings in the list.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Notes**
  For information only. Enter text to remind you of the purpose of the custom firewall entry.
- **Remote IP Address**
  The IP address of the system at the far end of the link. Blank allows all IP addresses.
- **Remote IP Mask**
  The mask to use when checking the Remote IP Address. When left blank no mask is set, equivalent to 255.255.255.255 - allow all.
- **Local IP Address**
  The address of devices local to this network (pre-translated). Blank allows all IP addresses.
- **Local IP Mask**
  The mask to use when checking the Local IP Address. When left blank no mask is set, equivalent to 255.255.255.255 - allow all.
- **IP Protocol**
  The value entered here corresponds to the IP Protocol which is to be processed by this Firewall profile: 1 for ICMP, 6 for TCP, 17 for UDP or 47 for GRE. This information can be obtained from the "pcol" parameter in a Monitor trace.
- **Match Offset**
  The offset into the packet (0 = first byte of IP packet) where checking commences for either a specific port number, a range of port numbers, or data.
- **Match Length**
  The number of bytes to check in the packet, from the Match Offset point, that are checked against the Match Data and Match Mask settings.
- **Match Data**
  The values the data must equal once masked with the Match Mask. This information can be obtained from "TCP Dst" parameter in a Monitor trace (the firewall uses hex so a port number of 80 is 50 in hex)
- **Match Mask**
  This is the byte pattern, which is logically ANDed with the data in the packet from the offset point. The result of this process is then compared against the contents of the "Match Data" field.
- **Direction**
  The direction that data may take if matching this filter.

Drop	All matching traffic is dropped.
In	Incoming traffic can start a session.
Out	Outgoing traffic can start a session.
Both Directions	Both incoming and outgoing traffic can start sessions.

Example Custom Firewall Entries

Example: Dropping NetBIOS searches on an ISPs DNS

We suggest that the following filter is always added to the firewall facing the Internet to avoid costly but otherwise typically pointless requests from Windows machines making DNS searches on the DNS server at your ISP.

- **Direction:** Drop
- **IP Protocol:** 6 (TCP)
- **Match Offset:** 20
- **Match Length:** 4
- **Match Data:** 00890035
- **Match Mask:** FFFFFFFF

Example: Browsing Non-Standard Port Numbers

The radio button for HTTP permits ports 80 and 443 through the firewall. Some hosts use non-standard ports for HTTP traffic, for example 8080, 8000, 8001, 8002, etc. You can add individual filters for these ports as you find them.

You wish to access a web page but you cannot because it uses TCP port 8000 instead of the more usual port 80, use the entry below.

- **Direction:** Out
- **IP Protocol:** 6 (TCP)
- **Match Offset:** 22
- **Match Length:** 2
- **Match Data:** 1F40
- **Match Mask:** FFFF

A more general additional entry given below allows all TCP ports out.

- **Direction:** Out
- **IP Protocol:** 6 (TCP)
- **Match Offset:** 0
- **Match Length:** 0
- **Match Data:** 00000000000000000000000000000000
- **Match Mask:** 00000000000000000000000000000000

Example: Routing All Internet Traffic through a WinProxy
If you wish to put WinProxy in front of all Internet traffic via the Control Unit. The following firewall allows only the WinProxy server to contact the Internet : -

1. Create a new Firewall profile and select **Drop** for all protocols
2. Under **Custom** create a new Firewall Entry
3. In Notes enter the name of the server allowed. Then use the default settings except in Local IP Address enter the IP address of the WinProxy Server, in Local IP Mask enter 255.255.255.255 and in Direction select Both Directions.
4. **Stopping PINGs**
   You wish to stop pings - this is ICMP Filtering. Using the data below can create a firewall filter that performs the following; Trap Pings; Trap Ping Replies; Trap Both.
   - **Trap Pings:** Protocol = 1, offset = 20, data = 08, mask = FF
   - **Trap Ping Replies:** Protocol = 1, offset = 20, data = 00, mask = FF
   - **Trap Both:** Protocol = 1, offset = 20, data = 00, mask = F7, Traps Both.

IP Route Settings

IP Route Overview

The IP Office acts as the default gateway for its DHCP clients. It can also be specified as the default gateway for devices with static IP addresses on the same subnet as the IP Office. When devices on LAN1 and LAN2 want to send data to IP addresses on a different subnet, they will send that data to their default gateway for onward routing.

The IP Route table is used by the IP Office to determine where data traffic should be forwarded. This is done by matching details of the destination IP address to IP Route entries and then using the Destination specified by the matching IP route. These are referred to as 'static routes'.

- **Automatic Routing (RIP)**
  The IP Office can support RIP (Routing Information Protocol) on LAN1 and or LAN2. This is a method through which the IP Office can automatically learn routes for data traffic from other routers that also support matching RIP options, see **RIP**. These are referred to as 'dynamic routes'.
- **Dynamic versus Static Routes**
  By default, static routes entered into the IP Office override any dynamic routes it learns by the use of RIP. This behavior is controlled by the **Favor RIP Routes over static routes** option on the **System | System** tab.
- **Static IP Route Destinations**
  The IP Office allows the following to be used as the destinations for IP routes:
  - **LAN1**
    Direct the traffic to the IP Office's LAN1.
  - **LAN2**
    On IP Office Small Office Edition and IP412 systems, traffic can be directed to LAN2.
  - **Service**
    Traffic can be directed to a service. The service defines the details necessary to connect to a remote data service.
  - **Logical LAN**
    Traffic can be directed to a logical LAN already added to the configuration.
  - **Tunnel**
    Traffic can be directed to an IPSec or L2TP tunnel.
- **Default Route**
  IP Office provides two methods of defining a default route for IP traffic that does not match any other specified routes. Use either of the following methods:
  - **Default Service**
    Within the settings for services, one service can be set as the **Default Route** (**Service | Service**).
  - **Default IP Route**
    Create an IP Route entry with a blank IP Address and blank IP Mask set to the required destination for default traffic.

Viewing the Routing Table

An IP Office's routing table can be viewed using the IP Office Monitor application. This application can be installed from the IP Office Admin CD. Full details of using Monitor are not covered here.

The routing tab includes both static and dynamic routes.

1. Start **Monitor** and select the IP Office system whose routing table you want to view.
2. Select **Filters | Trace Options**.
3. Select the **Routing** tab.
4. Tick **Routing Table**.
5. If required you can also select to view **Routing Table Changes** plus **RIP In** and **RIP Out** messages.
6. The routing table is sent to the monitor trace once every minute.

```
Destination     Netmask         Gateway      Interface    Metric Type
0.0.0.0         0.0.0.0         0.0.0.0      LAN1          0      S
255.255.255.255 255.255.255.255 0.0.0.0      LAN1          0      I
192.168.44.0    255.255.255.0   0.0.0.0      LAN1          0      I
192.168.99.0    255.255.255.0   0.0.0.0      RemoteManager 0      S
192.168.42.0    255.255.255.0   192.168.44.1 LAN1          0      S
```

The **Type** indicates:

- **I** = Internal routes.
- **S** = Static route set in the IP Route table.
- **R** = RIP route resolved from RIP messages.
- **T** = Temporary route to a specific IP address accessed via a service.

IP Route | IP Route

This tab is used to setup static IP routes from the IP Office. These are in addition to RIP if RIP is enabled on LAN1 and or LAN2.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **IP Address**
  The IP address to match for ongoing routing. Any packets meeting the IP Address and IP Mask settings are routed to the entry configured in the Destination field. When left blank then an IP Address of 255.255.255.255 (all) is used.
- **IP Mask**
  The Subnet Mask used to mask the IP Address for ongoing route matching. If blank the mask used is 255.255.255.255 (all).
  - A blank entry in the IP Address and IP Mask fields routes all packets for which there is no other specific IP Route available. The **Default Route** option with Services can be used to do this if a blank IP route is not added.
- **Gateway IP Address:** *Default = Blank*
  The address of the gateway where packets for the above address are to be sent. If this field is set to 0.0.0.0 or is left blank then all packets are just sent down to the Destination specified, not to a specific IP Address. This is normally only used to forward packets onto another Router on the local LAN.
- **Destination**
  Allows selection of LAN1, LAN2 (Small Office Edition and IP 412) and any configured Service, Logical LAN or Tunnel.
- **Metric:** *Default = 1*
  The number of "hops" this route counts as.
- **Proxy ARP:** *Default = Off*
  This allows the IP Office to respond on behalf of this IP address when receiving an ARP request.

RIP Dynamic Routing

Routing Information Protocol (RIP) is a protocol which allows routers within a network to exchange routes of which they are aware approximately every 30 seconds. Through this process, each router becomes adds routes in the network to its routing table.

Each router to router link is called a 'hop' and routes of up to 15 hops are created in the routing tables. When more than one route to a destination exists, the route with the lowest metric (number of hops) is added to the routing table.

When an existing route becomes unavailable, after 5 minutes it is marked as requiring 'infinite' (16 hops). It is then advertised as such to other routers for the next few updates before being removed from the routing table. The IP Office also uses 'split horizon' and 'poison reverse'.

RIP is a simple method for automatic route sharing and updating within small homogeneous networks. It allows alternate routes to be advertised when an existing route fails. Within a large network the exchange of routing information every 30 seconds can create excessive traffic. In addition the routing table held by each IP Office is limited to 100 routes (including static and internal routes).

RIP is supported with IP Office system's from Level 2.0 upwards. The normal default is for RIP to be disabled. It can be enabled on LAN1, LAN2 and individual services.

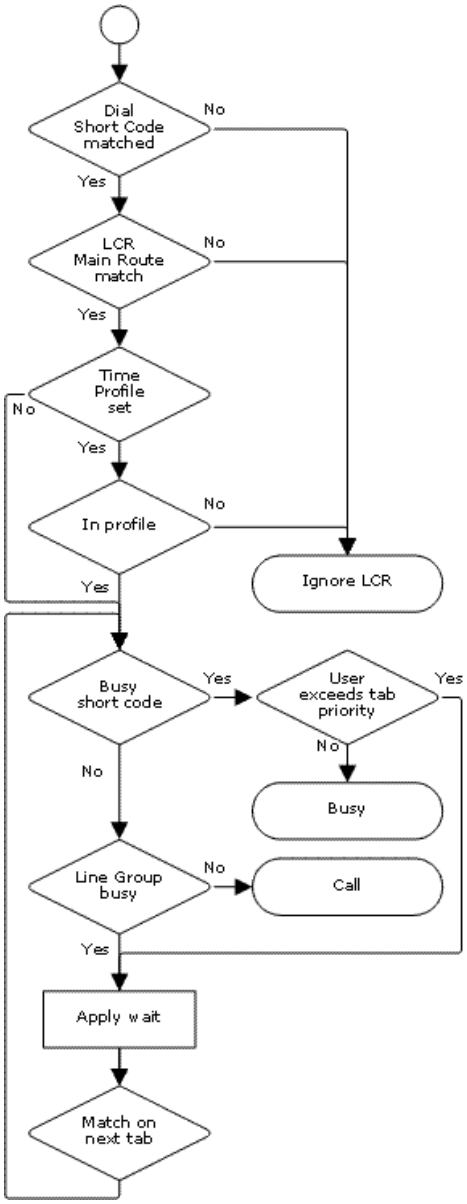
- **Listen Only (Passive):**
  The IP Office listens to RIP1 and RIP2 messages and uses these to update its routing table. However the IP Office does not respond.
- **RIP1:**
  The IP Office listens to RIP1 and RIP2 messages. It advertises its own routes in a RIP1 sub-network broadcast.
- **RIP2 Broadcast (RIP1 Compatibility):**
  The IP Office listens to RIP1 and RIP2 messages. It advertises its own routes in a RIP2 sub-network broadcast. This method is compatible with RIP1 routers.
- **RIP2 Multicast:**
  The IP Office listens to RIP1 and RIP2 messages. It advertises its own routes to the RIP2 multicast address (249.0.0.0). This method is not compatible with RIP1 routers.

Broadcast and multicast routes (those with addresses such as 255.255.255.255 and 224.0.0.0) are not included in RIP broadcasts. Static routes (those in the **IP Route** table) take precedence over a RIP route when the two routes have the same metric.

Least Cost Routing Settings

Least Cost Routing Overview

Summary: Least cost routes allow short code matching on the number being dialed from the system rather than the number originally dialed by the user or application.



When a line, user, user rights or system short code results in a number to be dialed off-switch, the resulting telephone number to be dialed can be further processed by matching to Least Cost Route (LCR) short codes.

LCR short codes are grouped in sets. Within each set, the short codes are grouped into tabs called **Main Route**, **Alternate Route 1** and **Alternate Route 2**. Each tab also has a priority and a timeout setting.

- **Using a Time Profile**
  Each LCR set can have an associated time profile. LCR sets without a time profile are active all the time. LCR sets with a time profile are only active within the times defined by that profile.
- **Which Number is Used For Matching**
  The telephone number output by the original matched short code is checked against the Main Route tab short codes of the active LCR sets.
  - If a match is found, that set is used for processing.
  - If no match is found, the calls is dialed without LCR.
- **Returning Busy**
  If the LCR short code match is set to the **Busy** feature:
  - If the user's priority is higher than the LCR tabs, the IP Office will immediately look for a matching short code on the next tab and use that short code if found.
  - Otherwise the user receives busy tone.
- **Switching Outgoing Line Groups**
  If the LCR short code match is a dial feature, the IP Office will attempt to seize a line from the outgoing line group specified by the LCR short code.
  - If a line cannot be seized within the time specified on the LCR tab, the IP Office will look in the next tab for an alternate LCR short code match. If an alternate match is found it is used.

Least Cost Routing Example

Site A has two outgoing line groups. Outgoing line group 0 contains external lines to the public telephone network. Outgoing line group 1 contains private lines to Site B.

Requirements

- **Scenario 1**
  The external public number for Site B is 123456. The internal speed dial number is 600. When a user dials 600, the administrator want the call to be routed by the private lines if possible.
- **Scenario 2**
  The sales hot line at Site B has the public number 654321. The administrator only want high priority users at Site A to be able to dial that number to test its performance.

Settings

- **System Short Code 1:** 600/123456/Dial/0.
- **System Short Code 2:** 654321/N/Dial/0.
- **User 1:** Priority 2. **User 2:** Priority 4.

Least Cost Route "SiteB"	Main Route	Alternate Route 1
Timeout	10	30
Priority	3	5
Short Codes	123456/N/Dial/1	123456/N/Dial/0
	654321/N/Busy	654321/N/Dial/0

Effects

Scenario 1

When a user dials 123456, it matches system short code 1. That short code specifies dialing Site B via the public lines (Outgoing line group 0).

The number to be dialed is checked against the least cost routing **Main Route** tabs for any match. In this example a match occurs in the ***SiteB*** least cost route. The short code there specifies dialing the number using the private lines (Outgoing line group 1).

If the IP Office cannot seize a line for the call from that group within 10 seconds, it looks for an alternate short code match in Alternate Route 1 tab of the Site B least cost route. In this example that match changes the call to using the public lines (Outgoing line group 0).

Scenario 2

When a user dials 654321, it matches system short code 2. That short code specifies dialing the Site B sale hot line number via the public lines (Outgoing line group 0).

Since this short code is set to a **Dial** feature, the number to be dialed is checked against the least cost routing **Main Route** tabs for any match. In this example a match occurs in the ***SiteB*** least cost route. The short code there specifies Busy and so returns busy to callers.

User 1 has a priority of 2. They will receive busy tone when they dial 654321.

User 2 has a priority of 4 which is higher than the Main Route tab in the Site B least cost route. Therefore the IP Office will immediately check for a further match in the Alternate Route 1 tab. In this example the short code match for 654321 in the Alternate 1 tab allows the number to be dialed to the public lines.

Least Cost Routing | LCR

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name**
  The name to identify the LCR set.
- **Time Profile:** *Default* = *Blank*
  Selects a time profile that is used to define when this least cost route can be used. If no profile is selected the route settings apply at all times.

Least Cost Routing | Main Route

This tab is used for the initial short code matching. The match is performed on the telephone number outputs by a Line, User, User Rights or System short code that resulted in a number to dial. If a match is found it is used, otherwise the call is dialed using the original short code.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Timeout (secs):** *Default = 30 seconds. Range = 1 to 99999 seconds or 0 (No IP trunk fallback).*
  If an LCR short code match is found, the IP Office will attempt to seize a line in the outgoing line group specified by that short code. If, after this timeout period has expired, the IP Office still cannot seize a line, it will look for a alternate short code match in the **Alternate Route 1** tab.
- **Priority:** *Default = 5, Range 1 (lowest) to 5 (highest).*
  Normally, if the LCR short code match is a short code set to Busy, the user will receive busy tone. For users whose own **Priority** setting (**User | User | Priority**) is higher than the Main Route tab's, the IP Office will look for an alternate short code match in the **Alternate Route 1** tab.
- **Allow Bump:** *Default = Off*
  When a line indicated by the LCR short code match cannot be seized because lines in that outgoing line group are being used for a multilink PPP data call, this options allows a line to be seized from the data call.
- **Short Code List**
  These are the short codes used for matching against the telephone number output Line, User, User Right or System dial short code.
  - The only short code features that should be used in a Least Cost Route short code are: **Dial**, **Dial3K1**, **Dial56K**, **Dial64K**, **DialEmergency**, **DialSpeech**, **DialV110**, **DialV120**, **DialVideo** and **Busy**.
  - The **;** character and **[ ]** characters cannot be used.
  - Short codes can be added and edited using the **Add**, **Remove** and **Edit** buttons. Alternatively you can right-click on the list of existing short code to add and edit short codes.

Least Cost Routing | Alternate Route 1

This tab of a Least Cost Route is used in the following cases:

- The short code match on the **Main Route** tab is set to **Busy** but the user has a higher priority than that tab.
- The **Main Route** tab timeout has expired while trying to seize a line from the outgoing line group specified by the short code match on that tab.

In either case the IP Office will look for an alternate short code match on this tab. The match is performed on the telephone number outputs by a Line, User, User Rights or System short code that resulted in a number to dial. If a match is found it is used, otherwise the call receives busy.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Timeout (secs):** *Default = 30 seconds. Range = 1 to 99999 seconds or 0 (No IP trunk fallback).*
  If an LCR short code match is found, the IP Office will attempt to seize a line in the outgoing line group specified by that short code. If, after this timeout period has expired, the IP Office still cannot seize a line, it will look for a alternate short code match in the **Alternate Route 2** tab.
- **Priority:** *Default = 5, Range 1 (lowest) to 5 (highest).*
  Normally, if the LCR short code match is a short code set to Busy, the user will receive busy tone. For users whose own **Priority** setting (**User | User | Priority**) is higher than the Main Route tab's, the IP Office will look for an alternate short code match in the **Alternate Route 2** tab.
- **Allow Bump:** *Default = Off*
  When a line indicated by the LCR short code match cannot be seized because lines in that outgoing line group are being used for a multilink PPP data call, this options allows a line to be seized from the data call.
- **Short Code List**
  These are the short codes used for matching against the telephone number output Line, User, User Right or System dial short code.
  - The only short code features that should be used in a Least Cost Route short code are: **Dial**, **Dial3K1**, **Dial56K**, **Dial64K**, **DialEmergency**, **DialSpeech**, **DialV110**, **DialV120**, **DialVideo** and **Busy**.
  - The **;** character and **[ ]** characters cannot be used.
  - Short codes can be added and edited using the **Add**, **Remove** and **Edit** buttons. Alternatively you can right-click on the list of existing short code to add and edit short codes.

Least Cost Routing | Alternate Route 2

This tab of a Least Cost Route is used in the following cases:

- The short code match on the **Alternate Route 1** tab is set to **Busy** but the user has a higher priority than that tab.
- The **Alternate Route 1** tab timeout has expired while trying to seize a line from the outgoing line group specified by the short code match on that tab.

In either case the IP Office will look for an alternate short code match on this tab. The match is performed on the telephone number outputs by a Line, User, User Rights or System short code that resulted in a number to dial. If a match is found it is used, otherwise the call receives busy.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Timeout (secs)**
  Not used. This is the last tab within a Least Cost Route.
- **Priority**
  Not used. This is the last tab within a Least Cost Route.
- **Allow Bump:** *Default = Off*
  When a line indicated by the LCR short code match cannot be seized because lines in that outgoing line group are being used for a multilink PPP data call, this options allows a line to be seized from the data call.
- **Short Code List**
  These are the short codes used for matching against the telephone number output Line, User, User Right or System dial short code.
  - The only short code features that should be used in a Least Cost Route short code are: **Dial**, **Dial3K1**, **Dial56K**, **Dial64K**, **DialEmergency**, **DialSpeech**, **DialV110**, **DialV120**, **DialVideo** and **Busy**.
  - The **;** character and **[ ]** characters cannot be used.
  - Short codes can be added and edited using the **Add**, **Remove** and **Edit** buttons. Alternatively you can right-click on the list of existing short code to add and edit short codes.

Account Code Settings

Account Code Overview

Account codes are commonly used to control cost allocation and out-going call restriction. The account code used on a call is included in the call information output by the system's call log. Incoming calls can also trigger account codes automatically by matching the Caller ID stored with the account code.

Once a call has been completed using an account code, the account code information is removed from the user's call information. This means that redial functions will not renter the account code.

The maximum recommended number of accounts codes is 1000.

Setting a User to Forced Account Code

1. Receive the system configuration if one is not opened.
2. In the left-hand panel, click  **User**. The list of existing user is shown in the right-hand panel.
3. Double-click the required user.
4. Select the **Telephony** tab.
5. Tick the **Force Account Code** option.
6. Click **OK**.
7. Merge the configuration.

Forcing Account Code Entry for Specific Numbers

Account code can be set a being required for any dialing that matches a particular short code. This is done by ticking the Force Account Code option found in the short code settings. Note that the account code request happens when the short code match occurs. Potentially this can be in the middle of dialing the external number, therefore the use of X wildcards in the short code to ensure full number dialing is recommended.

Entering Account Codes
The method for entering account codes depends on the type of phone being used. Refer to the relevant telephone User's Guide for details.

- **Account Code Button**
  The **Account Code Entry** action (**User | Button Programming | Emulation | Account Code Entry**) and **Set Account Code** action (**User | Button Programming | Advanced | Set | Set Account Code**) can be assigned to a programmable button on some phones. They both operate the same. The button can be preset with a specific account code or left blank to request account code entry when pressed. The button can then be used to specify an account code before a call or during a call.
- **Phone Manager**
  The IP Office Phone Manager application can be used to enter account codes before or during calls. For full details refer to the Phone Manager documentation.
  - To enter an account code before making a call or during a call select Actions | Account Code. A valid account code can then be selected from the Account Code drop down.
  - The **Account Codes** tab can be used to create icons to speed dial specific numbers and account codes that are regularly used.
  - When making calls using the IP Office Phone Manager application, the **Account Code** field shown acts as a drop-down from which the user could select a valid system account code. This operation can disabled by deselecting the **Show Account Code** option in the IP Office configuration (**System | Telephony | Show Account Code**). Account code entry is then replaced by PIN code operation.
- **Setting an Account Code using Short Codes**
  The **Set Account Code** feature allows short codes to be created that specify an account code before making a call.

Account Code | Account Code

This tab is used to define an individual account code.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Account Code**
  Enter the account code required. The code can include alphabetic characters for users dialing via Phone Manager. It can also include wildcards; **?** matches a single digit and ***** matches any digits.
- **Caller ID**
  A caller ID can be entered and used to automatically assign an account code to calls made to or received from caller ID.

Account Code | Voice Recording

This tab is used to activate the automatic recording of external calls when the account code is entered at the start of the call or automatically assigned by call ID matching when the call is received. This requires Voicemail Pro to be installed and running.

The recordings are placed in the mailbox of the user making or receiving the call. This option cannot be triggered by entry of the account code during a call.

Note

- The IP Office cannot guarantee recording of calls to or from IP extensions that are set to use Direct Media Path.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✓	✓	✓	✓
New	✓	✓	✗	✓	✓
Delete	✓	✓	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Record Outbound:** *Default = None*
  Select whether outbound external calls are recorded. Options are **On**, **Mandatory** and then various percentages of calls made by the user.
  - **On:** Record the call if possible.
  - **Mandatory:** If not possible to record, return busy tone to the caller.
- **Record Inbound:** *Default = None*
  Select whether inbound external calls are recorded. Requires the account code to be assigned to the call by matching the caller ID associated with the account code on the **Account Code | Account Code** tab.
- **Record Time Profile:** *Default = Blank*
  Used to select a time profile during which the settings above are used for call recording. Outside this period calls are not recorded using these settings.
- **Use Voice Recording Library:** *Default = Off*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  This field can be used when IP Office ContactStore is installed in addition to Voicemail Pro. Ticking this option routes the recordings to ContactStore rather than the user's mailbox.

License Settings

License | License

This form is used to display the function, value and status of license keys entered into the IP Office configuration. License keys are 32 character strings uniquely based on the feature they active and the serial number of a Feature Key dongle.

Dongles are available in several types. Each IP Office system only supports license validation against a single dongle and vice versa.

- **Serial**
  This type of feature key dongle is plugged into the 9-pin serial port on the back of IP Office Small Office Edition and IP406 V2 control units. No separate PC running IP Office Feature Key software is required.
- **Parallel**
  This type of feature key dongle is plugged into the parallel port of a PC running the IP Office Feature Key Server software.
- **USB**
  This type of feature key dongle is plugged into the USB port of a PC running the IP Office Feature Key Server software.

For parallel and USB feature keys, the address of the PC hosting the dongle and running the IP Office Feature Key Server software is set by the License Server IP Address setting on the **System | System** tab. For serial key dongles, the address is set to 0.0.0.0.

Importing License Keys
It is recommended that licenses are cut and pasted electronically. This removes the chances of errors due to mistyping and misinterpretation of characters fonts. Where multiple licences need to be added, the CSV import option can be used (**File | Import/Export | Import**). Licenses imported this way may be listed as invalid until the configuration is saved and then reloaded.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✓	✓	✓
New	✓	✗	✗	✓	✓
Delete	✓	✗	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **License Key**
  This field is used to enter the 32-character license key.
- **License Type**
  For information only. If the key is recognized, its function will be listed here. **Invalid** indicates that the License Key has not been recognized as enabling any feature, regardless of the Feature Key dongle serial number. For a list of licenses and their purpose refer to the IP Office Installation manual.
- **License Status**
  For information only. This field indicates the current validation status of the license key against the serial number of the Feature Key dongle being used by the IP Office system.
  - **Unknown** is shown for newly entered licenses until the configuration is sent to the IP Office and then retrieved again.
  - **Valid** is shown if the license key matches the Feature Key dongle serial number.
  - **Invalid** is shown if the license key does not match the Feature Key dongle serial number.
- **Instances**
  For information only. Some licenses enable a number of port, channels or users. When that is the case, the number of such is indicated here. Multiple licences for the same feature are usually cumulative.
- **Expiry Date**
  For information only. License can be set to expire within a set period from their issue by Avaya. The expiry date is shown here.

Tunnel Settings

Tunnel

Tunneling allows additional security to be applied to IP data traffic. This is useful when sites across an unsecure network such as the public internet. The IP Office supports two methods of tunneling, L2TP and IPSec. Once a tunnel is created, it can be used as the destination for selected IP traffic in the **IP Route** table.

Two types of tunnelling are supported:

- **L2TP - Layer 2 Tunneling Protocol**
  PPP (Point to Point Protocol) authentication normally takes place between directly connected routing devices. For example when connecting to the internet, authentication is between the customer router and the internet service provider's equipment. L2TP allows additional authentication to be performed between the routers at each end of the connection regardless of any intermediate network routers. The use of L2TP does not require an IP Office license.

- **IPSec**
  IPSec allows data between two locations to be secured using various methods of sender authentication and or data encryption. The use of IPSec requires entry of an IPSec Tunneling license (IP400 IPSec VPN RFA) into the IP Office at each end.

L2TP Tunnel

Tunnel | Tunnel (L2TP)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name:** *Default = Blank*.
  A unique name for the tunnel. Once the tunnel is created, the name can be selected as a destination in the IP Route table.
- **Local Configuration**
  The account name and password is used to set the PPP authentication parameters.
  - **Local Account Name**
    The local user name used in outgoing authentication.
  - **Local Account Password/Confirm Password**
    The local user password. Used during authentication.
  - **Local IP Address**
    The source IP address to use when originating an L2TP tunnel. By default (un-configured), IP Office uses the IP address of the interface on which the tunnel is to be established as the source address of tunnel.
- **Remote Configuration**
  The account name and password is used to set the PPP authentication parameters.
  - **Remote Account Name**
    The remote user name that is expected for the authentication of the peer.
  - **Remote Account Password/Confirm Password**
    The password for the remote user. Used during authentication.
  - **Remote IP Address**
    The IP address of the remote L2TP peer or the local VPN line IP address or the WAN IP address.
- **Minimum Call Time (Mins):** *Default = 60 minutes, Range = 1 to 999.*
  The minimum time that the tunnel will remain active.
- **Forward Multicast Messages:** *Default = On*
  Allow the tunnel to carry multicast messages when enabled.
- **Encrypted Password:** *Default = Off*
  When enabled, the CHAP protocol is used to authenticate the incoming peer.

Tunnel | L2TP (L2TP)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Shared Secret/Confirm Password**
  User setting used for authentication. Must be matched at both ends of the tunnel. This password is separate from the PPP authentication parameters defined on the **L2TP|Tunnel** tab.
- **Total Control Retransmission Interval:** *Default = 0, Range = 0 to 65535.*
  Time delay before retransmission.
- **Receive Window Size:** *Default = 4, Range = 0 to 65535.*
  The number of unacknowledged packets allowed.
- **Sequence numbers on Data Channel:** *Default = On*
  When on, adds sequence numbers to L2TP packets.
- **Add checksum on UDP packets:** *Default = On.*
  When on, uses checksums to verify L2TP packets.
- **Use Hiding:** *Default = Off*
  When on, encrypts the tunnel's control channel.

Tunnel | PPP (L2TP)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **CHAP Challenge Interval (secs):** *Default = 0 (Disabled), Range = 0 to 99999 seconds.*
  Sets the period between CHAP challenges. Blank or 0 disables repeated challenges. Some software (such as Windows 95 DUN) does not support repeated challenges.
- **Header Compression:** *Default = None*
  Select header compression. Options are: ***IPHC*** and/or ***VJ***.
- **PPP Compression Mode:** *Default = MPPC*
  Select the compression mode for the tunnel connection. Options are: ***Disable***, ***StacLZS*** or ***MPPC***.
- **Multilink / QoS:** *Default = Off*
  Enable the use of Multilink protocol (MPPC) on the link.
- **Incoming traffic does not keep link up:** *Default = On*
  When enabled, the link is not kept up when the only traffic is incoming traffic.
- **LCP Echo Timeout (secs):** *Default = 6, Range = 0 to 99999 seconds.*
  When a PPP link is established, it is normal for each end to send echo packets to verify that the link is still connected. This field defines the time between LCP echo packets. Four missed responses in a row will cause the link to terminate.

IP Security Tunnel

Tunnel | Main (IPSec)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name:** *Default = Blank*.
  A unique name for the tunnel. Once the tunnel is created, the name can be selected as a destination for traffic in the IP Route table.
- **Local Configuration**
  The IP Address and IP Mask are used in conjunction with each other to configure and set the conditions for this Security Association (SA) with regard to inbound and outbound IP packets.
  - **IP Address**
    The IP address or sub-net for the start of the tunnel.
  - **IP Mask**
    The IP mask for the above address.
  - **Tunnel Endpoint IP Address**
    The local IP address to be used to establish the SA to the remote peer. If left un-configured, IP Office will use the IP address of the local interface on which the tunnel is to be configured.
- **Remote Configuration**
  The IP Address and IP Mask are used in conjunction with each other to configure and set the conditions for this Security Association (SA) with regard to inbound and outbound IP packets.
  - **IP Address**
    The IP address or sub-net for the end of the tunnel.
  - **IP Mask**
    The IP mask for the above address.
  - **Tunnel Endpoint IP Address**
    The IP address of the peer to which a SA must be established before the specified local and remote addresses can be forwarded.

Tunnel | IKE Policies (IPSec)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Shared Secret/Confirm Password**
  The password used for authentication. This must be matched at both ends of the tunnel.
- **Exchange Type:** *Default = ID Prot*
  Aggressive provides faster security setup but does not hide the ID's of the communicating devices. **ID Prot** is slower but hides the ID's of the communicating devices.
- **Encryption:** *Default = DES CBC*
  Select the encryption method used by the tunnel. The options are: ***DES CBC***, ***3DES*** or ***Any***.
- **Authentication:** *Default = MD5*
  The method of password authentication. Options are: ***MD5***, ***SHA*** or ***Any***.
- **DH Group:** *Default = Group 1*
- **Life Type:** *Default = KBytes*
  Sets whether **Life** (below) is measured in seconds or kilobytes.
- **Life:** *Range = 0 to 99999999.*
  Determines the period of time or the number of bytes after which the SA key is refreshed or re-calculated.

Tunnel | IPSec Policies (IPSec)

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

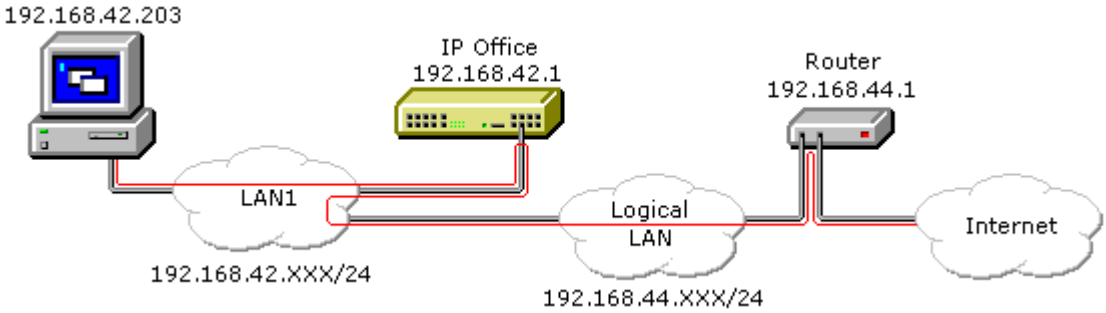
- **Protocol:** *Default = ESP*
  ESP (Encapsulated Security Payload) or AH (Authentication Header, no encryption).
- **Encryption:** *Default = DES*
  Select the encryption method used by the tunnel. The options are: ***DES CBC***, ***3DES*** or ***Any***.
- **Authentication:** *Default = HMAC MD5*
  The method of password authentication. Options are: ***HMAC MD5***, ***HMAC SHA*** or ***Any***.
- **Life Type:** *Default = KBytes*
  Sets whether **Life** (below) is measured in seconds or kilobytes.
- **Life**
  Determines the period of time or the number of bytes after which the SA key is refreshed or re-calculated.

Logical LAN Settings

Logical LAN

IP Office Small Office Edition and IP412 control units support two separate LAN interfaces (LAN1 and LAN2). These are separately addressed and the IP Office's IP route table and firewalls can be used to control traffic between device attached to the two LAN's.

On other IP Office control units only a single LAN (LAN1) is available. A logical LAN allows these systems to support a second separately addressed LAN on the same interface. Traffic between the IP Office LAN1 and the logical LAN can then be controlled by the IP Office's IP route table and firewalls.



Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name:** *Default = Blank. Range = Up to 31 characters.*
  A unique name for the logical LAN. This name becomes selectable as a destination in the IP Route table.
- **IP Address:** *Default = 0.0.0.0*
  The IP address provided by the internet service provider for the logical LAN.
- **IP Mask:** *Default = 0.0.0.0*
  The IP address mask provided by the internet service provider for the logical LAN.
- **Gateway IP Address:** *Default = 0.0.0.0*
  The IP address of the router on the logical LAN.
- **Gateway Mac Address:** *Default = 00:00:00:00:00:00*
  The MAC address of the router. If the MAC address isn't known, from a PC that can ping the router's IP address, use the command ***arp -a <ip address***>.
- **Firewall Profile:** *Default = Blank*
  This field allows selection of an existing IP Office firewall profile that should be applied to traffic to and from the logical LAN.
- **Enable NAT:** *Default = On (Grayed out).*
  NAT is applied to all traffic from the IP Office LAN to the logical LAN. The use of NAT is not compatible with H.323 VoIP operation, therefore a VPN tunnel should also be applied to traffic being routed

Wireless Settings

Wireless Overview

The Small Office Edition control unit can act as an 802.11b wireless access point. To do this requires the insertion of an Avaya supplied IP Office wireless card into one of the control unit's PCMCIA slots and entry of a Small Office Edition WiFi license into the configuration. The IP Office Wireless settings can then be configured.

In order to connect to the IP Office LAN, wireless devices must be configured to match the IP Office Wireless settings. Additionally the wireless device must match the control unit's LAN1 or LAN2 network settings unless using IP Office DHCP.

Wireless | SSID

This tab is used to set the general identity of the wireless connection to the IP Office LAN.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✗	3.0DT	✓
IP406 V1	✗	3.0	✓
IP406 V2	✗	3.1	✓
IP412	✗	3.2	✓

- **Network Name:** *Default = IP Office Wireless.Net*
  A unique name used to identify and distinguish the IP Office wireless LAN from other wireless LAN's. This is the wireless LAN's Service Set Identifier (SSID).
- **Wireless Mac Address**
  Displays a list of the MAC addresses of the devices currently connected to the wireless LAN.
- **Frequency/Channel:** *Default = 6*
  The 802.11b wireless frequency band is sub-divided into a number of channels. In locations where there are multiple wireless LAN's or multiple access points to the same wireless LAN, each access point should use a separate channel. Devices connecting to a wireless LAN will automatically connect to the channel providing the strongest signal.
  - The number of channels available is country specific. In the US channels 1 to 11 are available. In most of Europe, channels 1 to 13 are available. In Japan only channel 14 is available.
  - The channel frequencies overlap. For instance, channel 2 shares part of the same frequency band as channels 1 and 3. In areas with multiple access points or LAN, use widely spaced channels. For example uses channels 1, 6 and 11 on different access points.
- **Accept Any:** *Default = Off*
  If on, allows any wireless device to connect to the wireless LAN without having to have a matching wireless network name (SSID) set. When off, only devices configured with a matching wireless network name can connect to the wireless LAN.

Wireless | Security

This tab allows for additional security through the use of WEP wireless encryption keys. If enabled, in addition to encrypting the wireless traffic, only devices using a matching encryption key can connect to the wireless LAN.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✗	3.0DT	✓
IP406 V1	✗	3.0	✓
IP406 V2	✗	3.1	✓
IP412	✗	3.2	✓

- **Encryption:** *Default = Disabled*
  Allows selection of 50/64 bit or 128 bit security. Note: 50/64 bit encryption is also know as 40/64 encryption in some locales.
- **Alpha/Hex:** *Default = Hex*
  Switch key entry between hexadecimal and alphabetic entry modes.
- **Key 1/4**
  Allows entry of the security key and selection of which key is the current key to use.

User Restrictions Settings

User Restrictions Overview

User Restrictions are only available in pre-IP Office 3.2 configurations. For IP Office 3.2 and higher they have been replaced by **User Rights**.

Within Manager, users can be grouped by the types of numbers they are allowed to dial or not allowed to dial. For example, those who are allowed to dial 1900 or international numbers.

The **User Restriction** form allows named groups of dialing short codes/restrictions to be created. These short codes can then be applied to a user by associating them with the **User Restriction** name rather than having to recreate the short codes for each user.

To set up a restriction within the User Restriction form

1. Click **User Restriction** form within the Configuration Tree.
2. Enter a name for the restriction.
3. Click the **Short Code** List tab and create a short code.
4. Merge the configuration.

To apply a User Restriction to a specific user

1. Click the **User** form within the Configuration Tree.
2. Double-click the user for whom you want this restriction applied.
3. Within the **User** tab, click the **Restriction** drop down box and select the **User Restriction** you want applied to this user.
4. Merge the configuration.

Restrictions

User Restrictions are only available in pre-IP Office 3.2 configurations. For IP Office 3.2 and higher they have been replaced by **User Rights**.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✓	✓
New	✓	✗	✗	✓	✓
Delete	✓	✗	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✗

- **Name:** *Default = Blank*
  A name used to identify the set of user restrictions and allow its selection through the **Restrictions** field in each individual user's **User** settings.
- **Priority:** *Default = 5 (highest), Range 0 to 5*
  The priority that should be applied to user calls if routed via a Least Cost Route. This overrides the priority of the individual user.
- **Outgoing Call Bar:** *Default = Off.*
  When on, bars users making external calls.

User Restrictions | Short Codes

User Restrictions are only available in pre-IP Office 3.2 configurations. For IP Office 3.2 and higher they have been replaced by **User Rights**.

Allows entry of short codes for dialing by associated users. These short codes override any match system short codes but not individual user short codes.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✓	✓
New	✓	✗	✗	✓	✓
Delete	✓	✗	✗	✓	✓

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✗

User Rights Settings

User Rights Overview

User Rights act as templates for users, locking selected user settings to the template value. For most of the settings within the user rights tabs, the following options can be selected from an adjacent drop down list. Note that some settings are grouped and are set and locked as a group.

- **Apply User Rights Value**
  Apply the value set in the user rights to all associated users.
  - The matching user setting is grayed out and displays a lock symbol.
  - Users attempting to change the settings using short codes receive inaccessible tone.
  - Within the user's Phone Manager the associated fields are grayed out or hidden.
- **Not Part of User Rights**
  Ignore the setting.

Adding User Rights

1. Select **User Rights**.
2. Click and select **User Rights**.
3. Enter a name.
4. Configure the user rights as required.
5. Click **OK**.

Creating User Rights Based on an Existing User

1. Select **User Rights**.
2. In the group pane, right-click and select **New User Rights from User**.
3. Select the user and click **OK**.

Associating User Rights to a User

1. Select **User Rights** or **User**.
2. In the group pane, right-click and select **Apply User Rights to Users**.
3. Select the user rights to be applied.
4. On the **Members of this User Rights** sub tab select the users to which the user rights should be applied as their **Working Hours User Rights**.
5. On the **Members when out of hours** sub tab select which users should use the selected user rights as their out of hours user rights.
6. Click **OK**.

or

1. Select the required user to display their settings in the details pane.
2. Select the **User** tab.
3. Use **Working Hours User Rights** drop-down to select the user rights required.
4. If required a **Working Hours Time Profile** and **Out of Hours User Rights** can be selected.
5. Click **OK**.

Copy User Rights Settings over a User's Settings

This process replaces a user's current settings with those that are part of the selected user rights. It does not associate the user with the user rights.

1. Select **User Rights** or **User**.
2. In the group pane, right-click and select **Copy user rights values to users**.
3. Select the user rights to be applied.
4. Click **OK**.

Default User Rights

For defaulted IP Office systems, the following user rights are created as a part of the default configuration. Fields not listed are not part of the user rights.

✓ = Set to **On**. ✗ = Set to **Off**. – = Not part of the user rights.

User Rights	Call Center Agent	Boss	Application	Default	IP Hard Phone	Mailbox	Paging	T3
Priority	✓ 5	✓ 5	✓ 5	✓ 5	✓ 5	✓ 5	✓ 5	✓ 5
Voicemail	✓	–	–	–	–	✓	–	–
Voicemail Ringback	✗	✗	✗	✗	✗	✗	–	✗
Outgoing Call Bar	✗	✗	✗	✗	✗	✗	✗	✗
No Answer Time	✓ 0	✓ 0	✓ 0	✓ 0	✓ 0	✓ 0	✓ 0	✓ 0
Transfer Return Time	✓ 0	✓ 0	✓ 0	✓ 0	✓ 0	✓ 0	✓ 0	✓ 0
Individual Coverage Time	✓ 10	✓ 10	✓ 10	✓ 10	✓ 10	✓ 10	✓ 10	✓ 10
Busy on Held	✓	✗	✓	✗	✗	–	–	✗
Call Waiting	✗	✗	✓	✗	✗	✗	✗	✓
Can be Intruded	✗	✗	✗	✗	✗	✗	✗	✗
Cannot be Intruded	✗	✗	✓	✓	✓	✗	✗	✗
Force Login	✓	–	–	–	–	–	–	–
Force Account Code	✗	✗	✗	✗	✗	✗	✗	✗
Button Programming	1: a= 2: b= 4: HGEna 5: DNDOn 6: Busy	1: a= 2: b= 3: c= 6: DNDOn 7: Dial *17	–	1: a= 2: b= 3: c=	1: a= 2: b= 3: c= 6: Dial *17	–	–	–
Phone Manager Type	✓ Pro	✓ Lite	✓ Pro	✓ Lite	✓ Lite	✓ Lite	✓ Lite	✓ Lite

User Rights | User

This tab is used to set and lock various user settings.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✓	✓
New	✓	✗	✗	✓	✓
Delete	✓	✗	✗	✓	✓

System	Level		
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

- **Name**
  The name for the user rights . This must be set in order to allow the user rights to be selected within the **User Rights** drop down list on the **User | User** tab of individual users.
- **Locale:** *Default = Blank*
  Sets and locks the language used for voicemail prompts to the user, assuming the language is available on the voicemail server. On a digital extension it also controls the display language used for messages from the IP Office to the phone. See **Supported Country and Locale Settings**.
- **Priority:** *Default = 5, Range 1 (Lowest) to 5 (Highest)*
  Sets and locks the user's priority setting for least cost routing.
- **Voicemail On:** *Default = On*
  Sets and locks the user's voicemail on setting.
- **Voicemail Ringback:** *Default = Off*
  Sets and locks the user's voicemail ringback setting.
- **Do Not Disturb:** *Default = Off*
  Sets and locks the user's DND status setting.
- **Outgoing Call Bar:** *Default = Off*
  When set, bars the user from making external calls.

User Rights | Short Codes

This tab is used to set and lock the user's short code set. The tab operates in the same way as the **User | Short Codes** tab.

Where the same short code exists in both the **User | Short Codes** tab and the associated **User Rights | Short Codes** tab, the IP Office will use the user short code.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✓	✓
New	✓	✗	✗	✓	✓
Delete	✓	✗	✗	✓	✓

System		Level	
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

Short codes can be added and edited using the **Add**, **Remove** and **Edit** buttons. Alternatively you can right-click on the list of existing short code to add and edit short codes.

User Rights | Telephony

This tab allows various user telephony settings to be set and locked. These match settings found on the **User | Telephony** tab.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✓	✓
New	✓	✗	✗	✓	✓
Delete	✓	✗	✗	✓	✓

System	Level		
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

- **No Answer Time:** *Default = Blank (Use system setting), Range = 1 to 99999 seconds.*
  Sets how long a call rings the user before following forwarded on no answer if set or going to voicemail. Leave blank to use the system default setting.
- **Transfer return Time (secs):** *Default = Blank (Off), Range 1 to 99999 seconds.*
  Sets the delay after which any call transferred by the user, which remains unanswered, should return to the user if possible.
- **Wrap up Time (secs):** *Default = 2 seconds, Range 0 to 99999 seconds.*
  Specifies the amount of time after ending one call before another call can ring. You may wish to increase this in a "call center" environment where users may need time to log call details before taking the next call. If set to 0 the user does not receive any calls. It is recommended that this option is not set to less than the default of 2 seconds.
- **Individual Coverage Time (secs):** *Default = 10 seconds, Range 1 to 99999 seconds.*
  This function sets how long the phone will ring at your extension before also alerting at any call coverage users. This time setting should not be equal to or greater than the **No Answer Time**.
- **Call Waiting On:** *Default = Off*
  Call waiting attempts to give the user a tone to indicate other calls are waiting. **Note:** If the user has call appearance buttons programmed, call waiting will not get activated. The next incoming call will appear on an available call appearance button. When there are no available call appearance buttons, the next incoming call will receive busy tone. See **Call Waiting**.
- **Busy on Held:** *Default = On*
  If on, when the user has a call on hold, new calls receive busy tone (ringing for incoming analog call) or are diverted to voicemail if enabled, rather than ringing the user. Note this overrides call waiting when the user has a call on hold.
- **Can Intrude:** *Default = Off*
  Check this option if the User can interrupt other user's calls. This setting and the setting below are used to control the use of the following short code and button features: **Call Intrude**, **Call Listen**, **Call Steal** and **Dial Inclusion**.
- **Cannot be Intruded:** *Default = On*
  If checked, this user's calls cannot be interrupted or acquired. In addition to the features listed above, this setting also affects whether other users can use their appearance buttons to bridge into a call to which this user has been the longest present user.
- **Force Login:** *Default = Off*
  If checked, the user must login using their **Login Code** to use an extension. For example, if **Force Login** is ticked for User A and user B has logged onto A's phone, after B logs off A must log back. If Force Login was not ticked, A would be automatically logged back on.
- **Force Account Code:** *Default = Off*
  If checked, the user must enter a valid account code to make an external call.

- **Inhibit Off-Switch Transfers:** *Default = Off*
  When enabled, this setting stops the user from transferring or forwarding calls externally. Note that all user can be barred from forwarding or transferring calls externally by the **System | Telephony | Inhibit Off-Switch Transfers** setting.

User Rights | Button Programming

This tab is used to set and lock the user's programmable button set. When locked, the user cannot use **Admin** or **Admin1** buttons on their phone to override any button set by their user rights.

Buttons not set through the user rights can be set through the user's own settings.

When **Apply user rights value** is selected, the tab operates in the same manner as the **User | Button Programming** tab.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✓	✓
New	✓	✗	✗	✓	✓
Delete	✓	✗	✗	✓	✓

System		Level	
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

Adding Blank Buttons

There are scenarios where users are able to program their own buttons but you may want to force certain button to be blank. This can be done through the user's associated User Rights as follows:

1. Assign the action **Emulation | Inspect** to the button. Enter some spaces as the button label.
2. When pressed by the user, this button will not perform any action. However it cannot be overridden by the user.

User Rights | Menu Programming

This tab is used to set and lock the user's programmable button set.

When **Apply User Rights value** is selected, the tab operates in the same manner as the **User | Menu Programming** tab.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✓	✓
New	✓	✗	✗	✓	✓
Delete	✓	✗	✗	✓	✓

System		Level	
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

User Rights | Phone Manager

This tab is used to set and lock which parts of Phone Manager the associated users can use or adjust.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✓	✓
New	✓	✗	✗	✓	✓
Delete	✓	✗	✗	✓	✓

System	Level		
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

- **Allow user to modify Phone Manager settings:** *Default = On*
  This setting is used with the **Agent Mode**, **Phone Manager Status Options**, **Screen Pop Options** and **Hide Options**. It controls whether those options are applied every time the user starts Phone Manager or only the first time the user starts Phone Manager.
  - If this setting is enabled, then the IP Office configuration setting of those options are only applied the first time a user starts Phone Manager on a PC. Those settings become part of the user's Phone Manager profile on that PC. They can be changed by the user through Phone Manager. On subsequent Phone Manager starts the Manager settings are ignored.
  - If this setting is not enabled, the IP Office configuration settings are applied every time the user starts Phone Manager and cannot be overridden by the user.
- **Agent Mode:** *Default = Off*
  This option controls the setting of the **Agent Mode** option on the **Configure Preferences | Agent Mode** tab within Phone Manager Pro. When enabled, the user has additional toolbar controls for **Busy Wrap Up**, **Busy Not Available** and **Select Group**. Note that the options on the Phone Manager Pro **Agent Mode** tab can be greyed out from user changes by the **Agent Mode** setting in **Configuration Options** below.
- **Phone Manager Type:** *Default = Lite*
  Determines the mode in which the user's copy of the Phone Manager application operates. Modes are **Lite**, **Pro** and **Phone Manager PC Softphone**. Note that the number of users able to simultaneously use Pro and VoIP modes is controlled by licenses entered into the IP Office configuration. This setting cannot be changed by the user. * For pre-3.2 IP Office systems this setting is located on the **User | User** tab.
  - **Enable VoIP:** *Default = Off*
    This option only appears if the selected **Phone Manager Type** is ***Phone Manager PC Softphone***. It enables or disables the matching setting on the user's Phone Manager PC Softphone.
- **Configuration Options**
  These options allow the user access to the indicated configure preferences tabs within Phone Manager. The controllable tabs for Phone Manager Lite are **Telephone** and **Do Not Disturb**. The additional controllable tabs for Phone Manager Pro and Phone Manager PC Softphone are **Screen Pop**, **Compact Mode**, **Agent Mode** and **Voicemail** (**Voicemail** and **Voicemail Ringback** controls only).
- **Screen Pop Options**
  These options allow selection of the Phone Manager Pro/Phone Manager PC Softphone screen pop options **Ringing**, **Answering**, **Internal**, **External** and **Outlook**. The **Allow user to modify Phone Manager settings** option controls whether these settings are applied only when Phone Manager is first started or every time Phone Manager is started.

- **Phone Manager Status Options**
  These options allow selection of the tabs to show within the call history area of the user's Phone Manager. The tabs selectable for Phone Manager are **All**, **Missed**, **Status** and **Messages**. The additional tabs selectable for Phone Manager Pro and PC Softphone are **Incoming**, **Outgoing** and **Account Code**. The **Allow user to modify Phone Manager settings** option controls whether these settings are applied only when Phone Manager is first started or every time Phone Manager is started.
- **Hide Options**
  These options allow selection of the Phone Manager Pro/Phone Manager PC Softphone options **Hide on close** and **Hide on no calls**. The **Allow user to modify Phone Manager settings** option controls whether these settings are applied only when Phone Manager is first started or every time Phone Manager is started.

User Rights | Twinning

This tab is used to set and lock the following settings relating to the use of mobile twinning. Use of mobile twinning requires entry of a mobile twinning license.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✓	✓
New	✓	✗	✗	✓	✓
Delete	✓	✗	✗	✓	✓

System		Level	
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

- **Mobile Dial Delay**
  Sets and locks the dial delay applied to calls eligible for mobile twinning.
- **Hunt group calls eligible for mobile twinning**
  Sets whether mobile twinning is applied to hunt group calls.
- **Forwarded calls eligible for mobile twinning**
  Sets whether mobile twinning is applied to forwarded calls.

User Rights | User Rights Membership

The tabs display the users associated with the user rights. and allows these to be changed.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✓	✓
New	✓	✗	✗	✓	✓
Delete	✓	✗	✗	✓	✓

System	Level		
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

- **Members of this User Rights**
  This tab indicates those users associated with the user rights. If the user has an associated **Working hours time profile**, their association to the user rights applies only during the periods defined by the time profile. If the user does not have an associated **Working hours time profile**, they are associated with the user rights at all times.
- **Members when out of service**
  This tab indicates those users associated with the user rights outside the time periods defined by their **Working hours time profile**. The **Members when out of service** tab is not populated unless there are time profiles available within the configuration.

Auto Attendant Settings

Auto Attendant Overview

Both the IP Office Small Office Edition and IP406 V2 control units support integral voicemail. This is setup by adding an Avaya embedded voicemail memory card to the control unit and then selecting ***Embedded Voicemail*** as the **Voicemail Type** on the **System | Voicemail** tab. For full details refer to the Embedded Voicemail Installation Manual.

The IP406 V2 supports up to 4 simultaneous calls to embedded voicemail services. The Small Office Edition supports up to 10 simultaneous calls to embedded voicemail depending on available voice compression channels.

In addition to basic mailbox functionality, embedded voicemail can also provide auto-attendant operation. Up to 4 auto-attendant services are supported. Each auto attendant can use existing time profiles to select the greeting given to callers and then provide follow on actions relating to the key presses 0 to 9, * and #.

- **Time Profiles**
  Each auto attendant can use up to three existing time profiles, on each for Morning, Afternoon and Evening. These are used to decide which greeting is played to callers. They do not change the actions selectable by callers within the auto attendant. If the time profiles overlap or create gaps, then the order of precedence used is morning, afternoon, evening.
- **Greetings**
  Four different greetings are used for each auto attendant. One for each time profile period. This is then always followed by the greeting for the auto-attendant actions. By default a number of system short codes are automatically created to allow the recording of these greetings from an IP Office extension. See below.
- **Actions**
  Separate actions can be defined for the DTMF keys 0 to 9, * and #. Actions include transfer to a specified destination, transfer to a user extension specified by the caller and replaying the greetings.
- **Short Codes**
  Adding an auto attendant automatically adds a number of system short codes. These use the **Auto Attend** short code feature. These short codes are used to provide dialing access to record the auto attendant greetings.
  - **AA:*Name*.1**
    Record the auto attendant's greeting for the morning time profile period.
  - **AA:*Name*.2**
    Record the auto attendant's greeting for the afternoon time profile period.
  - **AA:*Name*.3**
    Record the auto-attendant's greeting for the evening time profile period.
  - **AA:*Name*.4**
    Record the auto-attendant's greeting for the available menu actions.
- **Routing Calls to the Auto Attendant**
  The telephone number format **AA:*Name*** can be used to route callers to an auto attendant. It can be used in the destination filed of incoming call routes and telephone number field of short codes set to the **Auto Attend** feature.

Auto Attendant | Auto Attendant

This tab is used to define the name of the auto attendant service and the time profiles that should control which auto attendant greetings are played.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✓
New	✓	✗	✗	✗	✓
Delete	✓	✗	✗	✗	✓

System		Level	
SOE	✓	2.1	✓
IP403	✗	3.0DT	✓
IP406 V1	✗	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✗	3.2	✓

- **Name:** *Range = Up to 12 characters*
  This field sets the name for the auto-attendant service. External calls can be routed to the auto attendant by entering **AA:*Name*** in the destination field of an Incoming Call Route.
- **Morning/Afternoon/Evening:**
  Each auto-attendant can consist of three distinct time periods, defined by associated time profiles.
  - **Time Profile**
    The time profile that defines each period of auto-attendant operation. When there are overlaps or gaps between time profiles, precedence is given in the order morning, afternoon and then evening.
  - **Short code**
    These fields indicate the system short codes automatically created to allow recording of the auto attendant greetings.
- **Menu Options:**
  This field indicates the system short code automatically created to allow recording of the greeting for the auto-attendant actions.
- **Maximum Inactivity:** *Default = 8 seconds; Range = 5 to 20 seconds.*
  [2.1 ✗][3.0DT ✗][3.0 ✓][3.1 ✓][3.2 ✓]
  This field sets how long after playing the prompts the Auto Attendant should wait for a valid key press. If exceeded, the caller is either transferred to the **Fallback Extension** set within the **Incoming Call Route** used for their call or else the caller is disconnected.

Authorization Codes Settings

Overview of Authorization Codes

Authorization codes are similar to account codes. However, unlike account codes which are useable by any user, each authorization code is only useable by a specific user or users associated with a specific set of user rights.*[1]

Authorization codes are not shown by default. Manager must be modified in order to support authorization codes. Similarly in order to record authorization codes used with calls in the IP Office SMDR, the IP Office Delta Server software must be modified.

- ⚠ **WARNING: Changing PC Registry Settings**
  Avaya no liability for any issues arising from the editing of a PC's registry settings. If you are in any doubt about how to perform this process you should not proceed. It is your responsibility to ensure that the registry is correctly backed up before any changes are made.

Enabling Authorization Codes in Manager

To enable support for authorization codes within Manager requires a change to the Manager PC registry settings. Once this change is made, various authorization code related features are visible when Manager is restarted and a configuration from a 3.2 or higher system is loaded.

1. Close Manager.
2. Locate the registry key ***HKEY_CURRENT_USER\Software\Avaya\IP400\Manager\EnableAuthorisationCodes*** and change its value from ***0*** to ***1***.
3. Restart Manager and load a configuration from an IP Office 3.2 or higher system.

Enabling Authorization Codes in Delta Server

The use of authorization codes can be included in the SMDR output logged by the IP Office Delta Server application. Again this requires changes to the registry of the PC running the Delta Server application.

1. Open the registry and locate the ***HKEY_LOCAL_MACHINE\Software\Avaya\CCCServer\Setup*** registry keys.
2. Add two new ***DWORD*** registry keys and set their values to ***1***. They are:
   - ***AllowAuthorization***.
   - ***ShowAllowAuthorization***.
3. Open the browser to the Delta Server configuration screens.
4. Select SMDR. An **Add Authorization Fields to SMDR** option should now be available. Select this to enable logging of authorization codes to the SMDR log file.

The use of authorization codes is not shown in the Recent SMDR screen. They are only logged to the SMDR log file. Two new fields are added to the end of each call log record in the SMDR log file. The first new field is the authorization code used or ***n/a*** if no authorization code was used. The second field is ***1*** for valid authorization or ***0*** for invalid authorization.

Forcing Authorization Codes
There are two methods to force a user to enter an authorization code in order to complete dialing an external call. When this occurs, the user must enter an authorization code that is associated with them or the user rights to which they as associated. In an incorrect authorization code is entered 3 times, the user is blocked from further attempts for the next minute.

- **To Force Authorization Codes on All External Calls**
  A user can be required to enter an authorization code for all external calls. This is done by selecting **Force Authorization Code** on the **User | Telephony** tab.
- **To Force Authorization Codes on Specific Calls**
  To require entry of an authorization code on a particular call or call type, the **Force Authorization Code** option should be selected in the short code settings. This can be used in user, user rights or system short codes in order to apply its effect to a user, group of users or all users respectively. You need to ensure that the user cannot dial the same number by any other method that would by pass the shortcode, for example with a different prefix.

Entering an Authorization Code
Where possible, when an authorization code is required, the user can enter it through their phones display. However this is not possible for all type of phone, for example it is not possible with analog phones and Avaya XX01 or XX02 phones. The users of these device must either enter the authorization code using Phone Manager or by using a shortcode set to the **Set Authorization Code** feature immediately before making the call.

When entry of an authorization code is triggered, the user can enter any authorization code with which they are either directly associated or associated through their current user rights.*[1]

Note

1. It is possible to create an authorization code which has no associated user or user rights. Such an authorization code is useable by any user. However this is deprecated as not being the intended purpose of authorization codes.
2. If account code entry is setup for a particular number, calls forwarded or transferred to that number will also trigger account code entry.
3. On systems using line appearances to BRI trunk channels to make outgoing calls, account code entry may not be triggered. This can be resolved by adding a short code such as **[9]XN;/Dial/XN/0** (adjust the prefix and line group as necessary).

Authorization Code Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	-	✓
New	✓	✗	✗	-	✓
Delete	✓	✗	✗	-	✓

System	Level		
SOE	✓	2.1	✗
IP403	✓	3.0DT	✗
IP406 V1	✓	3.0	✗
IP406 V2	✓	3.1	✗
IP412	✓	3.2	✓

- **Authorization Code:** *Range = Up to 12 digits.*
  The digits used for the authorization code. Each code must be unique. Wildcards are not useable with authorization codes.
  - **User Rights**
    This field is used to select the user right with which the authorization code is associated. The authorization code can then be used to authorize calls made by users currently associated with that set of user rights.
  - **User**
    This field is used to select a user with which the authorization code is associated. The authorization code can then be used to authorize calls made by that user.

E911 System Settings

E911 System Overview

The central office routes 911 emergency calls into a dedicated emergency network. The calls are then distributed to the correct emergency operator by using either the automatic line identification information (ALI) received with the emergency call or the registered billing address of the line on which the call was made.

E911 is system whereby emergency calls are routed through an E911 Adjunct with adds additional location information to the call based on the . Support for this is only available on control units shipped with a U-Law default and set to **United States** locale.

The use of E911 may be mandatory in some locations and may include the provision of an adjunct owned and managed by a third party or the central office.

Dial Emergency Short Codes

On all IP Office systems, short codes using the Dial Emergency feature should be created which are accessible by all users from all extensions. If the system uses prefixes for external dialing, additional Dial Emergency short codes should be created to allow the dialing of emergency calls with and without the dialing prefix.

Emergency Dialing without an E911 Adjunct

If E911 is not enabled, all emergency calls are routed via normal short code operation.

1. In this case **Dial Emergency** short codes must be created as described above.
2. The lines used to route an extension's emergency calls must be correctly registered to the physical location of the extension. That information is held by the central office.

Emergency Dialing with an E911 Adjunct

An E911 adjunct is an additional piece of equipment. It holds a database of location information based on the base extension number passed to it by the IP Office. Connection from the IP Office is by loop-start analog trunks. The adjunct is then connected to the central office's 911 emergency network by CAMA (Centralized Automatic Message Accounting) trunks.

When E911 is enabled and operating, all 911 calls are routed to the adjunct. The base extension ID is used to add the appropriate location information to the calls ALI before passing it to the emergency network.

If emergency calls cannot be routed to the E911 adjunct due to congestion, the IP Office will automatically overflow to the first available external trunk. The E911 adjunct includes an alarm switch that can be connected to an IP Office analog extension port. Overflow of emergency calls can then be triggered if the E911 indicates an alarm such as disconnection of the adjunct trunks.

If you are using E911 with an E911 Adjunct, the following needs to be administered:

1. On the **E911 System** tab select **Enable**.
2. In the **Adjunct Trunks** list select those trunks that are connected to the E911 Adjunct.
3. In the **Alarm Station** field, indicate the extension number of the user to which the E911 adjunct's alarm connection has been connected.
    - On an operator or security extension, a programmable button can be set to monitor the status of this user. That button will then indicate in use when the E911 adjunct is in it alarm state.

E911 System | E911 System

The settings on this tab relate to the use of an E911 adjunct.

911 calls routed to the adjunct include the extension ID of the extension on the IP Office system. This is used to lookup information stored on the E911 Adjunct and then send that information to the central office. The extension ID of each extension is shown on the **Extension | Extn** tab.

Settings

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
View	✓	✓	✓	Pre-3.2	3.2
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Enable E911 System:** *Default = Off (Not Selected)*
  When selected, all dialing of 911 emergency calls is routed via the selected **Adjunct Trunks** and includes the base extension number of the dialing extension. This may differ from the extension number of the user current logged on at that extension if hot desking is being used. This operation overrides any shortcode set to route 911 calls.
- **Alarm Station:** *Default = Blank s*
  When the E911 Adjunct detects an error, for example disconnection of the CAMA trunks, it indicates this by taking the alarm connection off-hook. This is a connection from the alarm port on the E911 Adjunct to an analog extension port on the IP Office.
  - When an alarm occurs and is indicated to the IP Office, the IP Office will reroute 911 calls.
  - To monitor the status of the alarm connection a user should be associated with the extension (one should exist by default). Another user such as the reception desk or security desk can then be provided with a programmable button set to User and the appropriate user. That busy will then indicate busy when the alarm connection is in an alarm state.
- **Adjunct Trunks:**
  This section lists all the trunks except VoIP trunks available on the IP Office system. Only the trunks which are connected to the E911 Adjunct should be selected.

E911 System | Zones

Zones are not used. They are overridden by the use of E911 Adjunct or the mandatory Dial Emergency short codes.

Zones allow extensions in the same location to be grouped and have an external trunk or trunks associated with them. This billing address of the trunk or other information held by the trunk provider can then be used identify the correct emergency center that should respond to 911 calls on that trunk and the location of the extension making the call.

The extension number used for this function is the **Base Extension** number set through the **Extension | Extn** tab. This allows the physical extension to be correctly identified even if currently being used by a hot desking user with a different associated extension number.

To make calls to an extension using its **Base Extension** number, the short code feature **Dial Physical Extn by Number** can be used. On US systems this is normally provided by the default short code *70*N# when N can be replaced by dialing the Base Extension number.

A zone named ***Default*** is maintained by the IP Office. Any extension not included in another zone is automatically placed into the ***Default*** zone. This zone can be edited but cannot be removed.

Settings

This tab shows the existing E911 zones, the number of stations (extensions) and trunks in each zone and the base extension numbers of the extensions. The settings can be edited by clicking on an existing zone and selecting **Edit**. A new zone can be created by selecting **Add**.

Action	Operator Rights View			Mergeable	
	Administrator	Manager	Operator		
				Pre-3.2	3.2
View	✓	✓	✓		
Edit	✓	✗	✗	✗	✗
New	✓	✗	✗	✗	✗
Delete	✓	✗	✗	✗	✗

System		Level	
SOE	✓	2.1	✓
IP403	✓	3.0DT	✓
IP406 V1	✓	3.0	✓
IP406 V2	✓	3.1	✓
IP412	✓	3.2	✓

- **Name:** *Default = Default, Range = Up to 15 characters.*
  Allows a unique name to be assigned to each zone.
- **Stations:** *Default = Contains all Extension ID's*
  Lists the extensions in the zone. Click **Add** to add and remove extensions. To just remove extensions, select the extension or extensions and click **Remove**. Extensions removed from any zone are automatically included in the ***Default*** zone and cannot be removed from that zone except by inclusion in another zone. Each extension can only be included in one zone.
- **Trunks:** *Default = Blank*
  List the trunks associated with the zone. Click **Add** to add and remove trunks. To just remove trunks, select the trunk or trunks and click **Remove**. Each trunk can only be included in one zone.

Telephone Features

Call Barring

Call barring can be applied in a range of ways.

- **Barring a User From Making Any External Calls**
  For each user, **Outgoing Call Bar** can be selected (**User | Telephony**) to stop that user from making any outgoing calls.
- **Barring Particular Numbers/Number Types**
  IP Office short codes are used to match user dialing and then perform a specified action. Typically the action would be to dial the number to an external line. However, short codes that match the dialing of particular numbers or types of numbers can be added and set to another function such as **Busy**. Those short codes can be added to a particular user, to a User Rights associated with several users or to the system short codes used by all users.
  - The IP Office allows short codes to be set at user, user rights, system and least cost route. These have a hierarchy of operation which can be used to achieve various results. For example a system short code for a particular number can be set to busy to bar dialing of that number. For a specific user, a user short code match to the same number but set to Dial will allow that user to override the system short code barring.
- **Using Account Codes**
  The IP Office configuration can include a list of account codes. These can be used to restrict external dialing only to users who have entered a valid account code.
  - **Forcing Account Code Entry for a User**
    A user can be required to enter an account code before the system will return dialing tone. The account code that they enter must match a valid account code stored in the IP Office configuration. The setting for this is **Forced Account Code** (**User | Telephony | Forced Account Code**).
  - **Forcing Account Code Entry for Particular Numbers**
    Each IP Office short code has a **Force Account Code** option. Again the account code entered must match a valid account code stored in the IP Office configuration. for the call to continue.
- **Barring External Transfers and Forwards**
  A user cannot forward or transfer calls to a number which they cannot normally dial. In addition there are controls which restrict the forwarding or transferring of external calls back off-switch. See Off-Switch Transfer Restrictions.

Caller Display

Caller display displays details about the caller and the number that they called. On internal calls the IP Office provides this information. On external calls it uses the Incoming Caller Line Identification (ICLID) received with the call. The number is also passed to IP Office applications and can be used for features such as call logging, missed calls and to make return calls.

Analog extension can be configured for caller display via the IP Office configuration (**Extension | Extn | Caller Display Type**).

- **Adding the Dialing Prefix**
  Some IP Office systems are configured to require a dialing prefix in front of external numbers when making outgoing calls. When this is the case, the same prefix must be added to the ICLID received to ensure that it can be used for return calls. The prefix to add is specified through the **Prefix** field of each line.
- **Directory Name Matching**
  The IP Office configuration contains a directory of names and numbers. If the ICLID of an incoming call matches a number in the directory, the directory name is associated with that call and displayed on suitable receiving phones.
  - The IP Office SoftConsole and Phone Manager applications also have directories that can be used for name matching. If a match occurs, it overrides the system directory name match for the name shown by that application.
- **Note: Caller ID can not be forwarded**
  If an extension is forwarded or transferred to another extension, the Caller ID of the forwarding extension is received, not the Caller ID of the original call.

Extended Length Name Display

In some locales, it may be desirable to change the way names are displayed on phones in order to maximize the space available for the called or calling name. There are two hidden controls which can be used to alter the way the IP Office displays calling and called information.

These controls are activated by entering special strings on the **Source Numbers** tab of the **NoUser** user. These strings are:

- **LONGER_NAMES**
  This setting has the following effects:
  - On DS phones, the call status display is moved to allow the called/calling name to occupy the complete upper line and if necessary wrap-over to the second line.
  - For all phone types:
    - On incoming calls, only the calling name is displayed. This applies even to calls forwarded from another user.
    - On outgoing calls, only the called name is displayed.
- **HIDE_CALL_STATE**
  This settings hides the display of the call state, for example **CONN** when a call is connected. This option is typically used in conjunction with **LONGER_NAMES** above to provide additional space for name display.

Call Intrusion

Call intrusion allows a user to join another users existing conversation. Once the intrusion has occurred, all parties can hear and talk to each other. Note that intruding uses IP Office conference resources.

The ability to intrude is controlled by two IP Office configuration settings, the **Can Intrude** setting of the person intruding (**User | Telephony | Can Intrude**) and the **Cannot Be Intruded** setting of any other users in the call (**User | Telephony | Cannot Be Intruded**). By default no users can intrude and all users cannot be intruded.

- **Bridging**
  Users with call appearance buttons may be able to bridge into other calls. This is similar to intrusion but subject to different operation. Refer to the IP Office Key & Lamp Operation Manual.

Below is an example of a short code, which can be used to attempt call intrusion. Using it the intruder would dial *90*N#, replacing the N with the extension number of the user into whose call they need to intrude.

- **Short Code:** *90**N*#
- **Telephone No:** *N*
- **Feature:** CallIntrude

The Dial Inclusion short code feature can be used instead of the Call Intrude feature. it allows the intruder and the intrusion target to talk without the third party hearing them. During this type of intrusion, all parties hear a repeated intrusion tone. When the intruder hangs-up the original call parties are reconnected.

Call Pickup

Call pickup allows a user to answer a call ringing at another phone.

The following default short codes can be used:

- ***30 - Call Pickup Any**
  Answers the longest ringing call on the IP Office system. On large IP Office systems it is recommended that this short code is removed as it becomes difficult for users to predict which call they are answering.
- ***31 - Call Pickup Group**
  Pickup the longest ringing call to the hunt groups of which the user is a member.
- ***32*N# - Call Pickup Extn**
  Pick up the call ringing at a specific extension. When dial, ***N*** is replaced by the extension number.
- ***53*N# - Call Pickup Members**
  Pick up any call ringing on another extension that is a member of the Hunt group specified. The call picked up does not have to be a hunt group call. When dial, ***N*** is replaced by the hunt group extension number.

Call Waiting

Call waiting allows a user who is already on a call to be made aware of another call to their extension. The user hears a call waiting tone and depending on the phone type, information about the new caller may be displayed. The call waiting tone varies according to locale.

Call waiting is primarily a feature for analog extension users. For Avaya digit phone with multiple call appearance buttons, call waiting settings are ignored as additional calls are indicated on any free call appearance button.

To answer a call waiting, either end the current call or put the current call on hold, and then answer the new call. Hold can then be used to move between the calls.

Call waiting for a user can be enabled through the IP Office configuration (**User | Telephony | Call Waiting On**), through the Phone Manager application and through programmable phone buttons.

Call waiting can also be controlled using short codes. The following default short codes are available when using Call Waiting.

- ***15 - Call Waiting On**
  Enables call waiting for the user.
- ***16 - Call Waiting Off**
  Disables call waiting for the user.
- ***26 - Clear Call and Answer Call Waiting**
  Clear the current call and pick up the waiting call.

Hunt Group Call Waiting

Call waiting can also be provided for hunt group calls (**Hunt Group | Hunt Group | Call Waiting On**). The hunt group type must be ***Group*** and all the group members must have their own call waiting setting switched on.

Hot Desking

Hot desking allows users to log in at another phone. However, unlike using **Follow Me** or **Forwarding** which simply redirect a user's calls to another users phone, hot desking takes total control of another phone. All the hot desking user's settings apply to that phone until they log out.

There are a number of setting and features which affect logging in and out of IP Office phones.

- In order to hot desk, a user must be assigned a **Login Code** (**User | Telephony | Login Code**) in the IP Office configuration.
- User's with a login code are shown by a  icon.
- By default, each IP Office extension has an **Extension** setting (**Extension | Extn | Extension**) containing a directory number. This indicates the user who should be associated with the phone. The user's Extension directory number is set through **User | User | Extension**.
    - By leaving the extension setting for an extension blank, it is possible to have an extension with no default associated user. All extensions in this state use the settings of a special user in the configuration named ***NoUser*** and shown by a  icon. On suitable phones the display will show **NOT LOGGED ON**.
    - Similarly you can create users whose extension directory number is not associated with any physical extension. These users need to log in at a phone when they need to make or receive calls. In this way the IP Office system can support more users than it has physical extensions.
- When another user logs in at an extension, they take control of that phone. Any existing user, including the default associated user, is logged off that phone.
- Calls to a logged off user receive busy treatment until that user logs on elsewhere.
- When the logged in user logs off, they are automatically logged back in at their normal default associated extension. This can be stopped by setting the option **Forced Login** for that user (**User | Telephony | Forced Login**). The default associated user of the extension is logged back in, unless they have already logged in elsewhere or they also have **Forced Login** set.
- For each user, you can configure how long the extension at which they are logged in can remain idle before they are automatically logged out. This is done using the **Login Idle Period** options (**User | Telephony | Login Idle Period**). This option should only be used in conjunction with **Force Login**.
- Logging in and out at a phone can be done either using IP Office short codes or programmable buttons.
    - The default system short code for logging in, is ***35*N#** where the user replaces ***N*** with their extension number and then login code separated by a *. This uses the short code feature **ExtnLogin**. If the user dials just a login code as ***N***, it is checked against the user with the same extension number as the extension's base extension number.
    - The default system short code for logging out is ***36**. This uses the short code feature **ExtLogout**.
    - The **ExtnLogin** and **ExtnLogout** features can be assigned to programmable buttons on suitable Avaya phones. The **ExtnLogin** button will then prompt the user to enter their details.

Agents and Call Center Operation (CCC and CBC)

On IP Office systems with a call center application such as Compact Contact Center (CCC) or Compact Business Center (CBC), logging in and logging off is a key part of tracking and reporting on agent availability. It also controls call distribution as, until the agent logs in, their hunt group membership is seen as disabled. To be treated as an agent, the user must be set to **Forced Login**. See Scenario 4 below.

Scenario 1: Occasional Hot Desking

In this scenario, a particular user, for this example extension 204, needs to occasionally work at other locations within the building.

1. A **Login Code** is added to the user's configuration settings, for this example ***1234***.
2. The user can now log in when needed at any other phone by dialing ****35*204*1234#***. The phone's default associated user is logged off by this and their calls get busy treatment. User 204 is also logged off their normal phone and their calls now rerouted to the phone at which they have logged on.
3. When finished, the user can dial ****36*** to log off.
4. This logs the phone's normal default user back on. Its also logs the hot desking user back on at their normal extension.

Scenario 2: Regular Hot Desking

This scenario is very similar to the one above. However the user doesn't want to be automatically logged back in on their normal phone until they return to its location.

1. A **Login Code** is added to the user's configuration settings, for this example 1234.
2. The **Forced Login** option is selected.
3. When the user logs out of the phone that they are currently using, they are no longer automatically logged in on their normal extension. When they return to it they must dial ****35*204*1234#*** to log in.
4. Whilst not logged in anywhere, calls to the user receive busy treatment.

Scenario 3: Full Hot Desking

Similar to the scenarios above but this time the user doesn't have a regular phone extension that they use. In order to make and receive calls they must find a phone at which they can log in.

1. The user is given an **Extension** directory number that is not matched by the extension directory number setting of any existing extension.
2. They are also given a **Login Code** and a **Login Idle Period** is set, for this example 3600 seconds (an hour). Forced Login isn't required as the user has no default extension at which they might be automatically logged in by the IP Office system.
3. The user can now log in at any available phone when needed.
4. If at the end of the business day they forget to log off, the **Login Idle Period** will eventually log them off automatically.

Scenario 4: Call Center Hot Desking

In this scenario, the phone extensions have no default extension number. Several phones set like this might be used in a call center where the agents use whichever desk is available at the start of their shift. Alternatively a set of desks with such phones might be provided for staff that are normally on the road but occasionally return to the office and need a temporary desk area to complete paper work.

1. For the extensions, the Extension setting is left blank. This means that those phones will be associated with the **NoUser** user's settings and display **NOT LOGGED ON**.
2. The call center agents or road-warrior users are configured with Extension directory numbers that also don't match any existing physical extensions. They are all given **Login Code** numbers.
3. The users can log in at any of the extensions when required. When they log off or log in elsewhere, the extensions return to the **NoUser** setting.

Parking Calls

Parking a call is an alternative to holding a call. A call parked on the telephone system can be retrieved by any other user if they know the system park slot number used to park the call. When the call is retrieved, the action is known as **Ride Call**.

Each parked call requires a park slot number. Attempting to park a call into a park slot that is already occupied causes an intercept tone to be played.

The **Park Timeout** setting in the IP Office configuration (**System | Telephony | Park Timeout**) controls how long a call can be left parked before it recalls to the user that parked it. Note that the recall only occurs if the user has no other connected call.

There are several different methods by which calls can be parked and unparked. These are:

Using Short Codes

The short code features, **ParkCall** and **UnparkCall**, can be used to create short codes to park and unpark calls respectively. The default short codes that use these features are:

- ***37*N#** - Parks a call in park slot ***N***.
- ***38*N#** - Unparks the call in park slot ***N***.

Using the Phone Manager and SoftConsole Applications

The Phone Manager and SoftConsole applications all support park buttons. Clicking on these allows the user to park or unpark calls in the park slot associated with each button.

In addition, when a call is parked in one of those slots by another user, the application user can see details of the call and can unpark it at their extension.

By default the application park buttons are associated with park slots 1 upwards. However these park buttons can be reconfigured to match different park slot numbers.

Using DSS Keys

The **Park** feature can be used to associate a DSS button on a telephone with a particular park slot number. The DSS button can then be used to park and unpark calls from that park slot. The DSS buttons BLF lamps will indicate when a call is parked in the associated park slot.

Phone Defaults

Some telephones support facilities to park and unpark calls through their display menu options (refer to the appropriate telephone user guide). In this case parked calls are automatically put into park slots matching the extension number. For example, the first call parked by extension 201 would go into park slot 2010, the next into park slot 2011 and so on.

Ring Back When Free

Also called 'callback' and 'automatic callback'. If the user called is busy and you want to be informed when they become free, you can dial any digit while listening to the busy tone and then hang up. This sets a **Ring Back When Free**. When the busy extension becomes free, the system will ring your telephone when also idle and, when answered, call the original target extension.

Note

- If the extension called has multiple call appearance buttons, you will not receive busy until all its call appearance buttons are in use.
- You must be idle (have no call connected or held) to receive the ringback.

This feature can also be set via the followings methods. These options also allow a ringback to be set when the target just rings, often known as a ringback when next used.

- **Using a button programmed to the Ring Back When Free function**
  If the button has status indication, it will show that a ring back has been set. The button can also be pressed again to cancel the ringback.
- **Use a short code set to the Ring Back When Free function**
  A short code set to this function can be used to set a ringback on any extension without having to actually make a call.
- **IP Office Phone Manager**
  This application provides the user with a button to set a ringback.

Message Waiting Indication

Message waiting indication (MWI) or a message lamp is supported for a wide variety of phones. It is used to provide the user with indication of when their voicemail mailbox contains new messages. It can also be configured to provide them with indication when selected hunt group mailboxes contain new messages.

Avaya digital and IP phones all have in-built message waiting lamps. Also for all phone users, the IP Office Phone Manager application provides message waiting indication.

Analog Phone Message Waiting Indication

For analog phones, IP Office 3.1 provides support for a variety of analog message waiting indication (MWI) methods. Those methods are **51V Stepped**, **81V**, **101V** and **Line Reversal**. The **101V** method is only supported when using a Phone V2 expansion module.

81V is typically used in European countries. **51V Stepped** is used in most other countries. However the actual method used for a particular model of analog phone should be confirmed with the phone manufacturer's documentation.

The method used for an individual analog extension is set for the **Extn | Extn | Message Waiting Lamp Indication Type** field. This field also provides options for None (no MWI operation) and On. On selects a default message waiting indication method based on the system locale.

'On' Method	Locale
81V	Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Netherlands, Norway, Poland, Portugal, Russia, Saudi Arabia, Sweden, Switzerland, United Kingdom.
51V Stepped	Argentina, Australia, Brazil, Canada, Chile, China, Columbia, Japan, Korea, Mexico, New Zealand, Peru, South Africa, Spain, United States.

- For the United Kingdom system locale (***eng***), the default **Caller Display Type** (***UK***) allows updates of an analog phone's ICLID display whilst the phone is idle. The IP Office uses this facilities to display the number of new messages and total number of messages in the users own mailbox. This feature is not supported with other Caller Display Types.

Hunt Group Message Waiting Indication

By default no message waiting indication is provided for hunt group voicemail mailboxes. Message waiting indication can be configured by adding an **H** entry followed by the hunt groups name to the Source Numbers tab of the user requiring message waiting indication for that hunt group. For example, for the hunt group Sales, add ***HSales***. Hunt group message waiting indication does not require the user to be a member of the hunt group

Ring Tones

Ring tones can be defined in the following terms:

- **Distinctive Ringing - Inside, Outside and Ringback**
  A distinctive ring tone can be given for each of the different call types: an internal call, an external call and a ringback calls (voicemail calls, ringback when free calls, calls returning from park, hold or transfer).
  - The distinctive ringing patterns used for all non-analog phones are fixed as follows:
    - **Internal Call:** Repeated single-ring.
    - **External Call:** Repeated double-ring.
    - **Ringback Call:** Repeated single-ring followed by two short rings.
  - For analog phones, the ringing pattern used for each call type can be set through the IP Office configuration in Manager. This is done using the settings on **System | Telephony** and or **User | Telephony** tabs.
- **Personalized Ringing**
  This term refers to control of the ringing sound through the individual phones. For non-analog phones, while the distinctive ringing patterns cannot be changed, the ringer sound and tone may be personalized depending on the phone's own options. Refer to the appropriate IP Office telephone user guide.

Analog Phone Ringing Patterns

For analog phone users, the distinctive ringing pattern used for each call type can be adjusted. From the **System | Telephony** tab, the default ring tone for each call type (distinctive ringing) can be configured. The setting for an individual user can be altered from the system default through each user's **User | Telephony** tab.

The selectable ringing tones are:

- **RingNormal**
  This pattern varies to match the **Locale** set in the **System | System** tab. This is the default for external calls.
- **RingType1:** 1s ring, 2s off, etc. This is the default for internal calls.
- **RingType2:** 0.25s ring, 0.25s off, 0.25s ring, 0.25s off, 0.25s ring, 1.75s off, etc. This is the default for ringback calls.
- **RingType3:** 0.4s ring, 0.8s off, …
- **RingType4:** 2s ring, 4s off, …
- **RingType5:** 2s ring, 2s off, …
- **RingType6:** 0.945s ring, 4.5s off, …
- **RingType7:** 0.25s ring, 0.24 off, 0.25 ring, 2.25 off, …
- **RingType8:** 1s ring, 3s off, …
- **RingType9:** 1s ring, 4s off, …
- **RingType0:** Same as **RingNormal** for the United Kingdom locale.
- **Default Ring:** Shown on the **User | Telephony** tab. Indicates follow the settings on the **System | Telephony** tab.

Music on Hold (MOH)

The IP Office can provide music on hold (MOH) in from either an internally stored file or from an externally connected audio input.

- **Legal Requirements**
  You must ensure that any MOH source you use complies with copyright, performing rights and other local and national legal requirements.
- **Internal Music on Hold File**
  The IP Office can use an internal music on hold file that it stores in its nonpermanent memory. If the IP Office loses power or is restarted, the file is loaded as follows:
  - Following a reboot, the IP Office will try using TFTP to download a file called ***holdmusic.wav***. The file properties should be: PCM, 8kHz 16-bit, mono, maximum length 30 seconds.
  - The initial source for download is the system's configured TFTP server (**System | System | TFTP Server IP Address**). The default for this is a broadcast to the local subnet for any PC running a TFTP server.
  - Manager acts as a TFTP server while it is running. If Manager is used as the TFTP server then the ***holdmusic.wav*** file should be placed in the Manager applications working directory.
  - If no successful TFTP download occurs, the IP Office will automatically look for a **holdmusic.wav** file on the control unit's compact flash memory card if present and will download that file. (Small Office Edition and IP406 V2 control units with IP Office 3.1 or higher)
  - If IP Office has not loaded a hold music file it will retry loading a hold music file approximately every five minutes.
  - If an internal music on hold file is downloaded, the IP Office will automatically write a copy of that file to its compact flash memory card if present. This will overwrite any existing music on hold file stored on that card. (Small Office Edition and IP406 V2 control units with IP Office 3.1 or higher)
  - If an internal music on hold file is downloaded, that file is used and overrides any external music on hold source if also connected.
  - All the above operation can be cancelled by selecting **Use External Music on Hold** (**System | Telephony**) and restarting the IP Office.
- **External MOH:**
  An external music source can be connected to the IP Office control unit. Connect a line out audio source to the 3.5mm port marked AUDIO on the back of the control unit.
  - If the control unit downloads an internal **holdmusic.wav** file, the external audio port is ignored.
  - The IP Office can be forced to use the external port and not download an internal music on hold file by selecting **Use External Music on Hold** (**System | Telephony**) and restarting the IP Office.
- **Default Music on Hold Tones**
  This option is only supported for systems set to the locale ***Italy***. On these systems; if no external source is connected, no internal music on hold file is available and **Use External Music on Hold** is not selected; then the system will use a default tone for music on hold. The tone used is 425Hz repeated (0.2/0.2/0.2/3.4) seconds on/off cadence. This option is supported on IP Office 3.0(50) and higher.

Checking Music on Hold

The IP Office has a default system short code that allows you to listen to a system's current music on hold.

1. At an idle extension, dial ***34**.
2. You will hear the system's music on hold.

How the System Receives Time

The IP Office control unit contains a battery backed clock which is used to maintain system time during normal operation and when mains power is removed. The time is obtained using Time protocol (RFC868) requests. Note that this is different from Network Time Protocol (NTP).

Following a reboot the IP Office control unit sends out a time request on its LAN1 interface. It first makes the request to the Voicemail Server IP address in its configuration and, if it receives no reply, then makes a broadcast request.

The Voicemail Lite Server, Voicemail Pro Server/Service and the Manager program can all act as Time servers, giving the time as set on their host PC's. If you are running Manager when the Voicemail Server starts, then Voicemail does not start as a time server. It is therefore highly recommended that you have no copy of Manager running when you start or restart the Voicemail Server.

A specific address for the time server that should be used can be set in the IP Office configuration (**System | System | Time Server IP Address**). Setting this address to 0.0.0.1 also disables the IP Office's time update requests.

When using a time server located in a different time zone from the IP Office, there are two mechanisms for applying an offset to the time. If Manager is acting as the time server, the time offset for each can be specified through the BOOTP entry for the system. Alternatively, the offset can specified in the IP Office configuration (**System | System | Time Offset**).

The 'No User' User

It is possible to have an extension which has no default associated user. This is done by not entering an Extension number on the extension's configuration form.

Such phones are associated with the setting of the **NoUser** user in the IP Office configuration. This user, by default, has **Outgoing Call Bar** enabled (***User* | *Telephony* | *Outgoing Call Bar***). This user can be configured in the same way as other users, to control what numbers and features unassociated phone extensions can use.

NoUser Source Numbers

The **SourceNumbers** tab of the ***NoUser*** user is used to configure a number of special options. These are then applied to all users on the IP Office system.

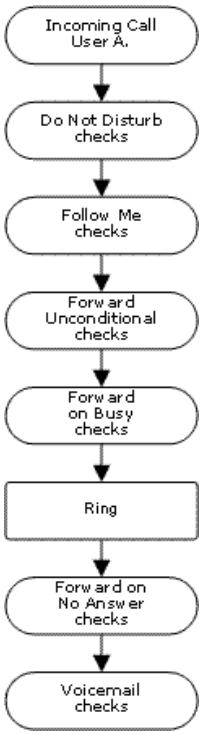
Source numbers that might be seen on this tab are:

- **H323SetupTimerNoLCR**
  Used to set the fallback time from VoIP trunks to non-VoIP trunks within LCR. See **IP Trunk Fallback**.
- **LONGER_NAMES**
  Used to increase the length of names sent for display on DS phones. See **Caller Display**.
- **HIDE_CALL_STATE**
  Used to hide the call status information, for example ***Dial***, ***Conn***, etc, on DS phones. Used in conjunction with the **LONGER_NAMES** option above. See **Caller Display**.
- **ACD_QUEUE_DELAY=*nn***
  Used to change the timeout for still queued messages. The parameter ***nn*** can be replaced with a time in seconds between 20 and 180.

Forward and Transferring Calls

DND, Follow Me and Forwarding

This section contains topics looking at how users can have their calls automatically redirected. As illustrated, there is a order of priority in which the redirect methods are used.



1. **Do Not Disturb (DND)**
   Redirect all calls to voicemail if available, otherwise return busy tone. DND overrides all the redirect method below unless the calling number is in the user's DND Exception Numbers List.
2. **Follow Me**
   Redirect all calls to another extension that the users is temporarily sharing. Follow Me overrides Forward Unconditional. The Follow Me destination is busy or does not answer, the user's Forward on Busy or Forward on No Answer options can be used if set.
3. **Forward Unconditional**
   Redirect the user's external calls to another number. That number can be any number the user can normally dial including external numbers. Forwarding of hunt group and internal calls is optional. Forward Unconditional overrides Forward on Busy and Forward on No Answer.
4. **Forward on Busy**
   Redirects the user's external calls when the system sees the user as being busy. Uses the same number as Forward Unconditional unless a separate Forward on Busy Number is set. Forwarding internal calls is optional. Forward on Busy overrides Forward on No Answer.
5. **Forward on No Answer**
   Redirects the user's external calls when they ring for longer than the user's No Answer Time. Uses the same number as Forward Unconditional unless a separate Forward on Busy Number is set. Forwarding internal calls is optional.

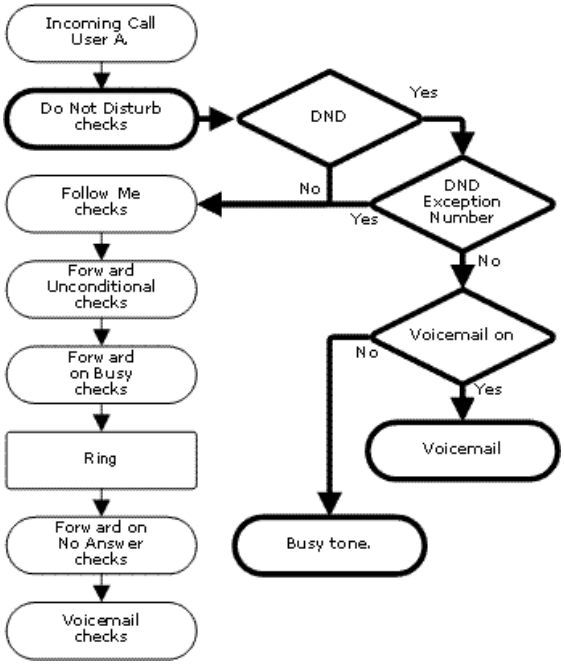
Notes

- **Retrieving Externally Forwarded Calls**
  Where a call is forwarded to an external destination and receives busy or is not answered within the forwarding user's No Answer Time, the system will attempt to retrieve the call. If forwarded on a trunk that does not indicate its state, for example an analog loop start trunks, the call is assumed to have been answered.
- **Off-Switch Forwarding Restrictions**
  User forwarding is subject to the same restrictions as transferring calls. To bar a user from forwarding calls to an external number, the **Inhibit Off-Switch Transfers** option on the **User | Telephony** tab should be selected. To bar all users from forwarding calls to external numbers the **Inhibit Off-Switch Transfers** option on the **System | Telephony** tab should be selected. See Off-switch Transfer Restrictions

Do Not Disturb (DND)

Summary: Redirect all calls to busy tone or to voicemail if available except those in your DND exceptions list.

Do Not Disturb (DND) is intended for use when the user is present but for some reason does not want to be interrupted. Instead calls are sent to voicemail if available, otherwise they receive busy tone.



Call Types Blocked		
Internal	✓	Busy or voicemail.
External	✓	Busy or voicemail.
Hunt Group	✓	Not presented.
Page	✓	Not presented.
Follow Me	✗	Rings.
Forwarded	✓	Busy.
VM Ringback	✗	Rings
Automatic Callback	✗	Rings
Transfer Return	✓	No return.
Hold Return	✓	Remain on hold
Park Return	✓	Busy or voicemail.

- **Exceptions**
  Specific numbers can be added to the user's **Do Not Disturb Exception List**. Calls from those numbers override DND. N and X wildcards can be used at the end of exception numbers to match a range of numbers. For external numbers, this uses the incoming caller line ID (ICLID) received with the call.
- **Priority**
  Enabling DND overrides any Follow Me or forwarding set for the user, except for calls in the user's **Do Not Disturb Exception List**.
- **Phone**
  When enabled, the phone can still be used to make calls. An **N** is displayed on DS phones and normal dial tone is replaced by system locale specific alternate dial tone unless secondary dial tone is triggered.

Do Not Disturb Controls

Do Not Disturb	
Manager	A user's DND settings can be viewed and changed through the **User | DND** tab within the IP Office's configuration settings.
Controls	The following short code features/button programming actions can be used:

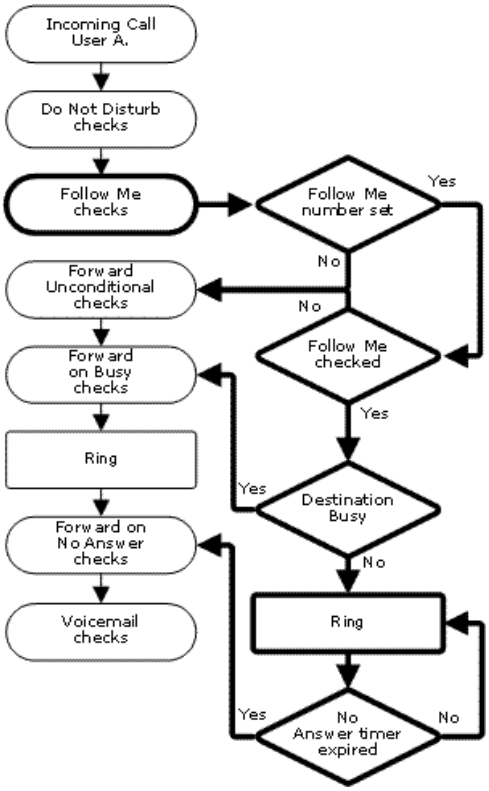
Feature/Action	Short Code	Default	Button
Do Not Disturb On	✓	*08	✓- Toggles.
Do Not Disturb Off	✓	*09	✓
Do Not Disturb Exception Add	✓	*10*N#	✓
Do Not Disturb Exception Delete	✓	*11*N#	✓

Phone Manager	Users can enable DND and set exception numbers by clicking and select the **Do Not Disturb** tab. When a user has DND enabled, it is indicated by **DND** in the title bar. It is indicated by a blue cross symbol on Speed Dial icons set to the user.
SoftConsole	A SoftConsole user can view and edit a user's DND settings except exception numbers. Through the directory, select the required user. Their current status including DND is shown. Double-click on the details to adjust DND on or off.
Voicemail	If voicemail is available, it is used instead of busy tone for callers not in the users exceptions list. For Voicemail Pro, the **Play Configuration Menu** action can be used to let callers switch DND on or off.

Follow Me

Summary: Have your calls redirected to another user's extension, but use your coverage, forwarding and voicemail settings if the call receives busy tone or is not answered.

Follow Me is intended for use when a user is present to answer calls but for some reason is working at another extension such as temporarily sitting at a colleague's desk or in another office or meeting room. Typically you would use Follow Me if you don't have a Hot Desking login code or if you don't want to interrupt your colleague from also receiving their own calls.



Call Types Redirected		
Internal	✓	Redirected.
External	✓	Redirected.
Hunt Group	✓	Redirected.
Page	✓	Redirected.
Follow Me	✗	Not redirected.
Forwarded	✓	Redirected.
VM Ringback	✗	Not redirected.
Automatic Callback	✗	Not redirected.
Transfer Return	✓	Redirected.
Hold Return	✗	Not redirected.
Park Return	✗	Not redirected.

- **Priority**
  Follow Me is overridden by DND except for callers in the user's DND Exception Numbers List. Follow Me overrides Forward Unconditional but can be followed by the user's Forward on Busy or Forward on No Answer based on the status of the Follow Me destination.
- **Destination**
  The destination must be an internal user extension number. It cannot be a hunt group extension number or an external number.
- **Duration**
  The Follow Me user's no answer timeout is used. If this expires, the call either follows their Forward on No Answer setting if applicable, or goes to voicemail is available. Otherwise the call continues to ring at the destination.
- **Phone**
  When enabled, the phone can still be used to make calls. Normal dial tone is replaced by system locale specific alternate dial tone unless secondary dial tone is triggered.
- **Exceptions**
  - The Follow Me destination can make return calls which will not be redirected.
  - The call coverage settings of the user are applied to their Follow Me calls. The call coverage settings of the destination are not applied to Follow Me calls it receives.

Follow Me Controls

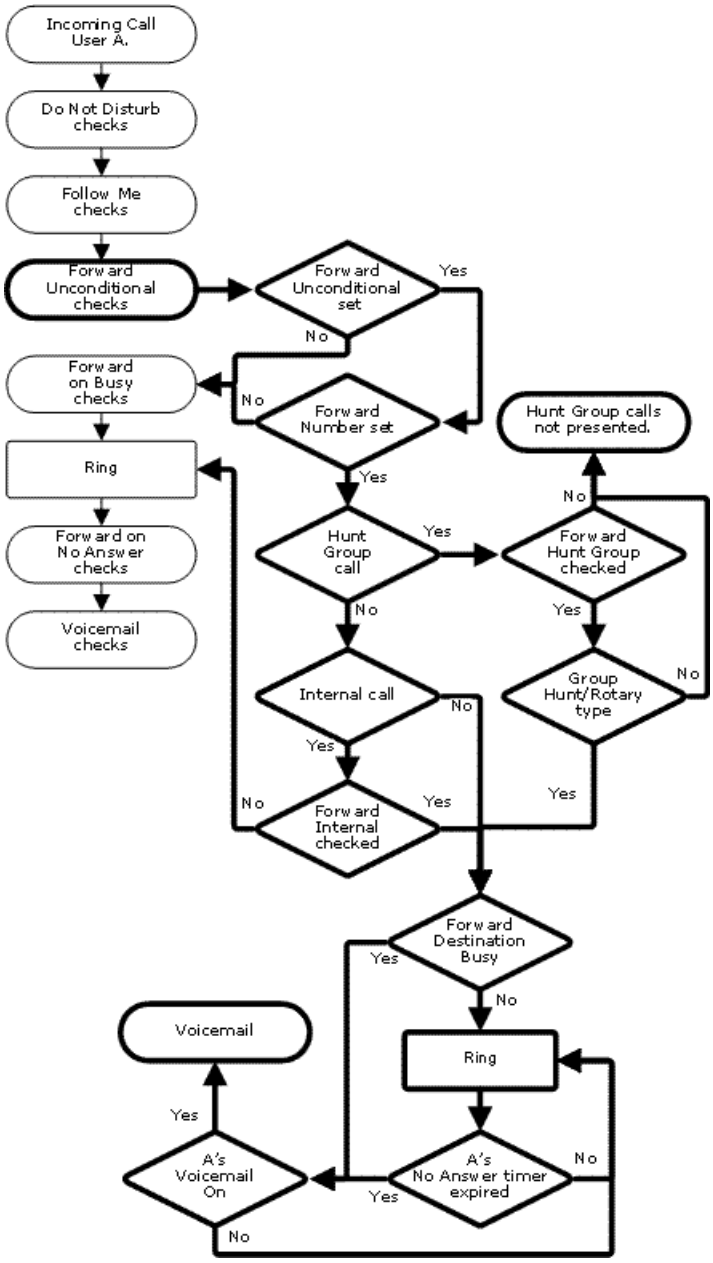
Follow Me	
Manager	A user's Follow Me settings can be viewed and changed through the **User | Forwarding** tab within the IP Office's configuration settings. Note that on this tab, entering a **Follow Me Number** also enables Follow Me.
Controls	The following short code features/button programming actions can be used:

Feature/Action	Short Code	Default	Button
Follow Me Here	✓	*12*N#	✓
Follow Me Here Cancel	✓	*13*N#	✓
Follow Me To	✓	*14*N#	✓

Phone Manager	Users can set a **Follow Me To Number** and enable Follow Me through the **Forwarding** tab. Click and select the **Forwarding** tab. When a user has Follow Me enabled, it is indicated by **FollowTo** and the destination in the title bar. It is not indicated on Speed Dial icons set to the user. Other status icons remain linked to the user's normal telephone and not to the status of the destination.
SoftConsole	A SoftConsole user can view and edit a user's Follow Me settings. Through the directory, select the required user. Their current status including Follow Me is shown. Double-click on the details and select **Forwarding** to alter their forwarding settings including Follow Me.
Voicemail	For calls initially targeted to the user but then redirected, when voicemail is invoked the mailbox of the user is used and not the mailbox of the destination. For Voicemail Pro, the **Play Configuration Menu** action can be used to let callers alter or set their current Follow Me destination.

Forward Unconditional

Summary: Have your calls redirected immediately to another number including any external number that you can dial.



Call Types Forwarded		
Internal	✓	Optional.
External	✓	Forwarded.
Hunt Group	✓	Optional.
Page	✗	Not presented.
Follow Me	✗	Rings.
Forwarded	✓	Forwarded.
VM Ringback	✗	Rings.
Automatic Callback	✗	Rings.
Transfer Return	✓	Forwarded.
Hold Return	✗	Ring/hold cycle.
Park Return	✗	Rings.

- **Priority**
  This function is overridden by DND and or Follow Me if applied. It overrides Forward on Busy and Forward on No Answer.
- **Destination**
  The destination can be any number that the user can dial. If external and **Inhibit Off-Switch Transfers** is applied, the caller is directed to voicemail if available, otherwise they receive busy tone.
- **Duration**
  The destination is rung using the forwarding user's **No Answer Time**. If this expires, the call goes to voicemail is available. Otherwise the call continues to ring at the destination. Calls to an external destination sent on trunks that do not signal their state, for example analog loop start trunks, are assumed to have been answered.
- **Phone**
  When enabled, the phone can still be used to make calls. An **D** is displayed on DS phones and normal dial tone is replaced by system locale specific alternate dial tone unless secondary dial tone is triggered.

Forward Unconditional Controls

Forward Unconditional	
Manager	A user's forwarding settings can be viewed and changed through the **User | Forwarding** tab within the IP Office's configuration settings.
Controls	The following short code features/button programming actions can be used:

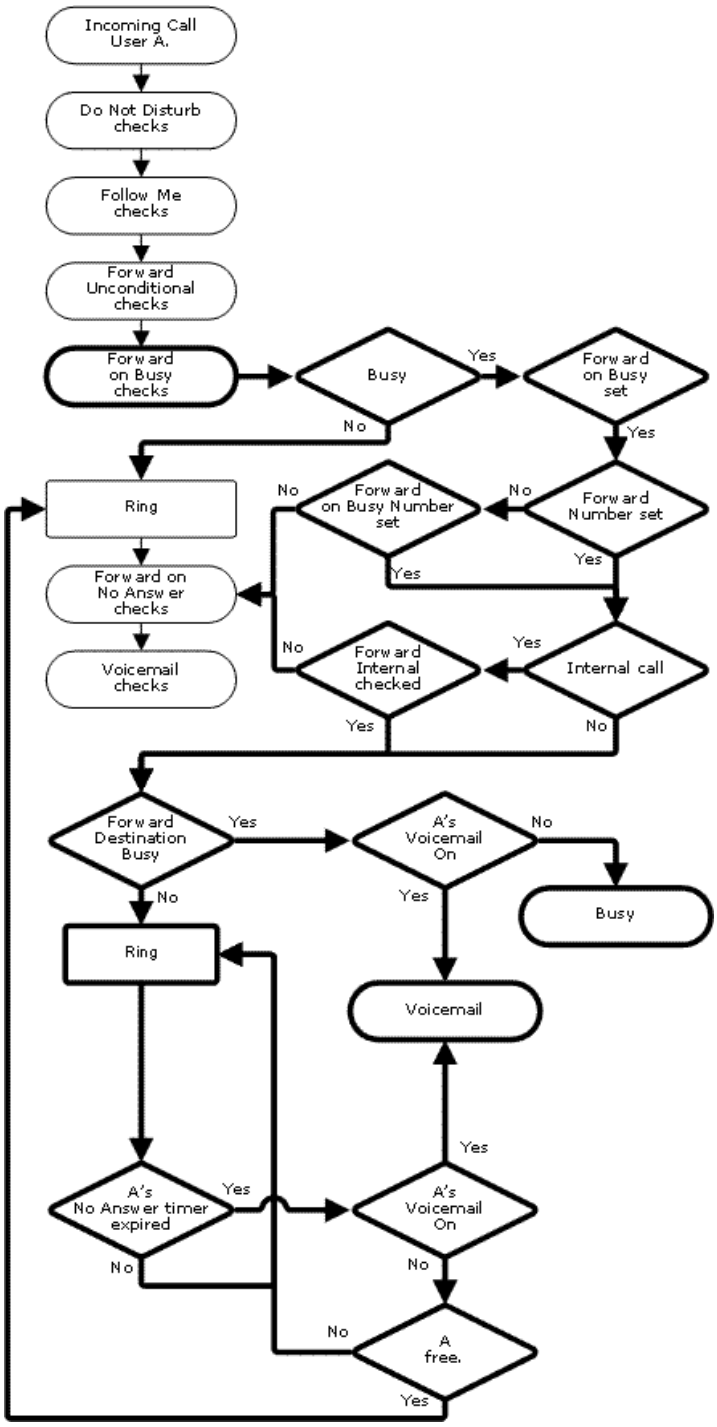
Feature/Action	Short Code	Default	Button
Forward Number	✓	*07*N#	✓
Forward Unconditional On	✓	*01	✓- Toggles.
Forward Unconditional Off	✓	*02	✓
Forward Hunt Group Calls On	✓	✗	✓- Toggles.
Forward Hunt Group Calls Off	✓	✗	✓
Disable Internal Forwards	✓	✗	✗
Enable Internal Forwards	✓	✗	✗
Disable Internal Forward Unconditional	✓	✗	✗
Enable Internal Forward Unconditional	✓	✗	✗
Set No Answer Time	✓	✗	✓

Phone Manager	Users can set a forward destination number and enable Forward Unconditional through the **Forwarding** tab. Click and select the **Forwarding** tab. When a user has Forward Unconditional enabled, it is indicated by **Fwd unconditional** and the destination in the title bar. It is indicated by a green arrow symbol on Speed Dial icons set to that user.
SoftConsole	A SoftConsole user can view and edit a user's forwarding settings. Through the directory, select the required user. Their current forwarding status is shown. Double-click on the details and select **Forwarding** to alter their forwarding settings.
Voicemail	For calls initially targeted to the user but then redirected, when voicemail is invoked the mailbox of the user is used and not the mailbox of the destination. For Voicemail Pro, the **Play Configuration Menu** action can be used to let callers set their current forwarding destination and switch Forwarding Unconditional on/off.

Forward on Busy

Summary: Have your calls redirected when you are busy to another number including any external number that you can dial.

The method by which the system determines if a user is 'busy' to calls depends on factors such as whether they have multiple calls appearance buttons or Call Waiting and or Busy on Held set. See **Busy**.



Call Types Forwarded		
Internal	✓	Optional.
External	✓	Forwarded.
Hunt Group	✗	Not presented
Page	✗	Not presented.
Follow Me	✗	Rings.
Forwarded	✓	Forwarded.
VM Ringback	✗	Rings.
Automatic Callback	✗	Rings.
Transfer Return	✓	Forwarded.
Hold Return	✗	Ring/hold cycle.
Park Return	✗	Rings.

- **Priority**
  This function is overridden by DND and or Forward Unconditional if applied. It can be applied after a Follow Me attempt. It overrides Forward on Forward on No Answer.
- **Destination**
  The destination can be any number that the user can dial. The Forward Unconditional destination number is used unless a separate number Forward on Busy Number is set. If **Inhibit Off-Switch Transfers** is applied, the caller is directed to voicemail if available, otherwise they receive busy tone.
- **Duration**
  The destination is rung using the forwarding user's No Answer Time. If this expires, the call goes to voicemail is available. Calls to an external destination sent on trunks that do not signal their state, for example analog loop start trunks, are assumed to have been answered.
- **Phone**
  Forward on Busy is not indicated and normal dial tone is used.

Forward on Busy Controls

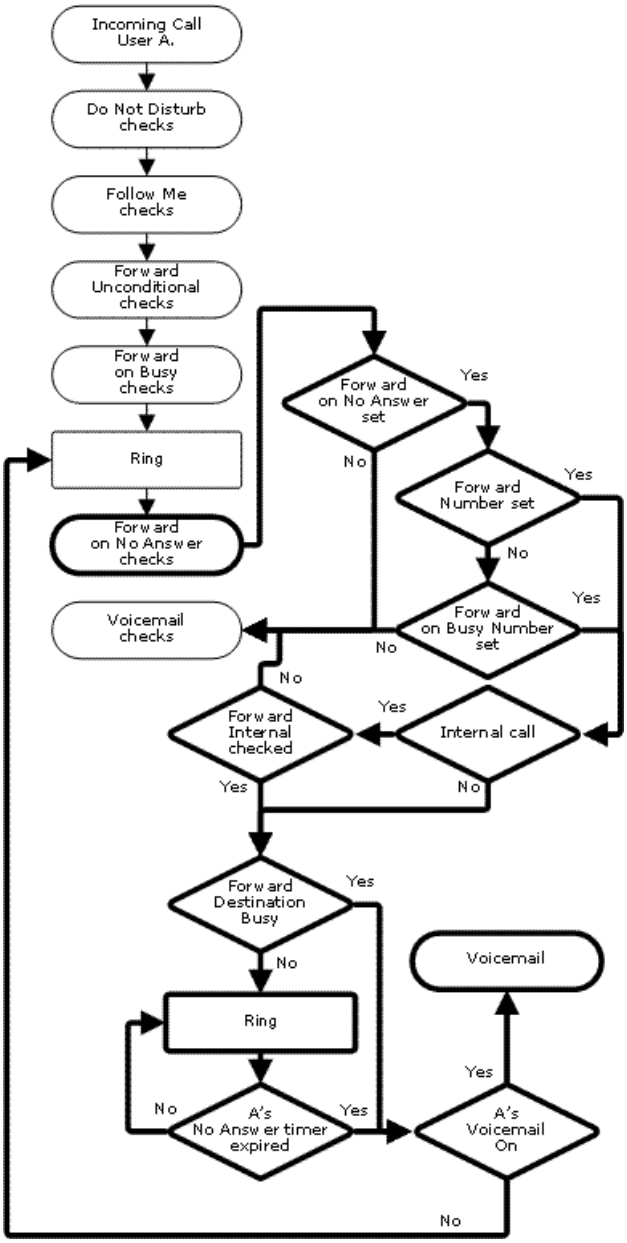
Forward on Busy	
Manager	A user's forwarding settings can be viewed and changed through the **User | Forwarding** tab within the IP Office's configuration settings.
Controls	The following short code features/button programming actions can be used:

Feature/Action	Short Code	Default	Button
Forward Number	✓	*07*N#	✓
Forward on Busy Number	✓	*57*N#	✓
Forward on Busy On	✓	*03	✓- Toggles.
Forward on Busy Off	✓	*04	✓
Disable Internal Forwards	✓	✗	✗
Enable Internal Forwards	✓	✗	✗
Disable Internal Forward Busy or No Answer	✓	✗	✗
Enable Internal Forward Busy or No Answer	✓	✗	✗
Set No Answer Time	✓	✗	✓

Phone Manager	Users can set a forward destination number and enable Forward on Busy through the **Forwarding** tab. Click and select the **Forwarding** tab. When a user has Forward on Busy enabled, it is indicated by **Fwd on Busy** and the destination in the title bar. It is not indicated by Speed Dial icons set to that user.
SoftConsole	A SoftConsole user can view and edit a user's forwarding settings. Through the directory, select the required user. Their current forwarding status is shown. Double-click on the details and select **Forwarding** to alter their forwarding settings.
Voicemail	For calls initially targeted to the user but then redirected, when voicemail is invoked the mailbox of the user is used and not the mailbox of the destination. For Voicemail Pro, the **Play Configuration Menu** action can be used to let callers set the forward destination. It cannot however be used to enable Forward on Busy or set a separate Forward on Busy number.

Forward on No Answer

Summary: Have your calls redirected another number if it rings without being answered.



Call Types Forwarded		
Internal	✓	Optional.
External	✓	Forwarded.
Hunt Group	✗	Not presented.
Page	✗	Not presented.
Follow Me	✗	Rings..
Forwarded	✓	Forwarded.
VM Ringback	✗	Rings.
Automatic Callback	✗	Rings.
Transfer Return	✗	Rings.
Hold Return	✗	Ring/hold cycle.
Park Return	✗	Rings.

- **Priority**
  This function is overridden by DND, Forward Unconditional or Forward on Busy if applied. It can be applied after a Follow Me attempt.
- **Destination**
  The destination can be any number that the user can dial. The Forward Unconditional destination number is used unless a separate number Forward on Busy Number is set. If **Inhibit Off-Switch Transfers** is applied, the caller is directed to voicemail if available, otherwise they receive busy tone.
- **Duration**
  The destination is rung using the forwarding user's No Answer Time. If this expires, the call goes to voicemail is available. Calls to an external destination sent on trunks that do not signal their state, for example analog loop start trunks, are assumed to have been answered.
- **Phone**
  Forward on No Answer is not indicated and normal dial tone is used.

Forward on No Answer Controls

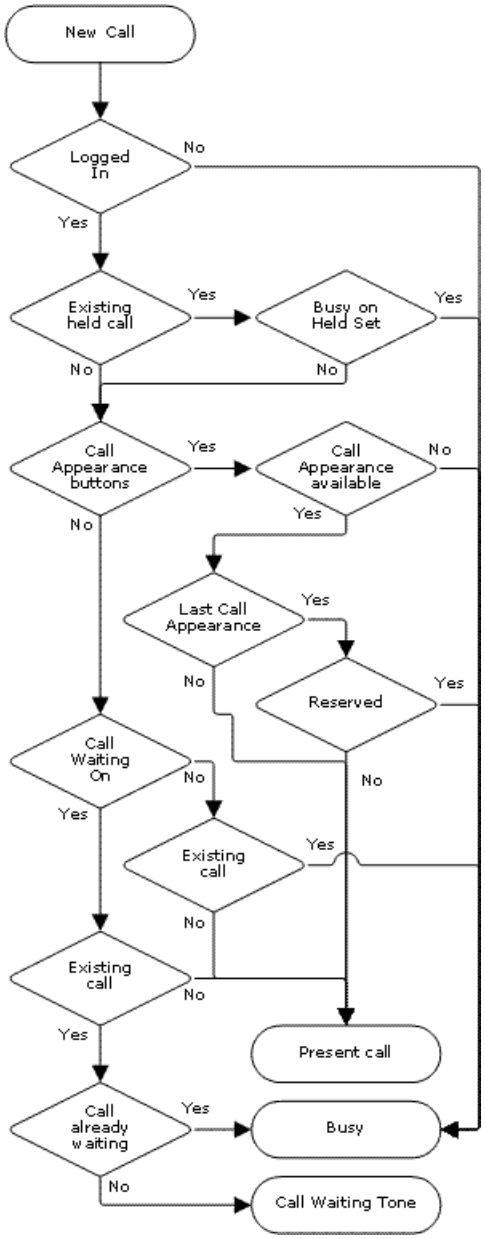
Forward on No Answer	
Manager	A user's forwarding settings can be viewed and changed through the **User | Forwarding** tab within the IP Office's configuration settings.
Controls	The following short code features/button programming actions can be used:

Feature/Action	Short Code	Default	Button
Forward Number	✓-	*07*N#	✓
Forward on Busy Number	✓-	*57*N#	✓
Forward on No Answer On	✓-	*05	✓- Toggles.
Forward on No Answer Off	✓-	*06	✓
Enable Internal Forwards	✓	✗	✗
Disable Internal Forwards	✓	✗	✗
Enable Internal Forward Busy or No Answer	✓	✗	✗
Disable Internal Forward Busy or No Answer	✓	✗	✗
Set No Answer Time	✓	✗	✓

Phone Manager	Users can set a forward destination number and enable Forward on No Answer through the **Forwarding** tab. Click and select the **Forwarding** tab. When a user has Forward on No Answer enabled, it is indicated by **Fwd on Busy** and the destination in the title bar. It is not indicated by Speed Dial icons set to that user.
SoftConsole	A SoftConsole user can view and edit a user's forwarding settings. Through the directory, select the required user. Their current forwarding status is shown. Double-click on the details and select **Forwarding** to alter their forwarding settings.
Voicemail	For calls initially targeted to the user but then redirected, when voicemail is invoked the mailbox of the user is used and not the mailbox of the destination. For Voicemail Pro, the **Play Configuration Menu** action can be used to let callers set the forward destination. It cannot however be used to enable Forward on Busy or set a separate Forward on Busy number.

Determining a User's Busy Status

Various IP Office features allow users to handle more than one call at a time. Therefore the term "busy" has different meanings. To other users it means whether the user is indicated as being busy. To the system it means whether the user is not able to receive a call. The latter is used to trigger 'busy treatment', either using a user's Forward on Busy settings or redirecting calls to voicemail or just returning busy tone.

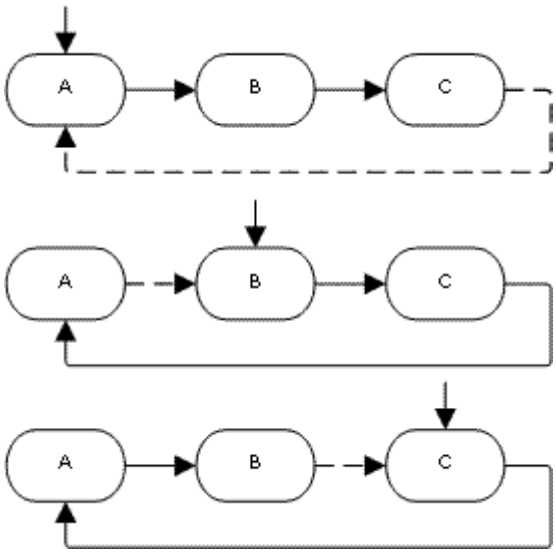


- **Busy Indication**
  The user busy indication provided to programmable buttons, and to the Phone Manager and SoftConsole applications, is based on the monitored user's hook switch status. Whenever the user is off-hook, they will be indicated as being busy regardless of call waiting or call appearance settings.
- **Busy to Further Calls**
  Whether a user is busy to receive further call is based on a number of factors as illustrated and described below.
  - **Logged In and Present**
    Is the user logged into an extension and is that extension physically connected to the IP Office system.
  - **Busy on Held**
    If a user enables their Busy on Held setting, whenever they have a call on hold, they are no longer available to any further incoming calls.
  - **Appearance Buttons**
    A user's call appearance button are used to receive incoming calls. Normally, whilst the user has any free call appearance buttons, they are available to receive further calls. Exceptions are:
    - **Reserve Last Appearance**
      Users with appearance buttons require a free call appearance button to initiate transfers or conferences. Therefore it is possible through the user's configuration settings to reserve their last call appearance button for outgoing calls only.
    - **Other Appearance Buttons**
      Calls may also be indicated on line, call coverage and bridged appearance buttons.
  - **Call Waiting**
    Users of phones without appearance buttons can use call waiting. This adds an audio tone, based on the system locale, when an additional call is waiting to be answered. Only one waiting call is supported, any further calls receive busy treatment.
- **Hunt Group Calls**
  A user's availability to receive hunt group calls is subject to a range of other factors. See Member Availability.

Chaining and Loops

Chaining is the process where a call forward to an internal user destination is further forwarded by that user's own forwarding settings.

- **Follow Me Calls**
  Follow Me calls are not chained. They ignore the forwarding, Follow Me and Do Not Disturb settings of the Follow Me destination.
- **Voicemail**
  If the call goes to voicemail, the mailbox of the initial call destination before forwarding is used.
- **Looping**
  When a loop would be created by a forwarding chain, the last forward is not applied. For example the following are scenarios where A forwards to B, B forwards to C and C forwards to A. In each case the final forward is not used as the destination is already in the forwarding chain.



- **Maximum Number of Forwards**
  The IP Office does not impose any maximum on the number of times a call can be forwarded.

Transferring Calls

The following are some of the methods usable to transfer calls.

- **Supervised Transfer**
  This is a transfer where the user waits for the transfer destination to answer and potentially talks to that party before completing the transfer. However the initial consultation stage is presented as an internal call with internal call details and ringing.
- **Unsupervised Transfer**
  This is a transfer completed whilst the destination is still ringing.
- **Automatic Transfer - Forwarding**
  The IP Office allows users to automatically transfer calls using forwarding options such as Forward on Busy, Forward on No Answer and Forward Unconditional. For full details see **DND, Follow Me and Forwarding**.

Manual Transfer Methods			
Tool	**Unsupervised Transfer**	**Supervised Transfer**	**Reclaim**
Analog Phone	1. Press **R**. Note that broken dial tone is heard while a call is on hold. 2. Dial the transfer destination number. 3. Hang-up.	1. Press **R**. 2. Dial the transfer destination number. 3. If the destination answers and accepts the call, hang-up. 4. If the called party does not answer or does not want to accept the call, press **R** again. 5. To return to the original caller press **R**.	***46**
Avaya DS Phone	1. Press **Transfer**. 2. Dial the transfer destination number. 3. Press **Transfer** again to complete the transfer.	1. Press **Transfer**. 2. Dial the transfer destination number. 3. If the destination answers and accepts the call, press **Transfer** again to complete the transfer. 4. If the called party does not answer or does not want to accept the call, press **Drop**. 5. To return to the original caller press it's call appearance button.	***46**
Phone Manager	1. Click . 2. Enter the transfer destination in the **Number** box. 3. Select **Blind Transfer** button or click .	1. Click . 2. Enter the transfer destination in the **Number** box. 3. Select **Transfer**. The original call will be put on Hold. 4. Once the call has been answered you can talk with the transfer target. 5. To transfer the call, click . 6. To cancel the transfer and reconnect the held call press End.	**Function | Reclaim**

Off-Switch Transfer Restrictions

Users cannot transfer calls to a destination that they cannot normally dial. This applies to manual transfers and also to automatic transfers (forwarding). In addition to call barring applied through short codes, the following IP Office settings may restrict a users ability to transfer calls.

- **Outgoing Call Bar:** *Default = Off (User | Telephony)*
  When enabled, this setting stops a user from making any external calls. It therefore stops them making any external transfers or forwards.
- **Inhibit Off-Switch Forward/Transfer:** *Default = Off (System | Telephony)*
  When enabled, this setting stops any user from transferring or forwarding calls externally.
- **Inhibit Off-Switch Forward/Transfer:** *Default = Off (User | Telephony)*
  When enabled, this setting stops a specific user from transferring or forwarding calls externally.
  - When either system or user **Inhibit Off-Switch Forward/Transfer** is enabled, it affects the operation of the user's Phone Manager application and phone. In Phone Manager, the destination fields on the **Forwarding** tab are changed to drop-down lists containing only internal destinations. User attempts to set an external forward destination via a short code will receive error tone. User attempt to set an external forward destination via a programmable button on their phone will not have a Next option allowing the number to be saved.
- **Allow Outgoing Transfer:** *Default = Off (System | Telephony)*
  When not enabled, users are only able to transfer or forward back off-switch incoming external calls.
- **Analog Trunk to Trunk Connection:** *Default = Off (Line | Analog)*
  When not enabled, users cannot transfer or forward calls on one analog trunk back off-switch using another analog trunk.

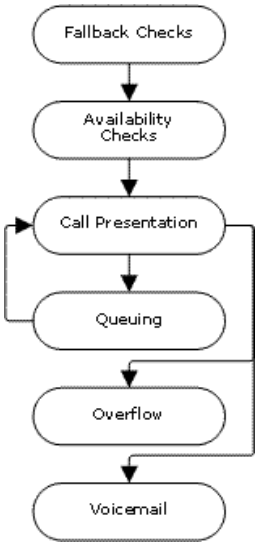
Conferencing

Calls can be transferred using a conference from which the conference originator then drops. The user will normally be allowed to setup conference calls that can include two external parties. However, if the user then drops from the conference, if any transfer restriction applies then the whole conference will be dropped.

Hunt Groups

Overview of Hunt Groups

A hunt group is a collection of users accessible through a single directory number. Calls to that hunt group can be answered by any available member of the group. The order in which calls are presented can be adjusted by selecting different group types and adjusting the order in which group members are listed.

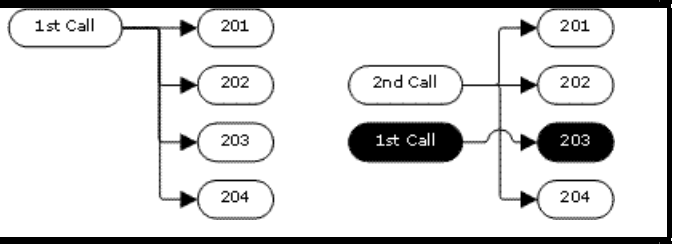
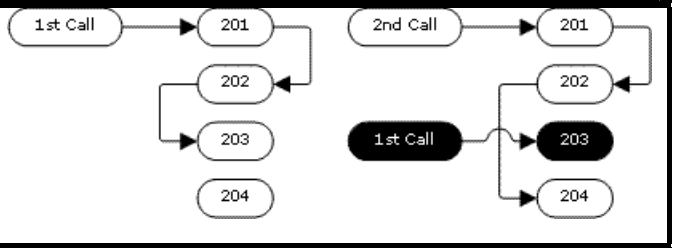
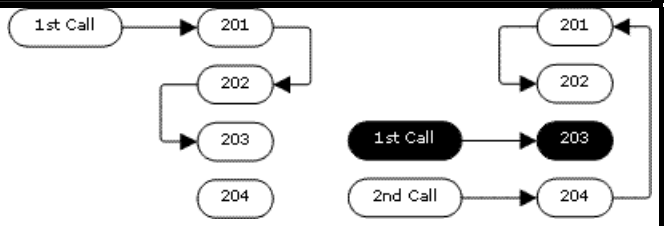


- **Call Presentation**
  The order in which the available members of the hunt group are used for call presentation is selectable.
- **Availability**
  There are a range of factors which control whether hunt group calls are presented to a user in addition to that user being a member of the hunt group.
- **Queuing**
  This optional feature allows calls to be queued when the number of calls to be presented exceeds the number of available hunt group members to which call can be presented. It uses the IP Office's voicemail server (Voicemail Lite or Voicemail Pro) to provide queue announcement messages to the queued callers.
- **Overflow**
  This optional feature can be used to redirect calls to an overflow group or groups when not answered within a set time. This only applies to calls that are ringing on available members of the hunt group. It is not applied to calls that are queued.
- **Fallback**
  A hunt group can be taken out of operation manually or using a time profile. During fallback, calls can be redirected to a fallback group or sent to voicemail or just receive busy tone. Two types of fallback are supported; night service and out of service.
- **Voicemail**
  Calls can be redirected to voicemail. The IP Office allows selection of whether hunt group calls remain in the hunt group mailbox or are copied to the individual mailboxes of the hunt group members. When messages are stored in the hunt group's own mailbox, selection of who receives message waiting indication is possible.

Hunt Group Types

At its most basic, a hunt groups settings consist of a hunt group name, an extension number, a list of hunt group members and a hunt type selection. It is the last two settings which determine the order in which incoming calls are presented to hunt group members.

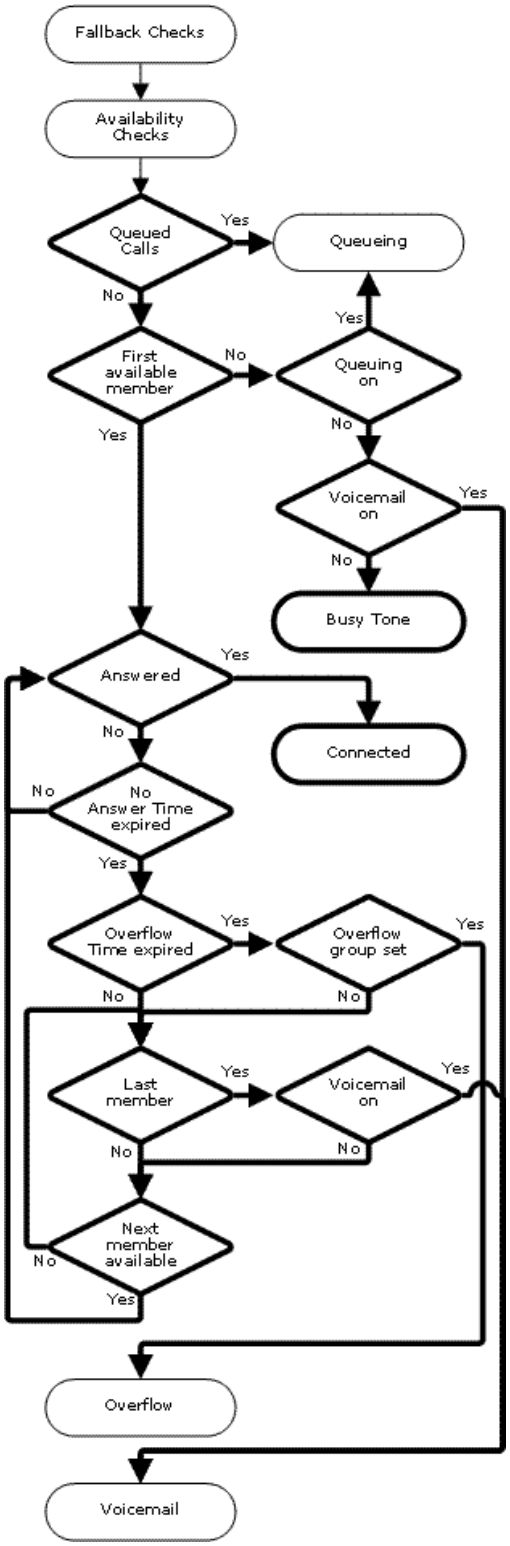
The available hunt types are; **Group**, **Linear**, **Circular** and **Most Idle**. These work are follows:

Group Hunt Type	
An incoming call is presented simultaneously to all the available hunt group members.	
Linear Hunt Type	
An incoming call is presented to the first available member in the list. If unanswered, it is presented to the next available member in the list. The next incoming call uses the same order. It is presented to the available members starting again from the top of the list.	
Circular Hunt Type	
This hunt type operates similarly to **Linear**. However the starting point for call presentation is the first available member after the last member to answer a call.	
Most Idle Hunt Type	
This hunt type does not present calls to hunt group members in the order that they are listed. It presents calls using the order of how long the available hunt group members have been idle. An incoming call is first presented to the available member who has been idle the longest. If unanswered it is presented to the next longest idle member.	

Call Presentation

Summary: Calls are presented to each available hunt group member in turn. If having been presented to all the available members, none answers, the call is redirected to voicemail if available, otherwise it continues to be presented to the next available member.

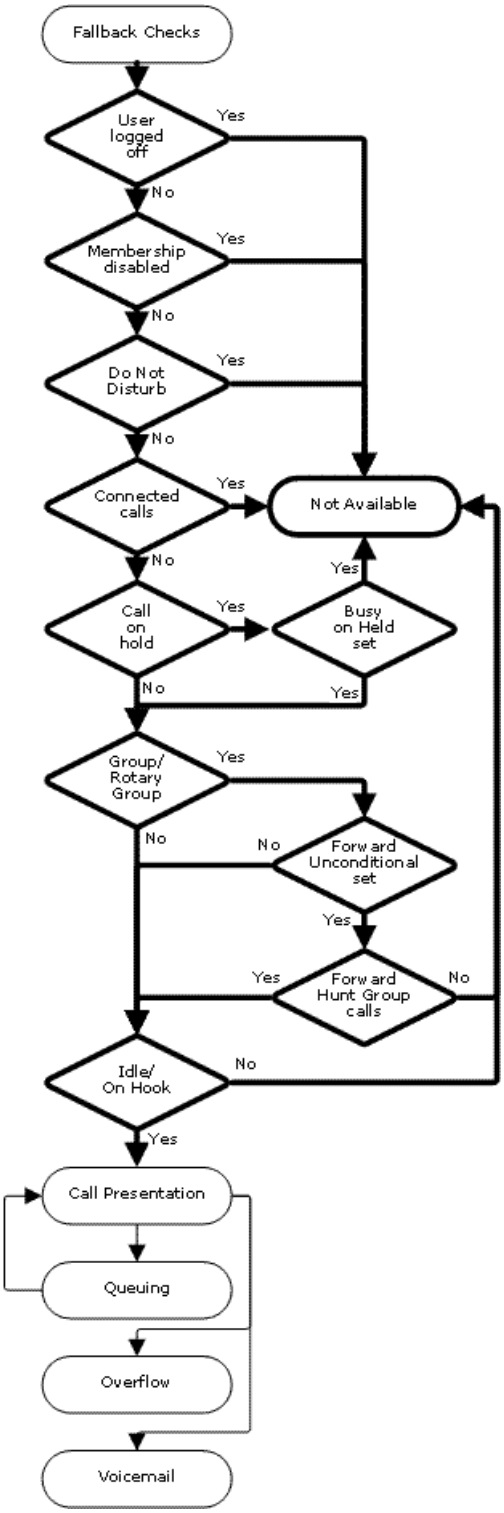
In addition to the summary, options exist to have calls queued or to have calls redirected to overflow groups.



- **First and Next Available Members**
  The first available member and the order of the next available members is determined by the hunt group's **Hunt Type** setting.
- **Additional Calls**
  Additional incoming calls are presented in parallel up to the number of available group members.
- **No Available Members**
  If the number of incoming calls exceeds the number of available members to which calls can be presented, the following actions are usable in order of precedence.
  - **Queuing**
    If queuing has been enabled for the hunt, it is applied to the excess calls.
  - **Voicemail**
    If voicemail has been enabled for the hunt group, excess calls are directed to voicemail.
  - **Busy Tone**
    Busy tone is returned to the excess calls.
- **No Answer Time**
  This value is used to determine how long a call should ring at a hunt group member before being presented to the next available hunt group member. The **System | Telephony | No Answer Time** setting is used unless a specific **Hunt | Hunt Group | No Answer Time** is set.
- **Calls Not Being Answered Quick Enough - Overflow**
  In addition to ringing at each available member for the **No Answer Time**, a separate **Overflow Time** can be set. When a calls total ring time against the group exceeds this, the call can be redirected to an overflow group or groups.
- **No Available Member Answers**
  If a call has been presented unanswered to all the available members, either of two actions can be applied. If voicemail is available, the call is redirected to voicemail. If otherwise, the call will continue being presented to hunt group members until answered or, if set, overflow is used.
- **Call Waiting**
  For hunt groups using the ***Group*** hunt type, call waiting can be used. This requires the group members to have their own Call Waiting setting enabled or to have available call appearance buttons.

Hunt Group Member Availability

Summary: Details when a hunt group member is seen as being available to be presented a hunt group call.



The Hunt Group settings within Manager list those users who are members of the hunt group and therefore may receive calls directed to that hunt group. However there are a range of factors that can affect whether a particular hunt group member is available to take hunt group calls at any time.

- **Existing Connected Call**
  Users with an existing connected call are not available to further hunt group calls. This is regardless of the type of connected call, whether the user has available call appearance buttons or is using call waiting.
  - **Hunt Group Call Waiting**
    For Group type hunt groups, call waiting can be enabled. This requires the user to also have their personal call waiting setting enabled or to have available call appearance buttons.
- **Logged On/Logged Off**
  IP Office allows user's to log on and off extensions, a process known as 'hot desking'. Whilst a user is logged off they are not available to receive hunt group calls.
- **Membership Enabled/Disabled**
  The IP Office provides controls to temporarily disable a users' membership of a hunt group. Whilst disabled, the user is not available to receive calls directed to that hunt group.
- **Do Not Disturb**
  This function is used by users to indicate that they do not want to receive any calls. This includes hunt group calls. In call center environments this state is also known as 'Busy Not Available'. See **Do Not Disturb**.
- **Busy on Held**
  When a user has a held call, they can receive other calls including hunt group calls. The Busy on Held settings can be used to indicate that the user is not available to further calls when they have a held call.
- **Forward Unconditional**
  Users set to Forward Unconditional are by default not available to hunt group calls. The IP Office allows the forwarding of hunt group calls to be selected as an option.
- **Idle /Off Hook**
  The hunt group member must be on-hook and idle in order to receive hunt group call ringing.

Hunt Group Member Availability Settings

Hunt Group Member Availability Settings	
Manager	Forwarding and do not disturb controls for a user are found on the **User | Forwarding** and **User | DND** tabs. Enabling and disabling a users hunt group membership is done by ticking or unticking the user entry in the hunt group's extensions list on the **Hunt Group | Hunt Group** tab.
Controls	The following short code features/button programming actions can be used:

Feature/Action	Short Code	Default	Button
Hunt Group Enable	✓	✗	✓**HGEna** - Toggles.
Hunt Group Disable	✓	✗	✓**HGDis**
Forward Hunt Group On	✓	✓-*50	✓**FwDH+** - Toggles
Forward Hunt Group Off	✓	✓-*51	✓**FwDH-**
Busy on Held	✓	✗	✓**BusyH**
Do Not Disturb On	✓	✓-*08	✓**DNDOn** - Toggles
Do Not Disturb Off	✓	✓-*09	✓**DNDOf**
Extn Login	✓	✓-*35*N#	✓**Login**
Extn Logout	✓	✓-*36	✓**Logof**

Phone Manager	DND, Forwarding and Busy on Held can all be controlled through Phone Manager. They are accessed by clicking and then selecting the **Do Not Disturb**, **Forwarding** or **Telephone** tabs respectively. Phone Manager Pro users can select agent mode by clicking, selecting the **Agent Mode** tab and selecting **Agent Mode**. In this mode, Phone Manager provides icons for **Busy Wrap Up** (Hunt group disable) and **Busy Not Available** (DND). It also allows individual selection of which group memberships are enabled. Phone Manager can also be used to log on and log off when the application is started or stopped.
SoftConsole	A SoftConsole user can view and edit a user's settings. Through the directory, select the required user. Their current status including DND, Logged In and hunt group membership states are shown and can be changed. Forwarding settings can be accessed by then selecting **Forwarding**.
Voicemail	

Using Queuing

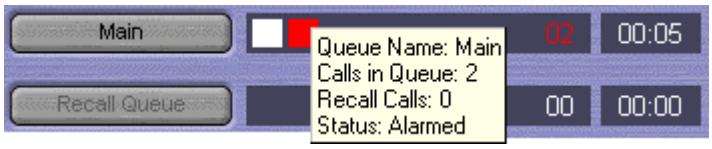
Summary: Queuing can be used when the number of calls to be presented exceeds the number of available hunt group members.

- **Additional Calls**
  Once one call is queued, any further calls are also queued. When an available hunt group member becomes idle, the first call is the queue is presented.
- **How Many Calls Can be Queued?**
  Calls are added to the queue until the hunt group's Queue Limit, if set, is reached. When this occurs, any further calls are redirected to the hunt group's voicemail if available, or otherwise receive busy tone.
- **Queue Announcements**
  If the IP Office system has a Voicemail Lite or Voicemail Pro server, this server can provide announcements to the queued calls. Two announcements are available to each queue, an initial 'Queued' announcement and then a repeating 'Still Queued' announcement.
  - The first 'Queued' announcement is played to the caller when they have been in the queue for the Queue Ring Time (default 10 seconds).
  - Following the 'Queued' announcement the 'Still Queued' announcement is played to the caller every 20 seconds.
  - The delay used for the still queued announcement can be altered by adding **ACD_QUEUE_DELAY=*nn*** to the Source Numbers tab of the **NoUser** user. Replace ***nn*** with a time between 20 and 180 seconds.
  - Between announcements the queued callers hear the IP Office's hold music if installed, otherwise they hear silence.
- **Queue Monitoring**
  There are several methods of displaying a hunt group queue.
  - **Group Button**
    On phones, with programmable buttons, the Group function can be assigned to monitor a specified group. The button indicates when there are calls ringing within the group and also when there are calls queued. The button can be used to answer the longest waiting call.
  - **Phone Manager and SoftConsole**
    Both these applications can display queue monitors for selected hunt groups, 2 using Phone Manager, 7 using SoftConsole. This requires the hunt group to have queuing enabled. These queues can be used to answer calls.

Hunt Group Queue Settings

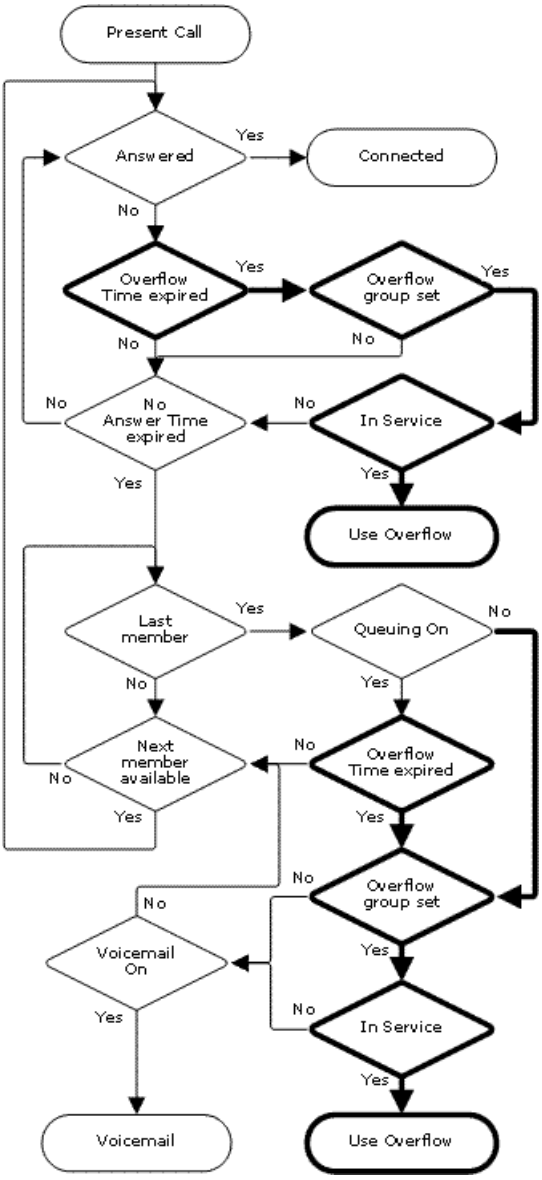
Hunt Group Queue Settings	
Manager	Hunt group queuing is enabled using the **Queuing On** option on the **Hunt Group | Queuing** tab. When enabled, the icon is used for the hunt group.
Controls	The following short code features/button programming actions can be used:

Feature/Action	Short Code	Default	Button
Group	✗	✗	✓

Phone Manager	Phone manager Pro can be used to monitor up to two hunt group queues. This is configured by clicking and then on the **Queue ID** tab selecting the two hunt groups. During normal operation the Phone Manager user then has access to a Queue tab which is automatically given focus when calls become queued.
SoftConsole	SoftConsole can display up to 7 hunt group queues (an eight queue is reserved for recall calls). They are configured by clicking and selecting the **Queue Mode** tab. For each queue alarm threshold can be set based on number of queued calls and longest queued call time. Actions can then be selected for when a queue exceeds its alarm threshold; **Automatically Restore SoftConsole**, **Ask me whether to restore SoftConsole** or **Ignore the Alarm**.  Within the displayed queues, the number of queued calls is indicated and the time of the longest queued call is shown. Exceeding an alarm threshold is indicated by the queue icons changing from white to red. The longest waiting call in a queue can be answered by clicking on the adjacent button.
Voicemail	Voicemail Lite and Voicemail Pro can be used to provide announcements to queued calls. The default prompt for the queued and still queued announcement is *"I'm afraid all the operators are busy at the moment, but please hold and you will be transferred when somebody becomes available."* For Voicemail Lite and Voicemail Pro in IP Office mailbox mode, the announcements can be changed through the hunt group mailbox by selecting option 3. Using Voicemail Pro, the greetings and options available to callers during the queued and still queued announcements can be customized. Callers can be prompted to leave messages or played their queue position of expected time to answer. Refer to the Voicemail Pro Installation and Maintenance manual for full details.

Hunt Group Overflow

Summary: Overflow can be used when the calls being presented are ringing for too long without being answered.



Unlike queuing, overflow is used when there are sufficient available member to answer the calls being presented but for some reason calls are not being answered.

By default, without overflow, calls in this situation would eventually go to voicemail if available or otherwise continue being presented to hunt group members.

With overflow, the unanswered calls are passed to a list of overflow groups. This list determines the order in which the overflow groups are used.

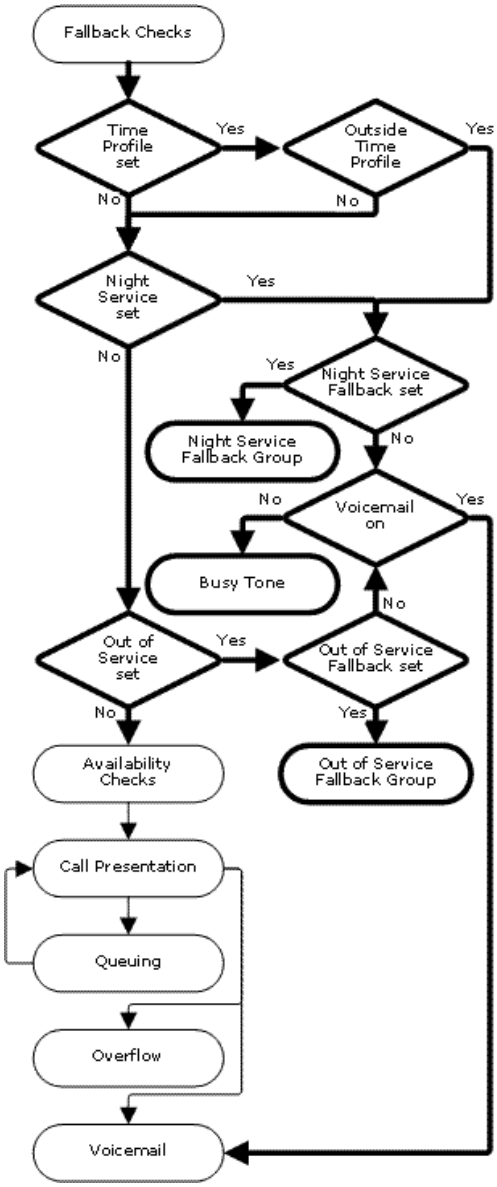
Call presentation then uses the **Hunt Type**, **No Answer Time** and **Extension List** of the overflow group or groups. If the overflow group is **Out of Service** or in **Night Service** it is not used for overflow.

The **Overflow Time** setting is then used to determine when the overflow groups should be used as follows:

- If **Queuing** is off, a call will overflow either when it has rung at each available hunt group member without being answered or when the overflow time expires.
- If **Queuing** is on, a call will overflow only when the overflow time expires. Until the overflow occurs the call will continue ringing hunt group members.
- If the **Overflow Time** is ***0*** or blank, a call will overflow when it has rung each available hunt group member without being answered. This is regardless of the **Queuing** setting.
- If all members of the hunt group are busy, the call will overflow immediately it is presented to the group.
- If the call is still unanswered at the overflow group, it goes to the original hunt groups voicemail if available. Otherwise it continues ringing hunt group members.

Fallback

Summary: Fallback redirects a hunt group's calls when the hunt group is not available, for example outside normal working hours. It can be triggered manually or using an associated time profile.



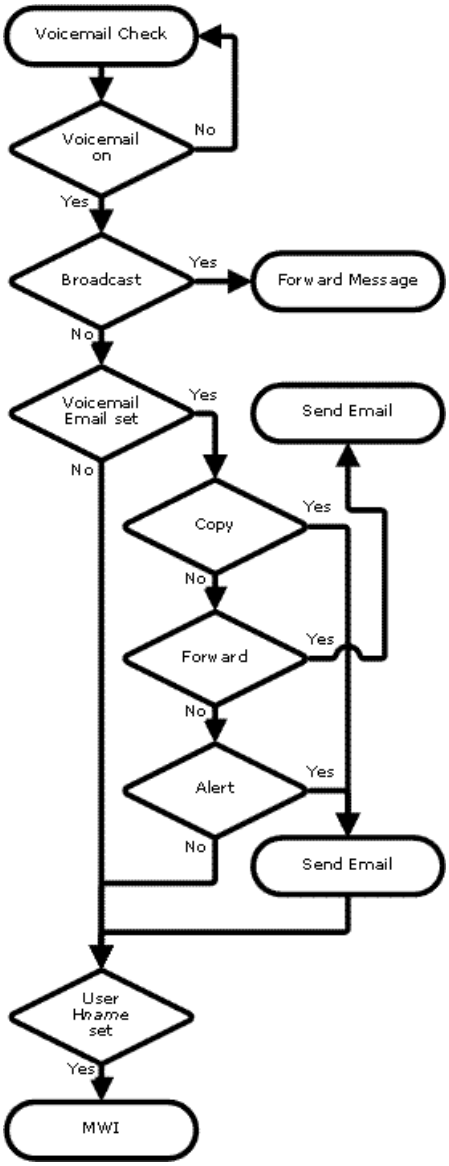
- **Hunt Group Service States**
  A hunt group can be in one of three states; **In Service**, **Out of Service** and **Night Service**. When In service, calls are presented as normal. In any other state calls are redirected.
- **Call Redirection During Fallback**
  The following options are possible when a hunt group is either Out of Service or in Night Service.
  - **Fallback Group**
    If an **Out of Service Fallback Group** or **Night Service Fallback Group** has been set, calls are redirected to that group.
  - **Voicemail**
    If no fallback group has been set but voicemail is available, calls are redirected to voicemail.
  - **Busy Tone**
    If no fallback group has been set and voicemail is not available, busy tone is returned to calls.
- **Manually Controlling the Service State**
  Manager and or short codes can be used to change the service state of a hunt group. The short code actions can also be assigned to programmable buttons on phones.
  - The icon is used for a hunt group manually set to Night Service mode.
  - The icon is used for a hunt group manually set to Out of Service mode.
- **Time Profile**
  A time profile can be associated with the hunt group. When outside the time profile, the hunt group is automatically place into night service. When inside the time profile, the hunt group uses manually selected mode.
  - When outside the time profile and therefore in night service, manual controls cannot be used to override the night service.
  - When a hunt group is in Night Service due to a time profile, this is not indicated within Manager.

Hunt Group Fallback Controls

Hunt Group Fallback	
Manager	Hunt group fallback selection is done through the **Hunt Group | Fallback** tab. A time profile if required is set through the **Time Profile | Time Profile** tab.
Controls	The following short code features/button programming actions can be used: **Feature/Action** | **Short Code** | **Default** | **Button** **Set Hunt Group Night Service** | ✓ | *20*N# | ✓ - Toggles. **Clear Hunt Group Night Service** | ✓ | *21*N# | ✓ **Set Hunt Group Out of Service** | ✗ | ✗ | ✓ - Toggles. **Clear Hunt Group Out of Service** | ✗ | ✗ | ✓ Note that for a hunt group using a time profile, these controls only are only applied when the hunt group is within the specified time profile period. When outside its time profile, the hunt group is in night service mode and cannot be overridden.
Phone Manager	There are no specific controls for the operation of hunt group fallback.
SoftConsole	There are no specific controls for the operation of hunt group fallback.
Voicemail	There are no specific controls for the operation of hunt group fallback.

Hunt Group Voicemail

Summary: Details the scenarios in which the hunt group voicemail mailbox is used to receive messages.



- **When is voicemail used?**
  If voicemail is available and enabled for a hunt group, it is used in the following scenarios.
  - **Unanswered Calls**
    When a call has rung unanswered at all the available hunt group members. If overflow is being used that will include being unanswered by the available overflow group members.
  - **Queue Limit Reached**
    If queuing is being used, it override voicemail unless the number of queued callers exceeds the set Queue Limit. By default there is no set limit.
  - **Night Service**
    When the hunt group is in night service with no Night Service Fallback Group set.
  - **Out of Service**
    When the hunt group is out of service with no Out of Service Fallback Group set.
- **Who Receives Message Waiting Indication?**
  By default no user is configured to receive message waiting indication when a hunt group voicemail mailbox contains new messages. Message waiting indication is configured by adding a **H*groupname*** entry to a user's **SourceNumbers** tab (**User | Source Numbers**).
- **Accessing Hunt Group Messages**
  By default no mechanism is provided for access to specific hunt group mailboxes.
  - **Phone Manager**
    User's with hunt group message waiting indication can access the hunt group mailbox through Phone Manager.
  - **Intuity Emulation Mailbox Mode**
    For IP Office systems using Intuity emulation mode mailboxes, the hunt group extension number and voicemail code can be used during normal mailbox access
  - **IP Office Mailbox Mode**
    For IP Office mode mailbox access, short codes are required to access the mailbox directly.
- **Broadcast**
  The voicemail system can be instructed to automatically forward messages to the individual mailboxes of the hunt group members. The messages are not stored in the hunt group mailbox.

Example Hunt Group

The follow are simple examples of how a department might use the facilities of an IP Office hunt group.

1. Basic Hunt Group	
Scenario	The Sales department want all sales related calls to be presented first to Jane, then Peter and finally Anne.
Actions	1. Create a hunt group named ***Sales*** and assign it an extension number. 2. Set the **Hunt Type** to ***Linear***. 3. Add Jane, Peter and Ann to the **Extension List** in that order. 4. Turn off queuing on the **Queuing** tab and voicemail on the **Voicemail** tab. 5. Route relevant calls to the Sales group by selecting it as the destination in the appropriate Incoming Call Routes.
Results	Any call received by the Sales hunt group is first presented to Jane if she is available. If Jane is not available or does not answer within 15 seconds the call is presented to Peter. If Peter is not available or does not answer within 15 seconds the call goes Anne. Since voicemail is not on, the call will continue to be presented around the group members in that order until it is answered or the callers hangs up.

2. Adding Voicemail Support	
Scenario	An IP Office voicemail server (Voicemail Lite or Voicemail Pro) has now been added to the IP Office system. The Sales department wants to use it to take messages from unanswered callers. When messages are left, they want Jane to receive message waiting indication.
Actions	1. Open the ***Sales*** hunt group settings and select **Voicemail On** on the **Voicemail** tab. 2. Select the **User** settings for Jane. On the **Source Numbers** tab, add the entry ***HSales***.
Results	Once a call to the Sales group has been presented to all the available members, if it is still unanswered then the call will be redirected to the group's voicemail mailbox to leave a message. When a message has been left, the message waiting indication lamp on Jane's phone is lit.

3. Using the Queuing Facility	
Scenario	The Sales department now wants calls queued when no one is available to answer. However if the number of queued calls exceeds 3 they then want any further callers directed to voicemail.
Actions	1. Open the ***Sales*** hunt group settings and select **Queuing On** on the **Queuing** tab. 2. Set the **Queue Limit** to ***3***.
Results	When the Sales group are all on calls or ringing, any further calls to the group are queued and receive queuing announcements from the voicemail server. When the number of queued calls exceeds 3, any further calls are routed to the group's voicemail mailbox.

4. Using Out of Service Fallback	
Scenario	During team meetings, the Sales department want their calls redirected to another group, for this example Support.
Actions	1. Open the ***Sales*** hunt group settings and select the **Fallback** tab. In the **Out of Service Fallback Group** field select the ***Support*** group. 2. Create a system short code ***98 / 300 / Set Hunt Group Out of Service**. 3. Create a system short code ***99 / 300 / Clear Hunt Group Out of Service**.
Results	Prior to team meetings, dialing *98 puts the Sales group into out of service mode. Its calls are then redirected to the Support group. Following the meeting, dialing *99 puts the Sales group back In Service.

5. Using a Night Service Time Profile	
Scenario	Outside their normal business hours the Sales department want their group calls automatically sent to voicemail. This can be done using a time profile and leaving the Night Service Fallback Group setting blank.
Actions	1. Create a **Time Profile** called ***Sales Hours*** and in it enter the time during which the Sales department are normally available. 2. Open the ***Sales*** hunt group settings and select the **Fallback** tab. 3. In the **Time Profile** field select ***Sales Hours***.
Results	Outside the normal business hours set in the time profile, the Sales hunt group is automatically put into Night Service mode. Since no Night Service Fallback Group has been set, calls are redirected to voicemail.

CBC/CCC Agents and Hunt Groups

The use of and reporting on hunt groups is a key feature of call center operation. For IP Office, reporting is provided through the Compact Business Center (CBC) or Compact Contact Center (CCC) applications.

In order for these applications to provide hunt group and hunt group user (agent) reports, the following rules apply:

- The hunt group names must be restricted to a maximum of 12 characters.
- The hunt group and user extension numbers should be a maximum of 4 digits.
- Hunt group members should be given a **Login Code** and set to **Force Login**.

The agent state Busy Not Available is equivalent to Do Not Disturb. The agent state Busy Wrap Up is equivalent to hunt group disable.

Conferencing

Conferencing Overview

IP Office systems support the following conference capabilities:

Control Unit	Conference Capability
Small Office Edition	Supports up to 24 conference parties with a maximum of 6 parties in any particular conference.
IP403 **IP406 V1** **IP406 V2**	Support multiple conferences totaling up to 63 parties. For example: • 21 x 3-way conferences. • 1 x 10-way conference (10 parties) plus 11 x 3-way conferences (33 parties) and free capacity for 20 more conference parties to join new or existing conferences.
IP412	The IP412 supports two 63 party conference banks. When a new conference is started, the bank with the most free capacity is used for that conference. However once a conference is started on one conference bank, that conference cannot use any free capacity from the other conference bank.

Notes:

- **Other Use of Conference Resources**
  System features such as call intrusion, call recording and silent monitoring all use conference resources for their operation.
- **Two Party Conferences**
  If a conference has two parties, and one party leaves, the conference call is ended. This may affect conferences that are just beginning but currently only contain the first two parties to join.
- **Analog Trunk Restriction**
  In conferences that include external calls, only a maximum of two analog trunk calls are supported.
- **Recording Conferences**
  If call recording is supported, conference calls can be recorded just like normal calls. Note however that recording is automatically stopped when a new party joins the conference and must be restarted manually. This is to stop parties being added to a conference after any "advice of recording" message has been played.
- **Conference Center Server**
  The IP Office Conference Center Server application is able to reserve a proportion of the IP Office system's conference resources for its own use. That proportion is adjustable through the Conference Center Server's settings.

Default Conference Handling

The methods below use the IP Office's default system short codes.

To start/add to a conference:

1. Place your first call or the existing conference on hold. Existing conference parties will still be able to talk to each other.
2. Call the new party.
    - If not answered, or diverted to voicemail, or answered but the party does not want to join the conference; put them on hold and dial ***52** to clear the call.
3. If answered and the other party wants to join the conference, put them on hold and dial ***47**.
4. All held calls are now in conference.
    - Digital display extensions will see **CONF** followed by the conference number.

To exit a conference:

1. Parties wanting to leave a conference can simply hang-up.

Using Conference Meet Me

Each conference on the IP Office is assigned a conference number. This number is displayed on suitable display phones.

Conference Meet Me allows users to join or start a specific numbered conference. This method of operation allows you to advertise a conference number and then let the individual parties join the conference themselves.

Through the **Button Programming** tab (also called **Digital Telephony**) within IP Office Manager, the **Conference Meet Me** function can be assigned to a DSS key (select **Advanced | Call | Conference Meet Me**). This allows simple one key access by internal users to specific conferences.

- **Note:** Conference Meet Me can create conferences that include only one or two parties. These are still conferences using slots from the IP Office's conference capacity.

Example 1: Meet Me to a user specified conference

The following example system short code allows any extension to dial *67* and then the number of the conference which they want to join followed by #. For example dialing *67*600# will put the user into conference 600.

- **Short Code:** *67*N#
- **Telephone Number:** N
- **Feature:** Conference Meet Me

Example 2: Meet Me to a system specified conference number

The following example system short code allows the dialing extension to join a specific conference, in this case 500.

- **Short Code:** *500
- **Telephone Number:** 500
- **Feature:** Conference Meet Me

If you are asked to add a party to a conference, having a conference meet me short code is very useful. With the conference in progress, call the new party. When they answer, hold the call, dial the conference meet me short code and then hang-up.

Short Codes

Short Codes

The IP Office uses short codes to match the number dialed to an action. The number dialed or part of the number dialed can be used as parameter for the feature.

Examples

The method of detailing a short codes settings lists the short code fields separated by a /.

- ***17/?U/VoicemailCollect**
  A user dialing *17 is connected to voicemail.
- ***14*N#/N/FollowMeTo**
  If a user dials *14*210# at their own extension, their calls are redirected to extension 210.

Dialing Short Codes

The following types of short code applied to on-switch dialing. The result may be an action to be performed by the IP Office, a change to the user's settings or a number to be dialed. The order below is the order of priority in which they are used when applied to user dialing.

- **User Short Codes**
  These are useable by the specific user only.
- **User Rights/User Restrictions Short Codes**
  These are useable by any users associated with the user rights or restrictions in which they are set. They can be overridden by individual user short codes.
- **System Short Codes**
  These are available to all users on the IP Office system. They can be overridden by user or user rights short codes.

Post-Dialing Short Codes

When any the short code above result in a number to be dialed, further short code can be applied to that number to be dialed. This is done using the following types of short codes.

- **Least Cost Route Short Codes**
  An short code that results in a number to be dialed, has is telephone number further checked for a match against LCR short codes. Time profiles can be used to control when LCR is used.
- **Transit Network Selection (TNS) Short Codes**
  Used on T1 ISDN trunks set to use AT&T as the Provider. Applied to the digits presented following any other short code processing.

Incoming Number Short Codes

On certain types of trunks short codes can be applied to the incoming digits received with calls.

- **Line Short Codes**
  These short codes are used to translate incoming digits received with calls. The stage at which they are applied varies between different line types and may be overridden by an extension number match.

Short Code Fields and Characters

Each short code, regardless of its type, has the following fields:

- **Short Code**: *Default =Blank, Range = Up to 31 characters.*
  The digits which if matched trigger use of the short code. Characters can also be used to create short codes which cannot be dialed from a phone but can be dialed from application speed dials. However some characters have special meaning, see the table below.
- **Telephone Number**: *Default = Blank, Range = Up to 31 characters.*
  The number output by the short code. When necessary, this is used as parameter for the selected short code Feature. See the table below for the special characters that can be used here.
- **Line Group ID**: *Default = 0*
  For short codes that result in a number to be dialed, this field sets the Outgoing Line Group ID of the lines that should be used. The Outgoing Line Group ID of a line is set through the **Line** settings.
- **Feature**: *Default = Dial*
  This sets the action performed by the short code when used. See **Short Code Features**.
- **Locale**: *Default = Blank*
  Features that transfer the caller to Voicemail Lite or Voicemail Pro can indicate the language locale required for prompts. This is subject to the language being supported and installed on the voicemail server.
- **Force Account Code:** *Default = Off*
  When selected, for short codes that result in the dialing of a number, the user is prompted to enter a valid account code before the call is allowed to continue.

Short Code Field Characters

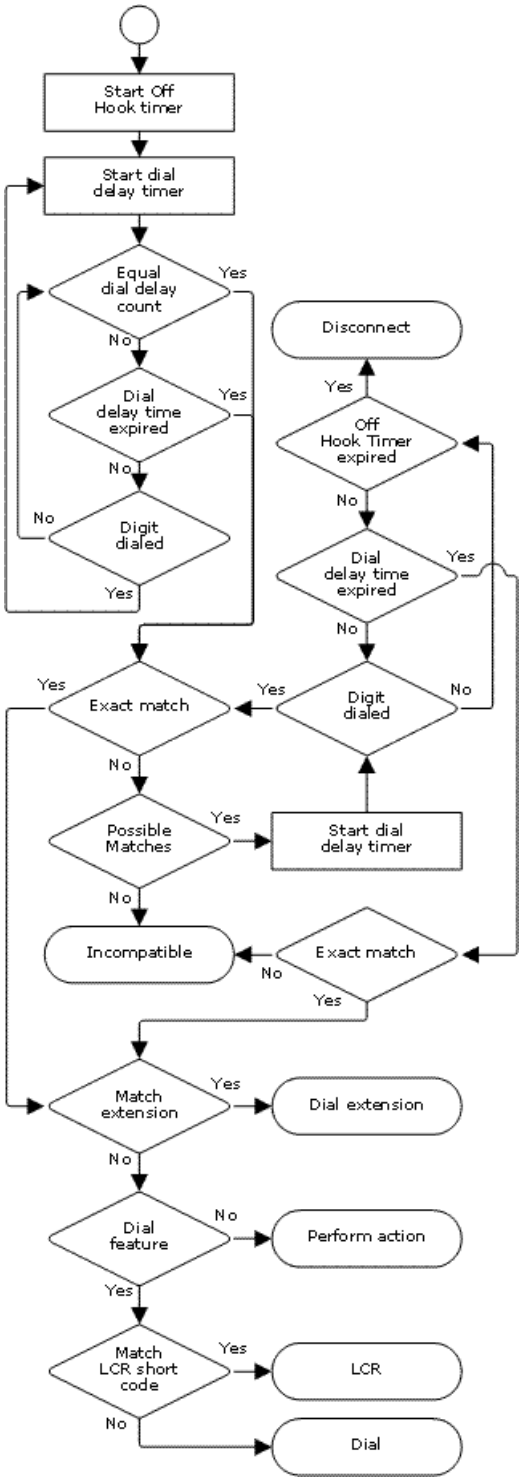
Character	Meaning
?	Used on its own to create a short code match in the absence of any other short code match. If both a user and a system ? short code exist, the system short code is used, except for ?D below. For example, the system short code **?/./Dial/0** will route any dialing for which no other match is not found to outgoing line group 0.
?D	This character combination makes a call to the defined phone number as soon as the user goes off-hook.
N	Matches a sequence of one or more dialed digits. The **Dial Delay Time** or a following matching character is used to resolve when dialing is complete.
X	Matches a single digit. When a group of **X**'s is used, the short code matches against the total number of **X**'s.
[ ]	Triggers secondary dial tone. See Secondary Dial Tone.
;	Receive sending complete. When used this must be the last character in the short code string. It instructs the system to wait for the number to be fully dialed, using the **Dial Delay Time** or the user dialing **#**, before acting on the short code. • **Dialing Complete** The majority of North-American telephony services use en-bloc dialing. Therefore the use of a **;** is recommended at the end of all dialing short codes that use an **N**. This is also recommended for all dialing where secondary dial tone short codes are being used.

Telephone Number Field Characters

Character	Meaning
A	Allow the calling number sent with the call to be used. This character may be required by service providers in some locales.
C	Place any following digits in the outgoing call's Called number field rather than the Keypad field.
D	Wait for a connect message before sending any following digits as DTMF.
E	Replace with the Extension number of the dialing user.
I	Send data in an Information Packet rather than Set-up Packet.
K	Place any following digits in the outgoing call's Keypad field rather than the Called Number field. Only supported on ISDN and QSIG.
L	Use the last number received.
N	Substitute with the digits used for the N or X character match in the Short Code number field.
S	Place any following digits into the outgoing call's calling number field.
SS	Pass through the Calling Party Number on IP lines. For example, to provide the incoming ICLID at the far end of a VoIP connection, a short code **?** with telephone number **.SS** should be added to the line.
i	Both the **S** and **SS** characters can be followed by an **i**, that is **Si** and **SSi**. Doing this sets the calling party number plan to ISDN and number type to National. This may be required for some network providers.
t	Set the maximum duration in minutes for a call plus or minus a minute. Follow the character with the number of minutes in brackets, for example **t(5)**.
U	Replace with the User Name of the dialing user.
W	Withhold the sending of calling ID number. Operation is service provider dependent.
Y	Wait for a Call Progress or Call Proceeding message before sending any following digits as DTMF. For example, the Y character would be necessary at a site where they have signed up with their telephone service provider to withhold international dialing until a DTMF pin/account number is entered that initiates the call progress/proceeding message.
@	Enter any following digits into the sub-address field.
.	Replace with the dialed digits that triggered the short code match.
,	Add a one second pause in DTMF.
" "	Use to enclose any characters that should not be interpreted as possible special characters by the IP Office. For example characters being passed to the voicemail server.

User Dialing

Summary: Looks at how the IP Office looks for possible short code matches to user dialing.



The following IP Office settings influence user dialing.

- **Dial Delay Count:** *Default = 0 (US/Japan), 4 (ROW)*
  This value sets the number of digits dialed before the IP Office looks for a short code match.
- **Dial Delay Time:** *Default = 4000ms (US/Japan), 1000ms (ROW)*
  This value sets the maximum allowed interval between the dialing of each digit. If exceeded, the IP Office looks for a short code match even if the **Dial Delay Count** has not been reached.
- **Off-Hook Timer**
  When a user goes off-hook, the IP Office starts a 30 second off-hook timer (10 seconds in Italy). If the off-hook timer expires before a short code match occurs, the user is disconnected.

The following rules are used when short code matching is performed for user dialing:

- A short code is immediately an exact match is found.
- If no match is found but partial matches exist, the user can continue dialing,.
- If no match or partial matches are found, incompatible is returned.
- The following precedence is used to determine which short codes are used:
  - Extension number matches override all short codes.
  - User short codes override user rights and system short codes.
  - User Rights short code matches override system short codes.
- When multiple exact matches occur,
  - The match with the most specified digits rather than wildcards is used.
  - If there are still more than one match, the match with the most exact length is used. This means X wildcards will override N when both match.

Application Dialing

Numbers speed dialed by IP Office applications such as Phone Manager and SoftConsole are treated differently. Since the digits are received as a single group, they can override some short code matches. The same applies to short codes used within IP Office configuration settings such as Incoming Call Route destinations.

Example:

- **Telephone Number:** 12345678
- **Short Code 1:** 1234XX/207/DialExtn
- **Short Code 2:** 12345678/210/DialExtn

If dialed manually by the user, as soon as they have dialed 123456 a match to short code 1 occurs. They can never dial short code 2.

If dial using a Phone Manager speed dial, 12345678 is sent as a string and a match to short code 2 occurs.

Partial Dialing

If the application dialing does not trigger an exact match, the user can dial additional digits through their extension. The processes for normal user dialing are applied.

Non-Digit Short Codes

Short codes can be created that use characters instead of speed dials. While these short codes cannot be dialed from a phone, they can be dialed through application speed dials and settings. However characters that are interpreted as special short code characters will still be interpreted as such.

Secondary Dial Tone

Some locales prefer to provide users with secondary dial tone once they have started dialing. This can be done by adding a system short code using the Secondary Dial Tone Feature.

For example, on a system where 9 is used as a prefix for external dialing, the system short code **9/./Secondary Dial Tone/0** will trigger secondary dial tone when users dial a number prefixed with 9.

In order to allow further digit matching, the digits dialed are put back through short code matching against any short codes that start with **[*n*]** where ***n*** is the digit used to trigger the system secondary dial tone short code.

- On all systems where secondary dial tone is used, it is recommended that **;** is also used in dialing short codes that contain **N**.

For example:

User Short Code	System Short Codes	Scenario
[9]0N;/Busy/0	**9/./SecondaryDialTone** **[9]0N;/Dial/0**	The user dials 90114445551234. The 9 is matches the system secondary dial tone short code and unlike other short codes this is applied immediately. The user's dialing is put through short code matching using the normal order of precedence but matched to possible short codes beginning **[9]**. In this case the user's **[9]0N;** short code would take precedence over the system **[9]0N;** short code.

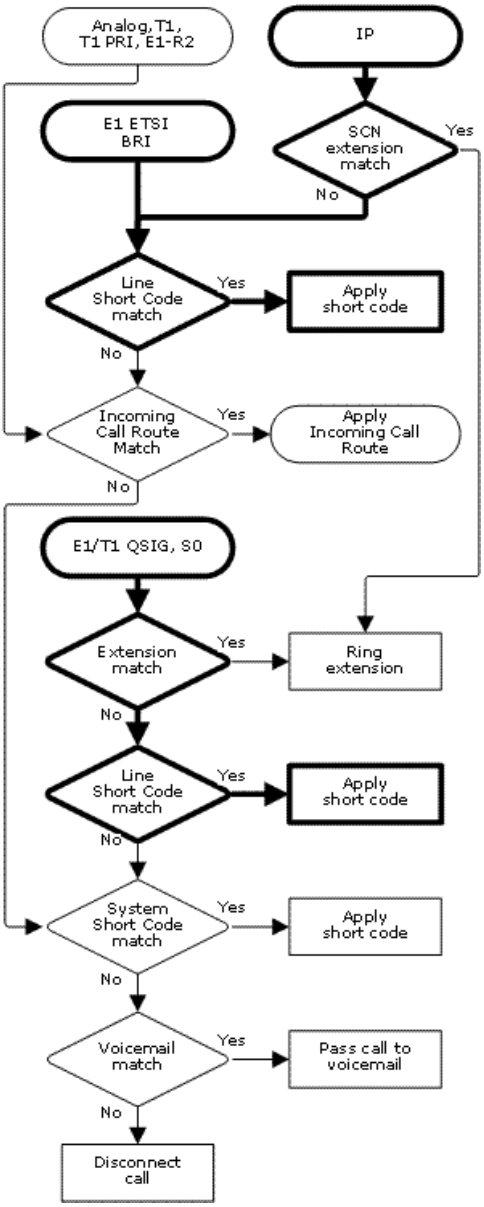
? Short Codes

The **?** character is normally used in two ways;

- **Default Short Code Matching**
  On IP Office systems outside North America, the system short code **?/./Dial/0** is added as a default short code. This short code provides a match for any dialing to which there is no other match. Therefore, on systems with this short code, the default is that any unrecognized number will be dialed to Outgoing Line Group 0.
  - A **?** short code used in user or user rights short codes is overridden by a **?** system short code.
- **Hot-Line Dialing**
  A user short code **?D** can be used to perform a short code action immediately the user extension goes off-hook. Typically this is used with door, lift and lobby phones to immediately connect the phone to a number such as the operator or reception.

The **?** character can appear in the **Telephone Number** field of a short code. This is done with short codes using the ***VoicemailCollect*** feature. In this instance the **?** character is not interpreted by the IP Office, it is used by the voicemail server.

Line Short Codes

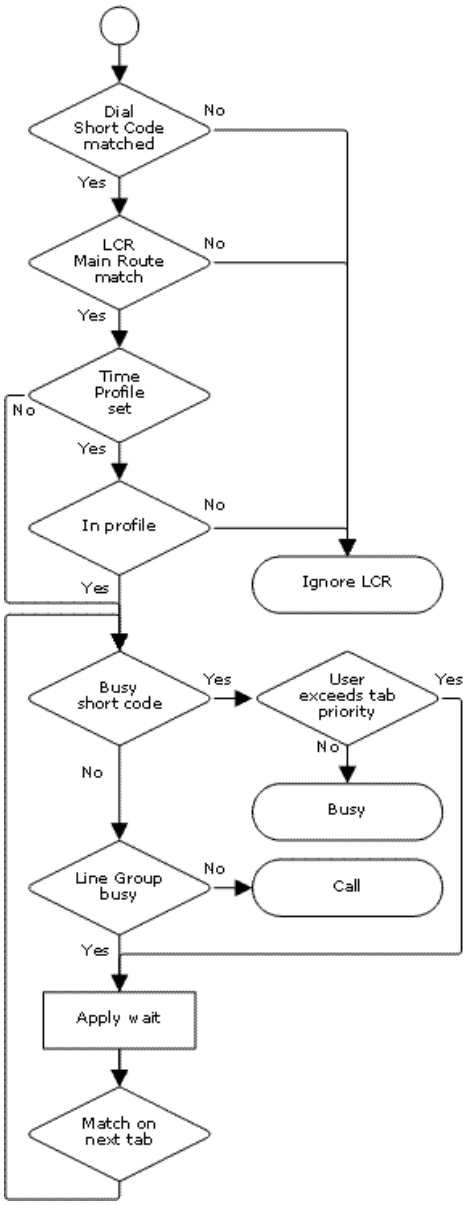


Line short codes are applied to the digits received with incoming call. They are not used with all types of trunk. On other trunks they are only used in particular operation modes. The stage at which they are applied also varies.

- **IP Trunks**
  Line short codes are used if Small Community Networking (SCN) is not being used or no SCN user extension match occurs on the digits received. If no line short code match occurs then normal incoming call routing is applied.
- **BRI and E1 ETSI Trunks**
  These types of trunks use line short codes immediately. If no short code match occurs then normal incoming call routing is applied.
- **QSIG and SO Trunks**
  S0 trunks, and E1 and T1 trunks set to QSIG mode, use line short code if the digits received do not match an internal extension number. These types of trunk do not use incoming call routing.

Least Cost Routing Overview

Summary: Least cost routes allow short code matching on the number being dialed from the system rather than the number originally dialed by the user or application.



When a line, user, user rights or system short code results in a number to be dialed off-switch, the resulting telephone number to be dialed can be further processed by matching to Least Cost Route (LCR) short codes.

LCR short codes are grouped in sets. Within each set, the short codes are grouped into tabs called **Main Route**, **Alternate Route 1** and **Alternate Route 2**. Each tab also has a priority and a timeout setting.

- **Using a Time Profile**
  Each LCR set can have an associated time profile. LCR sets without a time profile are active all the time. LCR sets with a time profile are only active within the times defined by that profile.
- **Which Number is Used For Matching**
  The telephone number output by the original matched short code is checked against the Main Route tab short codes of the active LCR sets.
  - If a match is found, that set is used for processing.
  - If no match is found, the calls is dialed without LCR.
- **Returning Busy**
  If the LCR short code match is set to the **Busy** feature:
  - If the user's priority is higher than the LCR tabs, the IP Office will immediately look for a matching short code on the next tab and use that short code if found.
  - Otherwise the user receives busy tone.
- **Switching Outgoing Line Groups**
  If the LCR short code match is a dial feature, the IP Office will attempt to seize a line from the outgoing line group specified by the LCR short code.
  - If a line cannot be seized within the time specified on the LCR tab, the IP Office will look in the next tab for an alternate LCR short code match. If an alternate match is found it is used.

Least Cost Routing Example

Site A has two outgoing line groups. Outgoing line group 0 contains external lines to the public telephone network. Outgoing line group 1 contains private lines to Site B.

Requirements

- **Scenario 1**
  The external public number for Site B is 123456. The internal speed dial number is 600. When a user dials 600, the administrator want the call to be routed by the private lines if possible.
- **Scenario 2**
  The sales hot line at Site B has the public number 654321. The administrator only want high priority users at Site A to be able to dial that number to test its performance.

Settings

- **System Short Code 1:** 600/123456/Dial/0.
- **System Short Code 2:** 654321/N/Dial/0.
- **User 1:** Priority 2. **User 2:** Priority 4.

Least Cost Route "SiteB"	Main Route	Alternate Route 1
Timeout	10	30
Priority	3	5
Short Codes	123456/N/Dial/1	123456/N/Dial/0
	654321/N/Busy	654321/N/Dial/0

Effects

Scenario 1

When a user dials 123456, it matches system short code 1. That short code specifies dialing Site B via the public lines (Outgoing line group 0).

The number to be dialed is checked against the least cost routing **Main Route** tabs for any match. In this example a match occurs in the ***SiteB*** least cost route. The short code there specifies dialing the number using the private lines (Outgoing line group 1).

If the IP Office cannot seize a line for the call from that group within 10 seconds, it looks for an alternate short code match in Alternate Route 1 tab of the Site B least cost route. In this example that match changes the call to using the public lines (Outgoing line group 0).

Scenario 2

When a user dials 654321, it matches system short code 2. That short code specifies dialing the Site B sale hot line number via the public lines (Outgoing line group 0).

Since this short code is set to a **Dial** feature, the number to be dialed is checked against the least cost routing **Main Route** tabs for any match. In this example a match occurs in the ***SiteB*** least cost route. The short code there specifies Busy and so returns busy to callers.

User 1 has a priority of 2. They will receive busy tone when they dial 654321.

User 2 has a priority of 4 which is higher than the Main Route tab in the Site B least cost route. Therefore the IP Office will immediately check for a further match in the Alternate Route 1 tab. In this example the short code match for 654321 in the Alternate 1 tab allows the number to be dialed to the public lines.

Short Code Matching Examples

The default dialing short codes for North American U-Law systems are a good example of the interactions within a set of short codes using several special characters.

The short codes are:

- **9/./Secondary Dial Tone**
- **[9]0N;/0N/Dial**
- **[9]1N;/1N/Dial**
- **[9]N;/N/Dial**
- **[9]XXXXXXXXXX/XXXXXXXXXX/Dial**

Explanation

- **Short Code 1:** ***9/./Secondary Dial Tone***
  This short code returns secondary dial tone immediately a user dials 9. This is a special short code as despite a match having occurred, the IP Office puts the digits back through short code matching again.
- **Short Code 2:** ***[9]0N;/0N/Dial***
  This short code contains a number of special characters; **[ ]**, **N** and **;**.
  - The **[9]** allows this short code to be used as a follow on match to the previous 9 that triggered secondary dial tone.
  - The **0N** matches any dialing following the 9 that begins with a 0.
  - The **;** tells the IP Office to use the dial delay timer expiring or the user dialing # to indicate that dialing is complete. That allows this short code to be used as an exact match even though there is also a possible match to the [9]XXXXXXXXXX short code.
  - In North America this short code is used for international calls.
- **Short Code 3:** ***[9]1N;/1N/Dial***
  This short code is similar to short code 2 but is used for dialing that begins 91.
  - In North America it is used for national calls.
- **Short Code 4:** ***[9]N;/N/Dial***
  This short code is again similar to short codes 2 and 3. It matches any dialing that begins with a 9. However it is not used until the dial delay timer expires. When that occurs, a match to 90 (short code 2) or 91 (short code 3) is used as the more exact match.
  - In North America this short code is used for 7 digit local numbers.
- **Short Code 5:** ***[9]XXXXXXXXXX/XXXXXXXXXX/Dial***
  This short code used **X** characters to match single digits, in this case up to 10.
  - This is a possible match to all dialing that begins with a 9. However the ; in the other possible matches allows them to be used when the dial delay timer expires or the user dials #.
  - If the user dials 9 and then continues dialing without allowing the inter-digit dial delay time to expire, as soon as they have dialed the 10 additional digits this short code is used.
  - In North America this short code is used for 10 digit local numbers.

Further Examples

The following examples are not meant as practical examples. However they are simple to implement and test on real system without conflicting with its normal operation. They illustrate the interaction between different short codes in resolving which short code is an exact match. They assume that extension numbers are in the 200 to 299 range.

The term 'dials' means dialing the indicated digit or digits without the inter-digit Dial Delay Time expiring.

The term 'pause' means a wait that exceeds the inter-digit Dial Delay Time.

Scenario 1		
Short Code 1 = 60/203/DialExtn. Dial Delay Count = 0. Dial Delay Time = 4 seconds.		
Test	**Dialing**	**Effect**
1	8	No possible match, incompatible returned immediately
2	6	No exact match but there is a potential match, so the system waits. When the Dial Delay Time expires, no exact match is found so incompatible is returned.
3	60	Exact match to Short Code 1. Extension 203 called immediately.
4	61	No possible match, the system returns incompatible.

Scenario 2		
Short Code 1 = 60/203/DialExtn. **Short Code 2 = 601/210/Dial Extn.** Dial Delay Count = 0. Dial Delay Time = 4 seconds.		
Test	**Dialing**	**Effect**
1	8	No possible match, incompatible returned immediately
2	60	Exact match to Short Code 1. Extension 203 called immediately.
3	601	Exact match to Short Code 1 as soon as the 0 is dialed. The user cannot manually dial 601. The only way they can dial 601 is using a Phone Manager speed dial set to dial that string.

Scenario 3		
Short Code 1 = 60/203/DialExtn. Short Code 2 = 601/210/Dial Extn. **Dial Delay Count = 3.** Dial Delay Time = 4 seconds.		
Test	**Dialing**	**Effect**
1	8	Insufficient digits to trigger matching. The system waits for additional digits or for Dial Delay Time to expire. When Dial Delay Time expires, no possible match is found so incompatible is returned.
2	60	Insufficient digits to trigger matching. The system waits for additional digits or for Dial Delay Time to expire. When Dial Delay Time expires, matching started and exact match to Short Code 1 occurs. .
3	601	Third digit triggers matching. Exact match to Short Code 2. Extension 210 dialed immediately.
4	60#	# is treated as a digit and as the third digit triggers matching. No exact match found. The system returns incompatible.

Scenario 4		
Short Code 1 = 60;/203/DialExtn. Short Code 2 = 601/210/Dial Extn. Dial Delay Count = 3. Dial Delay Time = 4 seconds.		
Test	**Dialing**	**Effect**
1	8	Insufficient digits to trigger matching. The system waits for additional digits or for Dial Delay Time to expire. When Dial Delay Time expires, no possible match is found so incompatible is returned.
2	6	Insufficient digits to trigger matching. The system waits for additional digits or for the inter-digit Dial Delay Time to expire. If the Dial Delay Time expires, a potential match exists to a short code that uses ; so the system waits for an additional digit until the off-hook timer expires.
3	60	As above but an additional digit now may create a match. If 1 is dialed, it creates an exact match to Short Code 2 and is used immediately. If 0, * or 2 to 9 is dialed, no possible match exists. The system returns incompatible. If the next digit is a #, it is treated as signaling dialing complete rather than being a digit. Short code 1 becomes an exact match and is used immediately.
4	601	Third digit triggers matching. Exact match to Short Code 2. Extension 210 dialed immediately.

Scenario 5		
Short Code 1 = 601/203/DialExtn. **Short Code 2 = 60N/210/Dial Extn.** **Dial Delay Count = 0. Dial Delay Time = 4 seconds.**		
Test	**Dialing**	**Effect**
1	6	No exact match but there is a potential match, so the system waits for additional dialing. If the Dial Delay Time expires, no exact match is found so incompatible is returned.
2	60	Potential match to both short codes. The system waits for additional dialing. If the Dial Delay Time expires, Short Code 2 becomes an exact match with N blank.
3	601	Exact match to Short Code 1. Used immediately
4	602	Exact match to Short Code 2. Used immediately.

Scenario 6		
Short Code 1 = 601/203/DialExtn. Short Code 2 = 60N/210/Dial Extn. **Short Code 3 = 60X/207/DialExtn**. Dial Delay Count = 0. Dial Delay Time = 4 seconds.		
Test	**Dialing**	**Effect**
1	6	No exact match but there are potential matches so the system waits for additional dialing. If the Dial Delay Time expires, no exact match has occurred so incompatible is returned.
2	60	Potential match to all short codes. System waits for additional dialing. If the Dial Delay Time expires, Short Code 2 becomes an exact match with N blank. If a digit is dialed, Short Code 3 becomes a more exact match and is used.
3	601	Exact match all short code, however Short Code 1 is treated as being more exact (more matching digits) and is used immediately
4	602	Exact match to short codes 2 and 3, however the Short Code 3 is treated as being more exact (length match) and is used immediately.

Scenario 7		
Short Code 1 = 601/203/DialExtn. Short Code 2 = 60N/210/Dial Extn. **Short Code 3 = 6XX/207/DialExtn**. Dial Delay Count = 0. Dial Delay Time = 4 seconds.		
Test	**Dialing**	**Effect**
1	6	No exact match but there are potential matches so the system waits for additional dialing. If the Dial Delay Time expires, no exact match has occurred so incompatible is returned.
2	60	Potential match to all short codes. System waits for additional dialing. If the Dial Delay Time expires, Short Code 2 becomes an exact match with N blank. If a digit is dialed, Short Code 3 becomes an more exact match and is used.
3	601	Exact match all short code, however Short Code 1 is treated as being more exact (more matching digits) and is used immediately
4	602	Exact match to short codes 2 and 3, however the Short Code 2 is treated as being more exact (more matching digits) and is used immediately.
5	612	Exact match to Short Code 3.

Default System Short Code List

The following table lists the default system short codes present in an IP Office system's configuration.

Most IP Office control units are available in A-Law and U-Law models. Typically U-Law models are supplied to North American locales, A-Law models are supplied to the rest of the world. In addition to the using different companding, A-Law and U-Law models support different default short codes.

Short Code	Telephone Number	Feature	A-Law	U-Law
*00	Blank	Cancel All Forwarding	✓	✓
*01	Blank	Forward Unconditional On	✓	✓
*02	Blank	Forward Unconditional Off	✓	✓
*03	Blank	Forward On Busy On	✓	✓
*04	Blank	Forward On Busy Off	✓	✓
*05	Blank	Forward On No Answer On	✓	✓
*06	Blank	Forward On No Answer Off	✓	✓
*07*N#	N	Forward Number	✓	✓
*08	Blank	Do Not Disturb On	✓	✓
*09	Blank	Do Not Disturb Off	✓	✓
*10*N#	N	Do Not Disturb Exception Add	✓	✓
*11*N#	N	Do Not Disturb Exception Del	✓	✓
*12*N#	N	Follow Me Here	✓	✓
*13*N#	N	Follow Me Here Cancel	✓	✓
*14*N#	N	Follow Me To	✓	✓
*15	Blank	Call Waiting On	✓	✓
*16	Blank	Call Waiting Off	✓	✓
*17	?U	Voicemail Collect	✓	✓
*18	Blank	Voicemail On	✓	✓
*19	Blank	Voicemail Off	✓	✓
*20*N#	N	Set Hunt Group Night Service	✓	✓
*21*N#	N	Clear Hunt Group Night Service	✓	✓
*22*N#	N	Suspend Call	✓	✓
*23*N#	N	Resume Call	✓	✗
*24*N#	N	Hold Call	✓	✗
*25*N#	N	Retrieve Call	✓	✗
*26		Clear CW	✓	✗
*27*N#	N	Hold CW	✓	✗
*28*N#	N	Suspend CW	✓	✗
*29	Blank	Toggle Calls	✓	✓
*30	Blank	Call Pickup Any	✓	✓
*31	Blank	Call Pickup Group	✓	✓
*32*N#	N	Call Pickup Extn	✓	✓
*33*N#	N	Call Queue	✓	✓
*34	Blank	Hold Music	✓	✓
*35*N#	N	Extn Login	✓	✓
*36	Blank	Extn Logout	✓	✓
*37*N#	N	Park Call	✓	✓
*38*N#	N	Unpark Call	✓	✓
*39	1	Relay On	✓	✓

*40	1	Relay Off	✓	✓
*41	1	Relay Pulse	✓	✓
*42	2	Relay On	✓	✓
*43	2	Relay Off	✓	✓
*44	2	Relay Pulse	✓	✓
*45*N#	N	Acquire Call	✓	✓
*46	Blank	Acquire Call	✓	✓
*47	Blank	Conference Add	✓	✓
*48	Blank	Voicemail Ringback On	✓	✓
*49	Blank	Voicemail Ringback Off	✓	✓
*50	Blank	Forward Huntgroup On	✓	✓
*51	Blank	Forward Huntgroup Off	✓	✓
*52	Blank	Cancel or Deny	✓	✓
*53*N#	N	Call Pickup Members	✓	✓
*57*N#	N	Forward On Busy Number	✓	✓
*70	Blank	Call Waiting Suspend	✓	✗
*70*N#	N	Dial Physical Extn By Number	✗	✓
*71*N#	N	Dial Physical Extn By ID	✗	✓
9000	"MAINTENANCE"	Relay On	✓	✓
[9]0N;	0N	Dial	✗	✓
[9]1N;	1N	Dial	✗	✓
[9]N;	N	Dial	✗	✓
[9]XXXXXXXXXX;	XXXXXXXXXX	Dial	✗	✓
9	.	Secondary Dial Tone	✗	✓
?	.	Dial	✓	✗

Short Code Features

Short Code Features

This sections details the available IP Office short code features.

Auto Attendant
Busy
Busy On Held
Call Intrude
Call Listen
Call Pickup Any
Call Pickup Extn
Call Pickup Group
Call Pickup Members
Call Queue
Call Record
Call Steal
Call Waiting On
Call Waiting Off
Call Waiting Suspend
Cancel All Forwarding
Cancel Ring Back When Free
Channel Monitor
Clear Call
Clear CW
Clear Hunt Group Night Service
Clear Hunt Group Out Of Service
Clear Quota
Conference Add
Conference Meet Me
CW
Dial
Dial 3K1
Dial 56K
Dial 64K
Dial CW
Dial Direct
Dial Direct Hot Line
Dial Emergency
Dial Extn
Dial Inclusion
Dial Paging
DialPhysicalExtensionByNumber
DialPhysicalNumberByID
Dial Speech
Dial V110
Dial V120
Dial Video
Disable Internal Forwards
Disable Internal Forward Unconditional
Disable Internal Forward Busy or No Answer
Display Msg
Do Not Disturb Exception Add
Do Not Disturb Exception Delete
Do Not Disturb On
Do Not Disturb Off
Enable Internal Forwards
Enable Internal Forward Unconditional
Enable Internal Forward Busy or No Answer
Extn Login
Extn Logout
Flash Hook
Follow Me Here
Follow Me Here Cancel
Follow Me To
Forward Hunt Group Calls On
Forward Hunt Group Calls Off
Forward Number
Forward On Busy Number
Forward On Busy On
Forward On Busy Off
Forward On No Answer On
Forward On No Answer Off
Forward Unconditional On
Forward Unconditional Off
Headset Toggle
Hold Call
Hold CW
Hold Music
Hunt Group Disable
Hunt Group Enable
Last Number Redial
Mobile Twinned Call Pickup
Off Hook Station
Park Call
Priority Call
Relay On
Relay Off
Relay Pulse
Resume Call
Retrieve Call
Ring Back When Free
Secondary Dial Tone
Set Absent Text
Set Account Code
Set Authorization Code
Set Hunt Group Night Service
Set Hunt Group Out Of Service
Set Inside Call Seq
Set No Answer Time
Set Mobile Twinning Number
Set Mobile Twinning On
Set Mobile Twinning Off
Set Outside Call Seq
Set Ringback Seq
Set Wrap Up Time
Suspend Call
Suspend CW
Toggle Calls
Unpark Call
Voicemail Collect
Voicemail Node
Voicemail On
Voicemail Off
Voicemail Ringback On
Voicemail Ringback Off

For each feature the following are listed:

- **Telephone Number:** The parameter required for the short code feature.
- **Default Short Code:** Whether the short code feature is used by any default system short code.
- **Short Code Toggles:** Whether the action of the short code toggles.
- **Phone Manager Control:** Whether the same action can be performed by a user control within Phone Manager application.
- **SoftConsole Control:** Whether the same action can be performed by a user control within the SoftConsole application.
- **Programmable Button Control:** Whether the same action can be assigned to a programmable button.

Auto Attendant

This feature is used with embedded voicemail on Small Office Edition and IP406 V2 systems. It allows the recording of the greetings used by auto-attendant services and the transfer of calls to that auto attendant. This feature was previously called **Record Greeting**.

Telephone Number	✓ *AA:Name.x* where *Name* is the auto-attendant service name and *x* is the greeting (1 = morning, 2 = afternoon, 3 = evening and 4 = options menu). The *.x* part can be omitted in which case the short code is used to connect the caller to the named auto attendant service.
Default Short Code	See **Configuration Settings | Auto Attendant**.
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Busy

Provide busy signal to the user. This is useful for barring numbers - it provides a busy tone when the barred number is dialed.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓Busy

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Busy On Held

When on, busy on held returns busy to new calls when the user has an existing call on hold. This short code feature is useful when a user does not want to be distracted by an additional incoming call when they have a call on hold.

Telephone Number	✓ Y or 1 for on, N or 0 for off.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	
Programmable Button Control	✓BusyH

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example: Turning Busy on Held on

If on, when the user has a call on hold, new calls receive busy tone (ringing if analog) or are diverted to Voicemail if enabled, rather than ringing the user. Note: this overrides call waiting when the user has a call on hold.

- **Short Code:** *12
- **Telephone Number:** Y
- **Feature:** BusyOnHeld

Example: Turning Busy on Held off

Another short code must be created to turn the Busy on Held feature off. If off, when the uses has a call on hold, new calls will still get directed to the user.

- **Short Code:** *13
- **Telephone Number:** N
- **Feature:** BusyOnHeld

Call Intrude

This feature intrudes on the existing call of the specified target extension. All call parties are put into a conference and can talk to and hear each other. Use of this feature is subject to the **Can Intrude** status of the intruder and the **Cannot be Intruded** status of the other call parties.

Note that this feature requires conference resources from the IP Office system for the duration of the intrusion.

Telephone Number	✓ Target extension number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Intru

- **See also:** Call Listen, Dial Inclusion.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Call Listen

This feature allows a user to monitor another user's call without being heard. Monitoring is different from call intrusion. Note that this feature requires conference resources from the IP Office system for the duration of the intrusion.

The use of call listen is dependant on:

- The target being a member of the group set as the user's **Monitor Group** (**User | Telephony** tab).
- The **Can Intrude** setting of the user listening and the **Cannot be Intruded** setting of the target. Monitoring is independent of the settings of the third party to the call if they are internal.
- ⚠ **WARNING**
  Monitoring is not enabled by default. The use of monitoring is may be subject to local laws and regulations. Before enabling monitoring you must ensure that you have complied with all applicable local laws and regulations. Failure to do so may result in severe penalties.

Monitoring can be accompanied by a tone heard by all parties. Use of the tone is controlled by the Beep on Listen setting on the **System | System** tab. The default for this setting is on.

Monitoring of VoIP extensions on calls using direct media paths is not supported.

Telephone Number	✓ Target extension number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Listn

- **See also:** Call Intrude, Dial Inclusion.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

User 'Extn205' wants to be able to monitor calls received by members of the Hunt Group 'Sales'.

1. For user 'Extn205', in the Monitor Group field (User | Telephony) list box.
2. Ensure that **Can Intrude** is checked.
3. Create a User Short Code to allow Extn205 to start monitoring.
   - **Short Code:** *99*N#
   - **Telephone Number:** N
   - **Line Group ID:** 0.
   - **Feature:** CallListen
4. For each member of the hunt group, check that their **Cannot be Intruded** setting is unchecked.
5. Now when a member of the 'Sales' hunt group is on a call, Extn205 can replace **N** in the short code with the extension number of that member and monitor their call.

Call Pickup Any

Pick up the first available ringing call.

Telephone Number	✗
Default Short Code	✓ *30
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ PickA

- **See also:** Call Pickup Extn, Call Pickup Group, Call Pickup Members, Acquire Call.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is an example of the short code setup:

- **Short Code:** *30
- **Feature:** CallPickupAny

Call Pickup Extn

Pick up a ringing call from a specific extension.

Telephone Number	✓ Target extension number.
Default Short Code	✓ *32*N#
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ CpkUp

- **See also:** Call Pickup Any, Call Pickup Group, Call Pickup Members, Acquire Call.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code is a default within the Manager configuration. **N** represents the specific extension. For example, if a user dials ***32*201#**, they will pick up the call coming into extension 201.

- **Short Code:** *32*N#
- **Telephone Number:** N
- **Feature:** CallPickupAny

Call Pickup Group

Pick up a call ringing any hunt group of which the user is a member.

Telephone Number	✗
Default Short Code	✓ *31
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ PickG

- **See also:** Call Pickup Any, Call Pickup Extn, Call Pickup Members, Acquire Call

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is an example of the short code setup.

- **Short Code:** *31
- **Feature:** CallPickupGroup

Call Pickup Members

This feature can be used to pick up any call to an extension that is a member of the Hunt Group specified. The incoming call can be as a result of a **DID** call to that extension, an internal call to that extension or an internal or external call to the Hunt Group.

Note that this function will not work for calls to a hunt group member who currently has their membership disabled.

Telephone Number	✓ Group number or "Group name".
Default Short Code	✓ *53*N#
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ PickM

- **See also:** Call Pickup Any, Call Pickup Extn, Call Pickup Group, Acquire Call.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is an example of the short code setup. ***N*** represents the extension number of the Hunt Group. For example, if a user dials ***53*500#**, they will pick up the call coming into extension 500 (the hunt group's extension).

- **Short Code:** *53*N#
- **Telephone Number:** N
- **Feature:** CallPickupMembers

Call Queue

Queue the current call to the destination phone, even when the destination phone is busy. This is the same as a transfer except it allows you to transfer to a busy phone.

Telephone Number	✓ Target extension number.
Default Short Code	✓ *33*N#
Short Code Toggles	✗
Phone Manager Control	
SoftConsole Control	
Programmable Button Control	✓ Queue

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is an example of the short code setup. **N** represents the extension the caller wishes to queue for. For example, if a user dials ***33*201#** while connected to a caller, this caller will be queued for extension 201.

- **Short Code:** *33*N#
- **Telephone Number:** N
- **Feature:** CallQueue

Call Record

This feature allows you to record a conversation on the extension specified in the short code. To use this requires Voicemail Pro. Refer to your local regulations in relation to the recording of calls.

Telephone Number	✓ Target extension number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	
SoftConsole Control	
Programmable Button Control	✓ Recor

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example: Record another extension's call

In this example **N** represents the extension to be recorded. For example, if a user dials ***54*201#**, they will record extension 201's current call onto the mailbox destination for the user being recorded.

- **Short Code:** *54*N#
- **Telephone Number:** N
- **Feature:** CallRecord

Example: Record your own extension's call

To use this short code, the user should place the call on hold and dial *55. They will automatically be reconnected to the call when recording begins.

- **Short Code:** *55
- **Telephone Number:** None
- **Feature:** CallRecord

Call Steal

Takes over the call on a specified extension number or reclaim the user's last transferred call if that call is still unanswered.

Note that when being used to takeover another user's current call, this function is subject to the **Can Intrude** setting of the short code user and the **Cannot Be Intruded** setting of the target. The feature is independent the settings of the third party to the call.

Telephone Number	✓ Target extension number or blank for last call transferred.
Default Short Code	✓ *45*N# and *46
Short Code Toggles	✗
Phone Manager Control	✓ Actions | Reclaim
SoftConsole Control	
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example: Taking Over a Call

In this example, N represents the extension to be taken over. For example, if a user dials *45*201#, they will take over the current call on extension 201.

- **Short Code:** *45*N#
- **Telephone Number:** N
- **Feature:** Call Steal

Example: Reclaiming a Call

This short code reclaims the last call from your extension. This function is useful when you want to catch a call you have just missed that has gone off to Voicemail.

- **Short Code:** *46
- **Feature:** Call Steal

Call Waiting On

Enables call waiting on the user's extension. When on, if the user receives a second calls when already on a call, they hear a call waiting tone

Call waiting settings are ignored for users with multiple call appearance buttons. In this case the appearance buttons are used to indicate additional calls. Call waiting is automatically applied for users with 'internal twinned' phones.

Telephone Number	✗
Default Short Code	✓ *15
Short Code Toggles	✓
Phone Manager Control	✓
SoftConsole Control	
Programmable Button Control	✓ CWOn

- **See also:** Call Waiting Off, Call Waiting Suspend.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example
Below is a sample of the short code setup.

- **Short Code:** *15
- **Feature:** CallWaitingOn

Call Waiting Off

Disables call waiting on the user's extension. Call waiting may be applied for users with twinned phones regardless of their call waiting settings.

Telephone Number	✗
Default Short Code	✓ *16
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	
Programmable Button Control	✓ CWOff

- **See also:** Call Waiting On, Call Waiting Suspend.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example
Below is a sample of the short code setup.

- **Short Code:** *16
- **Feature:** Call Waiting Off

Call Waiting Suspend

For phones using call waiting, this feature temporarily disables call waiting for the duration of the users next call.

Telephone Number	✗
Default Short Code	✓ *70 (A-Law only)
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ CWSus

- **See also:** Call Waiting On, Call Waiting Off.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup. This short code is a default within the Manager configuration.

- **Short Code:** *70
- **Feature:** CallWaitingSuspend

Cancel All Forwarding

This feature cancels all forms of forwarding on the user's extension including "Follow Me" and "Do Not Disturb".

Telephone Number	✗
Default Short Code	✓ *00
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ FwdOf

- **See also:** Forward On Busy On, Forward On Busy Off, Forward On No Answer On, Forward On No Answer Off, Forward Unconditional On, Forward Unconditional Off, Do Not Disturb On, Do Not Disturb Off.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup.

- **Short Code:** *00
- **Feature:** CancelCallForwarding

Cancel Ring Back When Free

Cancels any existing ring back (also known as callback) set by the user.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ RBak-

- **See also:** Ring Back When Free.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example: Cancel Ring Back When Free
This example Short Code will cancel Ring Back When Free on the specified extension. N represents the target extension from which you have set the ring back. For example, if Paul has set a ring back on extension 201, he must dial ***84*201#** to cancel that ring back request.

- **Short Code:** *84*N#
- **Telephone Number:** N
- **Feature:** CancelRingBackWhenFree

Channel Monitor

For Avaya use only.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Clear Call

This feature can be used to end the current call.

Telephone Number	✗
Default Short Code	✓ *52
Short Code Toggles	✗
Phone Manager Control	
SoftConsole Control	
Programmable Button Control	✓ Clear

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup. This example could be used in a situation where you are doing a supervised transfer and the party to be transferred to does not want to take the call. In this scenario, you can put the call on hold and dial *52. This will clear the last connected call (the party who has just refused the transfer) and retrieve the original call.

- **Short Code:** *52
- **Feature:** Deny/ClearCall

Clear CW

This feature is most commonly used to end the user's current call and answer the waiting call. Note: Call waiting settings are ignored for users with multiple call appearance buttons.

Telephone Number	✗
Default Short Code	✓ *26 (A-Law only)
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ ClrCW

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup.

- **Short Code:** *26
- **Feature:** ClearCW

Clear Hunt Group Night Service

This feature changes the specified hunt group from 'Night Service' mode to 'In Service' mode. This will not override a hunt group in night service due to a time profile.

Telephone Number	✓ Group number.
Default Short Code	✓ *21*N#
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ HGNS-

- **See also:** Clear Hunt Group Out Of Service, Set Hunt Group Night Service, Set Hunt Group Out Of Service

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup. **N** represents the telephone number of the hunt group to be taken out of "Night Service" mode and placed into "In Service" mode. For example, when ***21*201#** is dialed, the hunt group associated with extension 201 will be taken out of "Night Service" mode.

- **Short Code:** *21*N#
- **Telephone Number:** N
- **Feature:** ClearHuntGroupNightService

Clear Hunt Group Out Of Service

This feature changes the specified hunt group from 'Out of Service' mode to 'In Service' mode. This will not override a hunt group in night service due to a time profile.

Telephone Number	✓ Group number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ HGOS-

- **See also:** Clear Hunt Group Night Service, Set Hunt Group Night Service, Set Hunt Group Out Of Service.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample short code using the **Clear Hunt Group Out Of Service** feature. N represents the telephone number of the hunt group to be taken out of "Out of Service" mode. For example, when ***55*201#** is dialed, the hunt group associated with extension 201 will be placed into "In Service" mode.

- **Short Code:** *55*N#
- **Telephone Number:** N
- **Feature:** ClearHuntGroupOutOfService

Clear Quota

This feature refreshes the time quota for all services or a specific service.

Telephone Number	✓ "Service name" or "" (all services).
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Quota

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Conference Add

Places any calls the user has on hold into a conference with the user. This feature is useful for impromptu conferences.

Telephone Number	✗
Default Short Code	✓ *47
Short Code Toggles	✗
Phone Manager Control	
SoftConsole Control	
Programmable Button Control	✓ Conf+

- **See also:** Conference Meet Me

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup.

- **Short Code:** *47
- **Feature:** ConferenceAdd

Conference Meet Me

This feature allows a user to join a specific conference.

Telephone Number	✓ Conference number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	
SoftConsole Control	
Programmable Button Control	✓ CnfRv

- **See also:** Conference Add.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

CW

Pick up the waiting call. This feature provides same functionality as pressing the Recall or Hold key on the phone. Unlike the Clear CW feature, this feature does not disconnect you from the existing call when the second call is picked up.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Dial

This short code feature allows users to dial the number specified to an outside line.

Telephone Number	✓ Telephone number.
Default Short Code	Various depending on locale.
Short Code Toggles	✗
Phone Manager Control	
SoftConsole Control	
Programmable Button Control	✓ Dial

- **See also:** Dial Direct, Dial Emergency, Dial Extn, Dial Inclusion, Dial Paging.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example: Creating a Speed Dial
In this example, users entering 401 on their telephone key pad will dial the New Jersey Office on 212 555 0000.

- **Short Code:** 401
- **Telephone Number:** 2125550000

Example: Replace Outgoing Caller ID
This short code is useful in a "call center" environment where you do not want customers to have access to the number of your direct line; you want the general office number displayed. The sample short code below will force the outgoing caller ID to display 123. Note: The usability of this feature is dependent upon your local service provider.

- **Short Code:** ?
- **Telephone Number:** .s123

Example: External Dialing Prefix
The short code is for dialing a prefix for an outside line N represents the external number you want to call.

- **Short Code:** 9N
- **Telephone Number:** N

Example: Blocking Caller ID
This is for blocking Caller ID for external calls. This feature can be applied to specific external numbers or to all out going calls. In most situations, the company will choose to block the caller ID for all external calls or leave it available for all external calls.

- **Short Code:** 9N
- **Telephone Number:** NW

Example: Maximum Call Length
The character **t** can be used in dialing short codes to set the maximum allowed duration of a call. For example, the following short code will dial a number but then disconnect the call after 20 minutes (plus or minus a minute).

- **Short Code:** 9N
- **Telephone Number:** Nt(20)

Dial 3K1

Sets the ISDN bearer capabilities to 3.1Khz audio call.

Telephone Number	✓ Telephone number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Dial 56K

Sets the ISDN bearer capabilities to 56Kbps data call.

Telephone Number	✓ Telephone number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Dial 64K

Sets the ISDN bearer capabilities to 64Kbps data call.

Telephone Number	✓ Telephone number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Dial CW

Call the specified extension number and force call waiting indication on if the extension is already on a call.

If the user has call appearance buttons programmed, call waiting will not get activated. The next incoming call will appear on an available call appearance button. When there are no available call appearance buttons, the next incoming call will receive busy tone.

Telephone Number	✓ Extension number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ DCW

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

N represents the extension number to be dialed. For example, a user dialing ***97*201#** will force call waiting indication on at extension 201 if extension 201 is already on a call.

- **Short Code:** *97*N#
- **Telephone Number:** N
- **Feature:** DialCW

Dial Direct

Call the extension specified and force automatic answer if supported by the telephone type.

Telephone Number	✓ Extension number
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Dirct

- **See also:** Dial Paging.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This allows the extension specified to be automatically answered. N represents the extension that will be forced to automatically answer. For example, when a user dials ***83*201#**, extension 201 will be forced to automatically answer the call.

- **Short Code:** *83*N#
- **Telephone Number:** N
- **Feature:** DialDirect

Dial Direct Hot Line

Typically, when a line appearance key is selected, secondary dial tone is generated. When the line appearance is mapped to a short code using the **DialDirectHotLine** short code feature, no secondary dial tone is generated and the number is dialed directly.

Telephone Number	
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample short code using the **DialDirectHotLine** feature. The short code *83* should then be set as the prefix for the particular line required.

- **Short Code:** *83*
- **Telephone Number:** .
- **Feature:** DialDirectHotLine

Dial Emergency

Dials the number specified regardless of any call barring applicable to the user. The DialEmergency short code feature can be used to allow any number to override the Outward Restricted option.

Telephone Number	✓ Telephone number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Emrgy

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

If your states requires that dialing the access code (for example "9") in front of "911" should allow the call to go out, add the following system short code in addition to the one for just "911".

- **Short Code:** 9911
- **Telephone Number:** 911
- **Line Group ID:** 0
- **Feature:** DialEmergency

If your system uses secondary dialtone, the short code above may need to be changed to **[9]911**. If your system uses PRI, add a semi-colon to the short code, for example **[9]911;**. In all cases you should test the operation of this short code and add similar short codes for the dialing of 911 without a prefix and for the dialing of any other emergency numbers.

Dial Extn

This feature can be used to dial an internal extension number.

Telephone Number	✓ Extension number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✗

- **See also:** Dial Direct, Dial Paging, DialPhysicalExtensionByNumber, DialPhysicalNumberByID.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example: Dial on Pick up

The following user short code dials the extension specified the moment the user's handset it is picked up.

- **Short Code:** ?D
- **Telephone Number:** 201
- **Line Group ID:** 0
- **Feature:** DialExtn

Dial Inclusion

This feature intrudes on the existing call of the specified target extension. The intruder and the target extension can then talk but cannot be heard by the other party.

During the intrusion all parties hear a repeated intrusion tone. When the intruder hangs-up the original call parties are reconnected.

Use of this feature is subject to the **Can Intrude** status (configured in Manager via the User form's Telephony tab) of the intruder and the target extension (the extension to be intruded upon).

Telephone Number	✓ Target extension number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Inclu.

- **See also:** Call Intrude

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

N represents the extension to be intruded upon. For example, if a user dials ***97*201#** while extension 201 is on a call, then the user is intruding into extn. 201's current call.

- **Short Code:** *97*N#
- **Telephone Number:** N
- **Feature:** DialInclusion

Dial Paging

This feature makes a page call to an extension or group. The target extension or group members must support page calls.

Telephone Number	✓ Extension or group number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Page

- **See also:** Dial Direct

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

DialPhysicalExtensionByNumber

Dial a specified extension number regardless of the current user logged on at that extension and any forwarding, follow me or do not disturb settings applied by the current extension user.

Telephone Number	✓ Extension number.
Default Short Code	✓ *70*N# (U-Law only)
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ PhyEx

- **See also:** DialPhysicalNumberByID, Priority Call.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample short code using the Dial Physical Extn By Number feature. This short code will allow a user to dial ***97** to reach the emergency services department (911) regardless of the current user logged on at that extension and any forwarding, follow me or do not disturb settings applied by the extension user.

- **Short Code:** *97
- **Telephone Number:** 900
- **Feature:** DialPhysicalExtnByNumber

DialPhysicalNumberByID

Dial a specific extension using its system ID. This may be necessary in hot desking environments where some extensions have been created with no default extension number. Without an extension number, a call can not be made to that extension unless a short code is created.

Telephone Number	✓ Extension ID
Default Short Code	✓ *71*N# (U-Law only)
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ DialP

- **See also:** DialPhysicalExtensionByNumber, Priority Call.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

In the above example, if the telephone at extension ID 16 is not associated with an extension number, a user can dial ***97** to connect to that phone.

- **Short Code:** *97
- **Telephone Number:** 16
- **Feature:** DialPhysicalNumberByID

Dial Speech

This feature allows a short code to be created to force the outgoing call to use the Speech bearer capability.

Telephone Number	✓ Telephone number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ DSpch

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Dial V110

Sets the ISDN bearer capabilities to V110. The call is presented to local exchange as a "Data Call". It is ideal for some bulletin boards.

Telephone Number	✓ Telephone number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Dial V120

Sets the ISDN bear capabilities using V.120. The call is presented to local exchange as a "Data Call". This will run at speeds up to 64K per channel but has a slightly higher Protocol overhead than pure 64K operation. Useful for some bulletin board systems as it allows the destination to run at a different asynchronous speed to the calling end.

Telephone Number	✓ Telephone number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Dial Video

Sets the call protocol to Sync PPP, ISDN rate is set to 64000 bps. The call is presented to the local exchange as a "Video Call".

Telephone Number	✓ Telephone number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Disable Internal Forwards

This feature turns off the forwarding of internal calls for the user. It applies to Forward Unconditional, Forward on Busy and Forward on No Answer.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✗

- **See also:** Disable Internal Forward Unconditional, Disable Internal Forward Busy or No Answer, Cancel All Forwarding, Enable Internal Forwards, Enable Internal Forward Unconditional, Enable Internal Forward Busy or No Answer

2.1	3.0DT	3.0	3.1	3.2
✗	✗	✗	✗	✓

Disable Internal Forward Unconditional

This feature turns off the forwarding of internal calls for the user. It applies to Forward Unconditional only.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✗

- **See also:** Disable Internal Forwards, Disable Internal Forward Busy or No Answer, Cancel All Forwarding, Enable Internal Forwards, Enable Internal Forward Unconditional, Enable Internal Forward Busy or No Answer

2.1	3.0DT	3.0	3.1	3.2
✗	✗	✗	✗	✓

Disable Internal Forward Busy or No Answer

This feature turns off the forwarding of internal calls for the user. It applies to Forward on Busy and Forward on No Answer.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✗

- **See also:** Disable Internal Forwards, Disable Internal Forward Unconditional, Cancel All Forwarding, Enable Internal Forwards, Enable Internal Forward Unconditional, Enable Internal Forward Busy or No Answer

2.1	3.0DT	3.0	3.1	3.2
✗	✗	✗	✗	✓

Display Msg

Allows the sending of special functions to DS port display phone extensions.

Telephone Number	✓ The telephone number takes the format *xxxx;[0)nnn/ppppppp* where: • *xxx* is the target extension. • *nnn* is the Definity feature number of the emulation feature. See below. • Abbreviated Dial (129), Abbreviated Dial Pause (130), Abbreviated Dial Program (7), Abbreviated Dial Stop (148), Account Code Entry (128), ACD Agent Statistics (147), ACD Stroke Count (135), AD Special Function Mark (142), AD Special Function Wait (149), AD Special Functions (145), AD Suppress (146), Automatic Callback (6), Automatic Intercom (139), Call Forwarding All (8), Call Park (9), Call Park To Other Extension (143), Call Pickup (132), Cancel Leave Word Calling (133), Consult (134), Dial Intercom (140), Directed Call Pickup (136), Send All Calls (10), Stored Number View (150), Time of Day (11), Timer (4). • *ppppppp* is the parameter data if required.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Displ

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Do Not Disturb Exception Add

This feature adds a number to the user's "Do Not Disturb Exception Numbers List". This can be an internal extension number or external ICLID. For further details see **Do Not Disturb (DND)** in the **Telephone Features** section.

Telephone Number	✓ Telephone number or ICLID. For ICLID numbers any prefix added by the IP Office system must also be included.
Default Short Code	✓ *10*N#
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ DNDX+

- **See also:** Do Not Disturb Exception Delete, Do Not Disturb On, Do Not Disturb Off.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

N represents the number to be added to the user's "Do Not Disturb Exception List". For example, when a user has DND turned on and dials ***10*4085551234#**, incoming calls from telephone number (408) 555-1234. All other calls, except those numbers on the exception list hear busy tones or are redirected to voicemail if available.

- **Short Code:** *10*N#
- **Telephone Number:** N
- **Feature:** DoNotDisturbExceptionAdd

Do Not Disturb Exception Delete

This feature removes a number from the user's "Do Not Disturb Exception List". For further details see **Do Not Disturb (DND)** in the **Telephone Features** section.

Telephone Number	✓ Telephone number or ICLID.
Default Short Code	✓ *11*N#
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ DNDX-

- **See also:** Do Not Disturb Exception Add, Do Not Disturb On, Do Not Disturb Off.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

N represents the number to be deleted from the user's "Do Not Disturb Exception List". For example, when a user has DND turned on and the telephone number (408) 555-1234 in their "Do Not Disturb Exception List", dialing ***10*4085551234#** will remove this phone number from the list. Incoming calls from (408) 555-1234 will no longer be allowed through; instead they will hear busy tone or be redirected to voicemail if available.

- **Short Code:** *11*N#
- **Telephone Number:** N
- **Feature:** DoNotDisturbExceptionDel

Do Not Disturb On

This feature puts the user into 'Do Not Disturb' mode. When on, all calls, except those from numbers in the user's exception list hear busy tones or are redirected to voicemail if available. For further details see **Do Not Disturb (DND)** in the **Telephone Features** section.

Telephone Number	✗
Default Short Code	✓*08
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ DNDOn

- **See also:** Do Not Disturb Off, Do Not Disturb Exception Add, Do Not Disturb Exception Delete.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup.

- **Short Code:** *08
- **Feature:** DoNotDisturbOn

Do Not Disturb Off

Cancels the user's 'do not disturb' mode if set. For further details see **Do Not Disturb (DND)** in the **Telephone Features** section.

Telephone Number	✗
Default Short Code	✓ *09
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ DNDOf

- **See also:** Do Not Disturb On, Do Not Disturb Exception Add, Do Not Disturb Exception Delete.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code is a default within the Manager configuration. Below is a sample of the short code setup.

- **Short Code:** *09
- **Feature:** DoNotDisturbOff

Enable Internal Forwards

This feature turns on the forwarding of internal calls for the user. It applies to Forward Unconditional, Forward on Busy and Forward on No Answer.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✗

- **See also:** Disable Internal Forwards, Disable Internal Forward Unconditional, Disable Internal Forward Busy or No Answer, Cancel All Forwarding, Enable Internal Forward Unconditional, Enable Internal Forward Busy or No Answer

2.1	3.0DT	3.0	3.1	3.2
✗	✗	✗	✗	✓

Enable Internal Forward Unconditional

This feature turns on the forwarding of internal calls for the user. It applies to Forward Unconditional only.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✗

- **See also:** Disable Internal Forwards, Disable Internal Forward Unconditional, Disable Internal Forward Busy or No Answer, Cancel All Forwarding, Enable Internal Forwards, Enable Internal Forward Busy or No Answer

2.1	3.0DT	3.0	3.1	3.2
✗	✗	✗	✗	✓

Enable Internal Forward Busy or No Answer

This feature turns on the forwarding of internal calls for the user. It applies to Forward on Busy and Forward on No Answer.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✗

- **See also:** Disable Internal Forwards, Disable Internal Forward Unconditional, Disable Internal Forward Busy or No Answer, Cancel All Forwarding, Enable Internal Forwards, Enable Internal Forward Unconditional,

2.1	3.0DT	3.0	3.1	3.2
✗	✗	✗	✗	✓

Extn Login

This feature allows a user to take over ownership of an extension. The Telephone Number entered is the "Extension*Login Code" of the required User. Users' login codes are set within the **User | Telephony** tab.

Telephone Number	Extension Number*Login Code. If just a single number is dialed containing no * separator, the IP Office assumes that the extension number to use is the physical extension's default extension number and that the number dialed is the login code.
Default Short Code	✓ *35*N#
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✗
Programmable Button Control	✓ Login

- **See also:** Extn Logout

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example: Individual Hot Desking

Based on the above sample short code, Paul (extension 204) can go to another phone (even if it is already logged on by another user) and log on as extension 204 by simply dialing 299. Once Paul has logged onto this phone, extension 204 is logged out at Paul's original phone. For Paul to make use of this short code, his login code set within User | Telephony must match that configured in the above short code. When Paul logs out of the phone he has "borrowed", his original extension will automatically be logged back on.

- **Short Code:** 299
- **Telephone Number:** 204*1234
- **Feature:** Extnlogin

Example: Log In

The default short code for logging into a phone is configured as shown below. N represents the users extension number followed by a * and then their login code, for example *35*401*123#.

- **Short Code:** *35*N#
- **Telephone:** N
- **Feature:** ExtnLogin

Extn Logout

This feature logs the user off the phone at which they are logged on.

Telephone Number	✗
Default Short Code	✓ *36
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✗
Programmable Button Control	✓ Logof

- **See also:** Extn Login

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample short code using the **Extn Logout** feature. This short code is a default within the Manager configuration.

- **Short Code:** *36
- **Feature:** ExtnLogout

Flash Hook

This feature sends a hook flash signal to the currently connected line if it is an analog line.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Flash

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample short code using the **Flash Hook** feature.

- **Short Code:** *96
- **Feature:** FlashHook

Follow Me Here

Causes calls to the extension number specified to be redirected to the extension initiating the 'Follow Me Here'. If the redirected call receives a busy tone or is not answered, then the call behaves as though the User's extension had failed to answer. For further details see **Follow Me** in the **Telephone Features** section.

Telephone Number	✓ Extension to redirect to the dialing extension.
Default Short Code	✓ *12*N#
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Here+

- **See also:** Follow Me Here Cancel, Follow Me To.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This feature is used at the Follow Me destination. ***N*** represents the extension number of the user wanting their calls redirected to that destination. For example, User A's extension is 224. However they are working at extension 201 and want their calls redirected there. If the following short code is available, they can do this by dialing ***12*224#** at extension 201.

- **Short Code:** *12*N#
- **Telephone Number:** N
- **Feature:** FollowMeHere

Follow Me Here Cancel

Cancels any Follow Me set on the specified extension. This action can only be performed from the extension from which the original Follow Me Here was initiated. For further details see **Follow Me** in the **Telephone Features** section.

Telephone Number	✓ Extension being redirected to the dialing extension.
Default Short Code	✓ *13*N#
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Here-

- **See also:** Follow Me Here, Follow Me To.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This feature is used at the Follow Me destination. ***N*** represents the extension number of the user whose calls are being redirected to that destination. For example, User A's extension is 224. However they are working at extension 201 and so have set a Follow Me on their own extension to redirect their calls to 201. If the following short code is available, they can cancel the Follow Me by dialing ***13*224#** at extension 201.

- **Short Code:** *13*N#
- **Telephone Number:** N
- **Feature:** FollowMeHereCancel

Follow Me To

Causes calls to the extension to be redirected to the Follow Me destination extension specified. For further details see **Follow Me** in the **Telephone Features** section.

Telephone Number	✓ Target extension number or blank (cancel Follow Me To)
Default Short Code	*14*N#.
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ FolTo

- **See also:** Follow Me Here, Follow Me Here Cancel.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This feature is used at the extension that wants to be redirected. ***N*** represents the extension number to which the user wants their calls redirected. For example, User A's extension is 224. However they are working at extension 201 and want their calls redirected there. If the following short code is available, they can do this by dialing ***14*201#** at extension 224.

- **Short Code:** *14*N#
- **Telephone Number:** N
- **Feature:** FollowMeTo

Forward Hunt Group Calls On

Forward the user's hunt group calls to their forward number when the user has Forward Unconditional active. For further details see **Forward Unconditional** in the **Telephone Features** section.

This option is only applied for calls to ***Linear*** and ***Circular*** type hunt groups. Calls from other hunt group types are not presented to the user when they have Forward Unconditional active.

Telephone Number	✗
Default Short Code	✓ *50
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ FwdH+

- **See also:** Forward Hunt Group Calls Off, Forward Unconditional On, Forward Unconditional Off.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code is useful if the hunt group member temporarily uses another workstation and so does not require a permanent extension change.

- **Short Code:** *50
- **Feature:** ForwardHuntgroupCallsOn

Forward Hunt Group Calls Off

This feature cancels the forwarding of the user's hunt group calls. For further details see **Forward Unconditional** in the **Telephone Features** section.

Telephone Number	✗
Default Short Code	✓ *51
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ FwdH-

- **See also:** Forward Hunt Group Calls On, Forward Unconditional On, Forward Unconditional Off.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup.

- **Short Code:** *51
- **Feature:** ForwardHuntgroupCallsOff

Forward Number

Sets the number to which the user's calls are redirected. This can be an internal or external number. The number is still subject to the user's call barring settings. For further details see **Forward Unconditional** in the **Telephone Features** section.

This feature does not activate forwarding; it only sets the number for the forwarding destination.

This number is used for all forward types; Forward Unconditional, Forward on Busy and Forward on No Answer, unless the user has a separate **Forward on Busy Number** set for forward on busy and forward on no answer functions.

Telephone Number	✓ Telephone number.
Default Short Code	✓ *07*N#
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ FwdNo

- **See also:** Forward On Busy Number.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

N represents the forward destination. For example, if extension 224 wants to set the forwarding number to extension 201, the user can dial ***07*201#**.

- **Short Code:** *07N*#
- **Telephone Number:** N
- **Feature:** ForwardNumber

Forward On Busy Number

Sets the number to which the user's calls are forwarded when **Forward on Busy** or **Forward on No Answer** are on. If no **Forward on Busy Number** is set, those functions use the **Forward Number**.

This feature does not activate the forwarding, it only sets the number for the forwarding destination.

Telephone Number	✓ Telephone number.
Default Short Code	✓*57*N#
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ FwBNo

- **See also:** Forward Number

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

N represents the extension number to be forwarded to. For example, if Paul (whose extension is 224) wants to set the forwarding number for his 'Forward on Busy' and/or 'Forward on No Answer' feature to extension 201, Paul can dial ***57*201#** followed by the short code for the forwarding function.

- **Short Code:** *57N*#
- **Telephone Number:** N
- **Feature:** ForwardOnBusyNumber

Forward On Busy On

This feature enables forwarding when the user's extension is busy. It uses the **Forward Number** destination or, if set, the **Forward on Busy Number** destination.

If the user has call appearance buttons programmed, the system will not treat them as busy until all the call appearance buttons are in use.

For IP Office 3.2 and higher, **Forward Internal** (**User | Forwarding**) can also be used to control whether internal calls are forwarded.

Telephone Number	✗
Default Short Code	✓ *03
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ FwBOn

- **See also:** Forward On Busy Off, Cancel All Forwarding, Enable Internal Forward Busy or No Answer

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup.

- **Short Code:** *03
- **Feature:** ForwardOnBusyOn

Forward On Busy Off

This feature cancels forwarding when the user's extension is busy.

Telephone Number	✗
Default Short Code	✓ *04
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ FwBOf

- **See also:** Forward On Busy On, Cancel All Forwarding

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup.

- **Short Code:** *04
- **Feature:** ForwardOnBusyOff

Forward On No Answer On

This feature enables forwarding when the user's extension is not answered within the period defined by their **No Answer Time**. It uses the **Forward Number** destination or, if set, the **Forward on Busy Number** destination.

For IP Office 3.2 and higher, **Forward Internal** (**User | Forwarding**) can also be used to control whether internal calls are forwarded.

Telephone Number	✗
Default Short Code	✓ *05
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ FwNOn

- **See also:** Forward On No Answer Off, Cancel All Forwarding

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup. Remember that the forwarding number for this feature uses the 'Forward on Busy Number'.

- **Short Code:** *05
- **Feature:** ForwardOnNoAnswerOn

Forward On No Answer Off

This feature cancels forwarding when the user's extension is not answered.

Telephone Number	✗
Default Short Code	✓ *06
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ FwNOf

- **See also:** Forward On No Answer On

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup.

- **Short Code:** *06
- **Feature:** ForwardOnNoAnswerOff

Forward Unconditional On

This feature enables forwarding of all calls, except group calls, to the **Forward Number** set for the user's extension. To also forward hunt group calls, **Forward Hunt Group Calls On** must also be used. For further details see **Forward Unconditional** in the **Telephone Features** section.

For IP Office 3.2 and higher, **Forward Internal** (**User | Forwarding**) can also be used to control whether internal calls are forwarded.

Telephone Number	✗
Default Short Code	✓ *01
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ FwUOn

- **See also:** Forward Unconditional Off

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Remember that this feature requires having a forward number configured.

- **Short Code:** *01
- **Feature:** ForwardUnconditionalOn

Forward Unconditional Off

This feature cancels forwarding of all calls from the user's extension. Note: This does not disable Forward on No Answer and or Forward on Busy if those functions are also on. For further details see **Forward Unconditional** in the **Telephone Features** section.

Telephone Number	✗
Default Short Code	✓ *02
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ FwUOf

- **See also:** Forward Unconditional On

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup.

- **Short Code:** *02
- **Feature:** ForwardUnconditionalOff

Headset Toggle

Toggles between the use of a headset and the telephone handset.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✓
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ HdSet

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample short code using the **Headset Toggle** feature. This short code can be used to toggle the feature on/off. If an Avaya supported headset is connected to your telephone, this short code can be used to toggle between using the headset and the telephone handset.

- **Short Code:** *55
- **Feature:** HeadsetToggle

Hold Call

This uses the Q.931 Hold facility, and "holds" the incoming call at the ISDN exchange, freeing up the ISDN B channel. The Hold Call feature "holds" the current call to a slot. The current call is always automatically placed into slot 0 if it has not been placed in a specified slot. Only available if supported by the ISDN exchange.

Telephone Number	✓ Exchange hold slot number or blank (slot 0).
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Hold

- **See also:** Hold CW, Hold Music, Suspend Call

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample short code using the **Hold Call** feature. This short code is a default within the Manager configuration. N represents the exchange hold slot number you want to hold the call on. For example, while connected to a call, dialing ***24*3#** will hold the call onto slot 3 on the ISDN.

- **Short Code:** *24*N#
- **Telephone Number:** N
- **Feature:** HoldCall

Hold CW

This uses the Q.931 Hold facility, and "holds" the incoming call at the ISDN exchange, freeing up the ISDN B channel. The Hold CW feature "holds" the current call to an exchange slot and answers the call waiting. The current call is always automatically placed into slot 0 if it has not been placed in a specified slot. Only available if supported by the ISDN exchange.

Telephone Number	✓Exchange slot number or blank (slot 0).
Default Short Code	✓*27*N# (A-Law only)
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ HoldCW

- **See also:** Hold Call, Suspend Call

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample short code using the **Hold CW** feature.

- **Short Code:** *27*N#
- **Feature:** HoldCW

Hold Music

This feature allows the user to listen to the system's music on hold. See Music On Hold for more information relating to MOH.

Telephone Number	✗
Default Short Code	✓ *34
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Music

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample short code using the **Hold Music** feature. This short code is a default within the Manager configuration.

- **Short Code:** *34
- **Feature:** HoldMusic

Hunt Group Disable

This feature disables the user's membership of the specified hunt group. They will no longer receive call to that hunt group until their membership is enabled again. To use this feature, you must already belong to the hunt group. See also Hunt Group Enable.

Telephone Number	✓ Group number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ HGDis

- **See also:** Hunt Group Enable

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

N represents the hunt group number from which the user wants to be disabled from. For example, if Paul wants to be disabled from the Sales hunt group (extn. 500), he needs to dial ***90*500#**.

- **Short Code:** *90*N#
- **Telephone Number:** N
- **Feature:** HuntGroupDisable

Hunt Group Enable

This feature enables the user's membership of a hunt group so they can begin to receive calls to the specified hunt group. To use this feature, the user must already belong to the hunt group. This short code can not be used to add someone to a hunt group. This must be done within Manager's Hunt Group form.

Telephone Number	✓ Group number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ HGEna

- **See also:** Hunt Group Disable

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code can be used to toggle the feature on/off. N represents the hunt group number for which the user wants to start receiving calls. For example, if Paul is already a member of the sales hunt group (extn. 500) but has changed his availability status for that hunt group, he can make himself available for receiving calls to the Sales hunt group again by dialing ***91*500#**.

- **Short Code:** *91*N#
- **Telephone Number:** N
- **Feature:** HuntGroupEnable

Last Number Redial

This feature allows an extension to redial the last number dialed.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✗	✗	✓	✓	✓

Mobile Twinned Call Pickup

This short code feature allows the user to pickup a call ringing or connected at the destination of their mobile twinning number. This short code can only be used from the primary extension which is being used for the twinning operation.

Note that the use of mobile twinning requires entry of a Mobile Twinning license and may be subject to a time profile.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

- **See also:** Set Mobile Twinning Number, Set Mobile Twinning On, Set Mobile Twinning Off

2.1	3.0DT	3.0	3.1	3.2
✗	✗	✗	✗	✓

Off Hook Station

Enables or disables whether the user's extension acts as a fully hands free unit. Typically this is used when the answering and clearing of calls is done through an application such as Phone Manager. This feature is also configurable via Phone Manager.

Telephone Number	✓ "Y" for on or "N" for off.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ OHStn

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example: Turning the off hook station off

- **Short Code:** *99
- **Telephone Number:** N
- **Feature:** OffHookStation

Example: Turning the off hook station on

- **Short Code:** *98
- **Telephone Number:** Y
- **Feature:** OffHookStation

Park Call

Parks the user's current call into the specified park slot number. The call can then be retrieved by other extensions (refer to the appropriate telephone user guide). The 'Ride Call' feature can be used to retrieve calls from specific park slots.

Note: When programmed to a DSS key, the key's BLF lamp indicates when a call is parked in that park slot. The key can also be used to retrieve the parked call.

Telephone Number	✓ Park slot number.
Default Short Code	✓ *37*N#
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ Park

- **See also:** Unpark Call

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code is a default within the Manager configuration. This short code can be used to toggle the feature on/off. N represents the park slot number in which the call will be parked. For example, if a user wants to park a call to slot number 9, the user would dial ***37*9#**. The call will be parked there until retrieved by another extension or the original extension.

- **Short Code:** *37*N#
- **Telephone Number:** N
- **Feature:** ParkCall

Priority Call

This feature allows the user to call an extension that is set to 'do not disturb'.

Telephone Number	✓ Extension number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ PCall

- **See also:** DialPhysicalExtensionByNumber, DialPhysicalNumberByID

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

N represents the extension number to be called, despite the extension being set to 'do not disturb'. For example, if extension 201 has 'do not disturb' enabled, a user can dial ***71*201#** and still get through. This short code is useful for companies that frequently use the 'do not disturb' feature and can be given to Managing Directors or people who may need to get through to people regardless of their 'do not disturb' status.

- **Short Code:** *71*N#
- **Telephone Number:** N
- **Feature:** PriorityCall

Relay On

This feature closes the specified switch in the system's external output (EXT O/P) port.

Telephone Number	✓ Switch number (1 or 2).
Default Short Code	✓ *39 (Switch 1), *42 (Switch 2), *9000*
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ Rely+

- **See also:** Relay Off, Relay Pulse.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code is a default within the Manager configuration. This short code is useful for companies that have external devices, such as door controls, connected to the IP Office switch. Based on this sample short code, a user dialing ***42** is closing switch number 2 to activate an external device.

- **Short Code:** *42
- **Telephone Number:** 2
- **Feature:** RelayOn

Analog Modem Control

On systems with an ATM4 trunk card and on the Small Office edition, the first analog trunk can be set to answer V.32 modem calls. This is done by checking the Modem Enabled option on the analog line settings or using the default short code ***9000*** to toggle this service on or off. This short code uses the **RelayOn** feature with the **Telephone Number** set to ***"MAINTENANCE"***.

Relay Off

This feature opens the specified switch in the system's external output (EXT O/P) port.

Telephone Number	✓ Switch number (1 or 2).
Default Short Code	✓ *40 (Switch 1), *43 (Switch 2)
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ Rely-

- **See also:** Relay On, Relay Pulse.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code is a default within the Manager configuration. This short code is useful for companies that have external devices, such as door controls, connected to the IP Office switch. Based on this sample short code, a user dialing ***43** is opening switch number 2 to activate an external device.

- **Short Code:** *43
- **Telephone Number:** 2
- **Feature:** RelayOff

Relay Pulse

This feature closes the specified switch in the system's external output (EXT O/P) port for 5 seconds and then opens the switch.

Telephone Number	✓ Switch number (1 or 2).
Default Short Code	✓ *41 (Switch 1), *44 (Switch 2)
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ Relay

- **See also:** Relay On, Relay Off.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code is a default within the Manager configuration. This short code is useful for companies that have external devices, such as door controls, connected to the IP Office switch. Based on this sample short code, a user dialing ***44** is opening switch number 2 to activate an external device.

- **Short Code:** *44
- **Telephone Number:** 2
- **Feature:** RelayPulse

Resume Call

Resume a call previously suspended to the specified ISDN exchange slot. The suspended call may be resumed from another phone/ISDN Control Unit on the same line.

Telephone Number	✓ Exchange suspend slot number.
Default Short Code	✓ *23*N# (A-Law only)
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Resum

- **See also:** Suspend Call.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is sample short code using the **Resume Call** feature. **N** represents the exchange slot number from which the call has been suspended. For example, if a user has suspended a call on slot number 4, this user can resume that call by dialing ***23*4#**.

- **Short Code:** *23*N#
- **Telephone Number:** N
- **Feature:** ResumeCall

Retrieve Call

Retrieves a call previously held to a specific ISDN exchange slot.

Telephone Number	✓ Exchange hold slot number.
Default Short Code	✓*25*N# (A-law only)
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Retriv

- **See also:** Hold Call

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is sample short code using the **Retrieve Call** feature. N represents the exchange slot number from which the call has been placed on hold. For example, if a user has placed a call hold on slot number 4, the user can resume that call by dialing ***25*4#**.

- **Short Code:** *25*N#
- **Telephone Number:** N
- **Feature:** RetrieveCall

Ring Back When Free

This feature sets a ringback on the specified extension. This sets a 'ringback when free' on an extension currently on a call or a 'ringback when next used' for an extension that is free but does not answer.

When the target extension is next used or ends its current call, the users is rung and when they answer a call is made to the target extension.

Telephone Number	✓ Target extension number.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	
SoftConsole Control	
Programmable Button Control	✓ RBak+

- **See also:** Cancel Ring Back When Free

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

N represents the target extension from which you want to receive the callback. For example, if you call extension 201 but the line is busy, hang up and then dial ***71*201#**. When extension 201 disconnects from its current call, your phone will ring. Once you pick up the phone, extension 201's line will start ringing to indicate an incoming call.

- **Short Code:** *71*N#
- **Telephone Number:** N
- **Feature:** RingBackWhenFree

Secondary Dial Tone

Secondary dial tone is a system feature to generate a second dial tone after the user has hit a trunk access digit. This feature can be used to provide secondary dial tone to a user before dialing.

Telephone Number	✓ Digit which triggers secondary dial tone.
Default Short Code	✓ 9 (U-Law only)
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Secondary dial tone works in two parts. The following short code will trigger secondary dial tone. To use it to trigger secondary dial tone and then continue dialing, other short codes should begin with **[9]**.

- **Short Code:** 9
- **Telephone Number:** .
- **Feature:** Secondary Dial Tone

Set Absent Text

This feature can be used to select the user's current absence text. This text is then displayed to internal callers who have suitable display phones or applications. It doesn't changes the users status.

Telephone Number	✓ The telephone number should take the format "***y,n,text***" where:
	• ***y*** = 0 or 1 to turn this feature on or off.
	• ***n*** = the number of the absent statement to use, see the list below:
	  • 0 = None.
	  • 1 = On vacation until.
	  • 2 = Will be back.
	  • 3 = At lunch until.
	  • 4 = Meeting until.
	  • 5 = Please call.
	  • 6 = Dont disturb until.
	  • 7 = With visitors until.
	  • 8 = With cust. til.
	  • 9 = Back soon.
	  • 10 = Back tomorrow.
	  • 11 = Custom.
	• ***text*** = any text to follow the absent statement.

Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✗
Programmable Button Control	✓ Absnt

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example
The following short code can be used to turn an absent text message on:

- **Short Code:** *88
- **Telephone Number:** "1,5,my assistant on 208"
- **Line Group ID:** 0
- **Feature:** SetAbsentText

Example
The following short code could be used to turn this facility off. In the Telephone Number the first 0 is used to turn this facility off and the second 0 is used to select the absent statement "None".

- **Short Code:** *89
- **Telephone Number:** "0,0"
- **Line Group ID:** 0
- **Feature:** SetAbsentText

Set Account Code

This short code feature is used to allow system users to enter a valid account code prior to making a phone call. This short code feature is essential for allowing analog phone users to enter account codes. Once this short code is set up, any account code can be used in conjunction with it.

Telephone Number	✓ A valid account code.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ Acct.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

In this example, N represents any valid account code. For the purpose of this example, we will imagine the account code to be **1234**. Once this short code is created, a user can dial **11*1234#** to get a dial tone for dialing the restricted telephone number or the phone number needing to be tracked for billing purposes.

- Short code: **11*N#**
- Telephone Number: **N**
- Feature: **SetAccountCode**

Set Authorization Code

This short code feature is only available on systems configured to use authorization codes. See **Authorization** Codes. The feature is used to allow a user to enter a valid authorization code prior to making a phone call.

This short code feature is essential for allowing analog phone users to enter authorization codes. Note that the authorization code must be associated with the user or the user rights to which the user belongs.

Telephone Number	✓ A valid authorization code.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✗

2.1	3.0DT	3.0	3.1	3.2
✗	✗	✗	✓	✓

Set Hunt Group Night Service

This feature puts the specified hunt group into 'Night Service' mode.

Telephone Number	✓ Hunt group extension number.
Default Short Code	✓ *20*N#
Short Code Toggles	✓
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓

- **See also:** Set Hunt Group Out Of Service, Clear Hunt Group Night Service, Clear Hunt Group Out Of Service.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code can be used to toggle the feature on/off. This short code is a default within the Manager configuration. N represents the telephone number of the hunt group to be placed into "Night Service" mode. For example, when ***20*201#** is dialed, the hunt group associated with extension 201 will be placed into "Night Service" mode.

- **Short Code:** *20*N#
- **Telephone Number:** N
- **Feature:** SetHuntGroupNightService

Set Hunt Group Out Of Service

This feature puts the specified hunt group into 'Out of Service' mode. This cannot be used to override a hunt group put into night service by a time profile.

Telephone Number	✓ Hunt group extension number.
Default Short Code	✗
Short Code Toggles	✓
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ HGOS+

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code can be used to toggle the feature on/off. Below is a sample short code using the **Set Hunt Group Out Of Service** feature. N represents the telephone number of the hunt group to be placed into "Out of Service" mode. For example, when ***56*201#** is dialed, the hunt group associated with extension 201 will be placed into "Out of Service" mode.

- **Short Code:** *56*N#
- **Telephone Number:** N
- **Feature:** SetHuntGroupOutOfService

Set Inside Call Seq

This feature allows the user to select the ringing used on their extension for internal calls. The number entered corresponds to the ring pattern required. This is 0 for Default Ring, 1 for RingNormal, 2 for RingType1, etc. For more information on selectable ringing patterns, see Ring Tones.

Use of this short code function is applicable to analog phone users only. The distinctive ring used by DS port phones is fixed by the phone type.

Telephone Number	✓ Number corresponding to the desired ring pattern. See Ring Tones.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ ICSeq

- **See also:** Set Ringback Seq, Set Inside Call Seq.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This Short Code allows a user to change their inside call pattern. N represents the number corresponding to the Call Sequence the user wishes to choose, the numbering starts at 0 selecting Default Ring, 1 selects Ring Normal, 2 selects RingType1, etc. For example, if a user wants to set her/his internal ring pattern to RingType1, the user would dial ***80*2#** because 2 corresponds to RingType1. This short code is useful for distinguishing an external call from an internal one simply by the ring tone.

- **Short Code:** *80*N#
- **Telephone Number:** N
- **Feature:** SetInsideCallSeq

Set No Answer Time

This short code feature allows the user to change their No Answer Time. The default setting for each user is to use the system's **No Answer Time** set on the **System | Telephony** tab, however this can be overridden by a No Answer time set on the **User | Telephony** tab.

Telephone Number	✓ Time in seconds.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ NATim

- **See also:** Set Wrap Up Time

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code allows a user to change the length of time they have to answer the phone before it goes to divert or voicemail. ***N*** represents the number of seconds. For example, if a user wants to set the allocated answer interval to 15 seconds, the following information needs to be entered: ***81*15#**.

- **Short Code:** *81*N#
- **Telephone Number:** N
- **Feature:** SetNoAnswerTime

Set Mobile Twinning Number

This short code feature can be used to set a mobile twinning number. The destination can be any external number the user is able to dial normally. It should include any prefix if necessary.

Note that the use of mobile twinning requires entry of a Mobile Twinning license and may be subject to a time profile.

Telephone Number	✓ Twinning destination.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

- **See also:** Set Mobile Twinning On, Set Mobile Twinning Off, Mobile Twinned Call Pickup

2.1	3.0DT	3.0	3.1	3.2
✗	✗	✗	✗	✓

Set Mobile Twinning On

This short code feature turns on the user's mobile twinning. It requires a mobile twinning number to have been set for the user. That can be done through using the **Set Mobile Twinning Number** short code feature or through the **User | Twinning** tab within Manager.

Note that the use of mobile twinning requires entry of a Mobile Twinning license and may be subject to a time profile.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

- **See also:** Set Mobile Twinning Off, Set Mobile Twinning Number, Mobile Twinned Call Pickup.

2.1	3.0DT	3.0	3.1	3.2
✗	✗	✗	✗	✓

Set Mobile Twinning Off

This short code feature turns off the user's mobile twinning.

Note that the use of mobile twinning requires entry of a Mobile Twinning license and may be subject to a time profile.

Telephone Number	✗
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

- **See also:** Set Mobile Twinning On, Set Mobile Twinning Number, Mobile Twinned Call Pickup.

2.1	3.0DT	3.0	3.1	3.2
✗	✗	✗	✗	✓

Set Outside Call Seq

This feature allows the user to select the ringing used on their extension for external calls. The number entered corresponds to the ring pattern required. This is 0 for Default Ring, 1 for RingNormal, 2 for RingType1, etc. For more information on selectable ringing patterns, see Ring Tones. Use of this short code function is applicable to analog phone users only. The distinctive ring used by DS port phones is fixed by the phone type.

Telephone Number	✓ Number corresponding to the desired ring pattern. See Ring Tones.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ OCSeq

- **See also:** Set Ringback Seq, Set Outside Call Seq.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code allows a user to change the ringing tone for an external call. N represents the number corresponding to the Call Sequence the user wishes to choose, the numbering starts at 0 selecting Default Ring, 1 selects RingNormal, 2 selects RingType1, etc. For example, if a user wants to set her/his ring pattern for external calls to RingType1, the user would dial ***81*2#** because 2 corresponds to RingType1. This short code is useful for distinguishing an external call from an internal one simply by the ring tone.

- **Short Code:** *81*N#
- **Telephone Number:** N
- **Feature:** SetOutsideCallSeq

Set Ringback Seq

This feature allows the user to select the ringing used on their extension for ringback calls. The number entered corresponds to the ring pattern required. This is 0 for Default Ring, 1 for RingNormal, 2 for RingType1, etc. For more information on selectable ringing patterns, see Ring Tones.

Use of this short code function is applicable to analog phone users only. The distinctive ring used by DS port phones is fixed by the phone type.

Telephone Number	✓ Number corresponding to the desired ring pattern. See Ring Tones.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ RBSeq

- **See also:** Set Outside Call Seq, Set Inside Call Seq.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code allows a user to change the ringing tone for a ringback call. N represents the number corresponding to the ring tone the user wishes to choose, the numbering starts at 0 selecting Default Ring, 1 selects RingNormal, 2 selects RingType1, etc. For example, if a user wants to set her/his ring pattern for ringback calls to RingType1, the user would dial ***81*2#** because 2 corresponds to RingType1. This short code is useful for distinguishing a ringback call from any other call simply by the ring tone.

- **Short Code:** *81*N#
- **Telephone Number:** N
- **Feature:** SetRingbackSeq

Set Wrap Up Time

Allows users to change their Wrap-up Time setting, which specifies the amount of time (after disconnecting from a call) before the user can take another call. The default is set on the User | Telephony tab.

Telephone Number	✓ Time in seconds.
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ WUTim

- **See also:** Set No Answer Time

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

N represents the number of seconds. For example, if a user wants to set her/his wrap up time to 8 seconds, this user would dial ***82*5#**. This short code is useful in a "call center" environment where users may need time to log call details before taking the next call. If set to 0 the user does not receive any calls. It is recommended that this option is not set to less than the default of 2 seconds.

- **Short Code:** *82*N#
- **Telephone Number:** N
- **Feature:** SetWrapUpTime

Suspend Call

This feature uses the Q.931 Suspend facility. It suspends the incoming call at the ISDN exchange, freeing up the ISDN B channel. The call is placed in exchange slot 0 if a slot number is not specified.

Telephone Number	✓ Exchange slot number or blank (slot 0).
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Suspe

- **See also:** Resume Call

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Suspend CW

This feature uses the Q.931 Suspend facility. Suspends the incoming call at the ISDN exchange and answer the call waiting. The call is placed in exchange slot 0 if a slot number is not specified. Only available when supported by the ISDN exchange.

Telephone Number	✓ Exchange slot number or blank (slot 0).
Default Short Code	✓ *28*N# (A-Law only)
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ SusCW

- **See also:** Resume Call

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Sample short code using the **Suspend CW** feature.

- **Short Code:** *28*N#
- **Feature: Suspend** CW

Toggle Calls

This feature cycles through each call that the user has on hold on the IP Office system. This feature is useful when a user with a single-line telephone has several calls on hold and needs to respond to each one in turn.

Telephone Number	✗
Default Short Code	✓*29
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✓ Toggl

- **See also:**

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is sample short code using the **Toggle Calls** feature (via Manager).

- **Short Code:** *29
- **Feature:** ToggleCalls

Unpark Call

Retrieve a parked call from a specified system park slot.

Telephone Number	✓ System park slot number.
Default Short Code	✓ *38*N#
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ Ride

- **See also:** Park Call

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample short code using the **Unpark Call** feature. N represents the park slot number in which the call you want to retrieve was parked. For example, if a user parked a call to slot number 9, you can retrieve that call by dialing ***38*9#**.

- **Short Code:** *38*N#
- **Telephone Number:** N
- **Feature:** Unpark Call

Voicemail Collect

This feature connects to the voicemail system. Normally the telephone number field is used to indicate the name of the mailbox to be accessed, for example "?Extn201" or "#Extn201". The ? indicates 'collect messages' and the # indicates 'leave a message'. Placing the text within quote marks stops it being interpreted by the IP Office as special short code characters.

When using Voicemail Pro, names of specific call flow start points can also be used to directly access those start points via a short code. In these cases, ? is not used and # is only used if ringing is required before the start point's call flow begins.

Note: Short codes using the **Voicemail Collect** feature, with either **"Short Codes.*name*"** and **"#Short Codes.*name*"** entries in the **Telephone Number** field are automatically converted to the **Voicemail Node** feature and *name*.

Telephone Number	✓ *See above.*
Default Short Code	✓*17
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ VMCol

- **See also:** Voicemail On, Voicemail Off, Voicemail Node.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example: Retrieve Messages from Specific Mailbox
This short code allows a user to retrieve messages from the mailbox of the hunt group 'Sales'.

- **Short Code:** *99
- **Telephone Number:** "?Sales"
- **Feature:** VoicemailCollect

Example: Record Message to Specific Mailbox
To allow users to deposit a message directly to Extn201's Voicemail box. This short code is useful when you know the person is not at her/his desk and you want to immediately leave a message rather than call the person and wait to be redirected to voicemail.

- **Short Code:** *201
- **Telephone Number:** "#Extn201"
- **Feature:** VoicemailCollect

Example: Accessing a Specific Voicemail Pro Module
This short code can be used in instances where you have a conference bridge set up on the IP Office and a module has been created via Voicemail Pro to access this conference bridge. A short code can be created for internal access to the module. In the sample short code below, the telephone number field contains the name of the module.

- **Short Code:** *100
- **Telephone Number:** "conferenc"
- **Feature:** VoicemailCollect

Voicemail Node

Similar to Voicemail Collect but used for calls being directed to a Voicemail Pro Short Codes start point. If ringing is required before the start point call flow begins then a **#** should be included before the name. Useful if you have set up a short code start point with Voicemail Pro and want to give direct internal access to it.

Telephone Number	✓ *Voicemail Pro Short Code start point name without quotation marks.*
Default Short Code	✗
Short Code Toggles	✗
Phone Manager Control	✗
SoftConsole Control	✗
Programmable Button Control	✗

- **See also:** Voicemail Collect

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Having created a short codes start point call flow called ***Sales***, the following IP Office short code can be used to route calls to that call flow:

- **Short Code:** *96
- **Telephone Number:** Sales
- **Feature:** VoicemailNode

Voicemail On

This feature enables the user's voicemail mailbox to answer calls which ring unanswered or arrive when the user is busy.

Telephone Number	✓ *None.*
Default Short Code	✓ *18
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ VMOn

- **See also:** Voicemail Off

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code can be used to toggle the feature on/off.

- **Short Code:** *18
- **Feature:** VoicemailOn

Voicemail Off

This feature disables the user's voicemail box from answering calls. Note that this does not stop messages being forwarded to the mailbox from other mailboxes.

Telephone Number	✓ *None.*
Default Short Code	✓ *19
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	✓
Programmable Button Control	✓ VMOff

- **See also:** Voicemail On

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup.

- **Short Code:** *19
- **Feature:** VoicemailOff

Voicemail Ringback On

This feature enables voicemail ringback to the user's extension. Voicemail ringback is used to call the user when they have new voicemail messages. The ringback takes place each time the extension is used. This feature is useful for users who do not have voicemail light/button indicators on their telephone.

If the user has been configured to receive message waiting indication for any hunt groups, a separate voicemail ringback will occur for each such group and for the users own mailbox.

Telephone Number	✗
Default Short Code	✓ *48
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	
Programmable Button Control	✓ VMRB+

- **See also:** Voicemail Ringback Off

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

This short code can be used to toggle the feature on/off.

- **Short Code:** *48
- **Feature:** VoicemailRingbackOn

Voicemail Ringback Off

This feature disables voicemail ringback to the user's extension. This feature is also available on Phone Manager.

Telephone Number	✗
Default Short Code	✓ *49
Short Code Toggles	✗
Phone Manager Control	✓
SoftConsole Control	
Programmable Button Control	✓ VMRB-

- **See also:** Voicemail Ringback On.

2.1	3.0DT	3.0	3.1	3.2
✓	✓	✓	✓	✓

Example

Below is a sample of the short code setup.

- **Short Code:** *49
- **Feature:** VoicemailRingbackOff

Data Routing

Overview of Data Routing

The IP Office system is a network router. In this role it can connect users on its LAN to remote services by using WAN links and telephone trunk connections. It can also allow users to dial-in and then act as if they were using a PC on the LAN.

As well as being a network router, the IP Office is a telephone system. These dual roles allow it to support a range of functions that involve traffic between the network and telephony interfaces. These functions use internal data channels. The number of internal data channels that can be connected from the system's LAN interface to its telephony interface at any time is restricted.

- An internal data channel is a connection between the system's telephony and LAN interfaces. For example a Voicemail connection, an internet connection or a RAS user.
- Calls using a VCM channel (for example VoIP calls and Avaya 4600 and 5600 Series phones) do not use a data channel.
- The number of data channels in use does not necessarily match the number of users:
    - Several LAN network users, browsing the internet using the same service to an ISP would be a single data channel.
    - Several dial-in network users would each have a separate data channel.
- The maximum number of data channels that can be simultaneously in use for voicemail is restricted. These channels also require entry of an appropriate license.

The restriction depends on the type of Control Unit being used.

IP Office Control Unit	Internal Data Channels	Maximum Data Channels for Voicemail
Small Office Edition	18	10
IP403	18	10
IP406 V1	24	20
IP406 V2	40	20
IP412	100	30

Network Address Translation (NAT)

NAT allows the addresses used within your LAN to be replaced by a different address when connecting to an external service.

Typically a service provider will allocate you a single IP address to be used when connecting to their service. NAT allows all your user's traffic to appears to be coming from that single address without having to change any of your user's real addresses. This is useful as internally most networks use addresses that have been reserved for public use within networks but are not valid for routing across the internet (since the same addresses may be being used on other networks). Also as stated it allows multiple users to use the same service simultaneously.

The use of NAT is automatically enabled if the IP Office Service being used includes an IP address that is not in the same domain as the its LAN1 IP address.

An exception to the above applies for the Small Office Edition and IP412 control units. These units have two LAN's, LAN1 and LAN2. For these units, on each LAN, **Enable NAT** can be selected and then applied to traffic between the two LAN's.

Dynamic Host Configuration Protocol (DHCP)

The IP Office can act as a simple DHCP server. When switched on with a defaulted configuration, the Control Unit request IP address information from a DHCP server. If it gets no response it assumes the role of DHCP server for the LAN.

In DHCP Server mode, by default the Control Unit issues itself the address 192.168.42.1. It allocates 200 addresses for DHCP clients, 192.168.42.1 to 19.168.42.200. This leaves 192.168.42.201 to 192.168.42.254 available for any computers that need to be allocated a fixed or static IP address. 192.168.42.255 is not used as this is a broadcast address for the LAN.

Examples

Simple ISDN Internet Connection

In this example, we want all non-local data traffic to be routed to the Internet. The Internet Service Provider (ISP) has provided the account details required. Using the IP Office's Network Address Translation (NAT), a single account can be used for all users.

1. Select **Service** and add a normal service. Change the following settings and click **OK**.
    - **Name:** Internet
    - **Account Name:** As provided by the ISP.
    - **Password:** As provided by the ISP.
    - **Telephone Number:** As provided by the ISP.
    - Check **Request DNS**.
3. Select **IP Route** and add a new route. Change the following settings and click **OK**.
    - Leave the **IP Address** and **IP Mask** blank. This will then match any data traffic that isn't matched by any other IP Route entry.
    - Select the service created above as the **Destination**.

Alternate

In the example above, a default IP Route was created which then routed all traffic to the required Service. An alternate method to do this with IP Office is to select Default Route within the Service settings.

ISDN Link Between IP Offices

To create a data link between two sites via ISDN configure the Control Unit as per the following example:

At Site A on IP address 192.168.43.1

1. **Create a Normal Service:**
   The Service name can be any text and is used to identify this particular Service. The Account Name and password are presented to the remote end, therefore must match the User name and password configured at Site B. The Telephone Number is the number of the remote end.
2. **Create an IP Route:**
   In the IP Address field enter the network address of the remote end, not the IP address of the Control Unit. Under Destination select the Service created above.
3. **Create a User:**
   Under the **Dial In** tab tick **Dial In On**. This User account is used to authenticate the connection from the Site B. Note that as the Service and User have the same names, these two configuration forms are automatically linked and become an Intranet Service. The User password is displayed at the bottom of the Service tab as the Incoming Password.
4. **Setup RAS:**
   Check the default RAS settings "DialIn" are available, otherwise create a new one. If the RAS settings are given the same name as the Service and User they are automatically linked and become a WAN Service. Ensure that the Encrypted Password option is not checked when using a WAN Service.
5. **Setup an Incoming Call Route:**
   Check the default Incoming Call Route is available, otherwise create a new one. If the Incoming Number is left blank, the Incoming Call Route accepts data calls on any number. Under **Destination** select the RAS service created above. The Bearer Capability should be AnyData.

At Site B on IP address 192.168.45.1

1. Repeat the above process but altering the details to create an route from Site B to Site A.

Using a Dedicated T1/PRI ISP Link

This section shows an example of a dedicated WAN PPP link to an Internet Service Provider (ISP) over a set of T1 or T1 PRI line channels. The ISP must support this mode of connection and will need to provide details of the required settings. If multiple channels are to be used, then the ISP must support Multilink PPP.

1. **Create a New WAN Service**
   A service is used to define connection settings such as name, password, bandwidth, etc.
   1. Select **Service** to display the existing services.
   2. Click on and select **WAN Service**.
   3. Select the **Service** tab.
      1. In the **Name** field enter an appropriate name, such as "**Internet**". Note that the IP Office will also automatically create User entry and a RAS entry with the same name.
      2. Enter the **Account Name**, **Password** and **Telephone Number** details provided by the ISP.
      3. For the **Firewall Profile** select the firewall created previously.
   4. Click the **Bandwidth** tab.
      1. Set the **Maximum No. of Channels** to the maximum number of channels that the service should use. In this example, 12 channels were used.
      2. Leave all the other entries at their default values.
   5. If the ISP has allocated IP address details these are entered through the **IP** tab. If the **IP Address** and **IP Mask** define a different domain from the IP Office LAN, then NAT is automatically applied.
      1. Click the **IP** tab.
      2. In the **IP Address** field enter the IP address specified by the ISP.
      3. In the **IP Mask** field enter the IP Mask specified by the ISP.
   6. The settings shown are typical. The actual settings must match those required by the ISP. For example, if Cisco routers are being used then IPHC needs to be ticked.
      1. Click the **PPP** tab.
      2. Ensure that the following options are selected. Leave all other options at their default settings.
         - **Multilink.**
         - **Compression Mode: Disable.**
         - **Callback Mode: Disable.**
         - **Access Mode: Digital64**
      3. Click **OK**.

2. **Create the Virtual WAN Port**
   In this stage, a WAN port is defined that actually uses T1 or T1 ISDN trunk channels.

   1. Select **WAN Port** to display existing ports.
   2. Click on and select **WAN Port**.
   3. In the **Name** field, enter either ***LINEx.y*** where:
      - ***LINE*** must be in uppercase.
      - ***x*** is the line number. For a trunk card in Slot A, this will be ***1***. For a trunk card in Slot B, this will be ***5***.
      - ***y*** is the lowest numbered channel number to be used by the WAN link minus 1. For example, if the lowest channel to be used is channel 1 then y = 1 - 1 = 0.
   2. In the **Speed** field, enter the total combined speed of the maximum number of channels sets in the Service. In this example, 12 channels x 64000 bits = 76800.
   3. Set the **Mode** to **SyncPPP**.
   4. In the **RAS Name** field, select the name used for the Service.
   5. Click **OK**.

3. **Create an IP Route**
   By creating an IP route with blank IP address details, it becomes the default route for outgoing IP traffic.

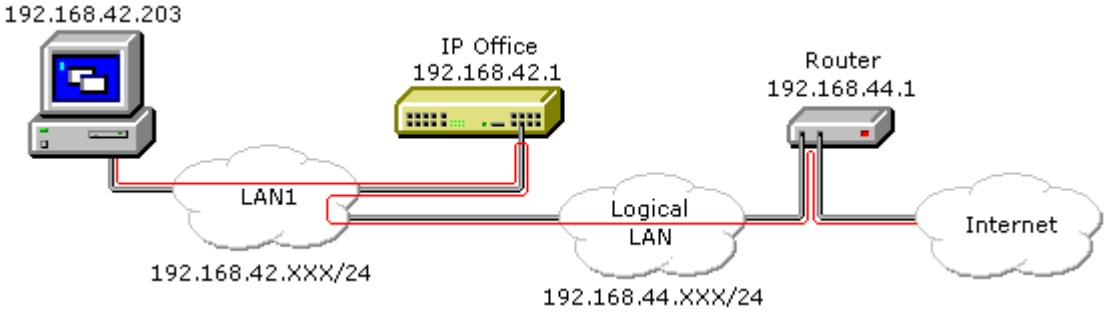
   1. Select **IP Route** to display existing routes.
   2. Click on and select **IP Route**.
   3. Leave the **IP Address** and **IP Mask** fields blank.
   4. In the **Destination** field, select the WAN service.
   5. Leave the **Metric** at default value of **1**.
   6. Click **OK**.

4. **Configure the Line Channels**
   This stage of the process differs according to the type of trunk being used.
   1. **T1 Trunk**
      Use the following for a T1 trunk.
      1. Click **Line** to display the existing lines.
      2. Double-click on the line previously entered in the WAN Port settings.
      3. Check that the **Channel Allocation** order matches that required by the ISP. Cisco routers typically use ***1->24***.
      4. Select the channels to be used in the WAN PPP link and change their **Channel Type** to "***Clear Channel 64k***".
      5. Click **OK**.
      6. Click **OK** again.
      7. Send the configuration to the IP Office and reboot.
   2. **T1 PRI Trunk**
      Use the following for a T1 PRI trunk.
      1. In the left-hand panel, click on **Line** to display the list of existing lines.
      2. Double-click on the line previously entered in the WAN Port settings.
      3. Check that the **Channel Allocation** order matches that required by the ISP. Cisco routers typically use ***1->23***.
      4. Select the channels to be used in the WAN PPP link and change their **Admin** to "***Out of Service***".
      5. Click **OK**.
      6. Click **OK** again.
      7. Send the configuration to the IP Office and reboot.

Logical LAN Connection

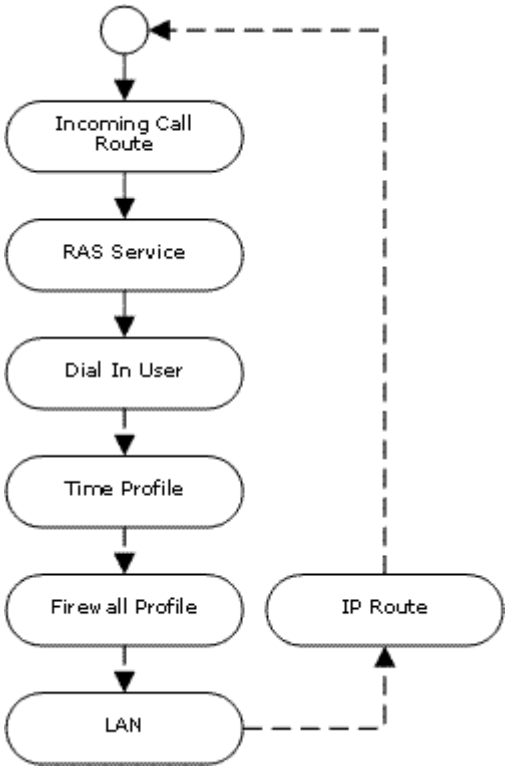
IP Office Small Office Edition and IP412 control units support two separate LAN interfaces (LAN1 and LAN2). These are separately addressed and the IP Office's IP route table and firewalls can be used to control traffic between device attached to the two LAN's.

On other IP Office control units only a single LAN (LAN1) is available. A logical LAN allows these systems to support a second separately addressed LAN on the same interface. Traffic between the IP Office LAN1 and the logical LAN can then be controlled by the IP Office's IP route table and firewalls.



Direct Remote Access

The IP Office support remote access for incoming data calls on trunks.



To do remote access, an incoming call is passed through the following elements of the IP Office configuration.

- **Incoming Call Route**
  A Incoming Call Route is used to match incoming remote access calls and pass them to a RAS service as the destination.

- **RAS Service**
  The RAS service defines settings relating to the data traffic methods useable with the call.

- **User**
  A user is associated with the RAS service by having the same name. The user defines the name and password required for the RAS service.
  - An **R** setting on the user's **Source Number** tab can be used to define the ICLID from which RAS calls are accepted.

- **Time Profile**
  The user settings can specify a time profile. The time profile then controls when remote access is allowed.

- **Firewall Profile**
  The user settings can specify a firewall profile. The firewall profile then control what traffic is allowed through the remote access connection.

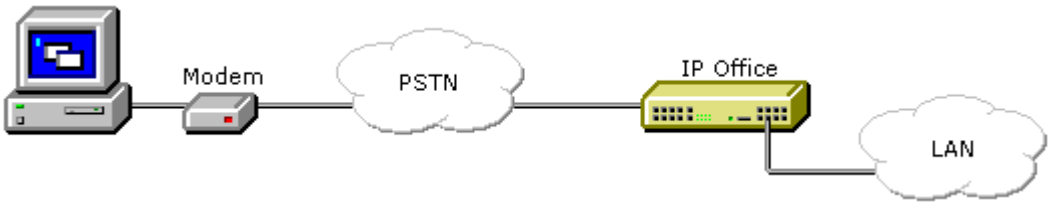
- **System | LAN**
  The IP Office can provide DHCP support for remote access connections when it is set to ***Server*** or ***Dial in*** modes. Alternatively the remote access client can use a static IP address on the IP Office's subnet.

- **IP Route**
  If the remote access client uses a IP address that is from a different subnet from the IP Office, then a IP route entry is required for returning data. The RAS service is set as the destination.

ISDN Remote Access Example

1. **Create a User**
   The required details are:
   - In the **User** tab:
     Enter a **Name** and **Password**. IP Office is case sensitive. Remember to take care with passwords as this is a remote access link into your network.
   - In the **Dial In** tab:
     Ensure that **Dial In On** is ticked. The Firewall Profile and Time Profile are optional.
2. **Create a RAS Entry**
   - In the **RAS** tab:
     Enter the same name as the user that you created earlier. Again, remember this is case sensitive.
3. **Create an Incoming Call Route**
   - Set the **Bearer Capability** to ***Any Data***.
   - In the **Destination** drop-down list, select the RAS entry created above.
   - The values that you enter for any of the other fields will depend on whether the remote user will be calling in on a particular line, number or from a set ICLID.
4. **Is a Return IP Route Needed ?**
   Go to Step 6.
5. **Create a IP Route** *(Optional)*
   If the remote user has an IP address that is not in the same domain as the IP Office, then an IP Route is needed for return data. This is not necessary if the remote user's dial-up connection method is set to 'Obtain an IP Address Automatically' and the IP Office's DHCP mode is set to Server or DialIn.
   - Enter the IP Address and IP Mask of the remote system.
   - In the **Destination** drop-down list select the RAS entry created above.

Analog Remote Access Example



Configuration for a connection from an analog modem call is very similar to the ISDN example. However the IP Office must be able to answer modem calls. This can be done in the following ways;

- **Modem Cards**
  For all IP Office control units except the Small Office Edition, a modem card can be installed. This module allows the IP Office system to answer V.90 analog modem calls. The Internal Modem Card allows the IP Office system to support 12 simultaneous modem calls (4 only on the IP403). The Modem 2 card allows the IP Office system to support 2 simultaneous modem calls.
- **Analog Trunk Modem Mode**
  On systems with an ATM4 trunk card and on the Small Office edition, the first analog trunk can be set to answer V.32 modem calls. This is done by checking the **Modem Enabled** option on the analog line settings or using the default short code ***9000*** to toggle this service on or off.
- When using an analog modem, the **Bearer Capability** of the incoming call route used should be ***Any Voice***.

Example: Creating a VoIP Link via the WAN Port Using PPP

A VoIP link across a leased line requires the Control Unit at both ends to have a Voice Compression Module installed. These provide for a fixed number of channels to use VoIP at any time. They are used to compress voice down to either 6k3 (G723) or 8k (G729) and provide echo cancellation.

Both ends must using the same version of software and configured to use the same speed and compression.

At Site A on IP address 192.168.42.1.

1. **Create a Normal Service:**
   The Account Name and password is presented to the remote end, therefore must match the User name and password configured at Site B. The Encrypted Password option can only be used if the remote end also supports CHAP.
2. **Create a User:**
   Under the Dial In tab tick Dial In On. This User account is used to authenticate the connection from the Site B. As the Service and User have the same name these two configuration forms are automatically linked and become an Intranet Service. The User password is displayed at the bottom of the Service tab as the Incoming Password.
   - **Name:** SiteB
   - **Dial In | Dial In On:** Enabled.
3. **Create a RAS service:**
   If CHAP is to be used on this link, then the **Encrypted Password** option must be checked in the Service and in the RAS service. The name of the RAS service must match the name of the Service at Site B. If the RAS service is given the same name as the Service and User, they are automatically linked and become a WAN Service. Ensure that the Encrypted Password option is **not** checked when using a WAN Service.
4. **Edit the WANPort:**
   Note - do not create a new WANPort, this is automatically detected. If a WANPort is not displayed, connect the WAN cable, reboot the Control Unit and receive the configuration. The WANPort configuration form should now be added.
   - **RAS Name:** SiteA
5. **Create an IP Route:**
   The IP Address is the network address of the remote end. Under Destination select the Service created above.
6. **Create a new Line:**
   The Line Number and Line Group ID must be unique, in other words, not used by any other line. The Gateway IP Address is the IP Address of the Control Unit at the remote end. The Compression Mode used is dependent on the Voice Compression Card the Control Unit is running and the speed of the link.
7. **Create a Short Code:**
   To route all calls where the number dialed starts with 8 via Line Group ID 1, therefore via the VPN Line created above.
   - **Short Code:** 8N
   - **Telephone Number:** N
   - **Line Group ID:** 1
   - **Feature:** Dial

At Site B on IP address 192.168.45.1

1. Repeat the above steps for VoIP traffic from Site B to Site A.

- Note: For the IP Office Small Office Edition Control Unit, enabling Local Tones under the Line and Extension VoIP tabs is recommended.

Example: Creating a VoIP Link via the WAN Port Using Frame Relay

To create a VoIP link via the WAN port using frame relay, the first step is to attach a WAN cable and reboot the Control Unit. After this, receive a copy of the configuration.

Both ends must using the same version of software and configured to use the same speed and compression.

At Site A

1. Create a WAN Service:
   - On the Service Tab:
     The Name is "FR_link". The Account Name should be "FR_Link" and all password fields (both Password and Incoming Password) should be left blank.
   - On the **PPP** Tab:
     Check the **MultiLink/QoS** box.
     Set the **Header Compression Mode** to ***IPHC***.
   - On the Dial In Tab:
     If you are using a WAN 3 module, you must add "WAN" as the Dial In Service number.
2. On the **Wan Port** Form:
   - In the WanPort Tab
     Set the speed to match the link. Set the **RAS Name** to ***DialIn***. Set the **Mode** as ***SyncFrameRelay***.
   - In the FrameRelay Tab
     Set the appropriate Frame Relay Management Type. The other default settings are appropriate for a basic Frame Relay Connection.
   - In the DCLI tab
     Set the RAS Name to "FR_link".
     Frame Link Type = PPP
     DLCI set to the network setting
3. **Create a RAS service:**
   Encrypted Password option is **not** checked when using a WAN Service. Have the Name = "FR_Link"
4. **Create an IP Route:**
   The IP Address is the network address of the remote end. Under Destination select the "FR_link" that was created above.
5. **Create a new Line:**
   The Line Number and Line Group ID must be unique, in other words, not used by any other line. The Gateway IP Address is the IP Address of the Control Unit at the remote end.
6. **Create a Short Code:**
   To route all calls where the number dialed starts with 8 via Line Group ID 1, therefore via the VPN Line created above.
   - **Short Code:** 8N
   - **Telephone Number:** N
   - **Line Group ID:** 1
   - **Feature:** Dial

At Site B

1. Repeat the above steps for VoIP traffic from Site B to Site A.
   - Note: For the IP Office Small Office Edition Control Unit, enabling Local Tones under the Line and Extension VoIP tabs is recommended.

Voice over IP

Overview of VoIP

Depending on the model of control unit the IP Office control unit supports up to 60 voice compression channels. Either 3 or 16 of these channels are pre-installed in Small Office Edition controls units. On other units they are added by installing Voice Compression Modules (VCM's). The type and number of VCM modules supported by each control unit type varies.

The voice compression channel improves call quality and can be used to compress voice down to either 6k3 (G723) or 8k (G729/Netcoder) and provides echo cancellation (required for high latency circuits).

The bandwidth required for a VoIP call is made up of two parts, one of which is due to the actual digitization of the analog voice the other is required by the protocol which is used to wrap the digitized voice up and transport it to the remote site. VoIP calls require an overhead of 40 bytes per packet (RTP/UDP/IP Header overhead) this overhead is increased on a LAN by a further 12 bytes Ethernet or by 7 bytes over a PPP WAN link.

When transporting voice over low speed links (WANs) it is possible that normal data packets (typically 1500 byte IP packets) can prevent or delay the voice data from getting across the link. This can cause a very unacceptable speech quality. Thus it is vital that the routers in the network that carry voice have some form of Quality of service mechanism (QoS).

The Control Unit supports the DiffServ (RFC 2474) Quality of Service mechanisms (QoS) which is based upon a Type of Service (ToS) field in the IP header. The software will prioritize voice, fragment large packets and provide VoIP header compression to minimize the WAN overhead.

Typically the VoIP WAN overhead is 47 bytes on 20 byte payload this is 235% overhead. On the WAN protocol this is reduced to 11 bytes (8 bytes data, 2 bytes CRC and 1 byte HDLC flag) on the same 20-byte packet this is only 55%, and 180% saving. This overhead must be included when calculating the actual link speeds required to support voice traffic. For example an 8Kbps compression voice path actually required 12.4Kbps of WAN bandwidth when using QoS or 26.8Kbps if using standard non QoS routers.

QoS routers are also required to ensure low speech latency and to maintain sufficient audible quality. At present our header compression is based upon the latest standards (RFC 2507/2508/2509). For efficiency we operate below PPP (non-standard) - reducing the overheads further and allow data fragmentation to be performed more effectively (keeping latency low). It is therefore required to place our equipment at both ends to operate at full efficiency.

VoIP Protocols

The H.323 Stack within the core software supports the following protocols:-

- H.323 (V2)(1998), Packet-based multimedia communications systems
- Q.931, ISDN user-network interface layer 3 specification for basic call control
- H.225.0 (1998), Call signaling protocols and media stream packetization for packet-based multimedia communication systems
- RTP/RTCP
- H.245 (1998), Control protocol for multimedia communication
- Audio CODECs:
    - G.711 A-law/U-law
    - G.723.1 MP-MLQ
    - G.729 Annex A - CS-ACELP (Not supported by NetMeeting)
- Silence Suppression
- Fax Relay
- Local End Echo Cancellation 25ms (except transparent - no cancellation)
- Out of band DTMF
- Internet Standards/Specification (in addition to TCP/UDP/IP)
    - RFC 1889 - RTP/RTCP
    - RFC 2507,2508,2509 - Header Compression
    - RFC 2474 - DiffServ

Performance

The following table is the maximum ratings tested in the lab. For deployment we recommend that more bandwidth be made available for normal data.

	56K	64K	128K	256K	2M	LAN
G729.1 (8k)	4	5*	6	18	20!	20
NetCoder (8k)	4	5*	9*	18!	20	20
G.723 (6.4k)	5	5*	9	18	20	20
ADPCM (32k)	1	1	6	5	20!	20
G.711 (64k)	X	X	1	3	16!	20
Transparent (64k)	X	X	1	3	14!	20

- * - data transfer is affected at higher channel connectivity
- ! - channel connectivity at higher levels is affected by data transfer

Implementation

A Control Unit plays the part of a Gateway between H.323 terminals and phones connected to the Control Unit (and also external lines). H.323 is configured on a Control Unit as a VPN line, specifying the IP address of a remote gateway and the audio compression to be used.

IP phones can be configured as extensions. An example is NetMeeting, which is configured to use the Control Unit as a Gatekeeper, with an account name that should match the name of a user configured on the Control Unit.

IP extensions are automatically created when an IP phone registers with the Gatekeeper (depending on a configuration option). If the user is not found a new user and extension are created, allowing the phone to be used immediately.

Basic call setup (without a Gatekeeper)	• Call setup using H.225.0 encapsulated in Q.931 messages • Capability exchange using H.245 • Establishment of audio communication using H.245 OpenLogicalChannel • Audio using RTP/RTCP
Fast connect procedure	• Call setup using H.225.0 in Q.931 messages, with H.245 OpenLogicalChannel messages embedded in the H.225.0 messages • Audio using RTP/RTCP
Overlap sending	• Support for overlap sending, where a SetupAck is sent in response to the Setup message
Gatekeeper	• Gatekeeper support allows IP extensions to be automatically configured when they register with the gatekeeper.
Jitter buffer	• 5 frames of jitter buffer
Quality of Service	• Layer3 - DiffServ TOS Field set to DSCP 6 on generated packets. WAN links optimize for this traffic when set to "PPPSyncVoice". At present normal LAN and normal ISDN traffic is not prioritized. • Layer4 - UDP Port Marking - all RTP/UDP traffic is sent within UDP port range of C000-CFFF (hex) (49152-53247)

Voice Packet Payload Sizing/Latency (Default)

Codec	Payload	Latency
Transparent 64K G711	80bytes	10ms
ADPCM 32K	40bytes	10ms
ADPCM 16K	20bytes	10ms
G.711 ALAW	160bytes	20ms
G.729A	20bytes	20ms
G.723 (6K3)	24bytes	30ms
Netcoder 8K	20bytes	20ms
G.726-32K	80bytes	20ms
G.726-16K	40bytes	20ms

Small Community Networking

Small Community Networking

IP Office systems linked by IP trunks can have Small Community Networking (SCN) enabled. Using SCN, the separate IP Office systems 'learn' each other's extension numbers and user names. This allows extension calls between systems and support for a range of internal call features.

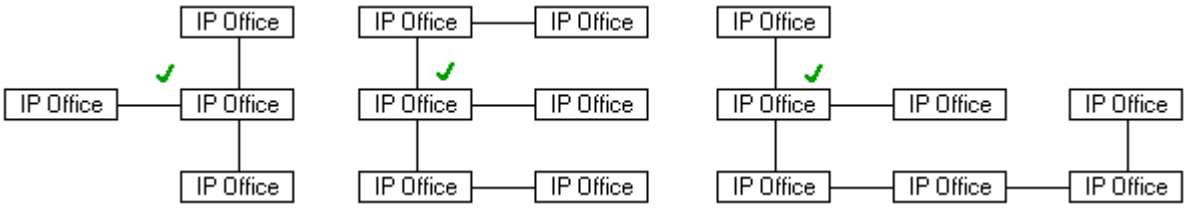
IP Office Small Community Networking currently supports a maximum of 500 extensions across up to 16 IP Office systems.

To set up a small community network, the following are required:

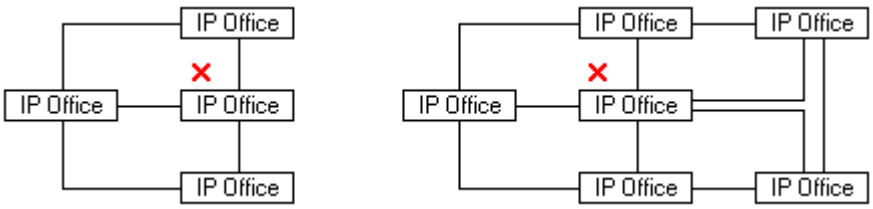
- A working IP trunk between the IP Office systems that has been tested for correct voice and data traffic routing.
- For Small Community Networks of more than two IP Office systems, a star network configuration is recommended.
- VCM modules are required in all systems.
- The extension and group numbering on each system must be unique.
- The extension and group names on each system must be unique.
- We also recommend that all names and numbers (groups, line, services, etc) on the separate IP Office systems are kept unique. This will reduce potential maintenance confusion.
- All systems should use the same set of **Telephony** timers, especially the **Default No Answer Time**.

Supported Network Layouts

The IP Office systems within a Small Community network should only be connected in a star and or serial layout. For each IP Office there should only be one possible route to any other IP Office even if that route is via intermediate IP Offices. The following are examples.



The use of 'mesh' layouts connections is not supported. That is connections where more there are more than one possible route between any two IP Offices.



Small Community Network Features
The features supported across a Small Community Network are:

- **User buttons.**
- **Camp-on.**
- **Call Back When Free.**
- **Paging.**
- **Call Pick-up.**
- **Internal Directory.**
- **Absent Text Message.**
- **Anti-Tromboning.**
- **Centralized Voice Mail using Voicemail Pro.**
  Within a Small Community Network, a single Voicemail Pro can be used to provide voicemail services for all the IP Office systems. For full details of installation and setup refer to the Voicemail Pro documentation. The Voicemail Pro is licensed and hosted by a chosen central IP Office system and provides full operation for that system. Queuing on remote systems is not supported. The voicemail features supported for the other remote IP Offices are:
  - **User mailboxes.**
  - **Call recording.**
  - **Dial by Name.**
  - **Auto Attendants.**
  - **Breakout** (requires that the numbers used are routable by the system hosting the Voicemail Pro).

Software Level Interoperation
SCN is supported between IP Office systems with the same major software level or one level of difference in major software level. For example between 3.2 and 3.1 (same major level) and between 3.2 and 2.1 (one level of difference).

This option is intended mainly to allow the phased upgrading of sites within a Small Community Network. It is still recommended that all systems within a network are upgraded to the same level where possible. Within a SCN using differing levels of software, network features will be based on the lowest level of software within the network.

Enabling Small Community Networking

Setup the VoIP Line from System A to System B

1. On System A, receive the system configuration.
2. Click the **Line** configuration form to display a list of existing lines.
3. Right-click on the displayed list and select **New**.
4. In the **Line** tab for the VoIP line set the following:
   - Set a unique **Line Number**.
   - In the **Telephone Number** field, enter a description of the link.
   - Set the **Outgoing Group ID** to a unique value.
5. In the **VoIP** tab for the VoIP line, set the following:
   - Ensure that **Voice Networking** is ticked. This enables the exchange of directory and user information between the IP Office systems and is the key enabler of Small Community Networking.
   - For the **Gateway IP Address** enter the IP address of System B.
   - Select the preferred **Compression Mode**. The same mode must be used by all VoIP lines and extensions within the network.
   - Check that the **H450 Support** option is set to ***H450***. This enables various Supplementary Signaling Services across the VoIP connection. QSIG can be used if H450 is not supported across the VoIP connection. However QSIG supports fewer supplementary signaling features.
   - Do not change any other options from their default settings without testing. For Small Community Networking **Enable Fast Start** and **Local Tones** should not be used.
6. Load the configuration and reboot System A. Note: Configuration changes and additions to VoIP line settings cannot be merged.

Setup the VoIP Line from System B to System A

7. On the remote system, repeat the previous steps to create a VoIP VPN link to System A.
   - Ensure that the **Compression Mode** selected in the **VoIP** tab of the VoIP line is the same at both the central and remote system.
   - Load the configuration and reboot the remote IP Office.

Test Small Community Networking

8. Test by making calls between extensions on the different systems.

Short Code Programming for Small Community Networks

With Small Community Networking enabled, the IP Offices 'learn' each others extension numbers and route extension calls appropriately.

However the same does not apply to dialing group and other numbers meant for the remote IP Office. To allow these to be routed correctly across the VoIP VPN links, short codes can be used.

Scenario

We want a short code on System A which will correctly route any 3000 range number to System B. This will allow System B group numbers to be dialed from System A.

To achieve the above scenario, we will add a new system short code. By using a system short code it becomes available to all users.

1. Receive the configuration from System A.
2. Click the **Short code** configuration form to display a list of existing system short codes.
3. Right-click on the displayed list and select New.
4. Enter the short code settings as follows:
   - **Short Code: *3XXX***
     This will match any four-digit number beginning with 3.
   - **Telephone Number: .**
     The . indicates that the short code should output the digits as dialed.
   - **Line Group ID: *3000***
     This should match the **Outgoing Group ID** given to the VoIP VPN line connected to System B.
   - **Feature: *Dial***
5. Click **OK**.
6. If the only change made to the configuration was this short code, load the new configuration using merge, otherwise load the configuration and reboot.
7. A similar system short code can be added to System B's configuration to route 2XXX dialing to System A.

Appendix A: Configuration Examples

Transactional Pad

Connecting a Transactional Pad

A transaction pad (T-PAD, credit card "swipe" terminal) can use the ISDN (B channel) trunks, via the 25-pin D-type connector on the rear of the system control unit. This allows for faster transactions then provided by conventional modem connectivity.

The control unit supports a single DTE port. This DTE port has an AT command interface. Certain AT commands may be sent to the serial port so that it runs an X.25 T-PAD interface.

The ISDN link between the Control Unit and the transaction pad is digital. The transaction pad does not require a modem.

Configuration Parameters

In order to connect to a remote server, the DTE port needs:

- the Phone number of the remote server
- local_nua
- nui
- lower_channel (defaults to 1024)
- upper_channel (defaults to 1279)

AT commands need to be issued to the DTE port to enable the interface. The following AT commands are relevant to transaction pad operation:

- **ATB6** - set connection mode as TPAD
- **AT%A** - set the local nua.
- **AT%I** - set the nui.
- **AT%L** - set the lower channel limit (defaults to 1024).
- **AT%U** - set the upper channel limit (defaults to 1279).
- **AT&A** - set an autodial number.
- **AT&D=1** - dial autodial number whenever DTR is raised (by pad).

Example:

```
ATB6
AT%A=1234
AT%I=test_host
AT%L=1048
AT%U=1052
AT&A 01923111111
AT&D=1
```

Additional information of IP Office DTE port AT commands can be found in the "IP Office AT Commands Manual"..

Configuration Auto-Load

Though AT commands can be issue to the DTE port through a serial communications program such as Hyperterminal, DTE port settings and parameters are not saved in the IP Office Control Unit's flash memory. Thus they are lost during any reboot.

In order to 'permanently' set the parameters they need to be added to the configuration through the IP Office Manager application. This is done through a configured user called **DTEDefault**.

Create a user called **DTEDefault** and add the required initial AT commands into the **SourceNumbers** table. These commands are then automatically reloaded following any reboot.

Tracing

There are a number of locations where the transaction can be traced using the IP Office Monitor application.

- **Options/DTE**
  - **DTE Command Tx/Rx**
    This trace information is output when the DTE port is in AT mode
  - **DTE Filter Tx/Rx**
    This is trace information of the Serial communication between the DTE port and the pad. Other trace information will appear from time to time.

Paging

Paging from IP Office

Paging to and from IP Office phone's is covered by the appropriate telephone user guides. This section covers paging to 3rd-party paging equipment (centrally amplified paging systems or self-amplified speakers).

Typically, 3rd-party paging equipment uses analog connections. The IP Office can provide analog connections via either analog trunks or analog extensions. In terms of flexibility of operation once installed, the use of an analog extension port for paging is the preferred solution.

WARNINGS:

- The Paging Equipment must provide isolation to the IP Office analog port or an additional interface device must be fitted.
- The Paging Equipment (and separate interface device if used) must conform to the local and national telecommunications device regulation:
    - USA: FCC approval.
    - European Union: CE marked indicating compliance with the EMC (EN41003) and Low Voltage (EN60950) directives.
    - All other countries: use equipment that complies with locals and national telecommunication device regulation.
- Failure to observe the notes above could result in damage to the IP Office or the 3rd-party equipment.

Universal Paging Access Module

For the US, the Universal Paging Access Module (UPAM) is recommended as the interface device between the IP Office and the Paging Equipment.

The UPAM:

- Supports analog extension or trunk (loop or ground start) connection.
- Requires a 24V or 48V power supply if used with trunk connections.
- Provides a pre-announce tone heard at the paging extension and over the paging speakers. On/Off selectable.
- Provides a confirmation tone heard by the pager only (not supported for ground start trunks). On/Off selectable.
- Has Paging Time control which sets the maximum page time (6 to 35 seconds) if its other disconnect controls are disabled.
- Supports background music input via an RCA-type jack.

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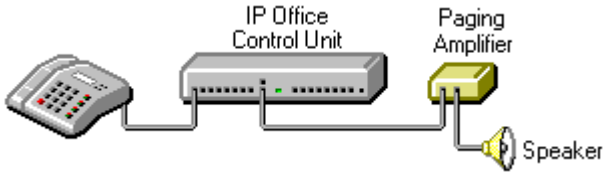
- Supports background music input via an RCA-type jack.

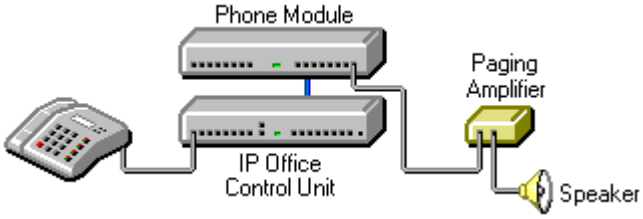
Paging via an Analog Extension Port (POT Port)

IP Office analog extension ports are marked as POT. These can be used for the connection of third-party paging equipment.

The IP Office 401 (not available in North America) and IP Office 403 Control Units have integral POT ports.



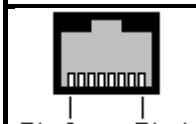
POT ports can also be installed by the addition of an IP Office Phone Module to the system.



- The Paging Amplifier must provide isolation or an additional isolation device should be fitted.
- The Paging Amplifier (and separate isolation device if used) must conform to the local and national telecommunications device regulation.
- If not done automatically, it may be necessary to set the **Paging Amplifier** to give priority to the VOX input.

Do the following to set up a page via an analog extension port:

1. **IP Office POT Port Wiring Connection**
   - Connections to POT ports should use a twin-pair cable wired as follows:

PHONE RJ45 Socket	Pin Number	Description
	1 to 3	Do not use.
	4	A: Ring
	5	B: Tip
	6 to 8	Do not use.

The POT ports are rated as follows:

- Off-Hook Current = 25mA.
- Ring Voltage = 40V rms.
- REN = 2

2. **Configure the Analog Extension**
    1. Start IP Office Manager and receive the configuration from the IP Office.
    2. Click the **Extension** icon to display the list of extensions.
    3. Double-click on the extension that will be used for the paging equipment connection.
    4. In the **Extn** tab, set the following:
        - Set the **Equipment Classification** to ***Paging Speaker***. In this mode the extension connects the speech path immediately without any ringing.
        - Set **Caller Display Type** to ***Off***.
    5. Click on **OK**.

3. **Configure the Analog Extension User**
    1. Click the **User** icon to display the list of users.
    2. Double-click the user currently associated with the extension above.
    3. In the **User** tab, set the following set the **Name** to ***Paging*** or similar to indicate the function.
    4. In the **Voicemail** tab untick **Voicemail On**.
    5. Click **OK**.

4. **Create a Short Code for Paging the Extension**

    This stage is optional. Since the connection is via a extension with an associated user, page calls can be made using the appropriate user name or number (see "Making Page Calls"). If you skip short code creation, send the new configuration to the IP Office and reboot.

    Do the following to create a short code:

    1. Click on the **ShortCode** icon to display the list of short codes.
    2. Right-click on the list and select **New**.
    3. Enter the settings for the short code that users should dial when to make a paging call:
        - **Short Code: **78***
          The numbers users should dial to do a page. *78 is just an example.
        - **Telephone Number: *201***
          The analog extension connected to the paging equipment.
        - **Feature: *DialPaging***
          Note that ***DialPaging*** is used for an analog extension connection. ***Dial*** is used for an analog trunk connection. .

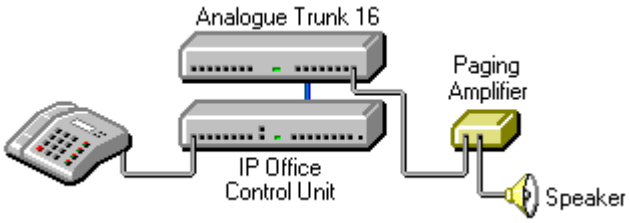
4. Click on **OK**.
5. Send the new configuration to the IP Office and reboot.

Paging via an Analog Trunk Port

You can use the analog trunk ports provided by the ATM4 or ATM16 modules.

The ATM4 is an internal module installed into the IP Office Control Unit. Note that the ATM4 only provides Loop Start analog trunk ports.

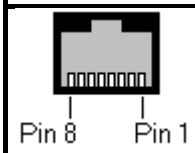
The ATM16 is an external expansion module. It supports both Loop Start and Ground Start analog trunks.



- The Paging Amplifier must provide isolation or an additional isolation device should be fitted.
- The Paging Amplifier (and separate isolation device if used) must conform to the local and national telecommunications device regulation.
- The paging connection must provide power in order to be seen as a real trunk by the IP Office.

Do the following to set up a page via an analog trunk port:

1. **Connection**
   The analog trunk ports on IP Office modules are RJ45 sockets. Connections to these should use a single-pair cable wired cable as follows:

RJ45 Socket	Pin Number	Description
	1 to 3	Do not use.
	4	A: Ring
	5	B: Tip
	6 to 8	Do not use.

2. **Configure the line via the Line configuration form in Manager:**
   1. Receive the configuration from the IP Office.
   2. Click on the **Line** icon to display the list of installed lines.
   3. In the **Line** tab for the analog line, set the following:
      - In the **Telephone Number** field enter a note indicating that this is the line to the paging equipment.
      - Set the **Outgoing Group ID** to a unique value, that is one not used by any other line. This number will be used in a short code that routes page calls to this line.
   4. In the **Analog** tab, set the following:
      - Set the **Trunk Type** to ***Loop Start***. Note: This is the only option with ATM4 trunks. With ATM16 trunks ***Ground Start*** can be used if required by the paging equipment.
      - Leave the remaining values at their defaults unless the instructions of the paging equipment manufacturer indicate that other values are required.
   5. Click **OK**.
3. **Create a Short Code for the Paging Trunk**
   1. **Click the ShortCode icon to display the list of system short codes.**
   2. **Right-click on the list and select New.**
   3. **Enter the settings for the short code that users should dial when to make a paging call:**
      - **Short Code: **88***
        This is the numbers users should dial to do a page. *88 is just an example.
      - **Telephone Number:** .
      - **Line Group ID: *20***
        This must match the Outgoing Group ID set for the analog trunk.
      - **Feature: *Dial***
        Note that ***Dial*** is used for an analog trunk connection. ***DialPaging*** is used for an analog extension connection.
   2. Click **OK**.
   3. Send the new configuration to the IP Office and reboot.

Making Page Calls

Making Page Calls

Having setup and tested the paging equipment, users can begin to use it.

If the paging device has been connected via an analog extension port, then the page call features provided for different phones can also be used to page the extension number. Refer to the appropriate phone user guide. Otherwise users can dial the short code setup for paging.

The following methods can be used to make page calls.

Paging via a DSS Key

For extensions with DSS keys, paging can be assigned to one of those keys. The following method programs the key via the Manager application.

1. Start Manager and load the IP Office configuration.
2. Click **Users** to display the list of Users. In the list, double-click the user whose DSS keys you want to edit.
3. Select the **Button Programming** tab (**Digital Telephony** tab on UK English systems).
4. For the required DSS button, select ***Dial*** as the **Action**. For the Telephone number enter the paging short code or the extension number or the extension name in quotes.
5. Click **OK**.
6. Save the new configuration.

Paging from Phone Manager

You can add a speed dial to Phone Manager in order to make paging calls.

1. Within the users Phone Manager, select the Speed Dials tab.
2. Right-click on the tab area.
    - If paging via a analog extension port, select **Add User** and select the appropriate user.
    - If paging via an analog trunk port, select **New**. Enter a name and enter the paging short code as the number.

Group Paging

If the paging connection is via an extension port, that extension can be included in a group with other pageable extensions. This allows page calls to be heard via the speaker and over pageable telephones.

To set up group paging:

1. Create a Hunt Group with all the users required as members.
2. Create a short code to call the Hunt Group using the DialPaging feature:
    - **Short Code:** *81
    - **Telephone Number:** 305
    - **Line Group ID:** 0
    - **Feature:** DialPaging

- Note TransTalk 9040 MDW sets do not receive page calls, but may make them.

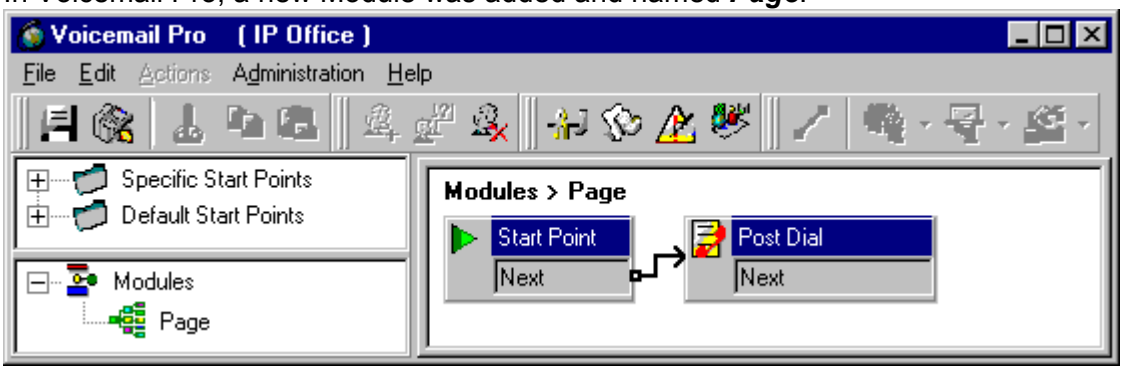
Paging Via Voicemail Pro

Voicemail Pro can be used to deliver pre-recorded announcements. This can be useful when the same announcement is repeated frequently. This method requires the paging port to be an analog extension.

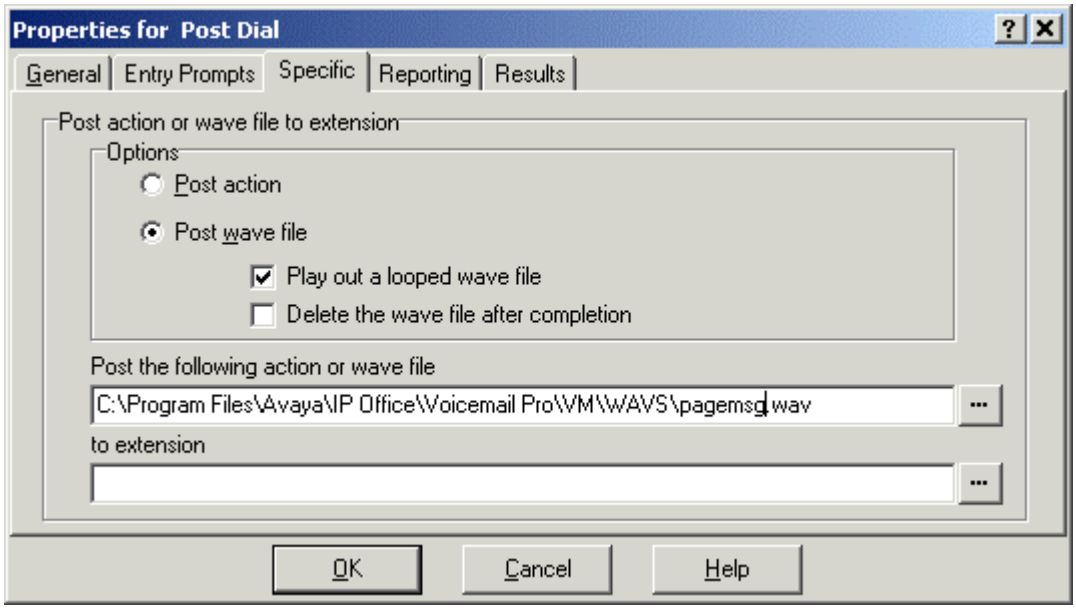
This method also removes the feedback loop that can occur on some sites as the page is first recorded and then played.

Example 1

1. In Voicemail Pro, a new Module was added and named ***Page***.



2. A **Post Dial** action was added to the module. The properties of the Specific tab were set as shown:

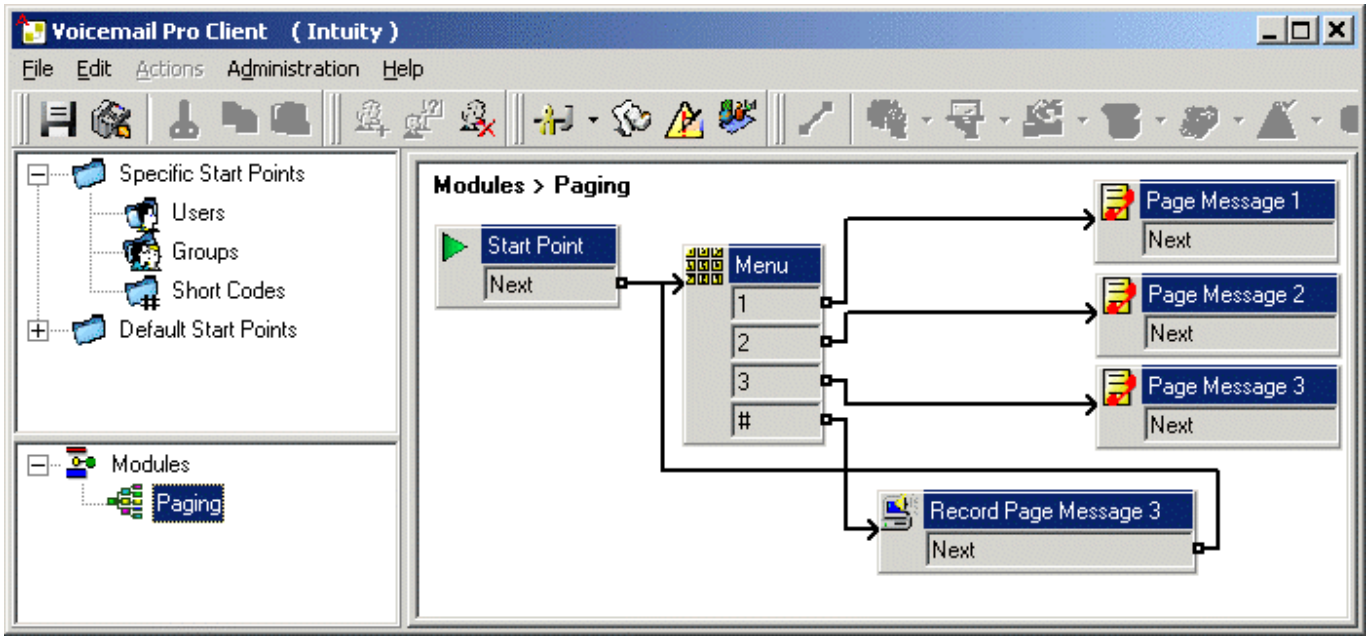


3. We then saved and made live the new Voicemail Pro call flow.
4. In Manager we received the IP Office configuration and created a new short code.
   - **Short Code:** *80
   - **Telephone Number :** "Page"
   - **Feature:** VoicemailCollect.

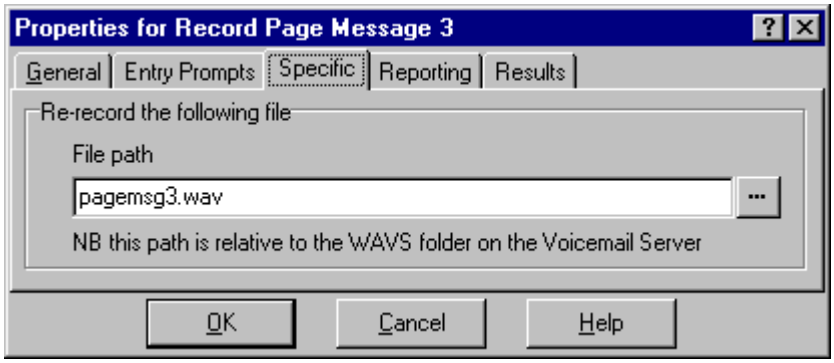
5. The new IP Office configuration was then merged.

Example 2

This example builds on example 1 by allowing the user to select which message is played from a menu. In this example the user can press 1, 2 or 3 for different messages. They can also re-record the message associated with option 3 by pressing #.



A **Play List** action was added and in this example set to record ***pagemsg3.wav***. Note that just the file name was specified as this action saves files relative to the Voicemail Server's WAVS folder.



In the **Post Dial** action that plays back ***pagemsg3.wav*** note that the full file path needs to be used.

In IP Office Manager, we then added a short code that triggers the module **"Paging"** using the **VoicemailCollect** feature.

Dial By Name

Dial By Name

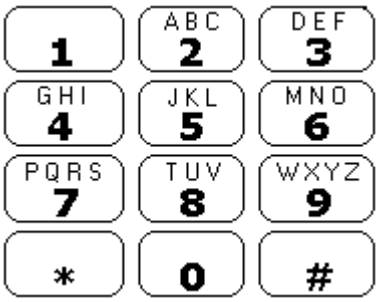
IP Office includes a Dial Name feature for making internal and external calls. It allows users to make calls by dialing the name on their telephone keypad and making a selection from the displayed matches or dialing further characters to improve the match.

When used to make internal calls, the name matches are based on the User Names and Full Names programmed into the system. If a user has a Full Name programmed then that takes precedence over their User Name.

When used to make external calls, the name matches are based on entries in the IP Office Directory.

Within a Small Community Network, remote User Names, Full Names and Group Names are shared and thus are available for the Dial By Name feature. Directories are not shared within a the Small Community Network, so only the Directory of the user's local IP Office is available.

The Dial Name feature uses the ITU key character layout:



Selecting Dial Name Mode:

1. Double-click **System**.
2. Select the **Telephony** tab.
3. The **Dial By Name** checkbox operates as follows.
   - When checked, matching is based on the series of characters dialed by the user.
   - When unchecked, matching is based just on the first character selected.

Setting User Full Names:

The process below details doing this through Manager.

1. In Manager, receive the IP Office's configuration.
2. Click **User** to display the list of users.
3. Double-click the required user to display their **User** form.
4. In the **Full Name** field enter the name required. Do not use characters other than Aa to Zz and 0 to 9.
5. Click **OK**.
6. Repeat for all users required.

Adding Directory Entries:
Note that Directory entries are also used for other functions such as name matching against received ICLID on incoming calls.

1. Click **Directory** to display a list of current entries.
2. Either double-click on an entry to change and right-click on the list and select **New**.
3. Enter the **Name** and **Number** and click **OK**.
4. Repeat for all entries required.

Using Dial Name

The Directory function can be assigned to a programmable key on most DS phones. It is also available through the phone menu on phones with a **Menu** key.

1. Press the programmable button that has been set to the **Dir** function.
   - On phones with a **Menu** key, press **Menu** and select **Dir**. Alternatively, press **Menu** twice, then press ▸ and then select **Dir**.
2. Select from **INDeX** (internal extensions), **Group** (Hunt Groups) or **Extrn** (numbers in the IP Office Directory).
3. The next steps depend on which mode of working your system is using:
   - **Dial Name Mode** (System | Telephony | Dial by Name checked)
     1. Using the letter keys, start dialing the name that you want. For example, for names starting with ***John*** dial ***5646***. Ignore any spaces in the name.
     2. The display will show the first match to the letters entered so far. Either enter further letters or use the ◂ and ▸ keys to scroll through the other matches found.
     3. If **NO MATCH** is displayed press ◂ to go back to the previous step.
     4. When the name you want is shown, select **Call**.
     5. If you cannot find the name you want press **Exit**.
   - **Classic Mode** (System | Telephony | Dial By Name not checked)
     1. Press the dial pad button that matches the first letter of the name you want. For example, to select ***L*** press the **5** key three times.
     2. Use the ◂ and ▸ keys to scroll through the matching entries. You can press another key on the dialing pad to select a different first letter.
     3. When the name you want is shown, select **Call**.
     4. If you cannot find the name you want press **Exit**.

Appendix B: Locale Settings and Ring Tones

Country Locales

The IP Office system **Locale** sets factors such as the default ringing tones and caller display settings. The locale also controls the default language that the IP Office voicemail server will use for prompts.

Users and incoming call routes can be set to a locale. That locale will then override the system settings for calls to voicemail.

This following table indicates locale settings used within 3.2 and higher for different functions. Note that reference to a locale does not necessarily indicate support, availability or approval for IP Office within that country.

Pre-3.2	Locale	Language	Telephony	Phone Display	T3 Phones	Applications				Voicemail		
						Manager	Phone Manager	Soft Console	Conf' Center	EVM	Lite	Pro
ess	Argentina	Latin Spanish	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓
ena	Australia	UK English	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓
nlb	Belgium	Dutch	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓
frb	Belgium	French	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ptb	Brazil	Brazilian	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓
frc	Canada	Canadian French	✓	✓	✗	✗	✗	✗	✗	✓	✓	✓
esl	Chile	Latin Spanish	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓
chs	China	Mandarin	✓	✗	✗	✗	✓	✓	✗	✓	✓	✓
eso	Colombia	Latin Spanish	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓
dan	Denmark	Danish	✓	✓	✗	✗	✓	✓	✗	✓	✓	✓
fin	Finland	Suomi	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓
fra	France	French	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
deu	Germany	German	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ell	Greece	Greek	✓	✗	✗	✗	✗	✗	✗	✗	✓	✓
zhh	Hong Kong	Cantonese	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓
hun	Hungary	Hungarian	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓
isl	Iceland	Icelandic	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
ind	India	UK English	✓	✗	✗	✓	✓	✓	✓	✗	✓	✓
ita	Italy	Italian	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
kor	Korea	Korean	✓	✗	✗	✗	✓	✓	✗	✓	✓	✓
esm	Mexico	Latin Spanish	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
nld	Netherlands	Dutch	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓
enz	New Zealand	UK English	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗
nor	Norway	Norwegian	✓	✓	✗	✗	✓	✓	✗	✓	✓	✓
esr	Peru	Latin Spanish	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓
plk	Poland	Polish	✓	✗	✗	✗	✗	✗	✗	✗	✓	✓
ptg	Portugal	Portuguese	✓	✓	✗	✗	✓	✗	✗	✓	✓	✓
rus	Russia	Russian	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓
ara	Saudi Arabia	UK English	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗
ens	South Africa	UK English	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗
esp	Spain	Spanish	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓
sve	Sweden	Svenska	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓
frs	Switzerland	French	✓	✓	✓	✗	✗	✗	✗	✓	✓	✓
cht	Taiwan	Putonghua	✓	✗	✗	✗	✓	✓	✗	✗	✗	✓
eng	UK	UK English	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
enu	USA	US English	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓
esv	Venezuela	Latin Spanish	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓

- **Pre-3.2:**
  These are the three character codes used by pre-3.2 IP Office systems to set locales. In IP Office 3.2 they have been replaced by selection of the required country or language by name. The special locale ***TTY*** may appear for some users. This is used in conjunction with Voicemail Pro and TTY devices for visually impaired users. Refer to the Voicemail Pro Installation manual for full details.
- **Locale:**
  The country represented by the locale.
- **Language:**
  The voicemail prompt language used for that locale.
- **Manager:**
  Indicates that the IP Office Manager application can run in the specific locale language. Manager uses the regional settings setting of the PC on which it is running to determine the required language.
- **Telephony:**
  The IP Office provides default telephony settings matching the normal expected defaults for the locale.
- **Phone Display:**
  Indicates that display messages from the IP Office to Avaya DS and IP phones can be sent using the appropriate language for that locale. Note that the user locale can be used to override the system locale for these messages. Note also that some phones support their own language selection options for menus displayed by the phone's software.
- **T3 Phones:**
  Menus for T3 Series phones available in the specific language.
- **Voicemail:**
  These columns indicate for which locales the different Avaya IP Office voicemail servers can provide the appropriate language prompts. In all cases, the system locale can be overridden by setting a different user locale.
  - **EVM:**
    Indicates that the locale is recognized by Embedded Voicemail and appropriate language prompts are then used. If an unsupported locale is used, Embedded Voicemail will attempt the best match using the first two characters of the locale.
  - **VM Lite:**
    Indicates that the locale is recognized by Voicemail Lite and appropriate language prompts are then used. For an unsupported locale is used, or one for which the necessary prompts are not available, Voicemail Lite will attempt the best match using a sequence of alternate locales.
  - **VM Pro:**
    Indicates that the locale is recognized by Voicemail Pro and appropriate language prompts are then used. For an unsupported locale is used, or one for which the necessary prompts are not available, Voicemail Lite will attempt the best match using a sequence of alternate locales. For example French Canadian (frc) fallback to French (fra), then US English (enu) and finally UK English (eng). Note that the languages available are selectable during Voicemail Pro installation. For further details refer to the Voicemail Pro manual.

Locales

A Locale being covered in this document does not imply approvals or availability.

- **Tones**
  The table below describes the different IP Office tones. The tones used are determined by the system locale setting. Note that in some locales, the same tone sound may be used for several purposes, for example for Busy and Fast Busy may be the same.

Tone	Description
Dial Tone	Normal dial tone.
Alternate Dial Tone	This tone is also known as 'interrupted', 'broken' or 'stutter' dial tone. It is used on extensions when the user has DND, Follow-Me, or Forward Unconditional set. It is also used on analog phones when the user has a call on hold.
Secondary Dial Tone	Used when accessing an external trunk using short codes that specify secondary dial tone. If no specific tone is defined, normal dial tone is used.
Busy Tone	Used when the number called is busy.
Fast Busy Tone	No channel.
Intercept Busy Tone	Unallocated number.
Ring Tone	Other end is ringing. This tone is also known as 'ringback'.
Call Waiting Tone	Used when a user has a call waiting enable and a is call waiting.
NU Tone	Number Unobtainable.

- **Frequency**
  All tone frequencies are in Hertz (Hz). Where a tone uses a combination of frequencies, the frequencies are shown separated by a **+** symbol. Where a tone uses alternating tones, the frequencies are shown separated by a **/** symbol.

- **Cadence**
  The tone cadence is indicated as either a sequence of on/off times or as a sequence of alternating frequency 1/frequency 2 times. Where a portion of the sequence is enclosed in **( )** symbols, it indicates a repeating sequence.

- **POT Port Settings**
  These settings are used for analog phone extensions. The settings used are determined by the system locale.

Analog Phone Settings	
Ring Current Frequency	The frequency of ring current.
Ring Current Cadence	The cadence of the ring current.
Minimum Flash Hook Time	The minimum time that loop current has to be broken to detect a timed break recall (TBR).
Maximum Flash Hook Time	The maximum time the loop current can be broken for it to be detected as a time break recall (TBR).
Default Caller Display Type	The type of caller display used when **Extn | Caller Display Type** is set to ***On***.
Default MWI Type	The type of message waiting indication used when **Extn | Message Waiting Indication Type** is set to ***On***.

Argentina (ess)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(2.0/4.0) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	480+620	(0.5/0.5) on/off.
Fast Busy Tone	480+620	(0.25/0.25) on/off.
Intercept Busy Tone	440/620	(0.25/0.25) alternating tones.
Ring Tone	440+480	(1.0/3.0) on/off.
Call Waiting Tone	480+620	(0.06/0.25/0.06/5.0) on/off.
NU	480+620	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/4.0) on/off.
Minimum Flash Hook Time	0.070s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Mexican Spanish

Australia (ena)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+440	Continuous.
Alternate Dial Tone	350+440	(1.0/0.5) on/off.
Secondary Dial Tone	350+440	Continuous.
Busy Tone	400	(0.375/0.375) on/off.
Fast Busy Tone	400	(0.375/0.375) on/off.
Intercept Busy Tone	400	Continuous.
Ring Tone	400+450	(0.4/0.2/0.4/2.0) on/off.
Call Waiting Tone	400	(0.1/30) on/off.
NU	400	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(0.4/0.2/0.4/2.0s) on/off.
Minimum Flash Hook Time	0.010s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

Belgium - Flemish (nlb)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(1.0/0.5) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	425	(0.5/0.5) on/off.
Fast Busy Tone	425	(0.5/0.5) on/off.
Intercept Busy Tone	425	(0.5/0.5) on/off.
Ring Tone	425	(1.0/3.0) on/off.
Call Waiting Tone	400	(0.08/0.175/0.08/10.0) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/3.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Dutch

Belgium - French (frb)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(1.0/0.5) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	425	(0.5/0.5) on/off.
Fast Busy Tone	425	(0.5/0.5) on/off.
Intercept Busy Tone	425	(0.5/0.5) on/off.
Ring Tone	425	(1.0/3.0) on/off.
Call Waiting Tone	400	(0.08/0.175/0.08/10.0) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/3.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	French

Brazil (ptb)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(2.0/4.0) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	425	(0.25/0.25) on/off.
Fast Busy Tone	425	(0.25/0.25) on/off.
Intercept Busy Tone	425	(0.1/0.1/0.1/0.1) on/off.
Ring Tone	425	(1.0/4.0) on/off.
Call Waiting Tone	425	(0.06/0.25/0.06/5) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/4.0s) on/off.
Minimum Flash Hook Time	0.100s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Brazilian Portuguese

Canada - French (frc)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+440	Continuous.
Alternate Dial Tone	350+440	(0.25/0.25) on/off.
Secondary Dial Tone	350+440	Continuous.
Busy Tone	480+620	(0.5/0.5) on/off.
Fast Busy Tone	480+620	(0.25/0.25) on/off.
Intercept Busy Tone	440/620	(0.25/0.25) alternating tones.
Ring Tone	440+480	(2.0/4.0) on/off.
Call Waiting Tone	480+620	(0.0/0.1/0.2/1200) on/off.
NU	480+620	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(2.0/4.0s) on/off.
Minimum Flash Hook Time	0.300s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Canadian French

Chile (esl)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(2.0/4.0) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	480+620	(0.5/0.5) on/off.
Fast Busy Tone	480+620	(0.25/0.25) on/off.
Intercept Busy Tone	440/620	(0.25/0.25) alternating tones.
Ring Tone	480+620	(1.0/3.0) on/off.
Call Waiting Tone	480+620	(0.06/0.25/0.06/5.0) on/off.
NU	480+620	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/3.0s) on/off.
Minimum Flash Hook Time	0.050s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Mexican Spanish

China (chs)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	440	Continuous.
Alternate Dial Tone	440	(0.4/0.04) on/off.
Secondary Dial Tone	440	Continuous.
Busy Tone	440	(0.35/0.35) on/off.
Fast Busy Tone	440	(0.7/0.7) on/off.
Intercept Busy Tone	440	(0.1/0.1/0.1/0.1/0.1/0.1/0.4/0.4) on/off.
Ring Tone	440	(1.0/4.0) on/off.
Call Waiting Tone	440	(0.4/4.0) on/off.
NU	440	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/4.0s) on/off.
Minimum Flash Hook Time	0.050s
Maximum Flash Hook Time	0.900s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

Colombia (eso)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(2.0/4.0) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	480+620	(0.5/0.5) on/off.
Fast Busy Tone	480+620	(0.25/0.25) on/off.
Intercept Busy Tone	440/620	(0.25/0.25 alternating tones.
Ring Tone	440+480	(1.0/3.0) on/off.
Call Waiting Tone	480+620	(0.06/0.25/0.06/5.0) on/off.
NU	480+620	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/3.0s) on/off.
Minimum Flash Hook Time	0.050s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Mexican Spanish

Denmark (dan)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(1.0/0.5) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	425	(0.25/0.25) on/off.
Fast Busy Tone	425	(0.25/0.25) on/off.
Intercept Busy Tone	425	(0.25/0.25) on/off.
Ring Tone	425	(0.75/7.5) on/off.
Call Waiting Tone	425	(0.08/10.0) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(0.75/7.5s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	DTMFC
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Danish

France (fra)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	330	Continuous.
Alternate Dial Tone	330	(1.0/0.5) on/off.
Secondary Dial Tone	330	Continuous.
Busy Tone	440	(0.5/0.5) on/off.
Fast Busy Tone	440	(0.5/0.5) on/off.
Intercept Busy Tone	440	(0.5/0.5) on/off.
Ring Tone	440	(1.5/3.5) on/off.
Call Waiting Tone	440	(0.1/8.0) on/off.
NU	440	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/3.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	French

Finland (fin)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(1.0/0.5) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	425	(0.25/0.25) on/off.
Fast Busy Tone	425	(0.25/0.25) on/off.
Intercept Busy Tone	425	(0.25/0.25) on/off.
Ring Tone	425	(1.0/5.0) on/off.
Call Waiting Tone	425	(0.08/120.0) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/5.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	DTMFA
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Finnish

Greece (ell)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+450	Continuous.
Alternate Dial Tone	350+450	(1.0/0.5) on/off.
Secondary Dial Tone	350+450	Continuous.
Busy Tone	400	(0.375/0.375) on/off.
Fast Busy Tone	400	(0.375/0.375) on/off.
Intercept Busy Tone	400	Continuous.
Ring Tone	400+450	(0.4/0.2/0.4/2.0) on/off.
Call Waiting Tone	400	(0.1/30.0) on/off.
NU	400	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(0.4/0.2/0.4/2.0) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	UK20
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

Germany (deu)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	(0.16/0.16/0.16/0.16/0.16/0.8) on/off.
Alternate Dial Tone	425	(1.0/0.5) on/off.
Secondary Dial Tone	425	(0.16/0.16/0.16/0.16/0.16/0.8) on/off.
Busy Tone	425	(0.48/0.48) on/off.
Fast Busy Tone	425	(0.48/0.48) on/off.
Intercept Busy Tone	425	(0.48/0.48) on/off.
Ring Tone	425	(0.945/4.05) on/off.
Call Waiting Tone	425	(0.08/0.2/0.08/10) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(0.945/4.05s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	German

Hong Kong (zhh)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+440	Continuous.
Alternate Dial Tone	350+440	(0.25/0.25) on/off.
Secondary Dial Tone	350+440	Continuous.
Busy Tone	480+620	(0.5/0.5) on/off.
Fast Busy Tone	480+620	(0.25/0.25) on/off.
Intercept Busy Tone	480/620	(0.25/0.25/0.25/0.25) on/off.
Ring Tone	440/620	(2.0/4.0) on/off.
Call Waiting Tone	480+620	(0.1/0.2/120.0) on/off.
NU	480+620	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(2.0/4.0s) on/off.
Minimum Flash Hook Time	0.300s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	–
Default Message Waiting Indication Type	–

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

Hungary (hun)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(1.0/0.5) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	425	(0.5/0.5) on/off.
Fast Busy Tone	425	(0.5/0.5) on/off.
Intercept Busy Tone	425	(0.5/0.5) on/off.
Ring Tone	425	(1.0/4.0) on/off.
Call Waiting Tone	425	(0.15/0.15/0.15/10.0) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/4.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

Iceland (isl)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+450	Continuous.
Alternate Dial Tone	350+450	(1.0/0.5) on/off.
Secondary Dial Tone	350+450	Continuous.
Busy Tone	400	(0.375/0.375) on/off.
Fast Busy Tone	400	(0.375/0.375) on/off.
Intercept Busy Tone	400	Continuous.
Ring Tone	400+450	(0.4/0.2/0.4/2.0) on/off.
Call Waiting Tone	400	(0.1/30.0) on/off.
NU	400	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(0.4/0.2/0.4/2.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	UK20
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

India (ind)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	400	Continuous.
Alternate Dial Tone	400	(0.25/0.25/0.25/3.25) on/off.
Secondary Dial Tone	400	Continuous.
Busy Tone	400	(0.75/0.75) on/off.
Fast Busy Tone	400	(0.25/0.25) on/off.
Intercept Busy Tone	400	(0.75/0.75) on/off.
Ring Tone	400	(0.4/0.2/0.4/2.0) on/off.
Call Waiting Tone	400	(0.2/0.1/0.2/7.5) on/off.
NU	400	(2.8/0.2) on/off.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(2.0/4.0s) on/off.
Minimum Flash Hook Time	0.050s
Maximum Flash Hook Time	0.300s
Default Caller Display Type	DTMFA
Default Message Waiting Indication Type	–

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

Italy (ita)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+425	Continuous.
Alternate Dial Tone	350+425	(1.0/0.5) on/off.
Secondary Dial Tone	425	(0.2/0.2/0.6/1.0) on/off.
Busy Tone	400	(0.5/0.5) on/off.
Fast Busy Tone	425	(0.5/0.5) on/off.
Intercept Busy Tone	425	(0.5/0.5) on/off.
Ring Tone	425	(1.0/4.0) on/off.
Call Waiting Tone	400	(0.1/4.9) on/off.
NU	400	(0.1/0.1) on/off.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/4.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Italian

Holland (nld)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(1.0/0.5) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	425	(0.48/0.48) on/off.
Fast Busy Tone	425	(0.48/0.48) on/off.
Intercept Busy Tone	425	(0.48/0.48) on/off.
Ring Tone	425	(0.945/4.05) on/off.
Call Waiting Tone	400	(0.08/10.0) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(0.945/4.05s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	DTMFD
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	NU
Feature Phone Clearing	Go Idle
Display Language	Dutch

Korea (kor)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+440	(1.0/0.25) on/off.
Alternate Dial Tone	350+440	(0.25/0.25) on/off.
Secondary Dial Tone	350+440	(1.0/0.25) on/off.
Busy Tone	480+620	(0.5/0.5) on/off.
Fast Busy Tone	480+620	(0.3/0.2) on/off.
Intercept Busy Tone	480+620	(0.125/0.025/0.125/1.5) on/off.
Ring Tone	440+480	(1.0/2.0) on/off.
Call Waiting Tone	480+620	(0.06/0.25/0.06/5.0) on/off.
NU	480+620	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/2.0s) on/off.
Minimum Flash Hook Time	0.050s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

Mexico (esm)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(2.0/4.0) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	480+620	(0.5/0.5) on/off.
Fast Busy Tone	480+620	(0.25/0.25) on/off.
Intercept Busy Tone	440/620	(0.25/0.25) alternating tones.
Ring Tone	440+480	(1.0/3.0) on/off.
Call Waiting Tone	480+620	(0.06/0.25/0.06/5.0) on/off.
NU	480+620	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/3.0s) on/off.
Minimum Flash Hook Time	0.050s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Mexican Spanish

New Zealand (enz)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+350	Continuous.
Alternate Dial Tone	350+350	(1.0/0.5) on/off.
Secondary Dial Tone	350+350	Continuous.
Busy Tone	400	(0.375/0.375) on/off.
Fast Busy Tone	400	(0.375/0.375) on/off.
Intercept Busy Tone	400	Continuous.
Ring Tone	400+450	(0.4/0.2/0.4/2.0) on/off.
Call Waiting Tone	400	(0.1/30.0) on/off.
NU	400	(0.075/0.1/0.075/0.1/0.075/0.1/0.075/0.4) on/off.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(0.4/0.2/0.4/2.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

Norway (nor)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(1.0/0.5) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	425	(0.5/0.5) on/off.
Fast Busy Tone	425	(0.5/0.5) on/off.
Intercept Busy Tone	425	(0.5/0.5) on/off.
Ring Tone	425	(1.0/1.5/1.0/4.0) on/off.
Call Waiting Tone	425	(0.08/0.6/0.08/10.0) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	1.0/1.5/(1.0/4.0) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	UK
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Norwegian

Peru (esr)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(2.0/4.0) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	480+620	(0.5/0.5) on/off.
Fast Busy Tone	480+620	(0.25/0.25) on/off.
Intercept Busy Tone	440/620	(0.25/0.25) alternating tones.
Ring Tone	440+480	(1.0/3.0) on/off.
Call Waiting Tone	480+620	(0.06/0.25/0.06/5.0) on/off.
NU	480+620	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/3.0) on/off.
Minimum Flash Hook Time	0.050s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Mexican Spanish

Poland (plk)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(1.0/0.5) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	425	(0.5/0.5) on/off.
Fast Busy Tone	425	(0.5/0.5) on/off.
Intercept Busy Tone	425	(0.5/0.5) on/off.
Ring Tone	425	(1.0/4.0) on/off.
Call Waiting Tone	425	(0.15/0.15/0.15/10.0) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/4.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

Portugal (ptg)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+450	Continuous
Alternate Dial Tone	350+450	(1.0/0.5) on/off.
Secondary Dial Tone	350+450	Continuous
Busy Tone	400	(0.375/0.375) on/off.
Fast Busy Tone	400	(0.375/0.375) on/off.
Intercept Busy Tone	400	Continuous
Ring Tone	400+450	(0.4/0.2/0.4/2.0) on/off.
Call Waiting Tone	400	(0.1/30.0) on/off.
NU	400	Continuous

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(0.4/0.2/0.4/2.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	UK20
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	NU
Feature Phone Clearing	Go Idle
Display Language	English

Russia (rus)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	Continuous.
Secondary Dial Tone	425	Continuous.
Busy Tone	425	(0.35/0.35) on/off.
Fast Busy Tone	425	(0.2/0.2) on/off.
Intercept Busy Tone	425	(0.35/0.35) on/off.
Ring Tone	425	(1.0/4.0) on/off.
Call Waiting Tone	425	(0.2/5.0) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/4.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	None
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Russian

Cyrillic display support for the Russian **rus** locale is limited on phones as follows:

- 6400 Series/4400 Series: Limited to phone menus and displayed names.
- 2400 Series/5400 Series: Limited to button labels and displayed name.
- 4600 Series/5600 Series: All display strings if using the double-byte build of phone firmware.
- EU24/EU24BL: No Cyrillic language support.

Saudi Arabia (ara)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+440	Continuous.
Alternate Dial Tone	350+440	(.25/.25) on/off.
Secondary Dial Tone	350+440	Continuous.
Busy Tone	480+620	(.5/.5) on/off.
Fast Busy Tone	480+620	(.25/.25) on/off.
Intercept Busy Tone	480/620	(.25/.25/.25/.25) on/off.
Ring Tone	440+480	(2/4) on/off.
Call Waiting Tone	480+620	(.1/.2/1200) on/off.
NU	480+620	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(2.0/4.0s) on/off.
Minimum Flash Hook Time	0.300s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

South Africa (ens)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+450	Continuous.
Alternate Dial Tone	350+450	(1.0/0.5) on/off.
Secondary Dial Tone	350+450	Continuous.
Busy Tone	400	(0.375/0.375) on/off.
Fast Busy Tone	400	(0.375/0.375) on/off.
Intercept Busy Tone	400	Continuous.
Ring Tone	400+450	(0.4/0.2/0.4/2.0) on/off.
Call Waiting Tone	400	(0.1/30.0) on/off.
NU	400	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(0.4/0.2/0.4/2.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	UK20
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

Spain (esp)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(1.0/0.5) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	425	(0.25/0.25) on/off.
Fast Busy Tone	425	(0.25/0.25) on/off.
Intercept Busy Tone	425	(0.25/0.25) on/off.
Ring Tone	425	(1.5/3.0) on/off.
Call Waiting Tone	425	(0.15/0.15/0.15/30.0) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.5/3.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Spanish

Sweden (sve)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(1.0/0.5) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	425	(0.25/0.25) on/off.
Fast Busy Tone	425	(0.25/0.25) on/off.
Intercept Busy Tone	425	(0.25/0.25) on/off.
Ring Tone	425	(1.0/5.0) on/off.
Call Waiting Tone	425	(0.08/120) on/off.
NU	425	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/5.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	DTMFA
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Swedish

Switzerland (frs)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+450	Continuous.
Alternate Dial Tone	350+450	(1.0/0.5) on/off.
Secondary Dial Tone	350+450	Continuous.
Busy Tone	400	(0.375/0.375) on/off.
Fast Busy Tone	400	(0.375/0.375) on/off.
Intercept Busy Tone	400	Continuous.
Ring Tone	400+450	(0.4/0.2/0.4/2.0) on/off.
Call Waiting Tone	400	(0.1/30.0) on/off.
NU	400	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(0.4/0.2/0.4/2.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	UK20
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	French

Taiwan (cht)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+440	Continuous.
Alternate Dial Tone	350+440	(0.1/0.1) on/off.
Secondary Dial Tone	350+440	Continuous.
Busy Tone	480+620	(0.5/0.5) on/off.
Fast Busy Tone	480+620	(0.25/0.25) on/off.
Intercept Busy Tone	480+620	(0.25/0.25/0.25/0.25) on/off.
Ring Tone	440+480	(2.0/4.0) on/off.
Call Waiting Tone	350+440	(0.25/0.25/0.25/5.25) on/off.
NU	480+620	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/2.0s) on/off.
Minimum Flash Hook Time	0.150s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	DTMFA/FSKD
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (UK)

United Kingdom (eng)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+450	Continuous.
Alternate Dial Tone	350+450	(1.0/0.5) on/off.
Secondary Dial Tone	350+450	Continuous.
Busy Tone	400	(0.375/0.375) on/off.
Fast Busy Tone	400	(0.375/0.375) on/off.
Intercept Busy Tone	400	Continuous.
Ring Tone	400+450	(0.4/0.2/0.4/2.0) on/off.
Call Waiting Tone	400	(0.1/30) on/off.
NU	400	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(0.4/0.2/0.4/2.0s) on/off.
Minimum Flash Hook Time	0.025s
Maximum Flash Hook Time	0.350s
Default Caller Display Type	UK
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	Busy
Feature Phone Clearing	Go Idle
Display Language	English (UK)

United States (enu)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	350+440	Continuous.
Alternate Dial Tone	350+440	(0.25/0.25) on/off.
Secondary Dial Tone	350+440	Continuous.
Busy Tone	480+620	(0.5/0.5) on/off.
Fast Busy Tone	480+620	(0.25/0.25) on/off.
Intercept Busy Tone	440/620	(0.25/0.25) alternating tone.
Ring Tone	440+480	(2.0/4.0) on/off.
Call Waiting Tone	480+620	(0.0/0.1/0.2/1200) on/off.
NU	400	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(2.0/4.0s) on/off.
Minimum Flash Hook Time	0.300s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	51V Stepped

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	English (US)

Venezuela (esv)

Tone	Frequency (Hz)	Cadence (seconds)
Dial	425	Continuous.
Alternate Dial Tone	425	(2.0/4.0) on/off.
Secondary Dial Tone	425	Continuous.
Busy Tone	480+620	(0.5/0.5) on/off.
Fast Busy Tone	480+620	(0.25/0.25) on/off.
Intercept Busy Tone	440/620	(0.25/0.25) alternating tone.
Ring Tone	440+480	(1.0/3.0) on/off.
Call Waiting Tone	480+620	(0.06/0.25/0.06/5.0) on/off.
NU	480+620	Continuous.

Analog Phone Settings	
Ring Current Frequency	25Hz
Ring Current Cadence	(1.0/3.0s) on/off.
Minimum Flash Hook Time	0.050s
Maximum Flash Hook Time	1.000s
Default Caller Display Type	FSKD
Default Message Waiting Indication Type	81V

Locale Specific Behavior	
Disconnect Tone	–
Feature Phone Clearing	Go Idle
Display Language	Mexican Spanish

Appendix C: CDR Records

CDR Record Formats

There are a number of formats available for CDR output. Each format consist of two types of records; date records and call detail records.

- **Date Records**
  A date record is sent each time a CDR connection is started and then once a day (at midnight). The date can be in month/day or day/month format, as selected on the **System | CDR** tab.
- **Call Detail Records**
  Call detail records are sent at the termination of a call. For some formats, additional fields can be selected using the ***Normal***, ***Enhanced***, or ***ISDN*** options on the **System | CDR** tab.

CDR Record Formats			
Record Format	**Record Options**		
	Normal	**Enhanced**	**ISDN**
Printer	✓	✓	✓
59-Character	✓	✗	✗
Expanded	✓	✓	✗
LSU	✓	✓	✓
LSU Expanded	✓	✗	✗
INT Direct	✓	✗	✗
INT ISDN	✓	✗	✗
INT Process	✓	✗	✗
Teleseer	✓	✓	✓
Unformatted	✓	✓	✗

CDR Record Fields

The following list describes the fields which, depending on the selected report format and options, may be included in the CDR records.

Those fields shown in *italics* are not supported by IP Office CDR. Where the report format includes such a field, the data is replaced by a space or spaces. Similarly fields not appropriate to the call type are replaced by a space or spaces as appropriate.

- **Access Code Dialed**
  The access code the user dialed to place an outgoing call. On IP Office this will be the digit used to trigger secondary dial tone if used.
- **Access Code Used**
  The number of the line used for an outgoing call.
- **Account Code**
  This field may contain a number to associate call information with projects or account numbers. For some formats, a long account code overwrites spaces on the record that are assigned to other fields.
- ***Attendant Console*** *- Not supported by IP Office CDR.*
- ***Authorization Code -*** *Not supported by IP Office CDR.*
- ***Bandwidth -*** *Not supported by IP Office CDR.*
- **BCC (Bearer Capability Class)**
  This field identifies the type of ISDN call. Any one of the following may appear in this field.
  - 0 = Voice Grade Data and Voice.
  - 1 = Mode 1 (56 Kbps synchronous data).
  - 2 = Mode 2 (less than 19.2 Kbps synchronous or asynchronous data).
  - 3 = Mode 3 (64 Kbps data for LDAP protocol).
  - 4 = Mode 0 (64 Kbps data clear).
- **Calling Number**
  For outgoing or intra-switch calls, this field contains the extension number of the originating telephone user. For incoming and tandem calls, this field contains the trunk access code in standard formats. The fifth digit is the first digit of a 5-digit dialing plan. In formats where the field is less than 7 digits, this also shows the trunk access code of the incoming call.

  This field shows the calling party number in Unformatted or Expanded records. If the calling party number is not available, this field is blank for both formats.
- **Calling Number/Incoming Trunk Access Code**
  For incoming calls this field contains the incoming trunk access code. For outgoing calls, this field contains the calling extension.
- **Carriage Return**
  The ASCII carriage return character followed by a line feed indicates the end of a call record.

- **Condition Code**
  The condition code indicates what type of call the record describes. For example, condition code C indicates a conference call, 7 indicates an ARS call, etc. The table below shows condition codes for most record formats. The 59-character format uses different condition codes from those used for other record types.

Code	59	Description
0	**-**	Identifies an outgoing intra-switch call (a call that originates and terminates on the switch).
9	**I**	Identifies an incoming external call.
A	**-**	Identifies an outgoing external call.
C	**L**	Identifies a conference call.
E	**N**	An incomplete external call, due to all trunks being busy or out of service. Incoming trunk calls to a busy terminal do *not* generate a CDR record.
G	**-**	Indicates a call terminating to a ringing station.
H	**-**	Indicates that a ringing call that was then abandoned.
I	**-**	Indicates a call attempt to a busy station.

CDR can also record the ring time to answer or abandon for incoming calls originated by the trunk group. In addition, CDR indicates if the incoming destination is busy. This record is separate from the normal call duration record printed for an answered call. This information is indicated by the condition code.

When an incoming call is terminated to an internal destination, the call is tracked from the time ringing feedback is given to the originator. If the call is answered, a CDR record is printed with the condition code **G** and the duration reflects the time between the start of ringing and the answer of the call. If the call is abandoned before being answered, the system prints a record with the condition code **H** and the duration reflects the time between the start of ringing and the time the call was abandoned. If the destination is busy, a CDR record is printed with the condition code **I** and a duration of 0.

- **Dialed Number**
  This field contains the number dialed. If it is an outgoing call, the field contains the number dialed by a system user. If it is an incoming call, the field contains the extension that was dialed. If more than 18 digits are dialed, the least significant digits (starting from the right) are truncated.
- **Duration**
  This is the duration of the call or call segment. It is recorded in hours, minutes and tenths of minutes. Calls are rounded down in 6-second increments. Therefore, a call of 5-second duration will be indicated as 0 duration. If 9999 appears in this field, this call was in progress when a time change was made in the switch.
- **Feature Flag**
  1 for a data call, 0 for voice calls.
- ***Format Code -*** *Not supported by IP Office CDR.*
- ***FRL -*** *Not supported by IP Office CDR.*
- **Incoming Circuit Id.**
  This field identifies the trunk used for an incoming call. For outgoing calls this field is blank.
- **Incoming Trunk Access Code**
  This field contains the access code of the incoming trunk group.
- ***ISDN Network Service*** *- Not supported by IP Office CDR.*
- ***ISDN CC*** *- Not supported by IP Office CDR.*
- ***IXC (Interexchange Carrier Code) -*** *Not supported by IP Office CDR.*

- **Line Feed**
  The ASCII line feed character follows a carriage return to terminate CDR records.
- ***MA-UUI (Message Associated User-to-User Signaling) -*** *Not supported by IP Office CDR.*
- ***Node Number*** *- Not supported by IP Office CDR.*
- **Null**
  Used to terminate and divide CDR Records (usually in triplets) when needed.
- **Outgoing Circuit Id.**
  For outgoing calls, this field identifies the trunk used.
- ***Packet Count*** *- Not supported by IP Office CDR.*
- ***PPM (Periodic Pulse Metering) -*** *Not supported by IP Office CDR.*
- ***Resource Flag*** *- Not supported by IP Office CDR.*
- **Space**
  The ASCII space character separates other CDR fields or fills unused record locations.
- ***TSC Flag*** *- Not supported by IP Office CDR.*
- **Time**
  This fields contains the time that the call ended, or the time that a user dropped from a multi-party call.

Call Splitting

Call splitting keeps track of calls where more than two parties are involved. These can be calls that are transferred or conferenced. When any of these situations arise, CDR produces a separate record for each new party involved in the call.

Conference

Caller **A** makes an incoming trunk call to switch party **B** (201). They talk for 2 minutes, then **B** conferences in **C** (202), and **D** (203). The entire group talks for another 8 minutes, at which point B drops off the call. This produces a record for segment **A–B**.

A, **C** and **D** continue to talk for another 5 minutes. All remaining parties drop, producing two more records; **A–C** and **A–D**. Note that each record shows the incoming trunk ID as the calling number.

Segment	Duration	Condition Code	Calling Number	Dialed Number
A-B	0:10:0	C	123	201
A-C	0:13:0	C	123	202
A-D	0:13:0	C	123	203

Transfer

A calls **B** (201). They talk for 1 minute, then **B** transfers the call to **C** (202). CDR generates a record for segment **A–B**. **A** and **C** talk for 5 minutes. CDR then generates a record for segment **A–C**.

Segment	Duration	Condition Code	Calling Number	Dialed Number
A-B	0:01:0	9	123	201
A-C	0:05:0	9	123	202

Trunk to Trunk Transfer

A calls switch party **B** (201), they talk for one minute. **B** transfers the call to public-network party **E** (5665555), they talk for 4 minutes. Note that the duration of the original incoming trunk call includes the time after the call was transferred to an outgoing trunk, until all trunk parties drop.

Segment	Duration	Condition Code	Access Code Used	Calling Number	Dialed Number
A-B	0:05:0	9		123	201
A-E	0:04:0	9	345	123	5665555

Record Formats

59 Character (Normal) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces.

Date Record	
Position	**Field Description**
1-2	Month *
3-4	Day *
5	Carriage return
6	Line feed
7-9	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-2	Time of day-hours
3-4	Time of day-minutes
5	Duration-hours
6-7	Duration-minutes
8	Duration-tenths of minutes
9	Condition code
10-12	Access code dialed
13-15	Access code used
16-30	Dialed number
31-35	Calling number
36-50	Account code
51	*FRL*
52	*IXC*
53-55	Incoming circuit ID
56-58	Outgoing circuit ID
59	Carriage return
60	Line feed
61-63	Null

Expanded (Normal) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Month *
4-5	Day *
6	Carriage return
7	Line feed
8-10	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-2	Time of day-hours
3-4	Time of day-minutes
6	Duration-hours
7-8	Duration-minutes
9	Duration-tenths of minute
11	Condition code
13-16	Access code dialed
18-21	Access code used
23-37	Dialed number
39-48	Calling number
50-64	Account code
66-72	*Authorization code*
77	*FRL*
79-81	Incoming circuit ID
83-85	Outgoing circuit ID
87	Feature flag
89-90	*Attendant console*
92-95	Incoming trunk access code
97-98	*Node number*
100-102	*ISDN NSV*
104-106	*IXC*
108	Bearer Capability Class
110	*MA-UUI*
112	*Resource flag*
114-117	*Packet count*
119	*TSC flag*
121-129	Reserved
131	Carriage return
132	Line feed
133-135	Null

Expanded (Enhanced) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Month *
4-5	Day *
6	Carriage return
7	Line feed
8-10	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-2	Time of day-hours
3-4	Time of day-minutes
6	Duration-hours
7-8	Duration-minutes
9	Duration-tenths of minutes
11	Condition code
13-16	Access code dialed
18-21	Access code used
23-37	Dialed number
39-48	Calling number
50-64	Account code
66-72	*Authorization code*
74-75	*Time in queue*
77	*FRL*
79-81	Incoming circuit ID
83-85	Outgoing circuit ID
87	Feature flag
89-90	*Attendant console*
92-95	Incoming TAC
97-98	*Node number*
100-102	*ISDN NSV*
104-107	*IXC*
109	Bearer Capability Class
111	*MA-UUI*
113	*Resource flag*
115-118	*Packet count*
120	*TSC flag*
122-123	*Bandwidth*
125-130	*ISDN CC (digits 1–6)*
131-135	*ISDN CC (digits 7–11)* /PPM count (1–5)
136-146	Reserved for future use
147	Carriage return
148	Line feed
149-151	Null

INT-Direct (Normal) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Month *
3-4	Day *
5	Carriage return
6	Line feed
7-9	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-2	Day of month
3-4	Month
5-6	Year
8-9	Time of day-hours
10-11	Time of day-minutes
13	Duration-hours
14-15	Duration-minutes
16	Duration-tenths of minutes
18	Condition code
20-22	Access code dialed
23-25	Access code used
27-44	Dialed number used
46-50	Calling number
52-66	Account code
68-72	*PPM count*
74-75	Incoming circuit ID
77-78	Outgoing circuit ID
79	Carriage return
80	Line feed

INT-ISDN (Normal) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Month *
3-4	Day *
5	Carriage return
6	Line feed
7-9	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-2	Time of day-hours
3-4	Time of day-minutes
5	Space
6	Duration-hours
7-8	Duration-minutes
9	Duration-tenths of minutes
11	Condition code
13-16	Access code dialed
18-21	Access code used
23-37	Dialed number
39-48	Calling number
50-64	Account code
66-72	*Authorization code*
74	Line feed
76	*FRL*
78	Incoming circuit ID (hundreds)
79	Incoming circuit ID (tens)
80	Incoming circuit ID (units)
82-84	Outgoing circuit ID
86	Feature flag
88-89	*Attendant console (1st digit)*
91-94	Incoming trunk access code
96-97	Node number
99-101	*ISDN NSV*
103-106	*IXC*
108	Bearer Capability Class
110	*MA-UUI*
112	*Resource flag*
114-119	Reserved
120-124	*PPM*
132	Carriage return
133	Line feed
134-136	Null

INT-Process (Normal) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Month *
3-4	Day *
5	Carriage return
6	Line feed
7-9	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-2	Format code
3-4	Time of day-hours
5-6	Time of day-minutes
7	Duration-hours
8-9	Duration-minutes
10	Duration-tenths of minutes
12	Condition code
14-16	Access code dialed
17-19	Access code used
21-38	Dialed number (digits 1–18)
39-43	Calling number (digits 1–5)
45-59	Account code (digits 1–15)
61	*IXC*
62	*FRL*
66-67	Incoming circuit ID (digits 1–2)
71-72	Outgoing circuit ID (digits 1–2)
74-78	*PPM (digits 1–5)*
79	Carriage return
80	Line feed
81-83	Null

LSU (Normal) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Hour *
3	Colon (:)
4-5	Minute *
6	Blank
7-8	Month *
9	Slash (/)
10-11	Day *
12	Carriage return
13	Line feed
14-16	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1	Duration-hours
2-3	Duration-minutes
4	Duration-tenths of minutes
5	Condition code
6-8	Access code dialed
9-11	Access code used
12-26	Dialed number
27-30	Calling number (digits 2–5)
31-35	Account code (first 5 digits)
36-42	*Authorization code* or digits 6–12 of account code
43-44	Space or digits 13–14 of account code
45	*FRL* or digit 15 of account code
46	Calling number (1st digit)
47-48	Incoming circuit ID (tens, units)
49	Feature flag
50-52	Outgoing circuit ID (tens, units, hundreds)
53	Incoming circuit ID (hundreds)
54	*IXC*
55	Carriage return
56	Line feed
57-59	Null

LSU (Enhanced) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Hour *
3	Colon (:)
4-5	Minute *
6	Blank
7-8	Month *
9	Slash (/)
10-11	Day *
12	Carriage return
13	Line feed
14-16	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1	Duration-hours
2-3	Duration-minutes
4	Duration-tenths of minutes
5	Condition code
6-9	*IXC*
10-12	Access code used
13-27	Dialed number
28-31	Calling number
32-35	Account code (digits 1–4)
36-42	*Authorization code* or digits 6–12 of account code
43-45	*ISDN NSV*
46	1st digit of a 5-digit calling number
47-48	Incoming circuit ID (tens, units)
49	Feature flag
50-52	Outgoing circuit ID (tens, units, hundreds)
53	Incoming circuit ID (hundreds)
54	*FRL*
55	Carriage return
56	Line feed
57-59	Null

LSU (ISDN) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Hour *
3	Colon (:)
4-5	Minute *
6	Blank
7-8	Month *
9	Slash (/)
10-11	Day *
12	Carriage return
13	Line feed
14-16	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1	Duration-hours
2-3	Duration-minutes
4	Duration-tenths of minutes
5	Condition code
6-8	*IXC*
9-11	Access code used
12-26	Dialed number
27-30	Calling number (digits 2–5)
31-35	Account code (digits 1–5)
36-42	*Authorization code* or digits 6–12 of account code
43-44	*ISDN NSV* or digits 13–14 of account code
45	*ISDN NSV (3rd digit)* *or FRL*, or digit 15 of account code
46	Calling number (1st digit)
47-48	Incoming circuit ID (tens, units)
49	Feature flag
50-52	Outgoing circuit ID (tens, units, hundreds)
53	Incoming circuit ID (hundreds)
54	*FRL*
55	Carriage return
56	Line feed
57-59	Null

LSU-Expanded CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Pos.	**Field Description**
1-2	Hour *
3	Colon (:)
4-5	Minute *
6	Blank
7-8	Month *
9	Slash (/)
10-11	Day *
12	Carriage return
13	Line feed
14-16	Null

*Leading 0 added if needed.

Call Details Record	
Pos.	**Field Description**
1-2	Time of day-hours
3-4	Time of day-minutes
6	Duration-hours
7-8	Duration-minutes
9	Duration-tenths of minutes
11	Condition code
13-15	Access code dialed
16-18	Access code used
20-34	Dialed number
36-39	Calling number
41-45	Account code
47-53	*Authorization code*
58	*FRL*
60	Calling number (1st digit)
62-63	Incoming circuit ID (tens, units)
65	Feature flag
67-68	Outgoing circuit ID (tens, units)
70	Outgoing circuit ID (hundreds)
72	Incoming circuit ID (hundreds)
73	*IXC*
74	Carriage return
75	Line feed
76-78	Null

Printer (Normal) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Month *
4-5	Day *
6	Carriage return
7	Line feed
8-10	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-2	Time of day-hours
3-4	Time of day-minutes
6	Duration-hours
7-8	Duration-minutes
9	Duration-tenths of minutes
11	Condition code
13-15	Access code dialed
17-19	Access code used
21-35	Dialed number
37-41	Calling number
43-57	Account code
59-65	*Authorization code*
70	*FRL*
72	*IXC*
74-76	Incoming circuit ID
78-80	Outgoing circuit ID
82	Feature flag
83	Carriage return
84	Line feed

Printer (Enhanced) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Month *
4-5	Day *
6	Carriage return
7	Line feed
8-10	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-2	Time of day-hours
3-4	Time of day-minutes
6	Duration-hours
7-8	Duration-minutes
9	Duration-tenths of minutes
11	Condition code
13-16	*IXC*
18-21	Access code used
23-37	Dialed number
39-43	Calling number
45-59	Account code
61-67	*Authorization code*
69-71	*ISDN NSV*
73	*FRL*
75-77	Incoming circuit ID
79-81	Outgoing circuit ID
83	Feature flag
84	Carriage return
85	Line feed

Printer (ISDN) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Month *
4-5	Day *
6	Carriage return
7	Line feed
8-10	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-2	Time of day-hours
3-4	Time of day-minutes
6	Duration-hours
7-8	Duration-minutes
9	Duration-tenths of minutes
11	Condition code
13-15	*IXC*
17-19	Access code used
21-35	Dialed number
37-41	Calling number
43-57	Account code
59-65	*Authorization code*
67-68	*ISDN NSV (hundreds, tens)*
70	*ISDN NSV (units)*
72	*FRL*
74-76	Incoming circuit ID
78-80	Outgoing circuit ID
82	Feature flag
83	Carriage return
84	Line feed

Teleseer (Normal) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Month *
3-4	Day *
5	Carriage return
6	Line feed
7-9	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-3	Space
4-5	Time of day-hours
6-7	Time of day-minutes
8	Duration-hours
9-10	Duration-minutes
11	Duration-tenths of minutes
12	Condition code
13-15	Access code dialed
16-18	Access code used
19-33	Dialed number
34-38	Calling number
39-53	Account code
54	*FRL*
55	*IXC*
56-58	Incoming circuit ID
59-61	Outgoing circuit ID
62	Feature flag
63-69	*Authorization code*
70-76	Space
77	Carriage return
78	Line feed
79-81	Null

Teleseer (Enhanced) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Month *
3-4	Day *
5	Carriage return
6	Line feed
7-9	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-3	Space
4-5	Time of day-hours
6-7	Time of day-minutes
8	Duration-hours
9-10	Duration-minutes
11	Duration-tenths of minutes
12	Condition code
13-16	*IXC*
17-19	Access code used
20-34	Dialed number
35-39	Calling number
40-54	Account code
55	*ISDN NSV (units)*
56	*FRL*
57-59	Incoming circuit ID
60-62	Outgoing circuit ID
63	Feature flag
64-70	*Authorization code*
71-72	*ISDN NSV (hundreds, tens)*
77	Carriage return
78	Line feed
79-81	Null

Teleseer (ISDN) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Month *
3-4	Day *
5	Carriage return
6	Line feed
7-9	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-3	Space
4-5	Time of day-hours
6-7	Time of day-minutes
8	Duration-hours
9-10	Duration-minutes
11	Duration-tenths of minutes
12	Condition code
13-15	*IXC*
16-18	Access code used
19-33	Dialed number
34-38	Calling number
39-53	Account code
54	*ISDN NSV (units)*
55	*FRL*
56-58	Incoming circuit ID
59-61	Outgoing circuit ID
62	Feature flag
63-69	*Authorization code*
70-71	*ISDN NSV (hundreds, tens)*
77	Line feed
78-80	Null

Unformatted (Normal) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Pos.	**Field Description**
1-2	Hour *
3	Colon (:)
4-5	Minute *
6	Blank
7-8	Month *
9	Slash (/)
10-11	Day *
12	Carriage return
13	Line feed
14-16	Null

*Leading 0 added if needed.

Call Details Record	
Pos.	**Field Description**
1-2	Time of day-hours
3-4	Time of day-minutes
5	Duration-hours
6-7	Duration-minutes
8	Duration-tenths of minutes
9	Condition code
10-13	Access code dialed
14-17	Access code used
18-32	Dialed number
33-42	Calling number
43-57	Account code
58-64	*Authorization code*
67	*FRL*
68-70	Incoming circuit ID
71-73	Outgoing circuit ID
74	Feature flag
75-76	*Attendant console*
77-80	Incoming TAC
81-82	Node number
83-85	*ISDN NSV*
86-88	*IXC*
89	Bearer Capability Class
90	*MA-UUI*
91	*Resource flag*
92-95	*Packet count*
96	*TSC flag*
97-100	Reserved
101	Carriage return
102	Line feed
103-105	Null

Unformatted (Enhanced) CDR Record Formats

Those fields shown in *italics* are not supported by IP Office CDR and are replaced by a space or spaces. Those positions not listed are spaces.

Date Record	
Position	**Field Description**
1-2	Hour *
3	Colon (:)
4-5	Minute *
6	Blank
7-8	Month *
9	Slash (/)
10-11	Day *
12	Carriage return
13	Line feed
14-16	Null

*Leading 0 added if needed.

Call Details Record	
Position	**Field Description**
1-2	Time of day-hours
3-4	Time of day-minutes
5	Duration-hours
6-7	Duration-minutes
8	Duration-tenths of minutes
9	Condition code
10-13	Access code dialed
14-17	Access code used
18-32	Dialed number
33-42	Calling number
43-57	Account code
58-64	*Authorization code*
65-66	*Time in queue*
67	*FRL*
68-70	Incoming circuit ID
71-73	Outgoing circuit ID
74	Feature flag
75-76	*Attendant console number*
77-80	Incoming TAC
81-82	*Node number*
83-87	*ISDN NSV*
88-89	*IXC*
90	Bearer Capability Class
91	*MA-UUI*
92	*Resource flag*
93-96	*Packet count*
97	*TSC flag*
98-99	*Bandwidth*
100-105	*ISDN CC (digits 1–6)*
106-110	*ISDN CC (digits 7–11)/PPM*
111-114	Reserved for future use
115	Carriage return
116	Line feed
117-119	Null

Appendix D: Miscellaneous

Group Pane Columns

For each type of entry, the details are shown in the group pane can be customized. Also the order of the column can be adjusted.

1. Right-click on the pane and select **Customize Columns**.
2. To add a column, selects its name in the left-hand **Available Columns** list and click **>>** to move it to the right-hand **Selected Columns** list.
3. To remove a column, select its name in the right-hand **Selected Columns** list and click **<<** to move it to the left-hand **Available Columns** list.
4. To change the order of the **Selected Columns**, click on a column name and use the **^** and **V** controls.
5. Click **OK**.

The following are the fields selectable for use in the group pane for each type of entry.

BOOTP
Mac
IP Address
Filename
Enabled
Time Offset

Operator
Name

System
Name
IP Address
Mac
Modified
Platform Type
Requires Reboot

Line
Line Number
Line Type
Line Sub Type
International Prefix
National Prefix
Number of channels
Number of data
Number of outgoing
Number of voice
Prefix
TEI

Control Unit
Dev No
Dev Type
Version
Class
Interconnect Number
IP Address
Mac
Module Number
Serial Number

Extension
Id
Extension
Module
Port
Caller Display Type
Phone Type

User
Name
Extension
Auto Recording Mailbox
Call Waiting On
Coverage Time
Do Not Disturb
Follow Me Number
Forward Busy Number
Forward Hunt Group Calls
Forward Number
Forward on Busy
Forward on no Answer
Forward Unconditional
Full Name
Manual Recording Mailbox
No Answer Time
Out of hours User Rights
Outgoing Call Barred
Phone Type
Phone Manager Type
Priority
User Rights
User Rights Time Profile
Voicemail On

HuntGroup
Auto VRL
Broadcast
Call Record Time Profile
Call Waiting On
Fallback Group
Group Ring Mode
Night Service Fallback Group
No Answer Time
Out Of Service Fallback Group
Overflow Time
Queue Ring Time
Queuing Limit
Queuing On
Record Inbound Calls
Service Mode
Time Profile
Voicemail On

Short Code
Code
Telephone Number
Feature
Line Group Id
Force Account Code
Force Authorization Code
Locale

Service
Name
Account Name
Telephone Number
Active Idle Period
Fallback Service
Firewall Profile
Idle Period
Max. Channels
Min. Call Time
Min. Channels
Time Profile

RAS
Name
Extension
Com Port
TA Enable

Incoming Call Route
Line Group Id
Incoming Number
Destination
Bearer Capability
CLI
Fallback Extn
Locale
Night Service Destination
Night Service Time Profile
Priority
Sub Address

WanPort
Name
Speed
Mode
RAS Name

Directory
Name
Number

Time Profile
Name

Firewall Profile
Name
DNS
Finger
FTP
Gopher
H323
HTTP
IGMP
IRC
NNTP
POP3
PPTP
RSVP
SMTP
SNMP
Telnet
Time

IP Route
IP Address
IP Mask
Gateway
Destination
Metric
Proxy ARP

Least Cost Routing
Name
Time Profile

Account Code
Account Code
CLI
Auto VRL
Record Inbound
Record Outbound
Time Profile

License
License
Status
Expires
Instances
Licence Key

Tunnel
Name
Local Account Name
Remote Account Name
Local IP Address
Remote IP Address

Logical LAN
Name
Enable NAT
Firewall Profile
Gateway IP Address
Gateway MAC Address
IP Address
IP Mask

User Restriction
Name
Priority
External Call Barring

Authorization Code
Authorization Code
User Name
User Rights

User Rights
Name
Priority
External Call Barring

Auto Attendant
Name
AM Short Code
AM Time Profile
Evening Short Code
Evening Time Profile
Greeting Short Code
Max. Inactivity
PM Short Code
PM Time Profile

E911 System
Zone Name
Extensions
Name
Stations
Trunks

Index

D

E

G

H

I

M

N

O

P

Q

R

S

X

Y

Z

Any comments or suggestions regarding this document should be sent to "wgctechpubs@avaya.com".

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