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Introduction

General
This manual covers the installation of Avaya IP Office - Small Office Edition equipped with software release Level 3.0+. It is intended for use by installers and maintainers who have successfully completed the appropriate Avaya IP Office - Small Office Edition training courses. Please note that, on software release Level 3.0+, DT telephones are not supported. For details of DT telephones, please refer to previous issues of this manual.

Ensure that you have read and understood this manual before beginning installation.
Scope of Manual
This manual, for the Avaya IP Office - Small Office Edition systems, covers the following subjects and should be read in the sequence shown below:

- **Avaya IP Office - Small Office Edition Platforms**
  This section provides details of the various Avaya IP Office - Small Office Edition platforms available. Illustrations of the front and rear of the unit show what ports/sockets/etc are provided. Typical configuration examples are also provided in this section. A further section details the country variants of modules/trunks/integral modules/etc.

- **Preparing for and Installing a new system**
  These sections provide all the information required and the actions to be performed to physically install a IP Office - Small Office Edition, i.e. what tools are required, the environmental/power requirements, wall mounting, etc. The software installation is covered in the following section.

- **Basic System Programming**
  System programming is necessary for configuration and maintenance of the Avaya IP Office - Small Office Edition. This manual only covers the installation of the IP Office - Small Office Edition suite of programs (see Programming Tools). For full details refer to the Installation Wizard Help files and/or to the Manuals contained on the documentation CD (supplied with every unit).

- **Terminal/Telephone Installation**
  This manual details the information required to install telephone but does not detail the usage and functionality of IP Office - Small Office Edition terminals/telephones. These details are to be found in the appropriate User Guides.
  The terminals/telephones that are supported by the IP Office - Small Office Edition are (these are also used across a number of Avaya platforms):
  - **Avaya 24xx Series**: 2402, 2410 and 2420
  - **Avaya 36xx Series**: 3616, 3626
  - **Avaya 44xx Series**: 4406D, 4412D, 4424D and 4450DSS (Caution: See DT Line Cord for Structured Cabling for wiring details on a 4450DSS module).
  - **Avaya 46xx Series**: 4601, 4602, 4610, 4602SW, 4620, 4606, 4612 and 4624
  - **Avaya 54xx Series**: 5402, 5410, 5420
  - **Avaya 56xx Series**: 5601, 5602, 5610, 5620
  - **Avaya 64xx Series**: 6408D+, 6416D+M, 6424D+M and XM24(DSS)

- **Safety and Homologation Statements**
  This provides all the necessary Safety, Homologation Statements and Regulatory Instructions for Use required. This section also detail where further information, including other Manuals and support telephone numbers, can be obtained.

- **Technical Data**
  This manual contains information on the Port Pinouts/Safety classifications, cables, and basic technical specifications only. Descriptions of the functionality, features and performance of the Avaya IP Office - Small Office Edition are covered by the Product Description.
**The IP Office - Small Office Edition Platform**

**General**
The Avaya IP Office - Small Office Edition system platform is supplied in a number of variants as follows:

1. Two Analog Trunks + 4 POTs (analog telephones) + 3 VoIP compressors.
2. Two Analog Trunks + 8 POTs (analog telephones) + 3 VoIP compressors.
3. Four Analog Trunks + 4 POTs (analog telephones) + 8 DS + 3 VoIP compressors.
4. Four Analog Trunks + 4 POTs (analog telephones) + 8 DS + 16 VoIP compressors.

See Avaya IP Office - Small Office Edition (Front View) for details and Country Variants for country specific variants.

The Avaya 4600 series telephones use the LAN ports.

The analog trunks ports are designed for loop start trunks and do not support Plain Ordinary Telephones (POTs).

The POT Ports support analog telephone and **must not** be connected to trunks.

The DS ports support Avaya 2400, 4400, 5400 and 6400 series telephones and can be set for either mu-Law or A-Law PCM encoding. At default DS ports are set to mu-Law and can be switched in software to A-Law (refer to the Administration Manager Manual for details).

The DT variants of Avaya IP Office - Small Office Edition continue to be available and are supported by Software Release 2.1.

All variants have a WAN port presented as 10/100 Ethernet port, and four LAN 10/100Mbps auto MD1/MD1X switch ports.

In addition the Avaya IP Office - Small Office Edition can be fitted with the following optional modules:

- **Trunk Interfaces**
  These can be either a single PRI T1 (23B+1D or 24B trunks) or Quad BRI (8 trunks) and are supplied as trunk module kits.

- **WAN Port**
  This port supports a single synchronous data connection for X.21/V.24/V.35. The WAN kit is supplied with the WAN module and a replacement rear panel.

- **Wireless LAN card**
  This is a wireless network card with integrated radio modules and antennas (2.4GHz). The card supports IEEE 802.11b and WiFi standards.

- **Voice Memory card**
  Provides memory capacity for embedded voice mail and auto attendant features.

See Installation of Integral Modules for expansion and Country Variants for country specific variants.

**Power Fail**
If the mains power supply fails Analog Port 2 is automatically switched to POT Port 2.
• **Note**

A fully equipped version of the Avaya IP Office - Small Office Edition is shown above. Two other variants are available; one with DS1-4 ports allocated to POT ports 5-8 and DS5-8 not fitted. The other variant does not have the top row of RJ45 ports fitted (see Country Variants).

• **DS Ports:**

DS ports support Avaya 54xx, 64xx and/or Avaya 44xx telephones and support either A-Law or mu-Law PCM encoding (default is country dependant and can be switched in software). Using Line Cords (see Line Cord for Structured Cabling) and standard structured wiring, these RJ45 ports can be extended to the required telephone location. When telephones are equipped with line cords that terminate in RJ11 plugs, then pin-to-pin RJ11/RJ45 adapters should be used.

• **Analog Trunk Ports:**

These ports are used for connection to standard analog trunks (loop start). Using standard structured wiring, these RJ45 ports can be extended to the required trunk sockets. In the event of mains power supply failure Analog Port 2 is automatically switched to POT port 1.

• **Phone Ports:**

These ports are used for connection to standard analog telephones, fax machines and modems. Using standard structured wiring, these RJ45 ports can be extended to the required telephone location. When telephones are equipped with line cords that terminate in RJ11 plugs, then pin-to-pin RJ11/RJ45 adapters should be used.

• **LAN Ports:**

These are LAN 10/100Mbps Layer 2 Ethernet full duplex switches and are used for PC and server connectivity. They have Auto MD1/MD1X capability and hence avoid the need for LAN crossover cables when connecting to a hub. They can also be used to connect to IP telephones (Avaya 4600 IP series). LAN ports allow information relating to incoming and outgoing telephone calls to be forwarded to PC based applications. They also provide access to the router functionality/configuration of the Avaya IP Office - Small Office Edition platform for both data and Voice over IP (VoIP) calls.

• **WAN Port:**

This is a 10/100Mbs Ethernet LAN port for connection to a WAN (for example DSL).

• **Cables**

Avaya IP Office - Small Office Edition is supplied with one red CAT 5E cable. See Port Pinouts and Cables.
- **External O/P Socket**
  Allows externally powered circuits to be controlled via a single 3.5mm stereo jack socket.

- **DC Power I/P Socket**
  Socket for the external 24V DC unregulated power supply (supplied with kit).

- **DTE Port**
  A 9-way D-type socket. Used for applications Licence Key device (Dongle) and connection to PCs, Servers and EFTPOS terminals.

- **Trunk Ports**
  These can be either a single PRI T1 (23B+1D or 24B trunks) or Quad BRI (8 trunks). See Installation of Integral Modules for expansion and Country Variants.

- **WAN Port**
  This port supports a single synchronous data connection, for X.21/V.24/V.35 interfaces. 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 unit to the existing Network Terminating Unit (NTU) via the appropriate X.21, V.35 or V.24 cable. See X.21 WAN Cable and V.35 WAN Cable for cable details and WAN/LAN Port – 10/100 BaseT for port details.

- **PCMCIA slots**
  Used for optional Avaya supplied wireless LAN and/or additional Voice Memory cards.

- **Audio I/P Socket**
  A single 3.5mm stereo or mono jack socket that enables input from an external 'Music-on-Hold' source.

- **Functional Earth Socket:**
  A single 3.5mm jack socket with all 3 pins connected to ground. For use in areas with high lightning and/or ESD. Connect a 3.5mm jack plug (not supplied), fitted with a green sleeve 14SWG wire, to the buildings approved earth point (must conform to local grounding (earthing) regulations).
  - The unit is also earthed via the power cable (through the lump in line PSU).
  - **CAUTION:** This is not a protective ground point.

- **Port Pinouts and Cables**
  For Port Pinouts and Cables, refer to Port Pinouts and Cables respectively.
Typical Configurations

Home Based Business
A small home based business that requires the following connectivity:

- One Exchange Line (ADSL enabled).
- One broadband Internet connection.
- Up to four analog telephones (POTs).
- PC based softphones.
- One Fax.
- One printer.
- Enhanced onboard Voicemail.
- One Laptop PC.
- One PC.

Avaya Kit List

- Country specific power lead (must be sourced separately).
- Analogue telephones (can be sourced separately).
- Phone Manager Lite (with an optional upgrade to Phone Manager Pro).
- Serial Port Dongle (for Licence keys) fitted to rear of unit.
- Licences for Wireless Access Point, VPN and IP Softphone.
- On board Voicemail 64M Memory card (fitted to rear of unit).
- Wireless LAN card (802.11b) fitted to rear of unit.
Single Site Business
A single site small business that requires:

- Three Exchange Lines (one ADSL enabled).
- One broadband Internet connection.
- Up to six analog telephones (POTs).
- One Fax.
- One printer.
- Enhanced onboard Voicemail.
- Three company PCs.
- Door entry security.

Avaya Kit List

- Country specific power lead (must be sourced separately).
- Analogue telephones (can be sourced separately).
- Phone Manager Lite x 5.
- Serial Port Licence Key device (Dongle) fitted to rear of unit.
- Licences for Wireless Access Point, VPN and IP Softphone.
- On board Voicemail 64M Memory card (fitted to rear of unit).
- Connection from Ext O/P for door relay (fitted to rear of unit).
Multi-Site Business
A multi-site business that requires:

- Two Exchange Lines (one ADSL enabled).
- Two Digital Exchange Lines (ISDN enabled).
- One broadband Internet connection.
- Auto Answering.
- PC based Softphones.
- Up to eight digital telephones.
- Two Faxes and two Printers.
- Enhanced Voicemail.
- Six company PCs with Softphone capabilities.
- Door entry security.

Avaya Kit List

- Country specific power lead (must be sourced separately).
- Avaya digital telephones.
- Phone Manager Lite x 5.
- Serial Port Licence Key device (Dongle) fitted to rear of unit.
- Licences for VMPro with Auto Attendant and IP Softphone.
- On board Voicemail 64M Memory card (fitted to rear of unit).
- Connection from Ext O/P for door relay (fitted to rear of unit).
- Third party LAN switch.
Country Variants

Small Office Editions Systems

The following are lists of the country variants for each Avaya IP Office - Small Office Edition platform, trunk module kits, Integral module kits and expansion modules. The PCS level for each module can be found on a label that is stuck to the base of each module.

Throughout this section the following abbreviations are used:

- **ALL** = Global.
- **ROW** = Rest of world (excluding USA, Canada).
- **NA** = North America (USA and/or Canada).
- **CALA** = Caribbean/Latin America.
- **CH** = China.
- **EU** = Europe.
- **KR** = Korea.
- **NZ** = New Zealand.

For countries outside North America/ CALA, use ROW variant unless stated otherwise.

### IP Office - Small Office Edition Variants

<table>
<thead>
<tr>
<th>Variant</th>
<th>Country</th>
<th>SAP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Office - Small Office Edition 2T + 4A (3 VoIP) Base</td>
<td>US</td>
<td>700350416</td>
</tr>
<tr>
<td>IP Office - Small Office Edition 2T + 4A (3 VoIP) Base</td>
<td>ROW</td>
<td>700280175</td>
</tr>
<tr>
<td>IP Office - Small Office Edition 4T + 8A (3 VoIP) Base</td>
<td>US</td>
<td>700350440</td>
</tr>
<tr>
<td>IP Office - Small Office Edition 4T + 8A (3 VoIP) Base</td>
<td>ROW</td>
<td>700293061</td>
</tr>
<tr>
<td>IP Office - Small Office Edition 4T + 4A + 8DS (3 VoIP) Base</td>
<td>US</td>
<td>700350424</td>
</tr>
<tr>
<td>IP Office - Small Office Edition 4T + 4A + 8DS (16 VoIP) Base</td>
<td>US</td>
<td>700350432</td>
</tr>
<tr>
<td>IP Office - Small Office Edition 4T + 4A + 8DS (3 VoIP) Base</td>
<td>ROW</td>
<td>700280209</td>
</tr>
<tr>
<td>IP Office - Small Office Edition 4T + 4A + 8DS (16 VoIP) Base</td>
<td>ROW</td>
<td>700280217</td>
</tr>
</tbody>
</table>

**Key:**

- 2T or 4T etc. = number of analog trunks
- +4 or +8 = number of POT ports
- +8DS = number of Digital Station ports
- (3 VoIP) = number of VoIP channels.

As with other IP Office systems, processor units no longer contain the IP Office software/documentation CD pack. This must be ordered separately.
## Trunk Module Kits

<table>
<thead>
<tr>
<th>Variant</th>
<th>Country</th>
<th>SAP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRI 8 (UNI) expansion kit</td>
<td>ROW</td>
<td>700262017</td>
</tr>
<tr>
<td>PRI 24 T1 Expansion Kit</td>
<td>NA</td>
<td>700185200</td>
</tr>
<tr>
<td>WAN Expansion Kit</td>
<td>ALL</td>
<td>700289713</td>
</tr>
</tbody>
</table>

**Notes:**
1. For countries outside North America/CALA, use the ROW variant unless stated otherwise.
2. PRI T1 trunks support both ISDN and Analog emulation. The default setting is 23B+1D and is switchable in the installation software to become a 24B trunk.

## Power Supplies

Common Lump-in-Line Power Supply units are supplied with each Avaya IP Office - Small Office Edition. However, the power leads are country specific and must be ordered separately. These power leads are earthed 3-pin and can only be used on Small Office Edition systems. The part numbers are as follows:

<table>
<thead>
<tr>
<th>Variant</th>
<th>Country</th>
<th>SAP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Office - Power Lead (earthed)</td>
<td>UK</td>
<td>700289747</td>
</tr>
<tr>
<td>IP Office - Power Lead (earthed)</td>
<td>EU CEE7/7</td>
<td>700289762</td>
</tr>
<tr>
<td>IP Office - Power Lead (earthed)</td>
<td>US</td>
<td>700289770</td>
</tr>
<tr>
<td>IP Office - Power (earthed) Lead Pack 10</td>
<td>UK</td>
<td>181567</td>
</tr>
<tr>
<td>IP Office - Power Lead (earthed) Pack 10</td>
<td>US</td>
<td>181568</td>
</tr>
<tr>
<td>IP Office - Power Lead (earthed) Pack 10</td>
<td>EU CEE7/7</td>
<td>181569</td>
</tr>
<tr>
<td>IP Office - Power Lead (earthed)</td>
<td>China</td>
<td>700261977</td>
</tr>
<tr>
<td>IP Office - Power Lead (earthed) Pack 10</td>
<td>China</td>
<td>182196</td>
</tr>
</tbody>
</table>
Avaya IP Office - Small Office Edition PCMCIA Cards

The slots on the rear of the product can accommodate one or both of the following options:

<table>
<thead>
<tr>
<th>Variant</th>
<th>Country</th>
<th>SAP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>64MB Memory card (Voice Mail)</td>
<td>ALL</td>
<td>700289721</td>
</tr>
<tr>
<td>Wireless LAN card</td>
<td>ALL</td>
<td>700289739</td>
</tr>
</tbody>
</table>

64MB PCMCIA Memory card:
- Embedded VoiceMail and Auto-Attendant.
- Supports up to 15 hours of storage.
- Does not require a license key.

Wireless LAN access point:
- 2.4 GHz to 2.5 GHz band.
- Automatic fallback 11Mbps, 5.5Mbps, 2Mbps or 1Mbps.
- IEEE 802.11 and IEEE 802.11b Compliance.
- Wireless Fidelity Wi-Fi™ Compliance.
- Interoperable with other 802.11b compliant devices.
- WEP or RC4 security.
- Range up to 550M (1750ft).
- Required the Wireless LAN Access Point license key.
Avaya IP Office - Small Office Edition Applications

As part of the IP Office Family, the Small Office Edition supports a broad range of optional feature enhancements and applications. The following list is a summary of options that are considered to be most relevant for use in the small business environment, as targeted by this product.

For an exhaustive list of all supported options and license upgrades, please refer to the applications documentation for IP Office and the relevant regional price lists.

<table>
<thead>
<tr>
<th>License Key Devices (Dongles)</th>
<th>Function</th>
<th>SAP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature Key - Serial Port (9-pin)</td>
<td>Device for direct attachment to Small Office Edition (required for Remote Feature Activation)</td>
<td>700293095</td>
</tr>
<tr>
<td>Feature Key - Parallel Port</td>
<td>Device for attachment to applications server (required for Remote Feature Activation)</td>
<td>700185234</td>
</tr>
<tr>
<td>Feature Key - USB Port</td>
<td>Device for attachment to applications server (required for Remote Feature Activation)</td>
<td>700261506</td>
</tr>
</tbody>
</table>

**Client Software**

<table>
<thead>
<tr>
<th>Function</th>
<th>SAP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Manager Lite</td>
<td>Standard CTI desktop application for client PCs (call history, directory, speed dials) - all users. included</td>
</tr>
<tr>
<td>Phone Manager Pro RFA 5</td>
<td>Enhanced CTI desktop application for client PCs (VM control, queuing, CRM screen pops) - 5 users 177469</td>
</tr>
<tr>
<td>IPPro RFA 5</td>
<td>Adds IP softphone functionality to Phone Manager Pro - 5 users 174463</td>
</tr>
<tr>
<td>IP Endpoint RFA 5</td>
<td>Enables support of 3rd party IP end-points (including wireless VoIP) - 5 users 174957</td>
</tr>
<tr>
<td>Personal Numbering RFA</td>
<td>Enables enhanced personal numbering 181572</td>
</tr>
<tr>
<td>CTI DECT RFA 8</td>
<td>Enables DECT feature integration (RoW only) - 8 handsets 171989</td>
</tr>
</tbody>
</table>

**Messaging Software**

<table>
<thead>
<tr>
<th>Function</th>
<th>SAP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voicemail Lite</td>
<td>4-port standard voicemail PC application included</td>
</tr>
<tr>
<td>Voice Memory Card</td>
<td>3-port on-board voicemail/auto-attendant application (no PC required) 700289721</td>
</tr>
<tr>
<td>Voicemail Pro RFA</td>
<td>4-port advanced voicemail PC application (incl: GUI, AA, queuing, call recording) 171991</td>
</tr>
<tr>
<td>Audix RFA</td>
<td>Enables use of Intuity Audix as Centralised Voice Mail. (does not require VoiceMail Pro) 177467</td>
</tr>
<tr>
<td>VPIM RFA</td>
<td>Enables use of networked Audix/3rd party centralized voicemail 181570</td>
</tr>
<tr>
<td>Integrated Messaging Pro RFA</td>
<td>Enables synchronization to MS email systems. GUI to control voicemails within Outlook (requires VoiceMail Pro). 171990</td>
</tr>
<tr>
<td>Avaya Text-to-Speech RFA</td>
<td>Enables text to speech for messaging applications 181573</td>
</tr>
<tr>
<td>3rd party IVR Speech RFA</td>
<td>Enables use of 3rd party Interactive Voice Response systems 181571</td>
</tr>
</tbody>
</table>

**System Software**

<table>
<thead>
<tr>
<th>Function</th>
<th>SAP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoftConsole RFA</td>
<td>Enables PC-based system console (including BLF) 171987</td>
</tr>
<tr>
<td>CBC RFA</td>
<td>Enables real-time &amp; historical summary reports on system &amp; departmental call handling 171993</td>
</tr>
<tr>
<td>Access Point RFA</td>
<td>Enables wireless access point functionality (requires Wireless LAN card 700289739 to be installed) 182197</td>
</tr>
<tr>
<td>IPSEC VPN RFA</td>
<td>Enables secure VPN tunnels with encryption 181575</td>
</tr>
<tr>
<td>MS-CRM RFA</td>
<td>Enables integration with Microsoft CRM Professional (phase 1 - incl: Screen Pop and Auto-Dial) 180588</td>
</tr>
</tbody>
</table>

- Note: Only DECT and MS-CRM are region specific. All other options are global.
Preparing for Installation

This section reviews the requirements for installing an Avaya IP Office - Small Office Edition system. You must meet these requirements for the system to operate safely and in the intended manner.

This section covers

- Tools & Parts Required.
- Space Requirements
- Environmental Requirements
- Power Supply Requirements

Tools & Parts Required

- Pozidrive No. 1 screwdriver for removal of unit covers.
- Cutter/knife for cable ties.
- Cable ties
- Pozidrive No. 4 screwdriver for Analog Trunk 16 expansion module grounding post.
- Note: In addition, ensure that you have sufficient cables that are not supplied with the modules, for example Line Cords for structured cabling (see DT Line Cord for Structured Cabling) and power supply cables (see Country Variants).

Programming

These are the tools required for programming of a newly installed Avaya IP Office - Small Office Edition system.

- PC running Windows 2000/ME/XP or NT with the following specification: Intel Pentium II 333Mhz or faster, 100MB HD space, CD-ROM drive, COM port, terminal emulation (eg. HyperTerminal) and a SVGA Monitor (set to 1024 by 768).
- PC with a LAN card with either a fixed IP address (allocated by your system administrator) or be using DHCP to obtain an IP address.
- IP Cat. 5E patch cable (red – supplied with system, see PRI/BRI ISDN Cable).
- Small Office Edition Administration CD (1 of 3 - supplied with system).
- Small Office Edition Documentation CD (3 of 3 - supplied with system).
- Small Office Edition Manager Application Manual (supplied on CD1 with system).
- Small Office Edition Feature Key device (Dongle) that is required where software that requires a Licence Key is to be installed.
Space requirements
Check that the planned location meets the following requirements.

- **Height**: 76mm (3.0 inches)
- **Width**: 255mm (10 inches)
- **Depth**: 235mm (9.3 inches)
- Where an Avaya Small office is free standing, allow a minimum clearance of 62mm (2.5 inches) either side for cable trunking.
- Check there is suitable lighting for installation, system programming and future maintenance.
- Check that there is sufficient working space for installation and future maintenance.
- 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.

Environmental requirements
The planned location must meet the following requirements:

- Check that the area is a well ventilated area, having a temperature range of 0°C to +40°C and a humidity range of 10% to 95% non-condensing.
- Check there are no flammable materials in the area.
- Check there is no possibility of flooding.
- Check that no other machinery or equipment needs to be moved first.
- Check that it is not an excessively dusty atmosphere.
- Check that the area is unlikely to suffer rapid changes in temperature and humidity.
- Check for the proximity of strong magnetic fields, sources of radio frequency and other electrical interference.
- Check there are no corrosive chemicals or gasses.
- Check there is no excessive vibration or potential of excessive vibration, especially of the cabinet mounting surface.
- Check that, for the USA only, where telephones are installed in another building, that the appropriate IROB protectors are fitted (see Out of Building Telephone Installations).

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.
5. **SAVE THESE INSTRUCTIONS.**
Power Supply Requirements
Avaya IP Office - Small Office Edition should only be connected to a clean power supply or to a UPS with 3-pin connectors including earth.

- **CAUTION**
  The Lump-in-Line PSU's supplied with each Avaya IP Office - Small Office Edition module must only be connected to a 50/60Hz, 100-240V power source.

- **UPS Equipment**
  The use of UPS's to support the Avaya IP Office - Small Office Edition system during mains power failure is highly recommended. Such equipment also provides mains conditioning. Contact Avaya for details of preferred and tested suppliers and models.

Functional Ground
The IP Small Office Edition Office functional grounding is as follows:

- **Caution:** This functional ground is not a protective ground.

  ![Rear View of Small Office Edition](image)

To connect the functional ground:

1. Use a 3.5mm Jack Plug (not supplied with kit) fitted with a suitable length of #14 AWG (minimum) solid insulated cable. The sleeve **must not be** green/yellow.

2. Insert this Jack Plug into the Functional Ground Jack Socket.

3. Connect, using a fastening that satisfies local regulations, the other end of the #14 AWG wire to the approved ground, such as building steel or an earthed metal cold water pipe.
Out of Building Telephone Installations

Installation of telephones that are external to the building housing the Avaya IP Small Office Edition or in another building require In-Range-Out-Of-Building (IROB) protectors to protect the control unit and device from electrical surges. Only Digital Stations should be used for out of building/external telephones. Two IROB protectors are required.

The following diagram provides an overview of the protection requirements for installation of telephones that are external to the building housing the Avaya IP Office. Details of these requirements are given in the following paragraphs:

A Primary Protection Box must be provided at the point where the cable enters 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.

CAUTION: All cabling between buildings must not be exposed. E.g. cabling between buildings must be carried in suitably earthed ducting; ideally underground.

The following IROBs must be used:

146E - TDL - SAP code 407568161

Installation of a Contact Closure Adjunct controlled device outside the building requires a 146G Surge Protector – SCL/8 to protect the control unit from electrical surges.

IROB Installation

Install the 146E IROBs as per the instructions supplied with the IROB. Typically this would be as follows:
Installing a New System

Unpacking
Before proceeding with installation, ensure that you have read the notes covered in Introduction above.

Unpacking and checking:
1. Before unpacking check for any signs of damage that has occurred during transit. If any damage exists bring it to the attention of the carrier.
2. Check all cartons against the packing slip. Report any errors or omissions to the equipment supplier.
3. While unpacking the equipment, retain all the packaging material. Fault returns are accepted only if repackaged in the original packaging.
4. 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. Ensure you read and understand any documentation included with any item.

Initial Assembly - Overview
Prior to initial assembly and mounting (rack or free standing) of your system, check that:

- The required Trunk Interface Modules have been installed (see Installation of Integral Modules) and are of the correct country variant type (see Country Variants).
- Where structured cabling is to be used it has been installed, conforms to all local regulations and is clearly labeled.

Perform the following:
1. Mount the Avaya IP Office - Small Office Edition module in its final location.
2. Run the Lump-in-Line PSU cable back to the switchable mains supply but do not switch-on or connect the PSU to the Avaya IP Office - Small Office Edition.
3. Connect the Trunks, using PRI/BRI ISDN Cables (see PRI/BRI ISDN Cable), to your provider's trunk sockets.
4. Connect the DT/DS/POT Ports, using DT Line Cords (see DT Line Cord for Structured Cabling), to the structured cable sockets or directly to the appropriate telephone. Note that in default, the lowest port number corresponds to the lowest extension number (201).
5. Install all telephones in their appropriate locations. For wall mounting, see Wall Mounting 2000 Series Telephones and Wall Mounting 44/4600 & 6400 Series Telephones.
6. Connect your PC LAN Port to one of the LAN Ports on the front of an Avaya IP Office - Small Office Edition using a LAN Cable (see LAN Cable).
7. Switch on the ac mains supply.
8. From the Administrator CD, install on your PC the software required to configure and manage your Avaya IP Office - Small Office Edition.
Installation of Integral Modules

An Avaya IP Office - Small Office Edition can be fitted with a WAN module, a quad BRI module or a PRI/T1 module. In addition, either or both the optional PCMCIA cards (Memory and/or Wireless LAN) can be fitted.

Procedure:

- **Caution:** While installing modules, ensure that you wear a ground wrist strap that is connected to a suitable grounding point.

1. To add either a wireless LAN or additional Memory card you do not need to de-assemble a module, simply insert the card (item (1)) into either of the PCMCIA slots in the rear panel. These slots are universal, hence the location does not matter. Only one Memory or wireless LAN card can be fitted.

2. To add a WAN or BRI or PRI/T1 module:
   - Remove the top cover (item (2)) from the base cover by removing the four retaining screws (two either side - items (3)) and proceed as follows.

3. Remove the rear panel (item (4)).
   - Only discard if a WAN module is being fitted (see step 4 below).
   - On the rear panel, press out all of the knock-out panels (item (5)) for a Quad BRI or just the middle one for a PRI/T1.
   - Plug the trunk board (item (7)) onto its sockets and stand-off hex. pillars.
   - Ensure that the trunk module sockets slot into the hole in the rear panel (item (5)). Secure the trunk board in position and with the two snap-in spacers.
   - Mount the existing rear panels if a WAN module is not being fitted.
   - If a WAN module is being fitted, see the next step.

4. To add a WAN module:
   - Remove and discard the rear panel (item (4)).
   - Fit the new rear panel (supplied with the WAN module and has a slot for WAN port 27-way D-type, items (4)).
   - On the rear panel, press out all of the knock-out panels (item (5)).
   - Mount WAN module (item (7)) in position and secure with the two snap-in spacers.
Shelf/Wall Mounting

All variants of the Avaya IP Office - Small Office Edition can be either shelf or wall mounted. Four retaining slots (item (1) below) enable the IP Office - Small Office Edition unit to be mounted and secured either:

- 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.

A Z-bracket (item (2) below, supplied with unit) is used to retain the Small unit in position.

Cautions

1. The Z-bracket must not be used as the sole mounting fixture.
2. When mounting vertically, the weight of the Small unit must be held by the two No. 8 Panhead screws located into the retaining slots.
3. When mounted vertically, the air vents (on the rear panel of the IP Office - Small Office Edition) must be on the top surface. That is item (2) below must be fitted above the unit.

Procedure:

1. Drill two holes 16cm apart (horizontally or vertically – see Caution 3 above). Using suitable wall fixings (wall plugs), insert two No.8, Panhead screws (25mm long min. - not supplied) into wall leaving approximately 1cm proud of wall.
2. Fit the Z-bracket (item (2) below) onto the base of the unit using the M3 Plastite self tapping screw supplied.
3. Slide the Avaya IP Office - Small Office Edition unit onto the two screws, locating them into the two retaining slots (item (1) below).
4. Mark the position of the retaining screw (No. 8 Panhead or similar – not supplied) that is to be used through the slot of the Z-bracket.
5. Remove the unit from the wall and, using suitable wall fixings, drill a hole for the Z-bracket retaining screw.
6. Re-position the Small compact Office unit and secure with a No. 8 Panhead (or similar) through the slot of the Z-bracket.
Basic System Programming

Introduction
This section covers only the most basic aspects of system programming required to install an Avaya IP Office - Small Office Edition system. When first powered up, all Avaya IP Office - Small Office Edition systems will operate as a simple PBX. However, full system programming is highly dependent on customer requirements. Hence, some basic Initial Programming must be performed before detailed configuration programming is possible. The Administration CD (supplied with each system) contains the suite of programs required to install and maintain the Avaya IP Office - Small Office Edition system. Once loaded, interactive Help files provide all the instructions and details required to operate and administer the program suite.

Programming Tools
The Avaya IP Office - Small Office Edition supports programming through any one of its 10/100 Base-T switch port connections. The tools required for programming of a newly installed Avaya IP Office - Small Office Edition system are:

- PC running Windows 98, NT, 2000, XP or ME (see Tools & Parts Required).
- PC with a LAN (NIC) card with either a fixed IP address (allocated by your system administrator) or by using DHCP to obtain an IP address.
- Small Office Edition Cat. 5E patch cable (red – supplied with system see PRI/BRI ISDN Cable).
- Small Office Edition Administration (supplied on CD1 with system).
- Small Office Edition Manager Application Manual (supplied on CD3 with system).
- Small Office Edition Feature Key (where software that requires a Licence Key is to be installed).

Note
Once installed, the software level of all software fitted to the Avaya IP Office - Small Office Edition system can be identified. With Manager running, use File/Advanced/Upgrade to display menu. Refer to the Manager Application Manual for details of system configuration, software upgrade, etc.

LAN Port to PC Connection
An Avaya IP Office - Small Office Edition system, when first powered up, will scan the LAN for a DHCP server that will allocate it with an IP address. If the Avaya IP Office - Small Office Edition system does not find a DHCP server then it will automatically become a DHCP server itself with an IP address of 192.168.42.1. The Avaya IP Office - Small Office Edition system will allocate an IP address to the PC if required. Initially, the Avaya IP Office - Small Office Edition system assumes that all addresses are on the local LAN and that the PC software supplied uses broadcast to establish communication with the Avaya IP Office - Small Office Edition system.

The Avaya IP Office - Small Office Edition can be connected in either one of two ways; either directly to a PC or as part of a LAN. Both methods use an Avaya IP Office - Small Office Edition Cat. 5E patch cable (see PRI/BRI ISDN Cable) connected between one of the LAN ports on the front of the Avaya IP Office - Small Office Edition and the PC/LAN.

- Direct Connection
  This method is used for local system programming directly from a PC.

- LAN Network Connection
  This is the option to use for remote programming access. It will require liaison with the LAN network manager to obtain the IP address details and to ensure that the IP traffic routing is allowed. When connected to an IP LAN network, you must consult with the Network Manager to obtain the required IP settings. For IP operation the Avaya IP Office - Small Office Edition requires a static IP address including a subnet mask and default gateway value.
Initial Programming

All the software used to configure and manage the Avaya IP Office - Small Office Edition system must be installed on your PC from the supplied Administrator CD. With the initial assembly completed and your PC connected to the Avaya IP Office - Small Office Edition system, insert and run the Administrator (CD 1 of 3).

1. The CD Autoruns. You are initially presented with the option to select which language you wish to use. Select the language from the pull down list and click OK.

2. If not already installed on your PC, you are then given the option to install the Microsoft Net 1.1 Framework application. This must be installed if you wish to use the IP Office Installation Wizard application. If you are going to install this application, then click OK, agree to the License and on completion click OK. The Welcome screen is then displayed; click Next to continue.

3. The Destination folder location option menu is displayed. Either accept the default location (click on Next) of where the Administration Suite is to be installed or change the location by clicking on Browse and entering a new location.

4. Select which components you wish to install by selecting the appropriate boxes (Manager and Voice Mail are default minimums) and click Next.

5. Name the program folder or accept the default (IP Office), click Next and wait for the Administration Suite installation to be completed.

6. Installation runs and on completion select Restart now and click Finish twice.

The IP Office Administration suite of applications is now installed on your PC and you are now ready to configure your Avaya IP Office - Small Office Edition.
You have two choices:

1. **Use the IP Office Installation Wizard**
   
   This application is recommended for first time installers. From the **Program** file on your PC, select **IP Office** and **Wizard**. The application is intuitive and will guide you through the configuration process. Follow the instructions on each menu and use the **Help** files for detailed instructions.

   **OR**

2. **Use the IP Office Manager Application**
   
   This application is recommended for experienced installers. From the **Program** file on your PC, select **IP Office** and **Manager**.

   1. You will be requested to enter both the **Operator Name** and **Password**. This password gains access to the Configuration Tree facilities allocated to the named operator. At default, five options are available, but, for full access, select **Administrator**: **Name Password**. For full facilities access: **Administrator Administrator**

   2. The **Configuration Tree** blank screen is displayed. To display the facilities available for this named operator's Configuration Tree, from **File** select **Open** and, when requested, enter the password for the Avaya IP Office - Small Office Edition unit. The default for the Avaya IP Office - Small Office Edition unit is **password**.

   3. **You must change the operator Names, their Passwords and the Password for the Avaya IP Office - Small Office Edition unit as soon as possible**. A combination of at least 8 alpha and numeric characters is recommended for passwords, avoiding the use of common words.

   4. From the Configuration Tree, select **File** and **Change Password**. The operator **Name** is displayed, together with both the **Password** and **Confirm Password** as a series of xxxxx's. Enter the new **Password** and **Confirm Password**. Click **OK** and **Save As**.

   5. From the Configuration Tree for the **Administrator**, double click on the **System** icon to display the **System Configuration** menu for the Avaya IP Office - Small Office Edition unit. The following items must be set/changed:

   - **Name**
     
     A name to identify this system. Used to identify the configuration by its location or customer's company name.

   - **Locale**
     
     This option sets country variations, e.g. US = enu, UK = eng, Netherlands = nld, Germany = deu. Locale defines the country dependent default ring sequences, display types/language, etc. This option is automatically set dependent on the Regional Settings of the PC on which the Manager is running. For instance, if this setting defaults to **eng** rather than **enu** this is because the Regional Settings of the PC are set to English (United Kingdom) therefore change the Regional Settings to English (United States).

   - **Password**
     
     This is the password (default **password**) for controlling access to the Avaya IP Office - Small Office Edition unit and is required to upgrade, reboot and send or receive configurations from the unit. **Change this password as soon as possible**.

   6. Basic programming is completed and you can now add the relevant licenses and configure the system to the customer's requirements. Full details on configuration and administration are contained in the inter-active **Help** files and the Manager Application Manual. Press **F1** to access the Manager **Help** files.

   7. **Note**
      
      To use voicemail you must activate Voicemail Lite. From the **Program** file, select **IP Office** and **Voicemail** and click on **Run**.
Telephone Installation

Checking Telephones

It is preferable to leave connection of telephones until after installation of other Avaya IP Office - Small Office Edition equipment and full system programming has been completed (including the set-up of directory numbers and names). Note that by Avaya IP Office - Small Office Edition telephones we mean devices manufactured and supplied by Avaya and not third party telephone devices.

While installing and checking each telephone, it may also be required to do some basic telephone programming such as setting-up call forwarding, call pickup, group numbers, etc.

The detailed instructions for setting-up these feature are contained in the Manager Application Manual and within the Configuration Tree Help files. With the configuration tree for Administrator open, press F1 to access the Help files.

The following instructions are the minimum required for testing and wall mounting of Avaya IP Office - Small Office Edition telephones. Detailed instructions for testing, wall mounting and using Avaya IP Office - Small Office Edition telephones are contained in the appropriate Installation and User Guides contained on the CD supplied with each system.

More

- Connecting & Testing Avaya Telephones
- Connecting & Checking Two-Wire Telephones
- Power Fail Telephones and Sockets

Connecting & Testing Avaya Telephones

Use the following process to connect and check Avaya IP Office - Small Office Edition telephones.

**To check a Avaya IP Office - Small Office Edition telephone:**

1. Unpack the telephone and check that all parts are present including labels and user guides.
2. Insert the handset cord into the base. Route the cord thorough the cable channels to come out at the side of the telephone.
3. Insert the line cord into the wall socket.
4. Insert the line cord into the telephone’s base and route the cord thorough the cable channels to come out at the side/rear of the telephone.
5. Lift the handset, check that you hear dial tone and make a test call to another extension.
6. On a display telephone, ensure that the display shows the number called and that the display is in the correct language.

**Note**

On 44/4600 series telephones, the line cord is fitted with an RJ11 plug. In which case, when connecting directly to an Avaya IP Office - Small Office Edition module, an RJ11/RJ45 adapter should be used. Similarly, the structured wiring should terminate in RJ11 sockets.
Connecting & Checking Two-Wire Telephones
All two-wire devices (POTS) should be tested according to the manufacturer’s instructions before connection to the Avaya IP Office - Small Office Edition system. Connect the two-wire device and make a test call.

Power Fail Telephones and Sockets
The power fail sockets (see Power Fail) must be tested.

To test a power fail socket
1. Locate the socket and check that it is clearly labeled as a power fail socket.
2. Connect a telephone to the socket.
3. With power to the Avaya IP Office - Small Office Edition system switched on, make a test call.
4. Switch the power to the Avaya IP Office - Small Office Edition system off and again make a test call.
5. Switch the power to the Avaya IP Office - Small Office Edition system back on again.
6. Repeat the test for any other power fail sockets.

• Note
Where E911 statutory requirements for discrete location identification of a power fail phone are required on the transmitted CLI, ensure that the relevant installation programming is completed.
Wall Mounting 44/4600 & 6400 Series Telephones

The following pictorial instructions, although for a 4600 telephone, provide a general overview on how to wall mount both series of telephones. For safety instructions and details, refer to the specific instructions for each telephone type (supplied on the CD with the Avaya IP Office - Small Office Edition system).
System Handover

System Handover Checklist

**Equipment**
- Have all extensions been tested?
- Have all exchange lines been tested??
- Is system programming in line with the customer specification? e.g. all specified applications, CTI settings, etc.
- Has the customer been made aware of the drop back (power fail) locations? Are these been clearly marked and have they been tested?
- Has the mains supply (and any UPS if fitted) been tested?
- Where VoIP is to be deployed have the appropriate network design criteria and QoS mechanisms been applied as per the Avaya planning guidelines.

**Wiring**
- Has the Avaya IP Office - Small Office Edition, been fitted with the appropriate functional/protective grounds.
- Is the distribution wiring (structured cabling) satisfactory to the required national standards?
- Are all wires and cables clearly labeled.
- Is the site clean and tidy with all rubbish removed?

**Information**
- Have the telephone user guides been issued to the user.
- Has the customer been made aware of the telephone number for maintenance/fault reports.

**Feature Key**
- Where a Feature Key has been used (for software requiring a license), record it's physical location (location of the PC is it plugged into) and leave a record of such on site with the system.
Safety and Homologation Statements

Safety Statements

CE Mark

- The "CE" mark affixed to this equipment means that the unit 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 IP Office - Small Office Edition products is contained with in the CD accompanying the products.

- This warning symbol is found on the base of the Avaya IP Office - Small Office Edition. Refer to page 36 for information concerning which Trunk Interface module variants are fitted in which country.

WARNING The Avaya IP Office - Small Office Edition units 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 the Avaya IP Office - Small Office Edition 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

The building’s 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 - Small Office Edition, 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 - Small Office Edition extension cabling must not leave the building.

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

ROW
To ensure the validation of the approvals in ROW (i.e. EU, Hungary, Australia and New Zealand), only the following interface cards must be installed as detailed in the following IP Office - Small Office Edition products:

<table>
<thead>
<tr>
<th>Product</th>
<th>Uni Quad BRI</th>
<th>PRI T1</th>
<th>WAN X21/V24/V35</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Office - Small Office Edition</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

USA/Canada
To ensure the validation of the approvals in USA and Canada, only the following interface cards must be installed in the following IP Office - Small Office Edition products:

<table>
<thead>
<tr>
<th>Product</th>
<th>Uni Quad BRI</th>
<th>PRI T1</th>
<th>WAN X21/V24/V35</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Office - Small Office Edition</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

See Country Variants for country specific variant SAP codes.

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 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/
Electromagnetic Interference Information

Federal Communications Commission (FCC)
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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.
Regulatory Instructions for Use

Operation in Australia
Connection
Connection of IP Office - Small Office Edition products must be via a Line Isolation Unit 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: "Dial Emergency"

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.

Operation in Canada
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."
Operation in EU
The Avaya IP Office - Small Office Edition product is intended for operation in European Union countries. Where the wireless option has been installed, the product operates on the 2.4GHz frequency band for the above countries apart from France were the products utilizes the following frequencies : 2.455GHz 2.483.5MHz.

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 Avaya IP Office - Small Office Edition equipment indicates the systems compliance with the EMC, LVD, and R&TTE Directives and common technical regulations for Basic Rate ISDN and Analog Trunks.
4. All ports for the connection of other non-telecommunications apparatus have a Safety Extra Low Voltage (SELV) safety status.

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.

Operation in USA
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. IP Office - Small Office Edition PRI-T1) are 04DU9.BN, 04DU9.DN, 04DU9.IN, 04DU9.ISN.
  - for analog trunk connection are OL13A, OL13B, OL13C, 02AC2, 02LA2, 02LB2, 02LC2, 02LR2, 02LS2.

- **The Service Order Code (SOC)**
  - for 1.544-MBps digital connection (i.e. IP Office - Small Office Edition PRI-T1) is 6.0Y.
  - for analog trunk connection 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.
Technical Data

Port Pinouts

This section provides the technical specifications for the Avaya IP Office - Small Office Edition ports. All diagrams are viewed from the front.

Note: Throughout the following, Tx = from Avaya IP Office - Small Office Edition and Rx = to Avaya IP Office - Small Office Edition.

More

- Analog Trunk Ports (RJ45)
- Power Fail and POT Ports (RJ45)
- DS/DT Ports (RJ45)
- ISDN Port – BRI (RJ45)
- ISDN Port – PRI (RJ45)
- WAN/LAN Port – 10/100 BaseT
- DTE Port (9 Way D-Type socket)
- Audio Port (3.5mm Stereo Jack Socket)
- External Control Port (3.5mm Stereo Jack Socket)
- WAN Port (37 Way D-Type Socket)

### Analog Trunk Ports (RJ45)

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>Do not use.</td>
</tr>
<tr>
<td>4</td>
<td>Ring.</td>
</tr>
<tr>
<td>5</td>
<td>Tip.</td>
</tr>
<tr>
<td>6-8</td>
<td>Do not use.</td>
</tr>
</tbody>
</table>

### Power Fail and POT Ports (RJ45)

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 3</td>
<td>Do not use.</td>
</tr>
<tr>
<td>2</td>
<td>Connected to Pin 6*</td>
</tr>
<tr>
<td>4</td>
<td>Ring.</td>
</tr>
<tr>
<td>5</td>
<td>Tip.</td>
</tr>
<tr>
<td>6</td>
<td>Connected to Pin 2*</td>
</tr>
<tr>
<td>7-8</td>
<td>Do not use.</td>
</tr>
</tbody>
</table>

* Pins 2 and 6 are shorted together and, via a 'ringer' capacitor, connected to in 5.
DS/DT Ports (RJ45)
These ports are available on specific Small Office configurations only (see Country Variants).

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>Do not use.</td>
</tr>
<tr>
<td>4</td>
<td>Sig 1.</td>
</tr>
<tr>
<td>5</td>
<td>Sig 2.</td>
</tr>
<tr>
<td>6-8</td>
<td>Do not use.</td>
</tr>
</tbody>
</table>

ISDN Port – BRI (RJ45)
On Avaya small Office these are optional ports are available with the Quad BRI module (see Country Variants).

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Description</th>
<th>Signal Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Transmit Data (Tx-A)</td>
<td>&gt;</td>
</tr>
<tr>
<td>4</td>
<td>Receive Data (Rx-A)</td>
<td>&lt;</td>
</tr>
<tr>
<td>5</td>
<td>Receive Data (Rx-B)</td>
<td>&lt;</td>
</tr>
<tr>
<td>6</td>
<td>Transmit Data (Tx-B)</td>
<td>&gt;</td>
</tr>
</tbody>
</table>

ISDN Port – PRI (RJ45)
On Avaya small Office these are optional ports are available with the PRI/T1 module:

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Description</th>
<th>Signal Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Receive Data (Rx-A)</td>
<td>&lt;</td>
</tr>
<tr>
<td>2</td>
<td>Receive Data (Rx-B)</td>
<td>&gt;</td>
</tr>
<tr>
<td>4</td>
<td>Transmit Data (Tx-A)</td>
<td>&gt;</td>
</tr>
<tr>
<td>5</td>
<td>Transmit Data (Tx-B)</td>
<td>&lt;</td>
</tr>
</tbody>
</table>

WAN/LAN Port – 10/100 BaseT

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Description</th>
<th>Signal Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Receive Data (Rx-A)</td>
<td>&lt;</td>
</tr>
<tr>
<td>2</td>
<td>Receive Data (Rx-B)</td>
<td>&gt;</td>
</tr>
<tr>
<td>3</td>
<td>Transmit Data (Tx-A)</td>
<td>&gt;</td>
</tr>
<tr>
<td>6</td>
<td>Transmit Data (Tx-B)</td>
<td>&lt;</td>
</tr>
</tbody>
</table>
## DTE Port (9 Way D-Type Socket)

![DTE Port Diagram](image)

<table>
<thead>
<tr>
<th>Pin No (25 Way)</th>
<th>Pin No (9 Way)</th>
<th>Description</th>
<th>Signal Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>Receive Data (Rx)</td>
<td>&lt;</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Transmit Data (Tx)</td>
<td>&gt;</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>Request to Send (RTS)</td>
<td>&lt;</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>Clear to Send (CTS)</td>
<td>&gt;</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Data Set Ready (DSR)</td>
<td>&gt;</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>Signal Ground</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>Data Carrier Detect (DCD)</td>
<td>&gt;</td>
</tr>
<tr>
<td>20</td>
<td>4</td>
<td>Data Terminal Ready (DTR)</td>
<td>&lt;</td>
</tr>
<tr>
<td>22</td>
<td>9</td>
<td>Ring Indicator (RI)</td>
<td>&gt;</td>
</tr>
</tbody>
</table>

## Audio Port (3.5mm Stereo Jack Socket)

![Audio Port Diagram](image)

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Description</th>
<th>Signal Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common</td>
<td>Common</td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>Audio in – Left Channel</td>
<td>&lt;</td>
</tr>
<tr>
<td>Right</td>
<td>Audio in – Right Channel</td>
<td>&lt;</td>
</tr>
</tbody>
</table>

## Functional Ground (3.5mm Jack Socket)

![Functional Ground Diagram](image)

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common</td>
<td>Common - 0V</td>
</tr>
<tr>
<td>Left</td>
<td>0V</td>
</tr>
<tr>
<td>Right</td>
<td>0V</td>
</tr>
</tbody>
</table>
External Control Port (3.5mm Stereo Jack Socket)

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Circuit 1.</td>
</tr>
<tr>
<td>2</td>
<td>Circuit 2.</td>
</tr>
<tr>
<td>3</td>
<td>0 Volts (Ground/Chassis)</td>
</tr>
<tr>
<td>4</td>
<td>Not connected.</td>
</tr>
<tr>
<td>5</td>
<td>Not connected.</td>
</tr>
</tbody>
</table>

**Control Circuit Information**

Control Circuit 1  Pin 2 and Pin 3, ensure that Pin 2 is at a positive voltage with respect to Pin 3.

Control Circuit 2  Pin 1 and Pin 3, ensure that Pin 1 is at a positive voltage with respect to Pin 3.

Each circuit can be switched independently.

**Switch Setting Information**

ON  Low resistance between Pins.

OFF High resistance between Pins.
## WAN Port (37 Way D-Type Socket)
Available with the WAN expansion kit only (see Country Variants).

![WAN Port Diagram]

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Description</th>
<th>Signal Dir.</th>
<th>Pin No.</th>
<th>Description</th>
<th>Signal Dir.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V11 Rx-B</td>
<td>&lt;</td>
<td>20</td>
<td>V11 Rx-A</td>
<td>&lt;</td>
</tr>
<tr>
<td>2</td>
<td>V11 Ind-A</td>
<td>&lt;</td>
<td>21</td>
<td>V11 Ind-B</td>
<td>&lt;</td>
</tr>
<tr>
<td>3</td>
<td>V11 Clk-A</td>
<td>&lt;</td>
<td>22</td>
<td>V11 Clk-B</td>
<td>&lt;</td>
</tr>
<tr>
<td>4</td>
<td>V11 Tx-A</td>
<td>&gt;</td>
<td>23</td>
<td>V11 Tx-B</td>
<td>&gt;</td>
</tr>
<tr>
<td>5</td>
<td>V11 Ctl-B</td>
<td>&gt;</td>
<td>24</td>
<td>V11 Ctl-A</td>
<td>&gt;</td>
</tr>
<tr>
<td>6</td>
<td>V11 Gnd</td>
<td></td>
<td>25*</td>
<td>WAN ID 0</td>
<td>&lt;</td>
</tr>
<tr>
<td>7*</td>
<td>WAN ID 1</td>
<td>&lt;</td>
<td>26</td>
<td>V24 Tx</td>
<td>&gt;</td>
</tr>
<tr>
<td>8</td>
<td>V24 DTR</td>
<td>&gt;</td>
<td>27</td>
<td>V24 RTS</td>
<td>&gt;</td>
</tr>
<tr>
<td>9</td>
<td>V24 Rx</td>
<td>&lt;</td>
<td>28</td>
<td>V24 RxClk</td>
<td>&lt;</td>
</tr>
<tr>
<td>10</td>
<td>V24 TxClk</td>
<td>&lt;</td>
<td>29</td>
<td>V24 RI</td>
<td>&lt;</td>
</tr>
<tr>
<td>11</td>
<td>V24 DCD</td>
<td>&lt;</td>
<td>30</td>
<td>V24 DSR</td>
<td>&lt;</td>
</tr>
<tr>
<td>12</td>
<td>V24 CTS</td>
<td>&lt;</td>
<td>31</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>N/C</td>
<td></td>
<td>32</td>
<td>V35 Tx-A</td>
<td>&gt;</td>
</tr>
<tr>
<td>14</td>
<td>V35 Tx-B</td>
<td>&gt;</td>
<td>33</td>
<td>V35 SCTE-A</td>
<td>&gt;</td>
</tr>
<tr>
<td>15</td>
<td>V35 SCTE-B</td>
<td>&gt;</td>
<td>34</td>
<td>V35 Gnd</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>V35 Rx-B</td>
<td>&gt;</td>
<td>35</td>
<td>V35 Rx-A</td>
<td>&gt;</td>
</tr>
<tr>
<td>17</td>
<td>V35 TxClk-B</td>
<td>&lt;</td>
<td>36</td>
<td>V35 TxClk-A</td>
<td>&lt;</td>
</tr>
<tr>
<td>18</td>
<td>V35 RxClk-B</td>
<td>&lt;</td>
<td>37</td>
<td>V35 RxClk-A</td>
<td>&lt;</td>
</tr>
<tr>
<td>19</td>
<td>CHASSIS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1. For the USA, only FCC Part 68 registered data circuit terminal equipment should be connected to the WAN Ports.
2. *For X21, V24/28 and V35 variants, pins 7 and 25 are connected as follows:
   - X21: Pin 7 is connected to pin 6.
   - V24/28: Pin 25 is connected to pin 6.
   - V35: Pins 7 and 25 are connected to pin 6.
Cables

This section provides information about the cables that are used with Avaya IP Office - Small Office Edition. Refer to page 36 for port pin out details. All of the following cables are for internal use only. All structured cabling/site wiring must conform to all local regulations.

Cautions

1. All ISDN and WAN cables should not be longer than 5 meters in length.
2. For Analog Trunk cables, to reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.

More

- DTE Cable
- DT Line Cord for Structured Cabling
- PRI/BRI ISDN Cable
- LAN Interconnect Cable
- LAN Cable
- X.21 WAN Cable
- V.35 WAN Cable
- Telephone Converter Cables
- Out of Building Installation
DTE Cable

A. 25 Way (or 9 Way on IP412) D-Type Plug with UNC 4-40 locking screws.

B. 9 Way D-Type Socket with UNC 4-40 locking screws.

C. 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

D. 2 meters/6.57ft.

### Pin Connections

<table>
<thead>
<tr>
<th>End A (25 Way)</th>
<th>End A (9 Way)</th>
<th>Name</th>
<th>End B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>Receive data</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Transmit Data</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>RTS (Request To Send)</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>CTS (Clear To Send)</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>DSR (Data Set Ready)</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>Ground</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>DCD (Data Carrier Detect)</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>4</td>
<td>DTR (Data Terminal Ready)</td>
<td>4</td>
</tr>
<tr>
<td>22</td>
<td>9</td>
<td>RI (Ring Indicator)</td>
<td>9</td>
</tr>
</tbody>
</table>
Line Cord for Structured Cabling
SAP Code:.- 700047871

A. RJ11 Plug.
B. Cable.
C. 4 meters/13.2ft.

Pin Connections

<table>
<thead>
<tr>
<th>RJ11 Pin Number</th>
<th>RJ45 Pin Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

- Caution:
  Other connections may be present in cables and or structured cabling. For 4450DS modules, this cable can be used to connect the module's PSU Line socket and the structured cabling. The PSU's Tel socket must only be connected to the Line socket of the associated 4424D telephone using the D4BU cable supplied with the PSU.

This cable can be used to replace the RJ11 to BT Newplan plug that is attached to the 20 series telephones to allow connection to structured cabling.
PRI/BRI ISDN Cable
SAP Code:- 700213440

Supply: As standard with Avaya IP Office - Small Office Edition systems. Can be used for either PC to Avaya IP Office - Small Office Edition LAN connection or as an ISDN trunk connection as illustrated below.

A. RJ45 Plug.
B. RJ45 Plug.
C. Cat 5 UTP cable - RED.
D. 3 meters/9.84ft.

<table>
<thead>
<tr>
<th>Pin Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>End A</strong></td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
</tbody>
</table>

* With reference to the TE.

- Pins 7 and 8 are through connected for ease of construction. They are not actually used.
LAN Interconnect Cable
SAP Code:- 700213465

Supply: The cable is supplied with the WAN3 Expansion Module.

A. RJ45 Plug.
B. RJ45 Plug.
C. Cat 5 UTP cable - GREEN.
D. 1 meter/3.28ft.

<table>
<thead>
<tr>
<th>End</th>
<th>Color</th>
<th>Cable Notes</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>White/Orange</td>
<td>Twisted Pair</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Orange/White</td>
<td>Twisted Pair</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>White/Green</td>
<td>Twisted Pair</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Blue/White</td>
<td>Twisted Pair</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>White/Blue</td>
<td>Twisted Pair</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>White/Brown</td>
<td>Twisted Pair</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Brown/White</td>
<td>Twisted Pair</td>
<td>8</td>
</tr>
</tbody>
</table>

- This cable is used:
- When connecting Avaya IP Office - Small Office Edition LAN switch ports directly to a PC.
- Pins 4,5,7 and 8 are through connected for ease of construction. They are not actually used.
LAN Cable
SAP Code:- 700213481

A. RJ45 Plug.
B. RJ45 Plug.
C. Cat 5 UTP cable - **GREY**.
D. 3 meters/9.84ft.

**Pin Connections**

<table>
<thead>
<tr>
<th>End A</th>
<th>Color</th>
<th>Cable Notes</th>
<th>End B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>White/Orange</td>
<td>Twisted Pair</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Orange/White</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>White/Green</td>
<td>Twisted Pair</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Green/White</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Blue/White</td>
<td>Twisted Pair</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>White/Blue</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>White/Brown</td>
<td>Twisted Pair</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Brown/White</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

This cable is used:
- When connecting Avaya IP Office - Small Office Edition LAN switch 1 - 7 directly to a PC.
- When connecting a WAN3 port to an IP403/406 hub port which is not located in the same cabinet as the Avaya IP Office - Small Office Edition.
- Pins 4, 5, 7 and 8 are through connected for ease of construction. They are not actually used.
X.21 WAN Cable
SAP Code:- 700213408

A. 37 Way D-Type Plug with UNC 4-40 locking screws.
B. 15 Way D-Type Plug with M3 locking screws.
C. Label
D. 6 twisted pair screened cable - each core is 7/0.203mm (24 AWG) tinned copper stranded wire, nominal capacitance of 98pF/m, impedance of 77 at 1MHz, screened with aluminized tape and a tinned copper wire drain.
E. 3 meters/9.84ft.

<table>
<thead>
<tr>
<th>Pin Connections</th>
<th>End A Name</th>
<th>Cable Notes</th>
<th>End B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Receive (Rx-B)</td>
<td>Twisted Pair</td>
<td>11</td>
</tr>
<tr>
<td>20</td>
<td>Receive (Rx-A)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Transmit (Tx-A)</td>
<td>Twisted Pair</td>
<td>2</td>
</tr>
<tr>
<td>23</td>
<td>Transmit (Tx-B)</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>24</td>
<td>Control (Ctl-A)</td>
<td>Twisted Pair</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Control (Ctl-B)</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Indicate (Ind-A)</td>
<td>Twisted Pair</td>
<td>5</td>
</tr>
<tr>
<td>21</td>
<td>Indicate (Ind-B)</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>SE-Timing (S-A)</td>
<td>Twisted Pair</td>
<td>6</td>
</tr>
<tr>
<td>22</td>
<td>SE-Timing (S-B)</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>Ground</td>
<td>-----</td>
<td>8</td>
</tr>
</tbody>
</table>

- Connect pin 7 to pin 6 at End A only.
- Pin 19 at end A is connected to the Screened Cable Drain Wire.
- This cable is used to connect a WAN port to a Digital leased Line.
V.35 WAN Cable
SAP Code:- 700213424

A. 37 Way D-Type Plug with UNC 4-40 locking screws.
B. 34 Way MRAC Plug.
C. Label
D. 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.
E. 3 meters/9.84ft.

**Pin Connections**

<table>
<thead>
<tr>
<th>End A</th>
<th>Name</th>
<th>Cable Notes</th>
<th>End B</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>DTR (Data Terminal Ready)</td>
<td>-----</td>
<td>H</td>
</tr>
<tr>
<td>11</td>
<td>DCD (Data Carrier Detect)</td>
<td>-----</td>
<td>F</td>
</tr>
<tr>
<td>12</td>
<td>CTS (Clear To Send)</td>
<td>-----</td>
<td>D</td>
</tr>
<tr>
<td>27</td>
<td>RTS (Request To Send)</td>
<td>-----</td>
<td>C</td>
</tr>
<tr>
<td>29</td>
<td>RI (Ring Indicator)</td>
<td>-----</td>
<td>J</td>
</tr>
<tr>
<td>30</td>
<td>DSR (Data Set Ready)</td>
<td>-----</td>
<td>E</td>
</tr>
<tr>
<td>32</td>
<td>Transmit Data - A</td>
<td>Twisted Pair</td>
<td>P</td>
</tr>
<tr>
<td>14</td>
<td>Transmit Data - B</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Receive Data - A</td>
<td>Twisted Pair</td>
<td>R</td>
</tr>
<tr>
<td>16</td>
<td>Receive Data - B</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Transmit Clock - A</td>
<td>Twisted Pair</td>
<td>Y</td>
</tr>
<tr>
<td>17</td>
<td>Transmit Clock - B</td>
<td>AA</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Receive Clock - A</td>
<td>Twisted Pair</td>
<td>V</td>
</tr>
<tr>
<td>18</td>
<td>Receive Clock - B</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>External Clock - A</td>
<td>Twisted Pair</td>
<td>U</td>
</tr>
<tr>
<td>15</td>
<td>External Clock - B</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Ground</td>
<td>-----</td>
<td>B</td>
</tr>
</tbody>
</table>

- Connect pins 7 and 25 to pin 6 at End A only.
- Pin 19 at end A is connected to the Screened Cable Drain Wire.
- The maximum core to core capacitance must not exceed 800pF.
- This cable is used to connect a WAN port to a Digital leased Line.
Telephone Converter Cables
The following diagrams show the pin-outs of various Structured Cabling Telephone Converters. The first two telephone converters shown provide the required conversion allowing correct operation of the attached telephone.

Each telephone port on the Phone modules acts as a Master socket, thus only Slave Telephone Converters are required.

**RJ45 - Compatible Converter**

![Diagram of RJ45 Converter]

**RJ11/45 Adapter**

![Diagram of RJ11/45 Adapter]

<table>
<thead>
<tr>
<th>RJ11 Pin Number</th>
<th>RJ45 Pin Number</th>
<th>BT Newplan Socket Pin Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Other connections are not relevant. BT Newplan socket connections may be reversed as polarity is not important. This adapter may be used with DT telephones fitted with BT Newplan plugs.
Port Safety Classification

The Avaya IP Office - Small Office Edition systems have the following ports:

- Analog extension ports (with one Power Fail port)
- 10/100 BaseT LAN ports
- 10/100 WAN port
- Digital telephone ports: either DT (A-Law encoding) or DS (-Law encoding)
- ISDN ports (optional)
- Analog trunk ports (with one Power Fail port)
- WAN port (optional V.24\V.35\X.21)
- DTE port
- Audio I/P port
- DC Power Input port
- External Control port

These Ports are classified as follows:

<table>
<thead>
<tr>
<th>Port Name</th>
<th>Port Description</th>
<th>Port Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRI port</td>
<td>PRI ISDN connection (NET)</td>
<td>TNV (Operating within the limits of SELV).</td>
</tr>
<tr>
<td>BRI ports</td>
<td>BRI ISDN connection (NET)</td>
<td>TNV (Operating within the limits of SELV).</td>
</tr>
<tr>
<td>Analog ports</td>
<td>Two wire analog trunk</td>
<td>TNV3.</td>
</tr>
<tr>
<td>Power fail port</td>
<td>Two wire analog trunk</td>
<td>TNV3.</td>
</tr>
<tr>
<td>DTE port</td>
<td>Async Data connection.</td>
<td>SELV.</td>
</tr>
<tr>
<td>Analog Telephone</td>
<td>Telephone Extension ports</td>
<td>TVN2.</td>
</tr>
<tr>
<td>Ports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Station Ports</td>
<td>Telephone Extension ports</td>
<td>SELV.</td>
</tr>
<tr>
<td>WAN port</td>
<td>WAN connection (NET).</td>
<td>SELV.</td>
</tr>
<tr>
<td>LAN ports</td>
<td>10/100 BaseT attachment to LAN.</td>
<td>SELV.</td>
</tr>
<tr>
<td>Audio port</td>
<td>Connector for Music on Hold.</td>
<td>SELV.</td>
</tr>
<tr>
<td>External Control port</td>
<td>Connector for Controlling Ancillary circuits.</td>
<td>SELV.</td>
</tr>
<tr>
<td>DC Input port</td>
<td>Connector for DC input power.</td>
<td>SELV.</td>
</tr>
</tbody>
</table>

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.
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.
Technical Data

Technical Specifications

General

Dimensions (Unboxed):
- Width: 255mm (10 inches).
- Height: 76mm (3.0 inches).
- Depth: 235mm (9.3 inches).
- Weight: 1.2Kg (2.64lbs)

Dimensions (Boxed):
- Width: 340mm (13.4 inches).
- Height: 105mm (4.2 inches).
- Depth: 305mm (12 inches).
- Weight: 2.17Kg (4.77lbs).

Environmental:
- 0 to +40°C. 95% relative humidity, non-condensing.

Power Supply Consumption (nominal Watts):
- 2.5mm DC inlet socket. 24Vdc power input. Rating 24Vdc, 1.8A maximum. 45 Watts.

Lump-in-Line PSU: Model PSA4524-26E13
- Power Supply Requirements: Input 100-240Vac, 50/60Hz, 81-115VA, input current 1.5A maximum.
- Standard PSUs: Output 24Vdc, 1.875A, output power 45W maximum.
<table>
<thead>
<tr>
<th>Interface</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTE</td>
<td>9-way D-Type female connector, V.24/V.28.</td>
</tr>
<tr>
<td>Analog ports</td>
<td>RJ45 sockets: Loop start</td>
</tr>
<tr>
<td>Power Fail ports</td>
<td>RJ45 sockets: telephone ports act as master sockets (Analog port 2 switches to POT port 2)</td>
</tr>
<tr>
<td>Telephone (Phone ports)</td>
<td>RJ45 sockets. EU - Telephone ports act as master sockets. CLI Schemes: DTMFA, DTMFC, DTMFD, FSK and UK20. REN = 2 Off Hook current = 25mA. Ring Voltage = 40V (nominal) RMS. External Bell (via analog port); REN = 1</td>
</tr>
<tr>
<td>LAN 1-4</td>
<td>RJ45 sockets. Four Port switch. Auto-negotiating 10/100BaseT Ethernet ports.</td>
</tr>
<tr>
<td>ISDN (optional)</td>
<td><strong>ROW Interfaces:</strong></td>
</tr>
<tr>
<td></td>
<td>BRI : RJ45 sockets. ETSI S/T Interface to CTR3 for Pan European Connection.</td>
</tr>
<tr>
<td>USA Interfaces:</td>
<td>PRI T1 Service: Ground Start (GS) – Default, E&amp;M, 56k data for 5ESS, 56/64/64 restricted for 4ESS</td>
</tr>
<tr>
<td></td>
<td>PRI ISDN Switch support: 4ESS, 5ESS, DMS-100, DMS-250 (includes conformance to ANSI T1.607 &amp; Bellcore Special Report SR4287, 1992</td>
</tr>
<tr>
<td></td>
<td>PRI ISDN Services: AT&amp;T Megacom 800, AT&amp;T WATS (4ESS), AT&amp;T SDS Accunet 56kB/s &amp; 64kB/s (4ESS), AT&amp;T Multiquest (4ESS).</td>
</tr>
<tr>
<td>ISDN Data Rates</td>
<td>BRI: B-channel 64kbps or 56kbps, D-channel 16kbps (2B+D).</td>
</tr>
<tr>
<td></td>
<td>PRI: B-channel 64kbps or 56kbps, D-channel 64kbps (23B+D).</td>
</tr>
<tr>
<td>WAN (standard)</td>
<td>RJ45 Socket. Ethernet LAN port.</td>
</tr>
<tr>
<td>WAN (optional)</td>
<td>37 way D-Type female sockets. X.21 interface to 2048k bps, V.35 interface to 2048k bps and V.24 Interface to 19.2k bps.</td>
</tr>
<tr>
<td>Audio</td>
<td>3.5mm Stereo Jack socket. Input impedance - 10k /channel.</td>
</tr>
<tr>
<td></td>
<td>Maximum AC signal – 200mV rms.</td>
</tr>
<tr>
<td>External Control</td>
<td>3.5mm Stereo Jack socket. Switching Capacity - 0.7A.</td>
</tr>
<tr>
<td></td>
<td>Maximum Voltage - 55V DC On state resistance - 0.7.</td>
</tr>
<tr>
<td></td>
<td>Short circuit current - 1A. Reverse circuit current capacity - 1.4A.</td>
</tr>
<tr>
<td>Wireless module</td>
<td>16 bit type II PCMCIA format PC Card.</td>
</tr>
<tr>
<td>(optional)</td>
<td>IEEE 802.11b WiFi.</td>
</tr>
<tr>
<td>Voice Memory (optional)</td>
<td>16 bit type II PCMCIA format PC Card.</td>
</tr>
<tr>
<td></td>
<td>64M flash memory.</td>
</tr>
</tbody>
</table>
### Protocols

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-Law</td>
<td>PCM encoding (mainly used outside N.America)</td>
</tr>
<tr>
<td>U-Law</td>
<td>PCM encoding (mainly used in N.America and Japan)</td>
</tr>
<tr>
<td>V.120</td>
<td>A standard Rate Adaption mechanism.</td>
</tr>
<tr>
<td>V.110</td>
<td>A standard Rate Adaption mechanism.</td>
</tr>
<tr>
<td>PPP</td>
<td>RFC 1661: Point to Point Protocol.</td>
</tr>
<tr>
<td>MP</td>
<td>RFC 1990: Multi-Link (Point to Point) Protocol.</td>
</tr>
<tr>
<td>MPPC</td>
<td>RFC 2118: Microsoft Point to Point Compression (Protocol).</td>
</tr>
<tr>
<td>IPCP</td>
<td>RFC 1332: Internet protocol Control Protocol.</td>
</tr>
<tr>
<td>NAT</td>
<td>RFC 1631: Network Address Translation.</td>
</tr>
<tr>
<td>SNMPv1</td>
<td>RFC1157: (STD15) Simple Network Management Protocol</td>
</tr>
<tr>
<td></td>
<td>RFC1212: (STD16) Concise MIB Definitions.</td>
</tr>
<tr>
<td></td>
<td>RFC1215: A Convention for Defining Traps for use with the SNMP.</td>
</tr>
<tr>
<td>RIP</td>
<td>RFC1058: Routing Information Protocol.</td>
</tr>
<tr>
<td></td>
<td>RFC2453: (STD56) RIP Version 2.</td>
</tr>
<tr>
<td></td>
<td>RFC2402: IP Authentication Header.</td>
</tr>
<tr>
<td></td>
<td>RFC2403: The Use of HMAC-MD5-96 within ESP and AH.</td>
</tr>
<tr>
<td></td>
<td>RFC2404: The Use of HMAC-SHA-1-96 within ESP and AH.</td>
</tr>
<tr>
<td></td>
<td>RFC2405: The ESP DES-CBC Cipher Algorithm With Explicit IV.</td>
</tr>
<tr>
<td></td>
<td>RFC2407: The Internet IP Security Domain of Interpretation for ISAKMP.</td>
</tr>
<tr>
<td></td>
<td>RFC2409: The Internet Key Exchange (IKE).</td>
</tr>
<tr>
<td></td>
<td>RFC2410: The NULL Encryption Algorithm and Its Use With IPsec.</td>
</tr>
<tr>
<td>L2TP</td>
<td>RFC2661: Layer Two Tunneling Protocol &quot;L2TP&quot;.</td>
</tr>
<tr>
<td></td>
<td>RFC3193: Securing L2TP using IPsec.</td>
</tr>
<tr>
<td>ENTITY</td>
<td>RFC2737: Entity MIB (Version 2).</td>
</tr>
<tr>
<td>MIB</td>
<td>RFC2737: Entity MIB (Version 2).</td>
</tr>
</tbody>
</table>
SNMP

SNMP Functionality
The IP Office SNMP Agent implements SNMPv1 on a read-only basis for security reasons.

More
- SNMP Agent Configuration
- MIBs Supported
- Trap Generation
- MIB Loading
- HP OpenView Network Node Manager 6.41 and Earlier
- CastleRock SNMPc 5.1.6c and Earlier

SNMP Agent Configuration
The following operational items may be configured for the IP Office SNMP Agent using the IP Office Manager:

SNMP Server:
- Enable/disable
  - Enabled: the device to respond to SNMP requests and send traps for any associated events that occur if so configured.
  - Disabled: the SNMP agent on the device does not respond to SNMP requests or send traps.
- UDP Port (default 161)
  - Changes the default port value of the SNMP Agent.
- Read-only community
  - Community string of up to 32 alphanumeric characters for read-only access.
- Two trap destinations:
  - IP Address
  - UDP Port (default 162)
  - Community string of up to 32 alphanumeric characters.
- Event mask specifying the events the trap destination is interested in receiving
  - generic (coldStart, warmStart, linkDown, linkUp, authenticationFailure)
  - licence – License Key Server access fault notifications
  - phone change – connected phone change notification
MIBs Supported
The following MIBs are supported by the IP Office SNMP Agent:

- IETF RFC1213 mib-2 (RFC1213-MIB)
  - Provides statistics for LAN, WLAN and WAN interfaces
  - Groups supported: system, interfaces, at, ip, icmp, tcp, udp and snmp

- IETF RFC1215
  - Provides definitions of generic SNMP traps
  - Traps supported: warmStart, coldStart, linkDown, LinkUp and authenticationFailure

- IETF RFC2737 ENTITY-MIB
  - Provides architectural representation
  - Groups supported: entityPhysical and entityGeneral

- Avaya IPO-PROD-MIB
  - Provides device/entity identification OIDs

- Avaya IPO-MIB
  - Provides root OIDs for functional MIBs
  - Provides system wide notifications for events relating to functional entities.
    - ipoGenLKSCommsFailureEvent
    - ipoGenLKSCommsOperationalEvent for License Key Server communication events

- Avaya IPO-PHONES-MIB
  - Provides extension/user/phone-port map.
    - Phone-port mapping via cross-reference to entPhysicalEntry for port with entPhysicalIndex value
  - Provides notifications of phone change event.
    - ipoPhonesChangeEvent
## Trap Generation

RFC1215 Generic SNMP Traps:

<table>
<thead>
<tr>
<th>Trap type</th>
<th>Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>warmStart</td>
<td>Upon soft reboot.</td>
</tr>
<tr>
<td>coldStart</td>
<td>Upon unexpected reboot such as a power outage.</td>
</tr>
<tr>
<td>linkDown</td>
<td>Upon transition of an interface (PPP or Frame-Relay) from the up operational state into the down operational state.</td>
</tr>
<tr>
<td>linkUp</td>
<td>Upon transition of an interface (PPP or Frame-Relay) from the down operational state into the up operational state.</td>
</tr>
<tr>
<td>authenticationFailure</td>
<td>Upon attempted SNMP request with mismatched community for the type of operation.</td>
</tr>
</tbody>
</table>

IPO-MIB:

<table>
<thead>
<tr>
<th>Trap type</th>
<th>Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>ipoGenLKSCommsFailureEvent</td>
<td>Upon loss of communication with a configured License Key Server.</td>
</tr>
<tr>
<td>ipoGenLKSCommsOperationalEvent</td>
<td>Upon re-gaining communication with a configured License Key Server.</td>
</tr>
</tbody>
</table>

IPO-PHONES-MIB:

<table>
<thead>
<tr>
<th>Trap type</th>
<th>Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>ipoPhonesChangeEvent</td>
<td>Upon change of a DT, DS or IP extension phone type after normal start-up. No traps are issued for POT extensions as the presence or absence of such phones cannot be established hence the ipoPhonesType for such extensions is always potPhone.</td>
</tr>
</tbody>
</table>
MIB Loading
In order to SNMP manage an IP Office system, that is browse its MIBs and fully interpret the traps it sends out, the MIBs supported by IP Office must be loaded and compiled for use with your Network Management System. The supported standard and proprietary MIBs together with the MIB files relied upon for definitions are provided on the IP Office Admin CD off the directory snmp_mibs. Detailed below are details of how to install the appropriate MIBs with a number of Network Management Systems.

HP OpenView Network Node Manager 6.41 and Earlier
MIBs are installed in Network Node Manager by selecting Options and Load/Unload MIBs: SNMP from the menu and then using the Load… option and browsing for MIB files to load and compile. The following MIBs must be installed in the order listed to fully SNMP manage an IP Office system:

<table>
<thead>
<tr>
<th>MIB file</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFC2737-ENTITY-MIB</td>
<td>snmp_mibs\standard on OpenView install CD.</td>
</tr>
<tr>
<td>AVAYAGEN-MIB.mib</td>
<td>snmp_mibs\IPOffice on IP Office Admin CD.</td>
</tr>
<tr>
<td>IPO-PROD-MIB.mib</td>
<td>snmp_mibs\IPOffice on IP Office Admin CD.</td>
</tr>
<tr>
<td>IPO-MIB.mib</td>
<td>snmp_mibs\IPOffice on IP Office Admin CD.</td>
</tr>
<tr>
<td>INET-ADDRESS-MIB.mib</td>
<td>snmp_mibs\IPOffice on IP Office Admin CD.</td>
</tr>
<tr>
<td>RFC2213-INTEGRATED-SERVICES-MIB</td>
<td>snmp_mibs\standard on OpenView install CD.</td>
</tr>
<tr>
<td>DIFFSERV-DSCP-TC.mib</td>
<td>snmp_mibs\Standard on IP Office Admin CD.</td>
</tr>
<tr>
<td>DIFFSERV-MIB-HPOV.mib</td>
<td>snmp_mibs\Standard on IP Office Admin CD.</td>
</tr>
<tr>
<td>IPO-PHONES-MIB.mib</td>
<td>snmp_mibs\IPOffice on IP Office Admin CD.</td>
</tr>
</tbody>
</table>
**CastleRock SNMPc 5.1.6c and Earlier**

For MIBs to be used with SNMPc they must first be copied into its mibfiles directory, which is normally C:\Program Files\SNMPc Network Manager\mibfiles. MIBs are installed by selecting **Config** and **MIB Database** from the SNMPc menu and then using the **Add** option and selecting the MIB file from the list presented to load and compile it. The following MIBs must be installed in the order listed to fully SNMP manage an IP Office system:

<table>
<thead>
<tr>
<th>MIB file</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTITY-MIB</td>
<td>snmp_mibs\Standard on IP Office Admin CD.</td>
</tr>
<tr>
<td>AVAYAGEN-MIB.mib</td>
<td>snmp_mibs\IPOffice on IP Office Admin CD.</td>
</tr>
<tr>
<td>IPO-PROD-MIB.mib</td>
<td>snmp_mibs\IPOffice on IP Office Admin CD.</td>
</tr>
<tr>
<td>IPO-MIB.mib</td>
<td>snmp_mibs\IPOffice on IP Office Admin CD.</td>
</tr>
<tr>
<td>INET-ADDRESS-MIB.mib</td>
<td>snmp_mibs\Standard on IP Office Admin CD.</td>
</tr>
<tr>
<td>INTEGRATED-SERVICES-MIB</td>
<td>snmp_mibs\Standard on IP Office Admin CD.</td>
</tr>
<tr>
<td>DIFFSERV-DSCP-TC.mib</td>
<td>snmp_mibs\Standard on IP Office Admin CD.</td>
</tr>
<tr>
<td>DIFFSERV-MIB.mib</td>
<td>snmp_mibs\Standard on IP Office Admin CD.</td>
</tr>
<tr>
<td>IPO-PHONES-MIB.mib</td>
<td>snmp_mibs\IPOffice on IP Office Admin CD.</td>
</tr>
</tbody>
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