



IP Office 3.2

Installation Manual

Notice

While reasonable efforts were made to ensure that the information in this document was complete and accurate at the time of printing, Avaya Inc. can assume no liability for any errors. Changes and corrections to the information in this document may be incorporated in future releases.

Documentation Disclaimer

Avaya Inc. is not responsible for any modifications, additions, or deletions to the original published version of this documentation unless such modifications, additions, or deletions were performed by Avaya.

Link Disclaimer

Avaya Inc. is not responsible for the contents or reliability of any linked Web sites referenced elsewhere within this Documentation, and Avaya does not necessarily endorse the products, services, or information described or offered within them. We cannot guarantee that these links will work all of the time and we have no control over the availability of the linked pages.

License

USE OR INSTALLATION OF THE PRODUCT INDICATES THE END USER'S ACCEPTANCE OF THE TERMS SET FORTH HEREIN AND THE GENERAL LICENSE TERMS AVAILABLE ON THE AVAYA WEBSITE AT <http://support.avaya.com/LicenseInfo/> ("GENERAL LICENSE TERMS"). IF YOU DO NOT WISH TO BE BOUND BY THESE TERMS, YOU MUST RETURN THE PRODUCT(S) TO THE POINT OF PURCHASE WITHIN TEN (10) DAYS OF DELIVERY FOR A REFUND OR CREDIT.

Avaya grants End User a license within the scope of the license types described below. The applicable number of licenses and units of capacity for which the license is granted will be one (1), unless a different number of licenses or units of capacity is specified in the Documentation or other materials available to End User. "Designated Processor" means a single stand-alone computing device. "Server" means a Designated Processor that hosts a software application to be accessed by multiple users. "Software" means the computer programs in object code, originally licensed by Avaya and ultimately utilized by End User, whether as stand-alone Products or pre-installed on Hardware. "Hardware" means the standard hardware Products, originally sold by Avaya and ultimately utilized by End User.

License Type(s): Designated System(s) License (DS).

End User may install and use each copy of the Software on only one Designated Processor, unless a different number of Designated Processors is indicated in the Documentation or other materials available to End User. Avaya may require the Designated Processor(s) to be identified by type, serial number, feature key, location or other specific designation, or to be provided by End User to Avaya through electronic means established by Avaya specifically for this purpose.

Copyright

Except where expressly stated otherwise, the Product is protected by copyright and other laws respecting proprietary rights. Unauthorized reproduction, transfer, and or use can be a criminal, as well as a civil, offense under the applicable law.

Third-Party Components

Certain software programs or portions thereof included in the Product may contain software distributed under third party agreements ("Third Party Components"), which may contain terms that expand or limit rights to use certain portions of the Product ("Third Party Terms"). Information identifying Third Party Components and the Third Party Terms that apply to them is available on Avaya's web site at: <http://support.avaya.com/ThirdPartyLicense/>

Avaya Fraud Intervention

If you suspect that you are being victimized by toll fraud and you need technical assistance or support, call Technical Service Center Toll Fraud Intervention Hotline at +1-800-643-2353 for the United States and Canada. Suspected security vulnerabilities with Avaya Products should be reported to Avaya by sending mail to: securityalerts@avaya.com.

For additional support telephone numbers, see the Avaya Support web site (<http://www.avaya.com/support>).

Trademarks

Avaya and the Avaya logo are registered trademarks of Avaya Inc. in the United States of America and other jurisdictions. Unless otherwise provided in this document, marks identified by "®," "™" and "SM" are registered marks, trademarks and service marks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners.

Documentation information

For the most current versions of documentation, go to the Avaya Support web site (<http://www.avaya.com/support>) or the IP Office Knowledge Base (<http://marketingtools.avaya.com/knowledgebase/>).

Avaya Support

Avaya provides a telephone number for you to use to report problems or to ask questions about your contact center. The support telephone number is 1- 800- 242- 2121 in the United States. For additional support telephone numbers, see the Avaya Web site: <http://www.avaya.com/support>.

Table of Contents

IP Office Installation.....	7	Importing and Exporting Settings.....	73
Installing IP Office.....	7	A. Basic Installation.....	77
Equipment Availability	8	01. Unpacking Equipment.....	77
RoHS	8	02. Installing the IP Office Admin Applications...	78
System Overview	9	03. Control Unit Power Up	80
System Overview.....	9	04. Connecting the Manager PC.....	82
IP Office System Components	10	05. Receiving a Configuration (Pre-3.2).....	84
Control Units.....	12	06. Checking the System Using System Monitor	86
Control Unit Summary	13	07. Fitting VCM Cards.....	88
Trunk Cards.....	14	08. Fitting Modem Cards.....	90
Internal Cards.....	16	09. Fitting Trunk Interface Cards.....	92
External Expansion Modules	20	Stage 9b. Grounding E1R2 Coaxial Connections	94
Power Supplies.....	22	Stage 9c. Fitting Small Office Edition Trunk Cards.....	95
Power Cords.....	23	10. Rack Mounting Instructions.....	96
Power Supply Backup (UPS).....	24	11. Adding Expansion Modules	98
Cables	26	12. Adding a WAN3 Module.....	100
Standard IP Office Cables	27	13. Shelf/Wall Mounting (SOE).....	102
Grounding.....	28	14. Grounding (Earthing)	104
Out-of-Building Connections/Lightning Protection	30	15. Upgrading the Core Software.....	106
Rack Mounting.....	32	16. Configuring Security Settings.....	112
Feature Key Dongles.....	34	17. Receiving a Configuration (3.2).....	116
License Keys	35	B. Phone Installation.....	119
IP Office Phones.....	36	Installing Phones.....	119
IP Office Core Software (BIN Files).....	38	19. Installing 2400/5400 Series Phones.....	120
Supported Country Locales	40	Installing an EU24 Add-On	125
IP Office Programming and Maintenance Applications	42	Basic Button Programming	127
User Applications.....	43	Changing Extension Numbers	129
Voicemail Applications.....	44	Swapping Extension Users	131
Call Logging Applications	45	C. External Trunk Configuration.....	133
Call Center Applications	46	Trunk Configuration	133
CTI Applications	47	Clock Quality.....	134
IP Office Application CD/DVD's	48	Unused Trunks.....	135
Specification for IP Office Application PC's	49	Prefix Dialing	137
Server Applications Dependencies.....	50	D. Additional Processes.....	141
Client Applications Dependencies	51	Creating a WAN Link	141
Operating Systems for IP Office 3.2	52	Music on Hold (MOH).....	142
Windows Operating System Service Pack Support	52	Grounding and Protection Devices	144
VoIP and Network Assessments	53	Out-of-Building Connections/Lightning Protection	144
Training.....	54	DS Phone IROB Installation	146
Web Sites	55	Analog Phone Barrier Boxes	147
Planning.....	57	Rack Mounting Barrier Boxes.....	149
Space Requirements	58	External Output Port	150
Environmental requirements.....	60	Using the External Output (Door) Port	150
Tools and Parts Required.....	61	EXT O/P Port.....	151
System Details.....	62	Licensing.....	152
IP403/IP406 V2 Control Unit Ports	68	License Keys.....	152
Small Office Edition Control Unit	69	Feature Key Dongles.....	153
Expansion Module: #__	70	Installation Requirements.....	154
Pre-Configuration	71	Serial Port Feature Key Installation.....	155
Off Line Configuration.....	71		
Creating a New Configuration	72		

Parallel Port / USB Feature Key Installation.....	156	20DT DECT.....	211
So8 BRI Module	157	2402D.....	212
So8 Example 1.....	157	2410D.....	213
So8 Example 2: Video Conference.....	158	2420D.....	214
Polycom Video Module Settings.....	159	3616	215
SNMP	160	3620	216
SNMP Introduction.....	160	3626	217
Installing the IP Office MIB Files	161	3701	218
HP Open View Network Node Manager..	161	3711	219
CastleRock SNMPc 5.1.6c and earlier	162	3810	220
CastleRock SNMPc V5.0.1	162	4406D+.....	221
Enabling SNMP and Polling Support	163	4412D+.....	222
Enabling SNMP Trap Sending.....	164	4424D+.....	223
Trap Generation.....	165	4601	224
RFC1215 Generic SNMP Traps.....	165	4602IP, 4602SW	225
IPO-MIB.....	165	4606IP.....	226
Maintenance	167	4610SW.....	227
DTE Port Maintenance	167	4612	228
DTE Port Overview	167	4620IP, 4620SW	229
DTE Port	168	4621SW.....	230
DTE Cables.....	168	4624	231
Erasing the Configuration	169	4625SW.....	232
Defaulting Security Settings.....	171	5402D.....	233
Erasing the Operational Software	172	5410	234
System Components	175	5420D.....	235
System Components	175	5601	236
Control Units.....	176	5602IP, 5602SW	237
Control Unit Summary.....	176	5610SW.....	238
IP412 Control Unit.....	177	5620	239
IP406 V2 Control Unit	179	5621	240
IP406 V1 Control Unit	181	6408D.....	241
IP403 Control Unit.....	183	6416D.....	242
Small Office Edition.....	185	6424D.....	243
Internal Cards	187	T3 Classic.....	244
Modem Cards	187	T3 Comfort	245
Wireless Card	188	T3 Compact.....	246
Embedded Voicemail Memory Cards	189	TransTalk 9040	247
Voice Compression Module Cards (VCM's).....	190	Phone Add-Ons	248
Trunks Cards	192	4450	248
Analog Trunk Card Universal (ATM4U)	192	EU24	249
Analog Trunk Card (ATM4).....	193	EU24BL.....	250
BRI Trunk Cards (Quad BRI).....	194	T3 DSS.....	251
T1 PRI Trunk Cards.....	194	XM24	252
E1 PRI Trunk Cards.....	195	201B Recorder Interface Module	253
WAN Trunk Card.....	195	Applications.....	254
E1R2 PRI Trunk Cards	196	Call Status	254
Expansion Modules	197	Compact Business Center (CBC).....	255
IP400 Analog Trunk Module	197	Compact Contact Center (CCC).....	256
IP400 Digital Station V2	199	Conferencing Center	258
IP400 Digital Station V1	201	ContactStore	259
IP400 Phone Module V2	203	Delta Server	260
IP400 Phone Module	205	Feature Key Server	261
IP400 So8 Module	207	Manager	262
IP400 WAN3 Module	209	Monitor	263
Phones	211	Phone Manager.....	264
		SoftConsole.....	266
		Voicemail Lite	267
		Voicemail Pro	268

Licence Keys	270	2400 Series Phones	311
License Keys CCC.....	270	3600 Series Phones	311
License Keys General.....	271	3700 Series Phones	312
License Keys CTI.....	272	3810 Phones.....	312
License Keys Phone Manager	273	4400 Series Phones	312
License Keys Voicemail	274	4600 Series Phones (Old Style)	313
IP DECT Licenses.....	275	4600 Series Phones (New Style).....	313
45-Day Trial Licenses	276	5400 Series Phones	314
Ports and Cables	277	5600 Series Phones	314
Cables.....	277	6400 Series Phones	314
Standard IP Office Cables.....	278	T3 Series Phones (Upn)	315
IP Office Port Types.....	279	T3 Series Phones (IP)	315
ANALOG Port	280	CCC Wallboards	316
AUDIO Port.....	281	Spares	316
BRI Port (So).....	282	Safety Statements	317
BRI Port	283	Safety and Homologation Statements.....	317
PRI/BRI Trunk Cable	283	Lithium Batteries	317
DC I/P Port.....	284	Lightning Protection/Hazard Symbols	318
DS Ports.....	285	Trunk Interface Modules	319
Structured Cabling Line Cord	285	Further Information and Product Updates.....	320
DTE Port	286	Support Telephone Numbers	320
DTE Cables	286	Compliance with FCC Rules	321
EXPANSION Ports.....	287	Port Safety Classification	322
Expansion Interconnect Cable	287	EMC Cautions.....	323
EXT O/P Port	288	89/336/ EEC (EMC Directive) CISPR	
LAN Port	289	22:1993 including A1 + A2, AS/NZ	
LAN Cables	289	3548:1995 (ROW)	323
PF Port.....	290	Federal Communications Commission	
PHONE (POT) Port.....	291	(FCC).....	323
Structured Cabling Line Cord	291	Canadian Department of Communications	
PRI Port	292	(DOC).....	323
PRI/BRI Trunk Cable	292	EMC Caution for China	323
WAN Port.....	293	Regulatory Instructions for Use.....	324
V.24 WAN Cable.....	294	IP Office Operation in Australia	324
V.35 WAN Cable.....	295	Industry Canada Notification (DoC).....	325
X.21 WAN Cable.....	296	IP Office Operation in EU	325
SAP Codes	297	IP Office Operation in New Zealand.....	325
Equipment Availability.....	297	FCC Notification	326
RoHS	297	Index.....	327
SAP Codes	298		
IP Office Control Units.....	298		
External Expansion Modules.....	298		
Power Supply Units	299		
Power Cords.....	301		
Internal Cards.....	303		
Trunks Cards.....	304		
Cables	305		
Rack Mounting	305		
Barrier Boxes.....	305		
Feature Keys Dongles.....	305		
CCC Licenses	306		
General Licenses	307		
CTI Licenses	307		
Phone Manager Licenses.....	308		
Voicemail Licenses.....	308		
IP DECT Licenses	309		
45-Day Trial Licenses.....	309		
IP Office Application CDs	310		

IP Office Installation

Installing IP Office

This documentation is intended to assist with the installation of the core components of an Avaya IP Office telephone system. It describes those components and factors that should be considered for an installation.

- The IP Office is a converged voice and data communications system. It should therefore only be installed by persons with telephony and IP data network experience.
- Installers must be trained on IP Office systems. Through its Avaya University (AU), Avaya provides a range of training courses including specific IP Office implementation and installation training. It also provides certification schemes for installers to achieve various levels of IP Office accreditation. See Training.
- It is the installer's responsibility to ensure that all installation work is done in accordance with local and national regulations and requirements. It is also their responsibility to accurately establish the customer's requirements before installation and to ensure that the installation meets those requirements.
- You should read and understand this documentation before installation. You should also obtain and read the Avaya Technical Bulletins relevant to recent IP Office software and hardware releases to ensure that you are familiar with any changes to the IP Office equipment and software.

The following components of IP Office are outside the range of a basic IP Office installation. They are covered by separate installation and configuration documentation. If those components are to be part of the IP Office system installation, that documentation should be obtained, read and understood prior to the installation.

- **4600/5600 Series IP Phone Installation.**
- **Embedded Voicemail Installation.**
- **Voicemail Lite Installation.**
- **Voicemail Pro Installation.**
- **Delta Server (SMDR) Installation.**
- **Compact Business Center (CBC) Installation.**
- **Compact Contact Center (CCC) Installation.**
- **Contact Store Installation.**
- **Compact DECT Installation.**
- **IP DECT Installation.**
- **3600 Series Wireless IP Installation.**
- **IP Office Applications Installation.** (Phone Manager, SoftConsole and Conference Center)

Equipment Availability

SAP codes and details of specific items within this documentation are for reference only. Items available in any specific locale should be confirmed against the local Avaya IP Office price list for that locale. The local price list may also include additional items relative to the installation requirements of that locale.

RoHS

RoHS is an European Union directive for the Removal of Certain Hazardous Substances from Electrical and Electronic Equipment. Similar legislation has been or is being introduced in a number of other countries. Avaya has decided to make its global product range compliant with the requirements of RoHS. The actions taken vary

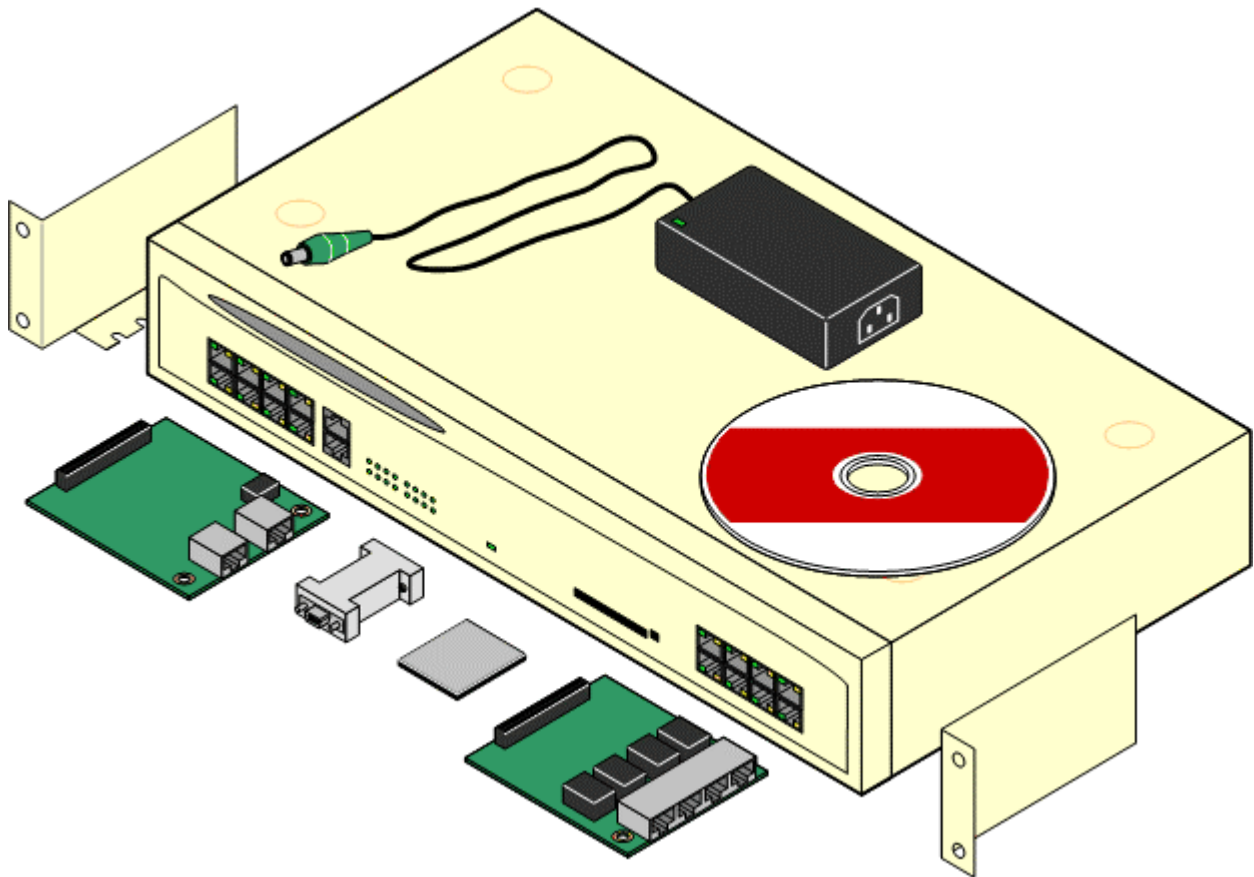
- In some cases equipment has been discontinued and is no longer available from Avaya.
- In some cases new manufactured stock has been made RoHS compliant and keeps its existing SAP code.
- In other cases the equipment has been replaced by a new RoHS compliant alternative with new SAP codes.

The SAP codes within this document are for RoHS compliant equipment unless otherwise stated.

System Overview

System Overview

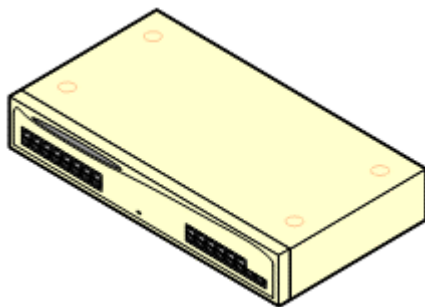
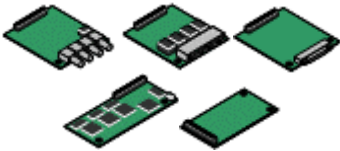
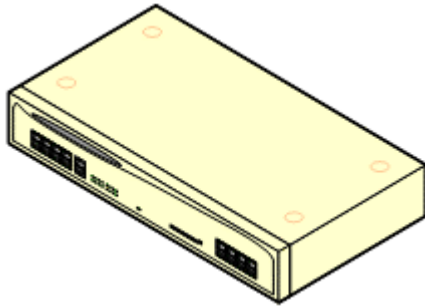
This section looks at the components that collectively form an IP Office system. This includes aspects such as cabling and the need for additional non-IP Office equipment.



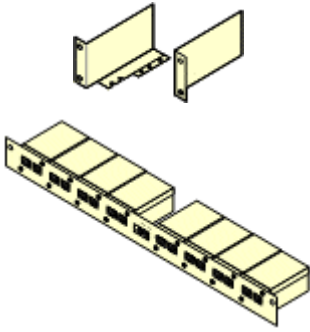
This section provides just a general description of individual units. For greater detail refer to the **System Components** section.

IP Office System Components

The following are the typical components of an IP Office system.



- **IP Office Control Unit**
The core component of any IP Office system. It holds the main configuration and performs the routing and switching for telephone calls and data traffic. Each control unit includes LAN ports, slots for additional internal cards and in some cases integral digital and analog phone ports.
- **Trunk Cards**
Fitted internally within the control unit. Cards are available for a variety of trunks types; Analog, E1, E1R2, T1, J1, BRI, etc.
- **Internal Cards**
Additional facilities can be added internally to the control unit. Includes modem, voice compression and wireless cards.
- **External Expansion Modules**
Additional extension and trunk ports can be added using a number of external expansion modules. The number of expansion modules supported depends on the control unit.
 - **Small Office Edition:** None.
 - **IP403:** 3 expansion modules plus 2 WAN3 modules.
 - **IP406 V1:** 6 expansion modules plus 2 WAN3 modules.
 - **IP406 V2:** 6 expansion modules plus 2 WAN3 modules.
 - **IP412:** 12 expansion modules plus 2 WAN3 modules.
- **Power Supplies**
The IP Office control unit and external expansion modules are each supplied with an external power supply unit and require a power outlet. In addition, IP phones and some phone add-ons also require their own power supply units.
- **Power Cords**
Depending on the locale, different power cords need to be ordered for the external power supply units.
- **Cables**
The IP Office is designed primarily for connection to a structured cabling system using CAT3 UTP cabling. This approach allows telephone and data traffic to share the same wiring infrastructure and simplifies equipment moves.



- **Rack Mounting Kits**

The IP Office control units and expansion modules are designed to be stacked free-standing. However they can also be rack mounted using optional rack mounting kits. The Small Office Edition cannot be rack mounted but can be wall mounted if required.

- **IP Office Rack Mounting Kit**

One kit is required for each control unit and module in the system.

- **Barrier Box Rack Mounting Kit**

Where analog phone barrier boxes (see below) are being used, this kit allows them to be grouped and rack mounted.



- **Surge Protectors and Barrier Boxes**

Where the installation includes extensions in other buildings additional protective equipment is required. This equipment may also be required in areas where the lightning risk is high.



- **Phones**

IP Office systems support a variety of Avaya digital and IP phones plus analog phones.

VK00nDd15SDvXoxkw9cR9x_jOXr_AWz9

- **License Keys**

Various IP Office features and applications require a license key to be entered into the system's configuration. Each key is a 32-character text string unique to the feature being activated and the serial number of the Feature Key dongle (see below) installed in the system.



- **Feature Key Dongle**

A uniquely numbered dongle used to validate license keys. Several different types of Feature Key dongle are available.

- Serial key dongles can be plugged directly into Small Office Edition, IP406 V2 and IP412 control units.
 - Parallel and USB feature key dongles are plugged into a PC networked to the IP Office system and running IP Office Feature Key server software.



- **Application CD's/DVD's**

The IP Office applications can be ordered on a number of CD's. In addition they can be downloaded from the IP Office section of the Avaya support web site (<http://support.avaya.com>).

Control Units

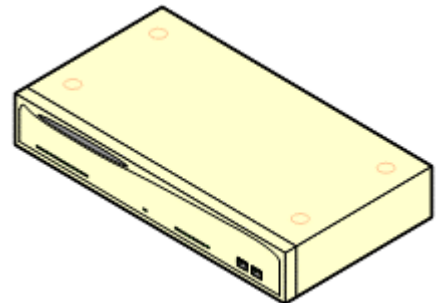
The base of any IP Office system is the control unit. It stores the system configuration and controls the system operation.

Each control unit can be customized by adding various internal cards such as trunk cards, modem cards and voice compression modules. External expansion modules can be also be connected to add additional extension and trunk ports.

IP Office 3.2 supports the following IP Office control units.

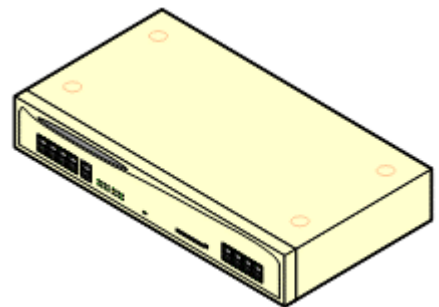
- **IP412 Control Unit**

This unit supports 2 trunk cards of any type. Up to 12 external expansion modules can be added plus 2 WAN3 modules. It includes a 2 port ethernet LAN switch (layer 3 managed).



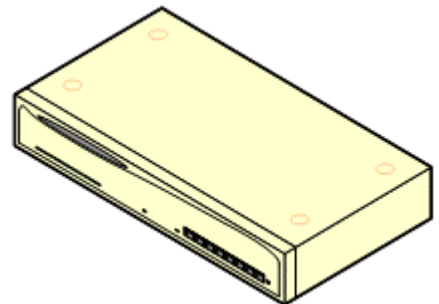
- **IP406 V2 Control Unit**

This unit supports up to 6 external expansion modules plus 2 WAN3 modules. It supports 2 trunk cards of all types though only one may be a dual PRI trunk card. The unit has 8 Avaya digital DS phone ports and 2 analog phone ports plus an 8 port ethernet LAN switch (layer 2 unmanaged).



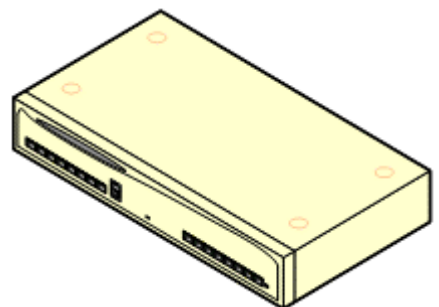
- **IP406 V1 Control Unit**

This unit supports up to 6 external expansion modules plus 2 WAN3 modules. It supports 2 trunk cards of any type except dual PRI trunk cards. The unit includes an 8 port ethernet LAN hub. This module has been superseded by the IP406 V2 control unit above.



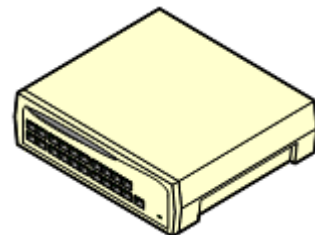
- **IP403 Control Unit**

This unit supports up to 3 external expansion modules plus 2 WAN3 modules. It supports 2 trunk cards of any type except dual PRI trunk cards. The unit has 8 Avaya digital DS phone ports and 2 analog phone ports plus an 8 port ethernet LAN hub. This module has been superseded by the IP406 V2 control unit above.



- **Small Office Edition Control Unit (SOE)**

This is a single unit IP Office system. It does not support any external expansion modules and only a single trunk interface card can be added. However the Small Office is available in a number of models, with differing numbers of integral analog trunk, analog extension and Avaya digital DS ports. The modules all have a 4 port ethernet LAN switch (layer 2 unmanaged) and an Ethernet WAN port.



Control Unit Summary

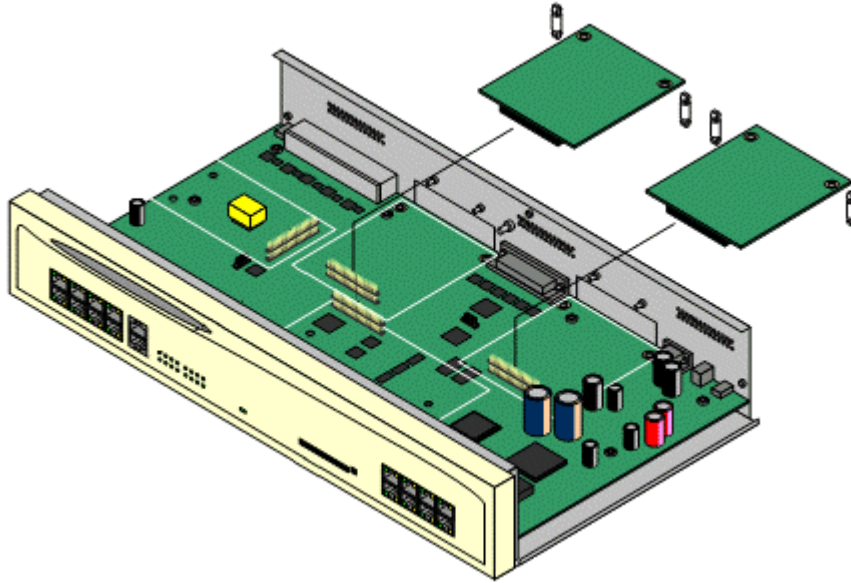
The following table summarizes the IP Office control units.

Feature	Small Office Edition	IP403	IP406 V1	IP406 V2	IP412
Digital Station (DS) Ports	0 or 8	8 (*1)	0	8	0
Analog Phone (PHONE) Ports	2 or 4	2	0	2	0
Optional Embedded Voicemail Card Slot	✓	✗	✗	✓	✗
Integral WAN Port	✗	✓	✓	✓	✓
Expansion Ports	0	3	6	6	12
DTE Port	9-way	25-way	25-way	9-way	9-way
Audio In (MOH) Port	✓	✓	✓	✓	✓
External O/P Switch Port	✓	✓	✓	✓	✓
Conference Parties	24	64	64	64	128
Configuration Memory	192KB	192KB	192KB	256KB	1024KB
Maximum Extension Capacity	28	100	180	190	360
- Digital (DS) Phones only.	8	98	180	188	360
- Analog Phones only.	4	92	180	182	360
- IP Phones(*4) only.	16	100	180	190	360
Trunk Cards Supported	1	2	2	2	2
- Analog trunk cards	✗	✓	✓	✓	✓
- Quad BRI trunk cards	✓	✓	✓	✓	✓
- Single PRI trunk cards	✓ (*2)	✓	✓	✓	✓
- Dual PRI trunks cards	✗	✗	✗	✓ (*3)	✓
- WAN port card	✓	✗	✗	✗	✗
VCM Cards	N/A	1	1	1	2
Maximum voice compression channels	16	20	20	30	60
Data Channels	18	18	24	40	100
Maximum usable for Voicemail Pro/TAPI WAV	10	10	20	20	30
Dimensions					
Height x Width x Depth	76x255x241mm 3"x10"x9.5"	71x445x245mm 2.8"x17.5"x9.7"			


- *1: Some IP403 control units are equipped with DT (digital terminal) rather than DS (digital station) ports. Use of the DT ports is not supported for IP Office 3.0 or higher.
- *2: The Small Office Edition control unit only supports T1 PRI. It does not support E1 or E1R2 PRI trunk cards.
- *3: The IP406 V2 supports dual PRI trunk cards in Slot A only.
- *4: VCM channels are required for call setup and may be required for call duration. A maximum of 50 T3 IP phones are supported.

Trunk Cards

In addition to various internal cards, each control unit, except the Small Office Edition, can be fitted with up to 2 trunk cards. The trunk cards are fitted in Slot A and Slot B at the rear of the control unit. Each trunk card is supplied with spacer pegs and a replacement blanking plate for the rear of the control unit. Except where otherwise indicated, it is recommended that Slot B is used first.



All versions of the Small Office Edition control include either two or four integral analog trunk ports on the front of the unit. In addition a single trunk card can be fitted to the rear of the unit.

-  Control units with analog trunk cards of any kind and coaxial E1R2 trunk cards must be grounded.

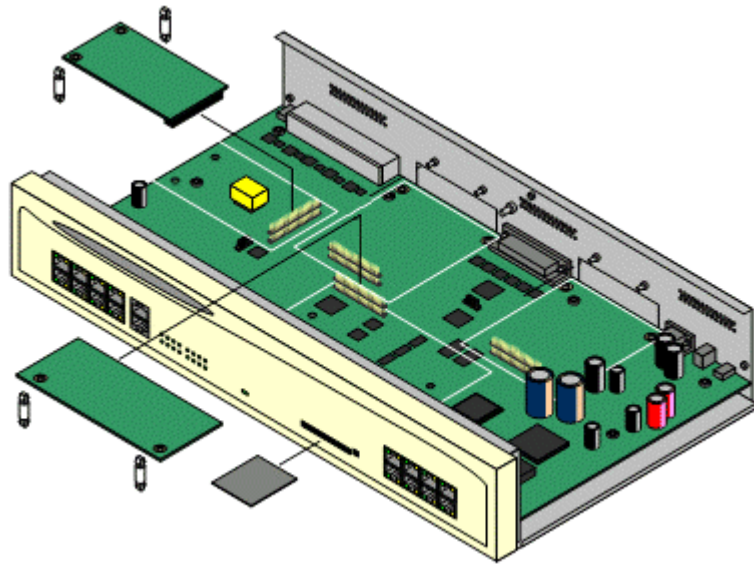
The following trunk card types are available:

Trunk Cards		SOE	IP403	IP406		IP412
				V1	V2	
	<p>Analog Trunk Card (ATM4) Provides 4 RJ45 loop-start analog trunk ports. The card is available in several locale specific variants. This card has been superseded by the ATM4U card below.</p> <p>Additional loop or ground start analog trunks can also be added using Analog Trunk external expansion modules.</p>	✗	✓	✓	✓	✓
	<p>Analog Trunk Card (ATM4U) Provides 4 RJ45 loop-start analog trunk ports as per the ATM4 above but available in a single worldwide variant. Also supports adjustable echo cancellation on IP Office 3.1.</p> <p>Additional loop or ground start analog trunks can also be added using Analog Trunk external expansion modules.</p>	✗	✓	✓	✓	✓
	<p>Quad BRI Trunk Card Provides support for 4 RJ45 BRI (2B+D) trunk ports. These can be configured to ETSI or AusTS013 operation. The ports include 100ohm termination.</p>	✓	✓	✓	✓	✓
	<p>Single PRI T1 Trunk Cards Supports PRI (23B+D) trunks and T1 Robbed-Bit (24B) trunks through a single RJ45 port. The mode of operation is selected in the IP Office configuration.</p>	✓	✓	✓	✓	✓
	<p>Single E1 PRI Trunk Cards Supports PRI (30B+D) trunks through a single RJ45 port. The port can be configured for PRI or QSIG operation.</p>	✗	✓	✓	✓	✓
	<p>Single E1R2 Trunk Cards Supports PRI (30B+D) trunks using E1R2 signalling. Available in coaxial or RJ45 connector variants.</p>	✗	✓	✓	✓	✓
	<p>Dual PRI Trunk Cards As the single PRI cards above but supporting the connection of two PRI trunks. On the IP406 V2, supported in Slot A only.</p>	✗	✗	✗	✓	✓
	<p>WAN Port Card Used only with the Small Office Edition. Provides a single 37-way D-type socket for connection to a V.24, V.35 or X.21 WAN service. Includes a replacement back panel for the control unit.</p>	✓	✗	✗	✗	✗

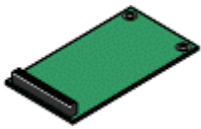
- ✓ = Supported on this control unit type. ✗ = Not supported on this control unit type.

Internal Cards

Each IP Office control unit can be fitted with a number of internal cards. The cards supported depend on the control unit type.



Modem Cards

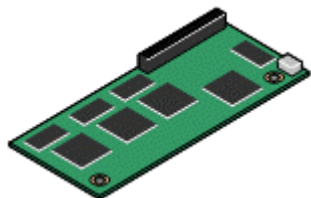


These cards provide modem circuits to answer incoming V.90 analog modem calls.

- The first analog trunk on Small Office Edition control units and on control units fitted with an ATM4 or ATM4U trunk card, can be set to answer V.32 analog modem calls. Whilst in this mode, the trunk cannot be used for voice calls.
- ✓ = Supported on this control unit type.
- ✗ = Not supported on this control unit type.

Modem Cards	SAP Code	Small Office Edition	IP403	IP406 V1	IP406 V2	IP412
Internal Modem Card: Provides 12 V.90 modem channels, 4 only in the IP403 control unit.	700343452	✗	✓	✗	✓	✓
Modem 2 Card: Provides 2 V.90 modem channels.	700185226	✗	✓	✓	✓	✓

Voice Compression Modules



VCM cards are used to provide voice compression channels for calls between IP and non-IP devices, devices being both trunks and extensions. VCM cards with differing numbers of voice compression channels are available.

- For the Small Office Edition control unit, either 3 or 16 voice compression channels with 40ms echo cancellation are pre-built into the module. These cannot be changed.
- ✓ = Supported on this control unit type.
- ✗ = Not supported on this control unit type.

VCM Cards	SAP Code	Small Office Edition	IP403	IP406 V1	IP406 V2	IP412	
25ms echo cancellation.	VCM5*	700185119	✗	✓	✓	✓	
	VCM10*	700185127	✗	✓	✓	✓	
	VCM20*	700185135	✗	✓	✓	✓	
	VCM30	700293939	✗	✗	✗	✓	
64ms echo cancellation.	VCM4	700359854	✗	✓	✓	✓	
	VCM8	700359862	✗	✓	✓	✓	
	VCM16	700359870	✗	✓	✓	✓	
	VCM24	700359888	✗	✗	✗	✓	
Number of VCM cards.			0	1	1	1	2
Maximum number of channels.			3/16	20	20	30	60

- A VCM channel is required for all calls to/from an IP source and a non-IP source.
- If direct media is supported, calls between IP sources only require a VCM channel for call setup and when accessing control unit services such as music on hold. T3 IP phones do not support direct media.
- *These modules are still supported but are no longer available from Avaya.

Embedded Voicemail Memory Cards

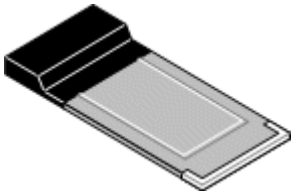


These cards provide message and prompt storage space for embedded voicemail and auto-attendant options. The cards used are specially formatted compact flash cards.

-
- ✓ = Supported on this control unit type.
- ✗ = Not supported on this control unit type.

Embedded Voicemail Memory Cards	SAP Code	Small Office Edition	IP403	IP406 V1	IP406 V2	IP412
Small Office Edition Memory Card: Supports a 64Mb Compact Flash card fitted in a PCMCIA slot caddy. This provides up to 10 hours of compressed message and prompt storage. Compression uses voice compression channels during usage.	700289721	✓	✗	✗	✗	✗
IP406 V2 Memory Card: Supports a 512MB Compact Flash card. This provides up to 15 hours of uncompressed message storage.	700343460	✗	✗	✗	✓	✗

- Memory cards in these slots can also be used for storage of files normally obtained via TFTP transfer. For example the music-on-hold .wav file and supported 4600 Series/5600 Series software files. This will however reduce storage space for prompt and message files if embedded voicemail is being used.
- Non-Avaya cards can be used for file storage but will not support Embedded Voicemail.

Small Office Edition Wireless Card

The Small Office Edition supports an Avaya supplied 802.11b WiFi wireless card. This allows the control unit to act as a wireless access point.

- ✓ = Supported on this control unit type.
- ✗ = Not supported on this control unit type.

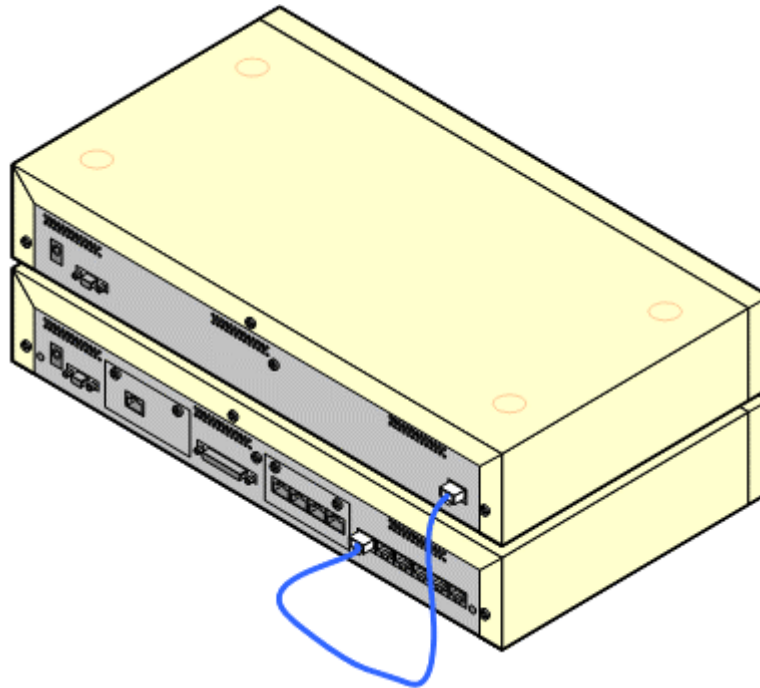
Wireless Card	SAP Code	Small Office Edition	IP403	IP406 V1	IP406 V2	IP412
Wireless Card	700289739	✓	✗	✗	✗	✗

External Expansion Modules

These modules can be used to add additional ports to an IP Office system. The number of expansion modules supported depends on the control unit type.

Expansion modules, except the WAN3 module, connect to expansion ports on the rear of the control unit, using a 1 meter (3'3") cable supplied with the expansion module. No other cable should be used. The WAN3 module differs in that it connects via a LAN port on its front to one of the control unit's LAN ports.

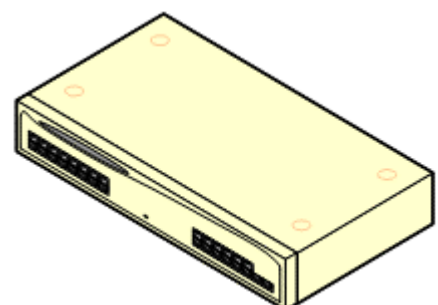
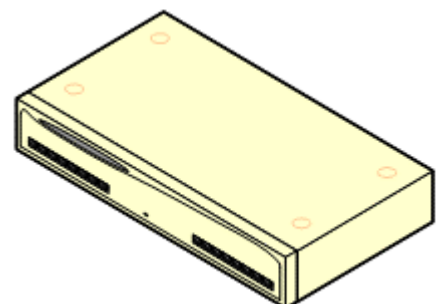
Each module uses an external power supply unit supplied with the module. A locale specific power cord for the PSU must be ordered separately.



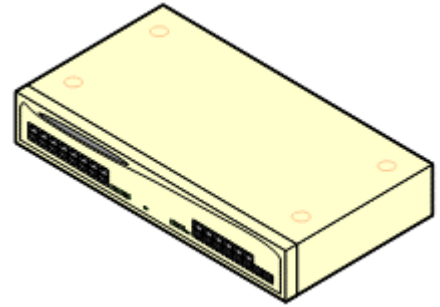
Number of modules supported:	Small Office	IP403	IP406 V1/V2	IP412
WAN3 modules.	None	2	2	2
All other modules.	None	3	6	12

The following expansion modules are supported by IP Office 3.1:

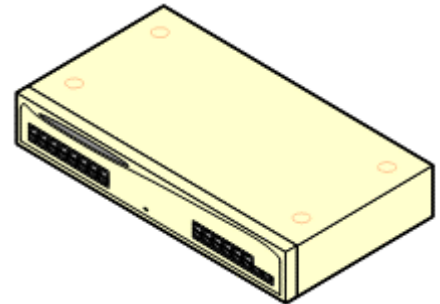
- Analog Trunk Module (ATM16)**
 Provides an additional 16 ANALOG ports for connection of analog trunks. Supports both loop-start and ground-start trunks.
 - Use with ground start trunks requires that the trunk module and the IP Office control unit are grounded.
- Digital Station Module (DS16/DS30)**
 Provides, depending on the variant, an additional 16 or 30 DS ports for supported Avaya digital phones. This module has been superseded by the Digital Station V2.



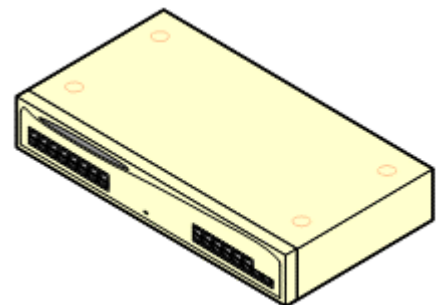
- **Digital Station Module V2 (DS16 V2/DS30 V2)**
Provides, depending on variant, an additional 16 or 30 DS ports for supported Avaya digital phones. Supersedes the previous Digital Station module.



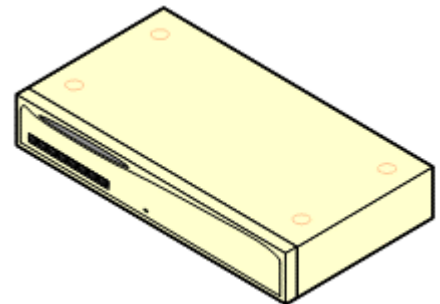
- **Phone Module (Phone8/Phone16/Phone30)**
Provides, depending on variant, an additional 8, 16 or 30 POT ports for analog phones. This module has been superseded by the Phone Module V2.



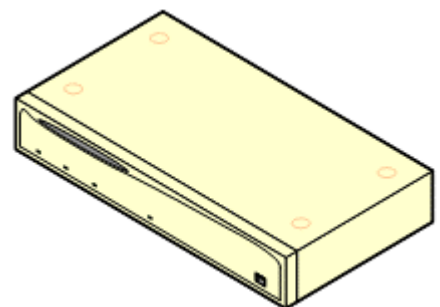
- **Phone Module V2 (Phone8 V2/Phone16 V2/Phone30 V2)**
Provides, depending on variant, an additional 8, 16 or 30 PHONE ports for analog phones. Supersedes the previous Phone module. With IP Office 3.1, the Phone V2 supports a wider range of message waiting indication (MWI) options than Phone V1 modules.
 - With V2 units, the labelling of analog phone ports was changed from POT to PHONE.



- **So8 Module**
Provides 8 ETSI BRI ports for the connection of ISDN devices (BRI-So interface). This unit is not intended to support BRI trunks.



- **WAN3 10/100 Module**
Provides on its rear an additional three 37-way D-type WAN ports. These can be used for the connection of V.24, V.35 and X.21 WAN services. The module connects to the control unit via a LAN port rather than an expansion port.
 - The WAN3 has been superseded by the WAN3 10/100 and is not supported by IP Office 3.2 and higher.
 - IP Office systems are restricted to a maximum of 2 WAN3 modules regardless of the control unit type.



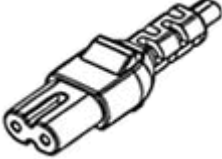
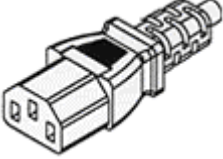
Power Supplies

Each IP Office control and expansion module is supplied with its own external power supply unit (PSU). This requires a switched power outlet socket rated at 110-240V ac, 50-60Hz.

The PSU's include an integral 1.5 meter lead for connection to the control unit or expansion module. A power cord for connection from the PSU to the power outlet is not included as this varies by locale. The appropriate power cord must be ordered separately or sourced locally.

Additional power supply units are required for 4450, EU24, XM24 and T3 DSS add-on modules and may also be required for 4600 Series/5600 Series IP phones.

- Some units previously supplied with a 40W unearthed PSU are now approved for and supplied with a 60W earthed PSU. That change affects the IP412, So8 and WAN3 10/100 units.

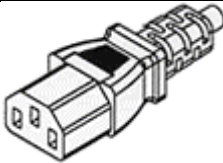


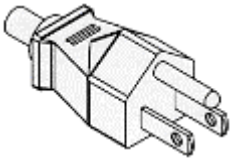
Details	IP Office Units and Modules			IP Phones and Phone Add-Ons	
	40W PSU	45W Earthed PSU	60W Earthed PSU	1151C1	1151C2
SAP Code	700210792	700284938	700357387	700356447	700356454
Connector Type	IEC60320 C7 	IEC60320 C13 			
Used on:	<ul style="list-style-type: none"> IP403. IP406 V1. Analog. Digital Station V1. Phone V1. 	<ul style="list-style-type: none"> Small Office Edition. 	<ul style="list-style-type: none"> IP406 V2. IP412. Digital Station V2. Phone V2. So8. WAN3 10/100. 	<ul style="list-style-type: none"> Phones with XM24 Phone add-ons. Phones with EU24/EU24BL Phone add-ons unless using Class 3 PoE. 4600 and 56000 Series IP Phones when not using a PoE. 	

- The 1151C2 is the same as the 1151C1 except that it includes a backup battery that is charged during normal operation. This can provide typically 15 minutes backup at maximum load (20 Watts) and up to 8 hours at light load (2 Watts).
- Avaya 4600 Series and 5600 Series can use IEEE 802.3af Power over Ethernet (PoE) power supplies. Refer to the IP Office IP Phone Installation Manual for full details.

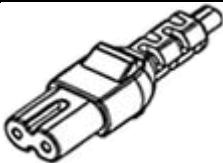
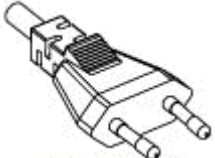

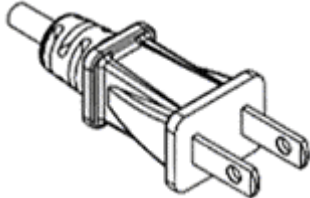
Power Cords

Each IP Office control unit and external power supply module is supplied with the appropriate external power supply unit. However a locale specific power cord is not included and must be ordered separately.

For locales not detailed below an appropriate power cord must be obtained locally.

Earthed Power Cords (IEC60320 C13)	Power Outlet Plug Type	Locales	SAP Codes
 <ul style="list-style-type: none"> • Small Office Edition. • IP406 V2. • IP412.* • Digital Station V2. • Phone V2. • So8.* • WAN3 10/100.* 	CEE7/7 (Schuko) 	Europe and South Africa.	700289762
	BS1363 	Czech Republic, Ireland, United Kingdom.	700289747
	NEMA5-15P / CS22.2 No.42 	North, Central and South America.	700289770
	CPCS-CCC	China.	700261977

- *Older units were supplied with a 40W unearthed PSU and required an IEC60320 C7 power cord.

Unearthed Power Cords (IEC60320 C7)	Power Outlet Plug Type	Locales	SAP Codes
 <ul style="list-style-type: none"> • IP403. • IP406 V1. • Analog. • Digital Station V1. • Phone V1. 	CEE7/16 (Europlug) 	Europe and South Africa.	700213382
	BS1363 	Czech Republic, Ireland, United Kingdom.	700213374
	NEMA1-15 	North, Central and South America.	700213390
		Korea.	700254519
		China.	700314172

Power Supply Backup (UPS)

The use of an Uninterrupted Power Supply (UPS) with any telephone system is recommended. Even at sites that rarely lose electrical power, that power may occasionally have to be switched off for maintenance of other equipment. In addition, most UPS's also provide an element of power conditioning, reducing spikes and surges.

The capacity of UPS systems and the total equipment load the UPS is expected to support are usually quoted in VA. Where equipment load is quoted in Watts, multiply by 1.4 to get the VA load.

The calculation of how much UPS capacity is required depends on several choices.

- **What equipment to place on the UPS?**

Remember to include server PC's such as the voicemail and Feature Key Server PC's. It is recommended that the total load on a new UPS is never greater than 75% capacity, thus allowing for future equipment.

- **How many minutes of UPS support is required?**

Actual UPS runtime is variable, it depends on what percentage of the UPS's capacity the total equipment load represents. For example, a 1000VA capacity UPS may only support a 1000VA (100%) load for 5 minutes. This relationship is not linear, the same UPS would support a 500VA (50%) load for 16 minutes. Therefore the lower the percentage of capacity used, the increasingly longer the UPS runtime, typically up to 8 hours maximum. Remember also that for most UPS's the ratio of discharge to full recharge time is 1:10.

- **How many output sockets does the UPS provide?**

Multiple UPS units may be required to ensure that every item of supported equipment has its own supply socket.

The web site <http://ups.avayaups.com> provides a calculator into which you can enter the equipment you want supported on a UPS. It will then display various UPS options. The site uses VA values for typical IP Office systems. However, if more specific values are required for a particular system, the table below can be used to enter values.

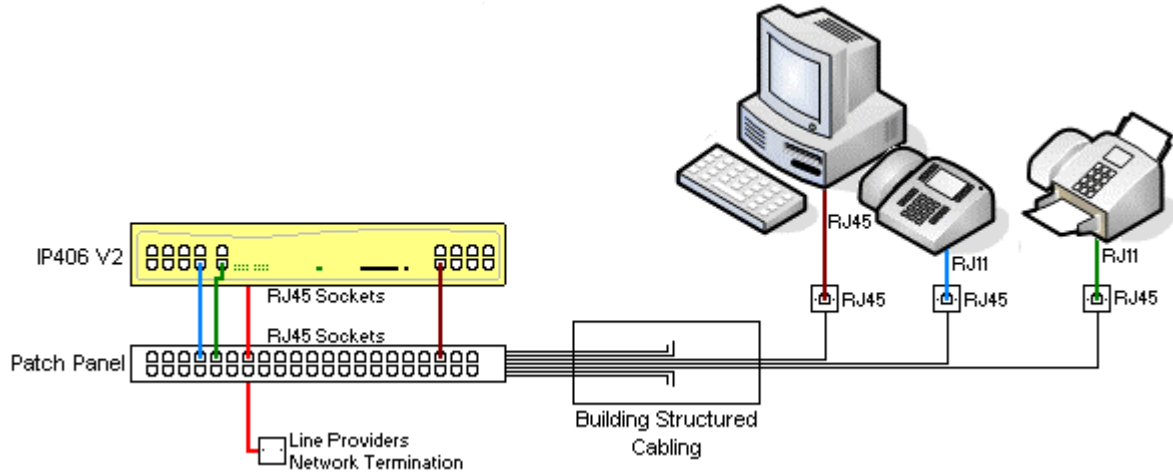
Typical IP Office System	VA	Typical IP Office System	VA
Small Office Edition	17	IP406 V1/V2 System	168
IP403 System	96	IP412 System	312
Individual Equipment	VA	Individual Equipment	VA
Small Office Edition	17	So8 Module	34
IP403 Control Unit	37	Phone 8 Module	17
IP406 V1/V2 Control Unit	23	Phone 16 Module	23
IP412 Control Unit	25	Phone 30 Module	42
Analog 16 Module	88	Typical Server PC	600
Digital Station 16 Module	34	Typical Desktop PC	400
Digital Station 30 Module	42	Mid Span PSU - 6 ports	150
WAN3 Module	17	Mid Span PSU - 12/24 ports	300

- The 1151C2 power supply unit for Avaya H.323 IP phones includes a backup battery. This typically provides 15 minutes backup at maximum load (20 Watts) and up to 8 hours at light load (2 Watts).

Cables

The IP Office is designed primarily for use within an RJ45 structured cabling system using CAT3 unshielded twisted-pair (UTP) cabling and RJ45 sockets.

A structured cabling system is one where cables are run from a central RJ45 patch panel in the communications/data room to individual RJ45 sockets at user's desk. All wires in each cable between the patch panel and the desk socket are connected straight through. This arrangement allows devices connected at the patch panel to be swapped to match the type of device that needs to be connected at the user socket. For example, making one user socket a phone port and another user socket a computer LAN port, without requiring any rewiring of the cables in between.



- **Traditional IDC Punchdown Wiring Installations**

Where necessary, the far end RJ45 plug can be stripped from IP Office cables and wired into traditional wiring systems using punch-block connectors. This type of installation should be performed by an experienced wiring technician.

- **Trunk Connections**

The majority of IP Office trunk ports use RJ45 connectors for acceptance of an RJ45-to-RJ45 cable. However, connection at the line providers end may require use of a different plug type in order to match the line providers equipment.

- **RJ11 Phone Connectors**

Many phones use RJ11 sockets and are supplied with RJ11-to-RJ11 cables. RJ11 plugs can be inserted into RJ45 sockets and in many case the connection will work. However this is not recommended or supported as the connection lock is not truly positive and may become disconnected. An RJ45-to-RJ11 cable is available for these connections.

Standard IP Office Cables

The following are Avaya standard cables available for use with IP Office systems. The maximum length is applicable if the standard Avaya cable is replaced with an alternate cable.

Cable	Description	SAP Code	Length	Maximum
25-Way DTE Cable	Connects to a IP403 or IP406 V1 control unit. 25-Way D-type plug to 9-way D-type socket.	700213432	2m/6'6"	2m/6'6"
9-Way DTE Cable	Connects to an SOE, IP406 V2 or IP412 control unit. 9-Way D-type plug to 9-way D-type socket.	–	2m/6'6"	2m/6'6"
Structured Cabling DS Line Cable	Connects from RJ45 sockets to RJ11 socketed DS and analog phones.	700047871	4m/13'2"	See table below.
BRI/PRI Cable	Connects BRI/PRI trunk ports to the line providers network termination point. RJ45 to RJ45. Red.	700213440	3m/9'10"	5m/16'5"
Expansion Interconnect Cable	Connects the control unit to expansion modules (except WAN3 modules). RJ45 to RJ45. Blue.	700213457	1m/3'3"	1m/3'3"
LAN Cable	Connects from IP Office LAN ports to IP devices. RJ45 to RJ45. Grey.	700213481	3m/9'10"	100m/328'
LAN Interconnect Cable	Connects WAN3 module to the control unit. Replace with a LAN crossover cable for IP412 control units. Green.	700213465	1m/3'3"	–
LAN Crossover Cable	Used for connection of IP devices to LAN ports on the IP412 control unit. Black	700213473	3m/9'10"	100m/328'
V.24 WAN Cable	37-Way D-type plug to 25-way D-type plug.	700213416	3m/9'10"	5m/16'5"
V.35 WAN Cable	37-Way D-type plug to 34-way MRAC plug.	700213424	3m/9'10"	5m/16'5"
X.21 WAN Cable	37-Way D-type plug to 15-way D-type plug.	700213408	3m/9'10"	5m/16'5"

The table below details the maximum total cable distances for DS and analog extensions using different cable types.

Telephone	Unshielded Twisted-Pair (UTP)			
	AWG22 (0.65mm)	AWG24 (0.5mm)	AWG26 (0.4mm)	CW1308
2400/5400 Series	1670m/5500'	110m/3500'	670m/2200'	400m/1310'
4406D Phone	1000m/3280'	1000m/3280'	400m/1310'	400m/1310'
4412D Phone	1000m/3280'	700m/2295'	400m/1310'	400m/1310'
4424D	500m/1640'	500m/1640'	400m/1310'	400m/1310'
6400 Series	1000m/3280'	1000m/3280'	400m/1310'	400m/1310'
T3 Series (Upn)	1000m/3280'	1000m/3280'	400m/1310'	–
Analog Phones	1000m/3280'	1000m/ 3280'	400m/1640'	800m/2620'

Grounding

Use of ground connections reduces the likelihood of problems in most telephony and data systems. This is especially important in buildings where multiple items of equipment are interconnected using long cable runs, for example phone and data networks.

It is recommended that all IP Office modules are connected to a functional ground. In some cases, such as ground start trunks, this is a functional requirement. In other cases it may be a locale regulatory requirement and or a necessary protective step, for example areas of high lightning risk.

- **⚠ WARNING**

During installation do not assume that ground points are correctly connected to ground. Test ground points before relying on them to ground connected equipment.

Installation Requirements

- **Mandatory Grounding**

The IP Office system must be grounding in the following situations:

- Where required by local regulatory requirements.
- On all Analog Expansion modules (ATM16) and any control units containing an analog trunk card (ATM4/ATM4U).
- On any control unit using coaxial E1R2 trunks.
- On Digital Station V2 and Phone V2 expansion modules.

- **Mandatory Ground plus additional protective equipment**



Additional equipment will be required in the following situations. Refer to Out of Building Telephone Installations.

- On any Digital Station or Phones expansion module connected to an extension located in another building.
- On all Analog Expansion modules (ATM16) and any control units containing an analog trunk card (ATM4/ATM4U) in the Republic of South Africa.

- **Optional Grounding**

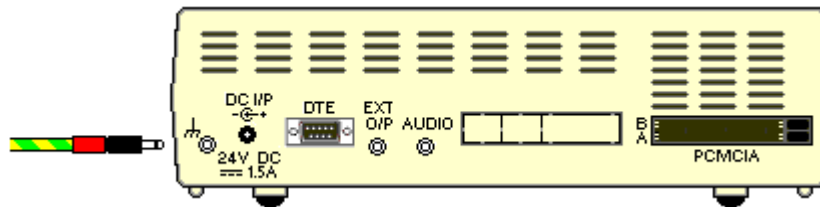
The uses of grounding connections for scenarios other than those listed above is optional but is recommended.

IP Office Control Unit and Expansion Module Ground Points

The ground point on IP Office control units and expansion modules are marked with a  or  symbol. Ground connections to these points should use a 14 AWG solid wire with either a green sleeve for a functional ground or green and yellow sleeve for a protective ground.

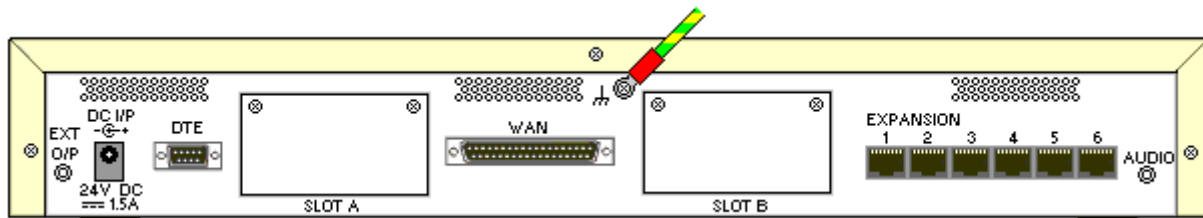
Small Office Edition

On the Small Office Edition control unit, the ground point is provided by a 3.5mm jack socket on the left of the rear panel.



Other Control Units

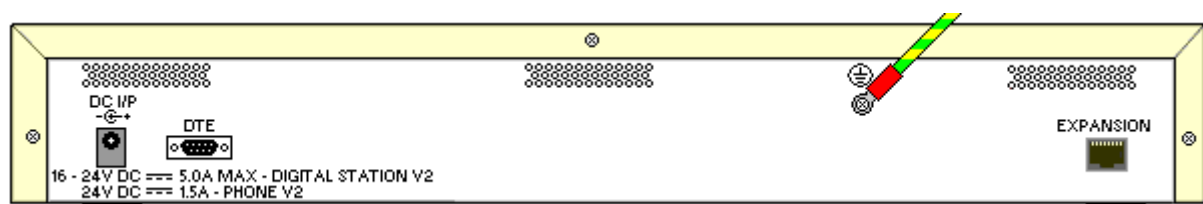
On IP403, IP406 V1/V2 and IP412 control units, the ground point is a 4mm screw located adjacent to trunk card **Slot B**.



- On some older units, the dedicated ground point screw is not present. In those cases, the left-hand 3mm fixing screw on the **Slot B** blanking plate can be used as an alternate ground connection point. A toothed washer should be added to ensure good contact.

Expansion Modules

On expansion modules, the ground point is a 4mm screw located towards the right on the rear of the module.

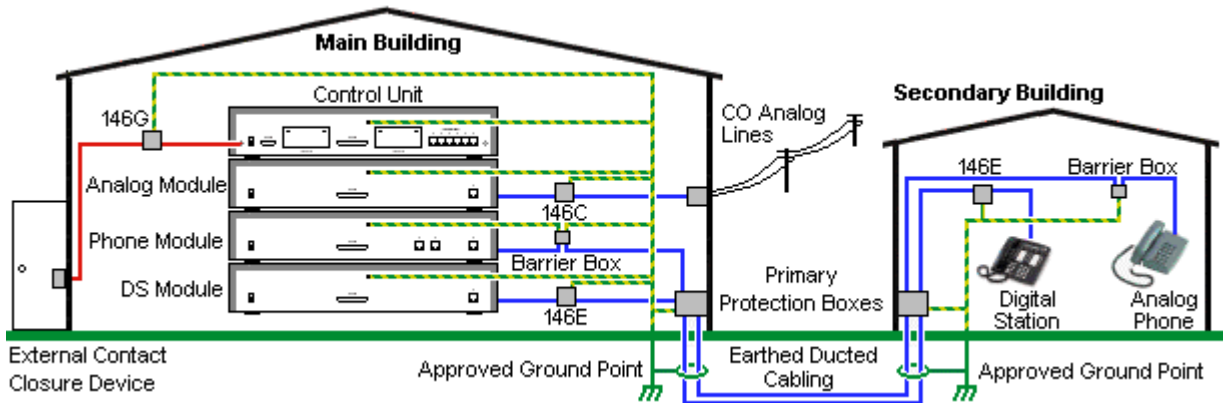


- On some older modules, the dedicated ground point screw is not present. In those cases, the top-center cover fixing screw (3mm) can be used as an alternative ground connection point. A toothed washer should be added to ensure good contact.

Out-of-Building Connections/Lightning Protection



The following are the only supported scenarios in which wired extensions and devices outside the main building can be connected to the IP Office system. In these scenarios, additional protection, in the form of protective grounding and surge protectors, must be fitted.

- ⚠ The fitting of additional protection does not remove the risk of damage. It merely reduces the chances of damage to other internal equipment.



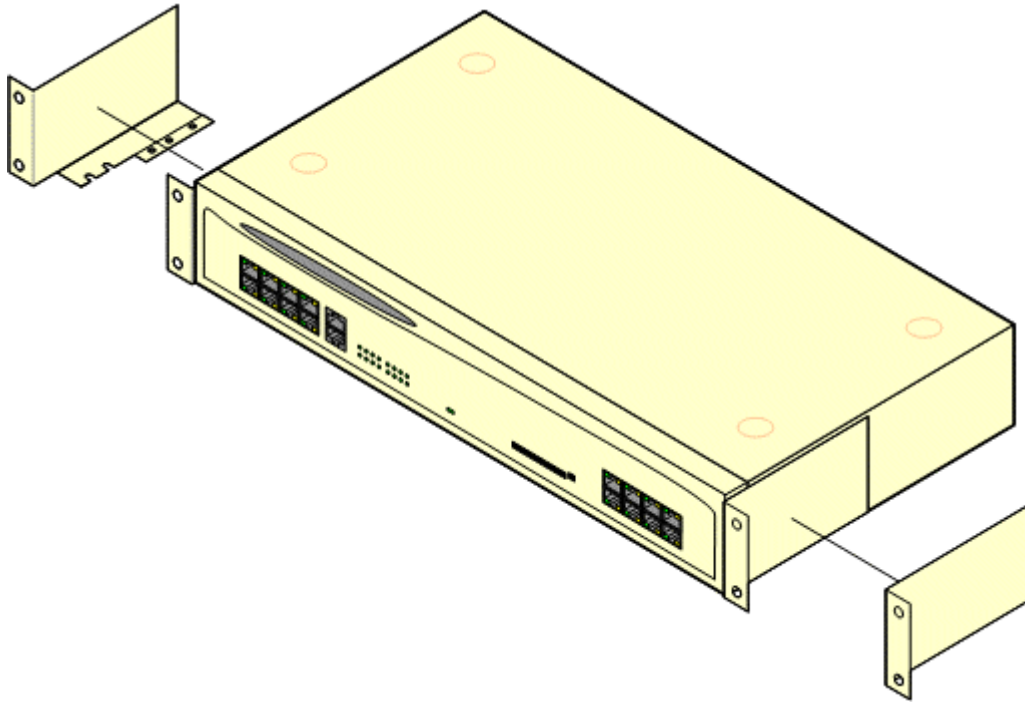
Cabling Requirements

- Cables of different types, for example lines, extensions, ground and power connections, should be kept separate.
- All cabling between building should be enclosed in grounded ducting. Ideally this ducting should be buried.
- A Primary Protection Box must be provided at the point where the cables enter the building. This should be three point protection (tip, ring and ground). Typically this would be gas tube protection provided by the local telephone company. The ground wire must be thick enough to handle all the lines being affected by indirect strike at the same time.

Connection Type	Protection Device Type	Requirement
DS Phone Extensions  <i>Digital Station Expansion module DS ports only.</i>	Avaya 146E DS2 IROB Supports up to 4 connections.	<ul style="list-style-type: none"> • Connection from the expansion module to the phone must be via a surge protector <u>at each end</u> and via the primary protection point in each building.
Analog Phone Extensions  <i>Phones Expansion module (POT or PHONE) ports only.</i>	IP Office Barrier Box Supports a single connection. Maximum of 16 on any expansion module.	<ul style="list-style-type: none"> • The IP Office expansion module and control unit and IROB devices must be connected to the protective ground point in their building. • The between building connection <u>must be</u> via earthed ducting, preferable underground. The cable <u>must not be</u> exposed externally at any point.
Analog Trunks	Avaya 146C CO Line Protector Supports up to 4 two-wire lines.	<p>For installations in the Republic of South Africa, the fitting of surge protection on analog trunks is a requirement.</p> <p>For other locations where the risk of lightning strikes is felt to be high, additional protection of incoming analog trunks is recommended.</p>
External Output Switch	Avaya 146G Surge Protector	Connections from an IP Office Ext O/P port to an external relay device <u>must be</u> via a surge protector.

Rack Mounting

All the IP Office control units and external expansion modules are designed for free-standing stackable use. However except for the Small Office Edition, optional rack mounting kits can be ordered for installation of the control units and expansion modules into a 19" rack system.

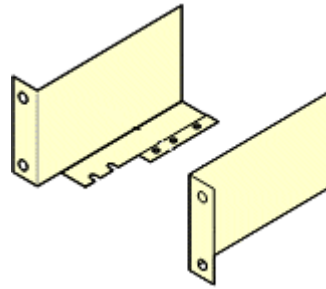


Where IP Office systems are being rack mounted, the effect of conditions must be considered. For example the rack temperature may be above the room temperature and airflow within the rack will be restricted. The environmental requirements for the IP Office are still applicable.

The following equipment exists to support rack mounted installation of IP Office systems:

- **Rack Mounting Kit (SAP 700210800)**

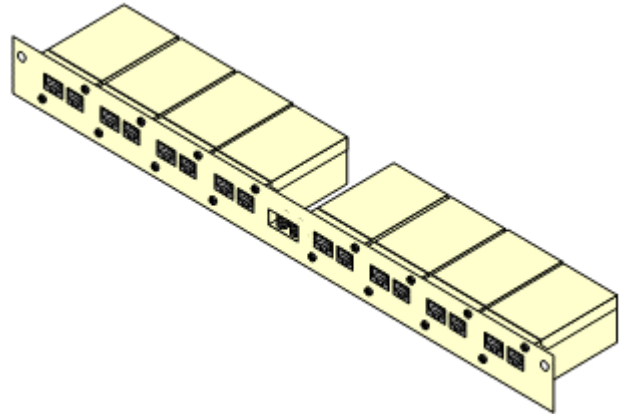
This kit contains all the components required for the rack mounting of a single control unit or expansion module. This includes screws for fixing of the brackets to the module and bolts for securing the module in the rack.



- **Barrier Box Rack Mounting Kit (SAP 700293905)**


Barrier boxes must be used for out-of-building analog phone extensions. This bracket allows up to 8 IP Office barrier boxes to be rack mounted and simplifies the number of connections to the protective ground point in the rack.


- Must be used when more than 3 Barrier Boxes are in use.
- A maximum of 16 Barrier Boxes are supported on any module.



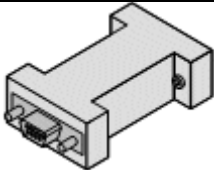
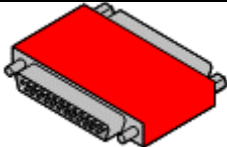

Feature Key Dongles

Various IP Office features and applications require entry of a licence key or keys into the system's configuration. Each licence key is a unique 32-character number based on the feature being activated and the serial number of a Feature Key dongle installed somewhere with the IP Office system.

- 
PC-Less Licensing
 This uses a serial dongle attached directly to the DTE serial port of the IP Office control unit. It requires the control unit to have a 9-pin D-type DTE port. A PC running the IP Office Feature Key server application is not required in this scenario.

- 
PC-Base Licensing
 This method uses a dongle attached to a USB or parallel port on a PC running the IP Office Feature Key server application. This PC must be on the same LAN segment as the IP Office control unit. Typically the dongle and IP Office Feature Key server application are installed on the same PC as the IP Office Voicemail Lite or Voicemail Pro application if present.

There are three type of Feature Key dongle available. The serial number is printed either directly onto the dongle or onto a label on the dongle.

Feature Key Type	Description	SAP Code
Serial 	Plugs directly into the serial port on IP Office Small Office Edition, IP406 V2 and IP412 Control Units, allowing PC-less operation.	700293095
Parallel 	Plugs into the appropriate port on a PC running the IP Office Feature Key server application. This PC must on the same LAN segment as the IP Office control unit.	700185234
USB 		700261506

License Keys

Various IP Office features and applications require entry of license keys into the system's configuration. The license keys are unique 32-character codes based on the feature being activated and the serial number of the IP Office system's Feature Key dongle.

- **Example 1: Enabling Software Features**

In the example below, the IP Office system has a valid Phone Manager Pro license. In this case the license is for 20 instances. That means that up to 20 IP Office users can be use Phone Manager Pro simultaneously. Their previously license free Phone Manager Lite software will automatically change to display Phone Manager Pro features.

- **Example 2: Enabling Software and Features**

The example below has Voicemail Pro enabled by the addition of a Voicemail Pro license. This initial Voicemail Pro license also provide for 4 ports between the IP Office system and the Voicemail Pro PC. The Additional Voicemail Pro (ports) license adds another 4 ports since the Voicemail Pro ports licenses are cumulative.

When a license key is entered into the IP Office configuration, the following information is shown.

- **Status:** The status, which is Unknown until the configuration file is sent back to the IP Office system.
- **License:** The name of the licensed feature. This may differ from the ordered RFA name.
- **Instances:** Depending on the license, this may be the number of ports enabled or number of simultaneous users of the licensed feature.
- **Expires:** Most purchased licenses have no expiry setting. For some features, trial licenses may be available which will have an expiry date.

IP Office Phones

IP Office 3.2 supports the following phones and phone add-ons. Availability may be subject to local restrictions.

Digital Stations

These phones connect to IP Office DS ports.

Series	IP Office Supported Phones	Region
2400	2402, 2410, 2420.	Global
4400	4406D, 4412D+, 4424D+.	North America
5400	5402, 5410, 5420.	Global
6400	6408D, 6416D+M, 6424D+M.	
T3 (Upn)	T3 Compact, T3 Classic, T3 Comfort. Note: On systems using T3 Series phones, the only other phones supported are 4600 Series, 5600 Series, DECT and analog phones.	EMEA
TransTalk	9040 Wireless phone.	North America
–	3810 Wireless phone.	

H.323 IP Phones

These phones connect to the IP Office via the LAN. Refer to the separate installation manuals for full details. VCM channels are required and may limit the number of simultaneous calls.

Series	IP Office Supported Phones	Region
3600	3616, 3620, 3626 (<i>Connect via AVPP add-on module</i>).	Global
4600	4601, 4602, 4602SW, 4610, 4610SW, 4620, 4620SW, 4621SW, 4625.	
5600	5601, 5602, 5602SW, 5610, 5620, 5621.	
Softphone	Phone Manager Pro PC Softphone application (requires Phone Manager Pro and Phone Manager IP Audio licenses).	
T3 (IP)	T3 IP Compact, T3 IP Classic, T3 IP Comfort.	EMEA
Others	Other IP softphones and hardphones require entry of an IP Endpoints license. Functionality beyond making and answering calls is not guaranteed by Avaya.	-

Analog Phones

These phones connect to IP Office PHONE Ports. IP Office supports most analog phones. However due to the variety of analog phones and device available globally no guarantee of operation is possible. It is the responsibility of the IP Office installer and maintainer to test and verify the operation of proposed analog equipment.

Series	IP Office Supported Phones	Region
6200 Series	6211, 6219, 6221.	North America
Interquartz Gemini	9330-AV, 9335-AV, 9281-AV.	EMEA/APAC

DECT Wireless Phones

Series	IP Office Supported Phones		Region
Analog DECT	20	20DT - Connection via Compact DECT add-on.	EMEA/APAC
IP DECT	3700	3701, 3711 - Connection via IP DECT base stations.	

IP Office Core Software (BIN Files)

Each IP Office control unit and expansion module contains and runs its own part of the IP Office core software. These parts take the form of .bin files (binary files).

Modules are supplied with a base level of core software .bin files loaded. Currently this base level is IP Office 2.1. Therefore one of the first steps of the installation process is to upgrade the modules from this base level to the level of IP Office core software required, for example IP Office 3.1.

The .bin files for each IP Office software level are included on the IP Office Administrator Applications CD for that software level. They are installed from that CD as part of the IP Office Manager application. IP Office Manager can then be used to upgrade the .bin files loaded in the modules within an IP Office system.

Updated sets of software and bin files may also be made available through the Avaya support web site. See **Web Sites**.

- **Software Level**

The IP Office core software level is expressed in the form **X.Y(Z)**, for example 2.1(27), where **X** is the major software level, **Y** is the minor level and **Z** is the build number.

The following rules apply to the core software level used by modules within an IP Office system and between linked IP Office systems.

- All modules within an IP Office should run the same level of core software. Doing otherwise will lead to misoperation of the system.

The following .bin files are included in IP Office 3.1. This includes .bin files used for phones that can upgrade their software.

IP Office Control Units and Modules		Avaya H.323 IP Phones		Digital Phones
ip401ng.bin	Small Office Edition Control Units.	4601dbte1_82.bin	bbla0_83.bin	2410_R2.bin
ip403.bin	IP403 Control Units.	4602dbte1_82.bin	cvt01_2_3.bin	2420_R4.bin
ip406.bin	IP406 V1 Control Units	4602sbte1_82.bin	cvt02_2_3.bin	5410_R2.bin
ip406u.bin	IP406 V2 Control Unit	5601bte1810.bin	cvt02sw_2_3.bin	5420_R4.bin
ip412.bin	IP412 Control Unit	5602dbte1806.bin	cvt5_2_3.bin	
ipwan3.bin	WAN3 10/100 Expansion Module	5602sbte1806.bin	cvt5sw_2_3.bin	
avpots16.bin	Phone Expansion Module	a01d01b2_3.bin	cvt51_2_3.bin	
dv pots.bin	Phone V2 Expansion Module	a02d01b2_3.bin	def06r1_8_3.bin	
naatm16.bin	Analog Expansion Module	a10c01b2_3.bin	def24r1_8_3.bin	
nadcp-16.bin	Digital Station Expansion Module	a10d01b2_3.bin	dvppots.bin	
nadcpv2.bin	Digital Station V2 Expansion Module	a20c01b2_3.bin	i01d01a2_3.bin	
nas0-16.bin	S08 Expansion Module	a20d01a2_3.bin	i02d01a2_3.bin	
		a20d01b2_3.bin	i10c01a2_3.bin	
		a25d01a2_5.bin	i10d01a2_3.bin	
		a25d01a2522.bin	i20c01a2_3.bin	
		b01d01b2_3.bin	i20d01a2_3.bin	
		b02d01b2_3.bin	x01d01a2_3.bin	
		b10d01b2_3.bin	x02d01a2_3.bin	
		b20d01a2_3.bin	x10d01a2_3.bin	
		b20d01b2_3.bin	x20d01a2_3.bin	
		b25d01a2_5.bin		
		b25d01a2522.bin		

Supported Country Locales

When a new or defaulted system's configuration is first opened in Manager, the system's locale is set to match that of the PC running Manager. This **Locale (System | System | Locale)** should be checked and changed if required.

The system's **Locale** sets factors such as the default ringing patterns and caller display settings. The locale also controls the language that a voicemail server will use for prompts.

This following table indicates locale settings supported for different functions. Note that this does not necessarily indicate support, availability or approval for IP Office within that country.

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.

IP Office Programming and Maintenance Applications

The following Windows applications are used to program and maintain an IP Office system. They run on PC's connected to the IP Office system via its LAN interface.

These applications are all provided on the IP Office Administrator Applications CD and don't require any licenses.

Typically, with the exception of SNMP, all these applications would be installed onto a single PC on the customer's LAN in order to ensure that each is available on site if required. Due to the nature of the applications, this should be a secure PC. If a voicemail server PC is also being installed, the same PC can be used for the programming and maintenance applications.

- **IP Office Manager**

This tool is used to access all parts of the IP Office configuration. Different levels of access can be defined to control which parts of the configuration the Manager user can view and alter. Manager is also used to upgrade the software files used by an IP Office system. When running is also acts as a TFTP server from which upgradeable Avaya phones can request new software.

- **Monitor (SysMon)**

Monitor is a tool that can show a trace of all activity on the IP Office system in detail. As a consequence, interpretation of Monitor traces requires a high-level of data and telephony protocol knowledge. Despite that however, all IP Office installers and maintainers need to understand how to run Monitor when necessary as Avaya may request copies of Monitor traces to resolve support issues.

- **Call Status**

This is a simple application that shows current calls in progress on the IP Office system. It is intended for use by IP Office installers and maintainers.

- **Feature Key Server**

This application is required for IP Office systems where licenses are being validated against a parallel or USB port Feature Key dongle. It must be installed on the same PC as the dongle.

- **SNMP MIB's**

Not an application as such. The IP Office SNMP MIB files all the status of the IP Office system to be monitored by 3rd-party SNMP applications such as Castlerock and HP OpenView. When configured for SNMP operation, the IP Office can also send alerts for potential problems.

User Applications

Through its LAN interfaces, the IP Office is able to let users run a number of Windows applications that operate in parallel with their telephones.

These applications are installed from the IP Office User Applications CD. Some of them require licenses to be entered into the IP Office system's configuration to enable features or to set the number of simultaneous users.

- **IP Office Phone Manager**

Phone Manager allows a user to control and monitor their phone through their PC. For Avaya phones that support handsfree operation, Phone Manager can be used to make and answer calls. During use, Phone Manager records details of calls made, answered and missed. It can also be configured to show the status of other users on the system. Phone Manager also allows the user to access and change many of the settings stored in the IP Office configuration that relate to their own phone operation, for example their forwarding destination numbers. Phone Manager software can operate in several modes:

- **Phone Manager Lite**

- The default mode of Phone Manager. Requires no license, this application can be installed for any IP Office user.

- **Phone Manager Pro**

- Users configured for Pro mode are able to access a range of additional features. Phone manager Pro requires entry of licenses into the IP Office system. The licenses also control the number of simultaneous Phone Manager Pro users. The user's Phone Manager software then automatically changes from Lite mode to Pro mode.

- **Phone Manager Pro PC Softphone**

- This is a PC softphone mode of Phone Manager operation. The user acts as a VoIP extension, making calls through the speaker and microphone of their PC. This mode requires further licenses in addition to the Phone Manager Pro licenses.

- **TAPILink Lite**

The Microsoft Telephony Application Program Interface (TAPI) allows TAPI compliant applications to interact with IP Office phones by installing an IP Office TAPI driver. TAPILink Lite does not require any licenses entered into the IP Office system's configuration. It allows TAPI compliant applications such as Outlook to make and answer calls. The speech part of the calls is still via the user's physical phone.

- **SoftConsole**

This is a licensed application. It is intended for telephone system operators or receptionists. It displays details of calls directed to the user and allows them to quickly see the status of the callers required destination and transfer the call. The SoftConsole user is able to access a range of details about the status of users and groups on the IP Office system. Up to 4 simultaneous SoftConsole users can be licensed.

- **Conference Center**

This is a server application that is then accessed via web browser. It also users with a conference center password to book conferences. Details of the conference invitees can be entered and those people set to receive either an email or, using IP Office Voicemail Pro, a call asking them to join the conference.

- **IP Office MS-CRM**

Microsoft's MS-CRM is an application that allows the customer to maintain a database of their business contacts and details of interactions with those contacts. The IP Office MS-CRM component consists of three parts, one installed on the MS-CRM user PC, one installed on the customer's MS-CRM server and a license entered into the IP Office system's configuration. It allows the MS-CRM user to make and answer calls through their MS-CRM application.

Voicemail Applications

The IP Office supports a range of applications for the recording and playing of voicemail messages.

- **Embedded Voicemail**

Also called Integral Voicemail, this application is supported on Small Office Edition and IP406 V2 control units. It is unlicensed but requires the addition of an Avaya memory card to store messages and prompts. Embedded Voicemail supports basic voicemail mailbox operation and the setup of up to 4 simple auto-attendants.

- **Voicemail Lite**

This application does not require an IP Office license. It can be installed from the IP Office Administrator Applications CD to a Windows PC on the IP Office LAN. It provides voicemail operation for all IP Office users and groups, using the PC hard-disk to store prompts and messages. Only 4 simultaneous connections to leave or play messages are supported.

- **Voicemail Pro**

This application requires various licenses entered into the IP Office configuration to control the features it offers and the number of simultaneous connections, up to 30 on the IP412 control unit. The operation of Voicemail Pro can be customised to provide special services.

- **Campaigns**

The Voicemail Pro can be configured to run a campaign. This consists of a series of questions for which the Voicemail Pro records the callers answer or key presses. The resulting recordings can then be played back by users. The web aspect of campaigns allows user to perform this playback and processing of campaign recordings via their web browser. This requires a web server to be run on the same PC as the Voicemail Pro software.

- **Text to Speech (TTS)**

Through adding additional licenses, the Voicemail Pro is able to use the TTS functions of Windows to speak text and numbers to callers in addition to recording prompts. This is intended mainly for scenarios where the Voicemail Pro is obtaining text and number values from a customer database.

- **Integrated Messaging Service (IMS)**

Both Voicemail Pro and Voicemail Lite support a feature called voicemail email to send messages or message alerts to a users email. This however is a one-way process. IMS allows this to become a two-way process, where users can play voicemail messages through their email mailbox or voicemail mailbox. IMS interoperates with the customer's Exchange server and the user's Outlook.

- **Database Integration**

With an additional license, the Voicemail Pro can be integrated with customer database through Windows ODBC. When combined with TTS operation, this allows the construction of interactive voice response (IVR) applications on Voicemail Pro.

- **ContactStore for IP Office**

The Voicemail Pro can be used for manual and automatic call recording. Those recording are placed into the mailbox specified for the user or hunt group whose call is being recorded and are then treated as normal messages. Contact Store allows those recordings to be redirected into a database on the ContactStore PC. This allows recordings to be archived and searched separately from user messages. This application requires entry of a license into the IP Office configuration.

Call Logging Applications

A wide range of 3rd -party applications exist to provide call logging and accounting for telephone systems. The IP Office has a number of options for providing call details to those applications.

- **Call Detail Records (CDR)**

IP Office 3.1 and higher supports the sending of CDR records via TCP or UDP to an IP address. A range of common CDR record formats are supported. This option is configured within the IP Office itself.

- **Delta Server SMDR Output**

This application receives call information from the IP Office systems which it then shares with other applications. The Delta Server does not require a license in the IP Office configuration. Only one Delta Server can be used with each IP Office system. The Delta server can be configured to output a call log of all calls made and received by the IP Office system. The Delta sever send these records to an SMDR file stored on the PC and which can then be accessed by 3rd-party call logging applications. The Delta Server can also send SMDR records to a remote IP address.

Call Center Applications

- **Delta Server**

The applications below do not communicate directly with the IP Office system. They communicate across the LAN with a PC running the IP Office Delta Server application. This application receives call information from the IP Office systems which it then shares with other applications. The Delta Server does not require a license in the IP Office configuration. Only one Delta Server can be used with each IP Office system.

- **Compact Business Center (CBC)**

This is a licensed application. It receives data from the IP Office Delta Server application. The CBC is able to show details of calls handled by up to 3 selected hunt groups. It can also display details of IP Office trunk usage. The CBC retains call details for 31 days.

- **Compact Contact Center (CCC)**

CCC is a reporting application designed for use in call centers. It provides a range of both real-time and historical reporting options. CCC consists of a CCC Server application that receives call information from the IP Office Delta Server, and a number of client applications for the displaying of that information. CCC and its clients are controlled by a range of licenses entered into the IP Office configuration.

- The CCC server applications are listed below. They are installed onto the same PC:

- **CCC Archiver**

- The Archiver manages the collection and storage of call activity information.

- **Wallboard Manager**

- Wallboards provide current information on the number of calls waiting, response times and service levels. Wallboard Manager provides the ability to control both physical wallboards and PC wallboards.

- The CCC clients are:

- **Call Center View (CCV):**

- Provides a realtime information about call center activity.

- **Alarm Reporter:**

- Provides real-time and past 7-days information on alarms that have occurred within the call center.

- **PC Wallboard:**

- The PC Wallboard allows call center agents and supervisors to display real-time call center performance information on their Windows PC screen.

- **Report Manager:**

- Provides in depth historical reporting on calls, agents and groups.

- **Workforce Management:**

- This application allows CCC to share information with a third-party agent scheduling application - Blue Pumpkin.

CTI Applications

- **TAPILink Pro**

Using the same software as TAPILink Lite, TAPILink Pro provides all of the features and functionality of TAPILink Lite, but additionally provides third party CTI operation. This means that a single server can control and monitor any number of telephone devices. This requires entry of a CTI Link Pro license. TAPILink Pro also provides the ability to monitor and control groups. This allows an application to be notified when a call enters a queue, and can also redirect it to another location. TAPILink Pro also supports additional TAPI functionality such as:

- Agent login.
- Agent logout.
- Set and retrieve divert destination.
- Set and retrieve extended divert status (Forward All Calls, Forward on Busy, Forward on No Answer, Do not Disturb).
- Retrieving the extension locale (language).
- Set and clear the message waiting lamp.
- Enable and disable group membership.
- Generate and detect DTMF digits and tones (requires the TAPI-WAV driver).

- **TAPI WAV driver**

Provides software-based support for voice processing. Purchasing the CTI Link Pro RFA license key also enables 4 ports of voice processing; additional ports can be purchased in 4 port increments. The TAPI-WAV driver is for use with TAPI 2.1 only; for TAPI 3.0, IP Office supports the Media Service Provider (MSP) interface, defined by Microsoft in TAPI 3.0.

- **DevLink Pro**

Provides a real-time event stream in addition to the SMDR interface provided in IP Office SMDR (see below). The real-time event stream takes the form of a call record, which is issued whenever the state of any endpoint of a call changes (typically there are two endpoints on a call, but for some circumstances, such as conference calls, intruded calls there may be more).

IP Office Application CD/DVD's

The IP Office applications are available on a number of CD's and DVD's. These can be ordered at a nominal cost to cover order processing and delivery. Copies of the CD images can also be downloaded from the Avaya support website at <http://support.avaya.com>.

The CD's below have also been combined onto a single DVD (SAP 700407612).

Title	Discs	Description	SAP Code
IP Office 3.2 User and Administration CD Set	5	This CD set contains the IP Office Administrator Applications CD, IP Office User Applications CD and IP Office Documentation CD's (English, German and French). See below for details of the contents of each CD. <ul style="list-style-type: none"> • CD 1: Administrator Applications CD Contains: the IP Office Wizard, Monitor, Feature Key Server, Manager, Voicemail Lite, Call Status, Delta Server, CBC, DECT Integration applications plus SNMP MIB's. • CD 2: User Applications CD Contains the IP Office Phone Manager, TAPI, DevLink, MS-CRM Integration and SoftConsole applications. • CD 3/4/5: Documentation CDs Contains an HTML and PDF collection of IP Office documentation. Available in English, French and German versions. 	700407604
Voicemail Pro 3.2 CD	2	This CD set is split into the first CD for Voicemail Pro and a second CD for the additional IP Office ContactStore application. <ul style="list-style-type: none"> • CD 1: Contains the Voicemail Pro application including components for Campaigns, IMS and VPNM. • CD 2: Contains the software for the IP Office ContactStore application. 	700407588
Voicemail Pro ScanSoft TTS CD's	5	Contains various language text to speech engines for use with Voicemail Pro's TTS functions. Languages provided are Chinese, Dutch, English (UK), English (US), French, German, Italian, Japanese, Korean, Norwegian, Brazilian Portuguese, Russian, Spanish and Latin Spanish.	700293921
Compact Contact Center V5.0 CD	1	This CD contains Delta Server, CBC and CCC.	700330962
Conference Center V3.2 CD	1	Installs the IP Office Conference Center application.	700407596
Software Developers Kit (SDK) CD	1	Contains documentation and sample code for development of third-party application that can interact with the IP Office system. These applications will require CTI license and possible other licenses.	700188873

- It is acceptable to make copies of the Avaya IP Office CD's and DVD's listed above. However the content must remain intact, unaltered and without change or addition. Avaya does not accept any liability and responsibility for damage or problems arising from the use of such copies.

Specification for IP Office Application PC's

Ethernet attached PC running as a recommended minimum Microsoft Windows 2000/2003/XP Professional, with the following minimum supported PC specification:

Product Key

- VM Lite = Voicemail Lite.
- VM Pro = Voicemail Pro.
- IMS = Integrated Messaging Pro.
- CM = Campaign Manager.
- TTS = Text To Speech.
- IVR = Third Party Database Access.
- CS = ContactStore.
- CBC = Compact Business Center.
- CCC = Compact Contact Center.

Notes:

1. Windows ME, Windows 95 and NT4 Operating Systems are no longer supported by Avaya.
2. CBC requires the associated Delta Server application to be installed on a Windows 2000/XP workstation or a 2000/2003 server. Windows 2003 server requires Delta Server 4.0(33) or above.
3. IMS and Web Campaigns options within VoiceMail Pro are only supported on Windows Servers. Aspects of operation such as Voicemail to E-mail, Integrated Messaging Pro (IMS), Web Campaigns, etc, are subject to further requirements. Please refer to the Voicemail Installation and Administration manual. Integrated Messaging Pro (IMS) is supported on Microsoft Exchange 5.5, 2000 and 2003. The R3.0GA release of VoiceMail Pro does not support IMS operation with Outlook 2003 operating in cache mode. The R3.0 maintenance release will provide this support.
4. For Phone Manager/PC Softphone Avaya recommends the use of Windows XP/2000.
5. Conferencing Center Web Client simply requires Internet Explorer 6.0 or higher (no other application required).
6. Although a server application, IP Office SMDR can also run on a Windows 2000, 2003 and Windows XP client Operating Systems but should not run on the same PC as a CBC or CCC Delta Server.
7. Windows 98 is only supported on IP Office V2.1 and V3.0 applications; it is not supported on IP Office 3.1 applications and above. Systems that are upgraded to V3.1 should have also have any Windows 98 PCs that are running IP Office applications upgraded to use Windows 2000, Windows XP or later operating systems.
8. Windows Small Business Server 2003 is supported for the same applications as Windows 2003 Server.
9. 64-Bit versions of Microsoft operating systems are not currently supported with IP Office applications.

Server Applications Dependencies

Applications	Minimum PC Resources	Intel Pentium	Intel Celeron	AMD	Notes
VM Lite	256MB RAM 2GB drive.*	Any 1.4GHz	Any 1.7GHz	Any 1.4GHz	Attempting to run the applications on lower specification PC's may cause degradation of operation and will not be supported.
VM Pro	256MB RAM 2GB drive.*	Any 1.4GHz.	Any 1.7GHz.	Any 1.4GHz.	To avoid replacing the server when adding new applications we recommend that a Pentium 4 2.8GHz (or equivalent) is used when possible.
VM Pro + IMS + CM	512MB RAM 2GB drive.*	Pentium4 2.8GHz.	Not tested	Athlon XP 3000+ All Athlon64.	
VM Pro + IVR + TTS	512MB RAM 20GB drive.*	Pentium4 2.8GHz	Not tested	Athlon XP 3000+ All Athlon64.	If the database being queried is located on the VM Pro server the query speed of the database will be affected by the amount of memory available. Please take into account the memory requirements of the database being queried.
VM Pro + CS	512MB RAM 20GB drive.*	Pentium4 2.8GHz	Not tested	Athlon XP 3000+ All Athlon64.	
VM Pro + CCC	512MB RAM 30GB drive.*	Pentium4 2.8GHz	Not tested	Athlon XP 3000+ All Athlon64.	VM Pro and CCC can be run on the same server OS up to a maximum of 25 agents, 8 ports of VM Pro.
VM Pro + CBC	512MB RAM 120GB drive.*	Pentium4 2.8GHz.	Not tested	Athlon XP 3000+ All Athlon64.	The client PC needs to be Pentium III, 800MHz with 128MB RAM minimum.
CCC	512MB RAM 10GB drive.	Any 1.4GHz.	Any 1.7GHz.	Any 1.4GHz.	
Conferencing Center	512MB RAM 80GB drive.	Pentium4 2.8GHz.	Not tested	Athlon XP 3000+ All Athlon64.	Windows XP Professional or 2000 Professional can be used but would typically support a maximum of 10 web clients. To support more than 10 clients a server OS with IIS will be required.
CBC/SMDR	256MB RAM 10GB drive. IE6.0 or higher.	Pentium III 800MHz.	Celeron3 800Mhz	Athlon B 650MHz	The Delta Server and CBC can be installed on either the same PC or on separate PC's. In both cases these are the minimum PC specifications.
Feature Key Server PC	256MB RAM 1MB free disk space.	Pentium III 800MHz.	Celeron3 800Mhz.	Athlon B 650MHz.	

*For all voicemail servers, also allow 1MB per minute for message and greeting storage.

Client Applications Dependencies

Applications	Minimum PC Resources	Intel Pentium	Intel Celeron	AMD	Notes
Conferencing Web Client	Internet Explorer 6 or above.	Any.	Any.	Any.	Any desktop machine can be used as long as it is capable of running IE6.
Phone Manager Lite/Pro	64MB RAM 160MB free disk space.	Pentium III 800MHz.	Celeron3 800Mhz.	Athlon B 650MHz.	A sound card is needed if audio features are required.
Phone Manager PC SoftPhone	64MB RAM 1GB free disk space.	Pentium III 800MHz.	Celeron3 800Mhz.	Athlon B 650MHz.	A sound card is needed.
SoftConsole	128MB RAM with 1GB of free disk space	Pentium III 800MHz.	Celeron3 800Mhz.	Athlon B 650MHz.	A maximum of four SoftConsole applications can be run per system, a license controls the number of simultaneous SoftConsole users. A sound card is needed if audio features are required.
ContactStore Web client	Internet Explorer 6.0 or above.	Any	Any	Any	Any desktop machine can be used as long as it is capable of running IE6.
IP Office Manager	128MB RAM 1GB disk space	Pentium4 600Mhz.	Not tested	AMD Opteron, Athlon 64 or Athlon XP.	For Windows XP, minimum recommend RAM increases to 256MB.
Call Status	64MB RAM 50MB disk space	Pentium III 800MHz.	Celeron 3 800Mhz.	Athlon B 650MHz.	For OS of Windows XP, minimum RAM increases to 256MB
System Monitor	128MB RAM 10GB disk space	Pentium III 800MHz.	Celeron 3 800Mhz.	Athlon B 650MHz.	For OS of Windows XP, minimum RAM increases to 256MB
Contact Center View (CCV)	128MB RAM 10GB disk space	Pentium III 800MHz.	Celeron 3 800Mhz.	Athlon B 650MHz.	For OS of Windows XP, minimum RAM increases to 256MB
CCC Reporter	Internet Explorer 6.0 or above.	Any	Any	Any	Any desktop machine can be used as long as it is capable of running IE6.
Wallboard Server	128MB RAM 10GB free disk space.	Any 1.4GHz.	Any 1.7GHz.	Any 1.4GHz.	The Wallboard Server MUST reside on the same PC as the Delta Server
Wallboard Client	128MB RAM 10GB disk space.	Pentium III 800MHz.	Celeron3 800Mhz.	Athlon B 650MHz.	For OS of Windows XP, minimum RAM increases to 256MB
PC Wallboard	128MB RAM 10GB disk space.	Pentium III 800MHz.	Celeron3 800Mhz.	Athlon B 650MHz.	For OS of Windows XP, minimum RAM increases to 256MB

Operating Systems for IP Office 3.2

The range of Windows operating systems against which IP Office 3.2 applications are tested and supported has been expanded to include Windows 2003 server. The following table gives a summary of the Server & Client Operating Systems (OS) on which various IP Office applications are tested and supported for IP Office 3.2.

Microsoft Server OS's ^{1,9}	IP Office Manager	CBC ²	CCC v5 Server	VM Lite	VM Pro ³	SMDR ⁶	Conferencing Center Server
Windows 2000 server (SP4)	✓	✓	✓	✓	✓	✓	✓
Windows 2003 server ⁸	✓	✓	✓	✓	✓	✓	✓
Windows XP Professional (SP2)	✓	✓	✗	✓	✓	✓	✗

Microsoft Client OS's ^{1,9}	IP Office Manager	CBC ²	CCC Clients	VM Lite	VM Pro ³	Soft Console	Phone Manager	Conferencing Center Client ⁵
Windows XP Professional (SP2)	✓	✓	✓	✓	✓	✓	✓	✓
Windows 2000 Professional (SP4)	✓	✓	✓	✓	✓	✓	✓	✓

Windows Operating System Service Pack Support

Operating System	Current Service Pack and Date of Availability	Next Update and Estimated Date of Availability	Notes
Windows 2000 Professional, Windows 2000 Server, Advanced Server and Datacenter Server	SP4 June 26th 2003	Dependant upon Microsoft release and Support schedule.	
Windows XP Home Edition	SP2 August 9, 2004		
Windows XP Professional	SP2 August 9, 2004		Details of how to configure IP Office applications for operation with SP2 are contained with in the IP Office Tech Tip Bulletin 49.
Windows Server 2003	N/A		Please see IP Office Tech Tip Bulletin 49.

VoIP and Network Assessments

The IP Office is a converged telephony system, that is it combines aspects of traditional PABX telephone systems and IP data network systems. This works at various levels.

- Individual phone users can control the operation of their phone through applications running on their PC.
- Data traffic can be routed from the LAN interface to a telephony trunk interface, for example a dial-up ISP connection.
- Voice traffic can be routed across internal and or external data links. This option is referred to as voice over IP (VoIP).

The VoIP mode of operation can include IP trunks between customer systems and or H.323 IP telephones for users. In either case the following factors must be considered:

- The IP Office control unit must be fitted with voice compression channels. These channels are used whenever a IP device (trunk or extension) needs to start a call and or communicate with a non-IP device (trunk or extension).
 - On systems except the Small Office Edition, this is done by fitting Voice Compression Modules (VCMs). Small Office Edition systems are pre-built with either 3 or 16 voice compression channels.
- A network assessment is a mandatory requirement. For support issues with VoIP, Avaya may request access to the network assessment results and may refuse support if those are not available or satisfactory.

A network assessment would include a determination of the following:

- A network audit to review existing equipment and evaluate its capabilities, including its ability to meet both current and planned voice and data needs.
- A determination of network objectives, including the dominant traffic type, choice of technologies, and setting voice quality objectives.
- The assessment should leave you confident that the implemented network will have the capacity for the foreseen data and voice traffic, and can support H.323, DHCP, TFTP and jitter buffers in H.323 applications.
- An outline of the expected network assessment targets is:

Test	Minimum Assessment Target
Latency	Less than 150ms.
Packet Loss	Less than 2%.
Duration	Monitor statistics once every minute for a full week.

Training

Avaya University provides a wide range of training courses for IP Office and its associated applications. This includes courses necessary for IP Office resellers to become Avaya Authorized Channel Partners and for individuals to achieve IP Office certification.

Details of all the course can be found on the Avaya University web site (<http://www.avaya-learning.com>). The site can be used to check course availability and to book course. It also includes on-line courses and on-line course assessments. The site requires users to setup a user name and password in order to track their personal training record.

The Avaya University site also includes details of the processes necessary for achieving different levels of product certification. These processes allow installers and maintainers to achieve certification in different areas such as Selling, Design, Implementation, Maintenance, Voicemail and Contact Centers. Levels of individual certification within those areas are:

- **Avaya Certified Associate (ACA).**
- **Avaya Certified Specialists (ACS).**
- **Avaya Certified Expert (ACE).**

Key IP Office courses are:

Course	Course Code
IP Office Hardware and Applications Overview	AVA00136WEN
IP Office Data Components	AVA00138WEN
IP Office Voicemail Pro	AVA00139WEN
IP Office Implementation Workshop	AVA00140H00
IP Office Advanced Applications Workshop	AVA00484H00
IP Office Telephones End-User Training	AVA00619WEN
IP Office Telephones End-User Training ILT	AVA00619H00
IP Office R3.1 Product Delta	AVA00755WEN
IP DECT (Europe only)	AVA00757WEN
IP Office Maintenance and Troubleshooting Workshop	AVA00758H00

Web Sites

Information to support the IP Office can be found on a number of web sites.

- **Avaya - <http://www.avaya.com>**
The official web site for Avaya. The front page also provides access to individual Avaya web sites for different countries.
- **Avaya Enterprise Portal - <http://partner.avaya.com>**
This is the official web site for all Avaya Business Partners. The site requires registration for a user name and password. Once accessed, the site portal can be individually customized for what products and information types you wish to see and to be notified about by email.
- **Avaya Support - <http://support.avaya.com>**
Contains documentation and other support materials for Avaya products including IP Office. Copies of the IP Office CD images are available from this site and updated core software .bin files.
- **Avaya University - <http://www.avaya-learning.com>**
This site provides access to the full range of Avaya training courses. That includes both on-line courses, course assessments and access to details of classroom based courses. The site requires users to register in order to provide the user with access to details of their training record. See Training.
- **Avaya Community - <http://www.aucommunity.com>**
This is the official discussion forum for Avaya product users. However it does not include any separate area for discussion of IP Office issues.
- **Avaya IP Office Knowledge Base - <http://www.avaya.com/ipoffice/knowledgebase>**
Access to an on-line regularly updated version of the IP Office Knowledge Base. Currently this link is only available to Avaya Business Partners while running an ARA account (Avaya Remote Access) connection.
- **Avaya UPS Calculator - http://ups.avayaups.com/AC_01.asp**
An online calculator for uninterruptable power supply (UPS) requirements. Allows specification of a range of equipment to be supported including IP Office 403, 406 and 412 control units. See Power Supply Backup (UPS).
- **Other Non-Avaya Web Sites**
A number of third-party web forums exist that discuss IP Office. These can act as useful source of information about how the IP Office is used. Some of these forums require you to be a member and to register. These are not official Avaya forums and their content is not monitored or sanctioned by Avaya.
 - **Tek-Tips - <http://www.tek-tips.com>.**
 - **Yahoo Groups - <http://groups.yahoo.com/group/ipoffice>.**
 - **Lycos Forum - <http://members.lycos.co.uk/ipoffice>.**
 - **PBX Tech - <http://www.pbxtech.info/forumdisplay.php?f=8>.**
 - **IP Office Italian - <http://www.ipoffice.it>.**
 - **IP Office UK - <http://www.ipofficeforum.co.uk>.**

Planning

Space Requirements

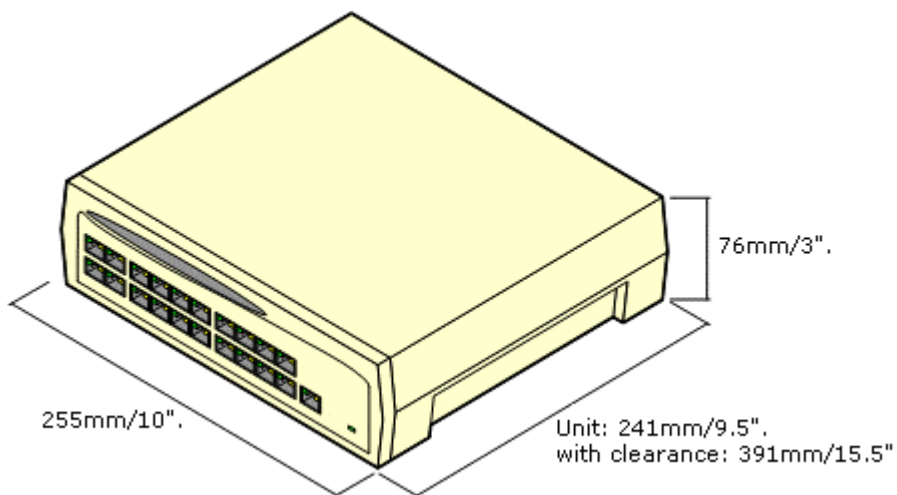
The Small Office Edition is designed to be free-standing or wall mounted. The base includes integral screw-head slots for wall mounting and an additional bracket is supplied with the module for a locking screw.

All the other IP Office control units and modules are designed to be installed either in a free-standing stack or into a 19" rack system. Rack installation requires a rack mounting kit for each control unit and expansion module.

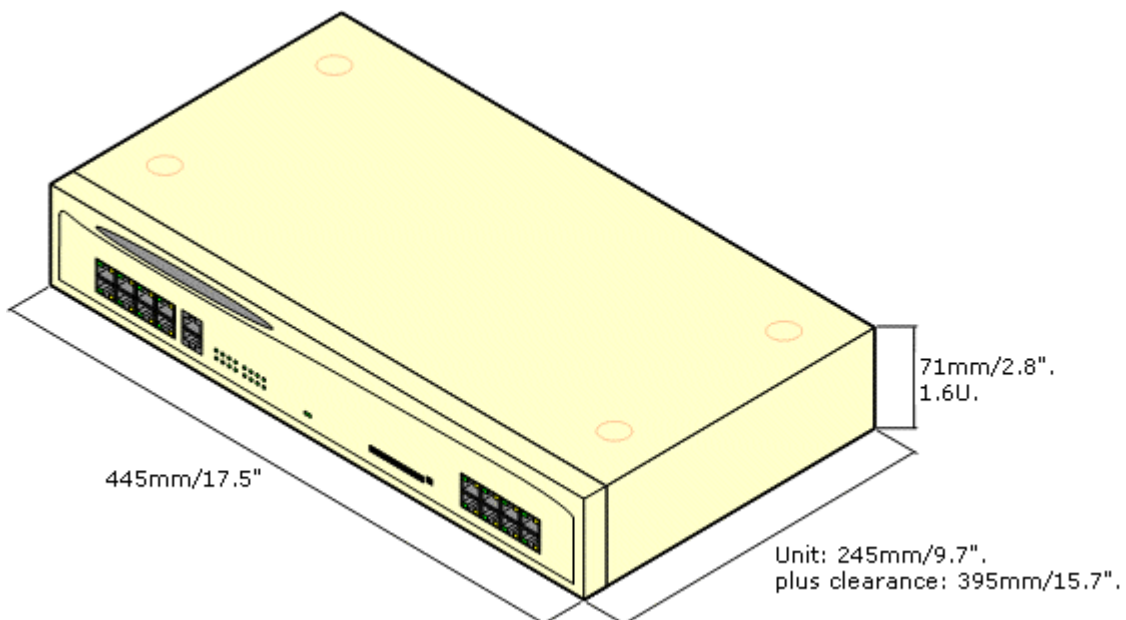
Dimension	Small Office Edition	All Other Units and Modules
Height	76mm / 3 inches.	71mm / 2.8 inches / 1.6U.
Width	255mm / 10 inches.	445mm / 17.5 inches.
Depth	241mm / 9.5 inches.	245mm / 9.7 inches.

- **Cable Clearance:**
Allow a minimum clearance of 75mm (3 inches) at the front and rear of all modules for cable access and feature key dongle connection.
- **Additional Clearance:**
Care should be taken to ensure that the positioning of the modules does not interrupt air flow and other factors that may affect environmental requirements.

Small Office Edition Control Unit



Other Control Units and External Expansion Modules



Environmental requirements

The planned location must meet the following requirements. If being installed into a rack system, these are requirements for within the rack:

1. **Temperature:** 0°C to 40°C / 32°F to 104°F.
2. **Humidity:** 10% to 95% non-condensing.
3. Check there are no flammable materials in the area.
4. Check there is no possibility of flooding.
5. Check that no other machinery or equipment needs to be moved first.
6. Check that it is not an excessively dusty atmosphere.
7. Check that the area is unlikely to suffer rapid changes in temperature and humidity.
8. Check for the proximity of strong magnetic fields, sources of radio frequency and other electrical interference.
9. Check there are no corrosive chemicals or gasses.
10. Check there is no excessive vibration or potential of excessive vibration, especially of any mounting surface.
11. Check that where telephones are installed in another building, that the appropriate protectors and protective grounds are fitted (see Out of Building Telephone Installation).
12. Check there is suitable lighting for installation, system programming and future maintenance.
13. Check that there is sufficient working space for installation and future maintenance.
14. Ensure that likely activities near the system will not cause any problems, e.g. access to and maintenance of any other equipment in the area.

IMPORTANT SAFETY INSTRUCTIONS

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

Tools and Parts Required

This section outlines the tools and miscellaneous parts likely to be required during the setup of an IP Office system. Other tools may also be required.



Tools Required

1. Pozidrive No. 1 screwdriver for removal of module covers.
2. Cutter for cable ties.
3. Pozidrive No. 4 screwdriver.
4. Wrist-strap for anti-static grounding or similar.
5. PC running Windows 2000/XP/2003.
During the Staging Installation later in this manual, we recommend that you use a customer PC that will eventually remain on site. Ideally this will be the same PC that will be used as the customers Feature Key server and or voicemail server.
6. Indelible marker for cable labelling.



Parts Required

1. Cable ties.
2. Cabling labels.
3. IP Office CD Pack
Contains IP Office Administration Applications CD, IP Office User Applications CD and IP Office Engineers Toolkit CD.
4. Technical Bulletins
Each IP Office software release is normally accompanied by a Technical Bulletin detailing special installation requirements, known issues, etc. Various software releases and their associated Technical Bulletins can also be obtained from <http://support.avaya.com>.

System Details

Completing the details within these forms will help ensure a successful installation and implementation. It may be necessary for both the customer and the installer to go through the forms several times to complete the details.

A. Customer Principal Contact

This should be a person, nominated by the customer, able to approve installation decisions and choices.

1. Name	
2. Telephone	
3. Fax	
4. Email	

B. Customer Technical Contact

This should be a person, nominated by the customer, familiar with their existing data/telephony systems and able to arrange or authorize network accounts, server reboots, etc.

1. Name	
2. Telephone	
3. Fax	
4. Email	

C. Site Details

1. Site Name	
2. Address	
3. Normal Business Hours	
4. Out of Hours Access Notes	
5. Target Service Date	

D. Planned System Location

1. Location	
2. Access Control	
3. Temperature Range	<input type="checkbox"/> Allowable 0°C to 40°C/32°F to 104°F.
4. Humidity Range	<input type="checkbox"/> Allowable 10% to 95% non-condensing.
5. Space Required	<input type="checkbox"/> Allow 1.6U (3") per control unit and module.
6. Power Supply Sockets	___ 1 per control unit plus 1 per expansion module. Also include supplies for any server PC's and monitors.
7. Install Method	<input type="checkbox"/> Free Standing. <input type="checkbox"/> Rack Mount (Not SOE). <input type="checkbox"/> Wall Mount (SOE Only)

E. Control Unit		
Control Unit	<input type="checkbox"/> IP403, <input type="checkbox"/> 406V1, <input type="checkbox"/> 406 V2, <input type="checkbox"/> 412, <input type="checkbox"/> Small Office Edition.	
Trunk Slot A		No Dual PRI except IP406 V2 and IP412. No E1 or E1R2 on Small Office Edition.
Trunk Slot B		Not Small Office Edition. No Dual PRI except IP412
VCM Card 1		Maximum channels: IP403 = 20, IP406 V1 = 20, IP406 V2 = 30, IP412 = 60.
VCM Card 2		IP412 only.
Modem Card	<input type="checkbox"/> Modem 2 Card, <input type="checkbox"/> Internal Modem card	

F. Expansion Modules		
1.		Not Small Office Edition.
2.		
3.		
4.		IP406 V1, IP406 V2 and IP412 only.
5.		
6.		
7.		IP412 only.
8.		
9.		
10.		
11.		
12.		
WAN1		Not Small Office Edition.
WAN2		

G. Power Cords

Control Unit	<input type="checkbox"/> IEC60320 C7 x 1	<i>IP403 and IP406 V1.</i>
	<input type="checkbox"/> IEC60320 C13 x 1	<i>IP406 V2, IP412 and Small Office Edition.</i>
Expansion Units	<input type="checkbox"/> IEC60320 C7 x ___	<i>Analog, Digital Station V1, Phone V1.</i>
	<input type="checkbox"/> IEC60320 C13 x ___	<i>Digital Station V2, Phone V2, S08 and WAN3 10/100.</i>

H. IP Addresses

System Name			
System Password			
Locale			<i>See Supported Country Locales</i>
Time Server IP Address			<i>Default: 255.255.255.255.</i>
TFTP Server IP Address			<i>Default: Blank.</i>
LAN1	IP Address		<i>Default: 192.168.42.1</i>
	Subnet Mask		<i>Default: 255.255.255.0.</i>
	DHCP Mode	<input type="checkbox"/> Server, <input type="checkbox"/> Dial In Only, <input type="checkbox"/> Client, <input type="checkbox"/> Disabled	<i>Server</i>
	Number of DHCP Addresses		<i>Default: 200.</i>
LAN2	IP Address		<i>Default: 192.168.43.1</i>
	Subnet Mask		<i>Default: 255.255.255.0.</i>
	DHCP Mode	<input type="checkbox"/> Server, <input type="checkbox"/> Dial In Only, <input type="checkbox"/> Client, <input type="checkbox"/> Disabled	<i>Server</i>
	Number of DHCP Addresses		<i>Default: 200.</i>

I. Licenses		
Feature Key Type	<input type="checkbox"/> Serial, <input type="checkbox"/> USB, <input type="checkbox"/> Parallel	<i>Serial on Small Office Edition, IP406 V2 and IP412 only.</i>
Feature Key Serial Number		
Feature Key Server IP Address		<i>Default: 255.255.255.255. Blank if using serial port Feature Key.</i>
License Name	Key	

J. Dial Plan Base Numbering		
Base Extension Number	_____	201
Base Hunt Group Extension Number	_____	300
Base Line Number	_____	801

K. Voicemail		
Voicemail Type	<input type="checkbox"/> Embedded (Integral)	<i>Small Office Edition and IP406 V2 only.</i>
	<input type="checkbox"/> Voicemail Lite	
	<input type="checkbox"/> Voicemail Pro	
	<input type="checkbox"/> Centralized Voicemail Pro	<i>Requires SCN IP trunk to IP Office hosting Voicemail Pro.</i>
	<input type="checkbox"/> Centralized (Intuity Audix) Voicemail	
	<input type="checkbox"/> None	
Server IP Address		<i>Voicemail Lite/Pro. Default: 255.255.255.255.</i>

L. Call Handling Parameters

Automatic Hold	_____	<i>Default On</i>
Hold Time	_____ seconds	<i>Default 90 seconds.</i>
Park Time	_____ seconds	<i>Default 300 seconds.</i>
Emergency Numbers		<i>Default None</i>
Restricted Numbers		

M. Speed Dials

Directory Name	Dialing Short Code	Telephone Number

IP403/IP406 V2 Control Unit Ports

Site Name		Date	
------------------	--	-------------	--

Ports	Port User Details			
	Extension Number	User Name	Location	Device Type
DS	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
PHONE	1			
	2			

Small Office Edition Control Unit

Site Name		Date	
------------------	--	-------------	--

Small Office Edition 4T+4A+8DS.

Ports		Port User Details			
		Extension Number	User Name	Location	Device Type
PHONE (POT)	1				
	2				
	3				
	4				
DS	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				

Small Office Edition 2T+4A.

Ports		Port User Details			
		Extension Number	User Name	Location	Device Type
PHONE (POT)	1				
	2				
	3				
	4				

Small Office Edition 4T+8A.

Ports		Port User Details			
		Extension Number	User Name	Location	Device Type
PHONE (POT)	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				

Expansion Module: # _____

Site Name		Date	
------------------	--	-------------	--

- ATM16, DS16, DS30, Phone8, Phone 16, Phone 30, So8.
- DS16 V2, DS30 V2, Phone8 V2, Phone16 V2, Phone30 V2.

Port	Port User Details			
	Extension Number	User Name	Location	Device Type
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

Pre-Configuration

Off Line Configuration

Manager supports a number of methods by which the configuration of an IP Office system can be setup in advanced of the physical IP Office. This allows pre-configuration and speeds up the actual on-site installation.

It also allows potential configuration questions to be raised and resolved with the customer in advance of the on-site installation, reducing the number of post-installation changes required.

- **Creating a New Configuration**

Manager can be used to create a new configuration, specifying the locale, control unit type, expansion modules and trunk cards in the process. This then gives a default configuration onto which the customer requirements can be prepared.

- **Importing Settings**

Manager can import settings in the form a simple CSV files. It can also be used to export the settings from another IP Office system's configuration and then import those settings into a different configuration.


Creating a New Configuration

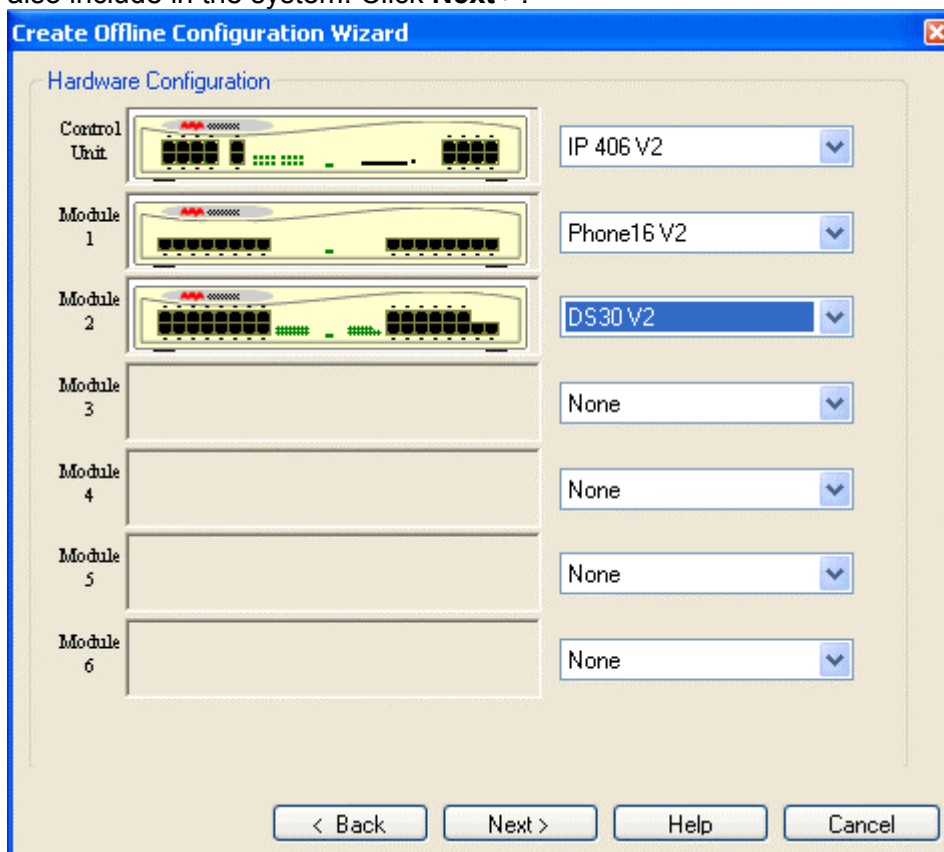
Manager can be used to create a new configuration without connecting to an IP Office system. During the process, you can specify the locale of the system, what type of trunk cards it uses and what type of control unit and expansion modules to include.

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 your 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

This page is used for context sensitive help ID #32023 and 32025.

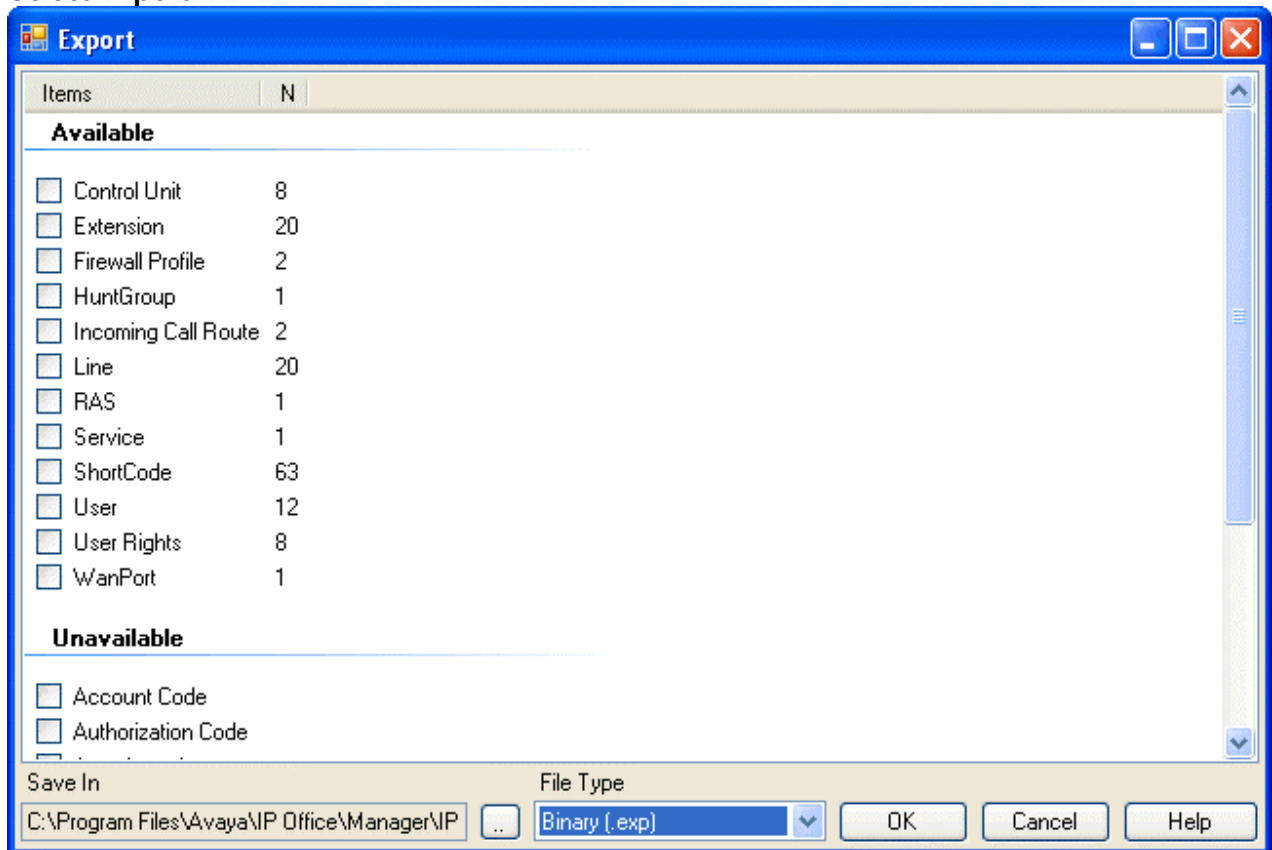
Manager can import configuration settings created elsewhere. This can be useful when setting up a new system or sharing common settings such as a directory between systems.

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**.

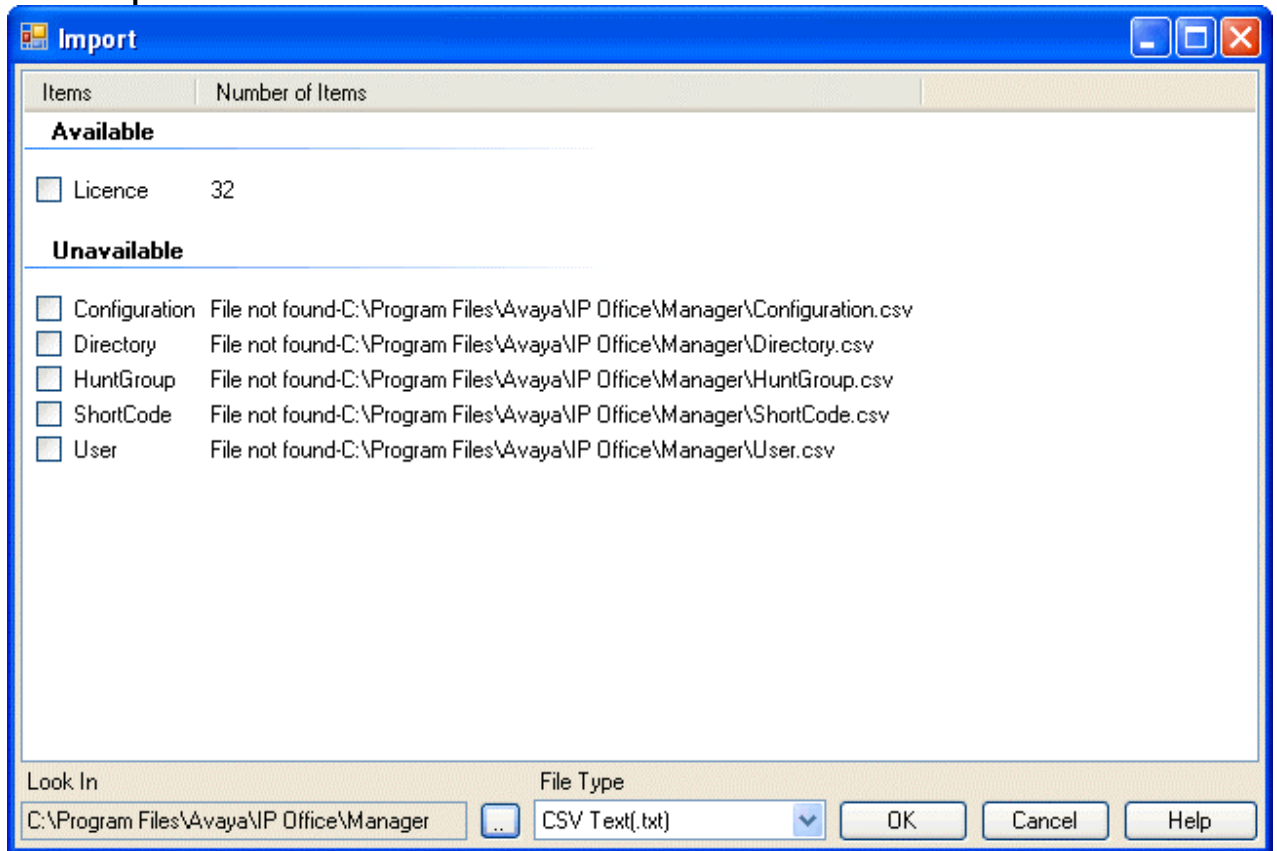


3. Select the type of file. The list of exportable entry types will change to match the file type.
4. Select the types of items that should be exported.
5. Use the **Save In** path to select the location for the exported files. The default location used is sub-directory of the Manager application directory 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	<i>Proprietary format</i>

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.

A. Basic Installation

01. Unpacking Equipment

Use the following procedure when unpacking any equipment supplied by Avaya or an Avaya distributor.

Objective

To check that the correct equipment has been supplied and that no damage has occurred during transit.

Information Required

1. **Equipment Checklist.**
Draw up an installation checklist of the parts and equipment expected.

Procedure

1. **Check for Package Damage.**
Before unpacking any equipment, check for any signs of damage that may have occurred during transit. If any damage exists bring it to the attention of the carrier.
2. **Check the Correct Parts Have Been Delivered.**
Check all cartons against the packing slip and ensure that you have the correct items. Report any errors or omissions to the equipment supplier.
3. **Retain All Packaging and Documentation.**
While unpacking the equipment, retain all the packaging material. Fault returns are accepted only if repackaged in the original packaging. If performing a staged installation, the original packaging will also assist when repacking equipment to be moved to the final install site.
4. **Check All Parts.**
Visually inspect each item and check that all the necessary documentation and accessory items have been included. Report any errors or omissions to the dealer who supplied the equipment.
5. **Check All Documentation.**
Ensure that you read and retain any documentation included with any items.
6. Proceed to **02. Installing the Admin Applications.**

02. Installing the IP Office Admin Applications

This procedure covers installation of applications in the IP Office Admin suite.

Objective

To install the applications necessary for the installation and maintenance of an IP Office system.

Information Required

1. Which IP Office Admin Suite applications are being installed?

The following list indicates those that are required for installation and configuration:

- **System Monitor - Install**
Monitor is a tool intended primarily for Avaya technicians and engineers. However it is able to report on the presence of hardware devices not reported by the IP Office Manager application and is therefore an important tool for installation.
- **Feature Key Server - Optional**
The Feature Key Server should only be installed if the PC will host the parallel port or USB port Feature Key dongle for the IP Office system.
- **Manager - Install**
This application is required to edit and manage the software on the IP Office system.
- **Voicemail Mail Lite - Optional**
Only install this application if no other voicemail such as Voicemail Pro or embedded voicemail is being installed.
- **Call Status - Optional**
This is a useful tool for seeing all current calls in progress.

Parts Required

1. IP Office Administrator Applications CD.

2. Windows PC

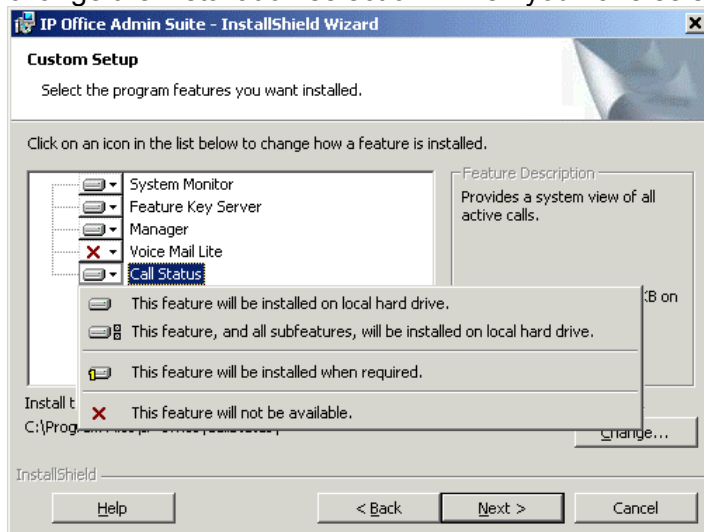
This should meet the requirements of the administrator applications being installed. If a server PC from the customer installation is available, for example for Voicemail Pro, use that PC. The specification below is just for IP Office Manager. If other applications are to be installed on the PC then their requirements should also be met.

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.	



Procedure: Installing the IP Office Admin Applications

1. Using the **Add or Remove Programs** option in the Windows Control Panel, check that the PC does not already have a version of the IP Office Admin suite installed.
 - If 'yes' and the suite is a pre-IP Office 3.2 version, remove the existing IP Office Admin suite via **Add/Remove Programs**.
 - If the existing suite is IP Office 3.2 or higher, it is possible to upgrade without removing the previous installation.
2. Insert the IP Office Administrator Applications 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 your Windows regional setting. Click **Next >**.
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 >**.



- a. For IP Office system installations, ensure that at minimum **System Monitor** and **Manager** are selected.
 - b. Only select **Voicemail** if this PC will also be the customer's Voicemail Lite server PC.
 - c. Deselect **Feature Key Server** unless this PC will be hosting a Parallel port or USB port Feature Key dongle for the customer's IP Office system.
7. Click **Install**.
 8. Installation of Windows .Net2 components may be required. If dialogs for this appear, follow the prompts to install .Net.
 9. If requested, reboot the PC.
 10. Proceed to **Stage 3. Control Unit Power Up**.

03. Control Unit Power Up

This procedure starts a new IP Office control unit without the unit being connected to any LAN. In this scenario the IP Office control unit will assume its default configuration settings.

Objective

To power up the IP Office control unit to a known state with a known set of defaults.

Parts and Equipment Required

1. **Switched power outlet socket.**
2. **IP Office Control Unit.**
All control units are supplied with an external power supply unit.
3. **Locale Specific Power Cord.**
4. **LAN Cable.**
 - IP Office Small Office Edition, IP403, IP406 V1 and IP406 V2 Control Units: A standard RJ45-RJ45 LAN cable can be used.
 - IP412 Control Unit: A RJ45-RJ45 cross-over LAN cable is required.

1.
2.
3.

Procedure

1. Remove the control unit from its box and check its condition. Check that an external power supply unit has been included with the control unit.
2. Connect the external power supply unit to the control unit.
3. Connect the power cord from the power supply outlet to the external power supply unit.
4. Switch on power to the control unit.
5. Observe the center LED on the front of the control unit (on the far-right on a Small Office Edition control unit). Initially this LED will be red. After approximately 10 seconds it should change to green. During this time other LED's may flash as the unit goes through its power on self test cycle.
6. Proceed to **04. Receiving the Configuration.**

IP Office Default Settings

The following are the basic default configuration settings for an IP Office system.

System	
Name	MAC address of the control unit.
System Password	password
License Server IP Address	255.255.255.255
LAN1	
IP address	192.168.42.1.
IP Mask	255.255.255.0
DHCP Mode	Server
No of DHCP IP Addresses	200.
LAN2	
IP address	192.168.43.1
IP Mask	255.255.255.0
DHCP Mode	Server
No of DHCP IP Addresses	200

- **Extensions and Users**

A user is automatically created for each physical extension port detected in the system. That covers integral ports on the control unit and ports of any expansion modules detected during the control unit power up.

- Users are assigned extension numbers starting from 201.
- User names take the form Extn201, Extn202,

- **Hunt Group**

A single hunt group 200 called **Main** is created and the first 10 users are placed into that hunt group as members.

- **Incoming Call Routes**

Two default incoming call routes are created.

- Voice calls are routed to the hunt group **Main**.
- Data calls are routed to the RAS user **DialIn**.

04. Connecting the Manager PC

At this stage we will directly connect the Manager PC to the new/defaulted IP Office control unit. For this the PC will need to be set to a fixed IP address in the same subnet range as the IP Office control unit's default address.



Objective

Physically connecting the Manager PC and the IP Office without needing to adjust or configure any intervening equipment.

Parts and Equipment Required

1. **Manager PC.**
2. **LAN Cable.**
 - IP Office Small Office Edition, IP403, IP406 V1 and IP406 V2 Control Units: A standard RJ45-RJ45 LAN cable can be used.
 - IP412 Control Unit: A RJ45-RJ45 cross-over LAN cable is required.

**Procedure: Direct Connection to a Defaulted IP Office Control Unit**

1. Check that the TCP/IP properties for the Manager PC's Local Area Network connection are set as follow:
 - Fixed IP address: 192.168.42.203
 - Subnet mask: 255.255.255.255
 - Default gateway: 192.168.42.1.
2. Connect the LAN cable from the PC's LAN port the LAN 1 port on the IP Office control unit.



3. Check that the orange LED lamp on the IP Office LAN port is on. The green LED may also be flickering as it indicates traffic across the LAN connection.
4. Select **Start | Run** and enter **cmd**.
5. In the command window that appears enter **ping 192.168.42.1**. The results should show a number of ping replies from the IP Office. This confirms basic communication between the Manager PC and the IP Office.
6. If there are no ping replies
 1. Enter **ipconfig**. The results should list the IP address settings of the Manager PC as required above and with no mention of DHCP being used. Enter exit.
7. Check the cable connection.

05. Receiving a Configuration (Pre-3.2)

The following is the normal procedure for receiving a copy of the IP Office configuration from a new or defaulted control unit running pre-3.2 IP Office core software.


Objective

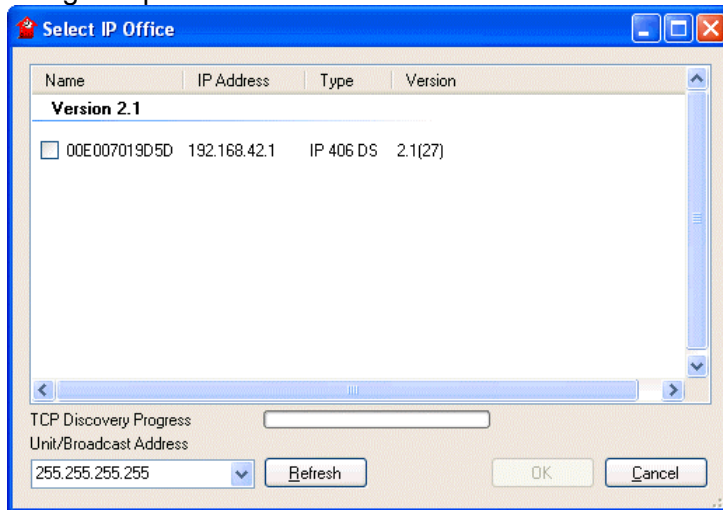
This process tests the communication between the Manager application and the IP Office control unit.

Information Required

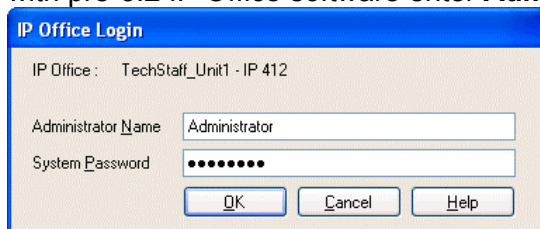
1. **System Password**
For a new or defaulted system this is *password*.

Procedure: Receiving the Configuration from a Pre-3.2 IP Office Control Unit

1. Select **Start | Programs | IP Office | Manager**.
2. Click  in the main toolbar or select **File | Open Configuration** from the menu bar.
3. The **Select IP Office** window appears. After a few seconds it should list the control unit that is being setup. The default name used is the control units MAC address.



- 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.
4. Click the check the box next to the system and then click **OK**.
 5. The name and password request is displayed. The name must match a Manager operator and the password must match the IP Office control unit's system password. For a defaulted IP Office with pre-3.2 IP Office software enter **Administrator** and **password**.



- The name and password used above are applicable to new control units which are supplied with a basic IP Office 2.1 level of software. Once upgraded to IP Office 3.2 the name and password required change.
6. Successful receiving of the configuration is shown by the full configuration tree being shown in the left-hand panel. With no configuration loaded the configuration tree shows just **BOOTP** and **Operator**.
 7. Proceed to **06. Using Monitor**.

06. Checking the System Using System Monitor

Monitor is a tool intended primarily for Avaya technicians and engineers. However it is also able to report the presence of hardware devices that are not reported by the IP Office Manager application and is therefore an important tool during the installation process. This process shows how System Monitor can be used to obtain information about the components installed with the IP Office control unit.

Objective

To introduce System Monitor so that it can be used during later stages of installation to confirm the correct installation of some components into the control unit.

Warnings

1. Running Monitor can create a high network load on the IP Office system. Therefore it should only be used when necessary and should be closed when not needed.

Information Required

1. **System IP Address.**
For a new or defaulted system this will still be **192.168.42.1**.
2. **System Password.**
For a new or defaulted system this is **password**.



Procedure: Running Monitor

1. Select **Start | Programs | IP Office | Monitor**.
2. If Monitor has been run before it will attempt to connect with the system which is monitored previously. If you want to monitor a different system use the steps below.
3. Select **File** and then **Select Unit**.
4. Enter the **IP Address** and **Password** (see below) of the IP Office control unit you want to monitor.
 - For a new or defaulted control unit the IP address is **192.168.42.1** and the password is **password**.
 - Following installation, the IP Office control unit can be configured with a specific **Monitor Password** for Monitor access to an IP Office system. If the IP Office does not have a **Monitor Password** set, Monitor uses the IP Office's **System Password**.
5. For an IP Office system, ensure that **IP Office** is selected.
6. Click **OK**.
7. The first few lines give information about various aspects of the IP Office system. For example:

```

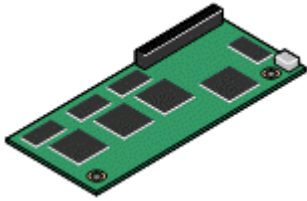
***** SysMonitor v5.2 (8) *****
***** contact made with 192.168.42.1 at 08:55:49 3/5/2006 *****
***** System (192.168.42.1) has been up and running for 16hrs, 36mins and 43secs(59803996mS) *****
***** Warning: TEXT File Logging selected *****
***** Warning: TEXT Logging to File STOPPED on 3/5/2006 08:55:49 *****

OmS PRN: Monitor Started IP=192.168.42.203 IP 406 DS 3.2(8) IPOffice_1
lmS PRN: LAW=U PRI=0, BRI=0, ALOG=0, ADSL=0 VCOMP=16, MDM=0, WAN=0, MODU=1 LANM=0 CkSRC=0 VMAIL=1(VER=2 TYP=1) CALLS=0(TOT=2)
26OmS Interface Rx: v=LAN1 LAN
Ethernet Header info - dst=00e007020b83 src=0013d3a77a06 len=73
IP Header info - Dst=192.168.42.1 Src=192.168.42.203 vl=0x45 tos=0x00 len=59 id=0x73a4
  
```

- **LAW** = A or U law system.
 - **PRI** = Number of PRI channels
 - **BRI** = Number of BRI channels.
 - **ALOG** = Number of Analog Trunk Channels
 - **VCOMP** = Number of VCM channels installed.
 - **MDM** = Size of Modem Card Fitted
 - **WAN** = Number of WAN Ports configured.
 - **MODU** = Number of external expansion modules.
 - **LANM** = Number of WAN3 Modules attached.
 - **CkSRC** = Current Clock Source (ISDN port number - 0 = Internal Clock Source)
 - **VMAIL** = 1 if connected, 0 if not connected.
 - **VER** = the s/w version of the voicemail server if obtainable.
 - **TYP** = Type of Voicemail Server: 0 = None, 1 = PC (Voicemail Lite or Pro), 2 = Line, 3 = Integral, 4 = Group, 5 = Audix.
 - **CALLS** = Number of current calls
 - **TOT** = total number of calls made to date since last IP Office reboot.
8. Close Monitor until it is needed again. When restarted, Monitor will attempt to reconnect using the last settings entered.
 9. For Small Office Edition control units, proceed to **09. Fitting Trunk Cards**. For all other control units proceed to **07. Fitting VCM Cards**.

07. Fitting VCM Cards

- If no VCM card is being installed into the system, proceed to 08. Fitting Modem Cards.



VCM cards are used to provide voice compression channels for calls between IP and non-IP devices, devices being both trunks and extensions. VCM cards with differing numbers of voice compression channels are available.

Objective

To fit the card and confirm its presence after restarting the IP Office.

Warnings

1. Correct anti-static protection steps should be taken before handling circuit boards.
2. During this process power to the IP Office control unit must be switched off and disconnected.

Parts and Equipment Required

1. **VCM Card.**

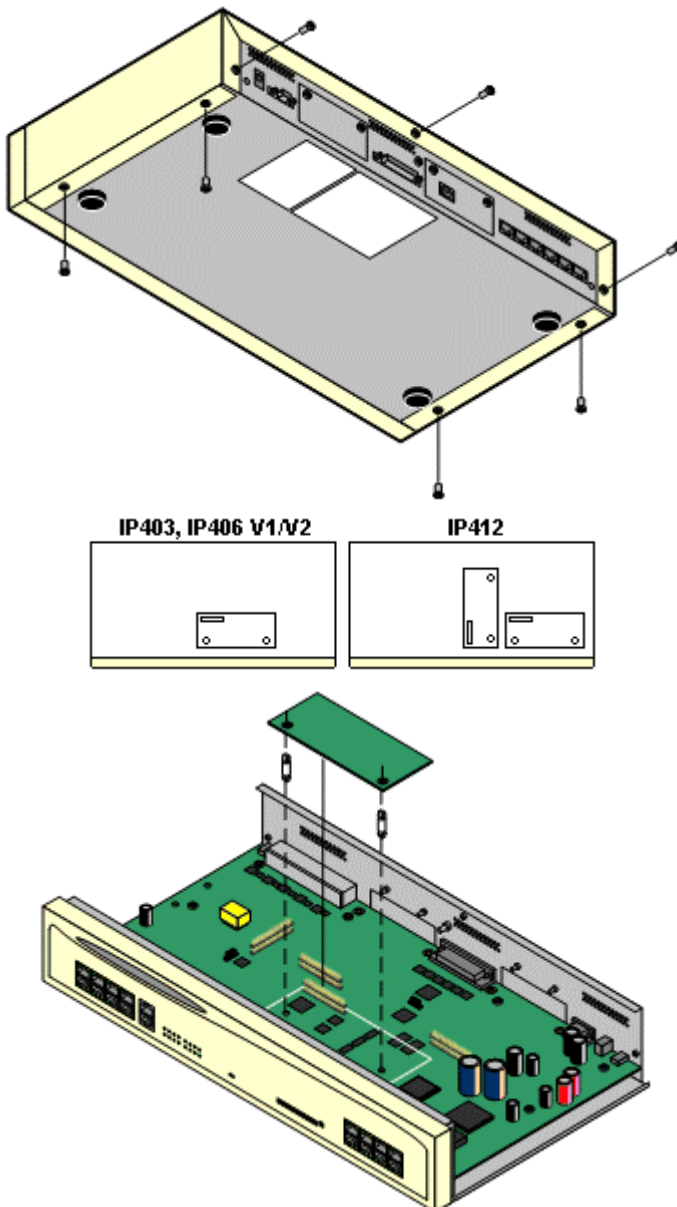
Check that the correct card has been supplied. The number and maximum capacity supported varies between different IP Office control units. All cards are supplied with 2 plastic snap-in spacer pegs.

VCM Cards	SAP Code	SOE	IP403	IP406 V1	IP406 V2	IP412	
Voice Compression Modules (25ms echo cancellation)	VCM5	700185119	✗	✓	✓	✓	
	VCM10	700185127	✗	✓	✓	✓	
	VCM20	700185135	✗	✓	✓	✓	
	VCM30	700293939	✗	✗	✗	✓	
Voice Compression Modules (64ms echo cancellation)	VCM4	700359854	✗	✓	✓	✓	
	VCM8	700359862	✗	✓	✓	✓	
	VCM16	700359870	✗	✓	✓	✓	
	VCM24	700359888	✗	✗	✗	✓	
Number of VCM cards.			0	1	1	1	2
Maximum number of channels.			3/16	20	20	30	60

Tools Required.

1. **Cross-head screwdriver.**
2. **Anti-static wrist strap and ground point.**
3. **IP Office Monitor application.**

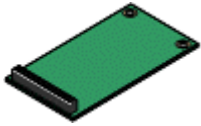
1. Procedure: Installing VCM Cards



1. Check that correct card has been supplied.
2. Ensure that you are wearing an anti-static wrist strap connected to a suitable ground point.
2. Remove the 7 screws fixing the IP Office control unit cover and slide the cover off the control unit.
3. Locate the position for the card and its jumper block.
4. Using the card as a template locate the two holes in the control unit circuit board. Insert the spacer pegs into these holes.
5. Using minimal force and checking that the pins are correctly located, push the card onto the jumper block and spacer pegs.
6. If other cards are being fitted, proceed to **08. Fitting Modem Cards**.
7. Slide the control unit cover back on and replace the cover screws.
8. Reapply power to the control unit and check that it restarts correctly.
9. Using the IP Office Monitor application, confirm that the correct number of voice compression channels are reported. They are shown by the value **VCOMP=** at the start of the Monitor trace.

08. Fitting Modem Cards

- If no modem card is being fitted into the system, proceed to 09. Fitting Trunk Cards.



 **Objective**

To fit and verify the presence of a modem card.

 **Warnings**

1. Correct anti-static protection steps should be taken before handling circuit boards.
2. During this process power to the IP Office control unit must be switched off and disconnected.

 **Parts and Equipment Required**

1. **Modem Card**

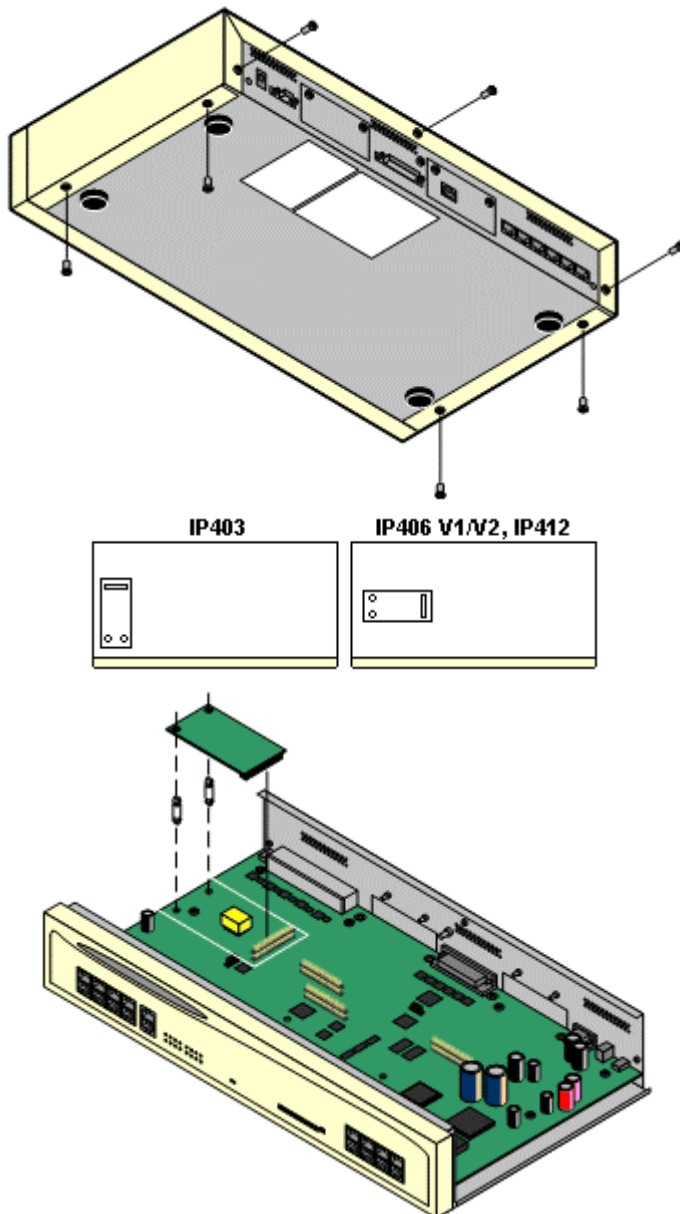
Check that the correct card has been supplied. The number and maximum capacity supported varies between different IP Office control units. All cards are supplied with 2 plastic snap-in spacer pegs.

Modem Cards	SAP Code	SOE	IP403	IP406		IP412	
				V1	V2	V1	V2
Internal Modem Card: Provides 12 V.90 modem channels, 4 only in the IP403 control unit.	700343452	✗	✓	✗	✓	✓	✓
Modem 2 Card: Provides 2 V.90 modem channels.	700185226	✗	✓	✓	✓	✓	✓

 **Tools Required**

1. **Cross-head screwdriver.**
2. **Anti-static wrist strap and ground point.**
3. **IP Office Monitor application.**

1. Procedure: Installing Modem Cards



1. Check that correct card has been supplied.
2. Ensure that you are wearing an anti-static wrist strap connected to a suitable ground point.
3. Remove the 7 screws fixing the IP Office control unit cover and slide the cover off the unit.
4. Locate the position for the card and its jumper block.
5. Using the card as a template locate the two holes in the control unit circuit board. Insert the spacer pegs into these holes.
6. Using minimal force and checking that the pins are correctly located, push the card onto the jumper block and spacer pegs.
7. If other cards are being fitted, proceed to **09. Fitting Trunk Cards.**
8. Slide the control unit cover back on and replace the cover screws.
9. Reapply power to the control unit and check that it restarts correctly.
10. Using the IP Office Monitor application, confirm that the correct number of modem channels are now reported. They are shown by the value **MDM=** when Monitor first connects to the control unit.

09. Fitting Trunk Interface Cards

- For Small Office Edition control units go to Stage 9c. Fitting Trunk Cards (Small Office Edition).

All trunk cards are supplied with 2 plastic snap-in spacer pegs and a blanking plate appropriate to the cards ports. E1R2 coaxial trunk cards include additional grounding strap, screws and bolts.

Except where otherwise indicated, it is recommended that **Slot B** is used first.

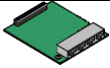
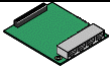

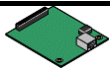
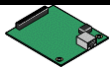
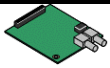
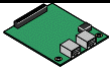
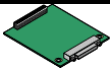
Warnings

1. Correct anti-static protection steps should be taken before handling circuit boards.
2. During this process power to the IP Office control unit must be switched off and disconnected.

Parts and Equipment Required

1. **Trunk Card or Cards**

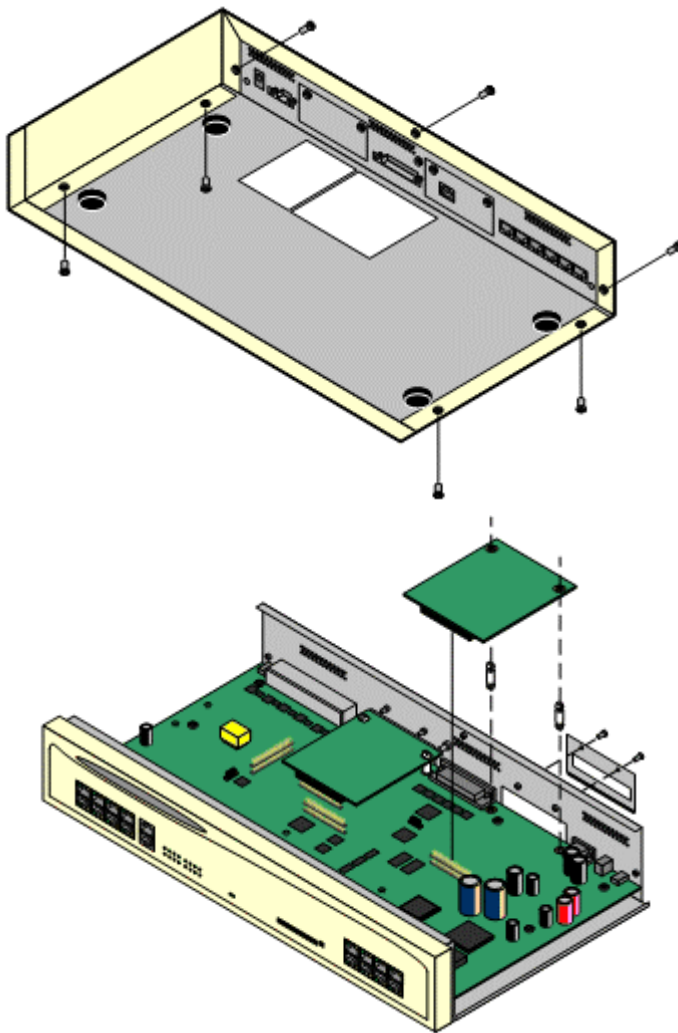
Check that the correct card has been supplied. The number and maximum capacity supported varies between different IP Office control units. All cards are supplied with 2 plastic snap-in spacer pegs.

Trunk Cards		SOE	IP403	IP406		IP412
				V1	V2	
	Analog Trunk Card (ATM4)	✗	✓	✓	✓	✓
	Analog Trunk Card (ATM4U)	✗	✓	✓	✓	✓
	Quad BRI Trunk Card	✓	✓	✓	✓	✓
	Single PRI T1 Trunk Cards	✓	✓	✓	✓	✓
	Single E1 PRI Trunk Cards	✗	✓	✓	✓	✓
	Single E1R2 Trunk Cards	✗	✓	✓	✓	✓
	Dual PRI Trunk Cards	✗	✗	✗	✓	✓
	WAN Port Card	✓	✗	✗	✗	✗

Tools Required

1. Cross-head screwdriver.
2. Anti-static wrist strap and ground point.
3. IP Office Monitor application.

1. Procedure: Fitting Trunk Cards



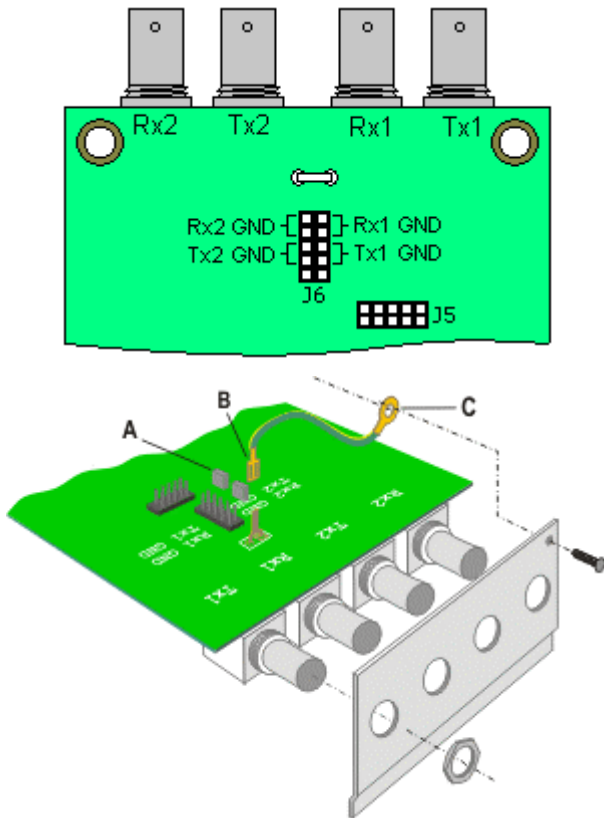
1. Check that correct card has been supplied. Dual PRI cards are only supported in Slot A of the IP406 V2 control unit or both slots on an IP412 control unit.
2. Ensure that you are wearing a ground wrist strap connected to a suitable ground point.
3. Remove the 7 screws fixing the IP Office control unit cover and slide the cover off the unit.
4. Remove the 2 screws fixing the slot blanking plate.
5. Attach the replacement blanking plate.
6. Using the card as a template locate the two holes in the control unit circuit board. Insert the spacer pegs into these holes.
7. Using minimal force and checking that the pins are correctly located, push the card onto the jumper block and spacer pegs.
8. **Coaxial E1R2 Trunk Cards Only:** For these trunk cards care must be taken to ground the connectors. See the following section for details. This must be completed before proceeding any further.
7. Reapply power to the control unit and check that it restarts correctly.
8. Using Manager, receive the IP Office configuration and check that the lines are now shown.
9. If Modem and VCM cards were also fitted whilst the control unit was open, use Monitor to check that the **VCOMP** and **MDM** values match the cards fitted.
10. Proceed to **Stage 10. Adding Expansion Modules.**

Stage 9b. Grounding E1R2 Coaxial Connections

E1R2 coaxial trunk cards must be grounded correctly and require the IP Office control unit to be connected to a protective ground.

Normally the ends of one connection is grounded. For example, if the exchange Tx1 is grounded, the IP Office Rx1 should also be grounded. However this must be confirmed with the line provider to establish which ends they want grounded.

1. 2. 3. Procedure



1. Use the two jumpers supplied with the card, match the ground selection of the line provider. For example, if the line provider wants the IP Office Rx1 grounded, place a jumper across the two Rx1 pins of jumper block J6.
2. Connect the ground strap spade end (B) to the spade connection on the board.
3. Connect the other end of the ground strap (C) to the blanking plate using the long securing screw supplied with the card.
4. Ensure that the coaxial connector ports are locked to the blanking plate using the nuts provided.
5. Continue with trunk card installation as in **Stage 9a**.

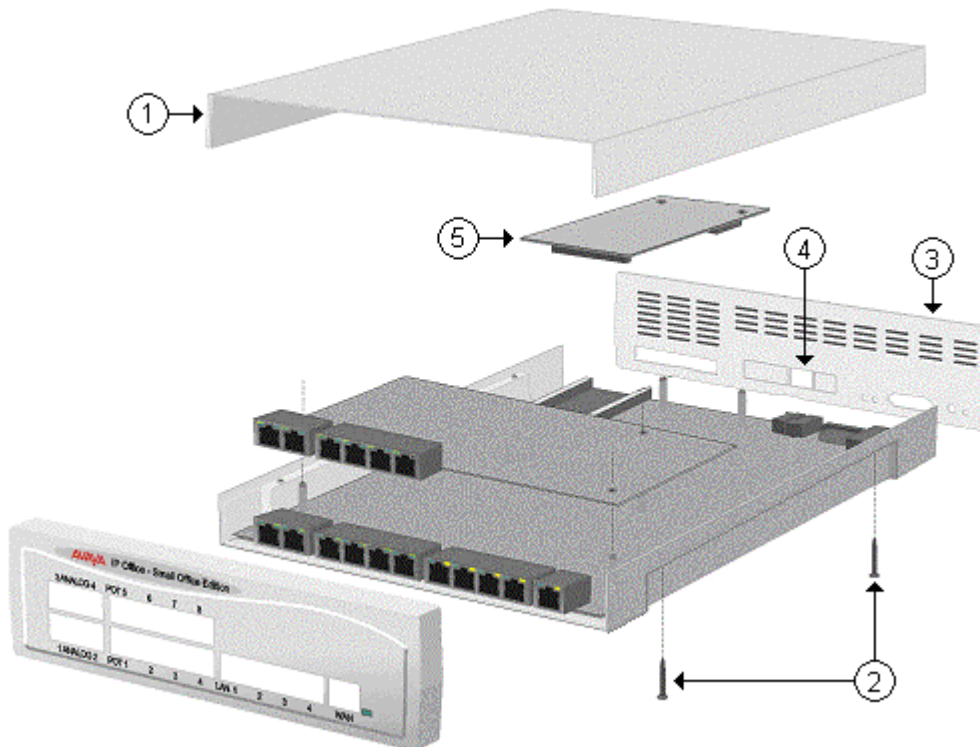
Stage 9c. Fitting Small Office Edition Trunk Cards

The Small Office Edition control unit can be fitted with a WAN card, a Quad BRI card or a single PRI/T1 card.

1. ✓
2. ✓
3. □

Procedure

1. Ensure that you wear an anti-static wrist strap that is connected to a suitable grounding point.
2. Remove the top cover (1) from the base cover by removing the four retaining screws (2) on either side.
3. Remove the rear panel (3).
4. Locate the holes for the two trunk card spacer pegs and insert them.
5. Plug the trunk card (5) onto its sockets and stand-off hex. pillars.
 - If fitting a WAN card, replace the rear panel with the new one supplied with the WAN card.
 - Otherwise, on the rear panel, press out all of the knock-out panels (4) to match the trunk card being fitted.
4. Replace the rear panel.
5. Fit the top cover back in place and reinsert the four screws previously removed.



12. Proceed to **Stage 12. Upgrading the Core Software.**

10. Rack Mounting Instructions

All IP Office control units and expansion modules except the Small Office Edition can be rack mounted. To do this requires a separate rack mounting kit (SAP 700210800) for each unit and module.

This procedure shows how to add the rack mounting brackets to the control unit and to each expansion module as it is added to the system.

ⓘ Installation Requirements

1. Power Supplies

Rack installation still requires the units and modules to use their original external power supply modules. Therefore if the rack has an integral power strip, sufficient sockets must be available for the control unit and all the expansion modules plus any additional equipment in the rack.

2. Environmental Requirements

Installation into a rack can restrict air-flow and expose the equipment to temperatures that are higher than the general room ambient temperature. Therefore the environmental requirements for the IP Office system must be checked within the rack. If necessary additional rack cooling fans may need to be fitted.

- **Temperature:** 0°C to 40°C / 32°F to 104°F.
- **Humidity:** 10% to 95% non-condensing.

3. Rack Fixing

Ensure that all the rack manufacturer's safety requirements have been followed. For example check that the rack legs have been lowered and fixing brackets used to stop toppling.

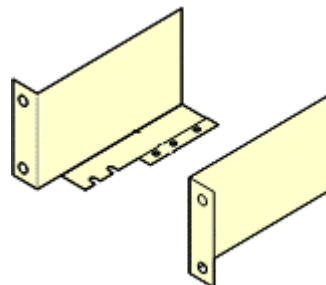
4. Grounding

Where units and modules are being grounded, check that the rack has a specified ground point and that the rack ground point is correctly connected to the building's protective or functional ground.

📦 Parts and Equipment Required

- **Rack Mounting Kit (SAP 700210800)**

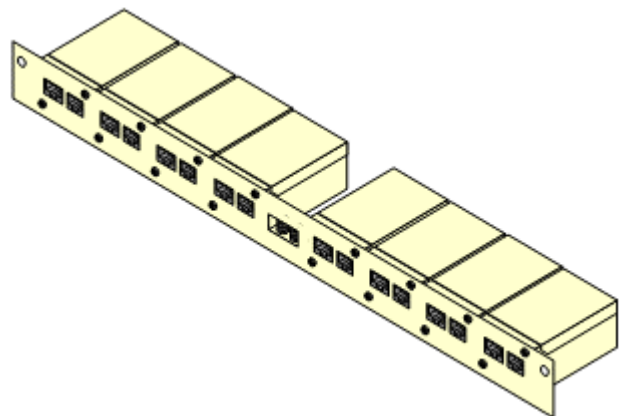
This kit contains all the components required for the rack mounting of a single control unit or expansion module. This includes screws for fixing of the brackets to the module and bolts for securing the module in the rack.



- **Barrier Box Rack Mounting Kit (SAP 700293905)**

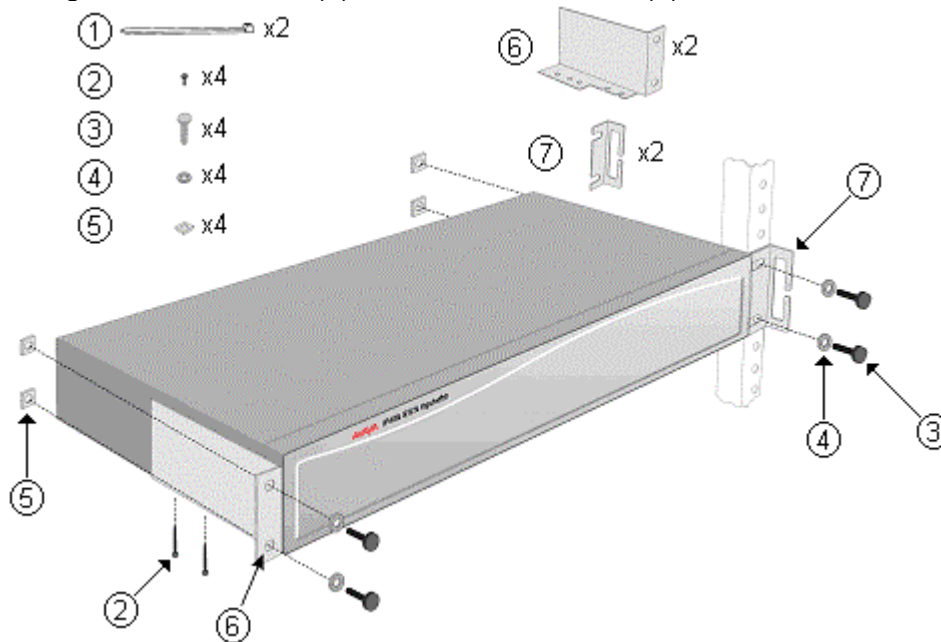
Barrier boxes must be used for out-of-building analog phone extensions. This bracket allows up to 8 IP Office barrier boxes to be rack mounted and simplifies the number of connections to the protective ground point in the rack.

- Must be used when more than 3 Barrier Boxes are in use.
- A maximum of 16 Barrier Boxes are supported on any module.



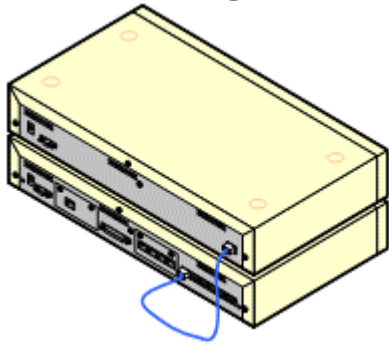
Procedure: Rack Mounting

- Using the small screws (2), fix the main brackets (6) to the module.



- Using the nut (5), bolt (3) and washer (4) provided, loosely fit the module into the rack system in its intended position.
- If required, add the cable guide brackets (7) before finally tightening the nuts and bolts.
- If required, connect the module ground points to the rack ground point. This should be done using 14AWG solid wire with either a green sleeve (functional ground) or green and yellow sleeve (protective ground).
- Continue installation and setup as normal.

11. Adding Expansion Modules



External expansion modules, except the WAN3, connect to the IP Office control unit using a blue 1 meter (3'3") expansion interconnect cable.

- **Note**

Expansion modules are only detected by the IP Office control unit, if the Expansion modules are powered up and running before the control unit is started. The control unit power on process includes a delay to ensure that if all modules in a system are started at the same time, the expansion modules should complete their power up before the control unit.

Each module is supplied with an expansion connect cable and a power supply unit. An appropriate locale specific power cord for the power supply unit, and cables for the ports on the front of the module must be ordered separately.

Warnings

- No cable other than an Expansion Interconnect cable should be used. Use of any alternate cable will lead to system failure.

Installation Requirements

1. Installation space either on or under the existing IP Office control unit.
2. Switched power outlet socket.
3. Free **EXPANSION** port on the rear of the control unit.
4. **Grounding Requirements**
 1. **Functional Grounding**
Connection of a functional ground is:
 - Recommend for all modules.
 - Connection of a functional ground is mandatory for Analog Trunk module.
 2. **Protective Grounding**
Connections of a protective ground via surge protection equipment is:
 - Mandatory for Analog trunk modules in the Republic of South Africa.
 - Mandatory for Digital Station and Phone modules connected to out of building extensions.
 - Mandatory for Digital Station V2 and Phone V2 modules.

Tools Required

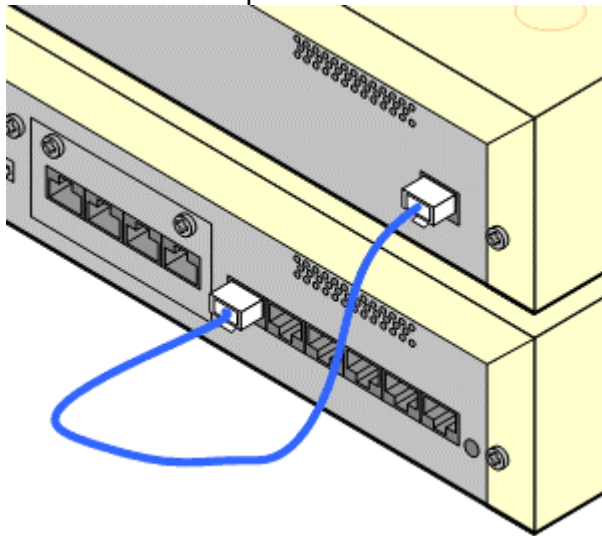
1. **Manager PC.**
2. **Tools for rack mounting** (*optional*).


Parts and Equipment Required

1. **External Expansion Module.**
Each module is supplied with a suitable external power supply unit and a RJ45-RJ45 expansion interconnect cable.
2. **Power cord for the power supply unit.**
3. **Rack mounting kit (*optional*).**
4. **Cable labelling tags.**

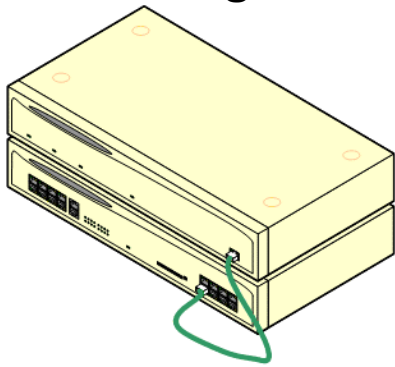
Procedure

1. Switch off power to the IP Office control unit.
2. Attach the external expansion module's power supply.
3. Connect the blue expansion interconnect cable from the module's **EXPANSION** port to the first free **EXPANSION** port on the control unit.



4. Make careful note of the port used and include this detail on the cable label and any other system records.
5. Switch on power to the module. Wait for the center LED on the front of the module to change from red to green.
6. Switch on power to the control unit.
7. Once the control unit has rebooted, using Manager receive the system configuration.
8. Click on  **Unit** in the left-hand panel.
9. Check that the list of units shown in the right-hand panel is correct.
10. Proceed to **12. Adding a WAN3 Module.**

12. Adding a WAN3 Module



WAN3 expansion modules connect to the IP Office control unit using a LAN cable. It is preferred that the cable is connected directly to the IP Office control unit rather than via any other equipment. A green 1 meter (3'3") LAN interconnect cable is supplied with the module for this purpose though a replacement cross-over cable is required if connecting to an IP412 control unit.

The WAN3 module requires its own IP address on the same subnet as the IP Office control unit. A WAN3 module obtains that address using DHCP so a DHCP server is required for installation.

This module is supplied with a LAN interconnect cable and a power supply unit. An appropriate locale specific power cord for the power supply unit, and cables for the WAN ports on the rear of the module must be ordered separately.

Installation Requirements

1. Installation space either on or under the existing IP Office control unit.
2. **Switched power outlet socket.**
3. **System password.**
4. IP Address
For the WAN module, on the same subnet as the control unit.
5. Free **LAN** port on the front of the control unit.
6. **Grounding Requirements**
 1. **Functional Ground.**
Connection of a functional ground is recommend for all modules.



Tools Required

1. **Manager PC.**
2. **DHCP server (preferably the IP Office itself).**
3. **Tools for rack mounting (optional).**

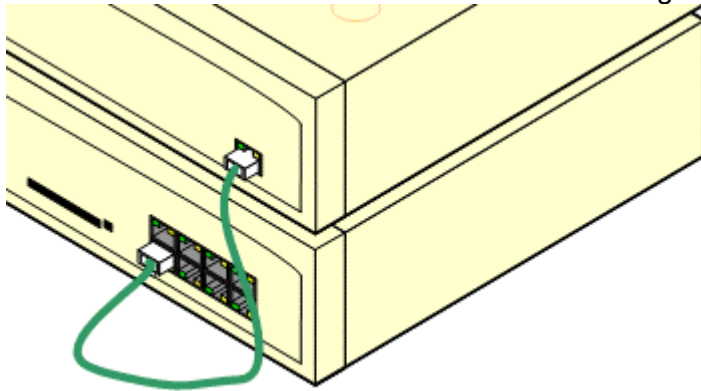



Parts and Equipment Required

1. **WAN3 10/100 Module**
Each module is supplied with a suitable external power supply unit and a RJ45-RJ45 LAN interconnect cable.
2. For the IP412 control unit an RJ45-RJ45 LAN crossover cable is required.
3. **WAN Cables.**
A V.24, V.35 or X.21 WAN cable is required for connection to each WAN port. The cable used determines the signalling provided by that port.
4. **Power cord for the power supply unit.**
5. **Rack mounting kit (optional).**
6. **Cable labeling tags.**

Procedure: Adding a WAN3 Module

1. Switch off power to the IP Office control unit.
2. Connect the WAN3 module to the control unit using the LAN cable.



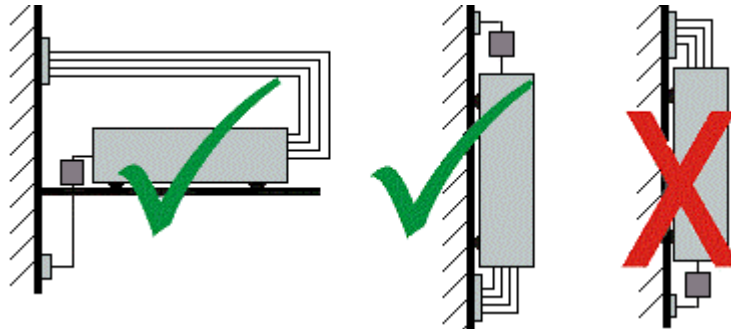
3. Switch on power to the WAN3 module.
4. Switch on power to the IP Office Control Unit.
5. Using Manager receive the configuration from the IP Office system.
6. Select  **Control Unit**. If the WAN3 module is not listed, right-click and select **New**. A **Select WAN unit** window appears which will allow the network to be scanned for the WAN3 unit.
7. When the unit is located, select it and then **OK**.
8. Send the configuration back to the IP Office system.

13. Shelf/Wall Mounting (SOE)

Small Office Edition control units can be shelf or wall mounted. Four screw head retaining slots are moulded into the base of the unit for this purpose. In addition a plastic Z-shaped bracket and screw is supplied with the unit for securing it in position.

ⓘ Installation Requirements

- Horizontally on a shelf - leaving sufficient space for the cabling at both front and rear of the unit.
- Vertically from a wall – with the front panel facing down **only**.



- The Z-shaped bracket **must not be used** as the sole mounting fixture.



Tools Required

1. Drill and drill bits suitable for the wall fixings selected.
2. Screwdrivers.



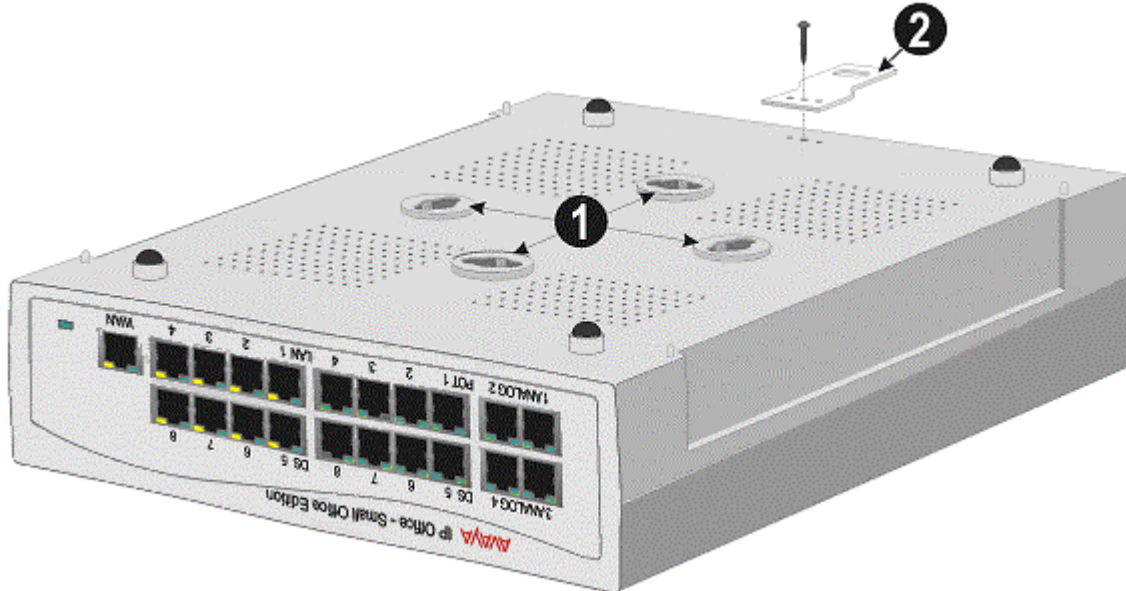
Parts and Equipment Required

1. Wall fixings suitable for 3 No.8 screws.
2. 3 x No.8 panhead screws, minimum 25mm long.



Procedure

1. Using a drill size suitable for the selected wall fixing, drill two holes 6.3 inches (160mm) apart either horizontally or vertically.
2. Insert the wall fixings.
3. Insert the two No.8 panhead screws leaving approximately 0.4 inches (10mm) proud of wall.
4. Fit the Z-shaped bracket (2) onto the base of the unit using the M3 self tapping screw supplied.



5. Slide the unit onto the two screws, locating them into two of the retaining slots (1).
6. Mark the position of the retaining screw for the Z-bracket.
7. Remove the unit from the wall and drill a hole and insert a wall fixing for the Z-bracket position.
8. Re-position the unit and secure with a No. 8 panhead through the slot of the Z-shaped bracket.

14. Grounding (Earthing)

Use of ground connections reduces the likelihood of problems in most telephony and data systems. This is especially important in buildings where multiple items of equipment are interconnected using long cable runs, for example phone and data networks.

Therefore it is recommended that all IP Office modules are connected to a functional ground. In some cases, such as ground start trunks, this is a functional requirement. In other cases it may be a local regulatory requirement and or a necessary protective step, for example areas of high lightning risk.

-  **WARNING**

During installation do not assume that ground points are correctly connected to ground. Test ground points before relying on them to ground connected equipment.

Installation Requirements

- **Mandatory Grounding**

The IP Office system must be grounding in the following situations:

- Where required by local regulatory requirements.
- On all Analog Expansion modules (ATM16) and any control units containing an analog trunk card (ATM4/ATM4U).
- On any control unit using coaxial E1R2 trunks.
- On Digital Station V2 and Phone V2 expansion modules.

- **Mandatory Ground plus additional protective equipment**

Additional equipment will be required in the following situations. Refer to Out of Building Telephone Installations.

- On any Digital Station or Phones expansion module connected to an extension located in another building.
- On all Analog Expansion modules (ATM16) and any control units containing an analog trunk card (ATM4/ATM4U) in the Republic of South Africa.

- **Optional Grounding**

The uses of grounding connections for scenarios other than those listed above is optional but is recommended.



Tools Required

1. M4 Cross-Head Screwdriver.
2. Tools suitable for crimping a cable spade.

Parts and Equipment Required

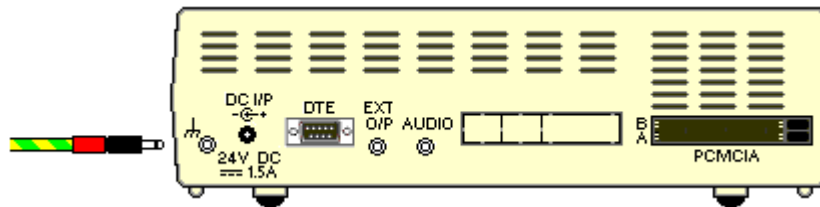
1. 14AWG Solid copper wire for ground connection.
2. Cable sleeve matching local regulator requirements. Typically green for a functional ground and green/yellow for a protective ground.

1. Procedure

The ground point on IP Office control units and expansion modules are marked with a  or  symbol. Ground connections to these points should use a 14 AWG solid wire with either a green sleeve for a functional ground or green and yellow sleeve for a protective ground.

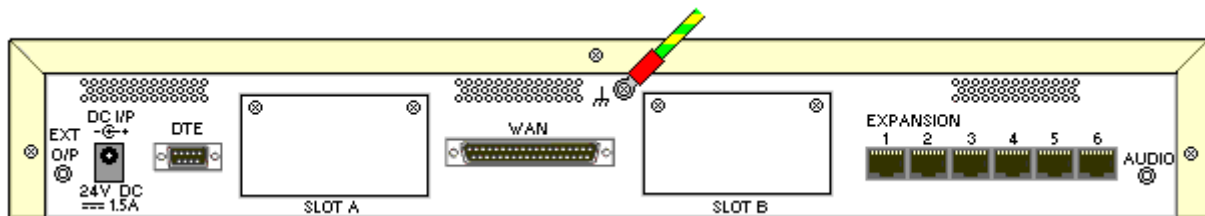
Small Office Edition

On the Small Office Edition control unit, the ground point is provided by a 3.5mm jack socket on the left of the rear panel.



Other Control Units

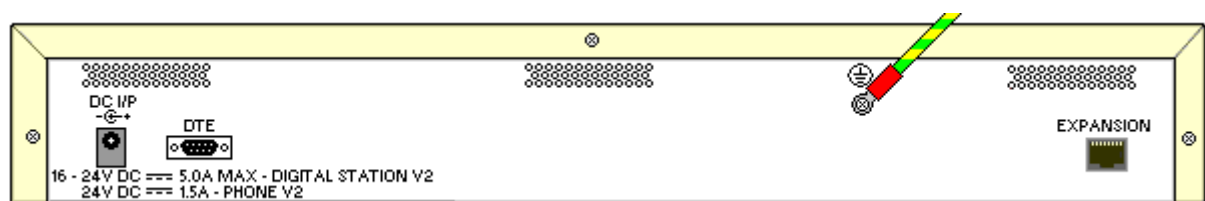
On IP403, IP406 V1/V2 and IP412 control units, the ground point is a 4mm screw located adjacent to trunk card **Slot B**.



- On some older units, the dedicated ground point screw is not present. In those cases, the left-hand 3mm fixing screw on the **Slot B** blanking plate can be used as an alternate ground connection point. A toothed washer should be added to ensure good contact.

Expansion Modules

On expansion modules, the ground point is a 4mm screw located towards the right on the rear of the module.



- On some older modules, the dedicated ground point screw is not present. In those cases, the top-center cover fixing screw (3mm) can be used as an alternative ground connection point. A toothed washer should be added to ensure good contact.

15. Upgrading the Core Software

The installed IP Office Manager includes .bin core software files appropriate to the software level. It can be used to load those .bin file into the control unit and module within the IP Office system.

WARNINGS

- Check IP Office Technical Bulletins**
 Check the latest IP Office Technical Bulletin for the IP Office software release before proceeding any further. It may contain information relating to changes that occurred after this document was completed. Bulletins are available from <http://support.avaya.com>.
- WAN3 and WAN3 10/100 Modules**
 Upgrade each WAN3 module separately and only after having upgraded the control unit and any other expansion modules.
- Upgrading pre-Level 2.1 Systems**
 For IP Office Systems with software Level 2.0 or earlier, the upgrade procedure must be done from a PC with a fixed IP address on the same subnet and LAN segment as the IP Office.
- Multi-Stage Upgrades**
 Due to the need to adjust internal memory allocation, for certain upgrades some control units need to perform a multi-stage upgrade process.

Control Unit	Upgrade	Stages Required
IP403	To between 2.0 and 2.1(27)	The IP403 must first be upgraded to <u>level 1.99</u> . Once upgrade to 1.99, the unit can be upgraded to levels up to 2.1(27).
	To 2.1(28) or higher	The IP403 must first be upgraded to <u>level 2.99</u> . Once upgraded to 2.99, the unit can be upgraded to 2.1(28) or higher.
IP406 V1	To 3.1 or higher.	The control unit must first be upgraded to <u>level 3.0(999)</u> . Once upgraded to 3.0(999), the unit can be upgraded to 3.1.
IP406 V2	To 3.1 or higher.	The control unit must first be upgraded to <u>level 3.0(999)</u> . Once upgraded to 3.0(999), the unit can be upgraded to 3.1.
	To 3.2 or higher.	The control unit must first be upgraded to <u>level 3.1(999)</u> . Once upgraded to 3.1(999), the unit can be upgraded to 3.2.

- Multiple Managers**
 If more than one copy of Manager is running it is possible for the IP Office to request BIN files from a different Manager from the one that started the upgrade process. Ensure that only one copy of Manager is running when upgrading an IP Office system.

Information Required

- System Password.**
For a new or defaulted system this is *password*.

Tools Required

- Manager PC.**
The Upgrade Wizard tool is part of the Manager application.

There are three methods that the IP Office may use for upgrading, these are Validated, Offline and Unvalidated.

- **Validated Upgrade**

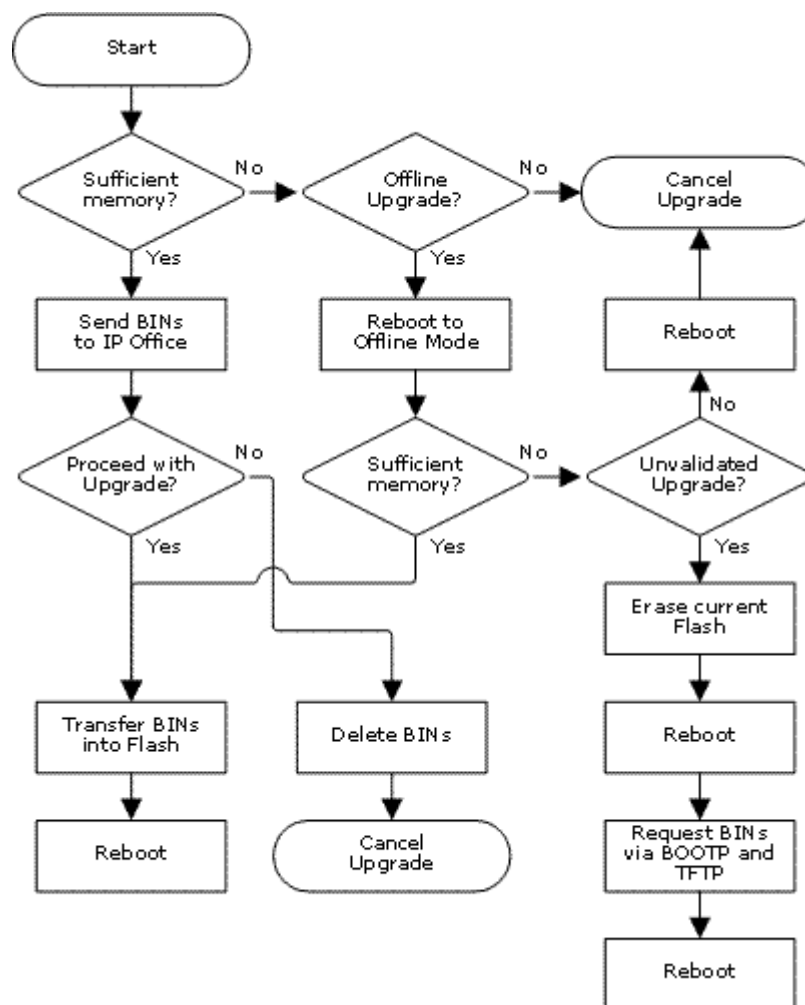
This is the preferred method and can be used with any IP Office system that already has IP Office 2.1 or higher software. By default the Validate option within the Upgrade Wizard is pre-selected. During this process, the required BIN files are first transferred to the IP Office's RAM memory. Only when the files are received will the IP Office overwrite the existing software in its Flash memory and restart using the new files.

- **Offline Upgrade**


On some systems, it may not be possible for the validated upgrade to download all the BIN files required into the IP Office system's RAM memory. If this is the case, the IP Office will offer to reboot to Offline mode and then attempt to continue the validated upgrade. In offline mode the IP Office only supports the service necessary to allow upgrading, for example it does not support Small Community Networking (SCN). If in offline mode for more than 15 minutes without being upgraded, the IP Office will reboot again back to normal operation.

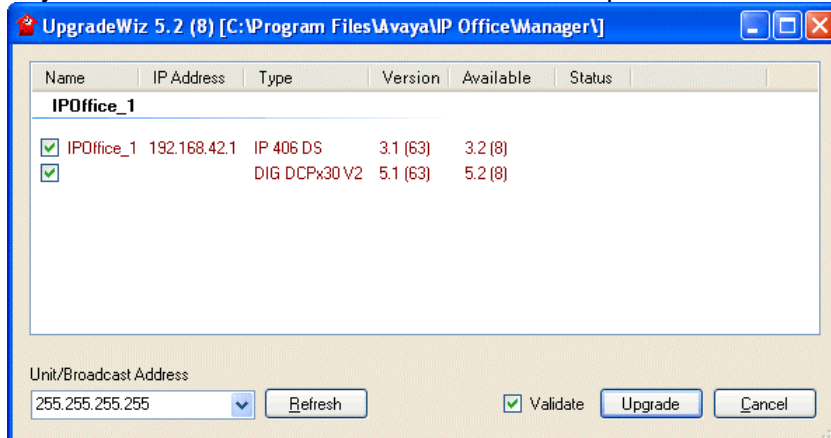
- **Unvalidated Upgrade**


This is the least preferred method. It should only be used from a PC directly connected to the IP Office and with a fixed IP address on the same LAN domain as the IP Office LAN1. This method involves erasing the existing software in the IP Office's Flash memory and then copying the new BIN files directly to the Flash memory. Its uses BOOTP and TFTP and requires a BOOTP entry for the IP Office system to exist on the Manager PC. This method should not be used unless absolutely necessary.



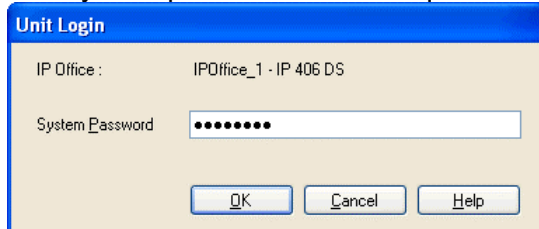
Procedure: Upgrade Procedure

1. Using Manager, click  and receive the configuration from the IP Office. If not already done this action creates a **BOOTP** entry in Manager for the IP Office system. This action also confirms communication between the Manager PC and the IP Office.
2. Select **File | Save Configuration As...** and save a copy of the configuration file onto the PC. This action should be completed before upgrading any IP Office system.
3. Select **File | Advanced | Upgrade.**
4. The **UpgradeWiz** is started and scans for IP Office modules using the **Unit/Broadcast address**. Adjust this address and click **Refresh** if the expected modules are not shown.



5. For each the control unit and module found, the **UpgradeWiz** displays the module type, its current version of software installed in the unit and the software version of the .bin file that Manager has available.
6. For those units and modules where manager detects that it has a higher version available, the tick box next to the unit or module is automatically selected.
7. If any of the modules have pre-version 2.1 software installed, untick the **Validate** option.
 -  If this is the case, only continue with the upgrade process using a PC with a fixed IP address on the same LAN domain and physical LAN segment as the IP Office control unit.
8. If a multi-stage upgrade is necessary, use the following additional steps to select the appropriate interim software:
 - a. Right-click on the upgrade wizard and click **Select Directory.**
 - **Upgrading an IP403 to between 2.0 and 2.1(27) inclusive:**
Select the **IP403\IP403V1_99** folder within the Manager program directory.
 - **Upgrading an IP403 to level 2.1(28) or higher:**
Select the **IP403\IP403V2_99** folder within the Manager program directory.
 - **Upgrading an IP406 V1 or V2 to level 3.1:**
Select the **IP406v1\V3_0_99** folder or **IP406V2\V3_0_999** folder within the Manager program directory.
 - **Upgrading an IP406 V2 to level 3.2:**
Select the **IP406v2\V3_1_999** folder within the Manager program directory.
 - The upgrade wizard should now list just the control unit as having upgrade software available. For the remainder of the upgrade as detailed below, the upgrade can be rerun again select the final software for the control unit.

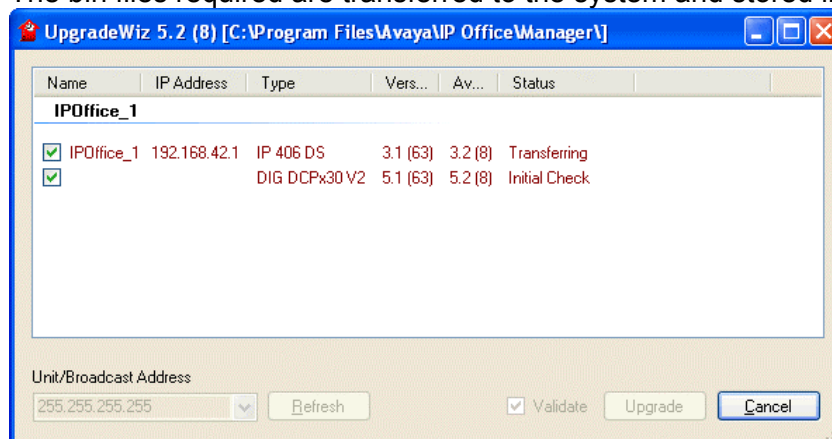
9. For those modules which you want to upgrade, tick the check box. For modules where a later version of software is available the check box may have already been automatically ticked. If doing a multistage upgrade, only the control unit is selectable for the first stage.
 - For systems including WAN3 modules, untick the WAN3 modules. Each WAN3 module should be upgraded separately once the control unit and modules in the same system have been upgraded.
10. Select **Upgrade**.
11. The system password will be requested. Enter it and click **OK**.



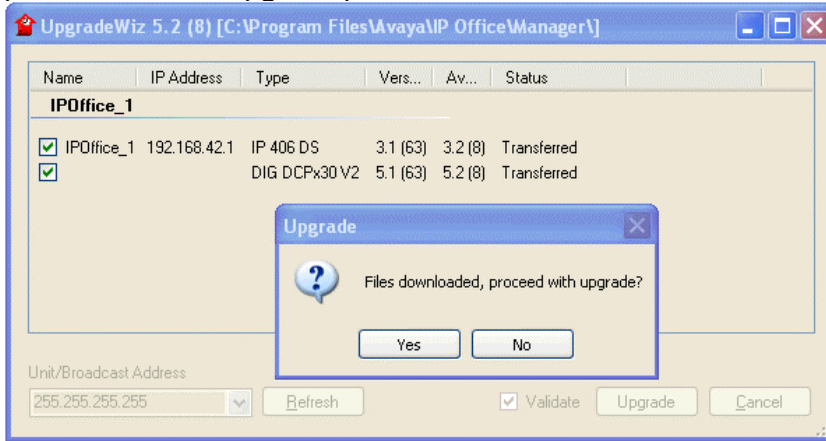
12. Validated Upgrade

If using the **Validated** option, a number of actions take place as follows;

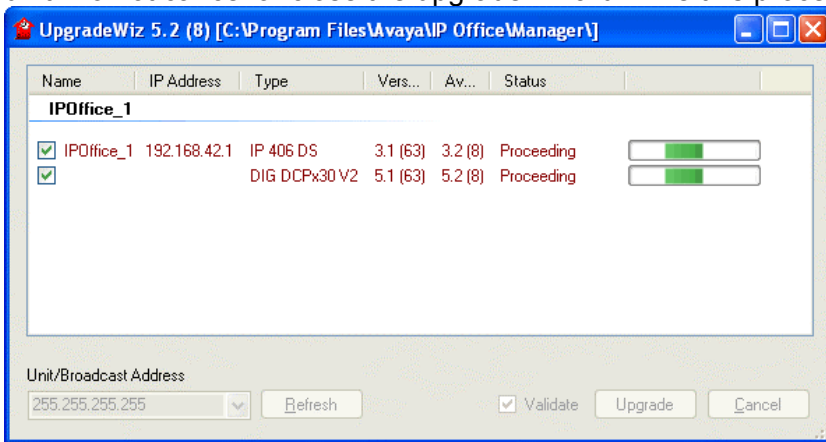
1. Firstly the upgrade wizard performs initial checks on the amount of free RAM memory available in the IP Office system to temporarily store the new BIN files during the upgrade process. If insufficient memory is available, you will be prompted whether to continue with an off-line upgrade or cancel upgrading.
 - If offline is selected, the IP Office is rebooted into offline mode. It may be necessary to use the Refresh option within the Upgrade Wizard to reconnect following the reboot. Validate upgrade can then be attempted to again check the amount of available RAM memory for transfer of BIN files. If the memory is still insufficient, the option is offered to either do an unvalidated upgrade or cancel.
2. The bin files required are transferred to the system and stored in temporary memory.



3. Once all the files have been transferred, the upgrade wizard will prompt whether it okay to proceed with the upgrade process. Select **Yes** to continue.



4. Each module being upgraded will delete its existing core software, restart and load the new software file that was transferred. This process may take several minutes for each unit. Do not cancel or close the upgrade wizard while this process is running.



13. Unvalidated Upgrade

This method of upgrading should be avoided unless absolutely necessary. It is only required for IP Office systems with pre-2.1 software and should only be done from a Manager PC with a fixed IP address running on the same LAN segment and subnet as the IP Office system. During the upgrade the units and modules erases their current software and then request the new software file from Manager.

14. Following the upgrade check that the upgrade wizard now shows that the selected units and modules have upgraded. It may be necessary to select **Refresh** to update the information in the upgrade wizard display.
15. Repeat the process as required. For example if doing a multi-stage control unit upgrade or if there are WAN3 modules in the system that are being upgraded separately.
16. Proceed to **16. Configuring Security Settings**.

16. Configuring Security Settings

The security method used by IP Office 3.2 and higher differs from previous IP Office software. When a system is upgraded to IP Office 3.2 it begins to use the new security settings at their default values.

The only previous security settings retained are the system password which is still used for software upgrades and the voicemail and monitor passwords if set.



You should read and understand the Security Settings section of the IP Office Manager documentation. That section details the settings and operation of the IP Office security settings and is part of the Manager applications help file.

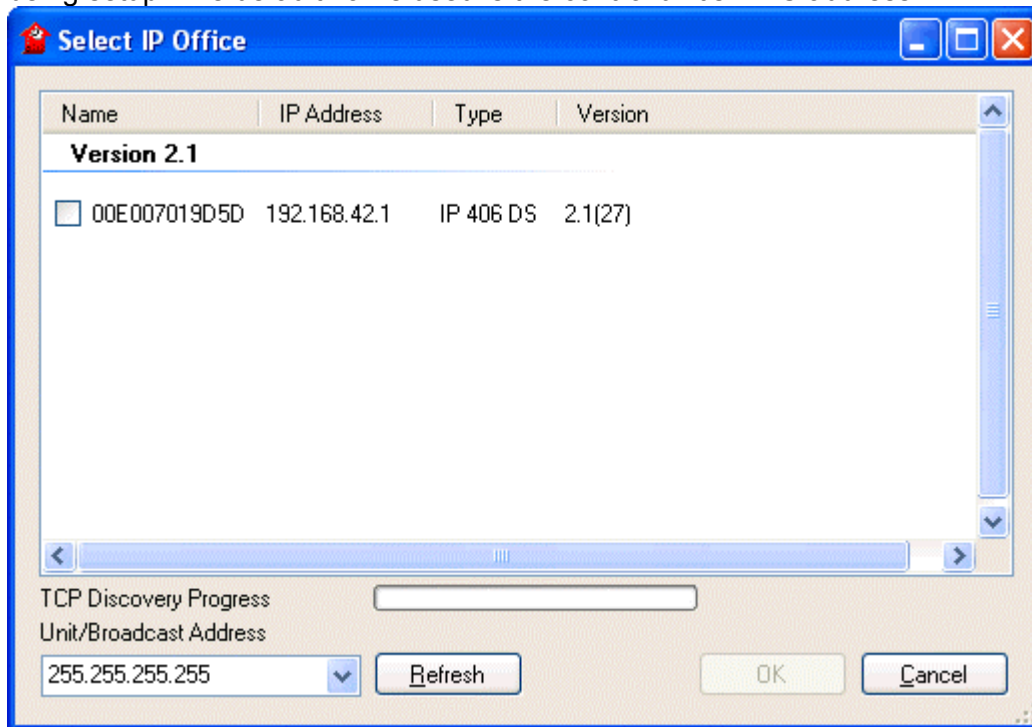


Objective

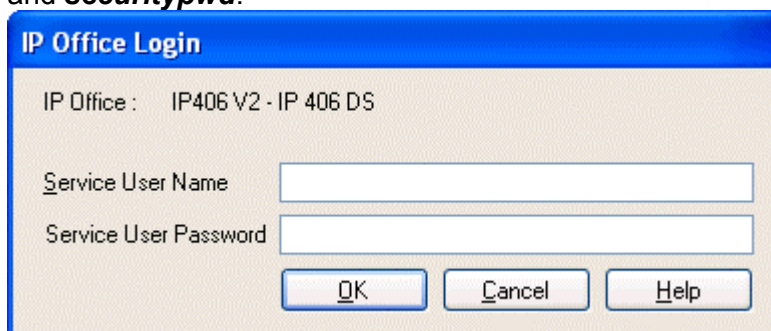
Make the control unit configuration settings secure from unauthorized changes by changing the default passwords.

1.
2.
3.**Procedure**

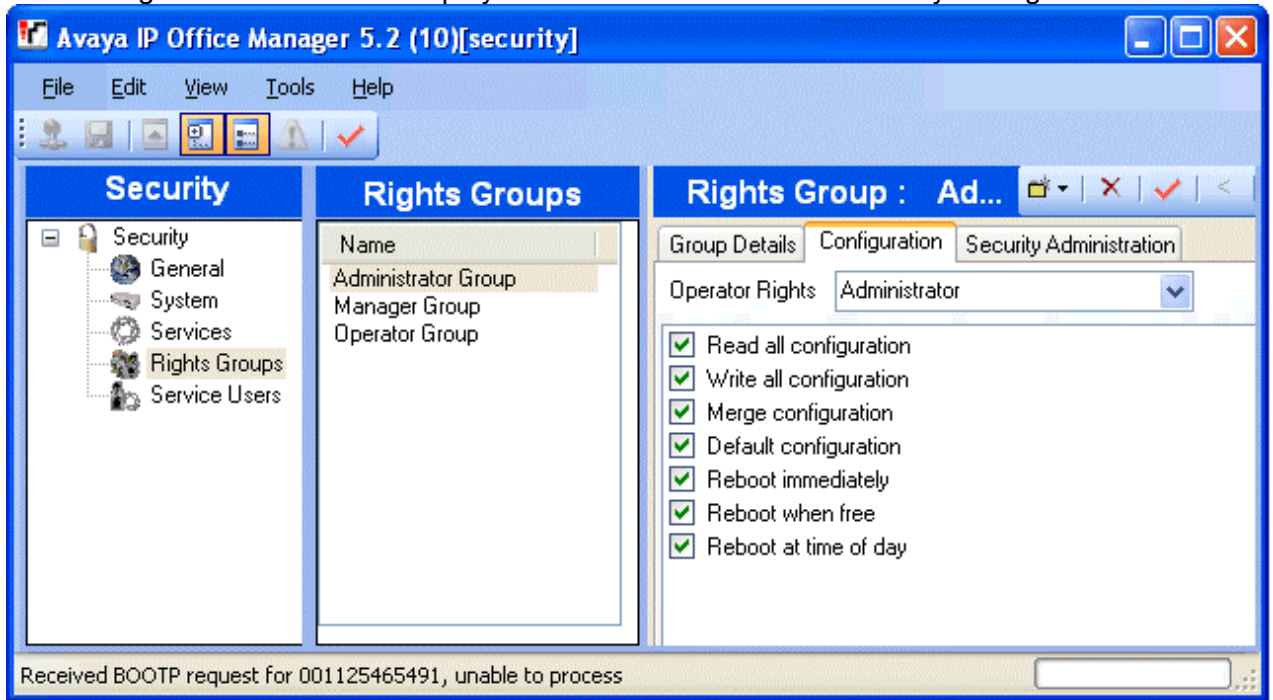
1. Select **Start | Programs | IP Office | Manager**.
2. Select **File | Advanced | Security Settings**.
3. The **Select IP Office** window appears. After a few seconds it should list the control unit that is being setup. The default name used is the control unit's MAC address.





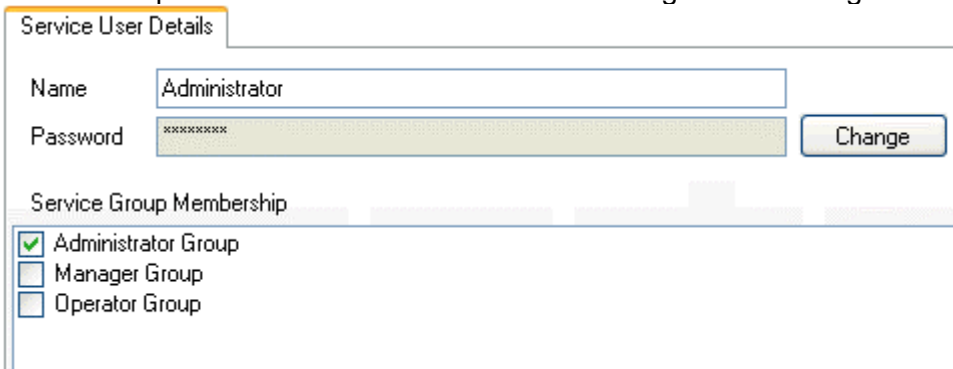
- If the system required was not found, the address used for the search can be changed. Enter or select the required address in the **Unit/Broadcast Address** field and then click **Refresh** to perform a new search.
4. Click the check the box next to the system and then click **OK**.
 5. The name and password request is displayed. As the system has been upgrade to IP Office 3.2 software, the name and password now requested are a Service User name and password stored within the IP Office. The default name and password for security settings access are **security** and **securitypwd**.




- The Manager should load and display the IP Office control unit's security settings.





- Select  **General**. On the tab displayed, the **Security Administrator** section contains the default name and password used to access the IP Office's security settings. Click **Change** and set a new password. The default password is **securitypwd**. Click **OK**.
- Click **OK** to save the changes to that tab.
- Select  **Service Users**. This tab shows the settings for one of the Service Users who have names and passwords used for access to the configuration settings on the IP Office control unit.



- Click **Change** and set a new password. The default password matches the name. Click **OK**.
- Click **OK** to save the changes made on that tab.
- Click > button to display the settings for the next Service User and repeat the process in the previous two steps to change their password.
- Click **OK**.
- The new security settings can now be sent to the IP Office control unit. Click .
- The original name and password used to load the settings will be requested. Enter the details and click **OK**.

1
2
3**Procedure: Creating a Super User**



This process demonstrates creating a new security rights group and user who has access to both configuration and security settings. In this case a Service User is created that can access both the IP Office's configuration settings and its security settings. When such a user receives the configuration settings from a system, if they then select **File | Advanced | Security settings**, the security settings for the same system are automatically loaded.

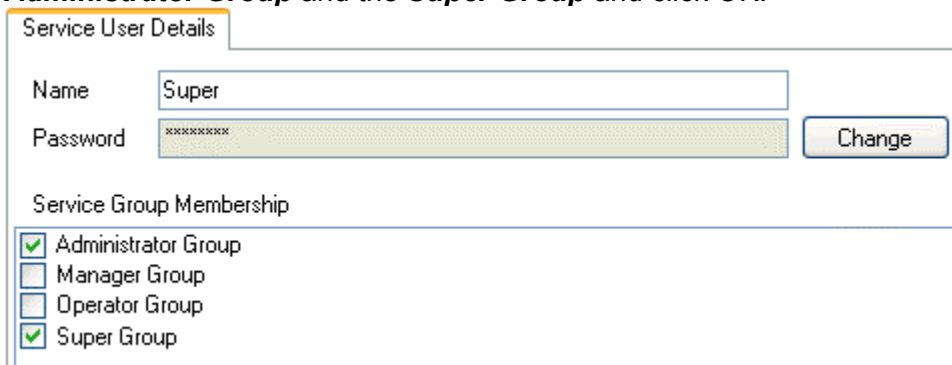
1. Repeat steps 1 to 6 of the previous process in order to access the IP Office's current security settings.
2. Select  **Rights Groups**.
3. Click  in the details pane. Enter a name for the new Rights Group and click OK. For this example we will enter **Super Group**.
4. Click the **Security Administration** tab and select all the available options. Click **OK**.



Group Details Configuration **Security Administration**

- Read all security settings
- Write all security settings
- Reset all security settings

5. Select  **Service Users**.
6. Click  in the details pane. Enter a name and password for the new **Service User**. and click **OK**. For this example we will enter **Super** for both the name and password.
7. On the **Service User Details** tab, in the **Service Group Membership** section, select the **Administrator Group** and the **Super Group** and click OK.




Service User Details

Name

Password

Service Group Membership

- Administrator Group
- Manager Group
- Operator Group
- Super Group

8. The new security settings can now be sent to the IP Office control unit. Click .
9. The original name and password used to load the settings will be requested. Enter the details and click **OK**.

17. Receiving a Configuration (3.2)

IP Office 3.2 and higher uses a different method of configuration security from previous IP Office software. Actions such as receiving or sending a configuration require a Service User name and password with sufficient rights to perform that action to be entered.

Objective


Receive a configuration from an IP Office running IP Office 3.2 or higher software.

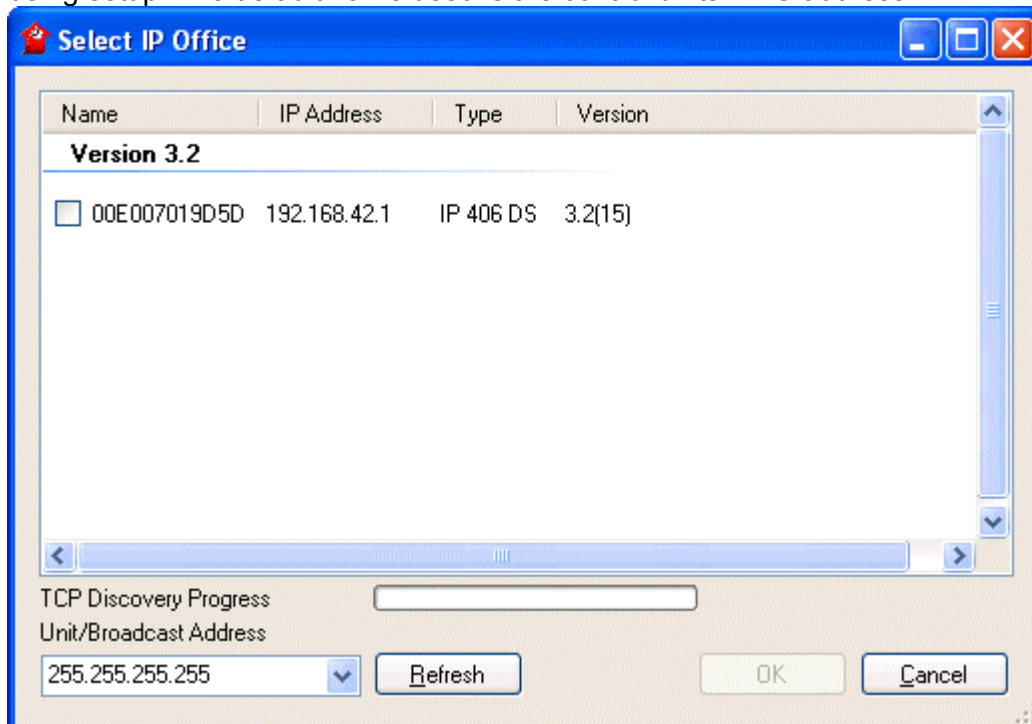
Information Required

1. **Service User Name and Password**

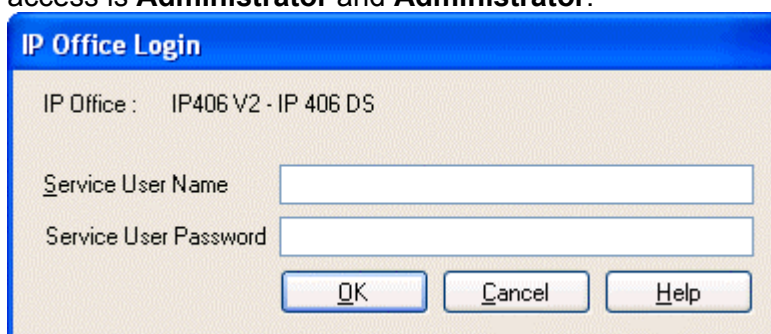
The defaults for full configuration access are **Administrator** and **Administrator**. However these should have been changed as part of the installation process, see **16. Configuring Security Settings**.

1.
3.0.0.0**Procedure: Receiving the Configuration from a Pre-3.2 IP Office Control Unit**

1. Select **Start | Programs | IP Office | Manager**.
2. Click  in the main toolbar or select **File | Open Configuration** from the menu bar.
3. The **Select IP Office** window appears. After a few seconds it should list the control unit that is being setup. The default name used is the control units MAC address.



- 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.
4. Click the check the box next to the system and then click **OK**.
 5. The name and password request is displayed. The name and password must match one of those setup through the security settings. The default name and password for full configuration settings access is **Administrator** and **Administrator**.



6. Successful receiving of the configuration is shown by the full configuration tree being shown in the left-hand panel. With no configuration loaded the navigation pane shows just **BOOTP** and **Operator** entries.

B. Phone Installation

Installing Phones

This section does not cover the installation of IP and wireless phones. They are covered by the following separate documentation:

- **IP Office 3600 Series Installation Manual.**
- **IP Office 4600/5600 IP Phones Installation Manual.**
- **IP Office Compact DECT Installation Manual.**
- **IP DECT Installation Manual.**

This section assumes that phones are being connected to IP Office within an existing RJ45 structured cabling system. If phone connections are being made through older punchdown wiring systems then the installer is expected to be qualified and approved for that type of installation.

Out of Building Connections

Connection to analog and digital phones not located in the same building as the IP Office is only supported with the addition of additional protective equipment and additional installation requirements. See Out of Building Telephone Installations.

19. Installing 2400/5400 Series Phones

Normally, when the IP Office system is restarted and Manager is running, the system will compare the firmware loaded on 2400/5400 Series phones against those available in the Manager directory and automatically upgrade if necessary. There may be some rare cases where new firmware files are provided and it is necessary to force the phones to upgrade.

Information Required

1. **Planning Chart.**

This should indicate which extension should connect to which ports on the IP Office system. It should also include intended extension numbers and user details.

Parts and Equipment Required

1. **2400/5400 Series Phone**

Each phone includes a handset and handset cord. No line cord is included. A plastic-wedge is provided to change the phone's angle for wall or desk mounting. In addition for XX10 and XX20 models an adjustable desk stand is included.

2. **Phone connection cable**

These phones are not supplied with a line cord. The cable required will depend on the ports provided at each user position.

1. **RJ45-to-RJ11 Cable**

This type of cable will be required if an structured cabling system has been used.

2. **RJ11-to-RJ11 Cable**

This type of cable is required if a traditional RJ11 phone socket has been provided at the user position.

3. **IP Office connection cable**

Typically an RJ45-to-RJ45 cable is required for connection from the structured cabling system patch panel to the IP Office control unit or expansion unit DS port.

4. **Wall Fixings**

The phone base is designed to fit directly onto a standard US telephone jack wall plate. Outside the US, two M3 pan-head screws are required, positioned 79mm apart vertically around the phones centerline.

Tools Required

1. **Manager PC**

During installation each 2400/5400 series phone requests software from Manager and then loads that software before becoming operational.

2. **Desk Mounting**



No additional tools required.

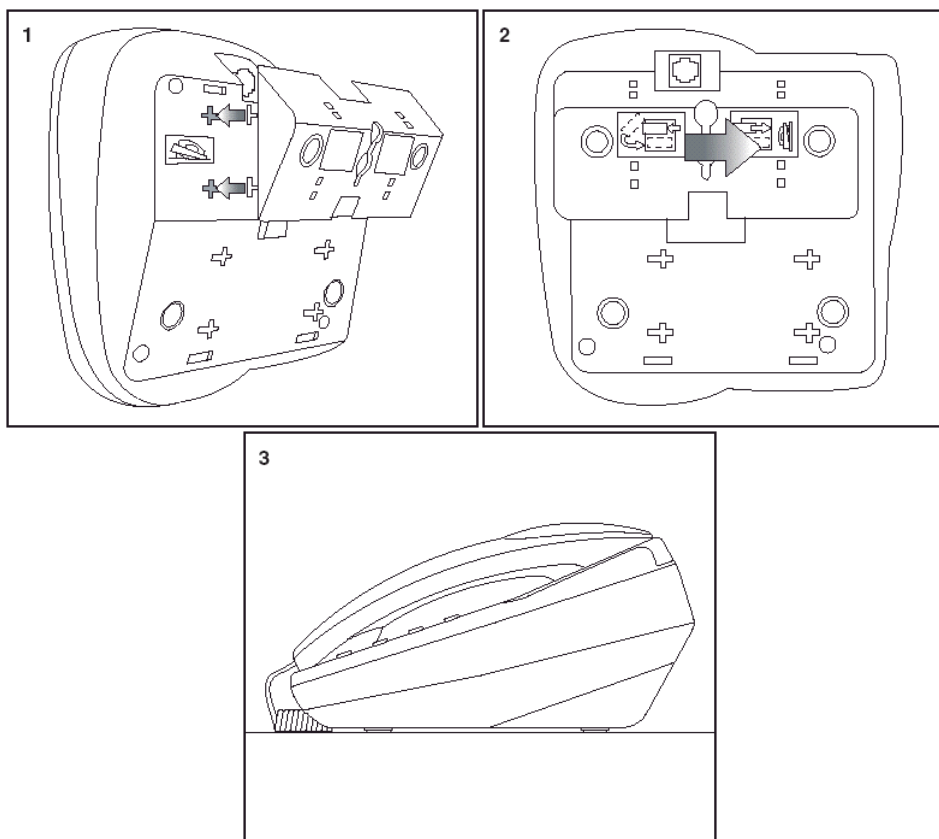
3. **Wall Mounting**

If not using a US telephone jack wall plate; drills, screw-drivers and measures for the installation of M3 pan-head screws and wall fixings.





Procedure: Desk Mounting

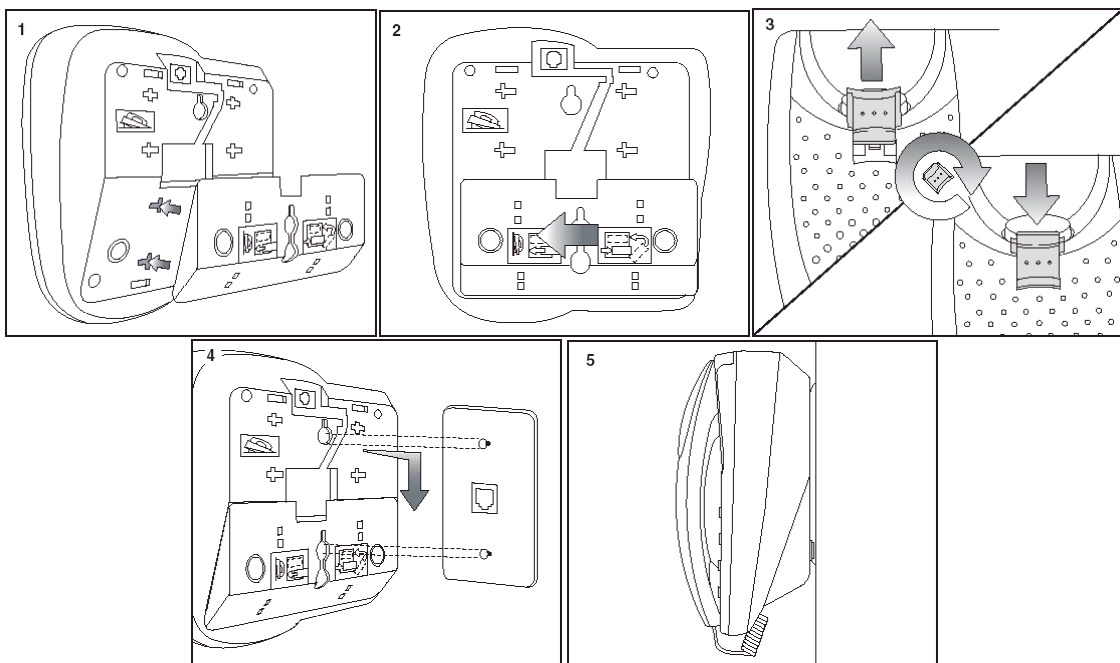
1. At the IP Office end, check that each DS port is connected to the appropriate port in the structured cabling system patch panel.
2. Start Manager. During installation each 2400/5400 series phone requests software from Manager and then loads that software before becoming operational.
3. Unpack the phone.
4. The phones are supplied with the plastic mounting wedge in the wall mounting position as this allows a smaller box size.
5. Slide off the plastic wedge and reattach it in the opposite position so that the phone is now angled for use on a desk.
6. Connect the handset cord to the handset.
7. Connect the handset cord to the port labelled  **HAC**. This is normally located on the left-hand side of the phone.
8. Connect the line cord to the port marked with a  symbol.
9. Connect the line cord to the desk socket.
10. The phone should display **Upgrading firmware, please wait** and then **FIRMWARE UPDATE IN PROGRESS**. Once this has completed the should briefly display **New Calls: 0** and then the current users name and extension number.
11. For XX10 and XX20 models, assemble the adjustable desk stand. Attach the stand to the base of the phone.





Procedure: Wall Mounting


1. If a standard US telephone jack wall plate is not being used, prepare the wall fixings for the M3 pan head screws being used to mount the phone.
2. At the IP Office end, check that each DS port is connected to the appropriate port in the structured cabling system patch panel.
3. Start Manager. During installation each 2400/5400 series phone requests software from Manager and then loads that software before becoming operational.
4. Unpack the phone.
5. The phones are supplied with the plastic mounting wedge in the wall mounting position as this allows a smaller box size.
6. Slide off the plastic wedge and remove the self-taping screw that is taped inside the wedge.
7. Reattach the plastic wedge in its original position. The self-taping screw can be used to lock the plastic wedge in position.
8. Just below the phones hook-switch is a small plastic square. Remove this and then reinsert it so that a plastic lug projects out towards the hook-switch. This helps ensure that the handset stays in position when the phone is wall mounted.
9. Connect the handset cord to the handset.
10. Connect the handset cord to the port labelled  **HAC**. This is normally located on the left-hand side of the phone.
11. Connect the line cord to the port marked with a  symbol.
12. Connect the line cord to the wall socket.
13. The phone should display **Upgrading firmware, please wait** and then **FIRMWARE UPDATE IN PROGRESS**. Once this has completed the should briefly display **New Calls: 0** and then the current users name and extension number.
14. The line cord can be run through the channel in the base of the phone to space at the center. This space can be used to conceal excess cable.
15. Slide the phone onto the exposed heads of the wall mounting position.

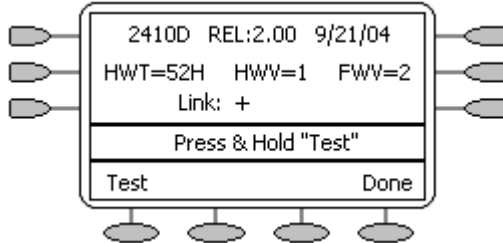



Additional Procedures

1. 
2. 
3. 

Procedure: Checking the Firmware on a 2410 or 5410 Phone

1. Press →  **Exit** to ensure that the phone has exited any other usage mode.
2. Press either of the display keys next to **MENU**.
3. Select **OPTION**.
4. Select **Self Test**. The display should now show details of the phone's currently installed firmware.

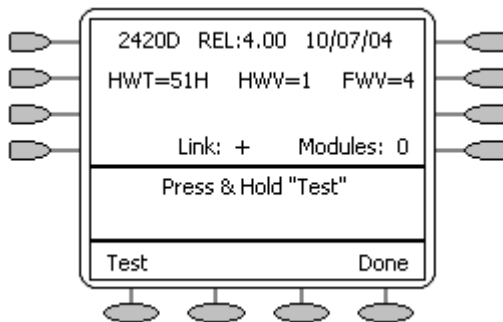



5. The firmware loaded into the phones has a major and minor version. The Major version in the example above is shown as “FWV=2” and the minor version is shown as “REL:2.00”.
6. Press →  **Exit** to exit self test mode.

1. 
2. 
3. 

Procedure: Checking the Firmware on a 2420 or 5420 Phone


1. Select **OPTION**.
2. Select **Self Test**. The display should now show details of the phone's currently installed firmware.



3. The firmware loaded into the phones has a major and minor version. The Major version in the example above is shown as “FWV=4” and the minor version is shown as “REL:4.00”.
4. Press →  **Exit** to exit self test mode.



Procedure: Forcing a Software Upgrade

-  **The following procedure should only be used if it has been determined that the 2400/5400 Series phones need to be manually forced to change their firmware. During this process the phone cannot be used.**
1. Locate the Manager program directory and within it the files **turn_on.bat** and **turn_off.bat**.
 2. Right-click on **turn_on.bat** and select **Edit**.
 3. Locate the entry **<IP Address>** and replace this with the IP address of the IP Office system.
 4. Close the file and save the changes.
 5. Repeat steps 2 to 4 for the file **turn_off.bat**.
 6. Ensure that Manager is running. Manager acts as the TFTP server from which the phones will request firmware files.
 7. Double-click on the file **turn_on.bat**.
 8. A prompt window should appear asking you to wait and eventually if successful **Press any key to continue**.
 9. Within Manager, select **File | Advanced | Reboot** and reboot the IP Office system.
 10. Following the system restart, the 2400 and 5400 Series phones will display **Upgrading firmware, please wait** and then **FIRMWARE UPDATE IN PROGRESS**.
 11. Once all the phones have completed their upgrade, double-click on **turn_off.bat**.

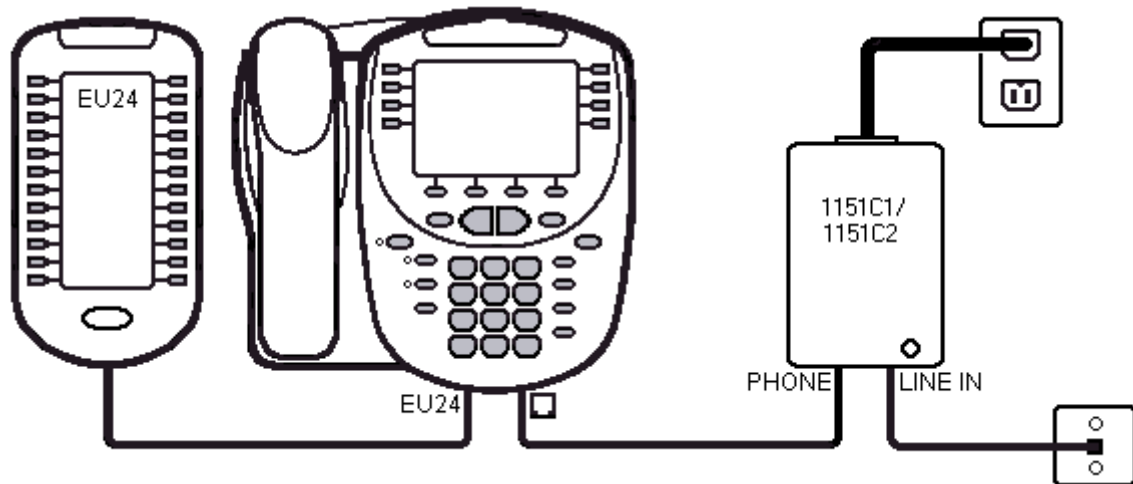
Installing an EU24 Add-On


The EU24 add-on is supported on IP Office 3.0 and higher. It provides an additional 24 programmable feature keys for the associated phone. The action provided by each of these keys is set through the IP Office configuration. The EU24BL is supported on IP Office 3.1 or higher and provides a backlight function that matches the same facility on the 4621 phone.

A single EU24 or EU24BL is supported on the following phones. A maximum of eight EU24 and or EU24BL per IP Office system.

Phone	EU24	EU24BL
2420/5420	✓	✗
4620/5620	✓	✓
4621/5621	✓	✓
4625	✓	✓

- ⚠ Use Only the Cables Supplied**
 Only the cable supplied with the EU24/EU24BL should for connection to the EU24/EU24BL. This cable should only be connected to the port marked EU24 on suitable phones. Doing otherwise will cause damage to the EU24/EU24BL and the equipment to which it is attached.
- Additional Power Supply Must Be Used**
 When used with DS port phones, the EU24 and EU24BL require the phone to use an additional power supply unit, either an Avaya 1151C1 or an Avaya 1151C2. For IP phones, use of PoE is only supported if the PoE is Class 3.

Procedure: Installing an EU24/EU24BL

1. Disconnect the existing phone cable from the phone socket to the phone. In the case of IP phones, this will be an existing CAT5 cable. For other phones this will be either an RJ45-to-RJ11 cable or an RJ11-to-RJ11 cable depending on the fixed socket type.
2. Reconnect the same cable from the phone socket to the power supply unit's **LINE IN** socket.
3. Connect the cable supplied with the PSU, from the power supply unit's **PHONE** socket to the socket marked  on the phone.
4. Connect the cable supplied with the EU24/EU24BL from the EU24 to the port marked EU24 on the phone.
5. Connect the power supply module to the power outlet socket.

Basic Button Programming

Most Avaya phones have programmable button against which IP Office actions can be programmed. Full details of this are covered by the IP Office Button Programming and the IP Office Key and Lamp Operation manuals.


This section covers only the basic elements of button programming.

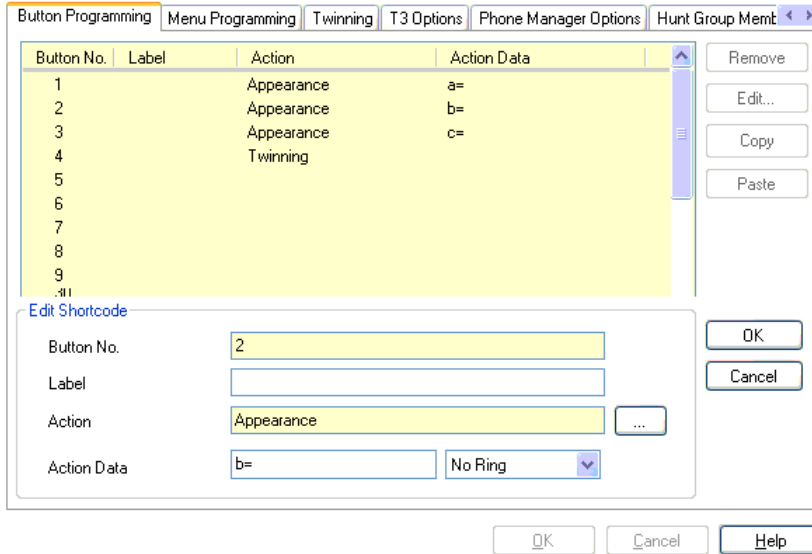
Appearance Button Requirements

1. The first button must be a call appearance button.
2. Any other call appearance buttons must follow the first in a continuous block.
3. Except on phones with only two physical programmable buttons, the minimum recommend number of call appearance buttons is 3.
4. No call coverage, bridged or line appearance buttons can be programmed until a user has call appearance buttons.
5. Appearance buttons set on buttons not matched by the user's current associated phone are not used and are ignored by the IP Office.

Procedure

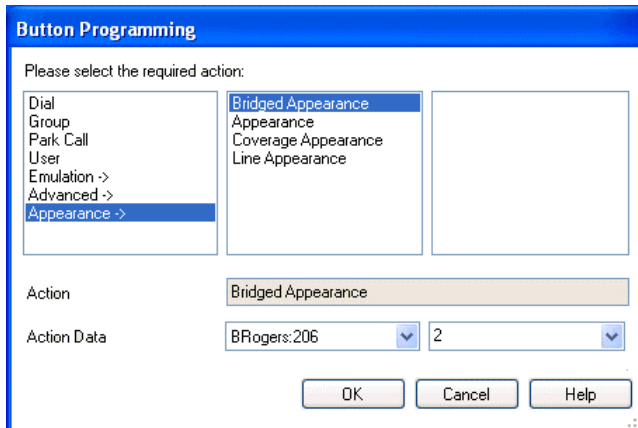
Using IP Office Manager, if only button programming changes are required, the configuration changes can be merged back to the IP Office system without requiring a reboot.

1. Using Manager load the current configuration from the IP Office.
2. Select the  **User** required to display their configuration details.
3. Select **Button Programming**.



- 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.

4. For the required button, either select the button and then click **Edit** or double-click the button.
5. Edit the settings as required. Use the ... button to display the menu for selecting the required button action. Select the action and set the action data, then click **OK**.



6. Click **OK**. Repeat for any other buttons.
7. Click **OK**.

An alternate method for the above programming is to right-click on the various fields. To do this start with the **Action** field, then **Action Data** and then **Label** if required.

Changing Extension Numbers

A new or defaulted IP Office system numbers each extension in sequence, going by module and port order, starting from 201. An extension entry is created in the configuration and also an associated user entry. A similar process occurs when a new extension expansion module is detected.

- **⚠ Extension versus User**

It is important with IP Office to understand that "extension number" is a user property that belongs to and moves with the user. For example users can use hot desking to login on another phone and calls to that user's extension number will then go to that phone (the phone temporarily assumes their extension number and settings) until the user log off. The Base Extension value set against extensions in the IP Office configuration indicate the default associated user of the extension, it is not the extension number of that port.

🎯 Objective

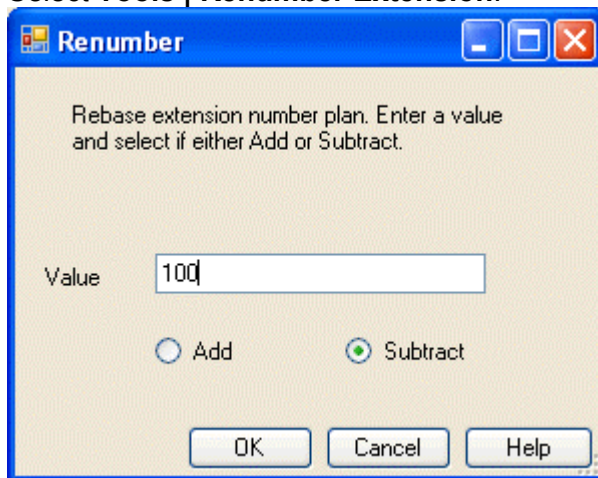
To change a user's or users' extension number.



Procedure 1: Renumbering all extensions and users

The following process allows all user extension numbers to be shift up or down by a set amount. Any settings linked to those numbers are adjusted including extension Base Extension settings. It does not affect hunt group extension numbers.


1. **⚠** This action alters extension settings and so requires a system reboot when the configuration is sent to the IP Office.
2. Select **Tools | Renumber Extension**.





3. Enter the amount by which you want to shift the current extension numbering of extensions and users.
4. Click **OK**.
5. If the configuration changes are complete, send the configuration back to the IP Office and select appropriate settings for the reboot.




Procedure 2: Changing an Individual User's Extension Number

1. Select  **User**.
2. Locate and select the relevant user.
3. On the **User** tab, change the **Extension** number to the required new number.

4. Click on another field. If an error warning appears it will most likely be due to a conflict with an existing use of that extension number.
 - If this an error, click **Cancel** to return the user to their original extension number.
 - If this is intended as the other entry will be corrected click **OK** and then edit the other entry.
 - When **OK** is clicked, Manager will automatically propagate the number change to any hunt groups, incoming call routes, user buttons, bridged appearance buttons and call coverage appearance buttons associated with the user's original extension number.
5. If the user has an extension with which they are associated by being the extension's Base Extension setting, that setting is not automatically updated (even though we asked engineering for that feature). If the user should still be associated with that extension by default, the extension must be updated manually to match the user's new extension number.

- a.  This part of the process requires an IP Office system reboot as it changes extension port settings.
- b. Select  **Extension**.
- c. Change the **Base Extension** number to match the user extension who should now be associated with that physical port by default.

- d. Click **OK**. Manager will probably give a validation error message due to a user being associated with two extensions. This can be ignored until all the user moves have been completed.
6. If changing several users repeat the process as required.
7. Click  to revalidate the configuration and check that no conflicts between users and associated extensions.
8. If the configuration changes are complete, send the configuration back to the IP Office and select appropriate settings for the reboot.

Swapping Extension Users

Occasionally, for example for office moves, users may want to move all their settings permanently to another extension.

Objective

Change the default user associated with an extension port.

Procedure 1: Swapping Analog and Digital Extension Users Using Structured Cabling



For installations where structured cabling has been used, the simplest way to swap users is to swap the cable connections at the RJ45 patch panel. This moves the user settings between phones without requiring any change to the IP Office configuration. If done this way, ensure that records of the cable connections are updated.


Procedure 2: Swapping Avaya 4600/5600 Series IP Extensions


These phones cannot be swapped through cabling as the phone retains its settings including its default associated user. The phone can be physically exchanged. Alternatively the extensions can be disconnected and then as each is reattached reset using **HOLD RESET#**. Refer to the 4600/5600 IP Phone Installation manual.

Procedure 3: Swapping Users Using Configuration Change

This method can be used when physical access to the system is not practical, for example for remote maintenance.

1.  This process requires an IP Office system reboot as it changes extension port settings.
2. Select  **Extension**.
3. Change the **Base Extension** number to match the user extension who should now be associated with that physical port by default.

Extn	
Extension Id	35
Base Extension	203
Caller Display Type	On
Reset Volume After Calls	<input type="checkbox"/>
Device type	 Avaya 5410
Module	BD
Port	1

4. Click **OK**. Manager will probably give a validation error message due to a user being associated with two extensions. This can be ignored until all the user moves have been completed.
5. If swapping or moving several users repeat the process for another extension.
6. Click  to revalidate the configuration and check that no conflicts between users and associated extensions remain.
7. If the configuration changes are complete, send the configuration back to the IP Office and select appropriate settings for the reboot.

C. External Trunk Configuration

Trunk Configuration

This section cover the basic requirements for external trunk configuration. The exactly method of physical connection and configuration will vary with each trunk provider and so requires local telecoms experience. The topics covered here are general guidelines.

- **Clock Quality**
Altering which digital trunk is used to provide the IP Office with its clock signal for call synchronization.
- **Unused Trunks**
Disabling the use of trunks and trunk channels that are not available.
- **Prefix Dialing**
On systems where a prefix is being used for external dialing, ensuring that the same prefix is added to incoming numbers in order to allow return calls.

Clock Quality

Summary


Any system where digital trunks are being used; for example PRI, BRI, S0 and QSIG trunks, requires a accurate clock signal for call synchronization between the switches at each end of the trunk.

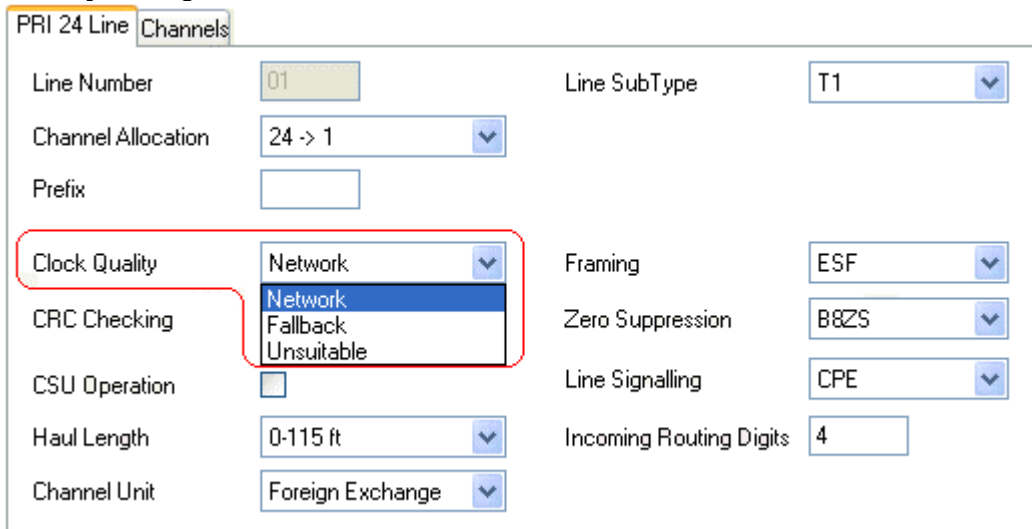
The IP Office can obtain and use the clock signal from any of its digital trunks. However it should only use one trunk for its clock signal and any other possible clock sources should be ignored. Typically the clock signal provided by a digital trunk from the central office exchange is the best quality and most reliable source.

Objective

Set a chosen digital trunk as the network clock source and set all other digital trunks as

Procedure

1. Within the IP Office configuration, select  **Line**.
2. For each digital line, select the line and on the **Line** tab select whether that trunk should provide the clock source for the network or whether the trunk is unsuitable. For E1R2 trunks the **Clock Quality** setting is on the **Advanced** tab.



The screenshot shows the configuration for a PRI 24 Line. The 'Clock Quality' dropdown menu is open, showing three options: 'Network', 'Fallback', and 'Unsuitable'. The 'Network' option is currently selected and highlighted in blue. Other configuration fields include: Line Number (01), Line SubType (T1), Channel Allocation (24 -> 1), Prefix (empty), Framing (ESF), CRC Checking (checked), Zero Suppression (B8ZS), CSU Operation (unchecked), Line Signalling (CPE), Haul Length (0-115 ft), Incoming Routing Digits (4), and Channel Unit (Foreign Exchange).

3. Ensure that only one trunk is set to **Network**. This should preferably be a direct digital trunk to the central office exchange.
4. One other trunk can be set a Fallback should the selected Network trunk connection be lost. If possible this should be a trunk from a different provider since that reduces the chances of both sources failing at the same time.
5. Ensure that all other digital trunks are set as **Unsuitable**.

Unused Trunks

Summary

Each IP Office trunk card provides a fixed number of trunk ports. For digital trunks each trunk provides a set number of digital channels. In cases where the number of trunks connected to the IP Office is lower or the number of channels provided is lower, those unused trunks and channel must be disabled.

⚠ Failure to do this will cause problems with outgoing calls. For example, on a system with an ATM4 trunk card fitted but only two analog trunks actually connected, failure to disable the other two trunks within the IP Office configuration will cause 50% of outgoing call attempts to fail.

Objective

Remove unused trunks and channels from the IP Office configuration.

1.4 2.4 3.0 Procedure

1. Within the IP Office configuration, select **Line**.
2. For each line, set those lines or channels that are not connected or being used as out of service. The location of the relevant setting varies for each trunk type.

- **Analog Trunks**

Set the **Trunk Type** to **Out of Service**.

- **BRI, E1 PRI, S0 and QSIG Trunks**

Set the channels quantities to match the actual subscribed channels.

- **T1, T1 PRI and E1R2 Trunks**

Select the **Channels** tab. Select those channels that are not used and click **Edit**.

PRI 24 Line Channels

Channel	Groups	Line Appearance	Direction	Bearer	Type
1	0 0	705	Bothway	Any	Ground Start
2	0 0	706	Bothway	Any	Ground Start
3	0 0	707	Bothway	Any	Ground Start
4	0 0	708	Bothway	Any	Ground Start
5	0 0	709	Bothway	Any	Ground Start
6	0 0	710	Bothway	Any	Ground Start
7	0 0	711	Bothway	Any	Ground Start
8	0 0	712	Bothway	Any	Ground Start
9	0 0	713	Bothway	Any	Out Of Service
10	0 0	714	Bothway	Any	Out Of Service
11	0 0	715	Bothway	Any	Out Of Service
12	0 0	716	Bothway	Any	Out Of Service
13	0 0	717	Bothway	Any	Out Of Service
14	0 0	718	Bothway	Any	Out Of Service
15	0 0	719	Bothway	Any	Out Of Service
16	0 0	720	Bothway	Any	Out Of Service
17	0 0	721	Bothway	Any	Out Of Service
18	0 0	722	Bothway	Any	Out Of Service
19	0 0	723	Bothway	Any	Out Of Service
20	0 0	724	Bothway	Any	Out Of Service
21	0 0	725	Bothway	Any	Out Of Service
22	0 0	726	Bothway	Any	Out Of Service
23	0 0	727	Bothway	Any	Out Of Service
24	0 0	728	Bothway	Any	Out Of Service

Edit...

- For T1 set the **Type** to **Out of Service**.
- For T1 PRI set the **Admin** field to **Out of Service**.
- For E1R2 trunks set the **Line Signalling Type** to **Out of Service**.

Prefix Dialing


Where a prefix has been implemented for outgoing calls, that same prefix needs to be added to trunk settings. The prefix is then used as follows;

- On incoming calls the prefix is added to any incoming ICLID received with the call. That allows the ICLID to be used by IP Office phones and applications to make return calls.
- On outgoing calls, any prefix on the digits received by the trunk to dial is removed since that prefix will not be valid at the central office exchange.

Objective

Ensure the correct prefix is added to incoming calls.

Procedure

1. Within the IP Office configuration, select  **Line**.
2. For each line enter the prefix. The location of the relevant setting varies for each trunk type.

• Analog Trunks

Line Settings	Analogue Options
Line Number	401
Telephone Number	
Incoming Group ID	0
Outgoing Group ID	0
Outgoing channels	1
Voice channels	1
Prefix	9
National Prefix	0
Line Appearance ID	739

• T1 and T1 PRI Trunks

PRI 24 Line	Channels
Line Number	01
Channel Allocation	24 -> 1
Prefix	9
Clock Quality	Network
CRC Checking	<input checked="" type="checkbox"/>
CSU Operation	<input type="checkbox"/>
Haul Length	0-115 ft
Channel Unit	Foreign Exchange
Line SubType	T1
Framing	ESF
Zero Suppression	B&ZS
Line Signalling	CPE
Incoming Routing Digits	4

- **BRI, E1 PRI, S0 and QSIG Trunks**

PRI Line	Short Codes	Channels
Line Number	<input type="text" value="05"/>	Line SubType <input type="text" value="ETSI"/>
Telephone Number	<input type="text"/>	TEI <input type="text" value="0"/>
Prefix	<input type="text" value="9"/>	Number of Channels <input type="text" value="20"/>
National Prefix	<input type="text" value="90"/>	Outgoing Channels <input type="text" value="20"/>
International Prefix	<input type="text" value="900"/>	Voice Channels <input type="text" value="20"/>
		Data Channels <input type="text" value="20"/>
CRC Checking	<input checked="" type="checkbox"/>	
Clock Quality	<input type="text" value="Network"/>	Line Signalling <input type="text" value="CPE"/>

D. Additional Processes

Creating a WAN Link

The following is a simplified process for creating a data link from Site A to Site B via the WAN ports.

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 entered for the service are 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. Note that if 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.

3. **Setup RAS:**

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. Note that 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.

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.

5. **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.

At Site B on IP address 192.168.45.1

1. Repeat the above process but altering the details to create a route from Site B to Site A

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.

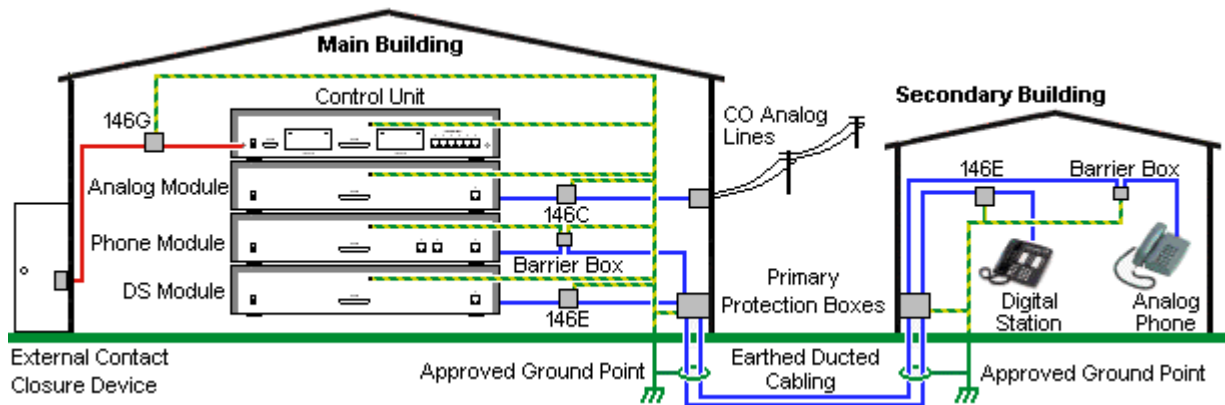
1. At an idle extension, dial ***34**.
2. You will hear the system's music on hold.

Grounding and Protection Devices

Out-of-Building Connections/Lightning Protection



The following are the only supported scenarios in which wired extensions and devices outside the main building can be connected to the IP Office system. In these scenarios, additional protection, in the form of protective grounding and surge protectors, must be fitted.

- ⚠ The fitting of additional protection does not remove the risk of damage. It merely reduces the chances of damage to other internal equipment.



Cabling Requirements

- Cables of different types, for example lines, extensions, ground and power connections, should be kept separate.
- All cabling between building should be enclosed in grounded ducting. Ideally this ducting should be buried.
- A Primary Protection Box must be provided at the point where the cables enter the building. This should be three point protection (tip, ring and ground). Typically this would be gas tube protection provided by the local telephone company. The ground wire must be thick enough to handle all the lines being affected by indirect strike at the same time.

Connection Type	Protection Device Type	Requirement
DS Phone Extensions  <i>Digital Station Expansion module DS ports only.</i>	Avaya 146E DS2 IROB Supports up to 4 connections.	<ul style="list-style-type: none"> • Connection from the expansion module to the phone must be via a surge protector <u>at each end</u> and via the primary protection point in each building.
Analog Phone Extensions  <i>Phones Expansion module (POT or PHONE) ports only.</i>	IP Office Barrier Box Supports a single connection. Maximum of 16 on any expansion module.	<ul style="list-style-type: none"> • The IP Office expansion module and control unit and IROB devices must be connected to the protective ground point in their building. • The between building connection <u>must be</u> via earthed ducting, preferable underground. The cable <u>must not be</u> exposed externally at any point.
Analog Trunks	Avaya 146C CO Line Protector Supports up to 4 two-wire lines.	<p>For installations in the Republic of South Africa, the fitting of surge protection on analog trunks is a requirement.</p> <p>For other locations where the risk of lightning strikes is felt to be high, additional protection of incoming analog trunks is recommended.</p>
External Output Switch	Avaya 146G Surge Protector	Connections from an IP Office Ext O/P port to an external relay device <u>must be</u> via a surge protector.

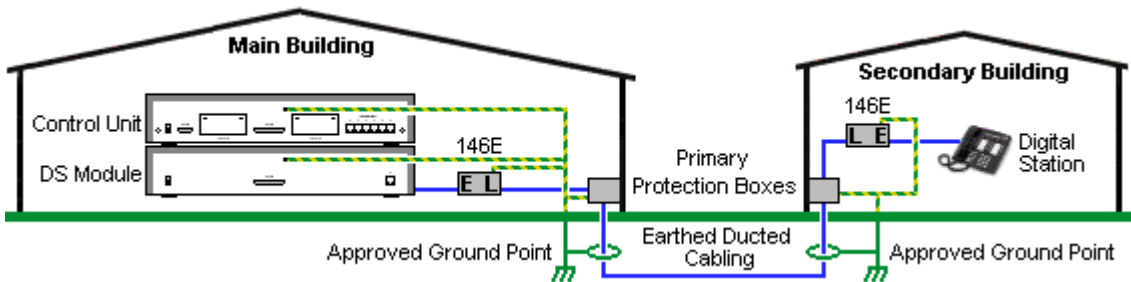
DS Phone IROB Installation

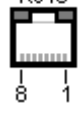
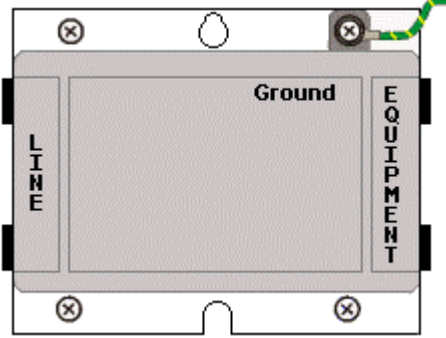
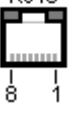
When DS phone extensions are required in another building, additional protective equipment must be used, in the form of IROB 146E devices and protective earth connections.

- **CAUTION:** Ports on the front of the Small Office Edition, IP403 and IP406 V2 control units must not be used for extensions that are external to the main building.

IROB 146E devices should be installed as per the instructions supplied with those devices. The ground points on the IP Office control unit and the DS modules must be connected to a protective ground using 18AWG wire with a green and yellow sleeve.

Typically the IROB's 2 RJ45 EQUIPMENT ports are straight through connected to the 2 RJ45 LINE ports. This allows existing RJ45 structured cabling, using pins 4 and 5, to be used without rewiring for up to two DS connection. However each of these ports can be used to connect a second extension using pins 3 and 6.

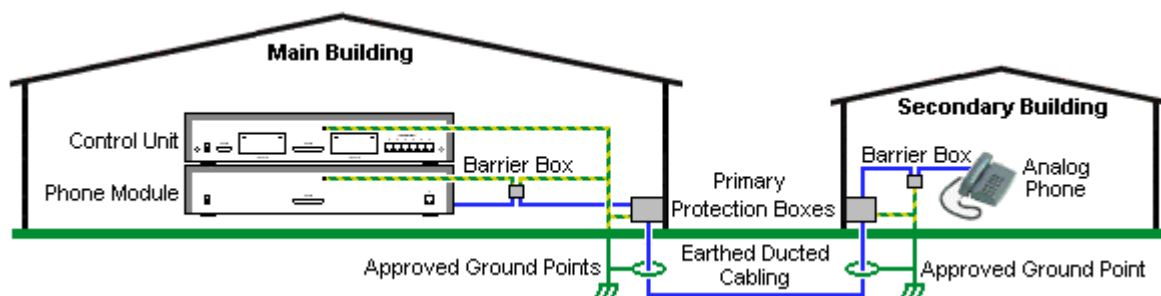


LINE	Signal	EQUIPMENT
	1	Not used.
	2	Not used.
	3	Ring II (Optional)
	4	Ring I
	5	Tip I
	6	Tip II (Optional)
	7	Not used.
	8	Not used.
		
		1
		2
		3
		4
		5
		6
		7
		8

Analog Phone Barrier Boxes

Where analog phone extensions are required in another building, additional protective equipment must be used, in the form of IP Office Phone Barrier Boxes and protective earth connections.

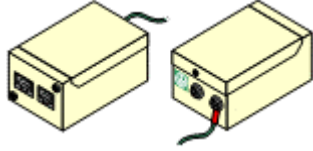
- The correct IP Office specific barrier boxes must be used. These modules have been designed specifically for the signalling voltages used by the IP Office system:
 - Only the IP Office Phone Barrier Box should be used with Phone V1 modules.
 - Only the IP Office Phone Barrier Box V2 should be used with Phone V2 modules.
 - No other type of analog phone barrier box should be used.
- Where more than 3 barrier boxes are required in a building, they must be rack mounted using a Barrier Box rack mounting kit.
- A maximum of 16 barrier boxes can be used with any Phone module.
- CAUTION:** PHONE (POT) ports on the front of control units must not be used for extensions that are external to the main building.
- The Phone Barrier Box does not connect the ringing capacitor in Phone V1 modules.



Main Building	Barrier Box	Secondary Building
<ul style="list-style-type: none"> RJ11: Connect to PHONE (POT) port on the Phone module using cable supplied with the barrier box. RJ45: Connect to the secondary building barrier box via primary protection in both buildings. 	<p>The diagram shows the front panel of the Barrier Box with an RJ45 port on the left and an RJ11 port on the right. There are also two screws on the panel, one on each side of the RJ11 port.</p>	<ul style="list-style-type: none"> RJ11: Connect to analog phone. Cable not supplied. RJ45: From main building via primary protection in both buildings.
<ul style="list-style-type: none"> Center Screw: Connect to main building protective ground (or ground terminal of Barrier Box Rack Mounting Kit). Use 18AWG (minimum) wire with a green and yellow sleeve. Right-Hand Screw: Connect to ground point on Phone module using ground cable supplied with barrier box. 	<p>The diagram shows the back panel of the Barrier Box. It features a Center Screw with a green and yellow sleeve, and a Right-Hand Screw. There are also two screws on the panel, one on each side of the Center Screw.</p>	<ul style="list-style-type: none"> Center Screw: Connect to main building protective ground. Use 18AWG (minimum) wire with a green and yellow sleeve. Right-Hand Screw: Not used.

1. The following wires **must be** kept apart, that is not routed in the same bundle:

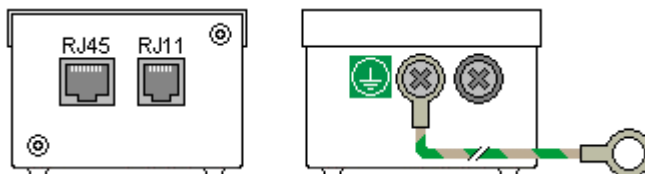
- Earth leads from the barrier box to the IP400 Phone modules.
- Internal wires, for example extension leads going directly to the IP400 Phone modules.
- Wires from external telephone going directly to the barrier boxes.

IP Office Barrier Boxes		SAP Code
	IP400 Phone Barrier Box (81V) Use with Phone V1 module. Includes an RJ45 to RJ11 cable and a functional earth lead.	700293897
	IP400 Phone Barrier Box V2 (101V) Use with Phone V2 module. Includes an RJ45 to RJ11 cable and a functional earth lead.	192228
	Barrier Box Rack Mounting Kit	700293905

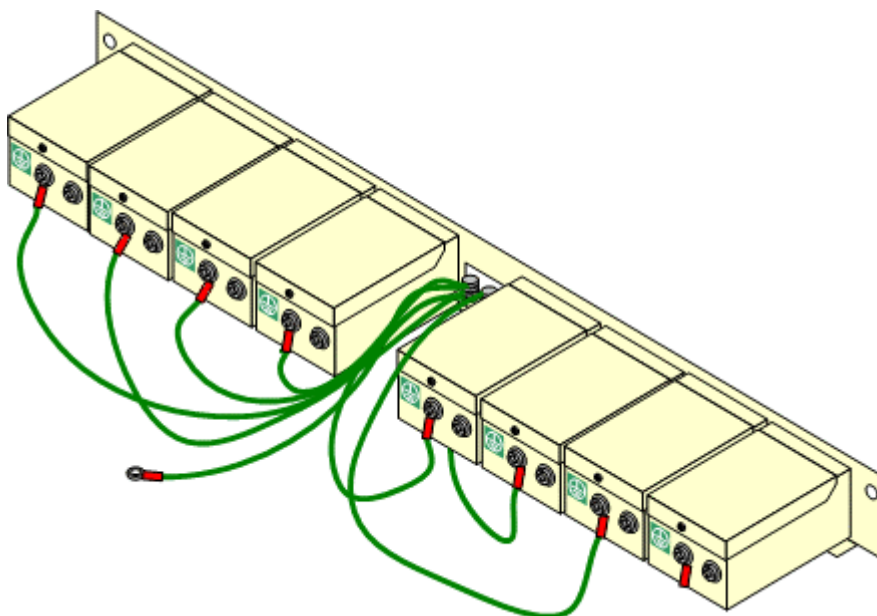
Rack Mounting Barrier Boxes

Where more than 3 Phone Barrier Boxes are used they **must be** rack mounted. The Barrier Box Rack Mounting Kit (SAP Code 700293905) supports up to 8 Phone Barrier Boxes.

1. Unscrew the two screws arranged diagonally at the front of each barrier box and use these same screws to reattach the barrier box to the rack mounting strip.
2. Each barrier box is supplied with a solid green ground wire connected to its functional ground screw. Remove and discard this wire. Connect a green/yellow ground wire to the protective earth screw in the center of the Point on the back of the Barrier Box.



3. The rack mounting strip has threaded M4 earthing pillars. Connect the other end of the barrier box ground wire, using M4 washers and nuts, to the earthing pillar on that side of the rack mounting strip.



4. Using 14AWG wire with green and yellow sleeve, connect one of the earthing pillars to the buildings protective earth.
5. Using 14AWG wire with green and yellow sleeve, connect the other earthing pillar to the Phone module.
6. Ensure that the following wires are not routed together in the same bundle:
 - Earth lead from the barrier box to the IP400 Phone 8/16/32.
 - Internal wires, e.g. wires going directly to the IP400 Phone 8/16/32.
 - Wires from external telephone going directly to the barrier boxes.

External Output Port

Using the External Output (Door) Port

All the IP Office control units are equipped with a **EXT O/P** port. The port is marked as **EXT O/P** and is located on the back of the control unit adjacent to the power supply input socket.

The port can be used to control up to two external devices such as door entry relay switches. The usual application for these switches is to activate relays on door entry systems. However, as long as the criteria for maximum current, voltage and if necessary protection are met, the switches can be used for other applications.

The switches can be switched closed, open or pulsed (closed for 5 seconds and then open). This can be done in a number of ways:

- Using IP Office short codes.
- Through the Door tab in Phone Manager Pro.
- Through the Door Release option in IP Office SoftConsole.
- Via the Open Door action in Voicemail Pro.

Default Short Codes

The following are the default short codes in the IP Office configuration for external output switch operation. They use the short code features **Relay On** (*closed*), **Relay Off** (*open*) and **Relay Pulse**.

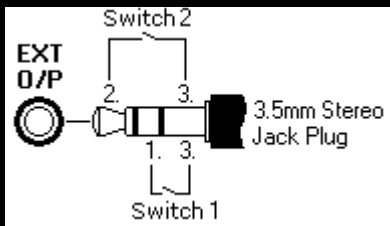
State	Switch 1	Switch 2
Closed	*39	*42
Open	*40	*43
Pulse	*41	*44

EXT O/P Port

These ports are found on the rear of all IP Office control units. They are used for connection to external switching relays. The port uses a standard 3.5mm stereo jack plug for connection.

The IP Office is able to open (high resistance), close (low resistance) or pulse (close for 5 seconds and then open) two switches within the port. Either switch can be operated separately. These switches are intended for activation of external relays in systems such as door opening systems.

- **CAUTION:** In installations where this port is connected to a device external to the building, connection must be via an Avaya 146G Surge Protector and a protective ground connection must be provided on the IP Office control unit.

EXT O/P	Pin	Description
	1	Switch 1. Ensure that this pin is always at a positive voltage with respect to Pin 3.
	2	Switch 2. Ensure that this pin is always at a positive voltage with respect to Pin 3.
	3	0 Volts (Ground/Chassis)

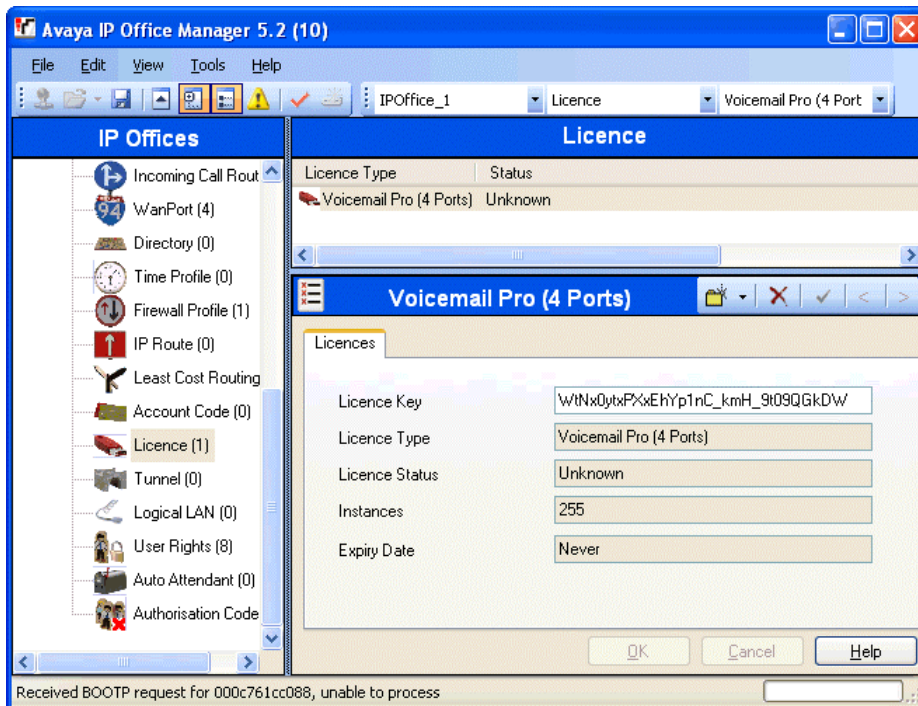
- **Switching Capacity:** 0.7A.
- **Maximum Voltage:** 55V d.c.
- **On state resistance:** 0.7 ohms.
- **Short circuit current:** 1A.
- **Reverse circuit current capacity:** 1.4A.

3.5mm stereo audio jack plugs are frequently sold as pre-wired sealed modules. It may be necessary to use a multi-meter to determine the wiring connections from an available plug. Typically 3 (common to both relays) is the cable screen.

Licensing

License Keys

Various IP Office features and applications require entry of license keys into the system's configuration. The license keys are unique 32-character codes based on the feature being activated and the serial number of the IP Office system's Feature Key dongle.




- Example 1: Enabling Software Features**
 In the example below, the IP Office system has a valid Phone Manager Pro license. In this case the license is for 20 instances. That means that up to 20 IP Office users can be use Phone Manager Pro simultaneously. Their previously license free Phone Manager Lite software will automatically change to display Phone Manager Pro features.
- Example 2: Enabling Software and Features**
 The example below has Voicemail Pro enabled by the addition of a Voicemail Pro license. This initial Voicemail Pro license also provide for 4 ports between the IP Office system and the Voicemail Pro PC. The Additional Voicemail Pro (ports) license adds another 4 ports since the Voicemail Pro ports licenses are cumulative.

When a license key is entered into the IP Office configuration, the following information is shown.


- Status:** The status, which is Unknown until the configuration file is sent back to the IP Office system.
- License:** The name of the licensed feature. This may differ from the ordered RFA name.
- Instances:** Depending on the license, this may be the number of ports enabled or number of simultaneous users of the licensed feature.
- Expires:** Most purchased licenses have no expiry setting. For some features, trial licenses may be available which will have an expiry date.

Feature Key Dongles

Various IP Office features and applications require entry of a licence key or keys into the system's configuration. Each licence key is a unique 32-character number based on the feature being activated and the serial number of a Feature Key dongle installed somewhere with the IP Office system.

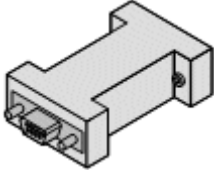
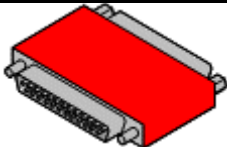

- PC-Less Licensing**


This uses a serial dongle attached directly to the DTE serial port of the IP Office control unit. It requires the control unit to have a 9-pin D-type DTE port. A PC running the IP Office Feature Key server application is not required in this scenario.

- PC-Base Licensing**


This method uses a dongle attached to a USB or parallel port on a PC running the IP Office Feature Key server application. This PC must be on the same LAN segment as the IP Office control unit. Typically the dongle and IP Office Feature Key server application are installed on the same PC as the IP Office Voicemail Lite or Voicemail Pro application if present.

There are three type of Feature Key dongle available. The serial number is printed either directly onto the dongle or onto a label on the dongle.

Feature Key Type	Description	SAP Code
Serial 	Plugs directly into the serial port on IP Office Small Office Edition, IP406 V2 and IP412 Control Units, allowing PC-less operation.	700293095
Parallel 	Plugs into the appropriate port on a PC running the IP Office Feature Key server application. This PC must on the same LAN segment as the IP Office control unit.	700185234
USB 		700261506

Installation Requirements

Software

- The IP Office Administration CD contains the Feature Key Server software. This is required for use with USB and parallel port licence keys.

Feature Key

- Ensure that the serial number on the Feature Key dongle is noted and recorded in a safe location. The number is printed on the Feature Key dongle and prefixed with SN.

Feature Key Server PC





Only required if using a Parallel Port or USB Feature Key. Not applicable if using a Serial Port Feature Key dongle.

- Windows 2000, 2003 or XP are strongly recommended as the Feature Key Server is then able to install as a service, giving greater reliability.
- The server PC should be located in a secure area. The Feature Key device is fundamental to the correct operation of many features, so a record of its location and serial number must be kept.
- Parallel Port Feature Key:
 - A 25-pin Parallel port 1, set to bidirectional operation in the PC's BIOS.
 - Bidirectional parallel port operation is the normal default on most PCs.
 - **WARNING:** Do not connect a printer to the parallel port Feature Key dongle. Poorly wired printer cables or printers that have not been earthed correctly can cause the parallel port Feature Key to stop working.
- USB Feature Key:
 - USB 1.1 or 2.0. Type A connector.
 - IP Office 1.4 Admin suite or later.






Network

- The PC should be configured and tested for TCP/IP networking.
- It should be on the same network segment as the IP Office. That is data traffic between the IP Office and the Feature Key Server PC should not require routing.
- The PC should have a fixed IP address. Whilst PC's in a DHCP network usually retain the same IP address between reboots this is not guaranteed.
 - If the IP Office is acting as a DHCP server, then in default it uses addresses 192.168.42.2 to 192.168.42.201 for DHCP clients. This leaves addresses between 192.168.42.202 and 192.168.42.254 free for devices that require fixed IP addresses.

Serial Port Feature Key Installation

1. Plug the serial port Feature Key dongle into the serial port on the IP Office control unit (IP Office Small Office Edition, IP406 V2 and IP412 control units).
2. Start **Manager** and receive the IP Office system's configuration.
3. Select  **System**.
4. On the **System** tab, the **License Server IP Address** field is used to set the location of the feature key. For a serial port license key, set the **License Server IP Address** to be blank.
5. Click **OK**.
6. Select  **License**.
7. To add a license, click  and select License. Enter the new license click **OK**.
8. The **Status** of the new license should show **Unknown** and name the license as expected. If its **Status** is **Unknown** and name **Invalid**, the most likely cause is incorrect entry of the license key characters.
9. Click on  to send the configuration back to the IP Office. The menu that appears will indicate whether a reboot is required.
10. Use Manager to receive the configuration again and check that the status of the license. It should now be **Valid**.

Parallel Port / USB Feature Key Installation

1. Plug the Feature Key dongle into the PC's parallel or USB port.
2. Insert the IP Office Administrator Applications CD and let the installation wizard auto-start.
3. If some IP Office administrator application have been previously installed, select **Modify** when the **Modify, Repair or Remove** option menu appears.
4. In the **Select Features** menu, ensure that Feature Key Server is selected. Do not change any other options as this will trigger their removal if already installed.
5. Having installed the software, the system will reboot.
 - The Feature Key Server installs itself as a service. It appears as **Key Server** in the Services Panel.
 - In the **Add/Remove Programs** panel, an entry **Sentinel System Driver** appears. This is part of the Feature Key Server.
6. Following installation and reboot, the Feature Key Server appears as an icon  in the Windows System Tray.
 - Right-click on the icon and select **About** to display the server software version and the Feature Key device number.
 - If the icon appears as a white block with a red cross through it, then there is some error. The most likely error is that the Feature Key is missing from the parallel or USB port.
7. Start **Manager** receive the IP Office system's configuration.
8. Select  **System**.
9. On the **System** tab, the **License Server IP Address** field is used to set the location of the feature key. The default is a 255.255.255.255 broadcast address. This is okay for many sites, but it is recommend that the IP address of the PC running the Feature Key Server is entered.
10. Click **OK**.
11. Select  **License**.
12. To add a license, click  and select License. Enter the new license click **OK**.
13. The **Status** of the new license should show **Unknown** and name the license as expected. If its **Status** is **Unknown** and name **Invalid**, the most likely cause is incorrect entry of the license key characters.
14. Click on  to send the configuration back to the IP Office. The menu that appears will indicate whether a reboot is required.
15. Use Manager to receive the configuration again and check that the status of the license. It should now be **Valid**.

So8 BRI Module

So8 Example 1

In this example, calls on DID 123456 are routed to the first port of the SO8 expansion module. That port has been configured as Line Group ID 701.

1. **Configure an Incoming Call Routing:**

The destination is a short code that directs the call to the correct line group ID that contains the S0 lines. The Bearer Capability has been set to Any, to allow data and voice via this route.

- **Line Group ID:** 0
- **Incoming Number:** 123456
- **Destination:** 123456
- **Bearer Capability:** Any

2. **Create a System Short Code:**

This matches the destination in the Incoming Call Route.

- **Short Code:** 123456
- **Telephone Number:** 123456
- **Line Group ID:** 701
- **Feature:** Dial

3. Send the configuration to the Control Unit.

Any call coming into the main system on DID 123456 will now be passed directly to the first port.

If you wish to assign DID's from your main pool to individual ports and avoid network charges when dialing between them, try variations on the following:

1. You have **DID** ranges, for example: 7325551000 to 7325551099. You wish to assign 7325551000-19 to port 1 and 7325551020-20 to port 2 etc.

2. **Configure Incoming Call Route:**

The # is used here instead of "n" to avoid problems with "Main". The minus sign means the number is processed from the left and so will wait for the whole number.

- **Line Group ID:** 701
- **Incoming Number:** -100x
- **Destination:** #

3. Repeat for Line Group ID 702 etc.

4. Create Short codes, for example:

- **Short Code:** 100x
- **Telephone Number:** .
- **Line Group ID:** 701
- **Feature:** Dial

S0 calls dialed without the area code are handled locally without network charges. Calls with area calls will go via the network.

So8 Example 2: Video Conference

In this example, calls are routed to a Polycom Viewstation module connected to a S0 port of the IP Office system.

The following settings were used on 4 incoming data channels of a PRI line:

- **Line Number:** 5
- **Channel Allocation:** 23 -> 1
- **Switch Type:** 5ESS
- **Line Sub Type:** PRI
- **Provider:** AT&T
- **Channels:** 1-4
- **Incoming Line Group:** 95
- **Outgoing Line Group:** 95
- **Direction:** Bothway
- **Bearer:** Data
- **Service:** Accunet (this is a important)
- **Admin:** In Service

To route an incoming video call on the PRI lines configured above to an SO8 module requires the following:

1. Create a dial short code that has the SO port as its destination Line Group. For this example the following was used:
 - **Short Code:** 1500
 - **Number:** .
 - **Feature:** Dial
 - **Line Group:** 601 (the SO8 port number)
2. Create an Incoming Call Routing that routes the appropriate calls to that short code. For this example the following was used:
 - **Line Group:** 95 (identifies calls using the PRI lines configured above)
 - **Destination:** 1500 (the short code created above)
 - **Bearer:** Any

To allow the video device on the S0 port to make outgoing calls to the PRI lines also requires a short code.

1. For this example the following was used:
 - **Code:** 91N;
 - **Number:** N
 - **Feature:** Dial
 - **Line Group:** 95

Polycom Video Module Settings

The Polycom modules used in the previous example were the Viewstation 128, Viewstation 256 and Viewstation MP.

The Polycom module must have software that supports 'Standard ETSI ISDN' (European ISDN) and have its ISDN Switch Protocol setting set to 'Standard ETSI Euro-ISDN'

The following were the settings used during testing:

Characteristics	Admin/Software and Hardware/Software
<ul style="list-style-type: none"> • Polycom View Station 512 MP. • NTSC UIS Interface. • View Station PVS 1419. 	<ul style="list-style-type: none"> • Software: 7.0.1. • Network Interface: S/T Interface. • ISDN Version: IEUS v18:a00320
Admin/General Setup	Admin/Video Network/ISDN Video Network
<ul style="list-style-type: none"> • Country: USA • Language: English (USA) • Auto Answer: Yes • AllowDial: Yes • Allow User Setup: Yes • Maximum Time on Call: 480. 	<ul style="list-style-type: none"> • Country Code: 1 • Area Code: 732 • Number A: blank • Number B: blank • ISDN Switch Protocol: Standard ETSI Euro-ISDN.
User Setup	Admin/Video Network/IMUX
<ul style="list-style-type: none"> • Auto Answer: Yes • PIP: Auto • Far Control of Near Camera: Yes • MP Mode: Auto 	<ul style="list-style-type: none"> • Numbers: blank • SPID: blank • Audio Quality: 168KB/s • Advanced Dialing: Dial Channels in Parallel
System Information	Admin/Software and Hardware/Hardware
<ul style="list-style-type: none"> • Release: 7.0.1 • Model: VS: 512 	<ul style="list-style-type: none"> • Camera: NTSC • Video Comm Interface: ISDN_Quad_BRI • Network Interface Type: S/T Interface
Admin/Video Network	Admin/Video Network/Call Preference
<ul style="list-style-type: none"> • MultiPoint Setup: Auto 	<ul style="list-style-type: none"> • ISDN Video Calls (H:320): Yes

SNMP

SNMP Introduction

SNMP (Simple Network Management Protocol) is a standard network protocol that allows the monitoring and management of data devices across a network.

An SNMP agent can be built into network devices such as routers and hubs. An SNMP manager application (for example CastleRock or HP OpenView) can then communicate with those devices.

This communication can be:

- **Polling:** *Supported by IP Office 2.0 and above*
Some SNMP manager applications send out polling messages to the network. They then record the responds of any SNMP enabled devices (agents). This allows the manager to create a network map and to raise an alarm when devices previously present do not respond.
 - Most SNMP manager applications can also do simple IP address polling to locate non-SNMP enabled devices. However this method of polling does not identify the device type or other information.
 - SNMP polling including details about the responding device. For example an IP Office control unit's response includes the control unit type, level of software, routing table information, up time, etc.
- **Traps:** *Supported by IP Office 2.0 and above*
When certain events occur, a devices SNMP agent can send details of the event to the SNMP manager. This is called an SNMP 'trap'. These appear in the event log of the SNMP manager. Most SMNP manager's can be configured to give additional alerts in response to particular traps.
- **Management:** *Not supported by IP Office 2.0 and above*
Some SNMP agents support device management and configuration changes through the SNMP manager interface.

IP Office 2.0 and above allows IP Office Control Units to act as read-only SNMP v1 agents. It can include the sending of events traps to up to two different SNMP manager addresses.

- IP Office 3.2 supports the use of SMTP to email SNMP alarms. This allows the IP Office's SNMP alarms to be used without having to setup an SNMP manager application.

IP Office SNMP operation has been tested against Castle Rock SNMPc-EE 5.1.6c and HP OpenView Network Node Manager 6.41.

- A MIB file exists for the SNMP monitoring of Avaya 4600 and 5600 Series IP phones. The MIB file can be obtained from the Avaya support website (<http://support.avaya.com>).
- The Avaya IP DECT system can also be monitored using SNMP. Refer to the IP DECT Installation manual.

Installing the IP Office MIB Files

To allow full communication between an SNMP agent and an SNMP manager, the SNMP manager must load MIB files (Management Information Base) specific to the SNMP agent device and the features it supports. These MIB files contain details of the information the agent can provide and the traps that it can send. Full details of the structure of the IP Office MIB files, MIB groups within those files and event traps can be found in the "IP Office Installation Manual".

The MIB files for IP Office operation are included on the IP Office Admin CD in the folder **C:\snmp_mibs**. The actual files required and the method of loading depend on the SNMP manager application being used. The details below cover the two SNMP manager applications tested.

HP Open View Network Node Manager

1. Copy the following MIB files to the applications MIBs folder.

	MIB File	Source
a.	rfc2737-entity-mib.mib	<i>snmp_mibs\standard folder on OpenView Install CD.</i>
b.	avayagen-mib.mib	<i>snmp_mibs\IPOffice folder on IP Office Admin CD.</i>
c.	ipo-prod-mib.mib	<i>snmp_mibs\IPOffice folder on IP Office Admin CD.</i>
d.	ipo-mib.mib	<i>snmp_mibs\IPOffice folder on IP Office Admin CD.</i>
e.	inet-address-mib.mib	<i>snmp_mibs\Standard folder on IP Office Admin CD.</i>
f.	rfc2213-integrated-services-mib.mib	<i>snmp_mibs\standard folder on OpenView Install CD.</i>
g.	diffserv-dscp-tc.mib	<i>snmp_mibs\Standard folder on IP Office Admin CD.</i>
h.	diffserv-mib-hpov.mib	<i>snmp_mibs\Standard folder on IP Office Admin CD.</i>
i.	ipo-phones-mib.mib	<i>snmp_mibs\IPOffice folder on IP Office Admin CD.</i>

2. Start the OpenView Network Node Manager console.
3. Select **Options** and then **Load/Unload MIBs: SNMP**.
4. Select **Load** and select all the MIB files listed above.
5. Select **Compile**.

CastleRock SNMPc 5.1.6c and earlier

1. Copy the following MIB files to the applications MIBs folder, normally *C:\Program Files\SNMPC Network Manager\mibfiles*.

	MIB file	Source
a.	ENTITY-MIB	snmp_mibs\Standard on IP Office Admin CD.
b.	AVAYAGEN-MIB.mib	snmp_mibs\IPOffice on IP Office Admin CD.
c.	IPO-PROD-MIB.mib	snmp_mibs\IPOffice on IP Office Admin CD.
d.	IPO-MIB.mib	snmp_mibs\IPOffice on IP Office Admin CD.
e.	INET-ADDRESS-MIB.mib	snmp_mibs\Standard on IP Office Admin CD.
f.	INTEGRATED-SERVICES-MIB	snmp_mibs\Standard on IP Office Admin CD.
g.	DIFFSERV-DSCP-TC.mib	snmp_mibs\Standard on IP Office Admin CD.
h.	DIFFSERV-MIB.mib	snmp_mibs\Standard on IP Office Admin CD.
i.	IPO-PHONES-MIB.mib	snmp_mibs\IPOffice on IP Office Admin CD.

2. In SMNPc select **Config | MIB Database**.
3. Select Add and select the MIB files listed above in the order listed.

CastleRock SNMPc V5.0.1

The MIB installation instructions provided above are correct for CastleRock SNMPc V5.0.8 and later. For V5.0.1 of CastleRock SNMPc the following must be carried out:

1. Copy all of the IP Office MIBs and standard MIBs from the IP Office Administrator Applications CD to the SNMPc mibfiles directory.
2. In the SNMPc mibfiles directory open the files STANDARD.mib and SNMPv2-SMI.mib in Notepad.
3. In the SNMPv2-SMI.mib file find the definition of zeroDotZero and copy this to the clipboard.
4. In the STANDARD.MIB file find the SNMPv2-SMI section and paste in the definition of zeroDotZero from the clipboard before the end of this section (just before the END statement).
5. Save the modified STANDARD.MIB file.
6. Add the MIB file SNMP-FRAMEWORK-MIB.mib to the MIB database using the instructions provided in the IP Office installation guide.
7. Add all the MIB files listed in the instructions provided in the IP Office installation guide in the order given.
8. Compile the MIBs ready for use.

The reason for this is: The IPO-PHONES-MIB.mib relies upon the DIFFSERV-MIB.mib for the definition of the textual convention of IndexInteger. The DIFFSERV-MIB needs the definition of the textual convention zeroDotZero which is normally defined in SNMPv2-SMI.mib. However including SNMPv2-SMI.mib in the MIB file compilation list results in errors due to conflicts with what appear to be internal definitions within SNMPc and the SNMPv2-SMI section in its STANDARD.mib file. Therefore to resolve the issue the required definition of zeroDotZero must be placed in the SNMPv2-SMI section in SNMPc's STANDARD.mib file.

Enabling SNMP and Polling Support

In order for the IP Office control unit to be discovered and polled by an SNMP manager, its SNMP agent must be enabled and placed in the same read community as the SNMP manager.

To enable the SNMP agent:

1. In Manager, receive the control unit's configuration.
2. Double-click **System** from the Configuration Tree panel and select the **SNMP** tab.
3. Tick **SNMP Enabled**.
4. In **SNMP Port**, enter the UDP port number used by the IP Office SNMP agent to listen for and respond to SNMP traffic. The normal default is **161**.
5. In **Community (Read-only)**, enter the community to which the device belongs for read access. This community name must match that used by the SNMP manager application when sending requests to the device. The community **public** is frequently used to establish communication and then changed (at both the SNMP agent and manager ends) for security.
6. Click **OK**.
7. Send the configuration back to the IP Office and select reboot.
8. Following the IP Office reboot, the SNMP manager should be able to discover the control unit.
9. The control unit's response will include details of the control unit type and the current level of core software.

Enabling SNMP Trap Sending

In Manager, receive the control unit's configuration.

1. Double-click **System** from the Configuration Tree panel and select the **SNMP** tab.
2. Ensure that **SNMP Enabled** is ticked.
3. Using either **Trap Destination 1** or **Trap Destination 2**, enter the following information:
 - Enter the **IP Address** of the PC running the SNMP manager application.
 - Enter the **Port** on which the traps messages should be sent. This is the UDP port on which the IP Office sends SNMP trap messages. The default is **162**.
 - Set the **Community** that will be used by the agent and the SNMP manager. The community **public** is frequently used to establish communication and then changed (at both the SNMP agent and manager ends) for security.
 - Select the **Events** which should be sent:
 - **Generic:**
Events such as soft reboot (warm start), hard reboot (cold start), links up/down (transition in the status of a PPP or frame relay interface) or SNMP community mismatch.
 - **Entity:**
Failures, errors and changes of state in IP Office modules and trunk interfaces.
Note: Does not include WAN3, Modem2 and ATM4.
 - **Licence:**
Changes of state in the communication with the Feature Key Server.
 - **Phone Change:**
Changes to the type of DS or IP phone connected to a port.
8. Click on **OK**.
9. Send the configuration back to the IP Office and select reboot.

Trap Generation

RFC1215 Generic SNMP Traps

Trap	Cause
warmStart	Soft reboot.
coldStart	Unexpected reboot such as a power outage.
linkDown	Transition of an interface (PPP or Frame-Relay) from the up operational state into the down operational state.
linkUp	Transition of an interface (PPP or Frame-Relay) from the down operational state into the up operational state.
authenticationFailure	SNMP request with mismatched community for the type of operation.

IPO-MIB

Trap	Cause
<i>ipoGenEntityFailureEvent</i>	A physical entity has fails in its operation
<i>ipoGenEntityOperationalEvent</i>	A physical entity becomes operational again after having failed.
<i>ipoGenEntityErrorEvent</i>	A transitory error is detected for a physical entity.
<i>ipoGenEntityChangeEvent</i>	A non-error change event is detected for a physical entity.
<i>ipoGenLKSCommsFailureEvent</i>	Loss of communication with a configured License Key Server.
<i>ipoGenLKSCommsOperationalEvent</i>	Communication with the configured License Key Server established or reestablished.
<i>ipoGenLKSCommsErrorEvent</i>	<i>Currently not used.</i>
<i>ipoGenLKSCommsChangeEvent</i>	<i>Currently not used.</i>
<i>ipoGenVMSCommsFailureEvent</i>	Loss of communication to the voicemail system.
<i>ipoGenVMSCommsOperationalEvent</i>	Link to the voicemail system established or reestablished.
<i>ipoGenVMSCommsErrorEvent</i>	<i>Currently not used.</i>
<i>ipoGenVMSCommsChangeEvent</i>	<i>Currently not used.</i>
<i>ipoGenDSCommsFailureEvent</i>	Loss of communication to the delta server.
<i>ipoGenDSCommsOperationalEvent</i>	Communication to the delta server established or reestablished.
<i>ipoGenDSCommsErrorEvent</i>	<i>Currently not used.</i>
<i>ipoGenDSCommsChangeEvent</i>	<i>Currently not used.</i>

The traps above are generated for the physical entities as follows:

Expansion Modules

Trap	Phone	Digital Station	Analog Trunk	S08	WAN3
<i>ipoGenEntityFailureEvent</i>	✓	✓	✓	✓	✗
<i>ipoGenEntityOperationalEvent</i>	✓	✓	✓	✓	✗
<i>ipoGenEntityErrorEvent</i>	✓	✓	✓	✓	✗
<i>ipoGenEntityChangeEvent</i>	✓	✓	✓	✓	✗

Where:

- *ipoGenEntityFailureEvent* and *ipoGenEntityOperationalEvent* traps are issued in relation to connecting cable disconnection and reconnection or power changes.
- *ipoGenEntityErrorEvent* trap is issued for transitory communication errors across the cabling to an expansion module.
- *ipoGenEntityChangeEvent* trap is issued for mismatch(es) in expansion modules discovered at controller start up and those present in the system configuration.

Trunk Interfaces

Trap	Analog BRI	E1	E1R2	T1 PRI
<i>ipoGenEntityFailureEvent</i>	✗	✓	✓	✓
<i>ipoGenEntityOperationalEvent</i>	✗	✓	✓	✓

- Where *ipoGenEntityFailureEvent* and *ipoGenEntityOperationalEvent* traps are issued in relation to link status changes.

Integral Modules

Trap	Modem	Voice Compressor
<i>ipoGenEntityFailureEvent</i>	✗	✓
<i>ipoGenEntityOperationalEvent</i>	✗	✓

- Where *ipoGenEntityFailureEvent* and *ipoGenEntityOperationalEvent* traps are issued for voice compressor modules in relation to data access problems that result in code reload

Other Plug-In Modules

- The *ipoGenEntityChangeEvent* trap is issued for changes to the PCMCIA card slot population on the IP Office Small Office Edition control unit.

IP-OFFICE-MIB:

Trap	Cause
<i>ipoPhonesChangeEvent</i>	Upon change of a DS or IP extension phone type after normal start-up. No traps are issued for PHONE (POT) extensions as the presence or absence of such phones cannot be established hence the <i>ipoPhonesType</i> for such extensions is always <i>potPhone</i> .

Maintenance

DTE Port Maintenance

DTE Port Overview

The DTE port on the back of IP Office control units is not normally used when configuring an IP Office system. However, in extreme cases, the DTE port can be used to default the system's configuration or to erase its core software if necessary.

- **⚠ WARNING**

Due to the drastic nature of these actions, they should only be performed if absolutely necessary to return a system back to working order. In both cases, you must make every effort to ensure that you have a backup copy of the system configuration.

The DTE ports on IP Office expansion modules are not used for any maintenance or diagnostics except under instruction from Avaya.

DTE Port

These ports are found on the rear of all IP Office control units and external expansion modules.

The DTE ports on the control units can be used for system maintenance and connection of serial terminal adaptors. In the case of 9-pin DTE ports (IP406 V2 and IP412), the port can also be used for connection of the IP Office serial port licence key dongle.

An asynchronous terminal program such as HyperTerminal is also required. Configure this for operation via a PC serial port, as follows:

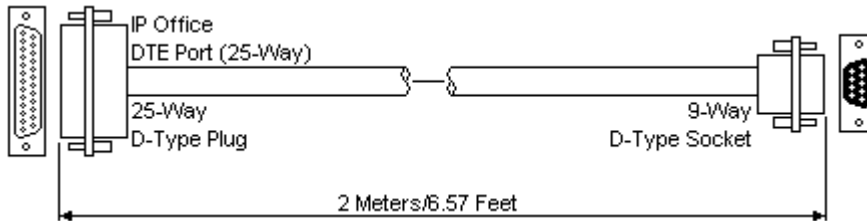
Bits per second	38,400	Stop Bits	1
Data bits	8	Flow Control	None
Parity	None	Settings Emulation	TTY

The DTE ports on external expansion modules are not used.

DTE Cables

These cables are used for system maintenance and diagnostics under Avaya guidance. They can also be used for connection of RS.232 serial terminal adaptor equipment to the IP Office control unit.

The cable required depends on the IP Office control unit.




IP Office DTE Port Signal		Signal	PC/Terminal Adaptor
25-Way	9-Way		
2	3	← Receive data	3
3	2	→ Transmit Data	2
4	7	← RTS (Request To Send)	7
5	8	→ CTS (Clear To Send)	8
6	6	→ DSR (Data Set Ready)	6
7	5	● Ground	5
8	1	→ DCD (Data Carrier Detect)	1
20	4	← DTR (Data Terminal Ready)	4
22	9	→ RI (Ring Indicator)	9

- **SAP Code:**
 - **25-Way DTE Port:** 700213432.
- **Cable:** 2 core screened cable - each core is 7/0.203mm (24 AWG) tinned copper stranded wire, nominal capacitance of 95pF/m, resistance of 92 /km, screened with tinned copper braid, maximum working voltage of 440V rms and a Maximum current per core of 1A rms

Erasing the Configuration

The following processes erases the configuration held in the IP Office control unit's memory. That include both the current configuration in RAM memory and the backup configuration stored in non-volatile Flash memory. Following this the IP Office will restart with a default configuration.


This process should be performed from a PC with a fixed IP address, directly connected to the IP Office control unit and with the IP Office system disconnected from any network. Following this process, the control unit's IP address will default to 192.168.42.1.

-  Do not perform any of these processes unless absolutely necessary. The IP Office's configuration settings can be default through Manager using the **File | Advanced | Erase Configuration** command.

1. ✓
2. ✓
3. □

Procedure: Erasing the Configuration via Debug

This process erases the IP Office's configuration settings but does not alter its security settings. It is easier to use than the boot loader method.

1.  **WARNING:** Ensure that you have a backup copy of the IP Office's configuration before performing this action.
2. Attach the serial cable between the PC and the DTE port on the IP Office control unit.
3. Start the terminal program on your PC. Ensure that it has been setup as listed in DTE Port Settings. Within a HyperTerminal session, the current settings are summarized across the base of the screen.
4. Enter **AT** (note upper case). The control unit should respond **OK**.
5. Enter **AT-DEBUG**. The control unit should response with the time and date and then **Hello>** to show it is ready to accept commands.
6. To erase the current configuration in RAM memory enter **eraseconfig**. The **Hello>** command prompt reappears when the action is completed.
7. To erase the backup configuration stored in non-volatile Flash memory enter **erasenvconfig**. The **Hello>** command prompt reappears when the action is completed.
8. To reboot the IP Office enter **reboot**. The IP Office will reboot and restart with a defaulted configuration.
9. Close the terminal program session.
10. Manager can now be used to alter and then upload an old configuration file or receive and edit the control unit's now defaulted configuration.

Procedure: Erasing the Configuration and Security Settings via the Boot Loader

This process defaults the IP Office security settings and its configurations settings.

1. **⚠ WARNING:** Ensure that you have a backup copy of the IP Office's configuration before performing this action.
2. Attach the serial cable between the PC and the DTE port on the IP Office control unit.
3. Start the terminal program on your PC. Ensure that it has been setup as listed in DTE Port Settings. Within a HyperTerminal session, the current settings are summarized across the base of the screen.
4. Enter **AT** (note upper case). The control unit should respond **OK**.
5. Switch off power to the IP Office control unit.
6. Power on the control unit while repeatedly pressing the escape key until you get a **Loader** message. Below is an example.

```
P12 Loader 2.4  
CPU Revision 0x0900
```

5. Enter **AT** (note upper case). The control unit should respond **OK**.
6. To erase the current configuration in RAM memory enter **AT-X3**. A typical response is **Sector Erases (Config)** followed by a series of **OK** responses.
7. To erase the backup configuration stored in non-volatile Flash memory enter **AT-X2**. A typical response is **Sector 2 Erase (NV Config)** followed by **OK**.
 - **IP Office 403 only:** If running an IP Office 403 control unit, enter **AT-X4**.
8. Switch power to the control unit off and then back on. Within the terminal program you should see various messages as the control unit performs various start up tasks.
9. Close the terminal program session.
10. Manager can now be used to alter and then upload an old configuration file or receive and edit the control unit's now defaulted configuration.

Defaulting Security Settings

The following processes can be used to default the security settings of an IP Office system running IP Office 3.2 or higher.

1. 
2. 
3. 

Procedure: Defaulting Security Settings


This process defaults the IP Office's security settings but does not alter its configuration settings.

1. Attach the serial cable between the PC and the DTE port on the IP Office control unit.
2. Start the terminal program on your PC. Ensure that it has been setup as listed in DTE Port Settings. Within a HyperTerminal session, the current settings are summarized across the base of the screen.
3. Enter **AT** (note upper case). The control unit should respond **OK**.
4. Enter **AT-SECURITYRESETALL**.
5. You will be prompted to confirm the control unit's MAC address before continuing. Enter the address.
6. The control unit will respond **OK** when the action has been completed.
7. Close the terminal program session.
8. Manager can now be used to receive and edit the control unit's now defaulted security settings.

1. 
2. 
3. 

Procedure: Defaulting the Configuration and Security Settings via the Boot Loader

This process defaults the IP Office security settings and its configurations settings.




1.  **WARNING:** Ensure that you have a backup copy of the IP Office's configuration before performing this action.
2. Attach the serial cable between the PC and the DTE port on the IP Office control unit.
3. Start the terminal program on your PC. Ensure that it has been setup as listed in DTE Port Settings. Within a HyperTerminal session, the current settings are summarized across the base of the screen.
4. Enter **AT** (note upper case). The control unit should respond **OK**.
5. Switch off power to the IP Office control unit.
6. Power on the control unit while repeatedly pressing the escape key until you get a **Loader** message. Below is an example.

```
P12 Loader 2.4
CPU Revision 0x0900
```

5. Enter **AT** (note upper case). The control unit should respond **OK**.
6. To erase the current configuration in RAM memory enter **AT-X3**. A typical response is **Sector Erases (Config)** followed by a series of **OK** responses.
7. To erase the backup configuration stored in non-volatile Flash memory enter **AT-X2**. A typical response is **Sector 2 Erase (NV Config)** followed by **OK**.
 - **IP Office 403 only:** If running an IP Office 403 control unit, enter **AT-X4**.
8. Switch power to the control unit off and then back on. Within the terminal program you should see various messages as the control unit performs various start up tasks.
9. Close the terminal program session.
10. Manager can now be used to alter and then upload an old configuration file or receive and edit the control unit's now defaulted configuration.

Erasing the Operational Software

This process should be performed from a PC with a fixed IP address, directly connected to the IP Office control unit and with the IP Office system disconnected from any network. During the process, the control unit's IP address may default to a value in the 192.168.42.1 to 192.168.42.10 range. If this occurs it may be necessary to amend the BOOTP entry in Manager to match the address the system is using.

-  Do not perform any of the following processes unless **absolutely** necessary. The IP Office software can normally be upgraded through Manager using the **File | Advanced | Upgrade** command.
-  This process erases the operational software. Before attempting this process you **must know** the MAC and IP addresses of the system, plus have a backup copy of its configuration and the correct .bin file for the control unit type and level of software.
-  The presence of any firewall blocking TFTP and or BOOTP will cause this process to fail.

1.
2.
3. □

Procedure: Erasing the Core Software via Debug

1. Run Manager. In the **BOOTP** entries, check that there is an entry that matches the MAC Address, IP Address and .bin file used by the system (the first two details can be found in the **Module** settings in the system's configuration file).
2. If an entry is not present, create a new entry. Then close and restart Manager.
3. Under **File | Preferences** ensure that Manager is set to 255.255.255.255. Also check that **Enable BootP Server** is checked.
4. Select **View | TFTPLog**.
5. Check that the required .bin file is present in Manager's working directory.
6. Attach the serial cable between the PC and the DTE port on the IP Office control unit.
7. Start the terminal program on your PC. Ensure that it has been setup as listed in DTE Port Settings. Within a HyperTerminal session, the current settings are summarized across the base of the screen.
8. Arrange the program windows so that the Terminal program and Manager TFTP Log are visible at the same time.
9. Enter **AT** (note upper case). The control unit should respond **OK**.
10. Enter **AT-DEBUG**. The control unit should response with the time and date and then **Hello>** to show it is ready to accept commands.
11. To erase the current configuration in RAM memory enter **upgrade**.
12. The IP Office will erase its current software and then send out a BootP request on the network for new software. Manager will respond and start transferring the software using TFTP.



Procedure: Erasing the Core Software via the Boot Loader

1. Run Manager. In the **BOOTP** entries, check that there is an entry that matches the MAC Address, IP Address and .bin file used by the system (the first two details can be found in the **Module** settings in the system's configuration file).
2. If an entry is not present, create a new entry. Then close and restart Manager.
3. Under **File | Preferences** ensure that Manager is set to 255.255.255.255. Also check that **Enable BootP Server** is checked.
4. Select **View | TFTPLog**.
5. Check that the required .bin file is present in Manager's working directory.
6. Attach the serial cable between the PC and the DTE port on the IP Office control unit.
7. Start the terminal program on your PC. Ensure that it has been setup as listed in DTE Port Settings. Within a HyperTerminal session, the current settings are summarized across the base of the screen.
8. Arrange the program windows so that the Terminal program and Manager TFTP Log are visible at the same time.
9. Switch off power to the IP Office control unit.
10. Power on the control unit and press the escape key every second until you get a **Loader** message. Below is an example.

```
P12 Loader 2.4  
CPU Revision 0x0900
```

1. Enter **AT** (note upper case). The control unit should respond **OK**.
2. Enter **AT-X**. The control unit should respond **Multi-Sector Erase**.
3. The control unit will now request the .bin file it requires from Manager. This process appears in the TFTPLog.
4. If the file transfers does not appear to be taking place, check that the IP address shown in the TFTPLog matches the BOOTP entry. Adjust the BOOTP entry if necessary.
5. When completed the system will reboot.

System Components

System Components

This sections contains overviews and summaries of the individual components used to build an IP Office system. These are the units supported by IP Office 3.2 core software. Some units may no longer be available from Avaya.

Hardware	Phones	Software
Control Units <ul style="list-style-type: none"> IP412 IP406 V2 IP406 V1 IP403 Small Office Edition (SOE) 	2400 Series <ul style="list-style-type: none"> 2402 2410 2420 	5400 Series <ul style="list-style-type: none"> 5402 5410 5420
Internal Cards <ul style="list-style-type: none"> Modem Cards Wireless Card Embedded Voicemail Memory Voice Compression Modules 	3600 Series <ul style="list-style-type: none"> 3616 3620 3626 	5600 Series <ul style="list-style-type: none"> 5601 5602 5610 5620 5621
Trunk Cards <ul style="list-style-type: none"> Analog Trunk Card Uni (ATM4U) Analog Trunk Cards (ATM4) BRI Trunk Cards T1 PRI Trunk Cards E1 PRI Trunk Cards WAN Trunk Card E1R2 PRI Trunk Cards 	3700 Series <ul style="list-style-type: none"> 3701 3711 	6400 Series <ul style="list-style-type: none"> 6408D 6416D 6424D
External Expansion Modules <ul style="list-style-type: none"> Analog Trunk 16 Digital Station V2 Digital Station Phone V2 Phone So8 WAN3 	3800 Series <ul style="list-style-type: none"> 3810 	T3 IP and UPN <ul style="list-style-type: none"> T3 Classic T3 Comfort T3 Compact
Miscellaneous <ul style="list-style-type: none"> Cables 	4400 Series <ul style="list-style-type: none"> 4406 4412 4424 	TransTalk <ul style="list-style-type: none"> TransTalk 9040
	4600 Series <ul style="list-style-type: none"> 4601 4602 4606 4610 4612 4620 4621 4624 4625 	Phone Add-Ons <ul style="list-style-type: none"> 4450 EU24 EU24BL T3 DSS XM24 201B RIM
		Applications <ul style="list-style-type: none"> Call Status Compact Business Center (CBC) Compact Contact Center (CCC) Conferencing Center ContactStore Delta Server Feature Key Server Manager Monitor Phone Manager SoftConsole Voicemail Lite Voicemail Pro
		Licence Keys <ul style="list-style-type: none"> General CCC Phone Manager Voicemail IP DECT Licenses CTI

Control Units

Control Unit Summary

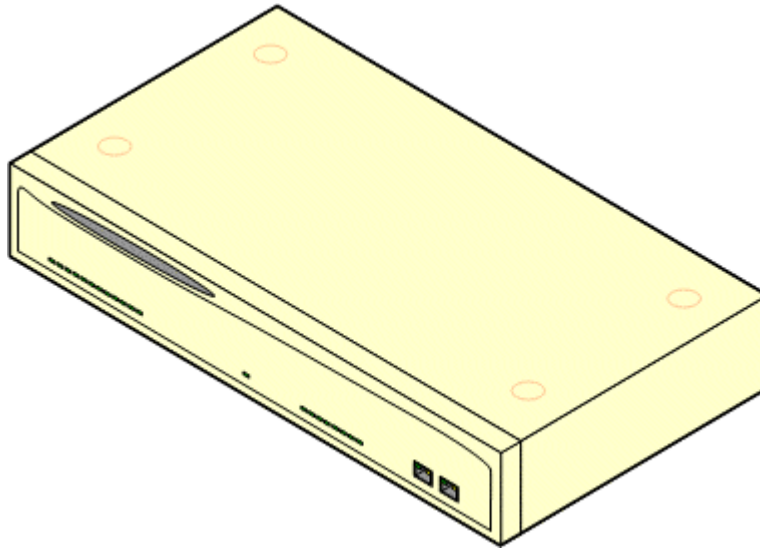
The following table summarizes the IP Office control units.

Feature	Small Office Edition	IP403	IP406 V1	IP406 V2	IP412
Digital Station (DS) Ports	0 or 8	8 (*1)	0	8	0
Analog Phone (PHONE) Ports	2 or 4	2	0	2	0
Optional Embedded Voicemail Card Slot	✓	✗	✗	✓	✗
Integral WAN Port	✗	✓	✓	✓	✓
Expansion Ports	0	3	6	6	12
DTE Port	9-way	25-way	25-way	9-way	9-way
Audio In (MOH) Port	✓	✓	✓	✓	✓
External O/P Switch Port	✓	✓	✓	✓	✓
Conference Parties	24	64	64	64	128
Configuration Memory	192KB	192KB	192KB	256KB	1024KB
Maximum Extension Capacity	28	100	180	190	360
- Digital (DS) Phones only.	8	98	180	188	360
- Analog Phones only.	4	92	180	182	360
- IP Phones(*4) only.	16	100	180	190	360
Trunk Cards Supported	1	2	2	2	2
- Analog trunk cards	✗	✓	✓	✓	✓
- Quad BRI trunk cards	✓	✓	✓	✓	✓
- Single PRI trunk cards	✓ (*2)	✓	✓	✓	✓
- Dual PRI trunks cards	✗	✗	✗	✓ (*3)	✓
- WAN port card	✓	✗	✗	✗	✗
VCM Cards	N/A	1	1	1	2
Maximum voice compression channels	16	20	20	30	60
Data Channels	18	18	24	40	100
Maximum usable for Voicemail Pro/TAPI WAV	10	10	20	20	30
Dimensions					
Height x Width x Depth	76x255x241mm 3"x10"x9.5"		71x445x245mm 2.8"x17.5"x9.7"		

- *1: Some IP403 control units are equipped with DT (digital terminal) rather than DS (digital station) ports. Use of the DT ports is not supported for IP Office 3.0 or higher.
- *2: The Small Office Edition control unit only supports T1 PRI. It does not support E1 or E1R2 PRI trunk cards.
- *3: The IP406 V2 supports dual PRI trunk cards in Slot A only.
- *4: VCM channels are required for call setup and may be required for call duration. A maximum of 50 T3 IP phones are supported.

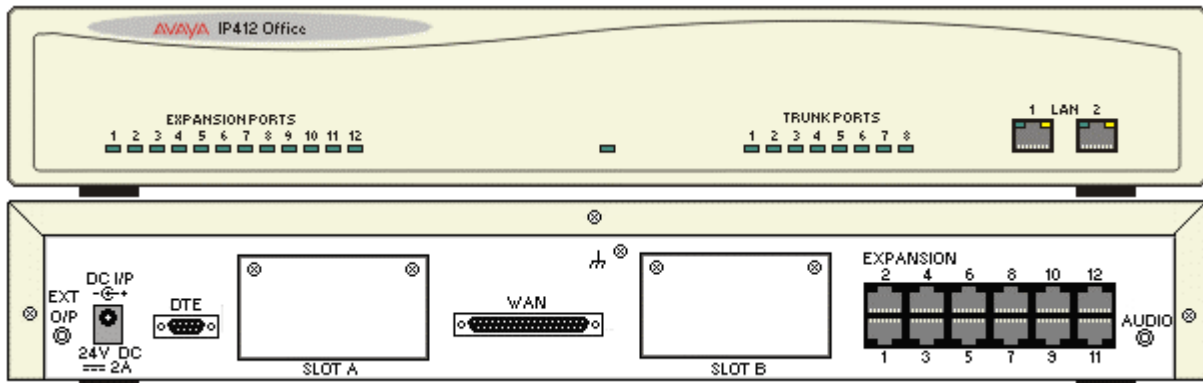
IP412 Control Unit

The IP412 control unit supports up to 12 Expansion modules. Its LAN ports act as a managed layer 3 Ethernet switch with optional internal firewall for traffic between the two ports.



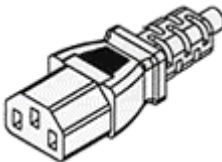
Feature	Capacity
Maximum Extensions	360 of various types in combination. Analog only: 360. DS only: 360. IP only: 360.
Conference Parties	128 (2 banks of 64. Conferences cannot combine resources from both banks. When a conference is started, the bank with the most free resource is used).
Trunks Cards	2 Trunk card slots. All types supported.
VCM Card Slots	2 up to maximum voice compression channels capacity of 60 channels.
Data Channels	100 of which 30 usable for Voicemail Pro/TAPI WAV connection sessions (subject to available Voicemail Pro Port and TAPI WAV licenses).
Locales	Supported in all IP Office locales.
Software Level	<ul style="list-style-type: none"> IP Office core software level 1.0 minimum. Bin file = ip412.bin.
Power Supply	<p>The unit is supplied with an earthed 3-Pin, 60W external power supply unit. The PSU has an integral power cord for connection to the unit's DC I/P socket. A locale specific IEC60320 C13 power cord for the external PSU is required but is not supplied with the unit.</p> <ul style="list-style-type: none"> Older units were supplied with a 2-Pin, 40W external power supply unit which used a locale specific locale specific IEC60320 C7 power cord not supplied with the unit.
Mounting	The unit is designed as a free-standing module that can be stacked on or under other IP Office modules. The unit can be rack mounted in a 19" rack system using the optional Rack Mounting Kit.
Dimensions	Width: 445mm/17.5". Depth: 245mm/9.7". Height: 71mm/2.8".
Weight	Unboxed: 3.0Kg/6.7lbs. Boxed: 4.3Kg/9.6lbs.
Maximum Configuration Size	1024KB.

IP412 Connections



Ports	Description
AUDIO	3.5mm Stereo jack socket. Used for external music on hold source input.
DC I/P	DC power input port. Used for connection of the power lead from an Avaya un-earthed 45W external power supply unit supplied with the control unit.
DTE	9-Way D-Type socket. Used for system maintenance. Suitable for direct connection of IP Office Serial Port Feature Key dongle.
EXPANSION	RJ45 socket. Used for direct connection to external expansion modules using the Expansion Interconnect cable supplied with the expansion module.
EXT O/P	3.5mm Stereo jack socket. Used for switching external relay systems such as door entry controls. The port contains two independent switches controlled by the IP Office.
LAN	RJ45 socket. These ports form a managed layer 3 Ethernet switch. The ports are half-duplex 10/100Mbps auto-sensing, MDI crossover ports.
SLOT A	Used for trunk cards of all types except WAN port trunk card. Normally Slot B should be used first. Trunks cards are supplied with replacement external blanking plates suitable for the trunk card port connections.
SLOT B	
WAN	37-Way D-Type socket. Used for the connection of V.24, V.35 or X.21 WAN service.
	Used for connection of a function or protective ground. Use of a ground for all systems is recommended and for some locales may be a regulatory requirement. On older modules where this screw is not present, the left-hand fixing screw of Slot B can be used.

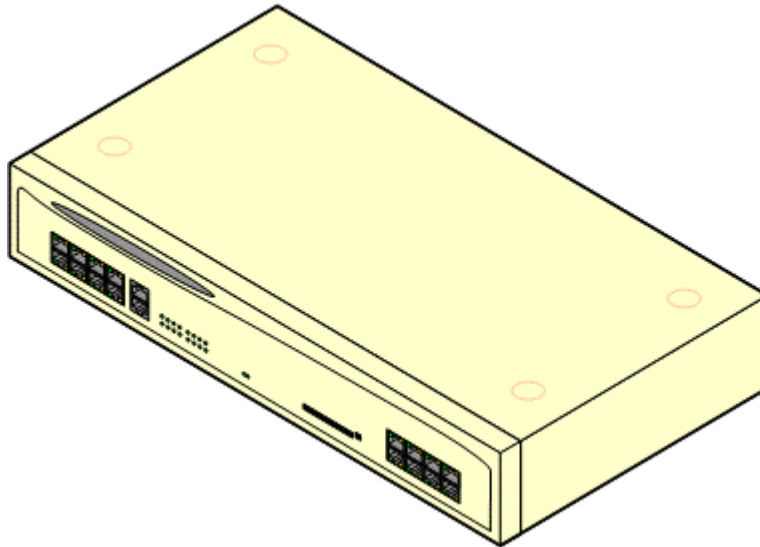
All control units are available in either North America or Rest of World variants. The choice controls various default settings of the unit. For E911 support a North American variant control unit must be used. The companding can be changed once a unit is installed. Control units are supplied with an external power supply unit but not a locale specific power cord.

Item	Variant	Country	SAP Code
IP412 Office	A-Law	Rest of World	700234479
	U-Law	North America	700350408
 IEC60320 C13 Power Cord	CEE7/7	Europe	700289762
	BS1363	United Kingdom	700289747
	NEMA5-15P	America	700289770
	China	China	700261977
Rack Mounting Kit		All	700210800

IP406 V2 Control Unit

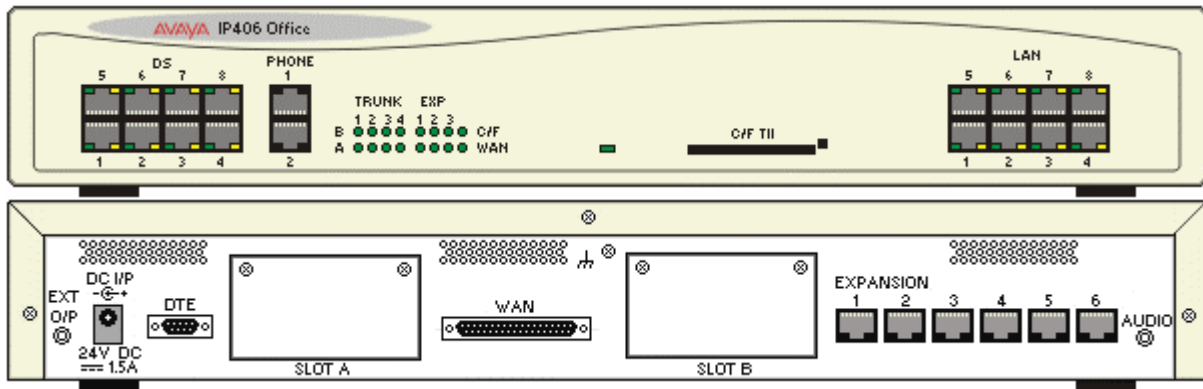
The IP406 V2 includes 8 digital station (DS) and 2 analog phone (PHONE) ports. It includes an eight port Ethernet LAN switch (unmanaged Layer 2) and Compact Flash card slot for an optional embedded voicemail memory card. It supports up to 6 external expansion modules plus IP extensions controlled through its LAN interface.

The IP406 V2 also includes automatic gain control (AGC) on its conference chip and performs IPSec tunneling through hardware rather than software.



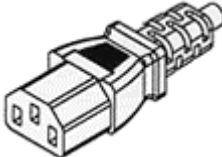
Feature	Capacity
Maximum Extensions	190 of various types in combination. Analog only: 182. DS only: 188. IP only: 190.
Conference Parties	64. Conference chip includes automatic gain control (AGC).
Trunks Cards	2 Trunk card slots. All types supported. Dual PRI trunk cards in Slot A only.
VCM Card Slots	1 up to maximum voice compression channels capacity of 30 channels.
Data Channels	40 of which 20 usable for Voicemail Pro/TAPI WAV connection sessions (subject to available Voicemail Pro Port and TAPI WAV licenses).
Locales	Supported in all IP Office locales.
Software Level	<ul style="list-style-type: none"> IP Office core software level 2.1(27) minimum. Bin file = ip406u.bin.
Power Supply	The unit is supplied with an earthed 3-Pin, 60W external power supply unit. The PSU has an integral power cord for connection to the unit's DC I/P socket. A locale specific IEC60320 C13 power cord for the external PSU is required but is not supplied with the unit.
Mounting	The unit is designed as a free-standing module that can be stacked on or under other IP Office modules. The unit can be rack mounted in a 19" rack system using the optional Rack Mounting Kit.
Dimensions	Width: 445mm/17.5". Depth: 245mm/9.7". Height: 71mm/2.8".
Weight	Unboxed: 3.0Kg/6.7lbs. Boxed: 4.3Kg/9.6lbs.
Maximum Configuration Size	256KB.

IP406 V2 Connections



Ports	Description
AUDIO	3.5mm Stereo jack socket. Used for external music on hold source input.
C/F TII	Type 2 Compact Flash socket. Used for optional embedded voicemail card.
DC I/P	DC power input port. Used for connection of the power lead from an Avaya un-earthed 45W external power supply unit supplied with the control unit.
DS	RJ45 socket. Digital Station port. Used for connection of IP Office supported DS phones. Not suitable for out-of-building connections.
DTE	9-Way D-Type socket. Used for system maintenance. Suitable for direct connection of IP Office Serial Port Feature Key dongle.
EXPANSION	RJ45 socket. Used for direct connection to external expansion modules using the Expansion Interconnect cable supplied with the expansion module.
EXT O/P	3.5mm Stereo jack socket. Used for switching external relay systems such as door entry controls. The port contains two independent switches controlled by the IP Office.
LAN	These ports form an unmanaged layer 2 Ethernet switch. The ports are full-duplex 10/100Mbps auto-sensing, auto-MDI/MDIX.
PHONE	Used for connection of analog phones. Not suitable for out-of-building connections. Four-wire analog phones should be connected via a master socket containing ringing capacitors.
SLOT A	Used for trunk cards of all types except WAN port trunk card. Normally Slot B should be used first. Dual PRI trunk cards supported in Slot A only. Trunks cards are supplied with replacement external blanking plates suitable for the trunk card port connections.
SLOT B	
WAN	37-Way D-Type socket. Used for the connection of V.24, V.35 or X.21 WAN service.
	Used for connection of a function or protective ground. Use of a ground for all systems is recommended and for some locales may be a regulatory requirement.

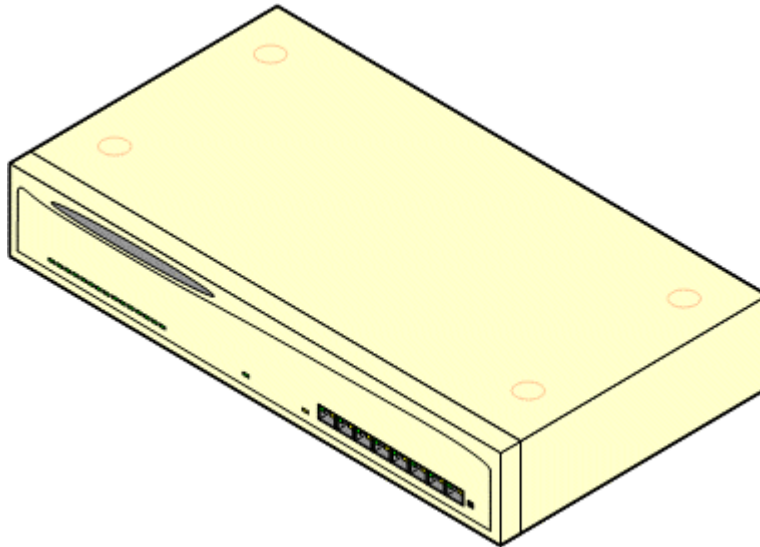
All control units are available in either North America or Rest of World variants. The choice controls various default settings of the unit. For E911 support a North American variant control unit must be used. The companding can be changed once a unit is installed.

Item	Variant	Country	SAP Code
IP406 V2 Office DS.	A-Law	Rest of World	700343536
	U-Law	North America	700359946
 IEC60320 C13 Power Cord	CEE7/7	Europe	700289762
	BS1363	United Kingdom	700289747
	NEMA5-15P	America	700289770
	China	China	700261977
Rack Mounting Kit		All	700210800

Control units are supplied with an external power supply unit but not a locale specific power cord.

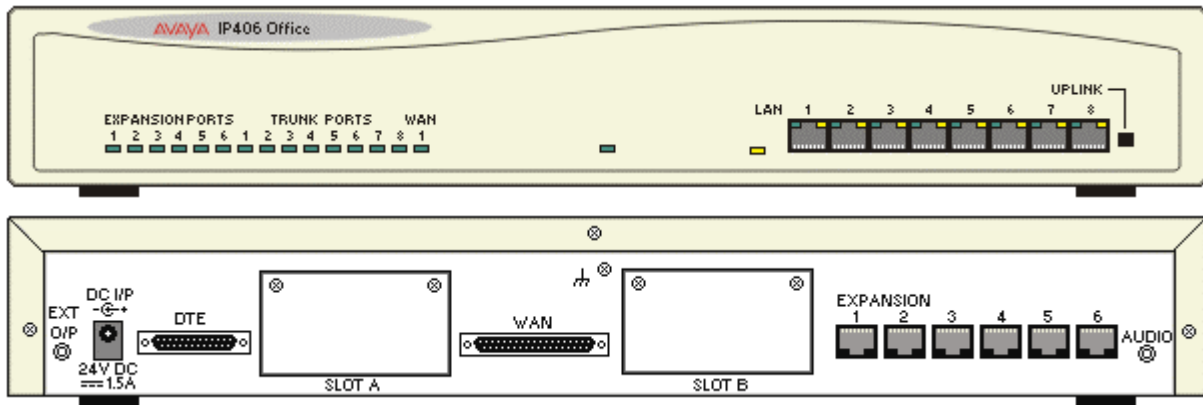
IP406 V1 Control Unit

IP406 Office control unit supports up to 180 extensions by using up to 6 Expansion modules. It includes an eight port 10/100Mbps Ethernet LAN hub. The IP406 V1 has been superseded by the IP406 V2 control unit but is still supported on IP Office 3.2.



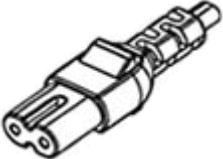
Feature	Capacity
Maximum Extensions	180 of various types in combination. Analog only: 180. DS only: 180. IP only: 180.
Conference Parties	64.
Trunks Cards	2 Trunk card slots. All types supported except Dual PRI trunk cards.
VCM Card Slots	1 up to maximum voice compression channels capacity of 20 channels.
Data Channels	24 of which 20 usable for Voicemail Pro/TAPI WAV connection sessions (subject to available Voicemail Pro Port and TAPI WAV licenses).
Locales	Supported in all IP Office locales.
Software Level	<ul style="list-style-type: none"> IP Office core software level 2.1(27) minimum. Bin file = ip406.bin.
Power Supply	The unit is supplied with a 2-Pin, 40W external power supply unit. The PSU has an integral power cord for connection to the unit's DC I/P socket. A locale specific IEC60320 C7 power cord for the external PSU is required but is not supplied with the unit.
Mounting	The unit is designed as a free-standing module that can be stacked on or under other IP Office modules. The unit can be rack mounted in a 19" rack system using the optional Rack Mounting Kit.
Dimensions	Width: 445mm/17.5". Depth: 245mm/9.7". Height: 71mm/2.8".
Weight	Unboxed: 3.0Kg/6.6lbs. Boxed: 4.3Kg/9.6lbs.
Maximum Configuration Size	192KB.

IP406 V1 Connections



Ports	Description
AUDIO	3.5mm Stereo jack socket. Used for external music on hold source input.
DC I/P	DC power input port. Used for connection of the power lead from an Avaya earthed 60W external power supply unit supplied with the control unit.
DTE	9-Way D-Type socket. Used for system maintenance. Suitable for direct connection of IP Office Serial Port Feature Key dongle.
EXPANSION	RJ45 Socket. Used for direct connection to external expansion modules using the Expansion Interconnect cable supplied with the expansion module.
EXT O/P	3.5mm Stereo jack socket. Used for switching external relay systems such as door entry controls. The port contains two independent switches controlled by the IP Office.
LAN	These ports form an Ethernet hub. The ports are half-duplex 10/100Mbps auto-sensing. Port 8 can be switched from MDIX standard LAN to MDI crossover operation using the UPLINK button on the control unit (In = MDIX, Out = MDI).
SLOT A SLOT B	Used for trunk cards of all types except Dual PRI trunk cards. Normally Slot B should be used first. Trunks cards are supplied with replacement external blanking plates suitable for the trunk card port connections.
WAN	37-Way D-Type socket. Used for the connection of V.24, V.35 or X.21 WAN service.
	Used for connection of a function or protective ground. Use of a ground for all systems is recommended and for some locales may be a regulatory requirement. On older modules where this screw is not present, the left-hand fixing screw of Slot B can be used.

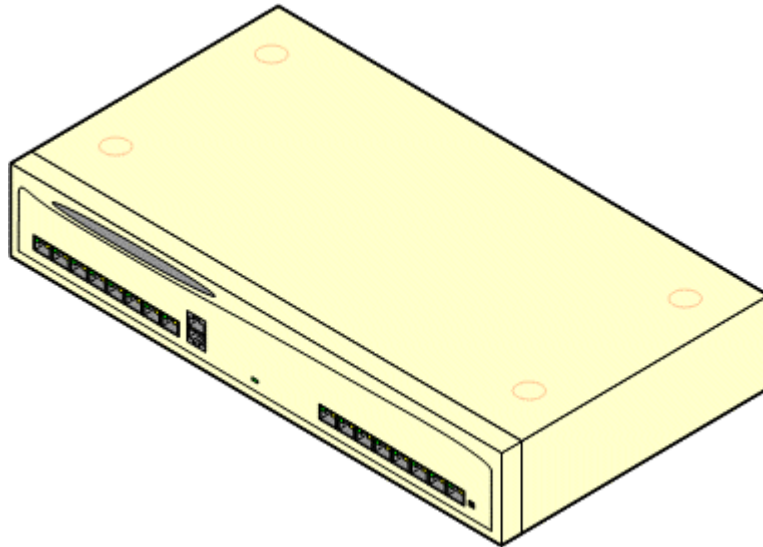
All control units are available in either North America or Rest of World variants. The choice controls various default settings of the unit. For E911 support a North American variant control unit must be used. The companding can be changed once a unit is installed.

Item	Variant	Country	SAP Code
IP406 V1 Office	A-Law	Rest of World	700234461
	U-Law	North America	700210776
 IEC60320 C7 Power Cord	CEE7/16	Europe	700213382
	BS1363	United Kingdom	700213374
	NEMA1-15	America	700213390
	Korea	Korea	700254519
	China	China	700314172
Rack Mounting Kit		All	700210800

IP403 Control Unit

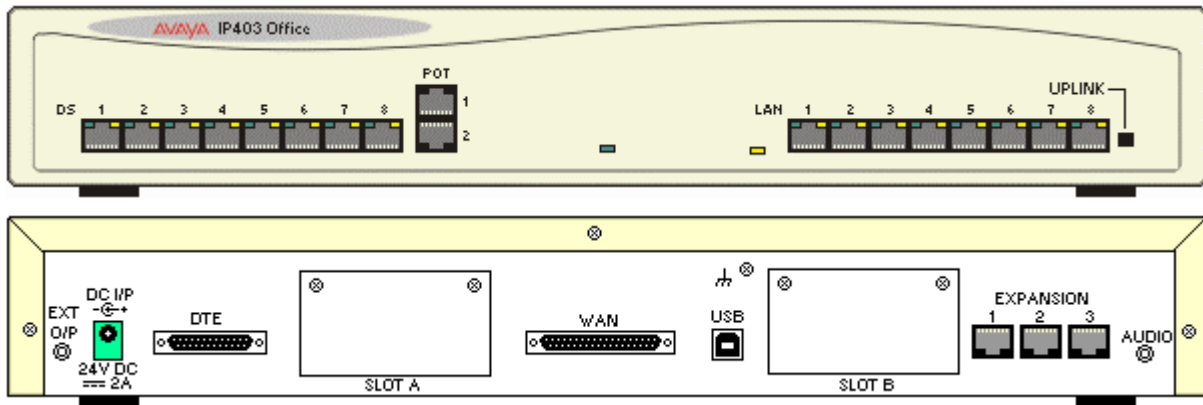
The front panel of the IP403 control unit includes eight digital extension (DS) ports, two analog phone (POT) ports and an eight port 10/100Mbps Ethernet LAN hub. The IP403 has been superseded by the IP406 V2 control unit but is still supported on IP Office 3.2.

IP403 control units with integral DT rather than DS ports are still supported. However use of devices on those ports is not supported.



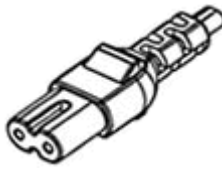
Feature	Capacity
Maximum Extensions	100 of various types in combination. Analog only: 92. DS only: 98. IP only: 100.
Conference Parties	64.
Trunks Cards	2 Trunk card slots. All types supported except Dual PRI trunk cards.
VCM Card Slots	1 up to maximum voice compression channels capacity of 20 channels.
Data Channels	20 of which 10 usable for Voicemail Pro/TAPI WAV connection sessions (subject to available Voicemail Pro Port and TAPI WAV licenses).
Locales	Supported in all IP Office locales.
Software Level	<ul style="list-style-type: none"> IP Office core software level 1.0 minimum. Bin file = ip403.bin. DT Port Support: IP Office 3.0 and higher software does not support the use of DT ports. IP403 DT modules are supported on IP Office 3.0 but use of the integral DT ports is not supported.
Power Supply	The unit is supplied with a 2-Pin, 40W external power supply unit. The PSU has an integral power cord for connection to the unit's DC I/P socket. A locale specific IEC60320 C7 power cord for the external PSU is required but is not supplied with the unit.
Mounting	The unit is designed as a free-standing module that can be stacked on or under other IP Office modules. The unit can be rack mounted in a 19" rack system using the optional Rack Mounting Kit.
Dimensions	Width: 445mm/17.5". Depth: 245mm/9.7". Height: 71mm/2.8".
Weight	Unboxed: 2.5Kg/5.8lbs. Boxed: 3.85Kg/8.6lbs.
Maximum Configuration Size	192KB.

IP403 Connections



Ports	Description
AUDIO	3.5mm Stereo jack socket. Used for external music on hold source input.
DC I/P	DC power input port. Used for connection of the power lead from an Avaya earthed 60W external power supply unit supplied with the control unit.
DS	RJ45 Socket. Digital Station port. Used for connection of IP Office supported DS phones. Not suitable for out-of-building connections.
DTE	9-Way D-Type socket. Used for system maintenance. Suitable for direct connection of IP Office Serial Port Feature Key dongle.
EXPANSION	RJ45 Socket. Used for direct connection to external expansion modules using the Expansion Interconnect cable supplied with the expansion module.
EXT O/P	3.5mm Stereo jack socket. Used for switching external relay systems such as door entry controls. The port contains two independent switches controlled by the IP Office.
LAN	These ports form an Ethernet hub. The ports are half-duplex 10/100Mbps auto-sensing. Port 8 can be switched from MDIX standard LAN to MDI crossover operation using the UPLINK button on the control unit (In = MDIX, Out = MDI).
POT	Used for connection of analog phones. Not suitable for out-of-building connections.
SLOT A	Used for trunk cards of all types except Dual PRI trunk cards. Normally Slot B should be used first. Trunks cards are supplied with replacement external blanking plates suitable for the trunk card port connections.
SLOT B	
USB	Not used.
WAN	37-Way D-Type socket. Used for the connection of V.24, V.35 or X.21 WAN service.
	Used for connection of a function or protective ground. Use of a ground for all systems is recommended and for some locales may be a regulatory requirement. On older modules where this screw is not present, the left-hand fixing screw of Slot B can be used.

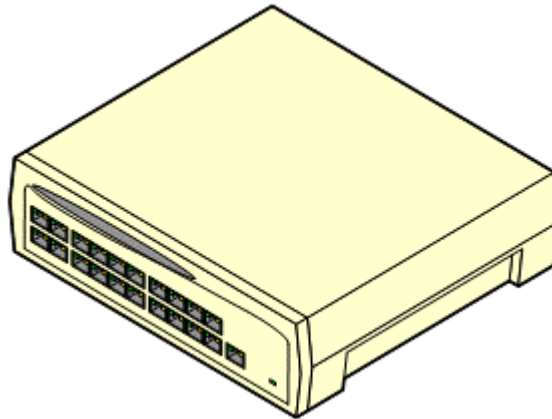
All control units are available in either North America or Rest of World variants. The choice controls various default settings of the unit. For E911 support a North American variant control unit must be used. The companding can be changed once a unit is installed.

Item	Variant	Country	SAP Code
IP403 Office DS	A-Law	Rest of World	700234453
	U-Law	North America	700350390
 IEC60320 C7 Power Cord	CEE7/16	Europe	700213382
	BS1363	United Kingdom	700213374
	NEMA1-15	America	700213390
	Korea	Korea	700254519
	China	China	700314172
Rack Mounting Kit		All	700210800

Control units are supplied with an external power supply unit but not a locale specific power cord.

Small Office Edition

The IP Office Small Office Edition control unit shares many of the features of the other IP Office control units, however it does not support any expansion modules. Small Office Edition control units include various numbers of integral DS, PHONE (POT) and Analog ports.

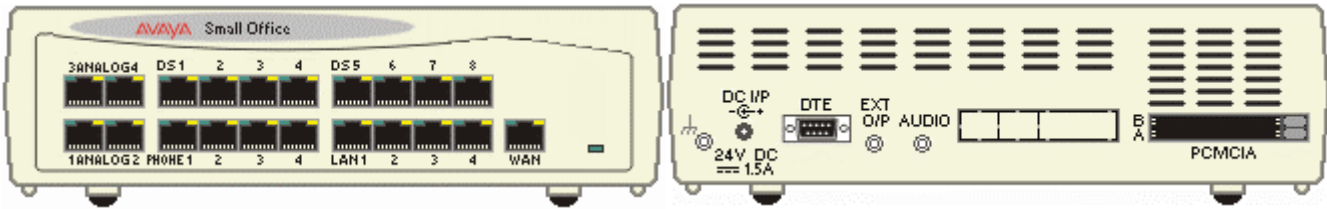



Small Office Edition Model	Analog Trunks	Analog Extensions	Digital Stations	Voice Compression Channels
2T+4A (3 VoIP)*	2	4	0	3
4T+8A (3 VoIP)*	4	8	0	3
4T+4A+8DS (3 VoIP)	4	4	8	3
4T+4A+8DS (16 VoIP)	4	4	8	16

*These models are still supported but are no longer available from Avaya. Previous models that included integral DT ports are not supported on IP Office 3.0 or higher.

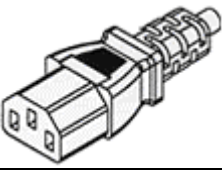
Feature	Capacity
Maximum Extensions	28 of various types in combination. Analog only: 4. DS only: 8. IP only: 16.
Conference Parties	21 with a maximum of 8 parties in any particular conference.
Trunks Cards	1 Trunk card slot for ATM4, Quad BRI, Single T1 PRI or single WAN port trunk cards. Sections of the rear panel are removable to provide cable connection to the installed trunk card. For the WAN port card a complete replacement back panel is provided.
VCM Card Slots	None. Either 3 or 16 voice compression channels are pre-built into the module.
Data Channels	18 of which 10 usable for Voicemail Pro/TAPI WAV connection sessions (subject to available Voicemail Pro Port and TAPI WAV licenses).
Locales	Supported in all IP Office locales.
Software Level	<ul style="list-style-type: none"> IP Office core software level 2.0 minimum. Bin file = ip401ng.bin.
Power Supply	The unit is supplied with a 3-Pin 45W external power supply unit. The PSU has an integral power cord for connection to the module's DC I/P socket. A locale specific IEC60320 C13 power cord for the external PSU is required but is not supplied with the unit.
Mounting	The unit is designed as a free-standing module that can also be wall mounted via fixing brackets in the base.
Dimensions	Width: 255mm/10.0". Depth: 241mm/9.5". Height: 76mm/3.0".
Weight	Unboxed: 1.2Kg/2.64lbs. Boxed: 2.17Kg/4.77lbs.
Maximum Configuration Size	192KB.

Small Office Edition Connections



Ports	Description
AUDIO	3.5mm Stereo jack socket. Used for external music on hold source input.
ANALOG	Used for connection of external analog trunks. Loop-start only.
DC I/P	DC power input port. Used for connection of the power lead from an Avaya earthed 60W external power supply unit supplied with the control unit.
DS	Digital Station port. Used for connection of IP Office supported DS phones. Not suitable for out-of-building extensions.
DTE	9-Way D-Type socket. Used for system maintenance. Suitable for direct connection of IP Office Serial Port Feature Key dongle.
EXT O/P	3.5mm Stereo jack socket. Used for switching external relay systems such as door entry controls. The port contains two independent switches controlled by the IP Office.
LAN	RJ45 socket. These ports form an unmanaged layer 2 Ethernet switch. The ports are full-duplex 10/100Mbps auto-sensing, auto-MDI/MDIX ports.
PCMCIA	Dual PCMCIA card slot. Used for optional Embedded Voicemail card and wireless access point card. Cards are hot-swappable and order of slot usage is not significant.
PHONE	RJ45 socket. Used for connection of analog phones. During power failure, PHONE port 1 is directly connected to ANALOG trunk port 2. Not suitable for out-of-building connections. <ul style="list-style-type: none"> On some older Small Office Edition control units, these ports are labeled as POT rather than PHONE.
WAN	RJ45 socket. 10/100Mbps Ethernet LAN port. Acts as LAN2 within the configuration.
	3.5mm Jack socket. Function ground point. Used for connection of a function or protective ground. Use of a ground for all systems is recommended and for some locales may be a regulatory requirement.

All control units are available in either North America or Rest of World variants. The choice controls various default settings of the unit. For E911 support a North American variant control unit must be used. The companding can be changed once a unit is installed.

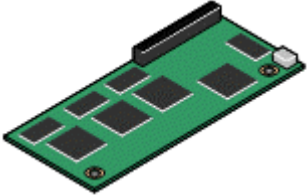
Item	Variant	Country	SAP Code
Small Office Edition 4T+4A+8DS (3 VoIP)	A-Law	Rest of World	700280209
	U-Law	North America	700350424
Small Office Edition 4T+4A+8DS (16 VoIP)	A-Law	Rest of World	700280217
	U-Law	North America	700350432
 IEC60320 C13 Power Cord	CEE7/7	Europe	700289762
	BS1363	United Kingdom	700289747
	NEMA5-15P	America	700289770
	China	China	700261977
Rack Mounting Kit		All	700210800

Control units are supplied with an external power supply unit but not a locale specific power cord.

Internal Cards

Modem Cards


A modem card allows the IP Office to answer incoming modem calls up to V.90. There are two variants of modem card available:

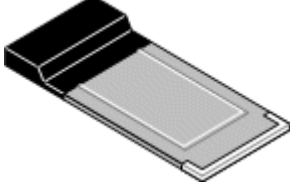
Variants		Country	SAP Code
	Modem 2 Card Provides 2 modem channels. Supported from IP Office 1.0 onwards.	All	700185226
	Internal Modem Card Provides 12 modem channels except on the IP403 where it only provides 4. Supported from IP Office 2.1(27) onwards. Not supported on the IP406 V1.	All	700343452

- The cards are supplied with 2 plastic spacer pegs for installation.
- The first analog trunk on Small Office Edition control units and on modules fitted with an ATM4 or ATM4U trunk card, can be set to answer V.32 analog modem calls. Whilst in this mode, the trunk cannot be used for voice calls.

Wireless Card

This card is supported by the Small Office Edition control unit only and allows the unit to act as an 802.11b wireless access point. The card can be inserted into either of the control units two PCMCIA slots.

-  These cards are not hot swappable. Removal of the card while the IP Office control unit is powered is not recommended.


Wireless Card		Country	SAP Code
	Small Office Edition Wireless Card	All	700289739



- Use of the card requires entry of a Small Office WiFi license (*IP400 WiFi Access Point RFA*) into the IP Office configuration.

Embedded Voicemail Memory Cards

These cards are supported on the Small Office Edition and the IP406 V2 control units. They are specially formatted Compact Flash cards that provide embedded voicemail operation and can also be configured for basic auto-attendant support.

Use of these cards for voicemail does not require a license.

-  These cards are not hot swappable. Removal of the cards while the IP Office control unit is powered may cause loss or corruption of messages and prompts.

Variant		Country	SAP Code
	<ul style="list-style-type: none"> • Small Office Edition Uses a 64MB Compact Flash cards fitted into a PCMCIA slot caddy. The card provides up to 10 hours storage for compressed prompts, greetings and messages. Operation of the card uses the one of the Small Office's voice compression channels for each call. 	All	700289721
	<ul style="list-style-type: none"> • IP406 V2 Uses a 512MB Compact Flash card. This card provides up to 15 hours storage for uncompressed prompts, greetings and messages. Operation of this card does not require voice compression channels. 	All	700343460

- From IP Office 3.0 onwards, the prompt files for the following languages are pre-installed on the Avaya memory cards.
 - Danish (dan)
 - German (deu)
 - English-UK (eng)
 - English-US (enu)
 - Spanish (esp)
 - Spanish-Mexico (esm)
 - Spanish-Argentina (ess)
 - Finnish (fin)
 - French (fra)
 - French-Canadian (frc)
 - Italian (ita)
 - Japanese (jpn)
 - Korean (kor)
 - Dutch (nld)
 - Norwegian (nor)
 - Portuguese (ptg)
 - Portuguese-Brazilian (ptb)
 - Russian (rus)
 - Swedish (sve)
 - Chinese (chs)
- For full details of embedded voicemail setup and configuration, refer to the Embedded Voicemail Installation manual.
- Memory cards in these slots can also be used for storage of files normally obtained via TFTP transfer. For example the music-on-hold wav file and supported 4600 Series/5600 Series software files. This will however reduce storage space for prompt and message files if embedded voicemail is being used. Non-Avaya memory cards can be used for this function.

Voice Compression Module Cards (VCM's)

VCM's are optional cards that can be installed inside all IP Office system control units except the Small Office Edition. Each VCM provides a number of voice compression channels, indicated by a number suffix. For example, a VCM 8 has 8 voice compression channels.

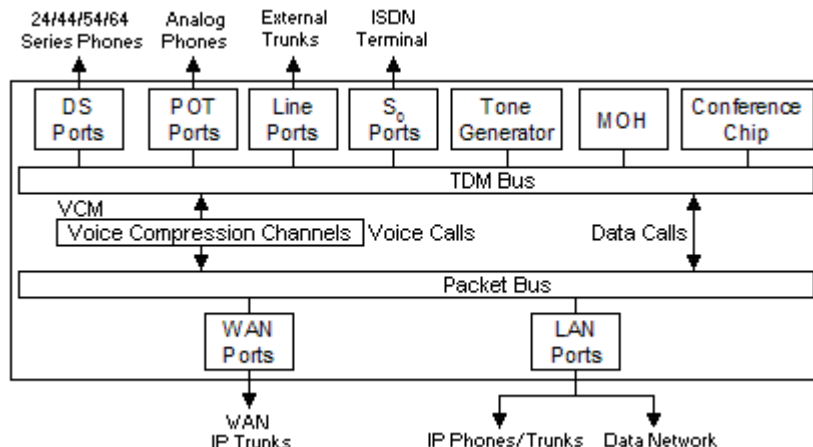
- Small Office Edition control units have either 3 or 16 built in voice compression channels with 40ms echo cancellation.

VCM Cards	SAP Code	Small Office Edition	IP403	IP406 V1	IP406 V2	IP412
25ms echo cancellation.	VCM5*	700185119	✗	✓	✓	✓
	VCM10*	700185127	✗	✓	✓	✓
	VCM20*	700185135	✗	✓	✓	✓
	VCM30	700293939	✗	✗	✗	✓
64ms echo cancellation.	VCM4	700359854	✗	✓	✓	✓
	VCM8	700359862	✗	✓	✓	✓
	VCM16	700359870	✗	✓	✓	✓
	VCM24	700359888	✗	✗	✗	✓
Number of VCM cards.			0	1	1	2
Maximum number of channels.			3/16	20	20	30

- Support for VCM 20 on IP403 was added at IP Office 1.3
- *These modules are still supported but are no longer available from Avaya.

The IP Office can be treated as having a telephony switching interface (its TDM bus) and a data networking interface (its Packet bus).

- **TDM Bus:** Used by devices attached to DS and PHONE (POT) ports (analog and digital telephones) and by external trunks. Also used by internal devices such as the Tone Generator, MOH source and Conference Chip.
- **Packet Bus:** Used by IP devices attached to the system's LAN and WAN ports. This includes IP extensions and trunks.



Calls between the two buses will use available voice compression channels as detailed below. When no voice compression channel is available, busy indication is returned to the calling device.

From/To		Voice Compression Channels
IP Phone or Trunk	Non-IP Phone or Trunk	1 voice compression channel is required for duration of call.
IP Phone or Trunk	IP Phone or Trunk	1 voice compression channel is used during call setup. Once the call is connected: <ul style="list-style-type: none"> • If the devices use the same audio codec, and are set to "Allow Direct Media Path", the VCM channel is no longer used. • If the devices use differing audio codecs, a voice compression channel is required for each.
Non-IP Phone or Trunk	Non-IP Phone or Trunk	No channel used.
Conference Calls		1 voice compression channel per IP phone. Conference calls are managed by the conference chip which is on the IP Office's TDM bus. Therefore, a voice compression channel is required for each IP device involved in the conference.
Page Calls		1 voice compression channel per audio codec being used by any IP devices involved.
Voicemail Calls		Calls to the IP Office voicemail servers (Voice Mail Pro, Voicemail Lite and Embedded Voicemail) are treated as data calls from the TDM bus. Therefore the servers can be treated as TDM devices to determine whether a VCM channel is required or not. On the Small Office Edition, each call to the embedded voicemail card uses a voice compression channel. This is in addition to any voice compression channel required for the call to reach the TDM bus.

Trunks Cards

Analog Trunk Card Universal (ATM4U)

This card supersedes the previous Analog Trunk cards and is referred to as the "ATM4U". It can be identified by a label on the base of the card.

The card is supported on IP Office software 2.1(36) and higher. Unlike the previous ATM4 card, the same ATM4U card variant can be used in all locales.

For systems running IP Office software 3.1 or higher, the echo cancellation used on each trunk can be switched off or on (16ms).

The card provides 4 RJ45 sockets for analog trunk connections. The card only supports loop-start trunks. For ground-start trunks an Analog Trunk expansion module should be used.

- **Power Failure Operation**

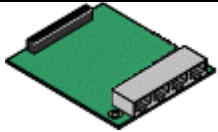
There are no power failure extension connections provided for the analog trunk card. If this is a requirement, the ATM16 expansion module should be used.

- **⚠ WARNING**

In all IP Office installations, any module or control unit using analog trunk connections must be connected to a functional earth.

- **⚠ WARNING**

Within the Republic of South Africa and in areas of high lightning risk, any module or control unit using analog trunk connections must be connected to a protective ground and to surge protection equipment (an Avaya 146G Surge Protector).

ATM4U Trunk Card	Country	Control Unit	SAP Code	
	ATM4 Uni (Loop-Start)	All	Supported on all control units except the Small Office Edition.	700359938

- The card include two plastic spacer pegs for installation and a replacement blanking plate for the rear of the control unit. The blanking plate is not required with the Small Office Edition which has removable sections in the rear panel.

Analog Trunk Card (ATM4)

The Analog Trunk card is also referred to as the "ATM4". It provides 4 RJ45 sockets for analog trunk connections. The card only supports loop-start trunks. For ground-start trunks an Analog Trunk expansion module should be used.

The card is available in a number of locale specific variants as detailed below.

- **Power Failure Operation**

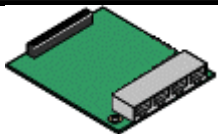
There are no power failure extension connections provided for the analog trunk card. If this is a requirement, the ATM16 expansion module should be used.

- **⚠ WARNING**

In all IP Office installations, any module or control unit using analog trunk connections must be connected to a functional earth.

- **⚠ WARNING**

Within the Republic of South Africa and in areas of high lightning risk, any module or control unit using analog trunk connections must be connected to a protective ground and to surge protection equipment (an Avaya 146G Surge Protector).

ATM4 Trunk Cards		Country	Control Unit	SAP Code
	IP400 Analog 4 (Loop-Start)	North and South America	Supported on all control units except the Small Office Edition.	700185192
	IP400 Analog 4 EU (Loop-Start)	Europe		700241672
	IP400 Analog 4 NZ (Loop-Start)	New Zealand		700241706

- These cards include two plastic spacer pegs for installation and a replacement blanking plate for the rear of the control unit. The blanking plate is not required with the Small Office Edition which has removable sections in the rear panel.

BRI Trunk Cards (Quad BRI)

The BRI trunk card is also referred to as the "Quad BRI". It provides 4 RJ45 sockets for ETSI BRI trunk connections, with each trunk supporting 2B+D channels.

- The trunk card ports include 100 ohm termination.

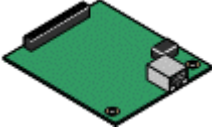
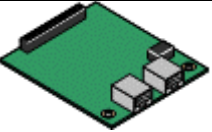
Variant		Country	Control Unit	SAP Code
	IP400 BRI	All	Supported on all control units.	700185168
	IP400 BRI 8 (UNI)	All except China		700262017

- These cards include two plastic spacer pegs for installation and a replacement blanking plate for the rear of the control unit. The blanking plate is not required with the Small Office Edition which has removable sections in the rear panel.

T1 PRI Trunk Cards

These trunk cards support 23B+D primary rate (US PRI) trunks and 24B T1 robbed-bit trunks. The mode of operation is selected within the IP Office configuration.

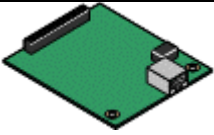
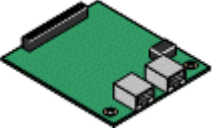
The T1 PRI card includes an integral CSU/DSU that can be activated through the IP Office Monitor application.

PRI Trunk Cards		Country	Control Units	SAP Code
	IP400 PRI 24 T1	North America	Supported on all control units.	700185200
	IP400 PRI 48 T1	North America	Supported only on the IP412 and Slot A of the IP406 V2.	700185218

- These cards include two plastic spacer pegs for installation and a replacement blanking plate for the rear of the control unit. The blanking plate is not required with the Small Office Edition which has removable sections in the rear panel.

E1 PRI Trunk Cards

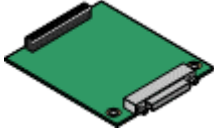
These cards support primary rate trunks providing 30B+D channels.

E1 PRI trunk Cards	Country	Control Units	SAP Code
 IP400 PRI 30 E1 (1.4)	All except China and CALA.	Supported on all control units except Small Office Edition.	700272461
 IP400 PRI 60 E1	All except China and CALA.	Supported only on the IP412 and Slot A of the IP406 V2.	700185184

- These cards include two plastic spacer pegs for installation and a replacement blanking plate for the rear of the control unit. The blanking plate is not required with the Small Office Edition which has removable sections in the rear panel.

WAN Trunk Card

This trunk card is supported on the Small Office Edition control unit only. It provides the unit with a single 37-way D-type WAN port.

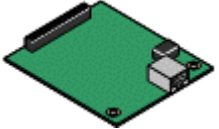
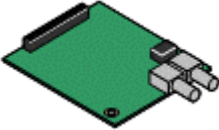
WAN Cards	Country	Control Unit	SAP Code
 IP400 WAN Expansion	All	Only supported on the Small Office Edition.	700289713

- The card is supplied with two plastic spacer pegs for installation and a replacement rear panel for the Small Office Edition control unit.

E1R2 PRI Trunk Cards

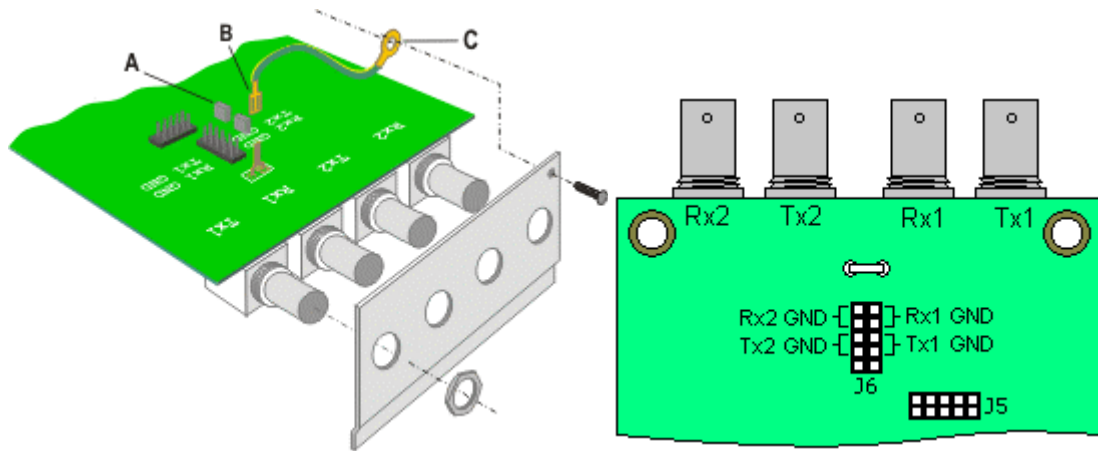
These cards support E1 trunks with R2 signalling. Each trunk provides up to 30B+D channels.

E1R2 PRI trunk cards are available with either RJ45 or coaxial cable connectors.

E1R2PRI trunk Cards	Country	Control Unit	SAP Code
	CALA, Korea, China	Supported on all control units except the Small Office Edition.	700241631
			700241649
	CALA	Supported only on the IP412 and Slot A of the IP406 V2.	700241656
			700241664

- These cards include two plastic spacer pegs for installation and a replacement blanking plate for the rear of the control unit. The blanking plate is not required with the Small Office Edition which has removable sections in the rear panel.
- For E1R2 coaxial card, a ground-jumper cable and coaxial connector locking rings are also included.

E1R2 coax trunk cards must be grounded correctly and require the IP Office control unit to be connected to a protective ground. Normally the ends of one connection is grounded. For example, if the exchange Tx1 is grounded, the IP Office Rx1 should also be grounded. However this must be confirmed with the line provider to establish which ends they want grounded.



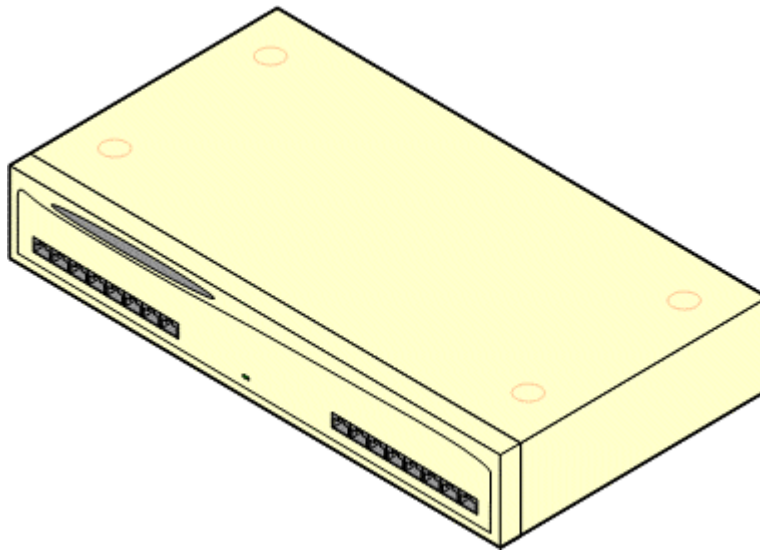
1. Connect the ground strap spade end (B) supplied with the card to the spade connection on the card and the other end (C) to the chassis with the long securing screw also supplied with the card.
2. Use the two jumpers supplied with the card, match the ground selection of the line provider. For example, if the line provider has grounded their Tx1, place a jumper across the two Rx1 pins of jumper block J6.

Expansion Modules

IP400 Analog Trunk Module

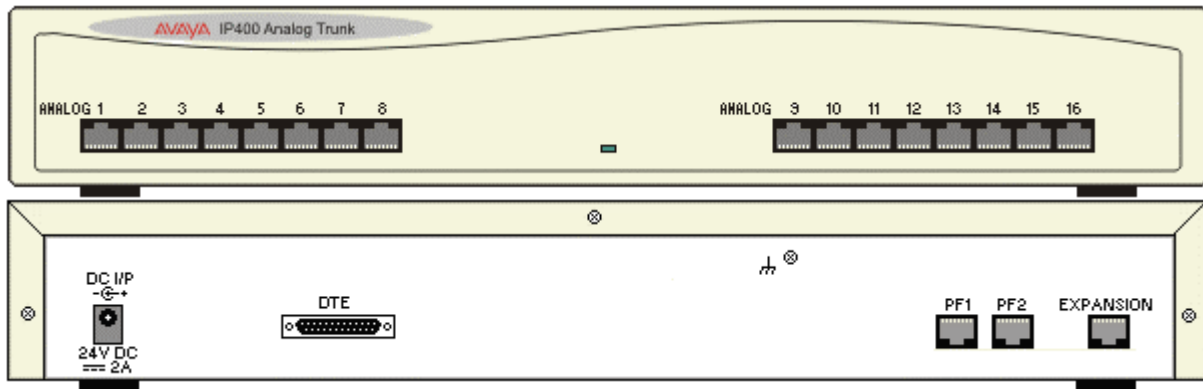
The IP400 Analog Trunk module (also known as the ATM16) is used to add 16 additional analog trunks to an IP Office system. The module supports both loop-start and, with suitable grounding, ground-start trunks.


- **IMPORTANT**
In all IP Office installations, any module being used for analog trunk connections must be connected to a functional earth.
- **⚠ WARNING**
Within the Republic of South Africa and in areas of high lightning risk, any module using analog trunk connections must be connected to a protective ground and to surge protection equipment (an Avaya 146G Surge Protector).



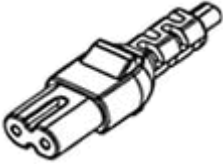
Feature	Details
Supported on	All IP Office control units except Small Office Edition.
Locales	Supported in all IP Office locales.
Software Level	IP Office core software level 1.0 minimum. Bin file = naatm16.bin.
Included	Power supply unit (<i>see below</i>) and Expansion Interconnect cable.
Power Supply	The module is supplied with a 2-pin, 40W external power supply unit. The PSU has an integral power cord for connection to the module's DC I/P socket. A locale specific IEC60320 C7 power cord for the external PSU is required but is not supplied with the module.
Mounting	The module is designed as a free-standing module that can be stacked on or under other IP Office modules. The module can be rack mounted in a 19" rack system using the optional Rack Mounting Kit.
Dimensions	Width: 445mm/17.5". Depth: 245mm/9.7". Height: 71mm/2.8".
Weight	Unboxed: 2.9Kg/6.6lbs. Boxed: 4.2Kg/9.4lbs.

Analog Trunk Module Connections



Ports	Description
ANALOG	RJ45 socket. Used for connection to analog trunks. Ports can be configured as either loop-start or ground-start trunks through the IP Office configuration. In the event of power failure, Analog ports 1 and 2 are directly connected to analog extension ports PF1 and PF2 respectively. If used the connected phones must be clearly labeled as power failure devices. This is only supported for loop-start analog trunks.
DC I/P	DC power input port. Used for connection of the power lead from an Avaya 40W external power supply unit supplied with the expansion module. A locale specific IEC60320 C7 power cord for the external PSU is required but is not supplied with the module.
DTE	25-Way D-Type socket. For Avaya use only.
EXPANSION	RJ45 Socket. Used for direct connection to an Expansion port on an IP Office control unit using the Expansion Interconnect cable supplied with the module.
PF	RJ45 socket. Power failure analog extension ports. See Analog section above.
	Ground point. Used for connection of a protective or functional ground if required. On older modules where this screw is not present, the top-center cover screw should be used instead. <ul style="list-style-type: none"> IMPORTANT In all IP Office installations, any module being used for analog trunk connections <u>must be connected</u> to a functional earth. WARNING Within the Republic of South Africa and in areas of high lightning risk, any module using analog trunk connections <u>must be connected</u> to a protective ground and to surge protection equipment (an Avaya 146G Surge Protector).

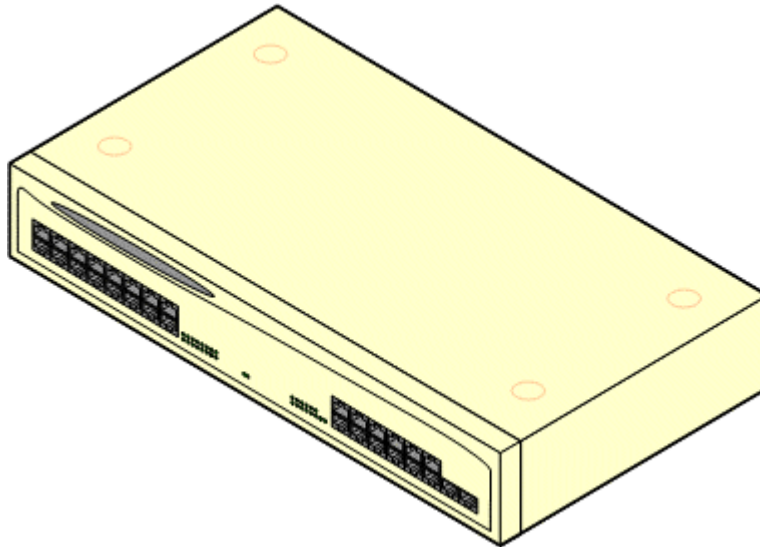
All expansion modules are supplied with a base software level and should be upgraded to match the core software of the control unit in the IP Office system.

Item	Variant	Country	SAP Code
IP400 Analog Trunk 16	America	America	700211360
	Europe	Europe	700241680
	New Zealand	New Zealand	700241698
 IEC60320 C7 Power Cord	CEE7/16	Europe	700213382
	BS1363	United Kingdom	700213374
	NEMA1-15	America	700213390
	Korea	Korea	700254519
	China	China	700314172
Rack Mounting Kit		All	700210800

Expansion modules include an external power supply unit (PSU) and an appropriate interconnect cable. They do not include a locale specific power cord for the external PSU or any phone extension cables.

IP400 Digital Station V2

The IP400 Digital Station V2 (also known as DS V2) is used to add additional DS ports to an IP Office system. The DS V2 is available in 16 and 30 port variants, referred to as DS16 V2 and DS30 V2 respectively.

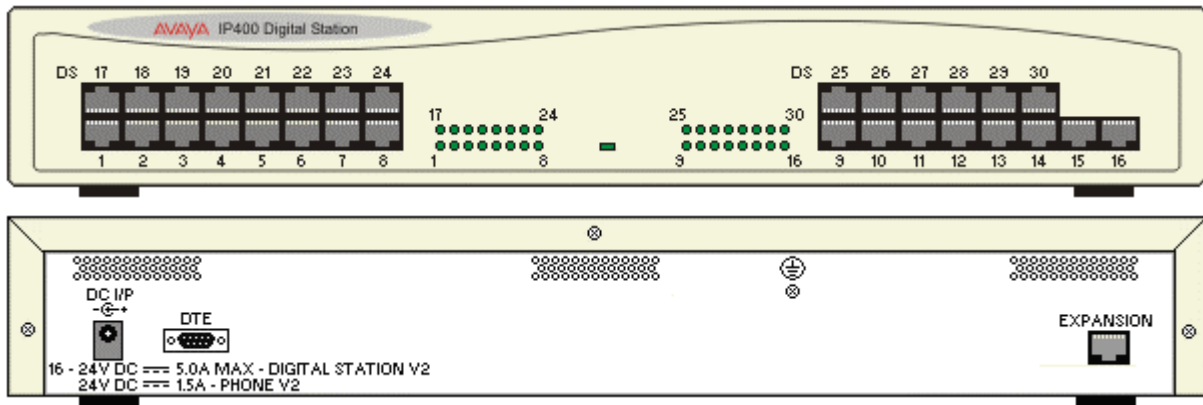


The DS V2 supersedes the original IP400 Digital Station, now referred to as a DS V1. The module version is indicated by labels both the base and the rear of the module. Key changes are:

- The DS ports have been rotated 180° to allow easier connection access.
- The port status LED's have been moved and grouped adjacent to the ports.
- The DTE serial port on the rear of the module has been changed to a 9-pin D-type socket.
- The DS V2 uses an earthed 3-pin 60W external power supply unit.

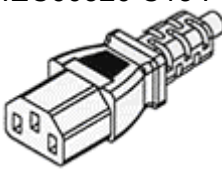
Feature	Details
Supported on	All IP Office control units except Small Office Edition.
Locales	Supported in all IP Office locales.
Software Level	IP Office core software level 2.1(31) minimum. Bin file = nadcpV2.bin.
Included	Power supply unit (<i>see below</i>) and Expansion Interconnect cable.
Power Supply	The module is supplied with a Earthed 3-Pin, 60W external power supply module. The PSU has an integral power cord for connection to the module's DC I/P socket. A locale specific IEC60320 C13 power cord for the external PSU is required but is not supplied with the module.
Mounting	The module is designed as a free-standing module that can be stacked on or under other IP Office modules. The module can be rack mounted in a 19" rack system using the optional Rack Mounting Kit.
Dimensions	Width: 445mm/17.5". Depth: 245mm/9.7". Height: 71mm/2.8".
Weight	Unboxed: 3.5Kg/7.8lbs. Boxed: 4.8Kg/10.8lbs. (Based on DS30 V2)

Digital Station V2 Connections



Ports	Description
DC I/P	DC power input port. Used for connection of the power lead from an Avaya earthed 60W external power supply unit supplied with the expansion module. A locale specific IEC60320 C13 power cord for the external PSU is required but is not supplied with the module.
DS	RJ45 socket. Digital Station port. Used for connection of IP Office supported DS phones. If connected to an out-of-building extension, the connection must be made via additional IROB 146E barrier devices in addition to the buildings primary protection. The module must also be connected to a protective ground.
DTE	9-Way D-Type socket. For Avaya use only.
EXPANSION	RJ45 Socket. Used for direct connection to an Expansion port on an IP Office control unit using the Expansion Interconnect cable supplied with the module.
	Protective Ground point. Use of a protective ground is required for all installations, see Grounding (Earthing). Where the module is connected to analog extensions in another building, an IP Office Phone Barrier Box V2 (101V) is required at both ends, see Lightning Protection/Out-of-Building Connections.

All expansion modules are supplied with a base software level and should be upgraded to match the core software of the control unit in the IP Office system.

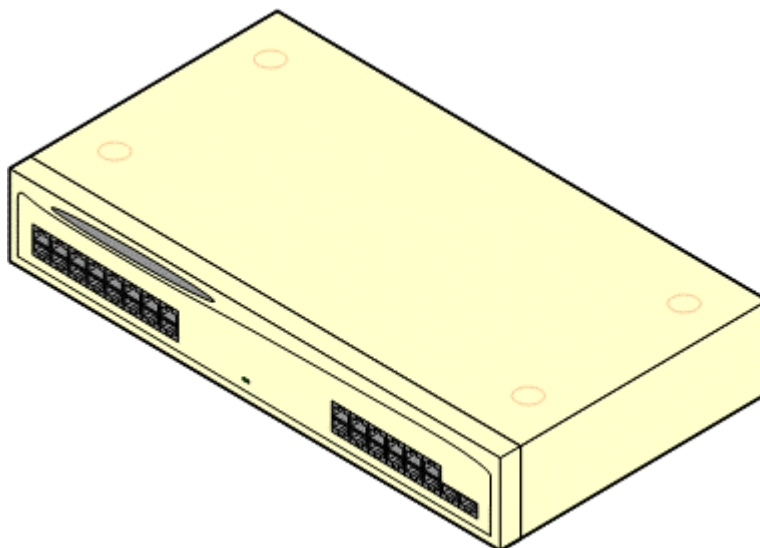
Item	Variant	Country	SAP Code
IP400 Digital Station V2	16 Ports	All	700359839
	30 Ports		700359847
 IEC60320 C13 Power Cord	CEE7/7	Europe	700289762
	BS1363	United Kingdom	700289747
	NEMA5-15P	America	700289770
	China	China	700261977
Rack Mounting Kit		All	700210800

Expansion modules include an external power supply unit (PSU) and an appropriate interconnect cable. They do not include a locale specific power cord for the external PSU or any phone extension cables.

IP400 Digital Station V1

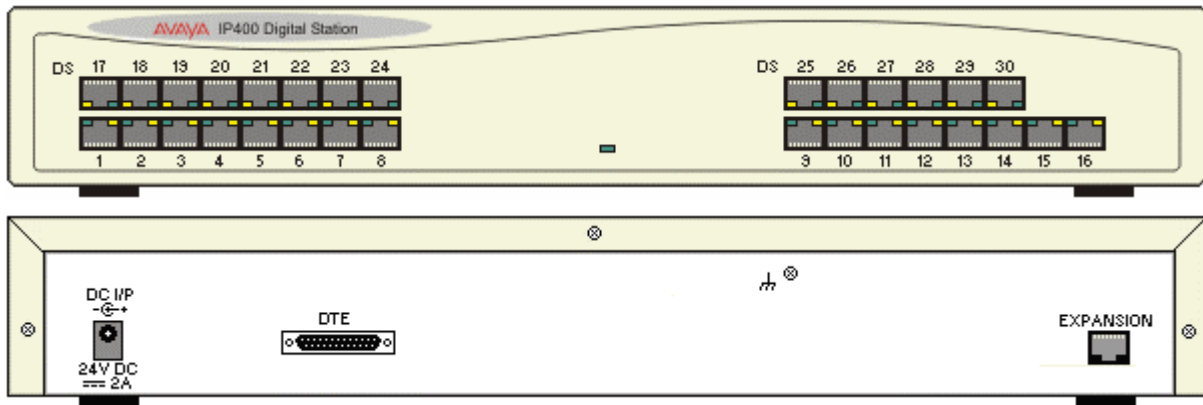
The IP400 Digital Station module (also known as DS module) is used to add additional DS ports to an IP Office system.


The DS module is available in 16 and 30 port variants, referred to as DS16 and DS30 modules respectively. The IP400 Digital Station Module has been superseded by the IP400 Digital Station Module V2.



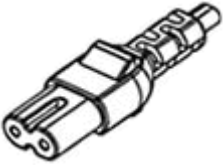
Feature	Details
Supported on	All IP Office control units except Small Office Edition.
Locales	Supported in all IP Office locales.
Software Level	IP Office core software level 1.0 minimum. Bin file = nadcp-16.bin.
Included	Power supply unit (<i>see below</i>) and Expansion Interconnect cable.
Power Supply	The module is supplied with a 2-pin, 40W external power supply unit. The PSU has an integral power cord for connection to the module's DC I/P socket. A locale specific IEC60320 C7 power cord for the external PSU is required but is not supplied with the module.
Mounting	The module is designed as a free-standing module that can be stacked on or under other IP Office modules. The module can be rack mounted in a 19" rack system using the optional Rack Mounting Kit.
Dimensions	Width: 445mm/17.5". Depth: 245mm/9.7". Height: 71mm/2.8".
Weight	Unboxed: 3.5Kg/7.8lbs. Boxed: 4.8Kg/10.8lbs. (Based on DS30).

Digital Station Module Connections



Ports	Description
DC I/P	DC power input port. Used for connection of the power lead from an Avaya 40W external power supply unit supplied with the expansion module. A locale specific IEC60320 C7 power cord for the external PSU is required but is not supplied with the module.
DS	Digital Station port. Used for connection of IP Office supported DS phones. If connected to an out-of-building extension, the connection must be made via additional IROB 146E barrier devices in addition to the buildings primary protection. The module must also be connected to a protective ground.
DTE	25-Way D-Type socket. For Avaya use only.
EXPANSION	RJ45 Socket. Used for direct connection to an Expansion port on an IP Office control unit using the Expansion Interconnect cable supplied with the module.
	Ground point. Used for connection of a protective or functional ground if required. On older modules where this screw is not present, the top-center cover screw should be used instead. Must be connected if any out-of-building extensions are connected to this module.

All expansion modules are supplied with a base software level and should be upgraded to match the core software of the control unit in the IP Office system.

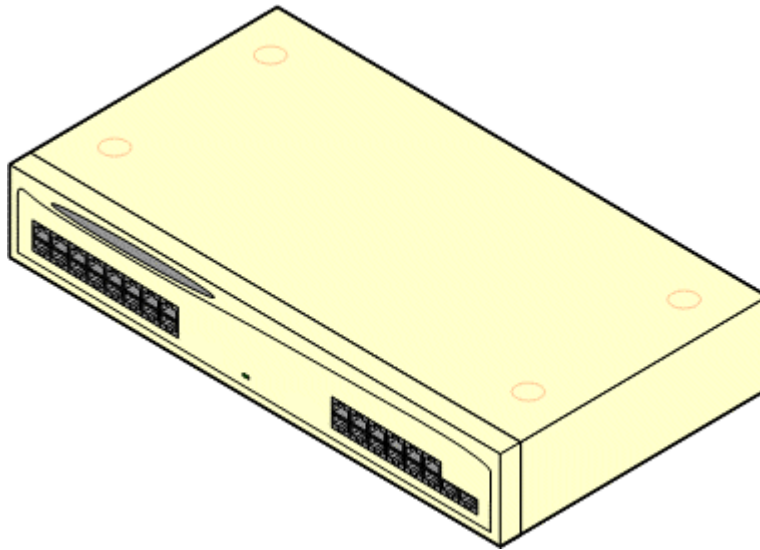
Item	Variant	Country	SAP Code
IP400 Digital Station	16 Ports	All	700184807
	30 Ports		700184880
 IEC60320 C7 Power Cord	CEE7/16	Europe	700213382
	BS1363	United Kingdom	700213374
	NEMA1-15	America	700213390
	Korea	Korea	700254519
	China	China	700314172
Rack Mounting Kit		All	700210800

Expansion modules include an external power supply unit (PSU) and an appropriate interconnect cable. They do not include a locale specific power cord for the external PSU or any phone extension cables.

IP400 Phone Module V2

The IP400 Phone V2 module (also known as the Phone V2 module) is used to add additional PHONE ports to an IP Office system. PHONE ports are used for analog phones.

The Phone V2 module is available in 8, 16 and 30 port variants, referred to as the Phone 8, Phone 16 and Phone 30 respectively.

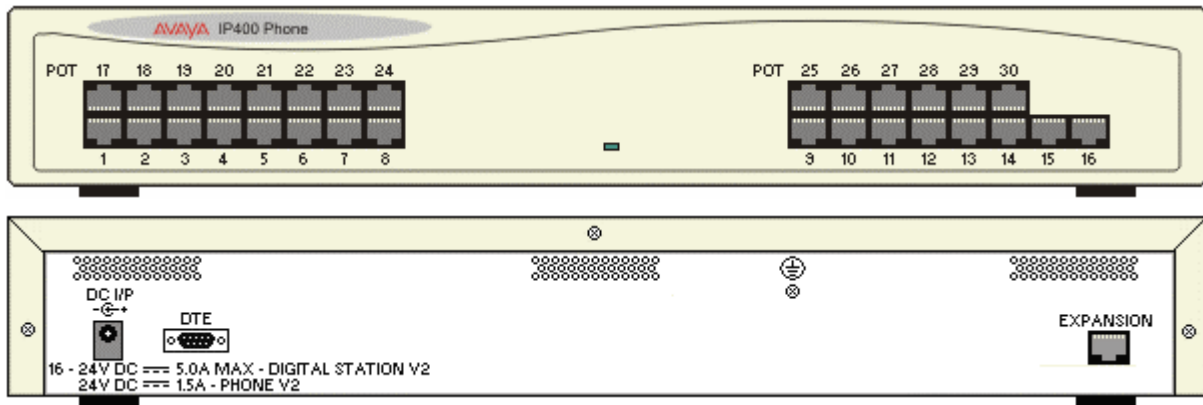


The Phone V2 module supersedes the original IP400 Phone module, now referred to as the Phone V1. The module version is indicated by labels on both the base and the rear of the module. Key changes are:

- The Phone V2 uses an earthed 3-pin 60W external power supply unit.
- With IP Office 3.1, the message waiting indication (MWI) on each **POT** port can be configured for **None, On, 51V Stepped, 81V, Line Reversal A** or **Line Reversal B**. **On** uses the default determined by the system locale. POT ports on a Phone V2 module can additionally be configured for **101V** operation.
- The ports do not include a ringing capacitor. Therefore for phones where this is a requirement, connection should be via a Master socket containing ringing capacitors.
- The DTE serial port on the rear of the module has been changed to a 9-pin D-type socket.

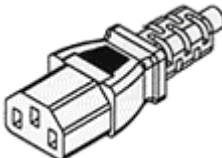
Feature	Details
Supported on	All IP Office control units except Small Office Edition.
Locales	Supported in all IP Office locales.
Software Level	IP Office core software level 2.1(36) minimum. Bin file = dvpots.bin.
Included	Power supply unit (<i>see below</i>) and Expansion Interconnect cable.
Power Supply	The module is supplied with a Earthed 3-Pin, 60W external power supply unit. The PSU has an integral power cord for connection to the module's DC I/P socket. A locale specific IEC60320 C13 power cord for the external PSU is required but is not supplied with the module.
Mounting	The module is designed as a free-standing module that can be stacked on or under other IP Office modules. The module can be rack mounted in a 19" rack system using the optional Rack Mounting Kit.
Dimensions	Width: 445mm/17.5". Depth: 245mm/9.7". Height: 71mm/2.8".
Weight	Unboxed: 3.1Kg/6.94lbs. Boxed: 4.4Kg/9.7lbs. (Based on Phone 30 V2)

Phone Module V2 Connections



Ports	Description
DC I/P	DC power input port. Used for connection of the power lead from an Avaya earthed 60W external power supply unit supplied with the expansion module. A locale specific IEC60320 C13 power cord for the external PSU is required but is not supplied with the module.
DTE	9-Way D-Type socket. For Avaya use only.
EXPANSION	RJ45 Socket. Used for direct connection to an Expansion port on an IP Office control unit using the Expansion Interconnect cable supplied with the module.
PHONE	RJ45 socket. Used for connection of analog phones. Intended for two-wire analog phones. For connection to 4-wire analog phones connection should be via a master socket with ringing capacitors. If connected to an out-of-building extension, the connection must be made via additional IP Office Barrier Boxes in addition to the buildings primary protection. The module must also be connected to a protective ground.
	Protective Ground point. Use of a protective ground is required for all installations, see Grounding (Earthing). Where the module is connected to analog extensions in another building, an IP Office Phone Barrier Box V2 (101V) is required at both ends, see Lightning Protection/Out-of-Building Connections.

All expansion modules are supplied with a base software level and should be upgraded to match the core software of the control unit in the IP Office system.

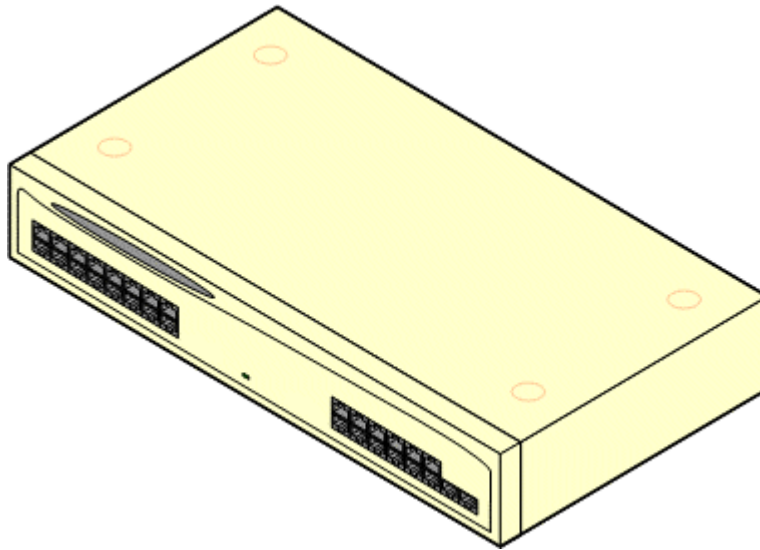
Item	Variant	Country	SAP Code
IP400 Phone 8 V2	8 Ports	All	700359896
	16 Ports		700359904
	30 Ports		700359912
 IEC60320 C13 Power Cord	CEE7/7	Europe	700289762
	BS1363	United Kingdom	700289747
	NEMA5-15P	America	700289770
	China	China	700261977
Rack Mounting Kit		All	700210800

Expansion modules include an external power supply unit (PSU) and an appropriate interconnect cable. They do not include a locale specific power cord for the external PSU or any phone extension cables.

IP400 Phone Module

The IP400 Phone module (also known as the Phone V1 module) is used to add additional POT ports to an IP Office system. POT ports are used for analog phones.

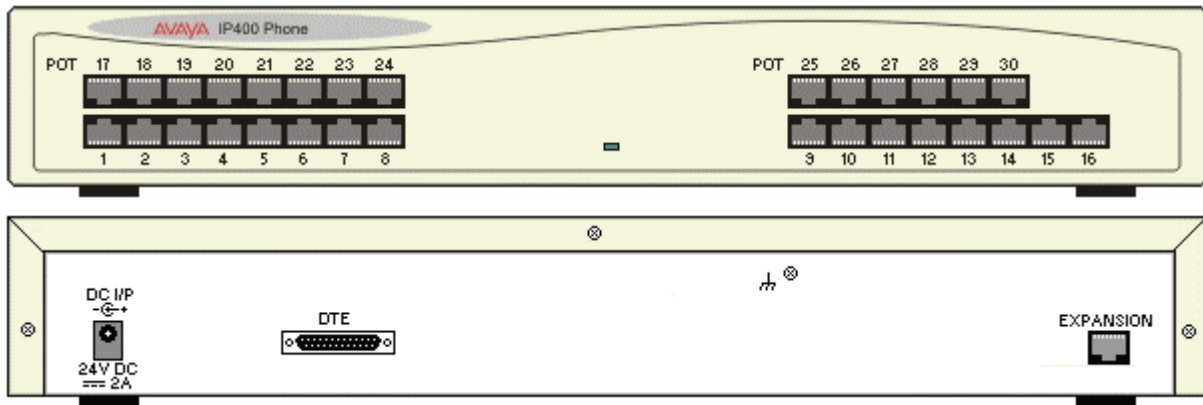
The Phone module is available in 8, 16 and 30 port variants, referred to as the Phone 8, Phone 16 and Phone 30 respectively. The IP400 Phone Module has been superseded by the Phone Module V2.



- With IP Office 3.1, the message waiting indication (MWI) on each **POT** port can be configured for **None**, **On**, **51V Stepped**, **81V**, **Line Reversal A** or **Line Reversal B**. **On** uses the default determined by the system locale. POT ports on a Phone V2 module can additionally be configured for **101V** operation.

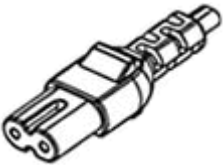
Feature	Details
Supported on	All IP Office control units except Small Office Edition.
Locales	Supported in all IP Office locales.
Software Level	IP Office core software level 1.0 minimum. Bin file = napots16.bin.
Included	Power supply unit (<i>see below</i>) and Expansion Interconnect cable.
Power Supply	The module is supplied with a 2-pin, 40W external power supply unit. The PSU has an integral power cord for connection to the module's DC I/P socket. A locale specific IEC60320 C7 power cord for the external PSU is required but is not supplied with the module.
Mounting	The module is designed as a free-standing module that can be stacked on or under other IP Office modules. The module can be rack mounted in a 19" rack system using the optional Rack Mounting Kit.
Dimensions	Width: 445mm/17.5". Depth: 245mm/9.7". Height: 71mm/2.8".
Weight	Unboxed: 3.1Kg/6.94lbs. Boxed: 4.4Kg/9.7lbs. (Based on Phone 30 V2)

Phone V1 Module Connections



Ports	Description
DC I/P	DC power input port. Used for connection of the power lead from an Avaya 40W external power supply unit supplied with the expansion module. A locale specific IEC60320 C7 power cord for the external PSU is required but is not supplied with the module.
DTE	25-Way D-Type socket. For Avaya use only.
EXPANSION	RJ45 Socket. Used for direct connection to an Expansion port on an IP Office control unit using the Expansion Interconnect cable supplied with the module.
POT	RJ45 socket. Used for connection of analog phones. If connected to an out-of-building extension, the connection must be made via additional IP Office Barrier Box devices in addition to the buildings primary protection. The module must also be connected to a protective ground.
	Function ground point. Used for connection of a protective or functional ground if required. On older modules where this screw is not present, the top-center cover screw should be used instead. Must be connected if any out-of-building extensions are connected to this module.

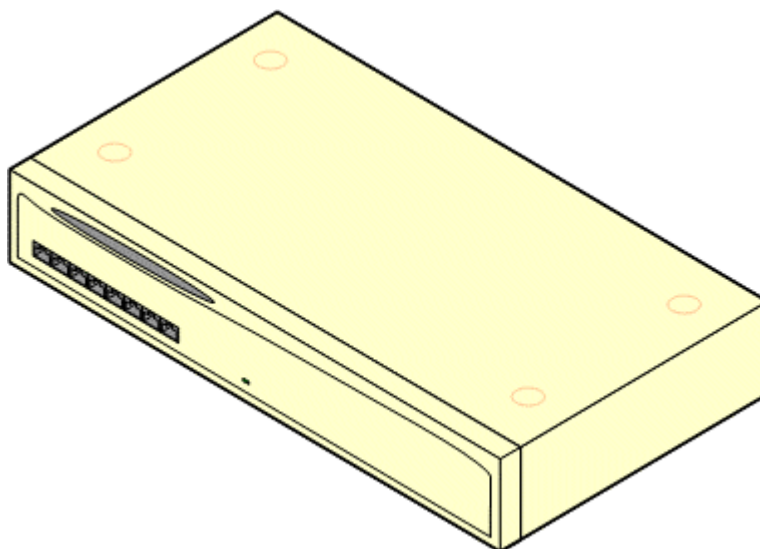
All expansion modules are supplied with a base software level and should be upgraded to match the core software of the control unit in the IP Office system.

Item	Variant	Country	SAP Code
IP400 Phone V1	8 Ports	All	700184773
	16 Ports		700184781
	30 Ports		700184799
 IEC60320 C7 Power Cord	CEE7/16	Europe	700213382
	BS1363	United Kingdom	700213374
	NEMA1-15	America	700213390
	Korea	Korea	700254519
	China	China	700314172
Rack Mounting Kit		All	700210800

Expansion modules include an external power supply unit (PSU) and an appropriate interconnect cable. They do not include a locale specific power cord for the external PSU or any phone extension cables.

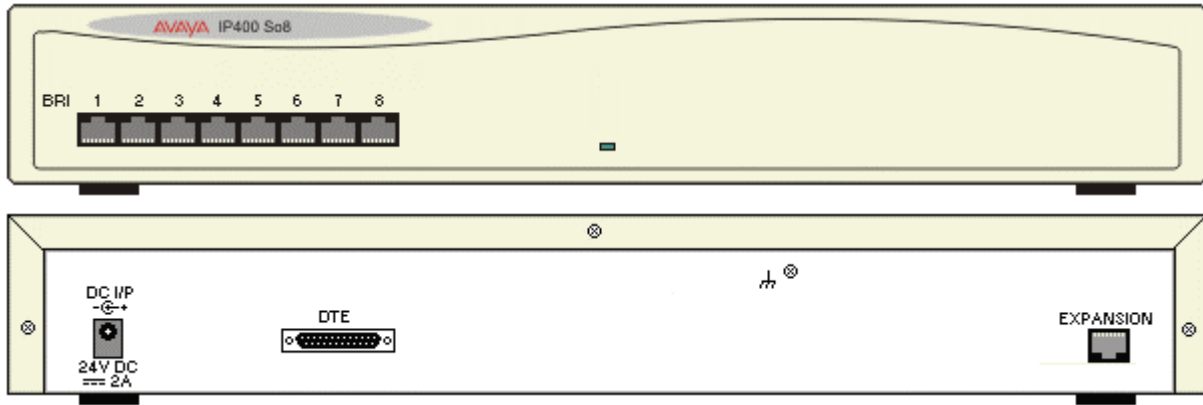
IP400 So8 Module

The So8 module is used to add ETSI BRI S0-interface ports to the IP Office system. These ports can then be used for the connection of ISDN devices.



Feature	Details
Supported on	All IP Office control units except Small Office Edition.
Locales	Supported in all IP Office locales.
Software Level	IP Office core software level 1.0 minimum. Bin file = nas0-16.bin.
Included	Power supply unit (<i>see below</i>) and Expansion Interconnect cable.
Power Supply	<p>The unit is supplied with an earthed 3-Pin, 60W external power supply unit. The PSU has an integral power cord for connection to the unit's DC I/P socket. A locale specific IEC60320 C13 power cord for the external PSU is required but is not supplied with the unit.</p> <ul style="list-style-type: none"> Older units were supplied with a 2-Pin, 40W external power supply unit which used a locale specific locale specific IEC60320 C7 power cord not supplied with the unit.
Mounting	The module is designed as a free-standing module that can be stacked on or under other IP Office modules. The module can be rack mounted in a 19" rack system using the optional Rack Mounting Kit.
Dimensions	Width: 445mm/17.5". Depth: 245mm/9.7". Height: 71mm/2.8".
Weight	Unboxed: 2.8Kg/6.3lbs. Boxed: 4.1Kg/9.2lbs.

So8 Module Connections



Ports	Description
BRI	RJ45 socket. Used for connection of ISDN terminal devices. Note: These ports appear a lines within the IP Office configuration. However they cannot be used for connection to external BRI lines.
DC I/P	DC power input port. Used for connection of the power lead from an Avaya 40W external power supply unit supplied with the expansion module. A locale specific IEC60320 C7 power cord for the external PSU is required but is not supplied with the module.
DTE	25-Way D-Type socket. For Avaya use only.
EXPANSION	RJ45 Socket. Used for direct connection to an Expansion port on an IP Office control unit using the Expansion Interconnect cable supplied with the module.
	Function ground point. Used for connection of a protective or functional ground if required. On older modules where this screw is not present, the top-center cover screw should be used instead.

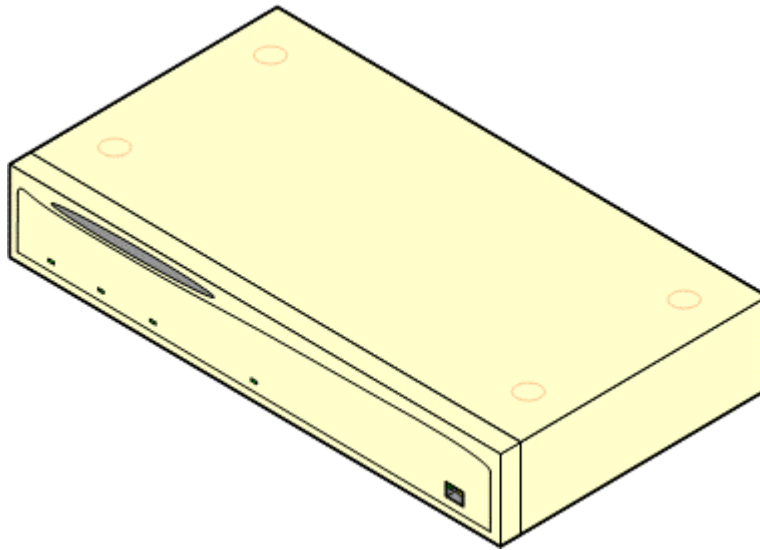
All expansion modules are supplied with a base software level and should be upgraded to match the core software of the control unit in the IP Office system. Expansion modules include an external power supply unit (PSU) and an appropriate interconnect cable. They do not include a locale specific power cord for the external PSU or any phone extension cables.

Item	Variant	Country	SAP Code
IP400 So8		All	700185077
	CEE7/7	Europe	700289762
	BS1363	United Kingdom	700289747
	NEMA5-15P	America	700289770
	China	China	700261977
Rack Mounting Kit		All	700210800

IP400 WAN3 Module

The IP400 WAN3 module can be used to add an additional 3 WAN ports to an IP Office system. These ports are used for V.24, V.35 and X.21 WAN services.

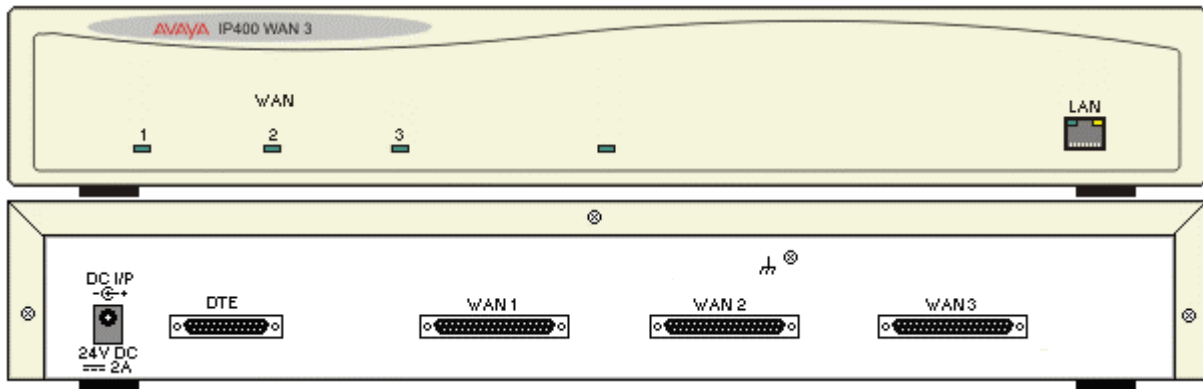
Unlike other external expansion modules the WAN3 module connects to the IP Office control unit via LAN ports. It has its own IP address, which during initial setup is obtained by DHCP.




The WAN3 exists in two variants. The original WAN3 only supported a 10Mbps LAN connection. This has been superseded by the WAN3 10/100 which supports a 10Mbps/100Mbps LAN connection.

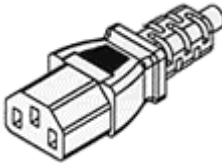
Feature	Details
Supported on	All IP Office control units except Small Office Edition.
Locales	Supported in all IP Office locales.
Software Level	WAN3 10: IP Office core software level 1.0 minimum. Bin file = nawan3.bin. WAN3 10/100: IP Office core software level 1.4 minimum. Bin file = ipwan3.bin.
Included	Power supply unit (<i>see below</i>) and LAN Interconnect cable.
Power Supply	The unit is supplied with an earthed 3-Pin, 60W external power supply unit. The PSU has an integral power cord for connection to the unit's DC I/P socket. A locale specific IEC60320 C13 power cord for the external PSU is required but is not supplied with the unit. <ul style="list-style-type: none"> Older units were supplied with a 2-Pin, 40W external power supply unit which used a locale specific locale specific IEC60320 C7 power cord not supplied with the unit.
Mounting	The module is designed as a free-standing module that can be stacked on or under other IP Office modules. The module can be rack mounted in a 19" rack system using the optional Rack Mounting Kit.
Dimensions	Width: 445mm/17.5". Depth: 245mm/9.7". Height: 71mm/2.8".
Weight	Unboxed: 2.8Kg/6.3lbs. Boxed: 4.1Kg/9.2lbs.

WAN3 Module Connections



Ports	Description
DC I/P	DC power input port. Used for connection of the power lead from an Avaya 40W external power supply unit supplied with the expansion module. A locale specific IEC60320 C7 power cord for the external PSU is required but is not supplied with the module.
DTE	25-Way D-Type socket. For Avaya use only.
EXPANSION	RJ45 Socket. Used for direct connection to an Expansion port on an IP Office control unit using the Expansion Interconnect cable supplied with the module.
LAN	RJ45 socket. Used for direct connection to a LAN port on the IP Office control unit. A LAN Interconnect cable is supplied with the module for that purpose. When connecting to an IP412 control unit a LAN crossover cable should be used.
WAN	<p>These ports support a single synchronous data connection, which can be X.21, V.35 or V.24/V.28. The selection of the required interface is automatically determined from the pin-out of the cable plugged into the WAN port. This cable must be connected before power is applied for auto detection to work. Connection to a Digital Leased Circuit is made by connecting the WAN port on the rear of the module to the existing Network Terminating Module (NTU) via the appropriate X.21, V.35 or V.24 cable. These WAN ports are identical to those on the IP403/406/412 control units.</p> <ul style="list-style-type: none"> These WAN ports must be clocked externally, the IP Office does not provide a clock signal. The clock signal is usually provided by the service provider but under some circumstances (for example laser, microwave or baseband modems) extra provision must be made by the installer.
	Function ground point. Used for connection of a protective or functional ground if required. On older modules where this screw is not present, the top-center cover screw should be used instead.

All expansion modules are supplied with a base software level and should be upgraded to match the core software of the control unit in the IP Office system. Expansion modules include an external power supply unit (PSU) and an appropriate interconnect cable. They do not include a locale specific power cord for the external PSU or any phone extension cables.

Item	Variant	Country	SAP Code
IP400 WAN3		All	700185028
IP400 WAN3 10/100			700262009
	CEE7/16	Europe	700289762
	BS1363	United Kingdom	700289747
	NEMA5-15P	America	700289770
	China	China	700261977
Rack Mounting Kit		All	700210800

Phones


20DT DECT

20DT use DECT wireless protocol to connect to Avaya Compact DECT base station. Base station connects to IP Office via PHONE (POT) analog extension ports.

20DT	Feature	Detail
	Connects via	PHONE (POT) port.
	Supported Add-Ons	None.
	IP Office Release	1.0+
	Programmable Buttons	✓6.
	Button Relabel	✗
	Headset Socket	✓
	Handsfree Speaker/Microphone	✗/✗
	Message Waiting Lamp	✗
	Upgradable Firmware	✗












Item	SAP Code
20DT (UK)	700035936
20DT (EU)	700035702

2402D

In addition to the two physical programmable buttons, the  **FEATURE** key plus **0-9**, ***** and **#** can be used to access an addition 12 programmable slots.

On IP Office, the 2402D display is not used.

2402D	Feature	Detail
	Connects via	DS port.
	IP Office Release	3.0+
	Programmable Buttons	✓ 2   *.
	Headset Socket	✗
	Handsfree Speaker/Microphone	✓/✗
	Message Waiting Lamp	✓
	Display	Not used.
	Supported Add-Ons	None.
	Upgradable Firmware	✓

Standard DCP Phone Keys			
✗  SPEAKER	✗  HEADSET	✓  MUTE	✓  VOLUME UP
✓  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code	
2402D	Multi-Grey	700381973
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727

2410D


	Feature	2410
	Connects via	DS port.
	IP Office Release	3.0+
	Programmable Buttons	✓12. (6 buttons x 2 pages).
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Display	29 characters x 5 lines. (168 x 80 pixels).
	Supported Add-Ons	None.
	Upgradable Firmware	✓












Standard DCP Phone Keys

✓  SPEAKER	✓  HEADSET	✓  MUTE	✓  VOLUME UP
✓  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code	
2410	Multi-Grey	700381999
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727

2420D


2420D	Feature	Details
	Connects via	DS port.
	IP Office Release	1.4+
	Programmable Buttons	✓24 (8 buttons x 3 pages)
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Display	29 characters x 7 lines.
	Supported Add-Ons	EU24, 201B.
	Upgradable Firmware	✓

Standard DCP Phone Keys			
✓  SPEAKER	✓  HEADSET	✓  MUTE	✓  VOLUME UP
✓  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code	
2420	Multi-Grey	700381585
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727
201B Recorder Interface Module		700381635
20B Stand		700381650
EU24	Multi-Grey	700381817
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

3616

This is an 802.11b WiFi phone. It connects to the IP Office via a wireless access point and Avaya Voice Priority Processor (AVPP).

3616	Feature	Detail
	Connects via	IP network.
	IP Office Release	2.0+
	Programmable Buttons	✓6.
	Headset Socket	✓
	Message Waiting Lamp	✗
	Upgradable Firmware	✗

Variant	SAP Code
3616 Wireless Phone	700413040
Additional battery pack for 3616	700277387
Desktop charger for 3616.	700412901
Clip for 3616	700413057
3616/3626 Configuration Cradle	700375934

3620

This is an 802.11b WiFi phone. It connects to the IP Office via a wireless access point and Avaya Voice Priority Processor (AVPP).


The 3620 is similar to the 3616 but has been designed for use in healthcare environments. It is waterproof and has a back lit display.

3616	Feature	Detail
	Connects via	IP network.
	IP Office Release	3.2+
	Programmable Buttons	✓6.
	Headset Socket	✓
	Message Waiting Lamp	✗
	Upgradable Firmware	✗

Variant	SAP Code
3620 Wireless Phone	700413065
Additional battery pack.	700277387
Desktop charger.	700412901
Clip	700413057
Configuration Cradle	700375934

3626


This phone is similar to the 3616 in functionality. However the 3626 has a ruggedized construction. This is an 802.11b WiFi phone. It connects to the IP Office via a wireless access point and Avaya Voice Priority Processor (AVPP).

3626	Feature	Detail
	Connects via	IP network.
	IP Office Release	2.0+
	Programmable Buttons	✓ 6.
	Headset Socket	✓
	Message Waiting Lamp	✗
	Upgradable Firmware	✗

Variant	SAP Code	
3626 Wireless Phone	700413024	
Additional battery pack for 3626	700277395	
Desktop charger for 3626	700412919	
3626 Gang changer	700412927	
Clip for 3626	700413131	
3626 Vinyl case with keypad cover	700412984	
3626 Carry case	Yellow	700289309
3626 Carry case with keypad cover	Black	700289317
	Yellow	700289325
3616/3626 Configuration Cradle	700375934	

3701

The 3701 is an Avaya DECT handset supported on IP Office when using Avaya IP DECT base stations.

3701	Feature	Detail
	Connects via	IP network
	IP Office Release	3.1+
	Programmable Buttons	✗
	Headset Socket	✗
	Handsfree Speaker/Microphone	✓/✗
	Message Waiting Lamp	✓
	Upgradable Firmware	✗

Variant	SAP Code	
3701	700346802	
Belt Clip	700346885	
Phone Charger	700346828	
Power Adaptor for Charger	European	700346836
	UK	700346844
	Australia	700378318
8-Phone Gang Charger	700346851	
Power Adaptor for Rack Mount Charger	Global	700346869

3711

The 3711 is an Avaya DECT handset supported on IP Office when using Avaya IP DECT base stations.

3711	Feature	Detail
	Connects via	IP network
	IP Office Release	3.1+
	Programmable Buttons	✗
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Upgradable Firmware	✗

Variant	SAP Code	
3711	700346810	
Belt Clip	700346885	
Phone Charger	700346828	
Power Adaptor for Charger	European	700346836
	UK	700346844
	Australia	700378318
8-Phone Gang Charger	700346851	
Power Adaptor for Rack Mount Charger	Global	700346869

3810

The phone uses a wireless 900MHz digital protocol to connect to its base station. The base station connects to an IP Office DS port. The base station also requires a power outlet socket. Additional power outlet sockets are required for the phone charger.

Depending on coverage overlap, between three and five 3810's can be connected to the same IP Office.

This phone is supported in North America only.












3810	Feature	Detail
	Connects via	DS port.
	IP Office Release	2.1+
	Programmable Buttons	✓4.
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Upgradable Firmware	✗

Item	SAP Code
3810 Set - Includes phone, base station, charger, belt clip and power supply units for charger and base station.	700305105

4406D+

This phone is supported in North America only.

4406D+	Feature	Detail
	Connects via	DS port.
	IP Office Release	1.0+
	Programmable Buttons	✓ 6 
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Display	16 characters x 2 lines.
	Supported Add-Ons	None.
	Upgradable Firmware	✗












Standard DCP Phone Keys			
✓  SPEAKER	✗  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✗  DROP	✓  REDIAL	✓  CONFERENCE	

Item	SAP Code
4406D+ (Black)	108199027
4406D+ (White)	108199019
Small 4400 Series Stand (Black)	108541194
Stand 4400 Series Stand (White)	108541202

4412D+

This phone is supported in North America only.

4412D+	Feature	Detail
	Connects via	DS port.
	IP Office Release	1.0+
	Programmable Buttons	✓ 24 (12  /12 ).
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Display	24 characters x 2 lines.
	Supported Add-Ons	None.
	Upgradable Firmware	✗











Standard DCP Phone Keys			
✓  SPEAKER	✗  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✗  DROP	✓  REDIAL	✓  CONFERENCE	

Item	SAP Code	
4412D+	Black	108199050
	White	108199043
Large 4400 Series Stand for 4412D+/4424D+	Black	108541269
	White	108541277

4424D+

This phone is supported in North America only. NA maximum of 16 4424D+ phones are supported on any DS V2 module (10 on a DS V1 and on releases prior to IP Office 3.1).


4424D+	Feature	Detail
	Connects via	DS ports.
	IP Office Release	1.0+
	Programmable Buttons	✓ 24 
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Display	24 characters x 2 lines.
	Supported Add-Ons	4450 x 2.
	Upgradeable Firmware	✗












Standard DCP Phone Keys			
✓  SPEAKER	✗  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✗  DROP	✓  REDIAL	✓  CONFERENCE	

Item	SAP Code	
4424D+	Black	108199084
	White	108199076
Large 4400 Series Stand for 4412D+/4424D+	Black	108541269
	White	108541277
4450 DSS Add-On	Black	108199696
	White	108199407
Small 4400 Series Stand for 4450.	Black	108541194
	White	108541202
Power Supply for 4450	108596412	

4601

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or an 802.3af Power over Ethernet (PoE) source. For RoHS compliance the 4601+ has been replaced by the 4601+, however the two phones are functionally the same.

4601+	Feature	Detail
	Connects via	IP Network.
	IP Office Release	3.0+
	Programmable Buttons	✓2
	Headset Socket	✗
	Handsfree Speaker/Microphone	✗/✗
	Message Waiting Lamp	✓
	Typical Off-Hook Power Consumption	3.5W (Class 2)
	Display	None.
	Supported Add-Ons	None.
	Upgradeable Firmware	✓
	PC Pass-Through Port/with Voice Priority	✗/✗

Standard DCP Phone Keys			
✗  SPEAKER	✗  HEADSET	✓  MUTE	✓  VOLUME UP
✓  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	


Variant	SAP Code	
4601+	Multi-Grey	700381890
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia and New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727

4602IP, 4602SW

These phones are similar in physical appearance and functions. However the 4602SW+ includes a PC data pass-through port which gives priority to phone traffic. The 4602IP is no longer available from Avaya.

The 4602SW+ is the RoHS compliant replacement for the 4602SW which is no longer available.

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or a 802.3af Power over Ethernet (PoE) source.

	Feature		4602IP	4602SW+
		Connects via		IP network.
IP Office Release		1.3+		
Programmable Buttons		✓2 ☐ *#		
Headset Socket		✗		
Handsfree Speaker/Microphone		✓/✗		
Message Waiting Lamp		✓		
Typical Off-Hook Power Consumption		3.5W (Class 2)		
Display		24 characters x 2 lines.		
Supported Add-Ons		None.		
Upgradable Firmware		✓		
PC Pass-Through Port/with Voice Priority		✗/✗	✓/✓	

Standard DCP Phone Keys			
✗ SPEAKER	✗ HEADSET	✓ MUTE	✓ VOLUME UP
✓ MESSAGES	✓ HOLD	✓ TRANSFER	✓ VOLUME DOWN
✓ DROP	✓ REDIAL	✓ CONFERENCE	











Variant	SAP Code	
4602IP	Multi-Grey	700221260
4602SW+	Multi-Grey	700381916
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia and New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727

4606IP

The 4606IP is no longer available from Avaya. This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or an 802.3af Power over Ethernet (PoE) source (GEN1 models only support PoE if using the optional 30A Switch Upgrade Base).

4606IP	Feature	Detail
	Connects via	IP network.
	IP Office Release	1.0+
	Programmable Buttons	✓ 6 
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Typical Off-Hook Power Consumption	4.1W (Class 0)
	Display	16 characters x 2 lines.
	Supported Add-Ons	None.
	Upgradable Firmware	✓
	PC Pass-Through Port/with Voice Priority	✓/✗

*Voice priority is supported if the optional 30A Switch Upgrade Base is fitted.

Standard DCP Phone Keys			
✓  SPEAKER	✗  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✗  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code			
4606	GEN1	US	Black	108576828
			White	108576836
	International	Black	108627696	
		White	108627704	
	GEN2	US	Black	700059314
			White	700059306
	International	Black	700059330	
		White	700059322	
1151C1 Power Supply Unit	With CAT5 cable.		700356447	
1151C2 Power Supply Unit with battery backup.	With CAT5 cable.		700356454	
1151C1/1151C2 Power Cord	USA		700356454	
	Europe		405362641	
	Australia/New Zealand		407786623	
	India		407790991	
	United Kingdom		407786599	
	Argentina		408161453	
30A Switch Upgrade Base			700207376	

US variants use just text labels on the phone keys. International variants use both text labels and function icons on the keys. GEN1 models do not support Power over Ethernet (PoE) unless fitted with the optional 30A Switch Upgrade Base.

4610SW

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or a 802.3af Power over Ethernet (PoE) source.

4610SW	Feature	Detail
	Connects via	IP network.
	IP Office Release	3.0+
	Programmable Buttons	✓ 24 (6 buttons x 4pages).
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓.
	Message Waiting Lamp	✓
	Typical Off-Hook Power Consumption	5W (Class 2)
	Display	29 characters x 5 lines (168 x 80 pixels)
	Supported Add-Ons	None.
	Upgradable Firmware	✓
	PC Pass-Through Port/with Voice Priority	✓/✓

Standard DCP Phone Keys



✓  SPEAKER	✓  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code	
4610SW	Multi-Grey	700381957
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord.	USA	405362641
	Europe	407786623
	Australia and New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727












4612

The 4612IP is no longer available from Avaya.

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or a 802.3af Power over Ethernet (PoE) source (GEN1 models only support PoE if using the optional 30A Switch Upgrade Base).

4612IP	Feature	Detail
	Connects via	IP network.
	IP Office Release	1.0+
	Programmable Buttons	✓ 12 
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Typical Off-Hook Power Consumption	4.1W (Class 0)
	Display	24 characters x 2 lines.
	Supported Add-Ons	None.
	Upgradable Firmware	✓
	PC Pass-Through Port/with Voice Priority	✓/✗

*Voice priority is supported if the optional 30A Switch Upgrade Base is fitted.

Standard DCP Phone Keys			
✓  SPEAKER	✗  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✗  DROP	✓  REDIAL	✓  CONFERENCE	


Variant	SAP Code			
4612	GEN1	US	Black	108690447
			White	108690454
		International	Black	108690462
			White	108690470
	GEN2	US	Black	700005935
			White	700059348
International		Black	700059371	
		White	700059363	
1151C1 Power Supply Unit	With CAT5 cable.			700356447
1151C2 Power Supply Unit with battery backup.	With CAT5 cable.			700356454
1151C1/1151C2 Power Cord.	USA			405362641
	Europe			407786623
	Australia/New Zealand			407786631
	India			407790991
	United Kingdom			407786599
	Argentina			408161453
30A Switch Upgrade Base				700207376

US variants use just text labels on the phone keys. International variants use both text labels and function icons on the keys. GEN1 models do not support Power over Ethernet (PoE) unless fitted with the optional 30A Switch Upgrade Base (700207376).

4620IP, 4620SW

These phones are similar in physical appearance and functions. However the 4620SW's PC data pass-through port gives priority to phone traffic.

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or a 802.3af Power over Ethernet (PoE) source.

	Feature		4620IP	4620SW
		Connects via		IP network.
IP Office Release		2.0+		
Programmable Buttons		✓ 24 (12 buttons x 2 pages).		
Headset Socket		✓		
Handsfree Speaker/Microphone		✓/✓		
Message Waiting Lamp		✓		
Typical Off-Hook Power Consumption		4W (Class 3)	5.9W (Class 3)	
Display		29 characters x 7 lines (168 x 132 pixels)		
Supported Add-Ons		EU24, EU24BL.		
Upgradeable Firmware		✓		
PC Pass-Through Port/with Voice Priority		✓/✗	✓/✓	

Standard DCP Phone Keys


✓  SPEAKER	✓  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code	
4620IP	Multi-Grey	700212186
4620SW	Multi-Grey	700259674
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727
EU24	Multi-Grey	700381817
EU24BL	Multi-Grey	700381544
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

4621SW

The 4621 is similar in physical appearance and function to the 4620SW. However the 4621SW includes a backlight function for the screen.

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or a 802.3af Power over Ethernet (PoE) source.

	Feature	4621SW
	Connects via	IP network.
	IP Office Release	3.1+
	Programmable Buttons	✓24 (12 buttons x 2 pages).
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Typical Off-Hook Power Consumption	5.75W (Class 2)
	Display	29 characters x 7 lines (168 x 132 pixels)
	Supported Add-Ons	EU24, EU24BL.
	Upgradeable Firmware	✓
	PC Pass-Through Port/with Voice Priority	✓/✓



Standard DCP Phone Keys			
✓ SPEAKER	✓ HEADSET	✓ MUTE	✓ VOLUME UP
✗ MESSAGES	✓ HOLD	✓ TRANSFER	✓ VOLUME DOWN
✓ DROP	✓ REDIAL	✓ CONFERENCE	

Variant	SAP Code	
4621SW	Multi-Grey	700381825
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727
EU24	Multi-Grey	700381817
EU24BL	Multi-Grey	700381544
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

4624

The 4624IP is no longer available from Avaya.

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or a 802.3af Power over Ethernet (PoE) source (GEN1 models only support PoE if using the optional 30A Switch Upgrade Base).

4624IP	Feature	Detail
	Connects via	IP network.
	IP Office Release	1.0+
	Programmable Buttons	✓ 24 
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Typical Off-Hook Power Consumption	4.1W (Class 0)
	Display	24 characters x 2 lines.
	Supported Add-Ons	None.
	Upgradable Firmware	✓
	PC Pass-Through Port/with Voice Priority	✓/✗*

*Voice priority is supported if the optional 30A Switch Upgrade Base is fitted.

Standard DCP Phone Keys			
✓  SPEAKER	✗  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✗  DROP	✓  REDIAL	✓  CONFERENCE	


Variant			SAP Code	
4624	GEN1	US	Black	108576894
			White	108576802
		International	Black	108661273
			White	108661281
	GEN2	US	Black	700059397
			White	700059389
		International	Black	700059413
			White	700059405
1151C1 Power Supply Unit		With CAT5 cable	700356447	
1151C2 Power Supply Unit with battery backup.		With CAT5 cable	700356454	
1151C1/1151C2 Power Cord		USA	405362641	
		Europe	407786623	
		Australia/New Zealand	407786631	
		India	407790991	
		United Kingdom	407786599	
		Argentina	408161453	
30A Switch Upgrade Base			700207376	

US variants use just text labels on the phone keys. International variants use both text labels and function icons on the keys. GEN1 models do not support Power over Ethernet (PoE) unless fitted with the optional 30A Switch Upgrade Base (700207376).

4625SW

The 4625 is similar in physical appearance and function to the 4621SW. However the 4625SW includes a color display.

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or a 802.3af Power over Ethernet (PoE) source.


	Feature	4625SW
	Connects via	IP network.
	IP Office Release	3.2+
	Programmable Buttons	✓24 (12 buttons x 2 pages).
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Typical Off-Hook Power Consumption	6.45W (Class 3)
	Display	29 characters x 7 lines (168 x 132 pixels)
	Supported Add-Ons	EU24, EU24BL.
	Upgradeable Firmware	✓
	PC Pass-Through Port/with Voice Priority	✓/✓

Standard DCP Phone Keys			
✓ SPEAKER	✓ HEADSET	✓ MUTE	✓ VOLUME UP
✗ MESSAGES	✓ HOLD	✓ TRANSFER	✓ VOLUME DOWN
✓ DROP	✓ REDIAL	✓ CONFERENCE	











Variant	SAP Code	
4625SW	Multi-Grey	700381551
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727
EU24	Multi-Grey	700381817
EU24BL	Multi-Grey	700381544
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

5402D

This phone is similar in physical appearance and functions to the 2402D. However the 5402 phone is only supported on IP Office.

In addition to the two physical programmable buttons, the  **FEATURE** key plus **0-9**, ***** and **#** can be used to access an addition 12 programmable slots.

5402D	Feature	Detail
	Connects via	DS port.
	IP Office Release	3.0+.
	Programmable Buttons	✓ 2  **.
	Headset Socket	✗
	Handsfree Speaker/Microphone	✓/✗
	Message Waiting Lamp	✓
	Display	24 characters x 2 lines.
	Supported Add-Ons	None.
	Upgradable Firmware	✓

Standard DCP Phone Keys			
✗  SPEAKER	✗  HEADSET	✓  MUTE	✓  VOLUME UP
✓  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code	
5402	Multi-Grey	700345309
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727

5410

This phone is similar in physical appearance and functions to the 2410. However the 5410 phone is only supported on IP Office.

5410	Feature	Detail
	Connects via	DS port.
	IP Office Release	3.0+
	Programmable Buttons	✓ 12 (6 buttons x 2 pages).
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Display	29 characters x 5 lines. (168 x 80 pixels).
	Supported Add-Ons	None.
	Upgradable Firmware	✓


Standard DCP Phone Keys












✓  SPEAKER	✓  HEADSET	✓  MUTE	✓  VOLUME UP
✓  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant		SAP Code
5410	Multi-Grey	700345291
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727

5420D

This phone is similar in physical appearance and functions to the 2410. However the 5410 phone is only supported on IP Office.

5420D	Feature	Detail
	Connects via	DS port.
	IP Office Release	2.0+
	Programmable Buttons	✓24 (8 buttons x 3 pages)
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Display	29 characters x 7 lines.
	Supported Add-Ons	EU24, 201B.
	Upgradable Firmware	✓

Standard DCP Phone Keys			
✓  SPEAKER	✓  HEADSET	✓  MUTE	✓  VOLUME UP
✓  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	





Variant	SAP Code	
4621SW	Multi-Grey	700381825
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727
201B Recorder Interface Module		700381635
20B Stand		700381650
EU24	Multi-Grey	700381817
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

5601

This phone is similar in physical appearance and functions to the 4601. However the 5601 phone is only supported on IP Office.

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or a 802.3af Power over Ethernet (PoE) source.

5601IP	Feature	Detail
	Connects via	IP Network.
	IP Office Release	3.0+
	Programmable Buttons	✓2
	Headset Socket	✗
	Handsfree Speaker/Microphone	✗/✗
	Message Waiting Lamp	✓
	Typical Off-Hook Power Consumption	3.5W (Class 2)
	Display	None.
	Supported Add-Ons	None.
	Upgradeable Firmware	✓
	PC Pass-Through Port/with Voice Priority	✗/✗



Standard DCP Phone Keys			
✗  SPEAKER	✗  HEADSET	✓  MUTE	✓  VOLUME UP
✓  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code	
5601	Multi-Grey	700345366
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

5602IP, 5602SW

The 5602IP and 5602SW phones are similar in physical appearance and functions. However the 5602SW includes a PC data pass-through port which gives priority to phone traffic. The 5602IP is no longer available from Avaya.

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or a 802.3af Power over Ethernet (PoE) source.

	Feature		5602IP	5602SW
		Connects via	IP network.	
	IP Office Release	3.0+		
	Programmable Buttons	✓ 2  **		
	Headset Socket	✗		
	Handsfree Speaker/Microphone	✓/✗		
	Message Waiting Lamp	✓		
	Typical Off-Hook Power Consumption	4.1W (Class 2)		
	Display	24 characters x 2 lines.		
	Supported Add-Ons	None.		
	Upgradable Firmware	✓		
	PC Pass-Through Port/with Voice Priority	✗/✗	✓/✓	

Standard DCP Phone Keys












✗  SPEAKER	✗  HEADSET	✓  MUTE	✓  VOLUME UP
✓  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code	
5602IP	Multi-Grey	700345341
5602SW	Multi-Grey	700381825
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727
EU24	Multi-Grey	700381817
EU24BL	Multi-Grey	700381544
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

5610SW

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or a 802.3af Power over Ethernet (PoE) source.

5610SW	Feature	Detail
	Connects via	IP network.
	IP Office Release	3.0+
	Programmable Buttons	✓ 24 (6 buttons x 4 pages).
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓.
	Message Waiting Lamp	✓
	Typical Off-Hook Power Consumption	5W (Class 2)
	Display	29 characters x 5 lines (168 x 80 pixels)
	Supported Add-Ons	None.
	Upgradable Firmware	✓
	PC Pass-Through Port/with Voice Priority	✓/✓


Standard DCP Phone Keys			
✓  SPEAKER	✓  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code	
5610SW	Multi-Grey	700345333
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727
EU24	Multi-Grey	700381817
EU24BL	Multi-Grey	700381544
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

5620

This phone is similar in physical appearance and functions to the 4620SW.

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or a 802.3af Power over Ethernet (PoE) source.

	Feature	5620IP
	Connects via	IP network.
	IP Office Release	3.0+
	Programmable Buttons	✓24 (12 buttons x 2 pages).
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Typical Off-Hook Power Consumption	5.9W (Class 3)
	Display	29 characters x 7 lines (168 x 132 pixels)
	Supported Add-Ons	EU24, EU24BL.
	Upgradeable Firmware	✓
	PC Pass-Through Port/with Voice Priority	✓/✓

Standard DCP Phone Keys


✓  SPEAKER	✓  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	












Variant		SAP Code
5620IP	Multi-Grey	700339815
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727
EU24	Multi-Grey	700381817
EU24BL	Multi-Grey	700381544
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

5621

This phone is similar in physical appearance and functions to the 4620SW.

This phone requires a separate power supply, using either a Avaya 1151C1 or 1151C2 power supply unit and power cord or a 802.3af Power over Ethernet (PoE) source.

	Feature	5620IP
	Connects via	IP network.
	IP Office Release	3.2+
	Programmable Buttons	✓24 (12 buttons x 2 pages).
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Typical Off-Hook Power Consumption	5.9W (Class 3)
	Display	29 characters x 7 lines (168 x 132 pixels)
	Supported Add-Ons	EU24, EU24BL.
	Upgradeable Firmware	✓
	PC Pass-Through Port/with Voice Priority	✓/✓

Standard DCP Phone Keys			
✓  SPEAKER	✓  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code	
5621SW	Multi-Grey	700345982
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727
EU24	Multi-Grey	700381817
EU24BL	Multi-Grey	700381544
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

6408D

These phones no longer available from Avaya.

6408D	Feature	Detail
	Connects via	DS port.
	IP Office Release	1.0
	Programmable Buttons	✓ 8 
	Headset Socket	✗
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Display	24 characters x 2 lines.
	Supported Add-Ons	None.
	Upgradable Firmware	✗


Standard DCP Phone Keys












✓  SPEAKER	✗  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✗  DROP	✓  REDIAL	✓  CONFERENCE	

Item	SAP Code
6408D+ (Grey)	700020100
6408D+ (White)	700020092
6408 Stand (Grey)	108933169
6408 Stand (White)	108933177

6416D

These phones no longer available from Avaya. An additional 24 programmable buttons can be added using an XM24 and power supply unit.



6416D	Feature	Detail
	Connects via	DS port.
	IP Office Release	1.0
	Programmable Buttons	✓ 16 
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Display	24 characters x 2 lines.
	Supported Add-Ons	XM24
	Upgradable Firmware	✗











Standard DCP Phone Keys			
✓  SPEAKER	✓  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code	
6416D+M	Grey	108807611
	White	108807603
6416/6424D+M Stand	Grey	848219127
	White	848219119
XM24	Grey	700406523
	White	700406515
XM24 Stand	Grey	108272378
	White	108272386
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia and New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

6424D

An additional 24 programmable buttons can be added using an XM24 and power supply unit.

6424D	Feature	Detail
	Connects via	DS port.
	IP Office Release	1.0
	Programmable Buttons	✓ 24 
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Display	24 characters x 2 lines.
	Supported Add-Ons	XM24
	Upgradeable Firmware	✗


Standard DCP Phone Keys			
✓  SPEAKER	✓  HEADSET	✓  MUTE	✓  VOLUME UP
✗  MESSAGES	✓  HOLD	✓  TRANSFER	✓  VOLUME DOWN
✓  DROP	✓  REDIAL	✓  CONFERENCE	

Variant	SAP Code	
6424D+M	Grey	108807595
	White	108807587
6416/6424D+M Stand	Grey	848219127
	White	848219119
XM24	Grey	700406523
	White	700406515
XM24 Stand	Grey	108272378
	White	108272386
1151C1 Power Supply	With CAT5 cable.	700345447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700345454
1151C1/1151C2 Power Cord.	USA	405362641
	Europe	407786623
	Australia and New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

T3 Classic

This phone is supported in Europe only. The T3 Classic has 2 Link ports for optional add-on T3 Headset and or T3 DSS units (up to 2 further T3 DSS units can be chained from the first T3 DSS).

The IP Office supports T3 UPN and IP phones. It does not support T3 IPN phones. T3 phones are not supported in conjunction with other types of DS port phones.

T3 Classic	Feature	Detail
	Connects via	DS port.
	IP Office Release	3.1+.
	Programmable Buttons	✓4.
	Headset Socket*	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Upgradeable Firmware	✗


*Using optional T3 Headset Link unit.

Variant	Colour	SAP Code
T3 UPN Classic	Black	700380272
	White	700380306
T3 IP Classic	Black	700414733
	White	700414725
T3 DSS Unit	Black	700380322
	White	700380330
T3 DSS Expansion Unit	Black	700380348
	White	700380355
T3 IP Power Supply Unit		700414766
AEI/Headset Link for T3 IP		700414774
Power Supply for T3 IP DSS		700414790
Headset Link for T3 UPN		700380363

T3 Comfort

This phone is supported in Europe only. The T3 Classic has 2 Link ports for optional add-on T3 Headset and or T3 DSS units (up to 2 further T3 DSS units can be chained from the first T3 DSS).

The IP Office supports T3 UPN and IP phones. It does not support T3 IPN phones. T3 phones are not supported in conjunction with other types of DS port phones.

	Feature	T3 Comfort
	Connects via	DS ports.
	IP Office Release	3.1+
	Programmable Buttons	✓ 10.
	Headset Socket*	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Upgradeable Firmware	✗

*Using optional T3 Headset Link unit.

Variant	Colour	SAP Code
T3 UPN Comfort	Black	700380280
	White	700380314
T3 IP Comfort	Black	700414758
	White	700414741
T3 DSS Unit	Black	700380322
	White	700380330
T3 DSS Expansion Unit	Black	700380348
	White	700380355
T3 IP Power Supply Unit		700414766
AEI/Headset Link for T3 IP		700414774
Power Supply for T3 IP DSS		700414790
Headset Link for T3 UPN		700380363

T3 Compact

This phone is supported in Europe only. The T3 Classic has 1 Link port for optional add-on T3 Headset or T3 DSS units (up to 2 further T3 DSS units can be chained from the first T3 DSS).

The IP Office supports T3 UPN and IP phones. It does not support T3 IPN phones. T3 phones are not supported in conjunction with other types of DS port phones.

	Feature	T3 Compact
	Connects via	DS ports.
	IP Office Release	3.1+
	Programmable Buttons	✓10.
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/✓
	Message Waiting Lamp	✓
	Upgradeable Firmware	✗

*Using optional T3 Headset Link unit.

Variant	Colour	SAP Code
T3 UPN Compact	Black	700380264
	White	700380298
T3 IP Compact	Black	700414717
	White	700414709
T3 DSS Unit	Black	700380322
	White	700380330
T3 DSS Expansion Unit	Black	700380348
	White	700380355
T3 IP Power Supply Unit		700414766
AEI/Headset Link for T3 IP		700414774
Power Supply for T3 IP DSS		700414790
Headset Link for T3 UPN		700380363

TransTalk 9040

The TransTalk 9040 phone is no longer available as new from Avaya. However it is still supported on IP Office. Depending on coverage overlap, between three and five 3810's can be connected to the same IP Office.

The phone uses a wireless 900MHz digital protocol to connect to a DRM-D base station (Dual Radio Module for DCP). The base station connects to an IP Office DS port and can support two 9040 phones. The base station also requires a power supply socket.





9040	Feature	Detail
 <p>Programmable buttons.</p> <p>Shift key.</p>	Connects to	DS port.
	IP Office Release	2.1+.
	Programmable Buttons	✓4.
	Headset Socket	✓
	Handsfree Speaker/Microphone	✓/ ✓
	Message Waiting Lamp	✓
	Upgradable Firmware	✗

Item	SAP Code
9040 Handset	108535998

Phone Add-Ons

4450

Provides an additional 60 programmable buttons for 4424D+ phones. Connects to the phone's **ADJ** port. An additional power supply unit and power outlet socket are required for the phone. A second 4450 can be chained from the first.


4450	Feature	Detail
	Connects via	DSS port on phone.
	Supported by	4424D+
	Maximum per phone	2.
	Maximum per IP Office	2.
	Additional requirements	4450 power supply unit on phone.
	IP Office Release	1.0+
	Programmable Buttons	✓ 60 (50x  / 10x  ).

Item	SAP Code
4450 (Black)	108199696
4450 (White)	108199407
Small 4400 Series Stand (Black)	108541194
Small 4400 Series Stand (White)	108541202
Power Supply for 4450	108596412

EU24

Provides an additional 24 programmable buttons.

- ⚠ Only the cable supplied with the EU24/EU24BL should for connection to the EU24/EU24BL. This cable should only be connected to the port marked EU24 on suitable phones. Doing otherwise will cause damage to the EU24/EU24BL and the equipment to which it is attached.


EU24	Feature	Detail
	Connects via	EU24 port on phone.
	Supported by	2420, 4620, 4621, 4625, 5420, 5620, 5621.
	Maximum per phone	1.
	Maximum per IP Office	8.
	Additional Requirements	1151C1 or 1151C2 power supply or Class 3 PoE.
	IP Office Release	3.0+
	Programmable Buttons	✓24.

Variant		SAP Code
EU24 1XU-A Expansion Module	Multi-Grey	700381817
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

EU24BL

Provides an additional 24 programmable buttons. The EU24BL is physically similar to the EU24 but includes a backlight function that matches 4621 phone.

- ⚠ Only the cable supplied with the EU24/EU24BL should for connection to the EU24/EU24BL. This cable should only be connected to the port marked EU24 on suitable phones. Doing otherwise will cause damage to the EU24/EU24BL and the equipment to which it is attached.

EU24BL	Feature	Detail
	Connects via	EU24 port on phone.
	Supported by	4620, 4621, 4625, 5620, 5621.
	Maximum per phone	1.
	Maximum per IP Office	8.
	Additional requirements	1151C1 or 1151C2 power supply or Class 3 PoE.
	IP Office release	3.1+.
	Programmable Buttons	✓24.

Variant	SAP Code	
EU24BL 2XU-A Backlighted Expansion Module	Multi-Grey	700381544
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

T3 DSS


The T3 DSS provides an additional 36 programmable keys for phones in the supported T3 series. The T3 DSS is moulded and designed to be attached to the associated phone. Signalling is achieved by cable connection to the Link port on the T3 phone. A further two T3 DSS units can be chained from the first T3 DSS.

T3 DSS	Feature	Detail
	Connects via	Link port on phone.
	Supported by	T3 Compact, T3 Classic, T3 Comfort
	Maximum per phone	3.
	Maximum per DS module	-.
	Additional requirements	None.
	IP Office release	3.1+.
	Programmable Buttons	✔ 36.

Variant	Colour	SAP Code
T3 DSS Unit	Black	700380322
	White	700380330
T3 DSS Expansion Unit	Black	700380348
	White	700380355

XM24

Connects to the XM24 port on the base of 6416 and 6424 phones. Requires the phone to have a separate power supply using an Avaya 1151C1 or 1151C2 power supply unit and a power outlet socket are required.

XM24	Feature	XM24
	Connects via	XM24 port on phone.
	Supported by	6416+, 6424+
	Maximum per phone	1.
	Maximum per IP Office	2.
	Additional requirements	1151C1 or 1151C2 PSU for phone.
	IP Office Release	1.0+
	Programmable Buttons	✔ 24.

Variant	SAP Code	
XM24	Grey	700406523
	White	700406515
XM24 Stand	Grey	108272378
	White	108272386
1151C1 Power Supply.	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia and New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

201B Recorder Interface Module

The 201B Recorder Interface Module (RIM) is supported for use with 2420 and 5420 phones. It provides the phone with a 3.5mm mini-RCA jack socket for connection of recording devices. It also provides two headset sockets which can be used in place of the phones existing headset socket (the phone and the RIM sockets can not be used at the same time).

- The 201B is the RoHS compliant replacement for the 201A. The 20B stand is the RoHS complaint replacement for the 20A stand.

To install the 201B, the phones existing stand must be removed and be replace by a 20B stand (also called the 20B Module Adapter Base). This is an expanded stand that includes two slots, into one of which the 201B can be inserted. However only one 201B is supported per phone.

Use of the 20B and therefore the 201B requires the phone to be powered by a 1151C1 or 1151C2 power supply unit. Full installation instructions are included with the 20B Stand.

Variant		SAP Code
201B Recorder Interface Module		700381635
20B Stand		700381650
EU24	Multi-Grey	700381817
1151C1 Power Supply	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord	USA	405362641
	Europe	407786623
	Australia/New Zealand	407786631
	India	407790991
	United Kingdom	407786599
	Argentina	408161453

Applications

Call Status

This is a simple application that shows current calls in progress on the IP Office system. It is intended for use by IP Office installers and maintainers.

Details		
CD	IP Office 3.2 User and Admin CD Set (x5)	700407604
DVD	IP Office 3.2 Applications DVD	700407612
License	✘ No license required.	

Minimum PC Requirements						XP Pro	2000 Pro	2000 Server	2003 Server
Variant	RAM	HD	Pentium	Celeron	AMD				
Call Status	64MB	50MB	PIII 800MHz	Celeron 3 800Mhz	Athlon B 65-0MHz	✓	✓	✓	✓

- For Windows XP minimum RAM 256MB.

Compact Business Center (CBC)

This is a licensed application. It receives data from the IP Office Delta Server application. The CBC is able to show details of calls handled by up to 3 selected hunt groups. Its can also display details of IP Office trunk usage. The CBC retains calls details for 31 days.

Details		
CD	IP Office 3.2 User and Admin CD Set (x5)	700407604
DVD	IP Office 3.2 Applications DVD	700407612
License	✓ Compact Business Center (IP400 CBC)	171993
Additional	Delta Server installed on the same or another PC.	

Minimum PC Requirements						XP Pro	2000 Pro	2000 Server	2003 Server
Variant	RAM	HD	Pentium	Celeron	AMD				
CBC	256MB	10GB	PIII 800Mhz	Celeron 3 800Mhz	Athlon B 650Mhz	✓	✓	✓	✓

- Also requires Internet Explorer 6.0 or higher.

Compact Contact Center (CCC)

CCC is a reporting application designed for use in call centers. It provides a range of both real-time and historical reporting options. CCC consists of CCC Server applications that receive call information from the IP Office Delta Server, and a number of client applications for the display of that information. CCC and its clients are controlled by a range of licenses entered into the IP Office configuration.

The CCC server applications are listed below. Typically they are installed onto the same PC:

- **CCC Archiver**
The Archiver manages the collection and storage of call activity information.
- **Wallboard Server**
Wallboards provide current information on the number of calls waiting, response times and service levels. Wallboard Manager provides the ability to control both physical wallboards and PC wallboards. The Wallboard server must be installed on the same PC as the Delta Server.

The CCC clients are:

- **Call Center View (CCV):**
Provides a realtime information about call center activity.
- **Alarm Reporter:**
Provides real-time and past 7-days information on alarms that have occurred within the call center.
- **PC Wallboard:**
The PC Wallboard allows call center agents and supervisors to display real-time call center performance information on their Windows PC screen.
- **Report Manager:**
Provides in depth historical reporting on calls, agents and groups.
- **Workforce Management:**
This application allows CCC to share information with a third-party agent scheduling application - Blue Pumpkin.

Details		
CD	Compact Contact Center 5.0 CD	700330962
DVD	IP Office 3.2 Applications DVD	700407612
License	✔ Licensed application. See below.	
Additional	Delta Server installed.	

Minimum PC Requirements						XP	2000	2000	2003
Variant	RAM	HD	Pentium	Celeron	AMD	Pro	Pro	Server	Server
CCC Server	512MB	10GB	1.4GHz	1.7GHz	1.4GHz	✗	✗	✔	✔
" plus VMPro	512MB	30GB*	Pentium 4 2.8GHz.	Not tested.	Athlon XP 3000+ All Athlon 64	✗	✗	✔	✔
Wallboard Server	128MB	10GB	1.4GHz	1.7GHz	1.4GHz	✔	✔	✗	✗
Wallboard Client	128MB	10GB	PIII 800MHz	Celeron 3 800MHz	Athlon B 650Mhz	✔	✔	✗	✗
PC Wallboard						✔	✔	✗	✗
Call Center View (CCV)						✔	✔	✗	✗
CCC Reporter	Any PC with Internet Explorer 6.0 or higher.					✔	✔	✔	✔

- If VM Pro and CCC are run on the same server, CCC is limited to up to a maximum of 25 agents, 8 ports of VM Pro and on Windows server operating systems only.

- *For all voicemail servers, also allow 1MB per minute for messages and greeting storage.
- For Windows XP minimum RAM 256MB.

License	Description	RFA Name	SAP
CCC Server	Enables the CCC Server applications (Archiver and Wallboard Manager) with support for 1 supervisor, reporting on 5 agents, and one PC Wallboard. <ul style="list-style-type: none"> • This license is a pre-requisite for all the following CCC licensing. 	CCC SVR	171994
CCC Agents	Enables various numbers of additional agents (5, 10, 20, 50) for CCC reporting.	CCC AGT	5 171995
			10 174469
			20 174470
			50 174471
CCC Supervisors	Enables additional supervisors (1, 5, 10, 20) up to the maximum of 21 supported supervisors. Each supervisor also allows reporting on 5 agents and one instance of a PC Wallboard.	CCC SUP	1 171996
		" 5	5 184730
		" 10	10 184731
		" 20	20 184732
CCC PC Wallboards	Enables additional CCC PC Wallboards for 5, 10, 20, 50 agents.	CCC PCW	5 172786
		" 10	10 174472
		" 20	20 174473
		" 50	50 174474
CCC Spectrum Wallboards	Enables the operation of between 4 Spectrum wallboards (not Ferrograph). Licenses are cumulative up to a maximum of 16 wallboards.	CCC Wallboard	4 176196
Report Viewer	Allows additional users (5, 10, 20) access to historic reports.	CCC Report	5 184726
			10 184727
			20 184728
CCC Agent Rostering	Enables the Agent Rostering Interface for CCC which provides connection to a 3rd party Agent Rostering package (Blue Pumpkin).	CCC Rostering	171997
CCC Designer (users)	Enables CCC Report Designer, which permits a <u>supervisor</u> to design and customize their own reports. One license per user. Note: requires the user to have Crystal Report Writer software.	CCC Designer	171999

Conferencing Center

This is a server application that is accessed via web browser. It allows users with a conference center password to book conferences. Details of the conference invitees can be entered and those people set to receive either an email or, using IP Office Voicemail Pro, a call asking them to join the conference.

Access to the conference center for configuration and conference booking is via web browser.

Details		
CD	IP Office Conference Center 3.2	700407596
DVD	IP Office 3.2 Applications DVD	700407612
License	✓ Conferencing Center (IP400 Conferencing Center RFA)	182302
Languages	English, French, German, Italian, Latin Spanish, Swedish.	
Additional	Voicemail Pro server. MS Internet Explorer 6.0 or higher.	

Minimum Server PC Requirements						XP Pro	2000 Pro	2000 Server	2003 Server
Variant	RAM	HD	Pentium	Celeron	AMD				
Conference Center	512MB	80GB	P4 2.4GHz	Not tested.	Athlon XP 3000+ Athlon64	✓	✓	✓	✓

- While Windows XP Professional or Windows 2000 Professional can be used but will typically support a maximum of 10 web clients.
- Client PC: For conference booking and web conference access any Windows PC running Internet Explorer 6.0 or higher.
- For conversion of files to .MHT format, Microsoft Office is required on the client PC.

ContactStore

The Voicemail Pro can be used for manual and automatic call recording. Those recordings are placed into the mailbox specified for the user or hunt group whose call is being recorded and are then treated as normal messages.

Contact Store allows those recordings to be redirected into a database on the ContactStore PC. This allows recordings to be archived and searched separately from user messages. This application requires entry of a license into the IP Office configuration.

Source		
CD	IP Office Voicemail Pro 3.2 CD's (x2) (2nd CD contains ContactStore)	700407588
DVD	IP Office 3.1 Applications DVD	700407612
License	✓VMPro Recordings Administrators (IP400 ContactStore for IPO RFA)	187166
Additional	User access to ContactStore requires the user PC to have Microsoft Explorer 5.5 or higher.	

Minimum PC Requirements						XP Pro	2000 Pro	2000 Server	2003 Server
Variant	RAM	HD	Pentium IV	Celeron	AMD				
VM Pro Server and Contact Store	512MB	20GB* ¹	P4 2.8GHz	Not Tested.	Athlon XP 3000+ All Athlon 64.	✓	✓	✓	✓
ContactStore	512MB	10GB* ²	2.4GHz			✓	✓	✓	✓

- *1: For all voicemail servers, also allow 1MB per minute for messages and greeting storage.
- *2: Also allow 7.2MB per hour for recordings in the Contact Store disk partition.
- If installed onto the same PC as Voicemail Pro, the ContactStore must use a separate disk partition from Voicemail Pro.

Delta Server

Applications such as CCC and CBC do not communicate directly with the IP Office system. They communicate across the LAN with a PC running the IP Office Delta Server application. This application receives call information from the IP Office systems which it then shares with other applications. The Delta Server does not require a license in the IP Office configuration. Only one Delta Server can be used with each IP Office system.

- **Delta Server SMDR Output**

The Delta server can be configured to output a call log of all calls made and received by the IP Office system. This is called a SMDR call log. The Delta sever send these records to an SMDR file stored on the PC and which can then be accessed by 3rd-party call logging applications. The Delta Server can also send SMDR records to a remote IP address.

The Delta Server application installs as a Windows service. Access to the application is via web browser on the PC to the address ***http://localhost:8080***.

Details		
CD	IP Office 3.2 User and Admin CD Set (x5)	700407604
DVD	IP Office 3.2 Applications DVD	700407612
License	✘ No license required.	

Minimum PC Requirements						XP Pro	2000 Pro	2000 Server	2003 Server
Variant	RAM	HD*	Pentium	Celeron	AMD				
Delta Server	256MB	10GB	PIII 800MHz	Celeron 3 800MHz	Athlon B 650Mhz	✓	✓	✓	✓

- Microsoft Explorer 6.0 or higher is also required.

Feature Key Server

This application is required for IP Office systems where licenses are being validated against a parallel or USB port Feature Key dongle. It must be installed on the same PC as the dongle. The application installs as a service and appears as an icon in the PC's system tray. It has no configuration settings.

Feature key server is not required for IP Office systems with a serial port dongle attached directly to the IP Office control unit.

Details		
CD	IP Office 3.2 User and Admin CD Set (x5)	700407604
DVD	IP Office 3.2 Applications DVD	700407612
License	✘ No license required.	

Minimum PC Requirements						XP Pro	2000 Pro	2000 Server	2003 Server
Variant	RAM	HD	Pentium	Celeron	AMD				
Feature Key Server	256MB	1MB	PIII 800Mhz	Celeron 3 800Mhz	Athlon B 650Mhz	✓	✓	✓	✓

Manager

This tool is used to access all parts of the IP Office configuration. Different levels of access can be defined to control which parts of the configuration the Manager user can view and alter. Manager is also used to upgrade the software files used by an IP Office system. When running it also acts as a TFTP server from which some Avaya phones can request new software.

Note that IP Office Manager's software level is always two higher than the IP Office core software with which it is released. For example IP Office 3.2 core software is released with IP Office Manager 5.2.

IP Office Manager 5.2 is backwards compatible and can be used to manage IP Office systems running software from IP Office 2.1 to IP Office 3.2.

Details		
CD	IP Office 3.2 User and Admin CD Set (x5)	700407604
DVD	IP Office 3.2 Applications DVD	700407612
License	✘ No license required.	

PC Requirements	Minimum	Recommended
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.	
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

- For Windows XP minimum RAM 256MB.

Monitor

Monitor is a tool that can show all activity on the IP Office system in great detail. As a consequence, interpretation of Monitor traces requires a high-level of data and telephony protocol knowledge. Despite that however, all IP Office installers and maintainers need to understand how to run Monitor when necessary as Avaya may request copies of Monitor traces to resolve support issues.

Details		
CD	IP Office 3.2 User and Admin CD Set (x5)	700407604
DVD	IP Office 3.2 Applications DVD	700407612
License	✘ No license required.	

Minimum PC Requirements						XP Pro	2000 Pro	2000 Server	2003 Server
Variant	RAM	HD	Pentium	Celeron	AMD				
Manager	128MB	10GB	PIII 800MHz	Celeron 3 800MHz	Athlon B 650Mhz	✓	✓	✓	✓

- For Windows XP minimum RAM 256MB.

Phone Manager

Phone Manager is an application that allows the user to control and monitor their own phone through their PC. For Avaya phone's that support handsfree operation, Phone Manager can be used to make and answer calls. During usage, the Phone Manager records details of calls made, answered and missed. It can also be configured to show the status of other users on the system. Phone Manager also allows the user to access and change many of the setting stored in the IP Office configuration that relate to their own phone operation, for example their forwarding destination numbers.

Though installed as a single set of software, that same software can operate in several modes:

- Phone Manager Lite**
 The default mode of Phone Manager. Requires no license, this application can be installed for any IP Office user.
- Phone Manager Pro**
 Users configured for Pro mode are able to access a range of additional features. Phone manager Pro requires entry of licenses into the IP Office system. The licenses also control the number of simultaneous Phone Manager Pro users. The user's Phone Manager software then automatically changes from Lite mode to Pro mode.
- Phone Manager Pro PC Softphone (formerly called Phone Manager iPro)**
 This is a PC softphone mode of Phone Manager operation. The user acts as a VoIP extension, making calls through the speaker and microphone of their PC. This mode requires further licenses in addition to the Phone Manager Pro licenses.

Details		
CD	IP Office 3.2 User and Admin CD Set (x5)	700407604
DVD	IP Office 3.2 Applications DVD	700407612
Languages	Brazilian, Chinese (Simplified), Danish, Dutch, English, French, Finnish, German, Italian, Korean, Latin Spanish, Norwegian, Portuguese, Russian, Spanish, Swedish.	
License	✔ License application. See below.	

Minimum PC Requirements						XP Pro	2000 Pro	2000 Server	2003 Server
Variant	RAM	HD	Pentium	Celeron	AMD				
Phone Manager Lite	64MB	160MB	PIII 800MHz	Celeron 3 800MHz	Athlon B 650MHz	✔	✔	✘	✘
Phone Manager Pro						✔	✔	✘	✘
Phone Manager Pro PC Softphone		1GB				✔	✔	✘	✘

- Phone Manager Pro PC Softphone also requires the user PC to have a speaker and microphone installed and the user associated with an IP extension on the IP Office.

License	Description	RFA Name		SAP
Phone Manager Pro (per user)	Enables Phone Manager Pro for 1, 5, 10, 20, 50, 100 or unlimited users. The user's Phone Manager mode is set through the IP Office configuration (User Telephony Phone Manager Type).	IP400 Phone Manager Pro	1	177468
			5	177469
			10	177470
			20	177471
			50	177472
			100	177473
			unlimited	177474
Phone Manager Pro IP Audio Enabled (per user)	Enables Phone Manager Pro IP softphone operation for a user. Note: Also requires the user to have a Phone Manager Pro license.	IP400 IPPRO	1	171992
			5	174463
			10	174464
			20	174465
			50	174466
			100	174467

SoftConsole

This is a licensed application. It is intended for telephone system operators or receptionists. It displays details of calls directed to the user and allows them to quickly see the status of the callers required destination and transfer the call. The SoftConsole user is able to access a range of details about the status of users and groups on the IP Office system.

Up to 4 simultaneous SoftConsole users can be licensed.

Details		
CD	IP Office 3.2 User and Admin CD Set (x5)	700407604
DVD	IP Office 3.2 Applications DVD	700407612
Languages	Brazilian, Chinese (Simplified), Danish, Dutch, English, French, Finnish, German, Italian, Korean, Latin Spanish, Norwegian, Portuguese, Russian, Spanish, Swedish.	
License	✔ License application. See below.	

Minimum PC Requirements						XP Pro	2000 Pro	2000 Server	2003 Server
Variant	RAM	HD	Pentium	Celeron	AMD				
SoftConsole	128MB	1GB	PIII 800MHz	Celeron 3 800MHz	Athlon B 650MHz	✔	✔	✘	✘

License	Description	RFA Name	SAP
SoftConsole (users)	Allows the first instance of IP Office SoftConsole to be run.	IP400 SoftConsole	171987
eBLF	Adds one additional SoftConsole user. A maximum of four SoftConsole user can be licensed.	IP400 SoftConsole 1	174456

Voicemail Lite

This application does not require an IP Office license. It can be installed from the IP Office Administrator Applications CD to a Windows PC on the IP Office LAN. It provides voicemail operation for all IP Office users and groups, using the PC hard-disk to store prompts and messages. Only 4 simultaneous connections to leave or play messages are supported.

Details		
CD	IP Office 3.2 User and Admin CD Set (x5)	700407604
DVD	IP Office 3.2 Applications DVD	700407612
Languages	Chinese (Mandarin), Danish, German, Greek, English UK), English (US), Spanish, Latin Spanish, Finnish, French, French Canadian, Hungarian, Italian, Korean, Dutch, Norwegian, Polish, Portuguese, Brazilian, Swedish.	
License	✗ No license required.	

Minimum PC Requirements						XP Pro	2000 Pro	2000 Server	2003 Server
Variant	RAM	HD	Pentium IV	Celeron	AMD				
Voicemail Lite	256MB	2GB*	1.4GHz	1.7GHz	1.4GHz	✓	✓	✓	✓

- *Also allow 1MB per minute for message and prompt storage.

Voicemail Pro

This application requires various licenses entered into the IP Office configuration to control the features it offers and the number of simultaneous connections, up to 30 on the IP412 control unit. The operation of Voicemail Pro can be customised to provide special services.

For IP Office 3.2, the Voicemail Pro 3.2 software can be installed as separate Voicemail Pro client and server parts. This allows the remote administration of the Voicemail Pro server from a PC with just the Voicemail Pro client installed. A copy of the client is automatically installed locally with the Voicemail Pro server.

Source		
CD	IP Office Voicemail Pro 3.2 CD's (x2) (2nd CD contains ContactStore)	700407588
	ScanSoft TTS CD's (x5)	700293921
DVD	IP Office 3.2 Applications DVD	700407612
Languages	Chinese (Mandarin and Cantonese), Danish, German, Greek, English UK), English (US), Spanish, Latin Spanish, Finnish, French, French Canadian, Hungarian, Italian, Korean, Dutch, Norwegian, Polish, Portuguese, Brazilian, Swedish.	
License	✔ See below.	

The Voicemail Pro server part of the software consists of several components in addition to the core server software, these are:

- Campaigns**
 The Voicemail Pro can be configured to run a campaign. This consists of a series of questions for which the Voicemail Pro records the callers answer or key presses. The resulting recordings can then be played back by users. The web aspect of campaigns allows user to perform this playback and processing of campaign recordings via their web browser. This requires a web server to be run on the same PC as the Voicemail Pro software.
- Text to Speech (TTS)**
 Through adding additional licenses, the Voicemail Pro is able to use the TTS functions of Windows to speak text and numbers to callers in addition to recording prompts. This is intended mainly for scenarios where the Voicemail Pro is obtaining text and number values from a customer database.
- Integrated Messaging Service (IMS)**
 Both Voicemail Pro and Voicemail Lite support a feature called voicemail email to send messages or message alerts to a users email. This however is a one-way process. IMS allows this to become a two-way process, where users can play voicemail messages through their email mailbox or voicemail mailbox. IMS interoperates with the customer's Exchange server and the user's Outlook.

Minimum PC Requirements						XP Pro	2000 Pro	2000 Server	2003 Server
Variant	RAM	HD*	Pentium	Celeron	AMD				
Voicemail Pro Server	256MB	2GB	1.4GHz	1.7GHz	1.4GHz	✔	✔	✔	✔
plus IMS and or Web Campaigns	512MB		P4 2.8GHz	Not tested.	Athlon XP 3000+ All Athlon 64	✘	✘	✔	✔
plus IVR and or TTS	512MB	20GB				✔	✔	✔	✔

- *Also allow 1MB per minute for message and prompt storage.

License	Description	RFA Name	SAP	
Voicemail Pro (4 ports)	Enables Voicemail Pro plus 4 ports.	IP400 Voicemail Pro	171991	
Additional Voicemail Pro (ports)	Adds additional ports (2, 4, 8 or 16) to an existing Voicemail Pro, up to the maximum number of ports supported by the IP Office control unit type. IP403 and Small Office Edition = 10, IP406 V1/V2 = 20, IP412 = 30.	IP400 Voicemail Pro	2	174459
			4	174460
			8	174461
			16	174462
Networked Messaging	Enables VPNM (Voicemail Pro Networked Messaging) functionality within Voicemail Pro. This allows message exchange with remote Voicemail Pro systems and Avaya Interchange systems.	IP400 Networked Messaging	182297	
Integrated Messaging	Enables IMS operation with Voicemail Pro. Enables synchronization to MS Exchange email systems with a form within Outlook to control voicemail playback.	IP400 Integrated Messaging Pro	171990	
VMPro TTS (ScanSoft)	Enables use of text to speech facilities using Avaya supplied TTS software with Voicemail Pro. One license per simultaneous instance of TTS usage.	IP400 Avaya TTS	182299	
VMPro TTS (Generic)	Enables use of text to speech facilities using third party TTS software with Voicemail Pro. One license per simultaneous instance of TTS usage.	IP400 3rd Party TTS	182303	
VMPro VB Script	Enables VB Script functionality with Voicemail Pro.	IP400 VB Scripting	182300	
VMPro Database Interface	Enables 3rd party database support within Voicemail Pro call flows.	IP400 3rd Party IVR	182298	
VMPro Recordings Administrators	Enables integration between Voicemail Pro and the Avaya Contact Store for IP Office application. ContactStore can be run unlicensed from the date of the first recorded call.	IP400 ContactStore for IPO	187166	

Licence Keys

License Keys CCC

License shows the name as it appears in the IP Office configuration. **RFA Name** is the name used for the orderable item.

License	Description	RFA Name	SAP		
CCC Server	Enables the CCC Server application (Archiver and Wallboard Manager) with support for 1 supervisor, reporting on 5 agents, and one PC Wallboard. <ul style="list-style-type: none"> This license is a pre-requisite for all the following CCC licensing. 	IP400 CCC SVR	171994		
CCC Agents	Enables various numbers of additional agents (5, 10, 20, 50) for CCC reporting.	IP400 CCC AGT	5	171995	
			10	174469	
			20	174470	
			50	174471	
CCC Supervisors	Enables additional supervisors (1, 5, 10, 20) up to the maximum of 21 supported supervisors.	IP400 CCC SUP	1	171996	
			" 5	5	184730
			" 10	10	184731
			" 20	20	184732
CCC PC Wallboards	Enables additional CCC PC Wallboards for 5, 10, 20, 50 agents.	IP400 CCC PCW	5	172786	
			" 10	10	174472
			" 20	20	174473
			" 50	50	174474
CCC Spectrum Wallboards	Enables the operation of between 4 Spectrum wallboards (not Ferrograph). Licenses are cumulative up to a maximum of 16 wallboards.	IP400 CCC Wallboard	4	176196	
Report Viewer	Allows additional users (5, 10, 20) access to historic reports.	IP400 CCC Report	5	184726	
			10	184727	
			20	184728	
CCC Agent Rostering	Enables the Agent Rostering Interface for CCC which provides connection to a 3rd party Agent Rostering package (Blue Pumpkin). No longer supported.	IP400 CCC Rostering		171997	
CCC Designer (users)	Enables CCC Report Designer, which permits a <u>supervisor</u> to design and customize their own reports. One license per user. Note: requires the user to have Crystal Report Writer software.	IP400 CCC Designer		171999	
CTI Link Pro	Required for the CCC Email and CCC Chat licenses above.	IP400 CTI		171988*	

License Keys General

License shows the name as it appears in the IP Office configuration. **RFA Name** is the name used for the orderable item.

License	Description	RFA Name	SAP	
DECT Integration (ports)	Enables enhanced DECT integration with the IP Office system. Used with Compact DECT and DECT DCU. Not used with Avaya IP DECT.	IP400 CTI DECT	8	171989
			16	174457
			24	174458
Conferencing Center	Enables the IP Office Conferencing Center application.	IP400 Conferencing Center	182302	
SoftConsole (users)	Allows the first instance of IP Office SoftConsole to be run.	IP400 SoftConsole	171987	
eBLF	Adds one additional SoftConsole user. A maximum of four SoftConsole user can be licensed.	IP400 SoftConsole 1	174456	
Compact Business Center	Enables the CBC application for one user.	IP400 CBC	171993	
Small Office Edition WiFi	Enables use of the wireless card with the Small Office Edition control unit.	IP400 Access Point	182197	
MS-CRM	Allows operation between IP Office and MS-CRM server and clients.	IP400 Microsoft CRM Intgr	180588	
IPSec Tunneling	Enables the IP Office to initiate and terminate IPSec and L2TP tunnels.	IP400 IPSec VPN	182301	
Mobile Twinning	Enables the use of the IP Office 3.2+ mobile twinning features.	Mobile Twinning	1	195569
			5	195570
			10	195571
			20	195572
			50	195573
IP End-points	Controls the number of 3rd party H.323 devices (1, 5, 10, 20, 50 or 100) supported by IP Office. No license is required for Avaya 4600 and 5600 series telephones. IP enabled Phone Manager Pro is licensed separately.	IP400 IP Endpoint	1	174956
			5	174957
			10	174958
			20	174959
			50	174960
			100	174961

License Keys CTI

License shows the name as it appears in the IP Office configuration. **RFA Name** is the name used for the orderable item.

License	Description	RFA Name	SAP
CTI Link Pro	Enables CTI Link Pro functionality (TAPI <i>Link Pro</i> and <i>DEVLink Pro</i>). Also enables four TAPI WAV file ports.	IP400 CTI	171988
Wave User	Allows streaming of WAV files, using TAPI <i>Link Pro</i> , for 3rd party voice applications. This is a per user license. Note that TAPI WAV calls use system data channels taken from the same pools as used for voicemail ports. The maximum number of simultaneous TAPI WAV user calls and voicemail users is determined by the IP Office control unit type; IP401 = 2, IP403 and Small Office Edition = 10, IP406 = 20, IP412 = 30.	IP400 TAPI WAV	177466

License Keys Phone Manager

License shows the name as it appears in the IP Office configuration. **RFA Name** is the name used for the orderable item.

License	Description	RFA Name		SAP
Phone Manager Pro (per seat)	Enables Phone Manager Pro for 1, 5, 10, 20, 50, 100 or unlimited users. The user's Phone Manager mode is set through the IP Office configuration (User Telephony Phone Manager Type).	IP400 Phone Manager Pro	1	177468
			5	177469
			10	177470
			20	177471
			50	177472
			100	177473
			unlimited	177474
Phone Manager Pro IP Audio Enabled (per user)	Enables Phone Manager Pro IP softphone operation for a user. Note: Also requires the user to have a Phone Manager Pro license.	IP400 IPPRO	1	171992
			5	174463
			10	174464
			20	174465
			50	174466
			100	174467

- In addition to entering Phone Manager licenses, each user is individually configured for the expected Phone Manager type.
- During operation, the number of Phone Manager license keys available and the number unused can be checked. Run Phone Manager and select **Help | About**. Holding down the **Ctrl** and **Shift** keys, click on the software version number.

License Keys Voicemail

License shows the name as it appears in the IP Office configuration. **RFA Name** is the name used for the orderable item.

License	Description	RFA Name	SAP
AUDIX Voicemail	Enables IP Office to use a remote Intuity Audix or Modular Messaging for voicemail. Does not require a local Voice Mail Pro server.	IP400 AUDIX	177467
Voicemail Pro (4 ports)	Enables Voicemail Pro plus 4 ports.	IP400 Voicemail Pro	171991
Additional Voicemail Pro (ports)	Adds additional ports (2, 4, 8 or 16) to an existing Voicemail Pro, up to the maximum number of ports supported by the IP Office control unit type. IP403 and Small Office Edition = 10, IP406 V1/V2 = 20, IP412 = 30.	IP400 Voicemail Pro	2 174459
			4 174460
			8 174461
			16 174462
Networked Messaging	Enables VPNM (Voicemail Pro Networked Messaging) functionality within Voicemail Pro. This allows message exchange with remote Voicemail Pro systems and Avaya Interchange systems.	IP400 Networked Messaging	182297
Integrated Messaging	Enables IMS Pro operation with Voicemail Pro. Enables synchronization to MS Exchange email systems with a form within Outlook to control voicemail playback.	IP400 Integrated Messaging Pro	171990
VMPro TTS (Scansoft)	Enables use of text to speech facilities using Avaya supplied TTS software with Voicemail Pro. One license per simultaneous instance of TTS usage.	IP400 Avaya TTS	182299
VMPro TTS (Generic)	Enables use of text to speech facilities using third party TTS software with Voicemail Pro. One license per simultaneous instance of TTS usage.	IP400 3rd Party TTS	182303
VMPro VB Script	Enables VB Script functionality with Voicemail Pro.	IP400 VB Scripting	182300
VMPro Database Interface	Enables 3rd party database support within Voicemail Pro call flows.	IP400 3rd Party IVR	182298
VMPro Recordings Administrators	Enables integration between Voicemail Pro and the Avaya Contact Store for IP Office application. ContactStore can be run unlicensed from the date of the first recorded call.	IP400 ContactStore for IPO	187166

IP DECT Licenses

These licenses are for Avaya IP DECT. They differ from normal IP Office licenses in that they are entered into the Avaya IP DECT Mobility Manager (ADMM) base station of the IP DECT system and not into the configuration of the IP Office system. The licenses are based on the PARK number of the ADMM base station.

License	Description	RFA Name	SAP
1 Base Station	Allows a single base station (that being the ADMM).	IP DECT IPO MOBMgr 1 RFP LIC:CU	700379027
2 Base Stations	Allows up to 2 base stations.	IP DECT IPO MOBMgr 2 RFP LIC:CU	700379035
3-5 Base Stations	Allows up to 5 base stations.	IP DECT IPO MOBMgr 3-5 RFP LIC:CU	700379043
>5 Base Stations	Allows up to 32 base stations.	IP DECT IPO MOBMgr >5 RFP LIC:CU	700379050
Upgrade to 2	Upgrade to allow up to 2 base stations.	IP DECT IPO UPG TO A 2 BASE STATION LIC:CU	700379068
Upgrade to 3-5	Upgrade to allow up to 5 base stations.	IP DECT IPO UPG TO A 2 BASE STATION LIC:CU	700379076
Upgrade to >5	Upgrade to allow up to 32 base stations.	IP DECT IPO UPG TO A 2 BASE STATION LIC:CU	700379084

45-Day Trial Licenses

These licenses differ from other IP Office licenses in that they are time based and expire 45 days after issue. Each trial licenses will only be issued once for a particular Feature Key dongle serial number.

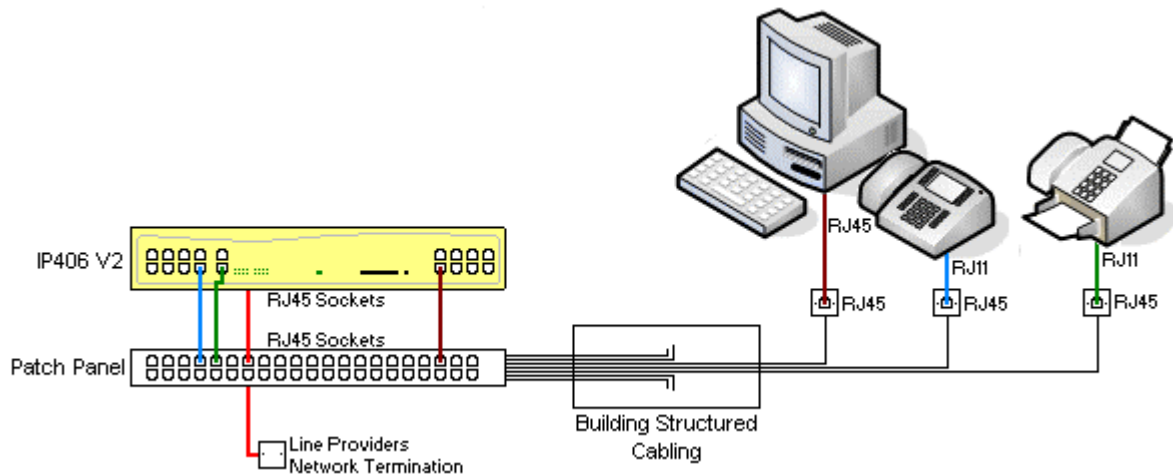
License	RFA Name	SAP
Voicemail Pro Networked Messaging	IPO TRIAL NTWKD MSGING LIC:DS	189776
3rd Party Database/IVR	IPO TRIAL 3RD PARTY IVR RFA LIC:DS	189777
Avaya Text-to-Speech for IP Office (1 port)	IPO TRIAL AVAYA TTS RFA 1 LIC:CU	189778
VB Scripting	IPO TRIAL VB SCRIPTING RFA LIC:DS	189779
Conferencing Center	IPO TRIAL CONF CENTER RFA LIC:DS	189780
Third Party Text to Speech (1 port)	IPO TRIAL 3RD PRTY TTS RFA LIC:CU	189781
Voicemail Pro (4 ports)	IPO TRIAL VM PRO RFA LIC:DS	189782
SoftConsole (1 user)	IPO TRIAL SOFTCONSOLE/BLF RFA LIC:CU	189783
Phone Manager PC Softphone (10 user)	IPO TRIAL IPPRO RFA 10 LIC:CU	189784
Phone Manager Pro (10 user)	IPO TRIAL PMGR PRO RFA 10 LIC:CU	189785
Centralized Voicemail with Avaya Messaging	IPO TRIAL ACM CENTRAL VM LIC:DS	189786
Integrated Messaging Pro	IPO TRIAL INTG MSGING PRO RFA LIC:DS	189787
Mobile Twinning	IPO LIC MOBILE TWINNING TRIAL RFA 5	195574
VPN IPSec	IPO TRIAL IPSEC VPN RFA LIC:DS	189788

Ports and Cables

Cables

The IP Office is designed primarily for use within an RJ45 structured cabling system using CAT3 unshielded twisted-pair (UTP) cabling and RJ45 sockets.

A structured cabling system is one where cables are run from a central RJ45 patch panel in the communications/data room to individual RJ45 sockets at user's desk. All wires in each cable between the patch panel and the desk socket are connected straight through. This arrangement allows devices connected at the patch panel to be swapped to match the type of device that needs to be connected at the user socket. For example, making one user socket a phone port and another user socket a computer LAN port, without requiring any rewiring of the cables in between.



- **Traditional IDC Punchdown Wiring Installations**

Where necessary, the far end RJ45 plug can be stripped from IP Office cables and wired into traditional wiring systems using punch-block connectors. This type of installation should be performed by an experienced wiring technician.

- **Trunk Connections**

The majority of IP Office trunk ports use RJ45 connectors for acceptance of an RJ45-to-RJ45 cable. However, connection at the line providers end may require use of a different plug type in order to match the line providers equipment.

- **RJ11 Phone Connectors**

Many phones use RJ11 sockets and are supplied with RJ11-to-RJ11 cables. RJ11 plugs can be inserted into RJ45 sockets and in many case the connection will work. However this is not recommended or supported as the connection lock is not truly positive and may become disconnected. An RJ45-to-RJ11 cable is available for these connections.

Standard IP Office Cables

The following are Avaya standard cables available for use with IP Office systems. The maximum length is applicable if the standard Avaya cable is replaced with an alternate cable.


Cable	Description	SAP Code	Length	Maximum
25-Way DTE Cable	Connects to a IP403 or IP406 V1 control unit. 25-Way D-type plug to 9-way D-type socket.	700213432	2m/6'6"	2m/6'6"
9-Way DTE Cable	Connects to an SOE, IP406 V2 or IP412 control unit. 9-Way D-type plug to 9-way D-type socket.	–	2m/6'6"	2m/6'6"
Structured Cabling DS Line Cable	Connects from RJ45 sockets to RJ11 socketed DS and analog phones.	700047871	4m/13'2"	See table below.
BRI/PRI Cable	Connects BRI/PRI trunk ports to the line providers network termination point. RJ45 to RJ45. Red.	700213440	3m/9'10"	5m/16'5"
Expansion Interconnect Cable	Connects the control unit to expansion modules (except WAN3 modules). RJ45 to RJ45. Blue.	700213457	1m/3'3"	1m/3'3"
LAN Cable	Connects from IP Office LAN ports to IP devices. RJ45 to RJ45. Grey.	700213481	3m/9'10"	100m/328'
LAN Interconnect Cable	Connects WAN3 module to the control unit. Replace with a LAN crossover cable for IP412 control units. Green.	700213465	1m/3'3"	–
LAN Crossover Cable	Used for connection of IP devices to LAN ports on the IP412 control unit. Black	700213473	3m/9'10"	100m/328'
V.24 WAN Cable	37-Way D-type plug to 25-way D-type plug.	700213416	3m/9'10"	5m/16'5"
V.35 WAN Cable	37-Way D-type plug to 34-way MRAC plug.	700213424	3m/9'10"	5m/16'5"
X.21 WAN Cable	37-Way D-type plug to 15-way D-type plug.	700213408	3m/9'10"	5m/16'5"

The table below details the maximum total cable distances for DS and analog extensions using different cable types.

Telephone	Unshielded Twisted-Pair (UTP)			CW1308
	AWG22 (0.65mm)	AWG24 (0.5mm)	AWG26 (0.4mm)	
2400/5400 Series	1670m/5500'	110m/3500'	670m/2200'	400m/1310'
4406D Phone	1000m/3280'	1000m/3280'	400m/1310'	400m/1310'
4412D Phone	1000m/3280'	700m/2295'	400m/1310'	400m/1310'
4424D	500m/1640'	500m/1640'	400m/1310'	400m/1310'
6400 Series	1000m/3280'	1000m/3280'	400m/1310'	400m/1310'
T3 Series (Upn)	1000m/3280'	1000m/3280'	400m/1310'	–
Analog Phones	1000m/3280'	1000m/ 3280'	400m/1640'	800m/2620'

IP Office Port Types

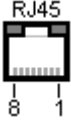
The following port types are found on IP Office systems:

Port	Found on	Description
ANALOG	ATM4 Trunk card (x4). Analog Trunk expansion module (x16).	Used for the connection of external analog trunks.
AUDIO	All IP Office control units (x1).	Used for input of an external music on hold source.
BRI	Quad BRI trunk card (x4). So8 expansion module (x8).	Used for connection of BRI trunks (Quad BRI trunk card) and ISDN terminals devices (So8 module).
DC I/P	All control units (x1). All expansion modules (x1).	Power input from external power supply unit.
DS	IP403 control unit (x8). IP406 V2 control unit (x8). Digital Station expansion modules (x16/x30).	Connection of Avaya digital station phones supported by IP Office.
DTE	All control units (x1). All expansion modules (x1).	Used for control unit maintenance under Avaya guidance. On expansion modules not used.
EXPANSION	All control units (x various). All expansion modules except WAN3 (x1).	Used for interconnection of external expansions modules and control units.
EXT O/P	All control units (x1).	Used to control external relay systems. The port provides two switchable (on, off and pulse) controls.
	All modules (x1).	Used for connection of functional or protective ground if required.
LAN	All control units (x various).	10/100Mbps Ethernet LAN ports.
PF	Analog Trunk expansion module (x2).	Analog power fails ports.
PHONE (POT)	IP403 control unit (x2). IP406 V2 control unit (x2). Phones expansion modules (x8/x16/x30).	Analog phone extension ports. On older units these ports are labeled as POT ports.
PRI	Single PRI trunk cards (x1). Dual PRI trunk cards (x2).	PRI trunk ports.
USB	IP403 Control Unit (x1).	Not used.
WAN	All control units (x1). WAN3 expansion module (x3).	WAN interface ports. V.24, V.35 and X.21 through cable selection.
	Small Office Edition (x1)	RJ45 Ethernet port. Acts as Layer 3 ethernet switch to the modules LAN ports.

ANALOG Port

These ports are analog trunk ports. They are found on the rear of IP Office control units fitted with ATM4 Analog trunk cards and on the front of the ATM16 Analog Trunk expansion module.

The ATM4 analog trunk card only supports loop-start trunks. The ATM16 Analog Trunk module supports both loop-start and ground-start trunks, switchable within the IP Office configuration.

ANALOG	Pin	Description
 An RJ45 connector diagram showing a rectangular port with eight pins. The pins are numbered 1 through 8. Pin 1 is on the right side, and pin 8 is on the left side. The label 'RJ45' is positioned above the connector.	1	<i>Not used.</i>
	2	<i>Not used.</i>
	3	<i>Not used.</i>
	4	Ring.
	5	Tip.
	6	<i>Not used.</i>
	7	<i>Not used.</i>
	8	<i>Not used.</i>

- **⚠ IMPORTANT**
In all IP Office installations, any module being used for analog trunk connections must be connected to a functional earth.
- **⚠ WARNING**
Within the Republic of South Africa and in areas of high lightning risk, any module using analog trunk connections must be connected to a protective ground and to surge protection equipment (an Avaya 146G Surge Protector).
 - **REN:** 2 (1 if connected to external bell device).
 - **Off-Hook Current:** 25mA.
 - **Ring Voltage:** 40V RMS nominal.
 - **Slave Socket.**

AUDIO Port

This port is found on the rear of all IP Office control units. It is used for the input of an external music-on-hold sound source. Note that if the IP Office has loaded an internal music-on-hold sound file, any input from this socket is ignored.

The port is a 3.5mm stereo jack socket suitable for use with the most standard audio leads and connection to the 'headphone' output socket of most audio systems.

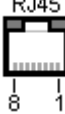

The use of a 'headphone' socket allows simple volume adjustment. Connection via a 'Line Out' socket may require additional equipment in order to adjust the volume level.

Pin No.	Description
Common	● Common
Left	← Audio In - Left Channel.
Right	← Audio In - Right - Channel.

- Input impedance: 10k /channel. Maximum a.c. signal – 200mV rms.

BRI Port (So)

The BRI ports found on the front of the So8 module are BRI-S interface ports for connect to ISDN terminal devices.

IP Office		Wire		ISDN Terminal	
BRI	RJ45	BRI		PIN	RJ45
	1	–	White/Orange	1	
	2	–	Orange/White	2	
	3	← Rx-A	White/Green	3	
	4	→ Tx-B	Blue/White	4	
	5	→ Tx-A	White/Blue	5	
	6	← Rx-B	Green/White	6	
	7	–	White/Brown	7	
	8	–	Brown/White	8	

- The IP Office So8 module BRI ports include 100ohm terminating resistors.
- Connection assumes that the ISDN device includes terminating resistors. If this is not the case, 100ohm (+/-5%) resistors must be connected across the receive wire pair and the transmit wire pair in the junction box immediately before the ISDN terminal.
- BRI ports found on the rear of control units fitted with Quad BRI trunk cards are BRI-T interface ports for connection to external BRI trunk services, see BRI Port (Trunk).

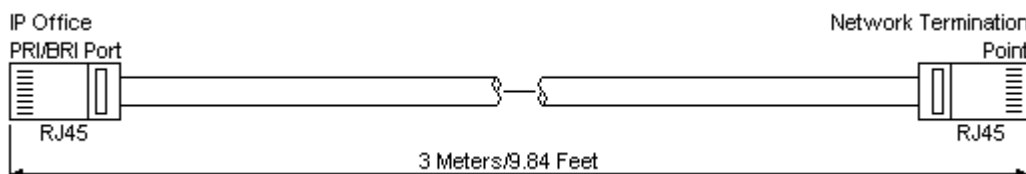
BRI Port

These ports are found on the rear of control units fitted with Quad BRI trunk cards. They are BRI-T interface ports for connection to external BRI trunk services.

BRI found on the So8 module are BRI-S interface ports for connect to ISDN terminal devices, see BRI Port (So).

PRI/BRI Trunk Cable

This cable is used to connect from IP Office BRI/PRI trunk ports to the line providers network termination equipment. If that equipment does not use RJ45 sockets, the cable may need to be stripped and rewired or an alternate cable used. The appropriate signal pin-outs and wire colours are detailed below.



IP Office		Wire		Network Termination	
BRI	RJ45	BRI	PRI	PIN	RJ45
	1	–	←Rx-A	White/Orange	1
	2	–	←Rx-B	Orange/White	2
	3	⇒Tx-A	–	White/Green	3
	4	←Rx-A	⇒Tx-A	Blue/White	4
	5	←Rx-B	⇒Tx-B	White/Blue	5
	6	⇒Tx-B	–	Green/White	6
	7	–	–	White/Brown	7
	8	–	–	Brown/White	8

- **Supply:** IP Office control units pre-fitted with BRI and/or PRI trunk cards are normally supplied with the appropriate number of these cables. BRI/PRI trunks cards supplied separate do not include these cables.
- **Cable Color:** Red.
- **SAP Code:** 700213440.
- **Maximum Length:** 5m/16'5"feet. This is the maximum length that should be used if the above cable is replaced with an alternate cable.
- **Pin Connections:**
 - Though not used pins 7 and 8 are through connected for ease of construction.

DC I/P Port

Found on all IP Office control units and expansion modules. Used for connection from the external power supply unit supplied with the control unit or module.

- No other type of power supply unit should be used with the module or module unless specifically indicated by Avaya.

DS Ports

These ports are used for connection from an RJ45 structured cabling system to digital station phones supported by the IP Office. Though the RJ11 to RJ11 cables supplied with most DS phones can be plugged directly into RJ45 ports including those on IP Office modules, this is not recommend as the connection lock is not positive and may become disconnected.

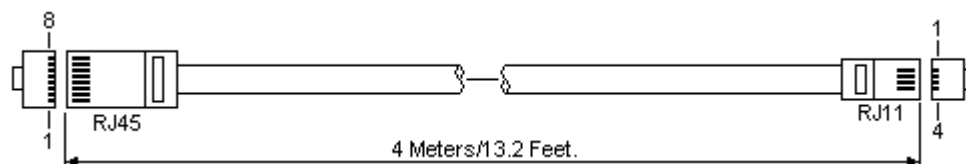
DS ports on Digital Station V1/V2 expansion modules can be connected to out-of-building extensions. If this is the case, connection must be made via suitable protective devices (IROB 146E) at each end and via each building primary protection. In addition the Digital Station module must be connected to a protective ground.

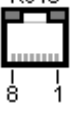

DS ports on IP Office control units must not be connected to out-of-building extensions.

Structured Cabling Line Cord

This is an RJ45 to RJ11 cable suitable for connection from a structured cabling system RJ45 port to a DS phone. It can also be used for two-wire analog phone extensions.

This cable is not suitable for connection from an Avaya 1151C1/B2 power supply unit to a DS phone with a 4450, EU24 or XM24 add-on module. In those cases the cables supplied with the power supply unit and the add-on module should be used.



IP Office		Phone		
DS Port	Pin	Description	Pin	Port
	1	Not used.	—	
	2	Not used.	1	
	3	Not used.	2	
	4	Signal 1.	3	
	5	Signal 2.	4	
	6	Not used.	5	
	7	Not used.	6	
	8	Not used.	—	

- **SAP Code:** 700047871.

DTE Port

These ports are found on the rear of all IP Office control units and external expansion modules.

The DTE ports on the control units can be used for system maintenance and connection of serial terminal adaptors. In the case of 9-pin DTE ports (IP406 V2 and IP412), the port can also be used for connection of the IP Office serial port licence key dongle.

An asynchronous terminal program such as HyperTerminal is also required. Configure this for operation via a PC serial port, as follows:

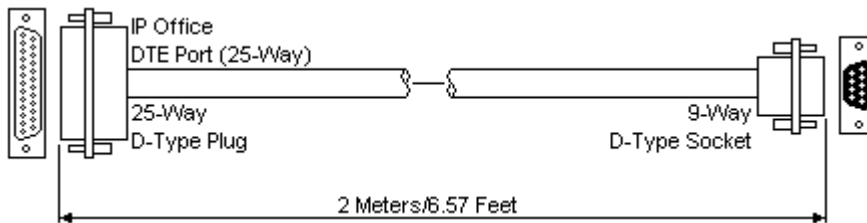
Bits per second	38,400	Stop Bits	1
Data bits	8	Flow Control	None
Parity	None	Settings Emulation	TTY

The DTE ports on external expansion modules are not used.

DTE Cables

These cables are used for system maintenance and diagnostics under Avaya guidance. They can also be used for connection of RS.232 serial terminal adaptor equipment to the IP Office control unit.

The cable required depends on the IP Office control unit.



IP Office DTE Port Signal		Signal	PC/Terminal Adaptor
25-Way	9-Way		
2	3	← Receive data	3
3	2	→ Transmit Data	2
4	7	← RTS (Request To Send)	7
5	8	→ CTS (Clear To Send)	8
6	6	→ DSR (Data Set Ready)	6
7	5	● Ground	5
8	1	→ DCD (Data Carrier Detect)	1
20	4	← DTR (Data Terminal Ready)	4
22	9	→ RI (Ring Indicator)	9

- **SAP Code:**
 - **25-Way DTE Port:** 700213432.
- **Cable:** 2 core screened cable - each core is 7/0.203mm (24 AWG) tinned copper stranded wire, nominal capacitance of 95pF/m, resistance of 92 /km, screened with tinned copper braid, maximum working voltage of 440V rms and a Maximum current per core of 1A rms

EXPANSION Ports

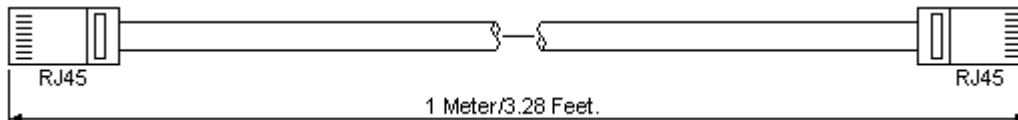
This type of port is found on the rear of IP Office control units and external expansion modules. It is used for connecting the external expansion modules to their parent IP Office control unit.

The connection between these ports should only be done using an Avaya Expansion Interconnect Cable. No other cable type should be used.

Expansion Interconnect Cable

The Expansion Interconnect cable is used to link expansion ports between the IP Office control unit and external expansion module (except WAN3 modules).

- **WARNING:** This is the only cable that should be used for connecting an IP Office control unit to external expansion modules (except for WAN3 modules).



- **Supply:** One cable is normally supplied with each external expansion module.
- **SAP Code:** 700213457

EXT O/P Port

These ports are found on the rear of all IP Office control units. They are used for connection to external switching relays. The port uses a standard 3.5mm stereo jack plug for connection.

The IP Office is able to open (high resistance), close (low resistance) or pulse (close for 5 seconds and then open) two switches within the port. Either switch can be operated separately. These switches are intended for activation of external relays in systems such as door opening systems.

- **CAUTION:** In installations where this port is connected to a device external to the building, connection must be via an Avaya 146G Surge Protector and a protective ground connection must be provided on the IP Office control unit.

EXT O/P	Pin	Description
	1	Switch 1. Ensure that this pin is always at a positive voltage with respect to Pin 3.
	2	Switch 2. Ensure that this pin is always at a positive voltage with respect to Pin 3.
	3	0 Volts (Ground/Chassis)

- **Switching Capacity:** 0.7A.
- **Maximum Voltage:** 55V d.c.
- **On state resistance:** 0.7 ohms.
- **Short circuit current:** 1A.
- **Reverse circuit current capacity:** 1.4A.

3.5mm stereo audio jack plugs are frequently sold as pre-wired sealed modules. It may be necessary to use a multi-meter to determine the wiring connections from an available plug. Typically 3 (common to both relays) is the cable screen.

LAN Port

These ports are found on the front of IP Office control units and the WAN3 expansion module. They are used for connection to IP LAN's and IP devices. On the WAN3 module the port is used for direct connection to a control unit.

All IP Office LAN ports are 10/100Mbps auto-sensing. Operation varies as follows:

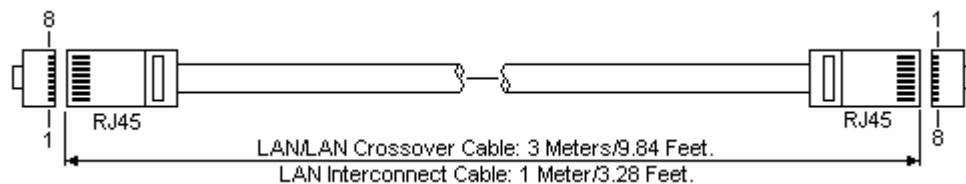
IP403 and IP406 V1	These modules have 8 ports acting as a half-duplex LAN hub. Port 8 can be switched from MDIX to MDI operation using the UPLINK button on the module (In = MDIX, Out = MDI). All ports are on LAN1 in the IP Office configuration.
IP406 V2	This module has 8 LAN ports acting as an full-duplex layer-2 LAN switch. Ports are auto-MDI/MDIX. All ports are on LAN1 in the IP Office configuration.
IP412	This module has 2 LAN ports acting as a half-duplex layer-3 LAN switch. Both ports are fixed MDI crossover ports. In the IP Office configuration, port 1 is LAN1, port 2 is LAN2.
Small Office Edition	These modules have 4 LAN port acting as a full-duplex layer-2 LAN switch. In addition an RJ45 socket marked as WAN acts as a layer-3 Ethernet switch port. In the IP Office configuration, the LAN ports are on LAN1, the WAN port on LAN2.

The LAN port LED's are used as follows:

- Green: On = connected, Flashing = Activity.
- Yellow: On = 100Mbps, Off = 10Mbps.

LAN Cables

These are CAT5 UTP cables for connection of various IP devices within the IP Office system.



IP Office						
LAN	Pin	MDIX (Normal)	MDI (Crossover)	Wire	Standard/ Interconnect	Crossover
RJ45 8 1	1	←Rx-A.	→Tx-A.	White/Orange	1	3
	2	←Rx-B.	→Tx-B.	Orange/White	2	6
	3	→Tx-A.	←Rx-A.	White/Green	3	1
	4	Not used.	Not used.	Blue/White	4	4
	5	Not used.	Not used.	White/Blue	5	5
	6	→Tx-B.	←Rx-B.	Green/White	6	2
	7	Not used.	Not used.	White/Brown	7	7
	8	Not used.	Not used.	Brown/White	8	8

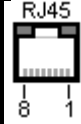
- **SAP Code:**
 - **LAN Cable - GREY:** 700213481.
Standard straight LAN cable.
 - **LAN Interconnect Cable - Green:** 700213465.
Supplied with WAN3 modules for the direct connection of the WAN3 module to an IP Office control unit LAN port. For an IP412 control unit, this cable should be replaced with a LAN crossover cable.
 - **LAN Crossover Cable - Black:** 700213473.
LAN crossover cable.

PF Port

These ports are analog extension ports. They are found on the rear of the Analog Trunk expansion module.

During power fail conditions, PF1 is internally connected to ANALOG port 1 on the module, PF2 is internally connected to ANALOG port 2 on the same module.

Any phones connected to these ports should be clearly labelled as power fail extensions in accordance with the appropriate national and local regulatory requirements.

PF	Pin	Description
	1	<i>Not used.</i>
	2	Pin 2 is internally connected to pin 5 via a ringer capacitor.
	3	<i>Not used.</i>
	4	Ring.
	5	Tip.
	6	Pin 6 is internally connected to pin 5 via a ringer capacitor.
	7	<i>Not used.</i>
	8	<i>Not used.</i>

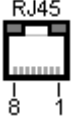
- **Minimum Wire Size:** AWG 26.
- **Maximum Cable Length:** The maximum cable length is dependant on the wire size used as follows;
 - **AWG26:** 500m / 1640'.
 - **AWG24/AWG22:** 1000m / 3280'.
- On the Small Office Edition control unit, ANALOG port 2 is connected to PHONE (POT) port 1 during power failure.

PHONE (POT) Port

These ports are analog extension ports. They are found on IP403 and IP406 V2 control units and on Phone V1/V2 expansion modules. On older units these ports are labeled as POT ports rather than PHONE ports.

PHONE (POT) ports on Phone V1/V2 expansion modules can be connected to out-of-building extensions. If this is the case, connection must be made via suitable protective devices (IP Office Barrier Box) at each end and via each building primary protection. In addition the Phone module must be connected to a protective ground.

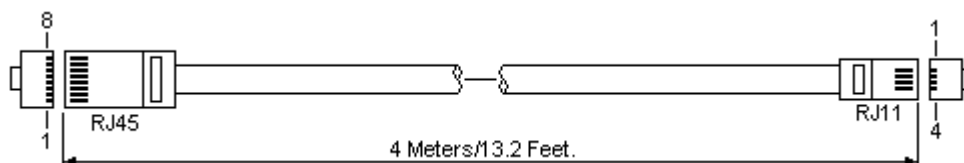
PHONE (POT) ports on IP Office control units must not be connected to out-of-building extensions.

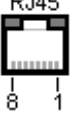
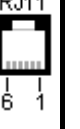
PHONE	Pin	Description
	1	<i>Not used.</i>
	2	IP406 V2 and Phone V2: Not used. IP403 and Phone V1: Pin 2 is internally connected to pin 5 via a ringer capacitor.
	3	<i>Not used.</i>
	4	Ring.
	5	Tip.
	6	IP406 V2 and Phone V2: Not used. IP403 and Phone V1: Pin 6 is internally connected to pin 5 via a ringer capacitor.
	7	<i>Not used.</i>
	8	<i>Not used.</i>

- **REN: 2**
- **Off-Hook Current:** 25mA.
- **Ring Voltage:** 40V rms.
- **Minimum Wire Size:** AWG 26.
- **Maximum Cable Length:** The maximum cable length is dependant on the wire size used as follows;
 - **AWG26:** 0.5km / 1640 feet.. **AWG24/AWG22:** 1km / 3280 feet.

Structured Cabling Line Cord

This is an RJ45 to RJ11 cable suitable for connection from a structured cabling system RJ45 port to a DS phone. It can also be used for two-wire analog phone extensions.



IP Office			Phone	
DS Port	Pin	Description	Pin	Port
	1	<i>Not used.</i>	—	
	2	<i>Not used.</i>	1	
	3	<i>Not used.</i>	2	
	4	Signal 1.	3	
	5	Signal 2.	4	
	6	<i>Not used.</i>	5	
	7	<i>Not used.</i>	6	
	8	<i>Not used.</i>	—	

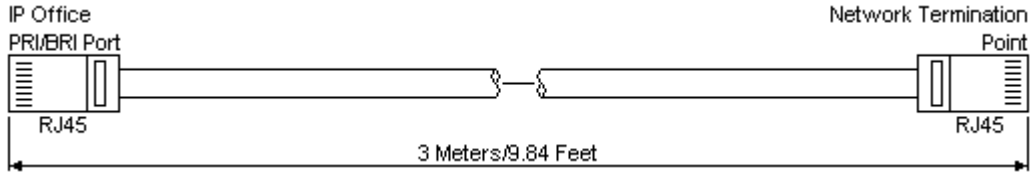
- **SAP Code:** 700047871.

PRI Port

These ports are found on the rear of IP Office control units fitted with single or dual PRI trunk cards. They are used for connection to PRI trunk services including E1, T1 and E1-R2.

PRI/BRI Trunk Cable

This cable is used to connect from IP Office BRI/PRI trunk ports to the line providers network termination equipment. If that equipment does not use RJ45 sockets, the cable may need to be stripped and rewired or an alternate cable used. The appropriate signal pin-outs and wire colours are detailed below.



IP Office		Wire		Network Termination		
BRI	RJ45	BRI	PRI	PIN	RJ45	
	1	-	←Rx-A	White/Orange	1	
	2	-	←Rx-B	Orange/White	2	
	3	→Tx-A	-	White/Green	3	
	4	←Rx-A	→Tx-A	Blue/White	4	
	5	←Rx-B	→Tx-B	White/Blue	5	
	6	→Tx-B	-	Green/White	6	
	7	-	-	White/Brown	7	
	8	-	-	Brown/White	8	

- **Supply:** IP Office control units pre-fitted with BRI and/or PRI trunk cards are normally supplied with the appropriate number of these cables. BRI/PRI trunks cards supplied separate do not include these cables.
- **Cable Color:** Red.
- **SAP Code:** 700213440.
- **Maximum Length:** 5m/16'5". This is the maximum length that should be used if the above cable is replaced with an alternate cable.

WAN Port

This port is found on the rear of most IP Office control units and the rear of the WAN3 external expansion module. For the Small Office Edition control unit an optional WAN trunk interface card can be fitted.

Each WAN port supports a single synchronous data connection, which can be X.21, V.35 or V.24/V.28. Selection of the required interface is determined by the cable plugged into the WAN port when power is applied.

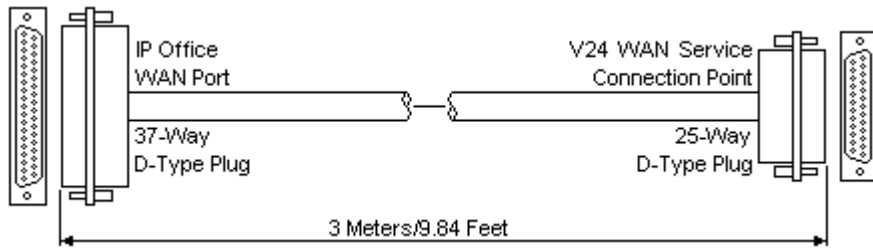
- WAN ports must be clocked externally, the IP Office does not provide a clock signal. The clock signal is usually provided by the service provider but under some circumstances (for example laser, microwave or baseband modems) extra provision must be made by the installer.

Pin	Protocol	Description	Pin	Protocol	Description
1	X.21	←Rx-B: Receive Data B.	20	X.21	←Rx-A: Receive Data A.
2	X.21	←Ind-A: Indicate A.	21	X.21	←Ind-B: Indicate B.
3	X.21	←Clk-A: Clock A.	22	X.21	←Clk-B: Clock B.
4	X.21	→Tx-A: Transmit Data A.	23	X.21	→Tx-B: Transmit Data B.
5	X.21	→Ctl-B: Control B.	24	X.21	→Ctl-A: Control A.
6	X.21	■ Ground	25	V.35	←WAN ID 0: Connect to Pin 6.
7	X.21	←WAN ID 1: Connect to Pin 6.	26	V.24	→Tx: Transmit Data.
8	V.24/V.35	→DTR: Data Terminal Ready.	27	V.24/V.35	→RTS: Request to Send.
9	V.24	←Rx: Receive Data.	28	V.24	←RxClk: Receive Clock.
10	V.24	←TxClk: Transmit Clock.	29	V.24/V.35	←RI: Ring Indicator.
11	V.24/V.35	←DCD: Data Carrier Detect.	30	V.24/V.35	←DSR: Data Set Ready.
12	V.24/V.35	←CTS: Clear to Send.	31	–	<i>Not used.</i>
13	–	<i>Not used.</i>	32	V.35	→Tx-A: Transmit Data A.
14	V.35	→Tx-B: Transmit Data B.	33	V.35	→SCTE-A: External Clock A.
15	V.35	→SCTE-B: External Clock B.	34	V.35	■ V35 Gnd
16	V.35	→Rx-B: Receive Data B.	35	V.35	→Rx-A: Receive Data A.
17	V.35	←TxClk-B: Transmit Clock B.	36	V.35	←TxClk-A: Transmit Clock A.
18	V.35	←RxClk-B: Receive Clock B.	37	V.35	←RxClk-A: Receive Clock A.
19	V.24	■ CHASSIS	–	–	–

1. For the USA, only FCC Part 68 registered data circuit terminal equipment should be connected to the WAN Ports.
2. In all cases Pin 19 should be connected to the cable screen.

V.24 WAN Cable

This cable is used for connection from an IP Office control unit or WAN3 module WAN port to the V.24 WAN service providers equipment.



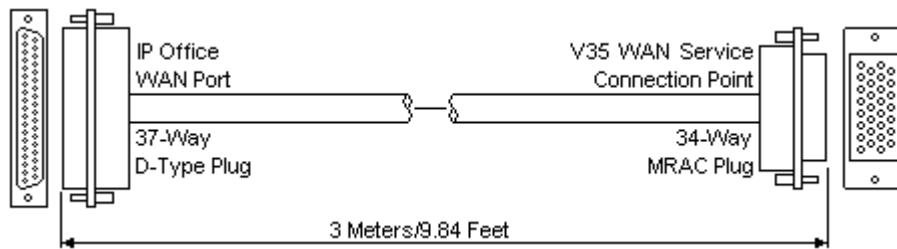
IP Office WAN Port	Signal	V.24 WAN Service
6	■ Ground	7
8	➔ DTR: Data Terminal Ready.	20
9	➔ Rx: Receive Data	3
10	➔ Tx: Transmit Clock	15
11	➔ DCD: Data Carrier Detect.	8
12	➔ CTS: Clear To Send.	5
26	➔ Tx: Transmit Data.	2
27	➔ RTS: Request To Send.	4
28	➔ Rx-Clk: Receive Clock.	17
29	➔ RI: Ring Indicator.	22
30	➔ DSR: Data Set Ready.	6

- At the IP Office end pin 25 is connected to pin 6.
- At the IP Office end pin 19 is connected to the Screened Cable Drain Wire.

- **Supply:** This cable is not supplied with the control unit or WAN3 module. It must be ordered separately.
- **SAP Code:** 700213416
- **Cable:** 12-core screened cable. Each core is 7/0.203mm (24 AWG) tinned copper stranded wire, nominal capacitance of 95pF/m, resistance of 92 ohms/km, screened with tinned copper braid, maximum working voltage of 440V rms and a maximum current per core of 1A rms. The maximum core to core capacitance must not exceed 800pF.
- **Maximum Length:** 5m/16'5". This is the maximum length that should be used if the above cable is replaced with an alternate cable.

V.35 WAN Cable

This cable is used for connection from an IP Office control unit or WAN3 module WAN port to the V.35 WAN service providers equipment.



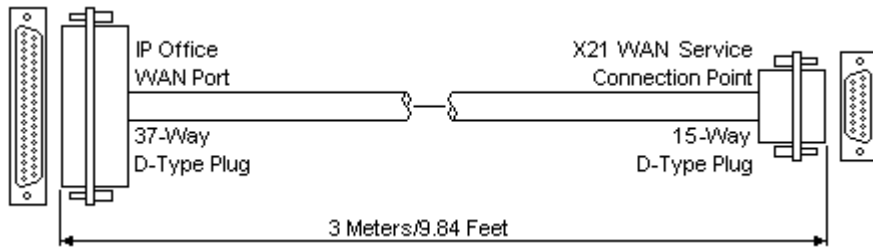
IP Office WAN Port	Signal	Wire	V.35 WAN Service
8	→ DTR: Data Terminal Ready.	----	H
11	← DCD: Data Carrier Detect.	----	F
12	← CTS: Clear To Send.	----	D
27	→ RTS: Request To Send.	----	C
29	← RI: Ring Indicator.	----	J
30	← DSR: Data Set Ready.	----	E
32	→ Tx-A: Transmit Data A.	Twisted Pair	P
14	→ Tx-B: Transmit Data B.		S
35	← Rx-A: Receive Data A.	Twisted Pair	R
16	← Rx-B: Receive Data B.		T
36	→ TxClk-A: Transmit Clock A.	Twisted Pair	Y
17	→ TxClk-B: Transmit Clock B.		AA
37	← RxClk-A: Receive Clock A.	Twisted Pair	V
18	← RxClk-B: Receive Clock B.		X
33	→ SCTE-A: External Clock A.	Twisted Pair	U
15	→ SCTE-B: External Clock B.		W
34	■ Ground	—	B

- At the IP Office end pins 7 and 25 are connected to pin 6.
- At the IP Office end pin 19 is connected to the Screened Cable Drain Wire.

- **Supply:** This cable is not supplied with the control unit or WAN3 module. It must be ordered separately.
- **SAP Code:** 700213424.
- **Cable:** 10 twisted pair screened cable - each core is 7/0.203mm (24 AWG) tinned copper stranded wire, nominal capacitance of 98pF/m, impedance of 80 10% at 1MHz, screened with aluminized tape and a tinned copper wire drain. The maximum core to core capacitance **must not** exceed 800pF.
- **Maximum Length:** 5m/16'5". This is the maximum length that should be used if the above cable is replaced with an alternate cable.

X.21 WAN Cable

This cable is used for connection from an IP Office control unit or WAN3 module WAN port to the X.21 service providers equipment.



IP Office WAN Port	Signal	Wires	X.21 WAN Service
1	←Rx-B: Receive B.	Twisted Pair	11
20	←Rx-A: Receive A.		4
4	→Tx-A: Transmit A.	Twisted Pair	2
23	→Tx-B: transmit B.		9
24	→Ctl-A: Control A.	Twisted Pair	3
5	→Ctl-B: Control B.		10
2	←Ind-A: Indicate A.	Twisted Pair	5
21	←Ind-B: Indicate B.		12
3	←Clk-A: Clock A.	Twisted Pair	6
22	←Clk-B: Clock B.		13
6	■ Ground	-----	8

- At the IP Office end pin 7 is connected to pin 6.
- At the IP Office end pin 19 is connected to the Screened Cable Drain Wire.

- **Supply:** This cable is not supplied with the control unit or WAN3 module. It must be ordered separately.
- **SAP Code:** 700213408.
- **Cable:** 6 twisted pair screened cable - each core is 7/0.203mm (24 AWG) tinned copper stranded wire, nominal capacitance of 98pF/m, impedance of 77ohms at 1MHz, screened with aluminized tape and a tinned copper wire drain.
- **Maximum Length:** 5m/16'5". This is the maximum length that should be used if the above cable is replaced with an alternate cable.

SAP Codes

Equipment Availability

SAP codes and details of specific items within this documentation are for reference only. Items available in any specific locale should be confirmed against the local Avaya IP Office price list for that locale. The local price list may also include additional items relative to the installation requirements of that locale.

RoHS

RoHS is an European Union directive for the Removal of Certain Hazardous Substances from Electrical and Electronic Equipment. Similar legislation has been or is being introduced in a number of other countries. Avaya has decided to make its global product range compliant with the requirements of RoHS. The actions taken vary

- In some cases equipment has been discontinued and is no longer available from Avaya.
- In some cases new manufactured stock has been made RoHS compliant and keeps its existing SAP code.
- In other cases the equipment has been replaced by a new RoHS compliant alternative with new SAP codes.

The SAP codes within this document are for RoHS compliant equipment unless otherwise stated.

SAP Codes

IP Office Control Units

Control units are supplied with an external power supply unit but not a locale specific power cord. All control units are available in either North America or Rest of World variants. The choice controls various default settings of the unit. For E911 support a North American variant control unit must be used. The companding can be changed once a unit is installed.

Variant	Companding	Country	SAP Code
IP412 Office.	A-Law	Rest of World	700234479
	U-Law	North America	700350408
IP406 V2 Office DS.	A-Law	Rest of World	700343536
	U-Law	North America	700359946
IP403 Office DS	A-Law	Rest of World	700234453
	U-Law	North America	700350390
Small Office Edition 4T+4A+8DS (3 VoIP)	A-Law	Rest of World	700280209
	U-Law	North America	700350424
Small Office Edition 4T+4A+8DS (16 VoIP)	A-Law	Rest of World	700280217
	U-Law	North America	700350432

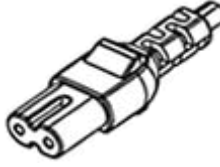
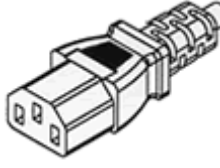
External Expansion Modules

Expansion modules include an external power supply unit (PSU) and an appropriate interconnect cable. They do not include a locale specific power cord for the external PSU or any phone extension cables.

Variant		Country	SAP Code
Analog Trunk	IP400 Analog Trunk 16	North America/CALA	700211360
		Europe	700241680
		New Zealand	700241698
Digital Station	IP400 Digital Station 16 V2	All	700359839
	IP400 Digital Station 30 V2	All	700359847
	IP400 Digital Station 16	All	700184807
	IP400 Digital Station 30	All	700184880
Phone	IP400 Phone 8 V2	All	700359896
	IP400 Phone 16 V2	All	700359904
	IP400 Phone 30 V2	All	700359912
	IP400 Phone 8	All	700184773
	IP400 Phone 16	All	700184781
	IP400 Phone 30	All	700184799
S0 (BRI)	IP400 So8	All	700185077
WAN	IP400 WAN3	All	700185028
	IP400 WAN3 10/100	All	700262009

Power Supply Units

The following power supply units are used with IP Office control units and expansion modules. Normally the appropriate PSU is supplied with the IP Office control unit or expansion module. Note however that a locale specific power cord is not included with each power supply unit.

Variant		Used with	Country	SAP Code
40W Unearthed PSU Uses IEC60320 C7 power cords.		<ul style="list-style-type: none"> • IP403. • IP406 V1. • Analog. • Digital Station V1. • Phone V1. 	All	700210792
45W Earthed PSU Uses IEC60320 C13 power cord.		• Small Office Edition	All	700284938
60W Earthed PSU Uses IEC60320 C13 power cord.		<ul style="list-style-type: none"> • IP406 V2. • IP412. • Digital Station V2. • Phone V2. • So8. • WAN3 10/100. 	All	700357387

The following power supply units have various applications. They are used to provide power to 4600 Series and 5600 Series IP phones. They are also used to provide power to other phone types when those phones are supporting an XM24, EU24 or EU24BL add-on unit. Note: An appropriate locale specific power cord is required for the power supply unit. .

Variant		SAP Code
1151C1 Power Supply.	With CAT5 cable.	700356447
1151C2 Power Supply with battery backup.	With CAT5 cable.	700356454
1151C1/1151C2 Power Cord.	USA	405362641
	Europe	407786623
	Australia and New Zealand	407786631
	India	407790591
	United Kingdom	407786599
	Argentina	408161453

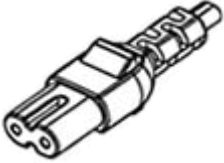
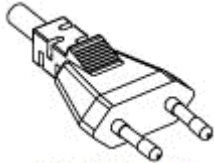

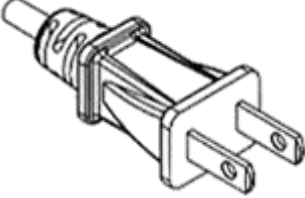
The following items are associated with providing IEEE 802.3af Power-over-Ethernet (PoE) to devices including Avaya IP phones. For full details refer to the IP Office IP Phone Installation Manual. PoE is useable with all Avaya IP phones except GEN1 4606, 4612 and 4624 phones, see below. Note also that PoE should not be used for IP phones with EU24 or EU24BL add-ons.

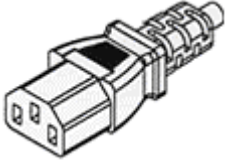


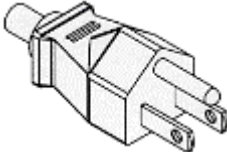
Variant		SAP Code	Note
1U Mid-Span Power Distribution Unit	6 Ports	700409675	
	6 Ports + SNMP	700409691	
	12 Ports	700250525	No longer available.
	12 Ports + SNMP	700253107	No longer available.
	24 Ports	700180433	No longer available.
	24 Ports + SNMP	700409717	
Cisco Catalyst Power Adapter <i>This item is no longer available from Avaya.</i>		700259369	No longer available.
Avaya 30A Switch Upgrade Base <i>Allows GEN1 4606, 4612 and 4624 phones to use PoE. Also provides those phones with voice priority over the PC pass-through port.</i>		700207376	

Power Cords

IP Office control unit and expansion module power supply units are not supplied with a power cord. The appropriate power cord must be ordered or sourced locally.

- During 2006, Avaya have obtained approval to supply IP412, So8 and WAN3 10/100 units with earthed power supply units that require an IEC60320 C13 power cord. Previously these units used an unearthed power supply and IEC60320 C7 power cord.

Unearthed Power Cords (IEC60320 C7)			
IP Office	Power Outlet Plug Type	Locales	SAP Codes
 <ul style="list-style-type: none"> • IP403. • IP406 V1. • Analog. • Digital Station V1. • Phone V1. 	CEE7/16 (Europlug) 	Europe and South Africa.	700213382
	BS1363 	Czech Republic, Ireland, United Kingdom.	700213374
	NEMA1-15 	North, Central and South America.	700213390
		Korea.	700254519
		China.	700261977

Earthed Power Cords (IEC60320 C13)			
IP Office	Power Outlet Plug Type	Locales	SAP Codes
 <ul style="list-style-type: none"> • Small Office Edition. • IP406 V2. • IP412. • Digital Station V2. • Phone V2. • So8. • WAN3 10/100. 	CEE7/7 (Schuko) 	Europe and South Africa.	700289762
	BS1363 	Czech Republic, Ireland, United Kingdom.	700289747
	NEMA 5-15P CS22.2 No.42 	North, Central and South America.	700289770
	CPCS-CCC	China.	700261977

The following additional power cords are available for use with the Avaya 1151C1 and 1151C2 power supply units. These units are supplied with an IEC60320 C13 to NEMA 5-15P power cord suitable for use in the USA. For other locales this power cord will need to be replaced with a locale specific power cord.

1151C1/1151C2 Power Cord	SAP Code
USA	405362641
Europe	407786623
Australia and New Zealand	407786631
India	407790991
United Kingdom	407786599
Argentina	408161453

Internal Cards

Variants		Country	SAP Code	SOE	IP403	IP406 V1	IP406 V2	IP412
Modem Cards	Modem 2 Card	All	700185226	✗	✓	✓	✓	✓
	Internal Modem Card	All	700343452	✗	✓	✗	✓	✓
Embedded Voicemail Memory Cards	Small Office Edition	All	700289721	✓	✗	✗	✗	✗
	IP406 V2	All	700343460	✗	✗	✗	✓	✗
Wireless Cards	Small Office Edition	All	700289739	✓	✗	✗	✗	✗
Voice Compression Modules (25ms)	VCM 5	All	700185119	✗	✓	✓	✓	✓
	VCM 10	All	700185127	✗	✓	✓	✓	✓
	VCM 20	All	700185135	✗	✓	✓	✓	✓
	VCM 30	All	700293939	✗	✗	✗	✓	✓
Voice Compression Modules (64ms)	VCM 4	All	700359854	✗	✓	✓	✓	✓
	VCM 8	All	700359862	✗	✓	✓	✓	✓
	VCM 16	All	700359870	✗	✓	✓	✓	✓
	VCM 24	All	700359888	✗	✗	✗	✓	✓

Trunks Cards

Variants		Country	SAP Code	SOE	IP403	IP406	IP406	IP412
						V1	V2	
Analog	ATM4 Uni (Loop-Start)	All	700359938	✗	✓	✓	✓	✓
	IP400 Analog 4 (Loop-Start)	North and South America	700185192	✗	✓	✓	✓	✓
	IP400 Analog 4 EU (Loop-Start)	Europe	700241672	✗	✓	✓	✓	✓
	IP400 Analog 4 NZ (Loop-Start)	New Zealand	700241706	✗	✓	✓	✓	✓
BRI	IP400 BRI 8 (UNI)	All except China	700262017	✓	✓	✓	✓	✓
	IP400 BRI	All	700185168	✓	✓	✓	✓	✓
T1/PRI	IP400 PRI 24 T1	North America	700185200	✓	✓	✓	✓	✓
	IP400 PRI 48 T1	North America	700185218	✗	✗	✗	✓	✓
E1 PRI	IP400 PRI 30 E1 (1.4)	All except China and CALA.	700272461	✓	✓	✓	✓	✓
	IP400 PRI 60 E1	All except China and CALA.	700185184	✗	✗	✗	✓	✓
E1R2	IP400 PRI 30 E1R2 RJ45	CALA, Korea, China	700241631	✗	✓	✓	✓	✓
	IP400 PRI 60 E1R2 RJ45	CALA, Korea, China	700241649	✗	✗	✗	✓	✓
	IP400 PRI 30 E1R2 COAX	CALA	700241656	✗	✓	✓	✓	✓
	IP400 PRI 60 E1R2 COAX	CALA	700241664	✗	✗	✗	✓	✓
WAN	IP400 WAN Expansion	All	700289713	✓	✗	✗	✗	✗

Cables

Cable	Description	SAP Code	Length
25-Way DTE Cable	Connects to a IP403 or IP406 V1 control unit. 25-Way D-type plug to 9-way D-type socket.	700213432	2m/6'6".
9-Way DTE Cable	Connects to an SOE, IP406 V2 or IP412 control unit. 9-Way D-type plug to 9-way D-type socket.	–	2m/6'6".
Structured Cabling DS Line Cable	Connects from RJ45 sockets to RJ11 socketed DS and analog phones.	700047871	4m/13'2".
BRI/PRI Cable	Connects BRI/PRI trunk ports to the line providers network termination point. RJ45 to RJ45. Red.	700213440	3m/9'10".
Expansion Interconnect Cable	Connects the control unit to expansion modules (except WAN3 modules). RJ45 to RJ45. Blue.	700213457	1m/3'3".
LAN Cable	Connects from IP Office LAN ports to IP devices. RJ45 to RJ45. Grey.	700213481	3m/9'10".
LAN Interconnect Cable	Connects WAN3 module to the control unit. Replace with a LAN crossover cable for IP412 control units. Green.	700213465	1m/3'3".
LAN Crossover Cable	Used for connection of IP devices to LAN ports on the IP412 control unit. Black	700213473	3m/9'10".
V.24 WAN Cable	37-Way D-type plug to 25-way D-type plug.	700213416	3m/9'10".
V.35 WAN Cable	37-Way D-type plug to 34-way MRAC plug.	700213424	3m/9'10".
X.21 WAN Cable	37-Way D-type plug to 15-way D-type plug.	700213408	3m/9'10".

Rack Mounting

Rack Mounting Kits	SAP Code	Note
Rack Mounting Kit	700210800	One per control unit or external expansion module. Not Small Office Edition.
Barrier Box Rack Mounting Kit	700293905	Up to 8 IP Office Barrier Boxes.

Barrier Boxes

IP Office Barrier Boxes	SAP Code	
IP400 Phone Barrier Box	700293897	Use with Phone V1 module. Includes an RJ45 to RJ11 cable and functional earth lead.
IP400 Phone Barrier Box V2 (101V)	700385495	Use with Phone V2 module. Includes an RJ45 to RJ11 cable and functional earth lead.

Feature Keys Dongles

Feature Key Dongle	SAP Code
Parallel Port Feature Key	700185234
USB Port Feature Key	700261506
Serial Port Feature Key	700293095

CCC Licenses

License	RFA Name	SAP	
CCC Server	IP400 CCC SV		171994
CCC Agents	IP400 CCC AGT	5	171995
		10	174469
		20	174470
		50	174471
CCC Supervisors	IP400 CCC SUP	1	171996
		5	184730
		10	184731
		20	184732
CCC PC Wallboards	IP400 CCC PCW	5	172786
		10	174472
		20	174473
		50	174474
CCC Spectrum Wallboards	IP400 CCC Wallboard	4	176196
Report Viewer	IP400 CCC Report	5	184726
		10	184727
		20	184728
CCC Agent Rostering	IP400 CCC Rostering		171997
CCC Designer (users)	IP400 CCC Designer		171999

General Licenses

License	RFA Name	SAP	
DECT Integration (ports)	IP400 CTI DECT	8	171989
		16	174457
		64	174458
Conferencing Center	IP400 Conferencing Center	182302	
SoftConsole (users)	IP400 SoftConsole	171987	
eBLF	IP400 SoftConsole 1	174456	
Compact Business Center	IP400 CBC	171993	
Small Office Edition WiFi	IP400 Access Point	182197	
MS-CRM	IP400 Microsoft CRM Intgr	180588	
IPSec Tunneling	IP400 IPSec VPN	182301	
Mobile Twinning	IPO Lic Mobile Twinning	1	195569
		5	195570
		10	195571
		20	195572
		50	195573
IP End-points	IP400 IP Endpoint	1	174956
		5	174957
		10	174958
		20	174959
		50	174960
		100	174961

CTI Licenses

License	RFA Name	SAP
CTI Link Pro	IP400 CTI RFA	171988
Wave User	IP400 TAPI WAV RFA 4	177466

Phone Manager Licenses

License	RFA Name		SAP
Phone Manager Pro (per seat)	IP400 Phone Manager Pro	1	177468
		5	177469
		10	177470
		20	177471
		50	177472
		100	177473
	" - unlimited		177474
Phone Manager Pro IP Audio Enabled (per user)	IP400 IPPRO	1	171992
		5	174463
		10	174464
		20	174465
		50	174466
		100	174467

Voicemail Licenses

License	RFA Name		SAP
AUDIX Voicemail	IP400 AUDIX		177467
Voicemail Pro (4 ports)	IP400 Voicemail Pro		171991
Additional Voicemail Pro (ports)	IP400 Voicemail Pro	2	174459
		4	174460
		8	174461
		16	174462
Networked Messaging	IP400 Networked Messaging		182297
Integrated Messaging	IP400 Integrated Messaging Pro		171990
VMPPro TTS (ScanSoft)	IP400 Avaya TTS		182299
VMPPro TTS (Generic)	IP400 3rd Party TTS		182303
VMPPro VB Script	IP400 VB Scripting		182300
VMPPro Database Interface	IP400 3rd Party IVR		182298
VMPPro Recordings Administrators	IP400 ContactStore for IPO		187166

IP DECT Licenses

These licenses are entered into the Avaya IP DECT system configuration, not the IP Office configuration. They are based on the PARK ID of the ADMM base station.

License	RFA Name	SAP
1 Base Station	IP DECT IPO MOBMGR 1 RFP LIC:CU	700379027
2 Base Stations	IP DECT IPO MOBMGR 2 RFP LIC:CU	700379035
3-5 Base Stations	IP DECT IPO MOBMGR 3-5 RFP LIC:CU	700379043
>5 Base Stations	IP DECT IPO MOBMGR >5 RFP LIC:CU	700379050
Upgrade to 2	IP DECT IPO UPG TO A 2 BASE STATION LIC:CU	700379068
Upgrade to 3-5	IP DECT IPO UPG TO A 2 BASE STATION LIC:CU	700379076
Upgrade to >5	IP DECT IPO UPG TO A 2 BASE STATION LIC:CU	700379084

45-Day Trial Licenses

These licences start expiring from the day the license is generated, not the date of installation. Each license will only be generated once for a given Feature Key dongle serial number.

License	RFA Name	SAP
Voicemail Pro Networked Messaging	IPO TRIAL NTWKD MSGING LIC:DS	189776
3rd Party Database/IVR	IPO TRIAL 3RD PARTY IVR RFA LIC:DS	189777
Avaya Text-to-Speech for IP Office (1 port)	IPO TRIAL AVAYA TTS RFA 1 LIC:CU	189778
VB Scripting	IPO TRIAL VB SCRIPTING RFA LIC:DS	189779
Conferencing Center	IPO TRIAL CONF CENTER RFA LIC:DS	189780
Third Party Text to Speech (1 port)	IPO TRIAL 3RD PRTY TTS RFA LIC:CU	189781
Voicemail Pro (4 ports)	IPO TRIAL VM PRO RFA LIC:DS	189782
SoftConsole (1 user)	IPO TRIAL SOFTCONSOLE/BLF RFA LIC:CU	189783
Phone Manager PC Softphone (10 users)	IPO TRIAL IPPRO RFA 10 LIC:CU	189784
Phone Manager Pro (10 users)	IPO TRIAL PMGR PRO RFA 10 LIC:CU	189785
Centralized Voicemail with Avaya Messaging	IPO TRIAL ACM CENTRAL VM LIC:DS	189786
Integrated Messaging Pro	IPO TRIAL INTG MSGING PRO RFA LIC:DS	189787
Mobile Twinning (5 users)	IPO LIC MOBILE TWINNING TRIAL RFA 5	195574
VPN IPSec	IPO TRIAL IPSEC VPN RFA LIC:DS	189788

IP Office Application CDs

Application	Variant	SAP Code
Voicemail Pro CD	3.2	700407588
	3.1	700380405
	3.0	700350457
	2.1	700330970
	2.0	700304546
Voicemail Pro ScanSoft Text-to-Speech (TTS)	–	700293921
Conferencing Center	3.2	700407596
	3.1	192226
	3.0	700372287
	2.1	700293913
IP Office Software Developer's Kit (SDK)	–	700188873
Compact Contact Center (CCC)	5.0	700330962
	4.0	700188881
IP Office User and Administration CD Set (3.1/3.2 x5 CD's/Others x3 CD's)	3.2	700407604
	3.1	700380389
	3.0	700345879
	2.1	700329725
	2.0	700304074
IP Office 3.1 Applications DVD	3.2	700407612
	3.1	700380397

2400 Series Phones

Variant		SAP Code
2402	Multi-grey	700381973
2410	Multi-grey	700381999
2420D	Multi-grey	700381585
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727
201B Recorder Interface for 2420/5420D		700381635

3600 Series Phones

Variant		SAP Code
3616 Wireless Phone.		700413040
3620 Wireless Phone.		700413065
Additional battery pack for 3616		700277387
Desktop charger for 3616.		700412901
Belt Clip for 3616.		700413057
3626 Wireless Phone.		700413024
Additional battery pack for 3626		700277395
Desktop charger for 3626		700412919
Charger Power Supply	Europe	700412810
	United Kingdom	700412828
	Switzerland	700412836
3626 8-Gang changer.		700412927
Belt Clip for 3626.		700413131
3626 Vinyl case with keypad cover.		700412984
3626 Carry case.	Yellow	700289309
3626 Carry case with keypad cover	Black	700289317
	Yellow	700289325
3616/3626 Configuration Cradle		700375934
Avaya Voice Priority Processor 10 (AVPP 10)		700413164
Avaya Voice Priority Processor 20 (AVPP 20)		700413172
AVPP Power Supply	Europe	700412844
	United Kingdom	700412851
	Switzerland	700412869
Netlink OAI Gateway		700245756
Rack Mount Kit		700245459

3700 Series Phones

Variant		SAP Code
3701		700346802
3711		700346810
Belt Clip		700346885
Phone Charger		700346828
Power Adaptor for Charger	European	700346836
	UK	700346844
	Australia	700378318
Rack mount 8-phone charger		700346851
Power Adaptor for Rack Mount Charger	Global	700346869

3810 Phones

Item	SAP Code
3810 Set - Includes phone, base station, charger, belt clip and power supply units for charger and base station.	700305105

4400 Series Phones

Variant	SAP Code	
4406D+	White	108199019
	Black	108199027
4412D+	White	108199043
	Black	108199050
4424D+	White	108199076
	Black	108199084
DSS4450	White	108199407
	Black	108199696
Power Supply for 4450	–	108596412
Small Stand for 4406 or 4450	Black	108541194
	White	108541202
Large Stand for 4412D+ or 4424D+.	Black	108541269
	White	108541277

4600 Series Phones (Old Style)

US variants use just text labels on the phone keys. International variants use both text labels and function icons on the keys. GEN1 models do not support Power over Ethernet (PoE) unless fitted with the optional 30A Switch Upgrade Base (700207376).

Variant			SAP Code	
4606	GEN1	US	Black	108576828
			White	108576836
		International	Black	108627696
			White	108627704
	GEN2	US	Black	700059314
			White	700059306
		International	Black	700059330
			White	700059322
4612	GEN1	US	Black	108690447
			White	108690454
		International	Black	108690462
			White	108690470
	GEN2	US	Black	7000059355
			White	700059348
		International	Black	700059371
			White	700059363
4624	GEN1	US	Black	108576894
			White	108576802
		International	Black	108661273
			White	108661281
	GEN2	US	Black	700059397
			White	700059389
		International	Black	700059413
			White	700059405
30A Switch Upgrade Base				700207376

4600 Series Phones (New Style)

Variant	SAP Code	
4601+	Multi-grey	700381890
4602IP	Multi-grey	700221260
4602SW+	Multi-grey	700381916
4610SW	Multi-grey	700381957
4620IP	Multi-grey	700212186
4620SW	Multi-grey	700259674
4621SW	Multi-grey	700381544
4625SW	Multi-grey	700381551
EU24 1XU-A Expansion Module	Multi-grey	700381817
EU24BL 2XU-A Backlighted Expansion Module	Multi-grey	700381825
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727

5400 Series Phones

Variant		SAP Code
5402	Multi-grey	700345309
5410	Multi-grey	700345291
5420	Multi-grey	700339823
EU24	Multi-grey	700381817
EU24BL	Multi-grey	700381825
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727
201B Recorder Interface for 2420/5420D		700381635

5600 Series Phones

Variant		SAP Code
5601	Multi-grey	700345366
5602IP	Multi-grey	700345341
5602SW	Multi-grey	700345358
5610	Multi-grey	700345333
5620	Multi-grey	700339815
EU24	Multi-grey	700381817
EU24BL	Multi-grey	700381825
Replacement Handset	Dark Grey	700203797
Amplified Handset	Dark Grey	700229735
Noisy Location Handset	Dark Grey	700229743
Push to Talk Handset	Dark Grey	700229727

6400 Series Phones

These phones are no longer available from Avaya.

Variant		SAP Code
6408D+	Grey	700020100
	White	700020092
6416D+M	Grey	108807611
	White	108807603
6424D+M	Grey	108807595
	White	108807587
XM24D+M	Grey	700406523
	White	700406515
6408 Stand	Grey	108933169
	White	108933177
6416/6424 Stand	Grey	848219127
	White	848219119
XM24 Stand	Grey	108272378
	White	108272386

T3 Series Phones (Upn)

Variant		SAP Code
T3 Compact	Black	700380264
	White	700380298
T3 Classic	Black	700380272
	White	700380306
T3 Comfort	Black	700380280
	White	700380314
T3 DSS Unit	Black	700380322
	White	700380330
T3 DSS Expansion Unit	Black	700380348
	White	700380355
T3 Headset Link Unit	-	700380363

T3 Series Phones (IP)

Variant		SAP Code
T3 Compact	Black	700414717
	White	700414709
T3 Classic	Black	700414733
	White	700414725
T3 Comfort	Black	700414758
	White	700414741
Power Supply Unit for T3 IP Phones		700414766
T3 AEI/Headset Link for IP Phones		700414774
Power Supply Unit for DSS on T3 IP Phone		700414790

CCC Wallboards

CCC Wallboard Manager can support up to 16 physical wallboards. A license key is required for every 4 physical wallboards.

Item	Variant	SAP Code
Spectrum 3214C Wallboard Kit	US	700289507
	Europe	700289556
Wallboard manager Comms Cards		700038854
Spectrum 3214C Wallboard		700289457
Wallboard/22		700040173
Wireless Keyboard/Remote Control		700289564


Spares

The following spares can be ordered from Avaya.

Item	Color	SAP Code
Handset HIP QD CORD- 4606/16/24/30 SETS		700414121
Cat 5 Cable specific to 4620		700261613
Handset Cords 25ft	Dark Grey	700217417
IP PHONE MOD CORD 1ft CAT5	-	408406932
IP PHONE MOD CORD 7ft CAT5	-	408406957
IP PHONE MOD CORD 14ft CAT5	-	408406940

Safety Statements

Safety and Homologation Statements

- **CE**
The CE mark affixed to this equipment means that the module complies with the 1999/5/EC (R&TTE), 89/336/EEC (EMC) and 72/23EEC (LVD) Directives.
- **Declaration of Conformity**
The Declaration of Conformity (DoC) for the IP400 Office products is available within on the IP Office Documentation CD (Engineer's Toolkit CD).
- 
This warning symbol is found on the base of IP403, IP406 V2, IP412 modules and on the base of the IP400 Digital Station 80W PSU.
- Refer to Trunk Interface Modules for information concerning which Trunk Interface module variants are fitted in which country.

WARNING

The Avaya IP400 Office modules are intended to be installed by 'Service Personnel' and it is the responsibility of the Service Personnel to ensure that all subsidiary interconnected equipment is wired correctly and also meet the safety requirements of IEC60950 or UL60950 where applicable.

Lithium Batteries

A lithium battery is fitted to the real time clock on IP Office control unit mother boards.

WARNING

The Lithium battery must only be replaced by Avaya personnel or authorized representatives. There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.


Lightning Protection/Hazard Symbols

Lightning protectors

The buildings lightning protectors **must be verified** as follow:

1. Check the lightning protectors, at the trunk cable entry point to the building housing the Avaya IP Office, paying special attention to the lightning protection grounding. Report any problems, in writing, to the telephone company.
2. Equipment that is designed to be connected using internal wiring is typically **not** lightning protected. Hence, Avaya IP Office extension cabling **must not leave the building**. For installations where telephones and/or other standard (tip/ring) devices are installed in another building then lightning protection is required (see Out of Building Telephone Installations).

Hazard Symbol

-  The shock hazard symbol is intended to alert personnel to electrical hazard or equipment damage. The following precautions must also be observed when installing telephone equipment:
 1. Never install telephone wiring during a lightning storm.
 2. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
 3. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
 4. Always use caution when working with telephone lines.

Trunk Interface Modules

To ensure the validation of the approvals, only the following types of trunk interface cards must be fitted in the following IP Office control units.

USA/Canada							
Product	Quad BRI	PRI E1		PRI T1		ATM4 V1/V2	WAN
		Single	Dual	Single	Dual		
IP403 Office DS	✗	✗	✗	✓	✗	✓	✗
IP406 V1 Office	✗	✗	✗	✓	✗	✓	✗
IP406 V2 Office	✗	✗	✗	✓	✓	✓	✗
IP412 Office	✗	✗	✗	✓	✓	✓	✗
Small Office Edition	✗	✗	✗	✓	✗	✗	✓

Rest of World							
Product	Quad BRI	PRI E1/E1R2		PRI T1		ATM4 V1/V2	WAN
		Single	Dual	Single	Dual		
IP403 Office DS	✓	✓	✗	✗	✗	✓	✗
IP406 V1 Office	✓	✓	✗	✗	✗	✓	✗
IP406 V2 Office	✓	✓	✓	✗	✗	✓	✗
IP412 Office	✓	✓	✓	✗	✗	✓	✗
Small Office Edition	✓	✗	✗	✗	✗	✗	✓

Notes

- Single WAN trunk card is only supported in the Small Office Edition control unit. All other IP Office control units include an integral WAN port.
- Small Office Edition control units include 4 integral analog trunk ports.
- E1R2 trunks are only supported in CALA and Korea.

Further Information and Product Updates

Further information, including Product and Reference Manual updates, can be obtained from Avaya's Dealers and Distributors, or from Avaya's web site: <http://www.avaya.com>.

This guide is also available from the Avaya's support web site: <http://support.avaya.com>.

Support Telephone Numbers

For initial help and support, contact your distributor/supplier. The following contact points are for Avaya authorized partners.

- **In the USA only**

Avaya provides a toll-tree Customer Helpline 24 hours a day:

- **Name:** Avaya Technical Support Organization (TSO)
- **Customer Helpline:** 1 800 628-2888
- **Address:** 8744 Lucent Blvd., Highlands Ranch, Colorado, 80129 USA
- **URL:** <http://support.avaya.com>

If you need assistance when installing, programming, or using your system, call the Helpline or your Avaya representative. Consultation charges may apply.

- **Outside the USA**

If you need assistance when installing, programming, or using your system, contact your Avaya representative.

- **URL:** <http://support.avaya.com>

Compliance with FCC Rules

Transmit and Receive Gain Settings for PRI/T1 and Analog Ports

The Gain settings are password controlled for use by qualified installation personnel only and must not be made available to the end user. The default gain settings of 0dB ensures compliance with FCC part 68 section 68.308(b)(5) and TIA/EIA-IS-968 Section 4.5.2.5. "Through transmission amplification from ports for the connection of separately registered equipment or from other network connection ports". Gain setting adjustment by unqualified personnel may result in violation of the FCC rules. Qualified personnel may adjust gain settings above these levels only where:

1. Measurement is made to ensure that the power levels sent to line at each network interface connected does not exceed the maximum levels specified in FCC part 68 section 68.308(b) and TIA/EIA-IS-968 Section 4.5 for that specific interface type.
2. Where gain adjustment away from the default values are made, precautions should be taken to ensure that the connection of terminal equipment is controlled by qualified installation personnel.

Port Safety Classification

The Avaya IP Office systems have the following ports:

- Expansion ports
- 10/100 BaseT LAN ports
- Telephone ports which are either DT (A-Law encoding) or DS (Mu-Law encoding). Note that use of DT ports is no longer supported in IP Office 3.0 or higher.
- ISDN ports
- Analog ports
- Power Fail ports
- WAN ports
- DTE ports
- Audio I/P port
- DC Power Input port
- External Control port

These Ports are classified as follows:

Port Name	Port Description	Port Classification
PRI port	PRI ISDN connection (NET)	TNV (Operating within the limits of SELV)
BRI ports	BRI ISDN connection (NET)	TNV (Operating within the limits of SELV)
Analog ports	Two wire analog trunk	TNV3
Power fail ports	Two wire analog trunk	TNV3
DTE port	Async Data connection.	SELV
Analog Telephone Ports	Telephone Extension ports	TNV2
Digital Telephone Ports	Telephone Extension ports	SELV
WAN port	WAN connection (NET).	SELV
LAN ports	10/100 BaseT attachment to LAN.	SELV
Expansion ports	Expansion Module connector.	SELV
Audio port	Connector for Music on Hold.	SELV
External Control port	Connector for Controlling Ancillary SELV circuits.	
DC Input port	Connector for DC input power.	SELV

Interconnection circuits shall be selected to provide continued conformance with the requirements of EN 609050:1992/A3:1995 clause 2.3 for SELV circuits and with the requirements of clause 6 for TNV circuits, after connections between equipment.

EMC Cautions

89/336/ EEC (EMC Directive) CISPR 22:1993 including A1 + A2, AS/NZ 3548:1995 (ROW)

889/336/ EEC (EMC Directive) CISPR 22:1993 including A1 + A2, AS/NZ 3548:1995 (ROW)

- **WARNING**

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

Canadian Department of Communications (DOC)

"NOTICE: This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment."

EMC Caution for China

警示

注意：此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。仅适用于商业或工业环境。

Regulatory Instructions for Use

IP Office Operation in Australia

Connection

Connection of IP400 Office products must be via a Line Isolation Module with a telecommunications compliance label.

BRI Interface

During the configuration, ensure "000" emergency number is not barred, by performing the following:

- **Short Code:** 000
- **Telephone No:** 000;
- **Function:** DialEmergency

Connections to TS013, the following Bearer Capabilities shall not be used:

- 7kHz Audio, Video, Restricted Digital Information.

If unknown type of number is used in calling party number, the network will use the default CLI.

The system must be configured for Point to Multi point connection to comply with Austel requirements for connecting to TS013 circuits.

As the IP Office does not support emergency dialing after loss of power, the following warning notice should be recognized:

- **WARNING**
This equipment will be inoperable when mains power fails.

PRI Interface

During the configuration, ensure "000" emergency number is not barred, by performing the following:

- **Short Code:** 000
- **Telephone No:** 000;
- **Function:** DialEmergency

- **WARNING**
This equipment will be inoperable during mains power failure.

Industry Canada Notification (DoC)

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met.

It does not imply that Industry Canada approved the equipment.

"NOTICE: The Ringer Equivalence Number (REN) for this terminal equipment is 1. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five."

IP Office Operation in EU

1. 999 and 112 calls must not be barred. Doing so will invalidate the approval.
2. All connections at the MDF shall be identifiable by suitable labeling.
3. The CE mark displayed on IP Office equipment indicates the systems compliance with the EMC, LVD, and R&TTE Directives and common technical regulations for Primary Rate and Basic Rate ISDN.
4. All ports for the connection of other non-telecommunications apparatus have a Safety Extra Low Voltage (SELV) safety status.

IP Office Operation in New Zealand

The grant of a Telepermit for any item of terminal equipment indicates only that Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.

FCC Notification

This equipment is registered with the ACTA (Administrative Council for Terminal Attachments) in accordance with FCC Part 68 of its rules. In compliance with those rules, you are advised of the following:

- **Means of Connection**
Connection of this equipment to the telephone network shall be through a standard network interface jack. Connection to 1.544-MBps digital facilities must be through a USOC RJ48C. Connection to the Analog Trunk facilities must be through a USOC RJ45S.
- **Notification to the Telephone Companies**
Before connecting this equipment, you or your equipment supplier must notify your local telephone company's business office of the telephone number or numbers you will be using with this equipment.
- **The facility interface codes (FIC)** for 1.544-MBps digital connection (i.e. IP400 Office PRI-T1) are 04DU9.BN, 04DU9.DN, 04DU9.IKN, 04DU9.ISN.
- **The facility interface code (FIC)** for analog trunk connection (i.e. IP400 Office Quad Analog Trunk-LS) are OL13A, OL13B, OL13C, 02AC2, 02LA2, 02LB2, 02LC2, 02LR2, 02LS2.
- **The facility interface code (FIC)** for analog trunk connection (i.e. IP400 Office ATM16-LS/GS) are OL13A, OL13B, OL13C, 02AC2, 02GS2, 02LA2, 02LB2, 02LC2, 02LR2, 02LF2.
- **The Service Order Code (SOC)** for 1.544-MBps digital connection (i.e. IP400 Office PRI-T1) is 6.0Y.
- **The Service Order Code (SOC)** for analog trunk connection (i.e. IP400 Office Quad Analog Trunk-LS) is 9.0Y.
- **Disconnection**
You must also notify your local telephone company if and when this equipment is permanently disconnected from the line or lines.
- **Hearing Aid Compatibility**
The custom telephone sets for this system are compatible with inductively coupled hearing aids as prescribed by the FCC.

Ringer Equivalence Number (REN). The REN is used to determine the number of devices that may be connected to the telephone line. Excessive RENs on the line may result in the devices not ringing in response to an incoming call. In most, but not all, areas, the sum of the RENs should not exceed five. To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the local telephone company to determine the maximum REN for the calling area.

Index

- A**
- ACA 54
- access 112, 259
 - ContactStore 259
 - IP Office's 112
- Access Control 62
- Account Codes 62
- Accunet 158
- ACE 54
- ACS 54
- ACTA 326
- Action 127
- Action Data 127
- Actual UPS 24
- Add/Remove Programs 78, 156
- Additional Power Supply Must Be Used 125
- Additional Procedures 120
- Additional Requirements 249
- Additional Voicemail Pro 35, 152, 268, 274, 298
- add-ons 10, 36
- ADJ 248
- Adjust 172
 - BOOTP 172
- Admin 135, 158
- Admin CD Set 254, 255, 260, 261, 262, 263, 264, 266, 267
- Admin Suite 78
 - run 78
- Admin/General Setup 158
- Admin/Software 158
- Admin/Video Network 158
- Admin/Video Network/Call Preference 158
- Admin/Video Network/IMUX 158
- Admin/Video Network/ISDN Video Network 158
- Administration 49
- Administration CD Set 48, 298
- Administrative Council 326
 - Terminal Attachments 326
- Administrator 84, 116
- Administrator Applications CD 48
- Administrator Group 112
 - select 112
- ADMM 275, 298
 - PARK ID 298
- Advanced 106, 112, 120, 134, 169, 172
- Advanced Dialing 158
- Advanced Server 49
- AEI/Headset Link 244, 245, 246
 - T3 IP 244, 245, 246
- affect 22, 78
 - IP Office Feature key 78
 - IP412 22
- AGC 179
- Agent login 47
- Agent logout 47
- Agent Rostering 256, 270
- Agent Rostering Interface 256, 270
 - Enables 256, 270
- Aid Compatibility 326
 - Hearing 326
- Alarm Reporter 46, 256
- A-Law 177, 179, 181, 183, 185, 298, 322
- All Athlon 64 256, 259, 268
- All Athlon64 49
- All IP Office 96, 197, 199, 201, 203, 205, 207, 209, 279
- All IP Office LAN 289
- All Other Units 58
- Allow 1.6U 62
- Allow Direct Media Path 190
- Allow User Setup 158
- Allowable 0°C 62
 - 40°C/32°F 62
- AllowDial 158
- allows 43, 137, 160, 187
 - ICLID 137
 - IP Office 187
 - IP Office's SNMP 160
 - MS-CRM 43
- Allows GEN1 4606 298
- ALOG 86
- AMD 49, 254, 255, 256, 258, 259, 260, 261, 263, 264, 266, 267, 268
- AMD Athlon XP 78, 262
- AMD Athlon64 78, 262
- AMD Opteron 49, 78, 262
- amend 172
 - BOOTP 172
- America 177, 179, 181, 183, 185, 197, 199, 201, 203, 205, 207, 209
- Amplified Handset 212, 213, 214, 224, 225, 227, 229, 230, 232, 233, 234, 235, 236, 237, 238, 239, 240, 298
- ANALOG 10, 20, 98, 131, 185, 197, 280, 290
 - Swapping 131
- Analog 16 Module 24
- Analog DECT 36
- Analog Expansion 28, 104
- Analog Expansion Module 38
- Analog Phone Barrier Boxes 147
- Analog Phone Extensions 30, 144
- Analog Phones 13, 26, 36, 176, 277
- ANALOG Port 280
- Analog Ports 321
- Analog Telephone Ports 322
- Analog Trunk Card 193
- Analog Trunk Card Universal 192
- Analog Trunk Channels 86
 - Number 86
- Analog Trunk Module Connections 197
- Analog Trunks 30, 98, 135, 137, 144, 165, 192, 193, 279, 290, 298, 326
 - rear 290
- Analog, Digital Station V1 62
- and/or 318
- Any
 - set 157
- Appearance Button Requirements 127
- Applications Overview 54
- ARA 40, 55
 - running 55
- Archiver 46, 256, 270
- Area Code 158
- AS/NZ 3548 323
- Async Data 322
- AT&T 158
- Athlon 49, 254, 255, 256, 260, 261, 263, 264, 266
- Athlon 64 49
- Athlon XP 49
- Athlon XP 3000 49, 256, 258, 259, 268
- Athlon64 258
- ATM16 28, 70, 104, 192, 193, 197
- ATM16 Analog Trunk 280
- ATM4 14, 16, 135, 164, 185, 187, 192, 193, 280, 319
- ATM4 Trunk 279
- ATM4 Trunk Cards 193
- ATM4 Uni 192, 298
- ATM4/ATM4U 28, 104
- ATM4U 14, 16, 187, 192
- ATM4U Trunk Card 192
- AT-X2 169, 171
- AT-X3 169, 171
- AT-X4 169, 171
- AU 7
- AUDIO 142
- Audio I/P 322
- Audio In 13, 176, 281
- AUDIO Port 281
- Audio Quality 158
- Audix 86
- AUDIX Voicemail 274, 298
- Austel 324
- Australia 40, 218, 219, 224, 225, 227, 242, 243, 252, 298, 324
- Australia/New Zealand 214, 226, 228, 229, 230, 231, 232, 235, 236, 237, 238, 239, 240, 249, 250, 253
- AusTS013 14
- authenticationFailure 165

- Auto Answer 158
 auto-attendants 44
 Automatic Hold 62
 auto-MDI/MDIX 179, 185, 289
 Avaya 1151C1/B2 285
 Avaya 1151C2 125
 Avaya 146G Surge Protector 151, 192, 193, 197, 280, 288
 Avaya 40W 197, 201, 205, 207, 209
 Avaya 4600 160, 271
 Avaya 4600/5600 Series IP Extensions 131
 Swapping 131
 Avaya Authorized Channel Partners 54
 Avaya Business Partners 55
 Avaya Compact DECT 211
 connect 211
 Avaya Contact Store 268, 274
 IP Office application 268, 274
 Avaya DECT 218, 219
 Avaya DS 40
 IP Office 40
 Avaya earthed 60W 181, 183, 185, 199, 203
 Avaya Expansion Interconnect Cable 287
 Avaya H.323 IP 24
 Avaya Interchange 268, 274
 Avaya IP 298
 including 298
 Avaya IP DECT 160, 218, 219, 271, 275, 298
 Avaya IP DECT Mobility Manager 275
 Avaya IP Office 7, 8, 297, 318, 322
 housing 318
 Avaya IP Office CD's 48
 copies 48
 Avaya IP Office voicemail 40
 Avaya IP400 Office 317
 Avaya Messaging 276, 298
 Avaya Technical Bulletins 7
 read 7
 Avaya un-earthed 45W 177, 179
 Avaya University 7, 54
 Avaya University site 54
 Avaya Voice Priority Processor 215, 216, 217
 avayagen-mib.mib 161
 Avaya's Dealers 320
 avpots16.bin 38
 AVPP 36, 215, 216, 217
 AVPP 10 298
 AVPP 20 298
 AVPP Power Supply 298
B
 backlight 125, 230, 250
 includes 250
 provides 125
 banks 177
 64 177
 Barrier Box Rack Mounting Kit 32, 96, 147, 149, 298
 Barrier Boxes 32, 96, 147, 149, 298
 back 149
 Base Extension 129, 131
 Change 129, 131
 Base Extension Number 62
 Base Hunt Group Extension Number 62
 Base Line Number 62
 Base Station 275, 298
 BASE STATION LIC 275, 298
 baseband 209, 293
 BaseT 322
 BaseT LAN 322
 Basic Button Programming 127
 Basic Rate ISDN 325
 bbla0_83.bin 38
 Bearer Capabilities 157, 324
 following 324
 become 141
 Intranet Service 141
 WAN Service 141
 Belgium 40
 Belt Clip 218, 219, 298
 3616 298
 3626 298
 BIN 106
 BIN Files 38
 Binary Files 73
 Black 289
 Blue Pumpkin 46, 256, 270
 Blue/White 282, 283, 289, 292
 Boot Loader 169, 171, 172
 BOOTP 84, 106, 116, 172
 Adjust 172
 amend 172
 creates 106
 requires 106
 Both Voicemail Pro 44, 268
 Bothway 158
 Brazilian 40, 264, 266, 267, 268
 Brazilian Portuguese 48
 BRI 10, 20, 86, 134, 135, 137, 165, 194, 207, 279, 282, 283, 292, 298, 322
 Number 86
 BRI and/or PRI 283, 292
 BRI Interface 324
 BRI ISDN 322
 BRI Port 282, 283
 BRI Trunk Cards 194
 BRI/PRI 283, 292
 BRI-S 282, 283
 BRI-So 20
 BRI-T 282, 283
 Broadcast 73
 build 175
 IP Office 175
 Building Connections 119
C
 Cable 26, 30, 144, 277, 298
 Requirements 30, 144
 Cable Clearance 58
 Cable Color 283, 292
 Cables Supplied 125
 Only 125
 CALA 195, 196, 298, 319
 Call Center Applications 46
 Call Center View 46, 256
 Call Detail Records 45
 Call Handling Parameters 62
 Call Logging Applications 45
 Call Routes 80
 Incoming 80
 Call Status 48, 49, 78, 254
 called 160, 190, 253, 260, 320
 20B Module Adapter Base 253
 Helpline 320
 IP Office voicemail 190
 SMDR 260
 SNMP 160
 CALLS 86
 Campaign Manager 49
 Campaigns 48
 Canada 40
 Canadian Department 323
 Communications 323
 Canadian French 40
 Cancel 129
 Cantonese 40, 268
 Capacity 151, 288
 Switching 151, 288
 Card 62, 92, 187, 195, 196, 298
 Carry 217, 298
 Castle Rock SNMPc-EE 5.1.6c 160
 CastleRock 42, 160
 CastleRock SNMPc 161
 V5.0.1 161
 CastleRock SNMPc 5.1.6c 161
 CastleRock SNMPc V5.0.1 161
 CastleRock SNMPc V5.0.8 161
 correct 161
 CAUTION 146, 147, 151, 288
 CBC 7, 46, 48, 49, 255, 260
 CBC application 271
 Enables 271
 CBC/SMDR 49
 CBC2 49
 CCC 7, 46, 48, 49, 256, 260, 270, 298
 following 256, 270
 CCC Agent Rostering 256, 270, 298
 CCC Agents 256, 270, 298
 Call Handling Parameters 62
 Call Logging Applications 45
 Call Routes 80
 Incoming 80
 Call Status 48, 49, 78, 254
 called 160, 190, 253, 260, 320
 20B Module Adapter Base 253
 Helpline 320
 IP Office voicemail 190
 SMDR 260
 SNMP 160
 CALLS 86
 Campaign Manager 49
 Campaigns 48
 Canada 40
 Canadian Department 323
 Communications 323
 Canadian French 40
 Cancel 129
 Cantonese 40, 268
 Capacity 151, 288
 Switching 151, 288
 Card 62, 92, 187, 195, 196, 298
 Carry 217, 298
 Castle Rock SNMPc-EE 5.1.6c 160
 CastleRock 42, 160
 CastleRock SNMPc 161
 V5.0.1 161
 CastleRock SNMPc 5.1.6c 161
 CastleRock SNMPc V5.0.1 161
 CastleRock SNMPc V5.0.8 161
 correct 161
 CAUTION 146, 147, 151, 288
 CBC 7, 46, 48, 49, 255, 260
 CBC application 271
 Enables 271
 CBC/SMDR 49
 CBC2 49
 CCC 7, 46, 48, 49, 256, 260, 270, 298
 following 256, 270
 CCC Agent Rostering 256, 270, 298
 CCC Agents 256, 270, 298

- CCC AGT 256
 CCC Archiver 46, 256
 CCC Chat 270
 CCC Delta Server 49
 CCC Designer 256, 270, 298
 CCC Email 270
 CCC Licenses 298
 CCC PC Wallboards 256, 270, 298
 CCC PCW 256
 CCC Report 256
 CCC Reporter 49, 256
 CCC Rostering 256
 CCC Server 256, 270, 298
 Enables 256
 CCC Server application 46, 270
 Enables 270
 CCC Spectrum Wallboards 256, 270, 298
 CCC SUP 256
 CCC Supervisors 256, 270, 298
 CCC SVR 256
 CCC v5 49
 CCC Wallboard Manager 298
 CCC Wallboards 256, 298
 CCV 46, 49, 256
 CD 38, 48, 78, 254, 255, 256, 258, 259, 260, 261, 262, 263, 264, 266, 267, 268
 Copies 48
 open 78
 Voicemail Pro 48
 CD 3/4/5 48
 CDR 45
 CD's 10, 48
 number 10, 48
 CE 317, 325
 CEE7/16 23, 181, 183, 197, 201, 205, 209, 298
 CEE7/7 23, 177, 179, 185, 199, 203, 207, 298
 Celeron 49, 254, 255, 256, 258, 259, 260, 261, 263, 264, 266, 267, 268
 Celeron3 800Mhz 49
 Center 149, 258
 Point 149
 Center Client5 49
 Center Screw 147
 Center Server 49
 Center V3.2 CD 48
 Centralized Voicemail 276, 298
 Centralized Voicemail Pro 62
 Certain Hazardous Substances 8, 297
 Removal 8, 297
 Certified Associate 54
 Certified Expert 54
 Certified Specialists 54
 Changes 7, 112, 129, 131, 165
 Base Extension 129, 131
 DS 165
 Extension 129
 Extension Numbers 129
 Individual User's Extension Number 129
 IP Office 7, 131
 PCMCIA 165
 Channel Allocation 158
 Channels 135, 158, 281
 PRI 158
 Select 135
 CHAP 141
 Characteristics 158
 Charger 218, 219, 298
 Power Adaptor 218, 219, 298
 Charger Power Supply 298
 Chart 120
 Planning 120
 CHASSIS 293
 Check All Documentation 77
 Check All Parts 77
 Check IP Office Technical Bulletins 106
 China 194, 195, 196, 298, 323
 EMC Caution 323
 Chinese 48, 189, 264, 266, 267, 268
 chs 40, 189
 cht 40
 Cisco Catalyst Power Adapter 298
 CISPR 22 323
 CkSRC 86
 Class 22, 125, 249, 250, 323
 limits 323
 Clear 293
 Send 293
 CLI 324
 Client 62
 Client Applications Dependencies 49
 Client Operating Systems 49
 Client PC 258
 Clip 215, 217
 3616 215
 3626 217
 Clk-A 293, 296
 Clk-B 293, 296
 Clock Quality 134
 Close Monitor 86
 CM 49
 cmd 82
 Coaxial E1R2 Trunk Cards Only 92
 Code, Telephone Number 73
 codec 190
 codecs 190
 coldStart 165
 Colors 78, 262
 Colour 244, 245, 246, 251
 colours 283, 292
 Comma Separated Variable Text Files 73
 Comms Cards 298
 Communications 323
 Canadian Department 323
 communications/data 26, 277
 Community 55, 163, 164
 Set 164
 Compact Business Center 7, 46, 49, 255, 271, 298
 Compact Contact Center 7, 46, 49, 256, 298
 Compact Contact Center 5.0 CD 256
 Compact Contact Center V5.0 CD 48
 Compact DECT 36, 271
 Compact DECT Installation 7
 Compact Flash 179, 189
 Compact_Contact_C enter 256
 companding 177, 179, 181, 183, 185, 298
 Compile 161
 MIBs 161
 Compliance 321
 Conf 40
 Conference Chip 190
 Conferencing 49
 Conferencing Center 7, 49, 258, 271, 276, 298
 Conferencing Center Web Client 49
 Conferencing Web Client 49
 Config 161, 169, 171
 Configuration 84, 116, 169, 171
 Defaulting 171
 Erasing 169
 Receiving 84, 116
 Configuration Cradle 215, 216, 217, 298
 Configuration Memory 13, 176
 Configuration Tree 163, 164
 Configure Incoming Call Route 157
 configuring 112, 167
 IP Office 167
 Security Settings 112
 Conformity 317, 323, 325
 Declaration 317, 323, 325
 Connection 326
 Connection Type 30, 144
 Connector Type 22
 Contact Center View 49
 Contact Centers 54
 Contact Store 44, 259
 Contact Store Installation 7
 ContactStore 49, 259, 268, 274
 access 259
 ContactStore PC 44, 259
 ContactStore Web 49
 contains 48, 157
 HTML 48
 IP Office Administrator Applications CD 48
 IP Office Phone Manager 48
 S0 157
 Voicemail Pro application 48
 Contains IP Office Administration Applications CD 61

- Control Unit Power Up 80
Control Unit Summary 13, 176
Control Units 12, 62, 106, 141, 157, 175, 192, 193, 194, 195, 196
Controlling Ancillary 322
copy 42, 48, 55, 106, 169, 171, 263
 Avaya IP Office CD's 48
 CD 48
 IP Office CD 55
 IP Office's 169, 171
 Manager 106
 Monitor 42, 263
Core Software 106, 172
 Erasing 172
 Upgrading 106
correct 161
 CastleRock
 SNMPc V5.0.8 161
Country Code 158
Course Code 54
CPCS-CCC 23, 298
CPU Revision 0x0900 169, 171, 172
Create Configuration tool 72
Create New Config 72
Create Short 157
Creating 72, 106, 112, 141, 157, 158
 BOOTP 106
 Incoming Call Routing 158
 IP Route 141
 New Configuration 72
 Normal Service 141
 Super User 112
 System Short Code 157
 User 141
 WAN Link 141
Crystal Report Writer 256, 270
CS 49
CS22.2 No.42 23, 298
CSU/DSU 194
CSV 71, 73
CSV file 73
CSV File Formats 73
CTI 47, 48
 CTI Applications 47
 CTI Licenses 298
 CTI Link Pro 47, 270, 272, 298
 CTI Link Pro RFA 47 Purchasing 47
 Ctl-A 293, 296
 Ctl-B 293, 296
 Ctrl 273
 CTS 168, 286, 293, 294, 295
 CU 275, 276, 298
 Current Clock Source 86
 Current Service Pack 49
 Customer Helpline 320
 Customer Helpline 24 320
 Customer Principal Contact 62
 Customer Technical Contact 62
 customer's 7 establish 7
D
 damage 125, 249, 250
 EU24/EU24BL 125, 249, 250
 dan 40, 189
 Danish 40, 189, 264, 266, 267, 268
 Data Carrier Detect 168, 286, 293, 294, 295
 Data Channels 13, 176, 177, 179, 181, 183, 185
 Data Set Ready 168, 286, 293, 294, 295
 Data Terminal Ready 168, 286, 293, 294, 295
 data/telephony 62 existing 62
 Database Integration 44
 Datacenter Server 49
 Date 49
 Availability 49
 DC 177, 179, 181, 183, 185, 197, 199, 201, 203, 205, 207, 209, 322
 DC I/P 177, 179, 181, 183, 185, 197, 199, 201, 203, 205, 207, 209
 DC I/P Port 284
 DC Input 322
 DC Power Input 322
 DCD 168, 286, 293, 294, 295
 DCP 247
 Dual Radio Module 247
 Debug 169, 172
 Declaration 317, 323, 325
 Conformity 317, 323, 325
 DECT 36, 211, 271
 DECT DCU 271
 DECT Integration 48, 271, 298
 DECT Wireless Phones 36
 def06r1_8_3.bin 38
 def24r1_8_3.bin 38
 Default Music on Hold Tones 142
 Default None 62
 Default On 62
 Default Short Codes 150
 Defaulted IP Office Control Unit 82
 Direct Connection 82
 Defaulting 106, 169, 171
 192.168.42.1. 169
 Configuration 171
 IP Office 169
 IP Office's 171
 Security Settings 171
 Validate 106
 Delta 45, 260
 Delta Server 7, 45, 46, 48, 49, 255, 256, 260
 Delta Server 4.0 49
 Delta Server application 49, 260
 Delta Server SMDR Output 45, 260
 Denmark 40
 Depth 13, 176
 Deselect Feature Key Server 78
 Design 54
 Desk Mounting 120
 desking 127, 129
 login 129
 Details 62
 deu 40, 189
 Device Type 68, 69, 70
 DevLink 48
 DEVLink Pro 47, 272
 DHCP 53, 82, 100, 154, 209
 DHCP Addresses 62
 Number 62
 DHCP IP Addresses 80
 DHCP Mode 62, 80
 Dial Channels 158
 Dial In 141
 Dial In On 141
 Dial Plan Base Numbering 62
 DialEmergency 324
 DialIn 80
 Dialing 62
 Short Code 62
 DID 123456 157
 DID's 157
 diffserv-dscp-tc.mib 161
 DIFFSERV-MIB 161
 DIFFSERV-MIB.mib 161
 diffserv-mib-hpov.mib 161
 Digital Extension Users Using Structured Cabling 131
 Digital Leased Circuit 209
 Digital Phones 38
 Digital Station 13, 20, 28, 36, 98, 104, 165, 176, 179, 183, 185, 199, 201, 279, 285, 298
 Digital Station 16 Module 24
 Digital Station 30 Module 24
 Digital Station Expansion 30, 144
 Digital Station Expansion Module 38
 Digital Station Module Connections 201
 Digital Station V1 22, 23, 298
 Digital Station V1/V2 285
 Digital Station V2 20, 22, 23, 28, 62, 98, 104, 298
 Digital Station V2 Connections 199
 Digital Station V2 Expansion Module 38
 Digital Telephone Ports 322
 Direct Connection 82
 Defaulted IP Office Control Unit 82
 Directory Name 62

- Disabled 62
- display 112
 - IP Office 112
- Display All Buttons 127
 - selecting 127
- distances 26, 277
 - DS 26, 277
- distributor/supplier 320
- Distributors 320
- Disturb 47
- DoC 317, 323, 325
- Documentation 77
- Documentation CDs 48
- dongle 10, 34, 42, 58, 153, 168, 261, 286
 - uses 34, 153
- dongles 10
- Door 150
- Door Release 150
- Double-click System 163, 164
- DRM-D 247
 - connect 247
- DS Phone
- Extensions 30, 144
- DS Phone IROB Installation 146
- DS Ports 285, 291
- DS V1 199, 223
- DS V2 199, 223
- DS16 70, 201
- DS16 V2 70, 199
- DS30 70, 201
- DS30 V2 70, 199
- DSR 168, 286, 293, 294, 295
- DSS 248, 298
 - Power Supply Unit 298
- DSS Add-On 223
- DSS4450 298
- DT 13, 176, 183, 185, 322
- DT Port Support 183
- DTE 34, 153, 167, 168, 169, 171, 172, 199, 203, 286, 322
- DTE Cables 168, 286
- DTE Port 13, 168, 176, 286
- DTE Port Overview 167
- DTMF 47
- DTR 168, 286, 293, 294, 295
- Dual PCMCIA 185
- Dual PRI 13, 62, 92, 176, 179, 181, 183, 279
- Dual Radio Module 247
 - DCP 247
- During 40, 61, 298
 - 2006 298
 - Staging Installation 61
 - Voicemail Pro 40
- Dutch 48, 264, 266, 267, 268
- E**
- E1 10, 13, 62, 165, 176, 196, 292
 - including 292
- E1 PRI 135, 137, 195, 298
- E1 PRI Trunk Cards 195
- E1R2 10, 14, 28, 92, 104, 134, 135, 165, 196, 298, 319
- E1-R2 292
- E1R2 Coaxial Connections 92
 - Grounding 92
- E1R2 on Small Office Edition 62
- E1R2 PRI 13, 176, 196
- E1R2 PRI Trunk Cards 196
- E1R2 Trunks 135
- E1R2PRI 196
- E911 177, 179, 181, 183, 185, 298
- earthed 30, 104, 144, 149, 154, 298
- earthed 3-Pin 177, 179, 199, 203, 207, 209
- earthed 3-pin 60W 199, 203
- Earthed Power Cords 23, 298
- eBLF 266, 271, 298
- Edit 120, 127, 135, 141
 - WANPort 141
- EEC 323
- Electrical 8, 297
- Electronic Equipment 8, 297
- email 43, 44, 55, 62, 258, 268
- E-mail 49
 - Voicemail 49
 - email SNMP 160
 - SMTP 160
- Embedded Voicemail 16, 40, 44, 190
- Embedded Voicemail Installation 7, 189
 - refer 189
- Embedded Voicemail Memory Cards 16, 189, 298
- EMC 317, 325
- EMC Cautions 323
 - China 323
- EMC Directive 323
- EMEA 36
- EMEA/APAC 36
- Emergency Numbers 62
- EN 609050 322
- ena 40
- Enable BootP Server 172
- Enables 3rd 268, 274
- Enables CCC Report Designer 256, 270
- Enables CTI Link Pro 272
- Enables IMS 268
- Enables IMS Pro 274
- Enables IP Office 274
- Enables Phone Manager Pro 264, 273
- Enables Phone Manager Pro IP softphone 264, 273
- Enables synchronization 268, 274
 - MS Exchange email 268, 274
- Enables VB Script 268, 274
- Enables Voicemail Pro 268, 274
- Enables VPNM 268, 274
- Encrypted Password 141
- END 161
- eng 40, 189
- Engineer's Toolkit CD 317
- English 48, 158, 258, 264, 266, 267, 268
- Enter AT 169, 171, 172
- Enter AT-DEBUG 169, 172
- Enter AT-SECURITYRESETA LL 171
- Enter AT-X 172
- Enter ipconfig 82
- entering 86, 164, 273
 - IP Address 86, 164
 - Phone Manager 273
- Port 164
- Enterprise Portal 55
- ENTITY-MIB 161
- enu 40, 189
- Environmental requirements 60, 96
- enz 40
- EQUIPMENT 77, 146
 - Unpacking 77
- Equipment Availability 8, 297
- Equipment Checklist 77
- Equipment Required 80, 82, 88, 90, 92, 96, 98, 100, 102, 104, 120
- Erase 169, 171
 - IP Office's 169
- Erase Configuration 169
- erase_configuration.htm 169
- eraseconfig 169
- erasenvconfig 169
- Erasing 169, 172
 - Configuration 169
 - Core Software 172
 - Operational Software 172
- es 165
- esl 40
- esm 40, 189
- eso 40
- esp 40, 189
- esr 40
- ess 40, 189
- establish 7
 - customer's 7
- Estimated Date 49
 - Availability 49
- esv 40
- Ethernet form 181, 183
- Ethernet LAN 179
- Ethernet WAN 12
- ETSI 14
- ETSI BRI 20, 194
- ETSI BRI S0-interface 207
- EU24 1XU-A
- Expansion Module 249, 298
- EU24 Add-On 125
 - Installing 125
- EU24/EU24BL 125, 249, 250
 - damage 125, 249, 250
 - Installing 125
- EU24/EU24BL Phone add-ons 22

- EU24BL 125, 229, 230, 232, 237, 238, 239, 240, 250, 298
- EU24BL 2XU-A Backlighted
- Expansion Module 250, 298
- EU24BL add-ons 298
- European 218, 219, 298
- European ISDN 158
- European Union 8, 297
- Europlug 23, 298
- Events 164
 - Select 164
- EVM 40
- Excel 73
- except 14, 20, 32, 53, 96, 98, 190, 192, 193, 196, 287
 - Small Office Edition 14, 32, 53, 96, 190, 192, 193, 196
 - WAN3 20, 98, 287
- Excessive RENs 326
- Exchange 44, 268
- exp 73
- Expansion 98, 177, 181, 197, 199, 201, 203, 205, 207, 209
- Expansion Interconnect 98, 177, 179, 181, 183, 197, 199, 201, 203, 205, 207, 209, 287
- Expansion Interconnect Cable 287
- Expansion Module 28, 62, 70, 98, 104, 165, 322
 - Adding 98
- Expansion Module Ground Points 28
- EXPANSION Ports 13, 176, 287
- Expansion Units 62
- expiry 35, 152
- Exporting 73
 - Settings 73
- Exporting Settings 73
- EXT O/P 150, 151, 288
- EXT O/P Port 151, 288
- Extension 73, 129
 - change 129
- Extension Number 68, 69, 70, 129
- Changing 129
- Extension Users 131
 - Swapping 131
- External Clock 293, 295
- External Control 322
- External Expansion Modules 20, 58, 98, 175, 298
- External MOH 142
- External O/P Switch Port 13, 176
- External Output 150
 - Using 150
- External Output Switch 30, 144
- Extn201 80
- Extn202 80
- F**
- Fallback 134
 - set 134
- Far Control 158
 - Near Camera 158
- Feature Key Dongles 34, 153, 298
- Feature Key Serial Number 62
- Feature Key Server 48, 78, 154, 156, 164, 261
 - part 156
- Feature Key Server IP Address 62
- Feature Key Server PC 49, 154
- Feature Key Server PC's 24
- Feature Key Type 34, 62, 153
- Federal Communications Commission 323
- Ferroglyph 256, 270
- FIC 326
- Finish 72
- Finland 40
- Finnish 189, 264, 266, 267, 268
- firewall 172, 177
- Firmware 120
 - Checking 120
- FIRMWARE UPDATE IN PROGRESS 120
- Fixed IP 82
- fixing 88, 90, 92, 102
 - IP Office 88, 90, 92
 - Z-bracket 102
- Flash 106, 169, 171, 289
- Flow Control 168, 286
- Following 12, 42, 163, 256, 270, 319, 324
 - Bearer Capabilities 324
 - CCC 256, 270
 - IP Office 12, 163, 319
 - Windows 42
- Forcing 120
 - Software Upgrade 120
- form 9, 146, 147, 181, 183
 - Ethernet 181, 183
 - IP Office 9
 - IP Office Phone Barrier Boxes 147
 - IROB 146E 146
- Forward All Calls 47
- Forward on Busy 47
- Forward on No Answer 47
- fra 40, 189
- Frame-Relay 165
- France 40
- frb 40
- frc 40, 189
- Free EXPANSION 98
- Free LAN 100
- Free Standing 62
- free-standing 32
 - stackable 32
- French 40, 48, 258, 264, 266, 267, 268
- French Canadian 40, 267, 268
- French, German 48
- French-Canadian 189
- From/To 190
- frs 40
- Functional Grounding 98, 100
- functions 230, 232, 233, 234, 235, 236, 239, 240
 - 2402D 233
 - 2410 234, 235
 - 4601 236
 - 4620SW 230, 239, 240
 - 4621SW 232
- Further Information 320
- FWV 120
- G**
- Gain 321
- Gang 217
- GEN1 226, 228, 231, 298
- GEN1 4606 298
- GEN2 226, 228, 231, 298
- General Licenses 298
- German 40, 48, 189, 258, 264, 266, 267, 268
- Germany 40
- get 24, 169, 171, 172
 - Loader 169, 171, 172
 - VA 24
- grant 325
 - Telepermit 325
- Greece 40
- Greek 40, 267, 268
- Green 289
- Green/White 282, 283, 289, 292
- green/yellow 104, 149
 - Connect 149
- GREY 289
- Ground/Chassis 151, 288
- Grounding 92, 98, 100
 - E1R2 Coaxial Connections 92
 - Requirements 98, 100
- Group 73
- H**
- H.323 53, 271
- H.323 IP 53
- H.323 IP Phones 36, 38
- HAC 120
- Handset 247
- Handset Cords 25ft 298
- Handset HIP QD CORD 298
- handsfree 43, 264
- Hard Disk Space 78, 262
- hardphones 36
- Hardware/Hardware 158
- Hardware/Software 158
- Hazard Symbol 318
- healthcare 216
- Hearing 142, 326
 - Aid Compatibility 326
 - system's 142
- Hello 169, 172
- Help 273
- Helpline 320
 - call 320
- Hence, Avaya IP Office 318

- Highlands Ranch 320
- HOLD RESET 131
- holdmusic.wav 142
- holdmusic.wav file 142
 - look 142
- Homologation Statements 317
- Hong Kong 40
- hosting 78
 - Parallel 78
- hot-swapable 185
- Hours Access Notes 62
- housing 318
 - Avaya IP Office 318
- HP Open View Network Node Manager 161
- HP OpenView 42, 160
- HP OpenView Network Node Manager 6.41 160
- htm 256
- HTML 48
 - Contains 48
- Humidity Range 62
- hun 40
- Hungarian 40, 267, 268
- Hungary 40
- Hunt 73
- Hunt Group 73, 80
- HuntGroup 73
- HyperTerminal 168, 169, 171, 172, 286
- I**
- IP Office Serial Port Feature Key dongle 177, 179, 181, 183, 185 106
 - Select 106
- IROB 146E 146, 199, 201, 285
 - form 146
- IROB's 30, 144, 146
- ISDN 20, 86, 207, 279, 282, 283, 322
 - connect 282, 283
- ISDN Switch Protocol 158
- ISDN Terminal 282
- ISDN Version 158
- ISDN Video Calls 158
- ISDN_Quad_BRI 158
- isl 40
- ISP 53
- ita 40, 189
- Italian 40, 48, 189, 258, 264, 266, 267, 268
- Italy 40, 142
- Its LAN 177
- IVR 44, 49, 268
- J**
- J1 10
- J6 92, 196
- Japanese 48, 189
- jpn 189
- June 21 169
- June 26 256
- June 26th 2003 49
- K**
- Key Server 156
- know 172
 - MAC 172
- kor 40, 189
- Korea 23, 40, 181, 183, 196, 197, 201, 205, 298, 319
- Korean 40, 48, 189, 264, 266, 267, 268
- L**
- L2TP 271
- Label 127
- Lamp Operation 127
- LAN 10, 12, 20, 26, 34, 36, 42, 43, 46, 53, 80, 82, 100, 106, 153, 179, 181, 183, 190, 209, 260, 277, 279, 289, 298, 322
 - Connect 82
 - MDI 181, 183
- LAN Cable 80, 82, 289
- LAN Crossover Cable 289
- LAN Interconnect 209
- LAN Interconnect Cable 289
- LAN Port 289
- LAN1 62, 80, 289
- LAN2 62, 80, 185, 289
- LANM 86
- Large 4400 Series Stand 222, 223
 - 4412D+/4424D 222, 223
- Large Stand 298
 - 4412D 298
- Latin Spanish 40, 48, 258, 264, 266, 267, 268
- LAW 86
- Layer 179, 279
- layer-2 LAN 289
- layer-3 Ethernet 289
- layer-3 LAN 289
- lead 38
 - misoperation 38
- LED 80, 82, 98, 199, 289
- Left Channel 281
- Legal Requirements 142
- Level 2.0 106
- levels 7
 - IP Office 7
- LIC 276, 298
- Licence Keys 175
- License 73, 155, 156
- License Key Server 165
- License Keys 35, 152
- License Keys CCC 270
- License Keys CTI 272
- License Keys General 271
- License Keys Phone Manager 273
- License Keys Voicemail 274
- License Name 62
- License Server IP Address 80, 155, 156
 - set 155
- License, License Key 73
- Lightning 318
 - Protection/Hazard Symbols 318
- limits 322, 323
 - Class 323
 - SELV 322
- Line 134, 135, 137, 146
- Line Group 158
 - Incoming 158
 - Outgoing 158
- Line Group ID 157
- Line Group ID 701 157
- Line Group ID 702 157
 - Repeat 157
- LINE IN 125
- Line Isolation Module 324
- Line Number 158
- Line Out 281
- Line Reversal 203, 205
- Line Signalling Type 135
 - set 135
- Line Sub Type 158
- Link 165, 244, 245, 246, 251
- T3 UPN 244, 245, 246
- voicemail 165
- linkDown 165
- linkUp 165
- listen 142
 - system's 142
- Lite 40, 43, 49, 264
- Lithium 317
- Lithium Batteries 317
- Load/Unload MIBs 161
- Loader 169, 171, 172
 - get 169, 171, 172
- Locale 40, 72
 - Select 72
- Locale Specific Power Cord 80
- localhost 260
- Locate 120
 - Manager 120
- log 160
 - SNMP 160
- login 129
 - desking 129
- look 142
 - holdmusic.wav file 142
- Look In 73
- Loop-Start 192, 193, 298
- Lucent Blvd 320
- LVD 317, 325
- Lycos Forum 55
- M**
- M3 102, 120
- M4 149
- M4 Cross-Head Screwdriver 104
- M4 earthing 149
- MAC 80, 84, 112, 116, 171, 172
 - know 172
- MAC Address 172
 - matches 172
- Main 80, 157
- Main Building 147
- maintain 42
 - IP Office 42
- Maintenance 54
- Maintenance Applications 42
- Major 120
- Management Information Base 161
- Manager 40, 42, 48, 72, 73, 78, 84, 98, 106, 112, 116, 120, 129, 142, 155, 156, 163, 164, 169, 172, 262
 - 200MB 78, 262

- copy 106
- IP Office 106
- Locate 120
- match 84
- part 112
- Manager - Install 78
- Manager application 73, 84, 106
 - part 106
- Manager PC 82, 98, 100, 106, 120
 - Connecting 82
- Manager PC's Local Area Network 82
- Manager TFTP Log 172
- Mandatory Grounding 28, 104
- Master 203
- match 72, 84, 172
 - IP Office 72, 84
 - MAC Address 172
 - Manager 84
- Maximum 168, 286
- Maximum a.c. 281
- Maximum Cable Length 290, 291
- Maximum Configuration Size 177, 179, 181, 183, 185
- Maximum Extension Capacity 13, 176
- Maximum Extensions 177, 179, 181, 183, 185
- Maximum Length 283, 292, 294, 295, 296
- Maximum Time on Call 158
- Maximum Voltage 151, 288
- MDF 325
- MDI 177, 181, 183, 289
 - LAN 181, 183
 - MDIX 289
- MDIX 181, 183, 289
 - MDI 289
- MDM 86, 90, 92
- Media Service Provider 47
- MENU 120
- Mexico 40
- MHT 258
- MIB 161
 - Compile 161
 - select 161
- MIB Database 161
- MIB file 160, 161
 - MIB file SNMP-FRAMEWORK-MIB.mib 161
 - Add 161
 - Microsoft 47, 49
 - Microsoft Client 49
 - Microsoft Exchange 5.5 49
 - Microsoft Explorer 5.5 259
 - Microsoft Explorer 6.0 260
 - Microsoft Office 258
 - Microsoft Server 49
 - Microsoft Telephony Application Program Interface 43
 - Microsoft Windows 2000/2003/XP Professional 49
 - Microsoft's MS-CRM 43
 - Mid Span PSU 24
 - Minimum Assessment Target 53
 - Minimum PC Requirements 254, 255, 256, 259, 260, 261, 263, 264, 266, 267, 268
 - Minimum PC Resources 49
 - Minimum Server PC Requirements 258
 - Minimum Wire Size 290, 291
 - misoperation 38
 - lead 38
 - Mobile Twinning 271, 276, 298
 - Modem 92
 - Modem Card Fitted 86
 - Modem Cards 16, 62, 90, 187, 298
 - Fitting 90
 - Installing 90
 - Modem2 164
 - Modify 156
 - MODU 86
 - Modular Messaging 274
 - voicemail 274
 - Module 22, 24, 38, 58, 172
 - MOH 13, 142, 176, 190
 - Monitor 42, 48, 86, 88, 90, 92, 263
 - copies 42, 263
 - Monitor Password 86
 - Running 86
 - start 88
 - Monitor Password 86
 - Monitor 86
 - Most Avaya 127
 - Most SMNP 160
 - Most SNMP 160
 - MP Mode 158
 - MS Exchange email 268, 274
 - Enables synchronization 268, 274
 - MS Internet Explorer 6.0 258
 - MS-CRM 43, 271, 298
 - allows 43
 - MS-CRM application 43
 - MS-CRM Integration 48
 - MSP 47
 - Mu-Law 322
 - Multi 324
 - Point 324
 - Multiple Managers 106
 - Multiple UPS 24
 - MultiPoint Setup 158
 - Multi-Sector Erase 172
 - Multi-Stage Upgrades 106
 - Music 142
 - Checking 142
 - Music on Hold 142, 322
 - N**
 - N/A 13, 49, 176
 - NA 223
 - naatm16.bin 38, 197
 - nadcp-16.bin 38, 201
 - nadcpV2.bin 38, 199
 - Name 62, 68, 69, 70, 73, 141
 - RAS 141
 - Name, Extension 73
 - Name, Number 73
 - napots16.bin 205
 - nas0-16.bin 38, 207
 - nawan3.bin 209
 - Near Camera 158
 - Far Control 158
 - NEMA 5-15P 298
 - IEC60320 C13 298
 - NEMA1-15 23, 181, 183, 197, 201, 205, 298
 - NEMA5-15P 23, 177, 179, 185, 199, 203, 207, 209
 - NET 78, 322
 - NET2 78, 262
 - Netherlands 40
 - Netlink OAI Gateway 298
 - Network 134
 - set 134
 - Network Assessments 53
 - Network Interface 158
 - Network Interface Type 158
 - Network Terminating Module 209
 - existing 209
 - Network Termination 283, 292
 - Networked Messaging 268, 274, 298
 - New 100
 - New Calls 120
 - New Configuration 72
 - Creating 72
 - New Style 298
 - New Zealand 40, 193, 197, 224, 225, 227, 242, 243, 252, 298, 325
 - new/defaulted IP Office 82
 - Next 72, 78
 - Next Update 49
 - nlb 40
 - nld 40, 189
 - No.8 102
 - No.8 panhead 102
 - Non-Avaya 16, 189
 - None 203, 205
 - non-IP 16, 53, 88
 - non-IP Office 9
 - Non-IP Phone 190
 - non-SNMP 160
 - non-telecommunications 325
 - Normal Business Hours 62
 - Normal Service 141
 - Create 141
 - Normally Slot 177, 179, 181, 183
 - North America 36, 177, 179, 181, 183, 185, 194, 220, 221, 222, 223, 298
 - North America/CALA 298
 - North American 177, 179, 181, 183, 185, 298
 - North, Central 23, 298
 - Norway 40

- Norwegian 40, 48, 189, 264, 266, 267, 268
 Notepad 161
 NOTICE 323, 325
 NT4 Operating Systems 49
 NTSC 158
 NTSC UIS Interface 158
 NTU 209
 number 10, 16, 34, 35, 48, 62, 86, 88, 152, 153, 157, 190, 273
 Analog Trunk Channels 86
 BRI 86
 CD's 10, 48
 DHCP Addresses 62
 Feature Key dongle 10, 34, 153
 Incoming 157
 IP Office 35, 152
 Phone Manager 273
 PRI 86
 VCM 16, 86, 88, 190
 WAN Ports 86
 WAN3 Modules 86
 NV Config 169, 171
 NZ 193, 298
- O**
 Off 289
 Off Line Configuration 71
 Off-Hook Current 280, 291
 offline 72, 73, 106
 Offline Upgrade 106
 ohms/km 294
 OL13A 326
 OL13B 326
 OL13C 326
 Old Style 298
 on/off 142
 online 55
 Only 125
 Cables Supplied 125
 open 78
 CD 78
 Open Configuration 84, 116
 Open Door 150
 OpenView Install CD 161
 OpenView Network Node Manager 161
 Start 161
- Operating 49, 78, 262
 System 78, 262
 Systems 49
 Operating Systems 49
 Operational Software 172
 Erasing 172
 Operator 84, 116
 Optional 78
 Optional Embedded Voicemail Card Slot 13, 176
 Optional Grounding 28, 104
 Orange/White 282, 283, 289, 292
 order 73, 163
 IP Office 163
 orderable item 270, 271, 272, 273, 274
 OS 49
 Windows XP 49
 OS's 1, 9 49
 Other Control Units 28, 58, 104
 Other IP softphones 36
 Other Non-Avaya Web Sites 55
 Other Plug-In Modules 165
 Out
 Service 135
 Type 135
 Outgoing 158
 Line Group 158
 Outlook 43, 44, 268, 274
 Outlook 2003 49
 Out-of-Building Connections/Lightning Protection 30, 144
- P**
 P12 Loader 2.4 169, 171, 172
 P4 2.4GHz 258
 P4 2.8GHz 259, 268
 PABX 53
 pack 215, 217, 298
 3616 215, 298
 3626 217, 298
 Package Damage 77
 Check 77
 Packet 190
 Packet Bus 190
 Packet Loss 53
 Page Calls 190
 panhead 102
 Parallel 62, 78, 158
 hosting 78
 Parallel Port 154, 156
- Parallel Port Feature Key 154, 298
 PARK 275
 PARK ID 298
 ADMM 298
 Park Time 62
 part 7, 38, 42, 106, 112, 156, 262
 Feature Key Server 156
 IP Office 7, 38, 42, 262
 IP Office Manager application 38
 Manager 112
 Manager application 106
 Part 15 323
 FCC Rules 323
 Parties 13, 176, 177, 179, 181, 183, 185
 Parts Required 61, 78
 Password 86, 116
 PBX Tech 55
 PC Pass-Through Port/with Voice Priority 224, 225, 226, 227, 228, 229, 230, 231, 232, 236, 237, 238, 239, 240
 PC Requirements 78, 262
 PC softphone 43, 264
 PC Wallboard 46, 49, 256, 270
 PC/Terminal 168, 286
 PC's 49
 PC-Base Licensing 34, 153
 PC-less 34, 153
 PC-Less Licensing 34, 153
 PCM 142
 PCMCIA 16, 165, 185, 188, 189
 changes 165
 PCs 154
 PC's 24, 42, 49, 62, 156, 261
 PC's BIOS 154
 PC's LAN 82
 PDF 48
 Pentium 49, 254, 255, 256, 258, 260, 261, 263, 264, 266, 268
 Pentium III 49
 Pentium III 800MHz 49
 Pentium IV 259, 267
 Pentium4 49
- Pentium4 2.8GHz 49
 Pentium4 600Mhz 49
 Peru 40
 PF 290
 PF Port 290
 PF1 197, 290
 PF2 197, 290
 PHONE 13, 20, 30, 68, 69, 98, 120, 125, 144, 147, 165, 176, 179, 185, 190, 203, 205, 211, 290, 291
 Connect 147
 POT 20
 Phone 16 70, 203, 205
 Phone 16 Module 24
 Phone 30 70, 203, 205
 Phone 30 Module 24
 Phone 30 V2 203, 205
 Phone Add-Ons 22, 175
 Phone Barrier Box 147, 149
 Phone Change 164
 Phone Charger 218, 219, 298
 Phone Display 40
 Phone Expansion Module 38
 Phone Manager 7, 43, 264, 273
 entering 273
 number 273
 Phone Manager IP Audio 36
 Phone Manager iPro 264
 Phone Manager Licenses 298
 Phone Manager Lite 35, 43, 152, 264
 Phone Manager Lite/Pro 49
 Phone Manager PC Softphone 49, 276, 298
 Phone Manager Pro 35, 36, 43, 150, 152, 264, 271, 273, 276, 298
 Phone Manager Pro IP Audio Enabled 264, 273, 298
 Phone Manager Pro PC Softphone 43, 264
 Phone Manager Pro PC Softphone application 36
 Phone Manager Type 264, 273

- Phone Manager/PC Softphone Avaya 49
Phone Module V2 20
Phone Module V2 Connections 203
Phone V1 20, 22, 23, 62, 147, 203, 205, 291, 298
Phone V1 Module Connections 205
Phone V1/V2 291
Phone V2 20, 22, 23, 28, 62, 98, 104, 147, 203, 205, 291, 298
Phone V2 Expansion Module 38
Phone16 V2 70
Phone30 V2 70
Phone8 70
Phone8 V2 70
Phones 20, 28, 104, 119, 147, 149, 203, 291, 298
 Installing 119
Phones Expansion 30, 144
PIII 800MHz 254, 255, 256, 260, 261, 263, 264, 266
PIN 151, 282, 283, 288, 292, 293
 Connect 293
 respect 151, 288
Pin 19 293
Pin Connections 283
Pin No 281
PIP 158
Planned System Location 62
Planning 120
 Chart 120
playing 44
 voicemail 44
plk 40
Plug 156
 Feature Key dongle 156
PoE 22, 125, 224, 225, 226, 227, 228, 229, 230, 231, 232, 236, 237, 238, 239, 240, 249, 250, 298
Point 149, 324
 center 149
 Multi 324
Poland 40
Polish 267, 268
Polling Support 163
Polycom 158
Polycom Video Module Settings 158
Polycom View Station 512 MP 158
Polycom Viewstation 158
 routed 158
Port 164
 Enter 164
Port Classification 322
Port Description 322
Port Name 322
Port Safety Classification 322
Port User Details 68, 69, 70
Ports + SNMP 298
Portugal 40
Portuguese 40, 189, 264, 266, 267, 268
Portuguese-Brazilian 189
post-installation 71
POT 20, 30, 69, 144, 147, 165, 183, 185, 190, 203, 205, 211, 279, 290, 291
 PHONE 20
potPhone 165
power 88, 90, 92, 98, 100, 169, 171, 172, 226, 228, 231, 298
 4600 Series 298
 IP Office 88, 90, 92, 98, 100, 169, 171, 172
 IP Office Control Unit 100
 WAN3 100
Power Adaptor 218, 219
 Rack Mount Charger 218, 219
Power Adaptor 218, 219, 298
 Charger 218, 219, 298
 Rack Mount Charger 298
Power Cords 23, 62, 298
Power Fail 322
Power Failure Operation 192, 193
Power Outlet Plug Type 23, 298
Power Supplies 22, 96, 179, 185, 197, 201, 245
Power Supply 4450 223, 248, 298
 T3 IP DSS 244, 245, 246
Power Supply Backup 24
Power Supply Sockets 62
Power Supply Units 298
 DSS 298
 T3 IP Phones 298
Poqidrive No 61
PPP 164, 165
pre-2.1 106
Pre-3.2 40, 84
pre-3.2 IP Office 40, 84
 running 84
Pre-3.2 IP Office Control Unit 84, 116
pre-configuration 71
Preferences 172
Prefix Dialing 137
pre-IP Office 3.2 78
pre-Level 2.1 Systems 106
 Upgrading 106
Press 120
Press Exit 120
PRI 12, 13, 14, 86, 134, 158, 176, 279, 283, 292, 322
 channels 158
 Number 86
PRI E1 319
PRI E1/E1R2 319
PRI Interface 324
PRI ISDN 322
PRI Port 292
PRI T1 319
PRI Trunk Cards 194
PRI/BRI Trunk Cable 283, 292
PRI/T1 92, 321
 Receive Gain Settings 321
Primary Protection Box 30, 144
Primary Rate 325
Pro 43, 86, 256, 264, 268
Pro3 49
Product 320
 including 320
Product Key 49
Product Updates 320
Professional 49
Program Files/SNMPc Network Manager/mibfiles 161
Programs 84, 86, 112, 116
Protection Device Type 30, 144
Protection/Hazard Symbols 318
 Lightning 318
Protective Grounding 98, 199, 203
Provides 12 V.90 16, 90
 providing 46, 125, 133, 195, 256, 298
 30B+D 195
 backlight 125
 IEEE 802.3af Power-over-Ethernet 298
 IP Office 133
 realtime 46, 256
PSU 20, 22, 23, 125, 177, 179, 181, 183, 185, 197, 199, 201, 203, 205, 207, 209, 298
ptb 40, 189
ptg 40, 189
punchdown 119
Purchasing 47
 CTI Link Pro RFA 47
Putonghua 40
Q
QSIG 14, 134
QSIG Trunks 135, 137
Quad BRI 13, 92, 176, 185, 194, 279, 283, 319
Queuing On 73
R
R&TTE 317
R&TTE Directives 325
R2 196
R3.0 49
R3.0GA 49
Rack Fixing 96
Rack Mount Charger 218, 219, 298
 Power Adaptor 218, 219
 Power Adaptor 298
Rack Mounting 32, 62, 96, 298
Rack Mounting Barrier Boxes 149
Rack Mounting Instructions 96
Rack Mounting Kits 32, 96, 177, 179, 181, 183, 185, 197, 199, 201, 203, 207, 209, 298
RAM 49, 78, 106, 169, 171, 172, 254, 255, 256, 258, 259, 260, 261, 262, 263, 264, 266, 267, 268

- RAM 256MB 254, 256, 262, 263
- RAS 80, 141
name 141
routed 80
- read 7
Avaya Technical Bulletins 7
- realtime 46, 256
Provides 46, 256
- rear 280, 287, 290, 292, 293
Analog Trunk 290
IP Office 280, 287, 292
WAN3 293
- Reboot 120
- Receive Clock 293, 294, 295
- Receive Data 293, 294, 295
- Receive Gain
- Settings 321
PRI/T1 321
- Receiving 84, 116, 155
Configuration 84, 116
IP Office 155
- records 45, 260
SMDR file 45, 260
- Refresh 84, 106, 112, 116
- REL 120
- Relabel 211
- Relay Off 150
- Relay On 150
- Relay Pulse 150
- Remote Access 55
- Removal 8, 297
Certain
Hazardous Substances 8, 297
- Remove 156
- Remove Programs 78
- REN 280, 291, 325, 326
sum 326
- Renummer Extension 129
- repacking 77
- Repair 156
- Repeat 157
Line Group ID 702 157
- Report Manager 46, 256
- Report Viewer 256, 270, 298
- representatives 317
- Republic 28, 30, 98, 104, 144, 192, 193, 197, 280
South Africa 28, 30, 98, 104, 144, 192, 193, 197, 280
- Request 293
Send 293
- Requirements 30, 98, 100, 144
Cabling 30, 144
Grounding 98, 100
requires 16, 44, 47, 92, 106, 116, 129, 131, 196, 267, 298
BOOTP 106
IEC60320 C13 298
IP Office 44, 92, 129, 131, 196, 267
Service User 116
TAPI-WAV 47
VCM 16
- Requires SCN IP 62
respect 151, 288
Pin 151, 288
- respond 163
SNMP 163
- Rest 177, 179, 181, 183, 185, 298, 319
World 177, 179, 181, 183, 185, 298, 319
- restarting 88, 142
IP Office 88, 142
- Restricted Digital Information 324
- Restricted Numbers 62
- Retain All Packaging 77
- RFA 35, 152
- RFA Name 256, 264, 266, 268, 270, 271, 272, 273, 274, 275, 276, 298
- RFC1215 Generic SNMP Traps 165
- rfc2213-integrated-services-mib.mib 161
- rfc2737-entity-mib.mib 161
- RFP LIC 275, 298
- RI 168, 286, 293, 294, 295
- Right 281
- Right-Hand Screw 147
- Rights Group 112
- RIM 253
- Ringer Equivalence Number 325, 326
sum 325
- RJ11 26, 120, 147, 277, 285, 291, 298
RJ11 285
RJ45 285, 291
- RJ11 Phone Connectors 26, 277
- RJ11-to-RJ11 26, 125, 277
- RJ11-to-RJ11 Cable 120
- RoHS 8, 224, 225, 253, 297
- Rotary 73
routed 80, 158
Polycom
Viewstation 158
- RAS 80
- ROW 323
- RS.232 168, 286
- RTS 168, 286, 293, 294, 295
- ruggedized 217
- Run Manager 172
- Run Phone Manager 273
running 10, 49, 55, 78, 82, 84, 86, 169, 171, 192
Admin Suite 78
ARA 55
IE6 49
IP Office 49, 192
IP Office 3.2 171
IP Office 403 169, 171
IP Office Feature Key 10
Monitor 86
pre-3.2 IP Office 84
- rus 40, 189
- Russia 40
- Russian 40, 48, 189, 264, 266
- Rx 293, 294
Rx1 92, 196
Rx-A 282, 283, 289, 292, 293, 295, 296
Rx-B 282, 283, 289, 292, 293, 295, 296
- RxCik 293
Rx-Cik 294
RxCik-A 293, 295
RxCik-B 293, 295
- S**
- S/T Interface 158
s/w 86
- S0 134, 135, 137, 157, 158, 298
contains 157
- S08 62, 165
- S08 Expansion Module 38
- Safety 317
- Safety Extra Low Voltage 325
- SAP 8, 256, 264, 266, 268, 270, 271, 272, 273, 274, 275, 276, 297, 298
existing 8, 297
- SAP 700210800 32, 96
- SAP 700293905 32, 96
- SAP 700407612 48
- Saudi Arabia 40
- Save Configuration As 106
- Save In 73
- scans 100, 106
IP Office 106
WAN3 100
- ScanSoft 268, 274, 298
- ScanSoft TTS CD's 268
- Schuko 23, 298
- SCN 106
- Screened Cable Drain Wire 294, 295, 296
- SCTE-A 293, 295
- SCTE-B 293, 295
- SDK 48, 298
- Secondary Building 147
- Sector 169, 171
- Sector Erases 169, 171
- Security 112
- Security Administration 112
- Security Administrator 112
- Security Settings 112, 169, 171
Configuring 112
Defaulting 171
understand 112
- securitypwd 112
- See Analog 197
- See Training 7
- Programming 127
- Select Compile 161
- Select Control Unit 100
- Select Directory 106
- Select Export 73
- Select Extension 129, 131
- Select Features menu 156
- Select File 73, 86, 106, 112

- Select General 112
- Select Import 73
- Select IP Office window 84, 112, 116
- Select License 155, 156
- Select Load 161
- Select OPTION 120
- Select Options 161
- Select Rights Groups 112
- Select Self Test 120
- Select Service Users 112
- Select Start 82, 84, 86, 112, 116
- Select System 155, 156
- Select Tools 129
- Select Unit 86
- Select Upgrade 106
- Select User 129
- Select View 172
- Select WAN 100
- Select Yes 106
- Selling 54
- SELV 322, 325
 - limits 322
- Send 293
 - Clear 293
 - Request 293
- Send Configuration 72
- Sentinel System Driver 156
- Serial Port Feature Key 298
- Serial Port Feature Key dongle 154
- Serial Port Feature Key Installation 155
- Serial, " USB 62
- Series 22, 26, 36, 120, 175, 277
- Series IP 160, 298
- Series IP Phone Installation 7
- Series IP Phones 22
- Series Phone 120, 298
- Series Wireless IP Installation 7
- Series/5600 Series 16, 189
- Series/5600 Series IP 22
- Server 49, 256, 264, 268
- Server Applications Dependencies 49
- Server IP Address 62
- Server, " Dial In Only 62
- Service 135, 141, 158
 - Out 135
- Service Group Membership 112
- Service Order Code 326
- Service Personnel 317
- Service User 112, 116
 - require 116
- Service User Details 112
- Service User Name 116
- Services Panel 156
- Set 40, 134, 135, 155, 157, 164, 172, 220, 298
 - 255.255.255.255 172
 - Any 157
 - Community 164
 - Fallback 134
 - License Server IP Address 155
 - Line Signalling Type 135
 - Network 134
 - PC 40
 - Trunk Type 135
- Settings 73
 - Exporting 73
 - Importing 73
- Settings | Emulation 168, 286
- Setup RAS 141
- setup.exe 78
- Shelf/Wall Mounting 102
- Shift 273
- Short Code 62, 157, 158, 324
 - Dialing 62
- ShortCode 73
- Simple Network Management Protocol 160
- Single PRI 13, 176, 279
- Single T1 PRI 185
- Single WAN 319
- Site
 - Site 141
 - Site A on IP 141
- Slave Socket 280
- Slot 13, 14, 28, 92, 104, 176, 177, 179, 181, 183, 194, 195, 196
 - IP406 V2 92, 194, 195, 196
- Small 4400 Series Stand 221, 223, 248
 - 4450 223
- Small Community Networking 106
- Small Office 12, 13, 16, 20, 176, 189, 190
- Small Office Edition
 - except 14, 32, 53, 96, 190, 192, 193, 196
- Small Office Edition 2T+4A 69
- Small Office Edition 4T+4A+8DS 69, 185, 298
- Small Office Edition 4T+8A 69
- Small Office Edition Connections 185
- Small Office Edition Control Unit 38, 58, 69
- Small Office Edition Trunk Cards 92
 - Fitting 92
- Small Office Edition WiFi 271, 298
- Small Office Edition Wireless Card 16, 188
- Small Office WiFi 188
- Small Stand 298
 - 4406 298
- SMDR 7, 45, 47, 260
 - called 260
- SMDR file 45, 260
 - records 45, 260
- SMDR6 49
- snmp_mibs 161
- SMNPc 161
- SMTP 160
 - email SNMP 160
- SN 154
- SNMP 42, 160, 161, 163, 164, 165
 - called 160
 - Enabling 163
 - log 160
 - respond 163
 - select 163, 164
- SNMP Enabled 164
- SNMP Introduction 160
- SNMP MIB's 48
- SNMP Port 163
- SNMP Trap Sending 164
 - Enabling 164
- SNMP v1 160
- snmp_mibs/IPOffice 161
- snmp_mibs/IPOffice on IP Office Admin CD 161
- snmp_mibs/standard 161
- snmp_mibs/Standard on IP Office Admin CD 161
- SNMPc 161
- SNMPc mibfiles 161
 - IP Office Administrator Applications CD 161
- SNMPc's STANDARD.mib file 161
- SNMPv2-SMI 161
- SNMPv2-SMI.mib 161
 - including 161
- SNMPv2-SMI.mib file 161
- SO 158
- So8 22, 23, 70, 157, 158, 207, 279, 282, 283, 298
- So8 Example 157, 158
- So8 Module 24
- So8 Module Connections 207
- SOC 326
- SOE 12, 14, 26, 62, 88, 90, 92, 102, 277, 298
 - Connects 26, 277, 298
- SOE Only 62
- SoftConsole 7, 43, 48, 49, 266, 271, 276, 298
- Softphone 36
- Software 35, 152
 - Enabling 35, 152
- Software Developers Kit 48
- Software Features 35, 152
 - Enabling 35, 152
- Software Level 38, 177, 179, 181, 183, 185, 197, 199, 201, 203, 205, 207, 209
- Software Upgrade 120
 - Forcing 120
- sourced 22, 298
- South Africa 23, 28, 30, 40, 98, 104, 144, 192, 193, 197, 280, 298

- Republic 28, 30, 98, 104, 144, 192, 193, 197, 280
 - South America 23, 193, 298
 - SP2 49, 78, 262
 - SP4 49, 78, 262
 - Space Required 62
 - Space Requirements 58
 - Spain 40
 - Spanish 40, 48, 189, 264, 266, 267, 268
 - Spanish-Argentina 189
 - Spanish-Mexico 189
 - Specification 49
 - IP Office
 - Application PC's 49
 - Spectrum 256, 270
 - Spectrum 3214C
 - Wallboard 298
 - Spectrum 3214C
 - Wallboard Kit 298
 - Speech 44, 268, 276, 298
 - Third Party Text 276, 298
 - Speed Dials 62
 - SPID 158
 - stackable 32
 - free-standing 32
 - Stage 9a 92
 - Stage 9c 92
 - Stages Required 106
 - Staging Installation 61
 - During 61
 - Stand 241, 298
 - Stand 4400 Series
 - Stand 221
 - Standard DCP
 - Phone Keys 212, 213, 214, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243
 - Standard ETSI Euro-ISDN 158
 - Standard ETSI ISDN 158
 - Standard IP Office
 - Cables 26, 277
 - STANDARD.mib 161
 - STANDARD.MIB file 161
 - start 88, 161
 - Monitor 88
 - OpenView
 - Network Node Manager 161
 - Start Manager 120, 155, 156
 - station 275
 - IP DECT 275
 - Status 155, 156
 - Stop Bits 168, 286
 - streaming 272
 - WAV 272
 - structure 161
 - IP Office MIB 161
 - Structured Cabling
 - Line Cord 285, 291
 - subnet 82, 100, 106, 142
 - Subnet Mask 62
 - sum 325, 326
 - RENs 326
 - Ringer
 - Equivalence Numbers 325
 - summarizes 13, 176
 - IP Office 13, 176
 - Suomi 40
 - Super 112
 - Super Group 112
 - Super User 112
 - Creating 112
 - Supported Country
 - Locales 40
 - supporting 16, 55, 194, 209, 298
 - 10Mbps/100Mbps LAN 209
 - 2B+D 194
 - 512MB Compact Flash 16
 - 64Mb Compact Flash 16
 - XM24 298
 - Supports PRI 14
 - sve 40, 189
 - Svenska 40
 - swappable 188, 189
 - Swapping 131
 - Analog 131
 - Avaya 4600/5600 Series IP Extensions 131
 - Extension Users 131
 - Users Using Configuration Change 131
 - Sweden 40
 - Swedish 189, 258, 264, 266, 267, 268
 - Switch Type 158
 - switchable 279, 280
 - Switching 151, 288
 - Capacity 151, 288
 - Switzerland 40, 298
 - synchronization 133, 134
 - System Name 62
 - System Overview 9
 - System Password 62, 80, 84, 86, 106
 - System Short Code 157
 - Create 157
 - System Using
 - System Monitor 86
 - Checking 86
 - system's 142
 - hear 142
 - listen 142
 - Systems 49, 78, 155, 156, 262
 - Operating 49, 78, 262
- T**
- T1 10, 135, 137, 292
 - T1 PRI 13, 135, 165, 176, 194
 - T1 PRI Trunk Cards 194
 - T1 PRI Trunks 137
 - T1 Robbed-Bit 14
 - T1/PRI 298
 - T3 36, 40, 244, 245, 246, 251
 - T3 AEI/Headset Link 298
 - IP Phones 298
 - T3 Classic 244, 245, 246, 251, 298
 - T3 Comfort 245, 251, 298
 - T3 Compact 246, 251, 298
 - T3 DSS 22, 244, 245, 246, 251
 - T3 DSS Expansion Unit 244, 245, 246, 251, 298
 - T3 DSS Unit 244, 245, 246, 251, 298
 - T3 Headset 244, 245, 246
 - T3 Headset Link 244, 245, 246
 - T3 Headset Link Unit 298
 - T3 IP 13, 16, 175, 176, 244, 245, 246
 - AEI/Headset Link 244, 245, 246
 - T3 IP Classic 244
 - T3 IP Comfort 245
 - T3 IP Compact 246
 - T3 IP DSS 244, 245, 246
 - Power Supply 244, 245, 246
 - T3 IP Phones 298
 - Power Supply
 - Unit 298
 - T3 IP Power Supply Unit 244, 245, 246
 - T3 IPN 244, 245, 246
 - T3 Phones 40
 - T3 Series 26, 36, 40, 277
 - T3 Series Phones 298
 - T3 UPN 244, 245, 246
 - Link 244, 245, 246
 - T3 UPN Classic 244
 - T3 UPN Comfort 245
 - T3 UPN Compact 246
 - Taiwan 40
 - TAPI 43, 47, 48
 - TAPI 2.1 47
 - TAPI 3.0 47
 - TAPI 3.0. 47
 - TAPI Link Pro 272
 - TAPI WAV 47, 177, 179, 181, 183, 185, 272
 - TAPI WAV file 272
 - TAPILink Lite 43, 47
 - TAPILink Pro 47, 272
 - TAPI-WAV 47
 - requires 47
 - Target Service Date 62
 - TCP 45
 - TCP/IP 82, 154
 - TDM 190
 - TDM Bus 190
 - Technical Bulletins 61
 - Technical Support Organization 320
 - Tek-Tips 55
 - Telecom 325
 - telecommunications 324
 - telecoms 133
 - Telepermit 325
 - grant 325
 - Telepermitted 325
 - Telephone
 - Companies 326
 - Extension 322
 - No 324
 - Numbers 62, 157, 320
 - Temperature Range 62
 - Terminal 172
 - Terminal Attachments 326

- Administrative Council 326
- Tested 259
- Text To Speech 49
- Text-to-Speech 276, 298
 - IP Office 276, 298
- TFTP 16, 42, 53, 106, 120, 142, 172, 189, 262
- TFTP Server IP Address 62, 142
- TFTPLog 172
- These MIB 161
- These Ports 322
- These WAN 209
- Third Party Database Access 49
- Third Party Text 276, 298
 - Speech 276, 298
- TIA/EIA-IS-968 Section 4.5 321
- TIA/EIA-IS-968 Section 4.5.2.5. 321
- Tick SNMP Enabled 163
- Time 62
- Time Server IP Address 62
- tip/ring 318
- TNV 322
- TNV2 322
- TNV3 322
- To Send 168, 286, 294, 295
- to/from 16
 - IP 16
- Tone Generator 190
- Tools 61
- Tools Required 61, 88, 90, 92, 98, 100, 102, 104, 106, 120
- TOT 86
- Traditional IDC Punchdown Wiring Installations 26, 277
- Transmit Clock 293, 294, 295
- Transmit Data 168, 286, 293, 294, 295
- TransTalk 36, 175
- TransTalk 9040 247
- Trap Destination 164
- Trap Generation 165
- Troubleshooting Workshop 54
- Trunk 190
- Trunk Cards 14, 92, 175, 177, 179, 181, 183, 185, 298
 - Fitting 92
- Trunk Cards Supported 13, 176
- Trunk Configuration 133
- Trunk Connections 26, 277
- Trunk Interface 165, 317
- Trunk Interface Cards 92
 - Fitting 92
- Trunk Interface Modules 319
- Trunk Slot 62
- Trunk Type 135
 - Set 135
- TS013 324
 - connecting 324
- TSO 320
- TTS 44, 49, 268, 274, 298
- TTY 40, 168, 286
- turn_off.bat 120
- turn_on.bat 120
- Twisted Pair 295, 296
 - Tx 293, 294
 - Tx1 92, 196
 - Tx-A 282, 283, 289, 292, 293, 295, 296
 - Tx-B 282, 283, 289, 292, 293, 295, 296
 - TxCik 293
 - TxCik-A 293, 295
 - TxCik-B 293, 295
- TYP 86
- Type
 - Out 135
- types 10, 244, 245, 246
 - DS 244, 245, 246
 - Feature Key dongle 10
- Typical Desktop PC 24
- Typical IP Office System 24
- Typical Off-Hook
- Typical Server PC 24
- U**
- UDP 45, 163, 164
 - IP 45
- UK 40, 48, 211, 218, 219, 298
- UK English 40
- UL60950 317
- U-Law 177, 179, 181, 183, 185, 298
- Unboxed 177, 179, 181, 183, 185, 197, 199, 201, 203, 205, 207, 209
- Under Destination 141
- Under File 172
- understand 112
- Security Settings 112
- Unearthed Power Cords 23, 298
- UNI 194, 298
- uninsulated 318
- uninterruptable 55
- Uninterrupted Power Supply 24
- Unit 98
- Unit/Broadcast 106
- Unit/Broadcast Address 84, 112, 116
- University 54, 55
- Unknown 35, 152, 155, 156
- Unpacking 77
 - Equipment 77
- Unshielded Twisted-Pair 26, 277
- Unsuitable 134
- untick 106
 - Validate 106
 - WAN3 106
- Unused Trunks 135
- Unvalidated 106
- Unvalidated Upgrade 106
- up/down 164
- Upgrade Procedure 106
- Upgrade Wizard 106
- Upgrade Wizard tool 106
- upgradeable Avaya 42
- Upgradeable Firmware 223, 224, 229, 230, 232, 236, 239, 240, 243, 244, 245, 246
- UpgradeWiz 106
- Upgrading 106, 112, 120, 172, 275, 298
 - 1.99 106
 - 3-5 275, 298
- Core Software 106
- IP Office 106
- IP Office 3.2 112
- IP403 106
- IP406 V1 106
- IP406 V2 106
 - pre-Level 2.1 Systems 106
- UPLINK button 181, 183, 289
- UPN 26, 36, 175, 277, 298
- UPS 24, 55
- UPS Calculator 55
- URL 320
- US 48, 120, 226, 228, 231, 267, 268, 298
- US English 40
- US PRI 194
- USB Feature Key 154
- USB Feature Key Installation 156
- USB Port Feature Key 298
- Use External Music 142
 - selecting 142
- Use External Music on Hold 142
- User 80, 127, 129, 141
 - Create 141
 - Select 127
- User | Telephony 264, 273
- User Applications 43
- User Applications CD 48
- User Name 68, 69, 70
- User Restriction/Rights 73
- User Setup 158
- Users Using Configuration Change 131
 - Swapping 131
- uses 34, 153, 189
 - 512MB Compact Flash 189
 - 64MB Compact Flash 189
 - dongle 34, 153
- Uses IEC60320 C13 298
- Uses IEC60320 C7 298
- Using 150
 - External Output 150
- Using 14AWG 149
- Using IP Office 150
- Using IP Office Manager 127
- Using Manager 92, 100, 106, 127
- USOC RJ45S 326
- USOC RJ48C 326
- UTP 26, 277
- V**
- V.24 14, 20, 100, 177, 179, 181, 183, 209, 279, 293
- V.24 WAN 294
- V.24 WAN Cable 294

- V.24 WAN Service 294
V.24/V.28 209, 293
V.24/V.35 293
V.32 16, 187
V.35 14, 20, 100, 177, 179, 181, 183, 209, 279, 293
V.35 WAN 295
V.35 WAN Cable 295
V.35 WAN Service 295
V.90 16, 90, 187
 incoming 16
V1 13, 14, 16, 90, 92, 176, 190, 298
V1/V2 319
V2 13, 14, 16, 20, 90, 92, 106, 176, 190, 203, 298
V3.0 49
V3.1 49
V35 Gnd 293
V5.0.1 161
 CastleRock
 SNMPc 161
VA 24
 get 24
Valid 155, 156
Validated 106
 default 106
 untick 106
Validated Upgrade 106
Various IP Office 10, 34, 35, 152, 153
VB Scripting 276, 298
VCM 13, 16, 36, 53, 86, 88, 92, 176, 190, 298
 Number 16, 86, 88, 190
 require 16
VCM 10 298
VCM 16 298
VCM 20 298
VCM 20 on IP403 190
VCM 24 298
VCM 30 298
VCM Card Slots 177, 179, 181, 183, 185
VCM Cards 13, 16, 62, 88, 176, 190
 Fitting 88
 Installing 88
VCM10 16, 88, 190
VCM16 16, 88, 190
VCM20 16, 88, 190
VCM24 16, 88, 190
VCM30 16, 88, 190
VCM4 16, 88, 190
VCM5 16, 88, 190
VCM8 16, 88, 190
VCOMP 86, 88, 92
Venezuela 40
VER 86
Video 324
Video Comm Interface 158
Video Conference 158
View Station PVS 1419 158
Viewstation 128 158
Viewstation 256 158
Viewstation MP 158
Vinyl 217, 298
VK00nDd15SDvXox kw9cR9x_jOXr_AWz 9 10
VM 49
VM Lite 40, 49
VM Pro 40, 49, 256
VM Pro Server 259
VMAIL 86
VMPro 256
VMPro Database Interface 268, 274, 298
VMPro Recordings Administrators 259, 268, 274, 298
VMPro TTS 268, 274, 298
VMPro VB Script 268, 274, 298
Voice Compression 185
Voice Compression Channels 190
Voice Compression Module Cards 190
Voice Compression Modules 16, 53, 88, 298
 fitting 53
Voice Compressor 165
Voice Mail Pro 190, 274
Voice Priority Processor 10 298
Voice Priority Processor 20 298
voicemail 16, 24, 40, 42, 44, 49, 54, 61, 62, 78, 86, 112, 165, 179, 189, 190, 256, 259, 267, 268, 272, 274
 E-mail 49
 Link 165
 Modular Messaging 274
 playing 44
Voicemail Applications 44
Voicemail Calls 190
voicemail email 44, 73, 268
Voicemail Installation 49
 refer 49
Voicemail Licenses 298
Voicemail Lite 40, 44, 48, 49, 62, 78, 86, 190, 267, 268
Voicemail Lite Installation 7
Voicemail Lite/Pro 62
Voicemail Mail Lite 78
Voicemail On 73
Voicemail Pro 35, 40, 44, 48, 49, 62, 78, 150, 152, 258, 259, 268, 274, 276, 298
 CD 48
 during 40
 existing 268, 274
 refer 40
Voicemail Pro 3.2 268
Voicemail Pro 3.2 CD 48
Voicemail Pro application 34, 48, 153
 Contains 48
Voicemail Pro CD 298
Voicemail Pro Installation 7, 40
 Refer 40
Voicemail Pro Networked Messaging 268, 274, 276, 298
Voicemail Pro PC 35, 152
Voicemail Pro Port 177, 179, 181, 183, 185
Voicemail Pro ScanSoft Text-to-Speech 298
Voicemail Pro ScanSoft TTS CD's 48
Voicemail Pro Server 268
Voicemail Pro/TAPI WAV 13, 176, 177, 179, 181, 183, 185
Voicemail Pro's TTS 48
Voicemail Server 86
Voicemail Type 62
VoIP 43, 53, 185, 264, 298
Voltage 280, 291
VPN IPsec 276, 298
VPNM 48
VS 158
W
Wall Fixings 120
Wall Mounting 62, 120
Wallboard 256
Wallboard Client 49, 256
Wallboard Manager 46, 256, 270
Wallboard Server 49, 256
Wallboard Server MUST 49
Wallboard/22 298
WAN 13, 86, 92, 100, 141, 176, 177, 179, 185, 190, 209, 279, 289, 293, 294, 295, 296, 298, 319, 322
 connect 141, 209
 fitting 92
WAN Cables 100
WAN Cards 195
WAN ID 293
WAN Link 141
 Creating 141
WAN Port 86, 293
 Number 86
WAN Service 141
 become 141
WAN Trunk Card 195
WAN1 62
WAN2 62
WAN3 10, 12, 20, 26, 72, 98, 100, 106, 164, 165, 209, 277, 279, 287, 289, 293, 294, 295, 296, 298
 Connect 100
 except 20, 98, 287
 excluding 72
 including 106
 power 100
 rear 293
 scanned 100
 untick 106
WAN3 10 209
WAN3 10/100 20, 22, 23, 62, 209, 298
WAN3 10/100 Expansion Module 38
WAN3 10/100 Modules 100, 106

WAN3 Module 24, 86, 100
 Adding 100
 Number 86
 WAN3 Module Connections 209
 WANPort 141
 Edit 141
 wants 92
 IP Office Rx1 92
 warmStart 165
 WARNING 28, 104, 154, 167, 169, 171, 192, 193, 197, 280, 287, 317, 323, 324
 WARNINGS 106
 Watts 22, 24
 WAV 272
 streaming 272
 wav file 16, 189
 Wave User 272, 298
 Web Campaigns 49, 268
 Web Sites 55
 website 48, 160
 Which IP Office Admin Suite 78
 Whilst PC's 154
 White/Blue 282, 283, 289, 292
 White/Brown 282, 283, 289, 292
 White/Green 282, 283, 289, 292
 White/Orange 282, 283, 289, 292
 Width 13, 176
 Windows 42, 43, 44, 49, 78, 256, 260, 268
 following 42
 Windows 2000 49
 Windows 2000 Professional 49, 78, 258, 262
 Windows 2000 Server 49, 78, 262
 Windows 2000/XP 49
 Windows 2000/XP/2003 61
 Windows 2003 49
 Windows 2003 SBS 78, 262
 Windows 2003 Server 49, 78, 262
 Windows 2003 server8 49
 Windows 95 49
 Windows 98 PCs 49
 Windows Control Panel 78
 Windows logon 78
 Windows ME 49
 Windows ODBC 44
 Windows Operating System Service Pack Support 49
 Windows PC 44, 46, 78, 256, 258, 267
 IP Office Administrator Applications CD 44, 267
 Windows Server 2003 49
 Windows Servers 49
 Windows Small Business Server 2003 49
 Windows System Tray 156
 Windows XP 49, 254, 256, 262, 263
 OS 49
 Windows XP Home Edition 49
 Windows XP Professional 49, 78, 258, 262
 Windows XP/2000 49
 Wireless Cards 16, 188, 298
 Wireless Keyboard/Remote Control 298
 Wireless Phone 215, 216, 217, 298
 Within Manager 120
 WordPad 73
 Workforce Management 46, 256
 World 177, 179, 181, 183, 185, 298, 319
 Rest 177, 179, 181, 183, 185, 298, 319
 www.avaya-learning.com 54
X
 X.21 209, 279, 293, 296
 X.21 WAN 14, 20, 100, 177, 179, 181, 183, 209
 X.21 WAN Cable 296
 X.21 WAN Service 296
 X.Y 38
 x01d01a2_3.bin 38
 x02d01a2_3.bin 38
 x1 279
 x10d01a2_3.bin 38
 x16 279
 x16/x30 279
 x2 259, 268, 279
 x20d01a2_3.bin 38
 x3 279
 x4 279
 x5 254, 255, 260, 261, 262, 263, 264, 266, 267, 268
 x5 CD's/Others x3 CD's 298
 x8 279
 x8/x16/x30 279
 XM24 22, 242, 243, 252, 285, 298
 Connects 252
 supporting 298
 XM24 Phone add-ons 22
 XM24 Stand 242, 243, 252, 298
 XM24D+M 298
 XP 154, 254, 255, 258, 259, 260, 261, 263, 266, 267
 XP Pro 256, 264, 268
 XX10 120
 XX20 120
Y
 Yahoo Groups 55
Z
 Z-bracket 102
 fixing 102
 zeroDotZero 161
 zhh 40
 Z-shaped 102
 Fit 102

Performance figures and data quoted in this document are typical, and must be specifically confirmed in writing by Avaya before they become applicable to any particular order or contract.

The company reserves the right to make alterations or amendments to the detailed specifications at its discretion. The publication of information in this document does not imply freedom from patent or other protective rights of Avaya or others.

Intellectual property related to this product (including trademarks) and registered to Lucent Technologies have been transferred or licensed to Avaya.

All trademarks identified by the ® or ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners.

This document contains proprietary information of Avaya and is not to be disclosed or used except in accordance with applicable agreements.

Any comments or suggestions regarding this document should be sent to "wgctechpubs@avaya.com".

© 2006 Avaya Inc. All rights reserved.

Avaya
Unit 1, Sterling Court
15 - 21 Mundells
Welwyn Garden City
Hertfordshire
AL7 1LZ
England

Tel: +44 (0) 1707 392200
Fax: +44 (0) 1707 376933

Web: <http://www.avaya.com/ipoffice/knowledgebase>