IP Office

DECT R4 Installation

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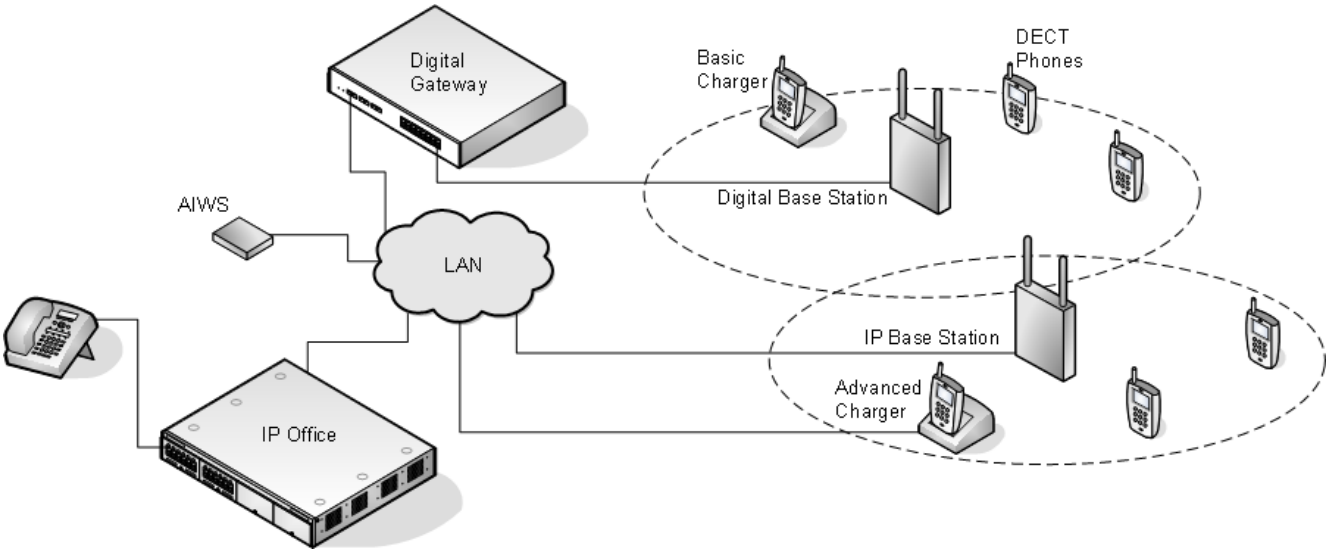
DECT R4

1. DECT R4

Avaya DECT R4 is a DECT system where multiple base stations are connected using an IP LAN. For IP Office, DECT R4 is supported with IP Office Release 5+. This installation manual covers the installation of DECT R4 systems using the firmware supported by IP Office Release 8.0.

This manual is just a basic manual covering the most common install scenarios for DECT R4 with an IP Office system. For more advanced options and complex install scenarios refer to the full set of Avaya DECT R4 manual.



- **IP DECT Base Station (IPBS)** 10
  Up to 32 are supported. During installation one is configured as the master base station, to which the other base stations synchronize as slave base stations. Each base station can host up to 8 simultaneous phone conversations in its coverage area. Up to 32 base stations (1 master + 31 slaves) are supported.
  - For IP Office Release 6.0 and higher, the Compact Base Station is supported. Compact Base Stations can be used in place of standard base stations. This type of base station only supports 4 simultaneous calls. Up to 5 Compact Base Station units can be included in a system. If used as the master base station, the whole system is limited to 5 base stations.
- **Phones** 15
  Up to 120 DECT phones are supported. The Avaya 3700 Series phones supported are the ***3720***, ***3725***, ***3740*** and ***3749***. Other DECT phones, including the 3701 and 3711, are supported but only for basic telephony and only using the DECT GAP and DECT CAP standards.
- **Chargers** 19
  A number of different types of charger exist for 3700 Series phones. Note that chargers for 3720/3725 phones are not necessarily useable with 3740/3749 phones. Some of the chargers are advanced chargers which allow the phone docked with the charger to be accessed using the Device Manager application (browser access via the AIWS unit and charger LAN port or WinPDM application via the USB port).
- **IP Office**
  DECT R4 is supported on IP Office systems running IP Office 5.0+ software. This manual is for systems running IP Office Release 7.0 or higher in IP Office standard mode.
  - **Licenses**
    Each phone subscribed via the DECT R4 systems requires an Avaya IP Endpoint license in the IP Office configuration.
- **Configuration Tools**
  The tools and applications for DECT R4 are included as part of the IP Office Manager application installation. This includes the appropriate firmware for operation with the IP Office system.
- **Avaya In-Building Wireless Server (AIWS)** 20
  This unit allows SMS messaging between handsets. DIt also allows wireless software upgrades and configuration of the handsets (without an AIWS, handsets can only be upgraded and configured when in an advanced charger). For IP Office Release 5 this unit provides directory integration between the IP Office and the DECT R4 system. For IP Office Release 6 directory integration can be done by the master base station but without SMS support. If both SMS and directory integration are required then an AIWS unit must be used.

1.1 Changes in IP Office Release 8.0

The following major changes have been made in the IP Office Release 8.0 support for DECT R4:

- **IP DECT Gateway**
  This device allows base stations using traditional 4-way telephony cabling to be connected to the DECT R4 system. Each IP DECT Gateway can support up to 16 digital base stations and provides power to those base stations. The IP DECT Gateway connects to the IP Office via the LAN.
  - Up to 2 IP DECT Gateway units can be used, supporting up to 32 base stations.
  - IP and digital base stations can be used in the same system.
  - A IP DECT Gateway can be configured as the master base station for the whole system.
- **Digital Base Stations**
  Digital variants of the BS330 and BS340 base stations are available for use with the IP DECT Gateway. They are physically and functionally the same as the IP variants of those base station but connect to the system via traditional 4-way telephone cable. No digital variant of the Compact Base Station exists.
- **AIWS2**
  The AIWS has been replaced by the AIWS2. The AIWS2 is easier to install and supports a wider range of additional functions for the DECT system.
- **Customer Call Reporter Agent Support**
  The Customer Call Reporter application now supports agents who are using Avaya 3700 Series phones on a DECT R4 system. This is only supported for DECT system using an IP Office provisioned installation, as that allows the IP Office to provide the phone user with options for logging in 87.

1.2 Changes in IP Office Release 7.0

The following major changes have been made in the IP Office Release 7.0 support for DECT R4:

- **Avaya 3740 and 3749 Telephones**
  These new phones in the 3700 Series are supported along with matching chargers and other accessories. The 3740 and 3749 are both ruggedized phones (IP65). The 3749 is also intrinsically safe for use in hazardous environments.
- **IP Office Provisioning**
  The DECT master base station can be installed in 'provisioning' mode. In this mode, once the base station is operational and connected to the IP Office, the bulk of configuration is done by the IP Office.
  - The IP Office is able to provide key settings to the base station such as the system SARI code and the authentication code for phone subscription.
  - User configuration and subscription control is done through the IP Office. Previously user configuration and subscription was done in parallel through both the IP Office and base station.
  - When using provisioning mode, 3700 Series handset are provided with enhanced menus and idle status display driven by the IP Office. This does not include 3701, 3711 and other GAP compatible phones subscribed to the system.
  - **When to Use IP Office Provisioning**
    IP Office provisioning both simplifies installation and maintenance and provides 3720, 3725, 3740 and 3749 phones with additional IP Office specific features. Therefore it is the recommended installation method for new installations whenever possible.
    - Provisioning installation in pre-configured or auto-create modes should be used for all installations with just 3720, 3725, 3740 and 3749 phones.
    - Provisioning installation in pre-configured mode should be used for all installations with a mix of 3720, 3725, 3740, 3749 phones and other DECT phones.
    - Provisioning installation should not be used for installations with no 3720, 3725, 3740 or 3749 phones.
- **Standard and Advanced Base Station Menu Modes**
  The base station configuration menus contain settings for a wide range of scenarios and interoperation with a number of Avaya telephone systems. This can make installation both highly flexible but also make it seem unnecessarily complicated. The menus can now be used in standard mode, with only key settings visible or advanced mode with all settings visible. Note that compact base stations use standard mode by default.

1.3 Base Stations

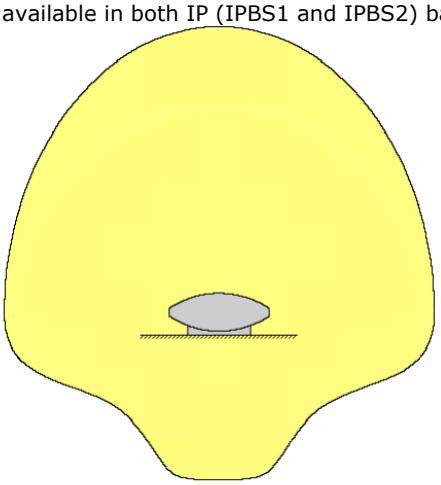
DECT R4 supports several base station variants. They differ in aerial connection, the number of simultaneous calls supported and how they connect to the DECT system. Normally, during installation, one of the base stations is configured as the master base station for the whole DECT R4 system. Any other base stations are then configured as slave base stations.

The availability of particular base stations variants depends on the country of operation.

Base Station Types

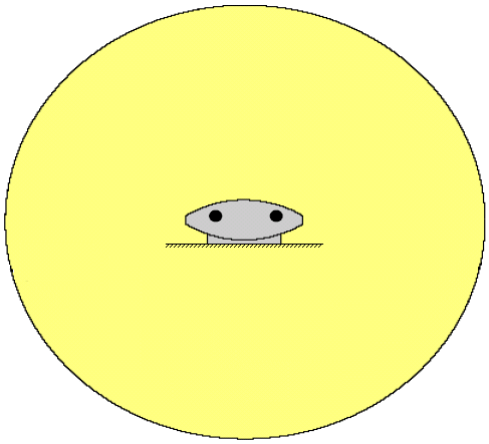
The following types of base station are available for use in a DECT R4 system. They are available as IP and or digital versions. Each base station includes a detachable bracket for wall mounting or column mounting of the base station. The bracket allows the base station to be removed for maintenance. The same brackets is used for all types of base station, therefore also allowing for quick interchange of base stations.

- **Internal Aerial Base Stations**
  These base stations have 2 integral internal aerials which cannot be adjusted. The aerials produce a directional pattern of radio coverage. The base station supports up to 8 simultaneous calls. This type of base station is available in both IP (IPBS1 and IPBS2) base station and digital base station versions.



  - **Compact Base Station**
    This type of IPBS1 IP base station is physically similar to other base stations with internal aerials but only supports 4 simultaneous calls. Up to 5 Compact Base Station units can be included in a system. If used as the master base station, the whole system is limited to 5 base stations. Compact Base Station are only supported if all the other base stations are running firmware version 3.3.11 or later.

- **External Aerial Base Stations**
  These base stations have 2 external aerials. These aerials produce an even pattern of radio coverage. The base station supports up to 8 simultaneous calls. The aerials can be disconnected and replaced by a various other types of aerials 13 if different radio coverage patterns and range is required. This type of base station is available in both IP (IPBS1 and IPBS2) base station and digital base station versions. This type of base station in not supported in North America.



	IPBS1 IP Base Stations	Compact IPBS1 IP Base Station	IPBS2 IP Base Stations	Digital Base Station
With Internal Aerials	Yes	Yes	Yes	Yes
" and Compact	Yes	–	–	–
With External Aerials	Yes	–	Yes	Yes

IP Base Stations

IP base stations are supplied with a mounting bracket and a 1.2 metre (4 foot) LAN cable. The base station can be powered using IEEE 802.3af power over ethernet (PoE 7W Class 2). Alternatively the base station also requires a main power supply outlet socket within 8 metres (26 feet) cable distance and power supply unit.

The original IPBS1 versions of these base stations have been replaced by IPBS2 versions. The two types are functionally the same and can be mixed in the same installation.

Digital Base Stations

Using an IP DECT Gateway 14, digital base stations can be connected to the DECT system. These base stations are physically similar to the IPBS1 base stations, using the same casings and mounting brackets, but connect to the IP DECT Gateway using traditional 4-wire telephone cabling.

Digital base stations can be powered either direct from the IP DECT Gateway or using separate power adapters for each base station. The number of base stations that the IP DECT Gateway can power depends on the cable distance to each base station and the type of cable used. The maximum cable length between the IP DECT Gateway and each digital base station should not exceed 1500 meters.

Digital base stations are available in variants with internal and external aerials. There is no digital variant of the Compact Base Station base station.

- Digital Base Station with internal antennas for European Union, Switzerland, Iceland, Liechtenstein, Norway and Russia.
- Digital Base Station with external antennas for European Union, Switzerland, Iceland, Norway and Russia.
- Digital Base Station with internal antennas for US and Canada.

Base Station Details

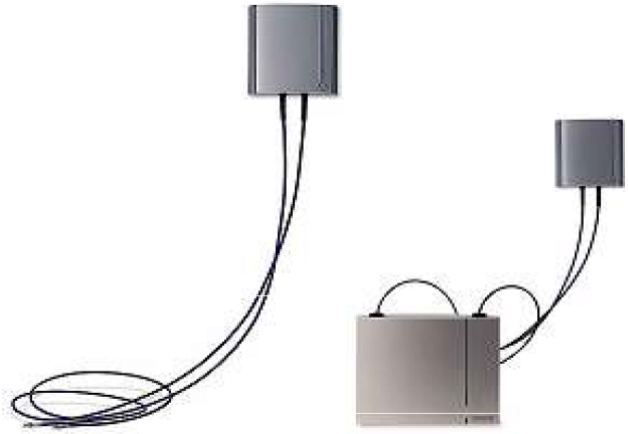
Feature		Details
DECT Frequencies	**Brazil**	1910-1920 MHz frequencies.
	Latin America	1910-1930 MHz frequencies.
	North America	1920-1930 MHz frequencies.
	Rest of World	1880-1900 MHz frequencies.
Physical	**Dimensions (Height × Width × Depth)**	165 × 200 × 56 mm (including mounting bracket). Add 95mm height for external aerials.
	Weight	450g
	Material	ABS moulded plastic
	Colour	Beige
	External connectors	2 × RJ45, 1 x RJ12
Power *(IP Base Stations)*	**Input**	Power over Ethernet IEEE 802.3af or local power supply
	Operating voltage	21 to 56 V dc.
	Power consumption	Typical 4W, maximum 5W.
	Power over Ethernet	PoE Class 2 (7W).
Network *(IP Base Stations)*	**Ethernet:**	10/100baseT
	Voice over IP	H.323 XMobile incl. QSig/DSS1.
	Voice Encoding	G.711 A-law / Mu-law (64kbps) G.723.1 (5.3 kbps) G.729A and AB (16 kbps)
Radio	**RF output power EU**	Between 23 dBm and 28 dBm (with internal antenna) Between 20 dBm and 25 dBm (with external antenna)
	RF output power US	Between 17 dBm and 21,6 dBm (with internal antenna)
Environmental	**Operating temperature**	-10°C to +55°C
	Storage temperature	-40°C to +70°C
	Relative operating humidity	15 to 90%, non condensing
	Relative storage humidity	5 to 95%, non condensing
	Immunity to electromagnetic fields	3V/m (EN61000-4-3)
	Immunity to ESD	4 kV contact discharge and 8 kV air discharge (EN61000-4-2)

1.4 Aerials

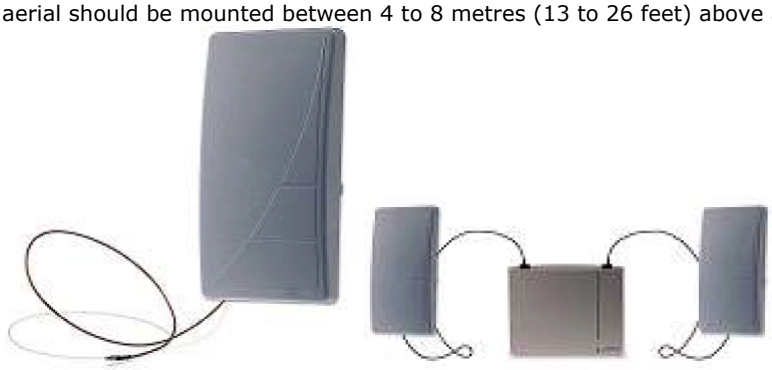
The following different aerials can be used to replace the supplied aerials on a base stations with external aerials. These aerials have aerial leads to allow for optimal positioning. Note that these optional aerials are not supported in North America.

- **Omni-Directional Single Aerial**
  A pair of these aerials can be used to approximately double the base station radio coverage, ie. up to 600 metres (2000 feet) omni-directional coverage.

- **Directional Dual Aerial**
  This aerial gives directional coverage up to 750 metres (2500 feet). Only one aerial unit is required for connection to the base station.



- **Directional Single Antenna**
  A pair of these aerials can be used to give directional coverage up to 1000 metres (3300 feet). They must be mounted facing the same direction and approximately 1 metre (3 feet) apart. To achieve maximum coverage, the aerial should be mounted between 4 to 8 metres (13 to 26 feet) above area being covered.



1.5 IP DECT Gateway

The IP DECT Gateway allows digital base stations 11 to be connected to the DECT system. These are digital base stations, not IP. Up to 16 such base stations can be connected to a gateway,using traditional 4-wire telephony cabling. The gateway itself connects to the IP Office and other IP based elements of the system via the IP LAN.

Though the gateway does not support telephone calls, it can be configured to act as the master base station for the whole DECT system. It is possible to for it to act as a master even in a system that has a mix IP and digital base stations.

- Up to 16 digital base stations can be connected to an single IP DECT Gateway.
- Up to two IP DECT Gateway units are supported per IP Office.
- Synchronization of attached digital base stations via UPN cables (including automatic cable delay measurement).
- Over-the air synchronization master for IP base stations. Master sync or backup sync functionality can reside in the gateway appliance.
- Seamless roaming and handover, also with IP base station on same site.
- The IP DECT Gateway can act as the master base station for the DECT system. This does not affect the count of actual base stations (IP and or digital) allowed.
- Remote configuration and software upgrade of IP DECT Gateway appliance (web-based).
- Remote automatic update of digital base stations connected to the IP DECT Gateway.
- Configuration option for reuse of Avaya's UPN-repeaters. This means a configuration option for each base station port to disable the automatic cable delay measurement and allow to manually set a cable delay value for that specific port.
- Remote power feeding of digital base stations via UPN-ports. The maximum cable length between the IP DECT Gateway and each digital base station should not exceed 1500 meters. The length and type of cable used affects the power consumption 81. If the total power capacity of the IP DECT Gateway is exceeded, additional digital base stations will require their own power support connection.
- Note: The IP DECT Gateway does not support call handover when the digital base station a call is using is reset or unplugged.

1.6 Phones

The following Avaya 3700 Series phones are supported by DECT R4.

1.6.1 3720

Avaya 3720	Description		
	**Features**		• High quality voice DECT phone, GAP/CAP compliant. • Easy access to PBX services. • Voicemail including message icon. • Manual and automatic keypad lock. • Local directory: 250 entries. • Central directory from the IP Office. • Call list with the 25 last calls. • Vibrator. • Loudspeaker/hands free. • Central Management and software download. • Headset socket (2.5mm). • 5 languages* English, German, Spanish, French. One additional language can be uploaded. • Monochrome display (112 x 115 pixels). • GAP compatible.
	Physical	**Dimension**	133 x 53 x 24mm
		Weight	115g
	Battery	**Type**	600 mAh, Lithium 3.7V. Charge time 4 hours.
		Speech Time	> 16 hours.
		Standby Time	> 160 hours.

- *For systems installed using IP Office provisioning, the language used is set by the IP Office system or user language setting.
- An additional language file can be uploaded to a phone.

1.6.2 3725

Avaya 3725	Description		
	**Features**		• As per 3725 plus: • Site Survey tool. • Cleanable, IP 44. • Option: Bluetooth. • 19 Languages Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Norwegian, Polish, Portuguese (Brazilian), Portuguese, Russian, Slovakian, Spanish, Swedish and Turkish. • Colour display (128 x 160 pixels). • SMS Message length up to 160 characters. 30 received/sent messages. Requires AIWS 122. • GAP compatible.
	Physical	**Dimension**	134 x 53 x 26mm
		Weight	130g
	Battery	**Type**	930 mAh, Li-Pol 3.7V. Charge time 4 hours.
		Speech Time	> 20 hours (13h with Bluetooth option)
		Standby Time	> 120 hours.

- *For systems installed using IP Office provisioning, the language used is set by the IP Office system or user language setting.
- An additional language file can be uploaded to a phone.

1.6.3 3740

Avaya 3740	Description		
	**Features**		• High quality voice DECT phone, GAP/CAP compliant • Easy access to PBX services • Voicemail including message icon. • Manual and automatic keypad lock • Local directory: 250 entries. • Central directory from the IP Office. • Call list with the 25 last calls • Vibrator • Loudspeaker/hands free • Central Management and software download • Headset socket (IP65 plug). • 19 Languages Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Norwegian, Polish, Portuguese (Brazilian), Portuguese, Russian, Slovakian, Spanish, Swedish and Turkish. • Ruggedized. • IP65 Classified. • Wide temperature range: -10C to 55C. • Monochrome display (128 x 160 pixels). • SMS Message length up to 160 characters. 30 received/sent messages. Requires AIWS 122. • GAP compatible.
	Physical	**Dimension**	143 x 59 x 29mm
		Weight	180g
	Battery	**Type**	920 mAh, Li-Ion 3.7V. Charge time 4 hours.
		Speech Time	> 18 hours.
		Standby Time	> 150 hours.

- *For systems installed using IP Office provisioning, the language used is set by the IP Office system or user language setting.
- An additional language file can be uploaded to a phone.

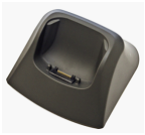
1.6.4 3749

Avaya 3749	Description		
	**Features**		• High quality voice DECT phone, GAP/CAP compliant • Easy access to PBX services • Voicemail including message icon. • Manual and automatic keypad lock • Local directory: 250 entries. • Central directory from the IP Office. • Call list with the 25 last calls • Vibrator • Option: Bluetooth. • Loudspeaker/hands free • Central Management and software download • Headset socket (IP65 plug). • 19 Languages Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Norwegian, Polish, Portuguese (Brazilian), Portuguese, Russian, Slovakian, Spanish, Swedish and Turkish. • Ruggedized. • IP65 Classified. • Intrinsically Safe. Conforms to ATEX/IECEx • Wide temperature range: -10C to 55C. • Colour display (128 x 160 pixels). • SMS Message length up to 160 characters. 30 received/sent messages. Requires AIWS 122. • GAP compatible.
	Physical	**Dimension**	143 x 59 x 29mm
		Weight	180g
	Battery	**Type**	920 mAh, Li-Ion 3.7V. Charge time 4 hours.
		Speech Time	> 10 hours.
		Standby Time	> 80 hours.

- Due to the power restrictions for intrinsically safe handset operation, the display brightness is lower, the loudspeaker and ringer volumes are lower and the audible ringer and vibrating alert cannot be activated simultaneously.
- *For systems installed using IP Office provisioning, the language used is set by the IP Office system or user language setting.
- An additional language file can be uploaded to a phone.

1.7 Chargers

A number of different types of charger exist for 3700 Series phones. Note that chargers for 3720/3725 phones are not useable with 3740/3749 phones and vice versa.



- **Basic Chargers**
  These are simple single-phone charger for charging only. The basic charger for 3720/3725 phones is not usable with 3740/3749 phones and vice versa.

- **Advanced Chargers**
  These are single-phone chargers with USB and LAN sockets. These allow the phone docked with the charger to be accessed using the Device Manager application (browser access via the AIWS unit and charger LAN port or WinPDM PC application access via the USB port). The advanced charger for 3720/3725 phones is not usable with 3740/3749 phones and vice versa.

- **Rack Chargers**
  These are 6 phone advanced chargers. Older designs of the rack charger for 3720/3725 phones are not usable with 3740/3749 phones and vice versa. However, the latest design of rack charger is usable with all 3720, 3725, 3740 and 3749 phones.

- **Battery Chargers**
  These chargers allows the charging of up to 6 batteries separate from the phones. The battery charger for 3720/3725 phones is not usable with 3740/3749 phones and vice versa. There is no battery charger for 3749 phones.

1.8 AIWS

The AIWS *(Avaya In-Built Wireless Server)* unit allows SMS messaging between handsets. It also allows wireless software upgrades and configuration of the handsets. Without an AIWS, handsets can only be upgraded and configured when in an advanced charger.

For IP Office Release 5 this unit also provides directory integration between the IP Office and the DECT R4 system.

For IP Office Release 6 and higher, directory integration is done by the master base station without requiring an AIWS. However an AIWS is still required for both functions if SMS is needed.

The unit is managed via web browser and requires a fixed IP address.

1.8.1 AIWS2

For IP Office 8.0, the AIWS2 is supported. The AIWS2 is an application server for the DECT R4 system. It can run applications such DECT phone users such as SMS messaging, centralized phonebook and corporate directory access. For maintainers it supports centralized device management including firmware and configuration upgrades over the air.

- Wall mounting brackets are included with the unit. Various other mounting kits are available.
- Built-in power supply. The AIWS is supplied with a number of power leads suitable for most locales.
- For installation and maintenance, this server is managed by a PC using Windows Internet Explorer (7.0 or above) and Sun's Java Runtime Environment.

Several variants of the server are available. There is no upgrade available between variants.

Feature\AIWS2 Variant	Basic	Basic+	Standard	OAP
NTP Server	Yes	Yes	Yes	Yes
Central Phonebook	Yes	Yes	Yes	Yes
Corporate Directory Access (TFTP from IP Office)	Yes	Yes	Yes	–
SMS Support	Yes	Yes	Yes	Yes
Basic Web Messaging	Yes	Yes	Yes	Yes
Netpage Web Messaging	–	Yes[1]	Yes	–
Over-the-Air Handset Software Upload	–	Yes[1]	Yes[2]	–
Over-the-Air Handset Configuration Upload	–	Yes[1]	Yes[2]	–
Handset Software Upload via Advanced/Rack Charger	–	Yes[1]	Yes[2]	–
Handset Configuration Upload via Advanced/Rack Charger	–	Yes[1]	Yes[2]	–
Virtual SIM Card	–	Yes[1]	Yes[2]	–
AIWS as Protocol Converter	–	–	–	Yes

1. Up to 32 handsets.
2. Up to 120 handsets.

1.8.2 AIWS1

This design of AIWS has now been replaced by the AIWS2.

- Wall mountable.
- Dimensions: 275 x 130 x 60 mm, 550g.
- Supplied with power supply unit and power cords.

Several variants of the server are available. There is no upgrade available between variants.

Feature\AIWS2 Variant	Basic	Standard	Enterprise	OAP
Central Phonebook	Yes		Yes	Yes
Corporate Directory Access	Yes *(TFTP only)*	Yes *(TFTP and LDAP)*	–	–
SMS Support	Yes	Yes	Yes	Yes
Basic Web Messaging	Yes	Yes	Yes	Yes
Netpage Web Messaging	–	Yes	–	–
Over-the-Air Handset Software Upload	–	Yes[1]	Yes	–
Over-the-Air Handset Configuration Upload	Yes	Yes[1]	Yes	–
Handset Software Upload via Advanced/Rack Charger	–	Yes[1]	Yes	–
handset Configuration Upload via Advanced/Rack Charger	–	Yes[1]	Yes	–
Virtual SIM Card	–	Yes[1]	Yes	–
AIWS as Protocol Converter	–	–	–	Yes

1. Up to 120 handsets.

Chapter 2.
Site Survey and Planning

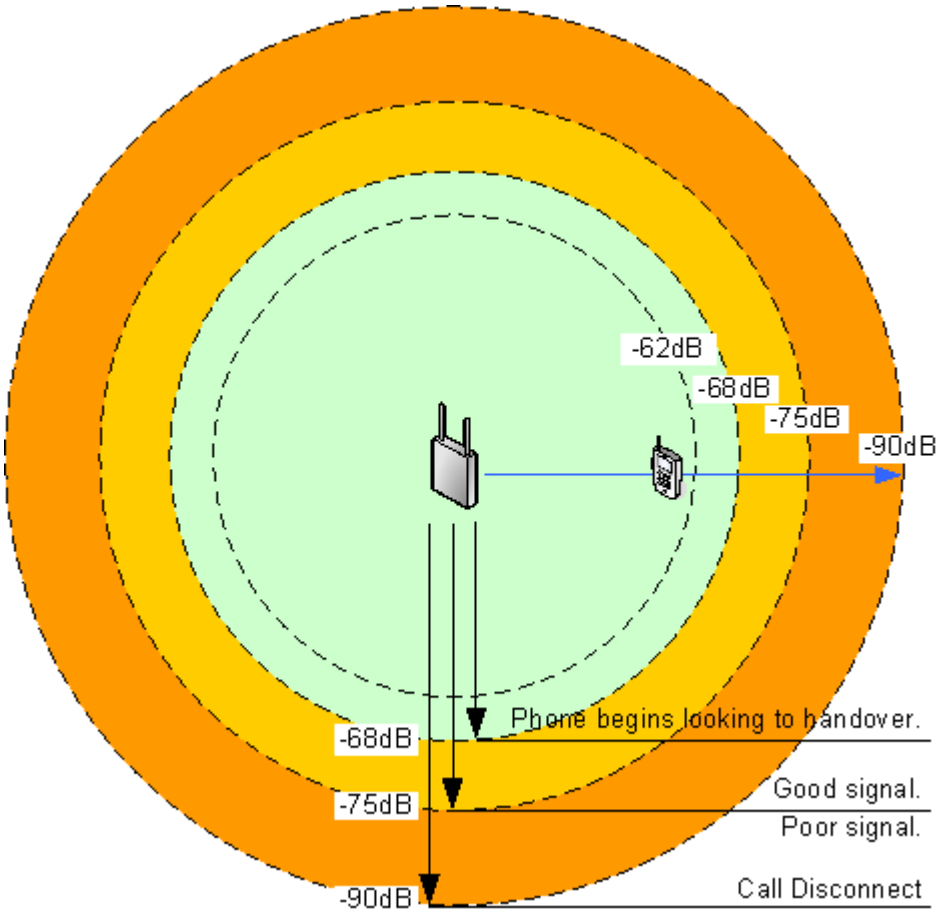
2. Site Survey and Planning

We cannot give precise recommendations for a site survey as every site will vary. However a site survey is a prerequisite to installation in all cases. The correct and effective placement of base stations will prevent problems and maximize coverage. Most issues with any DECT system will arise from the number and positioning of the base stations.

The basic aim is to ensure:

- Base station coverage in all areas of expected DECT phone usage.
- Sufficient number of base stations covering each area for the number of expected simultaneous users (up to 8 per base station) in that area.
- Sufficient overlap between areas of base station coverage to allow for call handover 26 when DECT phone users are moving.
- Where possible, synchronization 27 of each base station with more than one other base station.

The diagram below indicates the basic measures for coverage between a base station and a DECT phone.



Signal	Description
-40dB	Strong signal typically seen when a phone is close to the base station.
-62dB	Minimum signal strength at which a base station will accept a phone wanting to handover from another base station.
-68dB	Signal strength below which the phone will begin looking for a base station to which it can handover.
-75dB	At this signal strength, the increased error rate will become apparent in the speech.
-90dB	At this signal strength calls are likely to disconnect. This is also the limit for one base station to synchronize with another.

Though this section focuses mainly on the measure of signal strength, the DECT signalling employs a number of methods to overcome a poor signal. The other key factor that affects signalling is the error rate. While decreasing signal strength and increasing error rate are usually related, there may be some scenarios where a higher than expected error rate occurs.

2.1 Factors to Consider

In ideal open field conditions, the range between a phone and a standard base station can be up to 600 metres (2000 feet). However, in real condition with obstacles absorbing signal strength and reflected signals giving increased error rates, the range is more realistically between 30 metres (100 feet) indoors and 300 metres (1000 feet) outdoors.

In practice, no rules or guarantees can be given for base station coverage. Coverage is affected by too many factors that are unique to each site. The following is a guide to those factors that can affect coverage which you should consider and look for during any site survey.

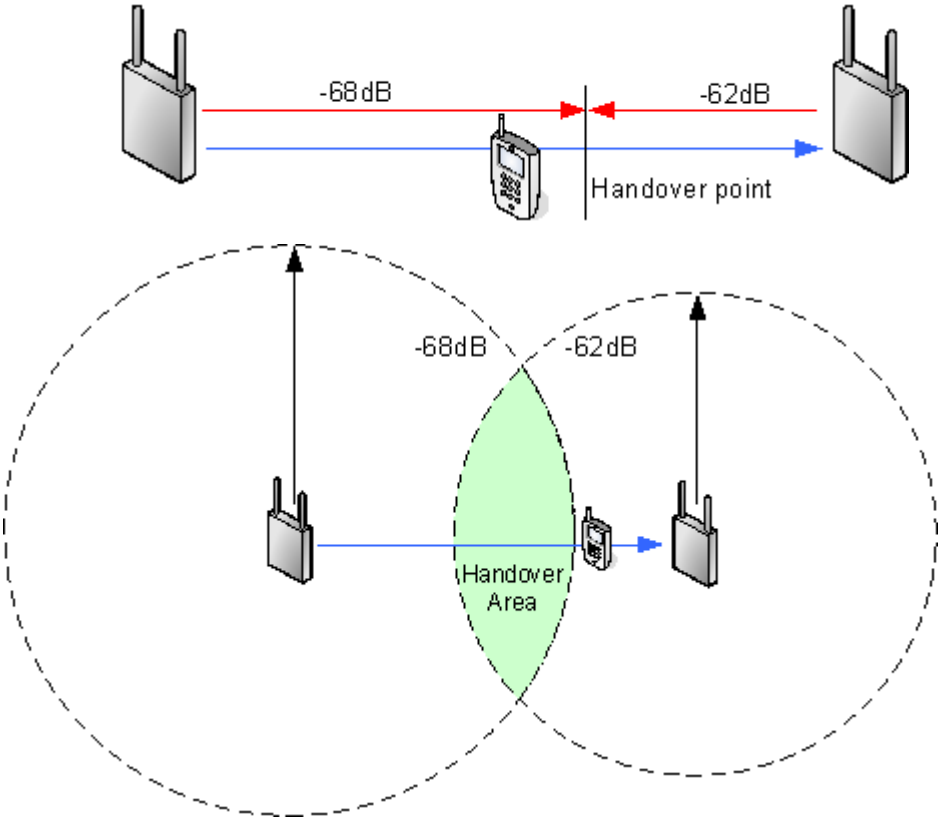
- **Obvious causes of signals problems**
  - Metal surfaces.
  - Concrete thickness greater than 1 metre (3 feet).

- **Beware of**
  - **Windows with Reflective Film or Specialized Glass.**
    These produce increased signal reflection and reduced signal pass-through.
  - **Wire Meshes and Grills with Apertures of Less than 4cm (1.5 inches).**
    These block signals as effectively as continuous metal sheet.
  - **Fire Doors**
    These block the signals. In multi-occupancy building such as hotels, the high number of fire-doors may be a problem.
  - **Stair Wells**
    In modern office buildings, stair wells frequently combine concrete building supports, fire doors and the intervening floor material, making them a special problem.
  - **Screened Rooms**
    Typically found in offices involved with TV, video and radio production, but also possible in computer centers.
  - **Empty Sites**
    Do not perform a survey on a site that is not yet occupied. The survey results will differ from those of the same site once occupied by the customer business. Similarly the survey should be performed during normal business hours in order to assess the areas of usage and the effect of equipment being operated and moved.

- **Be aware of**
  - **Signal Direction**
    The signal from a base station does not propagate evenly in all directions. The signal typically propagates strongest in the horizontal plane. However the ability for a base station to serve callers located on floors above or below it should not be ignored. This may allow coverage to be extended to areas not frequently used and so not meriting a dedicated local base station.
  - **Other Radio Signals**
    The ability to receive normal broadcast radio signals in an area is not an indication that DECT signaling will be received and vice versa.
  - **Rack Chargers**
    A rack charger (6 phones) immediately creates an area where a single base station (8 calls) would be near maximum capacity. Look to provide overlapping base station support to areas where rack chargers will be located.

2.2 Handover

Once a phone is connected on a call through a particular base station, it will normally maintain connection with that base station even if the phone moves into an area with a stronger signal from another base station. However, when the signal to the phone drops below -68dB, the phone will begin looking for another base station with a better signal to which it can handover (this is often referred to as "roaming"). If the other base station signal is -62dB or higher, the phone will handover to that base station if it has free capacity.



2.3 Base Station Synchronization

Base stations in the DECT R4 system need to be synchronized with each other. This can be done with a signal as low as -90dB between base stations.

One base station is assigned as the 'air synch master', typically the master base station. Each other base station can synch directly with it or indirectly via a synchronization chain. However, it is preferable that the number of synchronization 'hops' between any particular base station and its air synch master base station is kept as low as possible. To help achieve this it is recommended that the air synch master is placed centrally within the set of base stations.

Where possible, each base station should be placed in synchronization range of more than one base station. That allows the base stations to maintain synchronization should one base station fail or be switched off for maintenance. The process of synchronizing by the shortest route to the air synch master when in synchronization range of multiple base stations is automatic.

Advanced Scenario: Separated Locations

In most scenarios, the master base station is also used as the air synch master for all the other slave base stations and that is the scenario documented in this manual. However, in scenarios where you have base stations in separate locations that are not within synchronization range of each other, it is permissible to assign separate air synch masters in each location. However, there must be absolutely no overlap (<-90dB) between the separate groups of base stations. Any overlap will cause frequent lose of synchronization.

Having separate locations, each with its own synchronization is done through the settings on the **DECT | Air Sync** tab of each base station. For each location, set the same **Sync Region** number for all the base stations at that location, using a different number for each location. In addition, set the **Sync Mode** of one of the base stations in each location as ***Master***
.

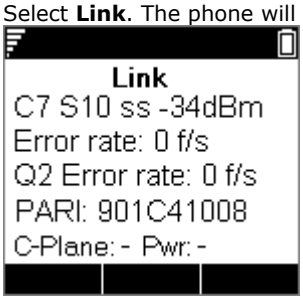
2.4 Performing a Survey

- While performing a survey you will require the following information:
  - **Building Layout**
    Accurate building plans are an essential aid to both the site survey and also for later fault analysis. Ensure that you have an accurate plan of the customer premises, including the locations of mains power outlets and network connection points.
  - **The area of coverage required?**
    Which areas within the plans the customer expects to be covered. Do they expect coverage outside the building and or in buildings separate from the main building.
  - **The number of simultaneous users within different areas?**
    Each base station can support up to 8 simultaneous calls (4 for a Compact Base Station).
- Perform the survey during normal business hours. The movement of large items of machinery, such as lifts and shutter doors, will then be observable during the survey.
- Ensure that you have read this documentation and understand the requirement of both phone handover 26 and base station synchronization 27.
- As the survey takes place, note whether additional network connection points will be required and or mains power outlets. Consider the use of Power over Ethernet, if possible in order to simplify base station installation.

Site Survey Mode

The following method is used to put a subscribed phone into site survey mode.

1. Go to the **Call Time** menu (**Menu | Calls | Call Time**).
2. Activate the **Admin** menu by pressing ▶ * ◀ ◀ * ◀.
3. In **Admin** menu, select **DECT Info**.
4. Select **Link**. The phone will display information about the base station.



- **C7 S10**
  This is the DECT signal carrier and slot.
- **ss**
  This is the signal strength 24. This is the main value that should be recorded and accessed as you perform the survey.

Signal	Description
-40dB	Strong signal typically seen when a phone is close to the base station.
-62dB	Minimum signal strength at which a base station will accept a phone wanting to handover from another base station.
-68dB	Signal strength below which the phone will begin looking for a base station to which it can handover.
-75dB	At this signal strength, the increased error rate will become apparent in the speech.
-90dB	At this signal strength calls are likely to disconnect. This is also the limit for one base station to synchronize with another.

- **Error rate / Q2 Error rate**
  These are the error (corrupted) frames per second on the signals from and to the base station.
- **PARI**
  The PARI of the DECT system.
- **Bear:**
  The current power output of the phone.
  - ***Pwr*** = on hook
  - ***LU*** = off hook, Low power
  - ***US*** = off hook, Normal power
  - ***EU*** = off hook, High power

Chapter 3.
Provisioned Installation

3. Provisioned Installation

A provisioned install is the recommended method for both installation simplicity and handset feature support. It should be used for all installations using just Avaya 3700 Series phones.

- **When to Use IP Office Provisioning**
  IP Office provisioning both simplifies installation and maintenance and provides 3720, 3725, 3740 and 3749 phones with additional IP Office specific features. Therefore it is the recommended installation method for new installations whenever possible.
  - Provisioning installation in pre-configured or auto-create modes should be used for all installations with just 3720, 3725, 3740 and 3749 phones.
  - Provisioning installation in pre-configured mode should be used for all installations with a mix of 3720, 3725, 3740, 3749 phones and other DECT phones.
  - Provisioning installation should not be used for installations with no 3720, 3725, 3740 or 3749 phones.

1. **Unpack the latest IP DECT software** 34.
2. **Configure the IP Office for provisioned operation** 35.
3. **Configure the Master Base Station** 44.
4. **Configure the Slave Base Stations** 54.
5. **Base Station Mounting** 61.
6. **Phone Subscription** 63.

The installation process used here is only an example. Other methods and order can be used once you become familiar with the installation process. For example, installing all the slave base stations before installing the master base station.

IP Office Installation Requirements

- It is assumed that you are familiar with installation and configuration of IP Office systems.

Information

- Service user name and password for IP Office configuration access.
- Service user name and password for IP Office security settings access.
- IP Office IP address.
- Avaya IP Endpoint licenses

Parts Required

- IP Office Release 7.0 software DVD or image of the IP Office Release 7.0 admin software.

Tools Required

- Programming PC with IP Office Manager application installed. You must have rights on this PC to change its IP address settings unless it is a DHCP client.
- Software for zip file extraction.

IP Base Station Installation Requirements

Parts Required

- Base station
  Includes:
  - Base station.
  - Two 3.5mm screws and two 6mm wall plugs suitable for wall mounting onto a solid wall (brick or similar).
  - 1.2 metre (4 foot) LAN cable. If this is replaced with a longer cable the replacement should be a CAT5 Ethernet LAN cable.
- If using Power over Ethernet:
  - The base station supports Power over Ethernet, IEEE 802.3af, class 2.
- If not using Power over Ethernet:
  - Base station power supply unit.
    Required if not using Power over Ethernet to power the base station. Note that the base station power supply units include an 8 metre (26 feet) cable from the PSU to the base station. Check that you have the correct type of power supply unit for the locale.
    - BSX-0013: Europe (except United Kingdom).
    - BSX-0014: United Kingdom.
    - BSX-0015: USA/Canada.
    - BSX-0016: Australia.
  - Mains power outlet socket.
- LAN Socket.

Information

- DECT R4 SARI.
- Base Station IP Addresses.
- Detailed plans from the site survey indicating the intended base station locations, LAN sockets and if necessary power supply outlets.

Tools

- Programming PC with DECT R4 software.
- Web browser.
- Drill and drill bits suitable for the selected wall mounting position of the AIWS.
- Screwdrivers for use with the screws selected for AIWS wall mounting.

Phone Subscription Requirements

Information

- Service user name and password for IP Office configuration.
- User names and extension numbers for the DECT phones.
- Phone IPEI numbers if using an pre-configured installation mode.

Tools

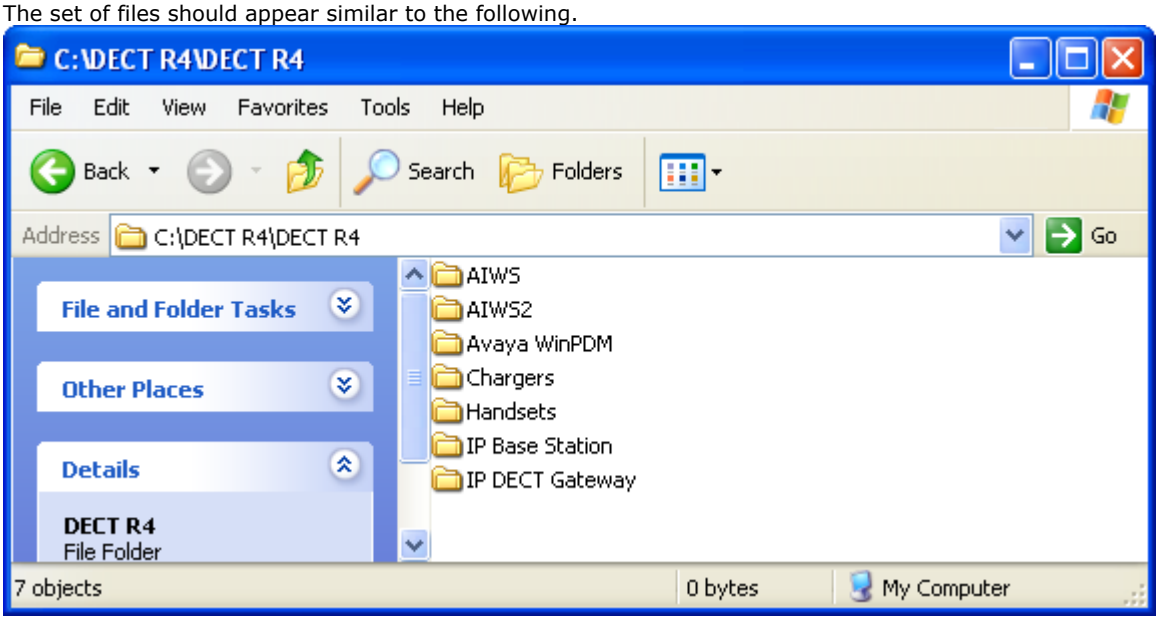
- **IP Office Manager**.
- **Device Manager**
  The software installed on each handset may need to be upgraded to match that supplied with the DECT R4 software 34. This is done using the Windows Device Manager software to upgrade phones via an advanced charger or using AIWS Device Manager 95 to upgrade phones over the air.
- Web browser (Internet Explorer or Firefox are supported).

3.1 DECT Software

Before beginning installation, in addition to having IP Office Manager installed, you need to unpack the DECT R4 software onto your programming PC.

DECT R4 is supported on a range of Avaya systems. However, for IP Office operation, only firmware specifically documented as having been tested and supported with IP Office should be used. Details of supported firmware will be included in IP Office Technical Bulletins and Technical Tips.

1. On the programming PC, create a folder with a name indicating its purpose, for example ***c:\IP_DECT_R4***.
2. Within the IP Office Administrator Application software (ie. the software from which IP Office Manager is installed), locate the folder **IPDECT**.
3. The folder contains a file ***DECT R4.zip***. This is the file containing software for DECT R4. The file ***IPDECT.zip*** contains software for the previously supported IP DECT product and not for DECT R4.
4. Copy the ***DECT R4.zip*** file to the folder created on the programming PC.
5. Using WinZip or a similar tool, extract the contents of the zip file into the folder, maintaining the directory structure of the zip files.
6. The set of files should appear similar to the following.



7. Check the software levels as follows:
   - Open the **IP Base Station** folder. There are separate sub-folders for **IPBS1** and **IPBS2** base stations. Open each and note the software level shown as part of the .bin file filenames, there are separate files for the base station boot file and firmware file. All the base station in the installed system should be run the same levels of software.
   - Open the **Handsets** folder and note the software level shown as part of the .pkg file filenames. The handsets in the system should be running this level of software or higher.
   - Open the **IP DECT Gateway** folder and note the software level shown as part of the .bin filenames.

Device Management

During installation (provision or non-provisioned) it may be necessary to upgrade the software being used by the 3720, 3725, 3740 or 3749 phones. This is done in one of two ways:

- **Windows Device Manager**
  The Windows device manager application can be used to upgrade the software of phones placed in an advanced charger and connected to the PC via USB or LAN. If using this method, install the Windows Device Manager software and load the parameter definition files supplied with the DECT R4 software.
- **AIWS Device Management**
  The AIWS device includes an integrated version of device manager that can be used to perform over the air upgrades. This method is only recommended for the maintenance of an existing system. For upgrades during installation of a new system, the use of Windows Device Manager is recommended.

3.2 IP Office Configuration

The IP Office configuration for a provision installation consists of the following steps:

1. **Check and configure IP Office security settings** 36.
2. **Setup the IP DECT Line** 38
3. **Add IP Endpoint licenses** 41.
4. **Manually create extensions (optional)** 43.

Requirements

- It is assumed that you are familiar with installation and configuration of IP Office systems.

Information

- Service user name and password for IP Office configuration access.
- Service user name and password for IP Office security settings access.
- IP Office IP address.
- Avaya IP Endpoint licenses

Parts Required

- IP Office Release 7.0 software DVD or image of the IP Office Release 7.0 admin software.

Tools Required

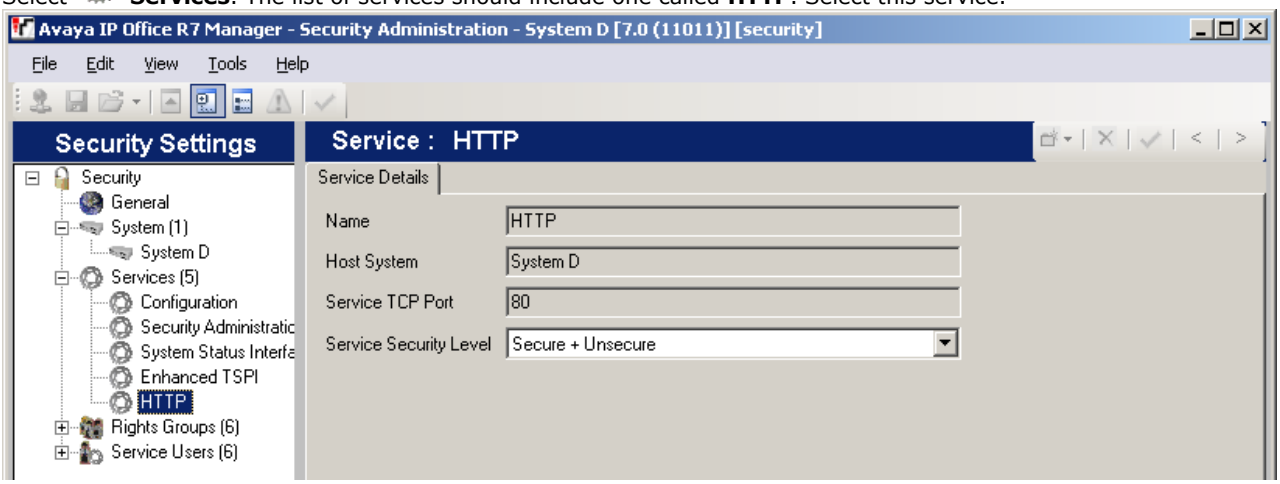
- Programming PC with IP Office Manager application installed. You must have rights on this PC to change its IP address settings unless it is a DHCP client.
- Software for zip file extraction.

3.2.1 Security Settings

The provisioning connection between the IP Office control unit and the master base station uses the HTTP/HTTPS service configured in the IP Office system's security settings.

- For new IP Office systems installed with IP Office Release 7.0, the appropriate security settings are configured by default. However it is still important to check the settings and to be aware of the controls that are used.
- For existing IP Office systems upgraded to IP Office Release 7.0, the default settings may not necessarily be created as required. Therefore you must check the security settings and adjust them if required.

1. Start IP Office Manager and receive the configuration from the system.
2. Receiving the configuration will switch IP Office Manager from simplified view mode to advanced view mode (security settings are not accessible in simplified view mode).
3. Select **File | Advanced | Security Settings...**.
4. From the discovery menu select the IP Office and click **OK**.
5. Enter the systems user name and password for the security service user login. They will be different from the name and password used for IP Office configuration access.
6. Select **Services**. The list of services should include one called **HTTP**. Select this service.

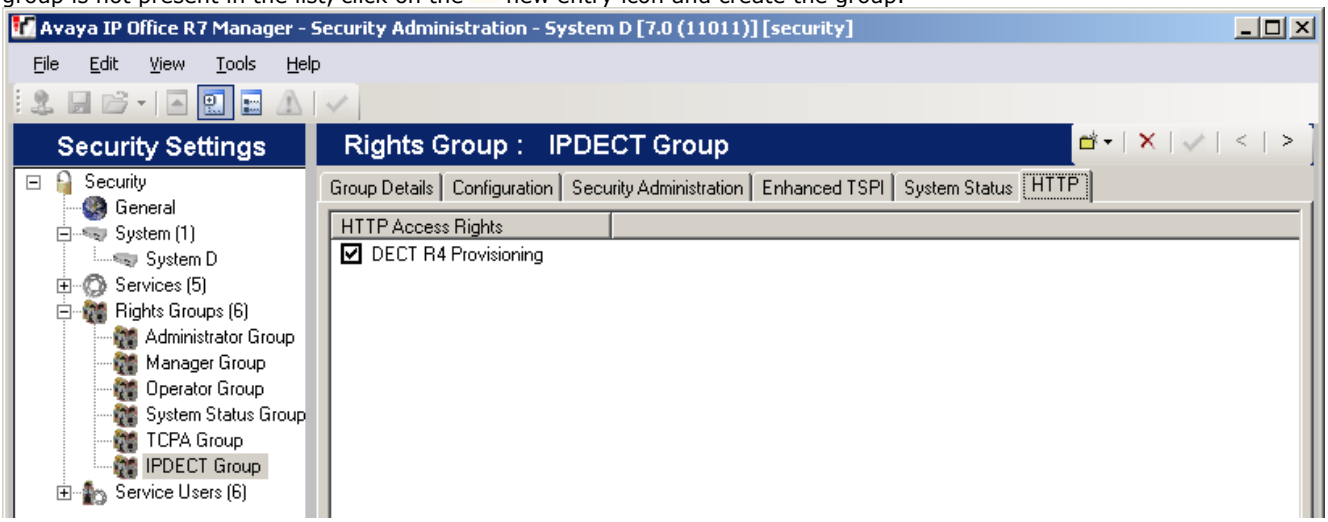


   a. If the service is not present then the system has not been upgraded to run IP Office Release 7.0 or higher software.

   b. The HTTP service affects all HTTP connections provided by the IP Office system. Changing its setting will affect applications other than just the DECT R4. The only option that change be changed is the **Service Security Level**. The default is ***Secure + Unsecure***, meaning both http and https can be used between the base station and IP Office.

      - ***Unsecure Only***
        HTTP port 80 available and used for phone files, embedded file manager, system file upgrade, one-X Portal directory services, DECT R4 provisioning, IP Office Video Softphone provisioning.
      - ***Secure + Unsecure***
        This mode (the default) allows both unsecure HTTP (see above) and secure HTTPS (see below) connections.
      - ***Secure, Low***
        HTTPS port 443 available and used for DECT R4 provisioning, IP Office Video Softphone provisioning. This option allows secure access to that service using TLS, and demands weak (for example DES_40 + MD5) encryption and authentication or higher. The service's unsecured TCP port is disabled.
      - ***Secure, Medium***
        This option allows secure access to that service using TLS, and demands moderate (for example DES_56 + SHA-1) encryption and authentication or higher. The service's unsecured TCP port is disabled.
      - ***Secure, High***
        This option allows secure access to that service using TLS and demands strong (for example 3DES + SHA-1) encryption and authentication, or higher. In addition, a certificate is required from the client (usually Manager). For further details of security certificates see the IP Office Security Mode section in the IP Office Manager manual.

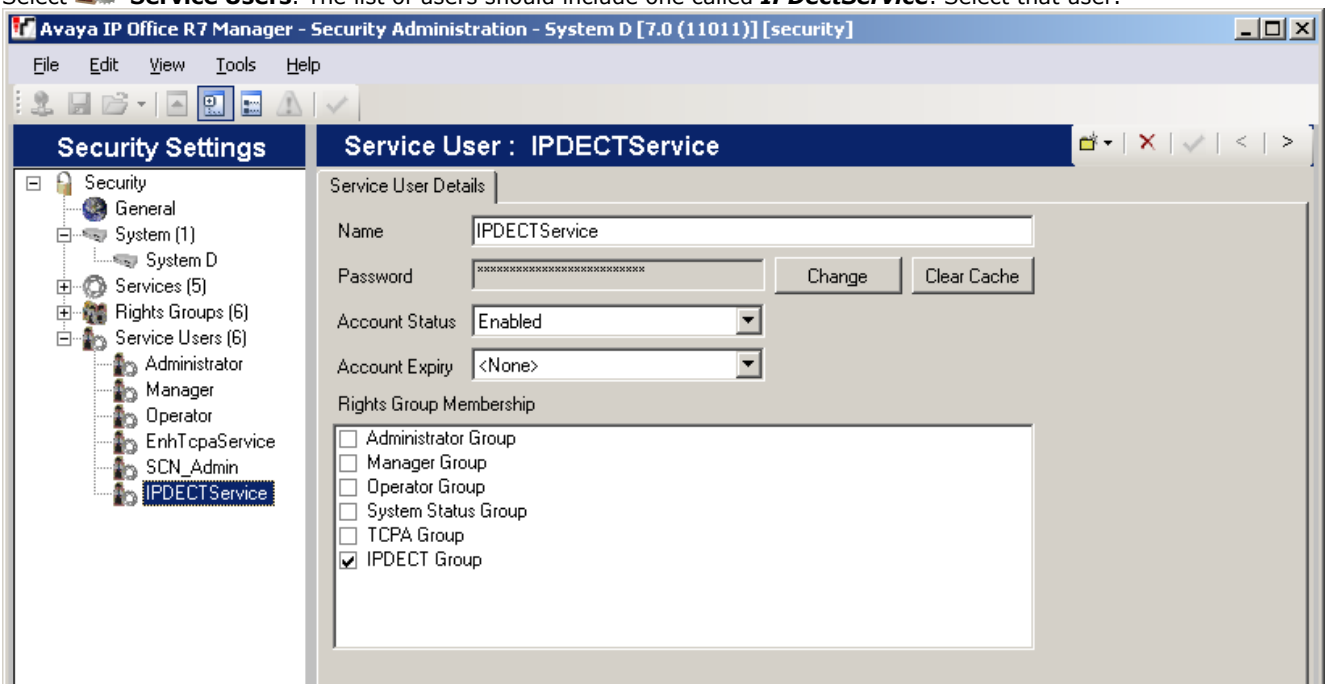
7. Select **Rights Groups**. The list of groups should contain one called ***IPDECT Group***. Select that group. If the group is not present in the list, click on the new entry icon and create the group.



   a. Select the **HTTP** tab. Check that the option **DECT R4 Provisioning** is selected.

   b. Check that on the other tabs no other options are selected.

8. Select **Service Users**. The list of users should include one called ***IPDectService***. Select that user.



   a. In the **Rights Group Membership** list check that the user is set as a member of the IPDECT Group.

   b. Leave the **Account Status** as ***Enabled*** and the **Account Expiry** as ***<None>***.

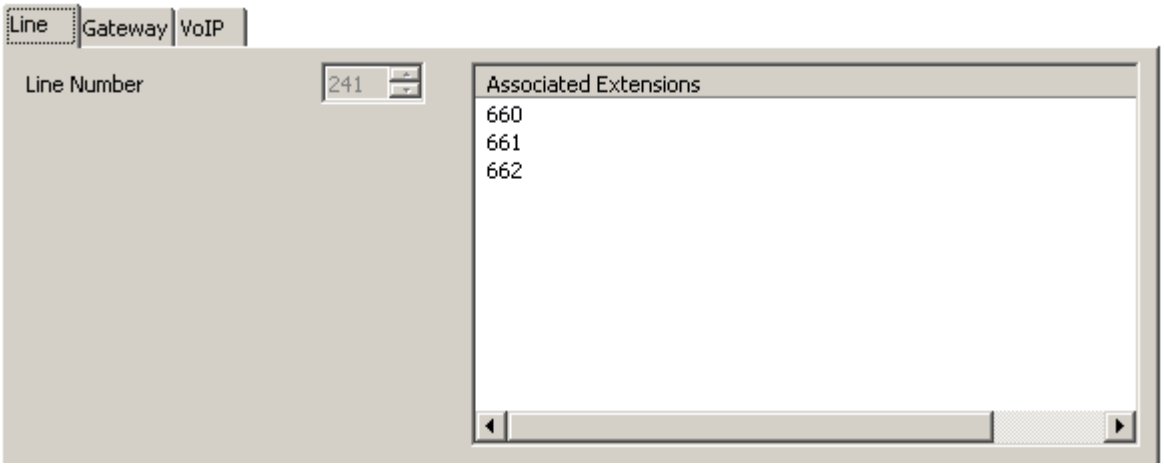
9. Click on the icon to save any changes you have made to the security settings.

3.2.2 IP DECT Line Setup

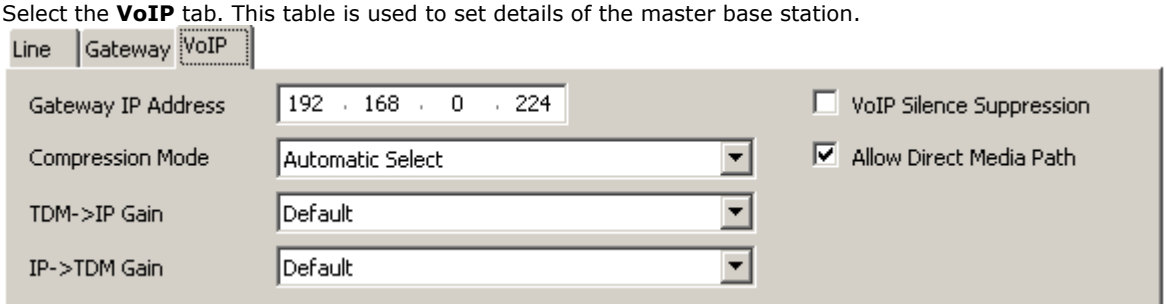
At this stage we will create an IP DECT line for traffic between the IP Office and the DECT R4 system. The line is configured with the IP address of the master base station. The IP Office configuration only requires and allows a single IP DECT line.

- **Reboot Required**
  Add or removing a line from the IP Office configuration requires the IP Office system to reboot. This will end all calls and services in progress.

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Click on **Line**. The list of existing lines is shown.
3. Click on the icon and select **IP DECT Line**. The settings for an IP DECT line are displayed. If the option is greyed out then the configuration already contains an IP DECT line.
4. On the **Line** tab there are no adjustable settings. Once the system is installed and operational, this tab will list the DECT extensions.



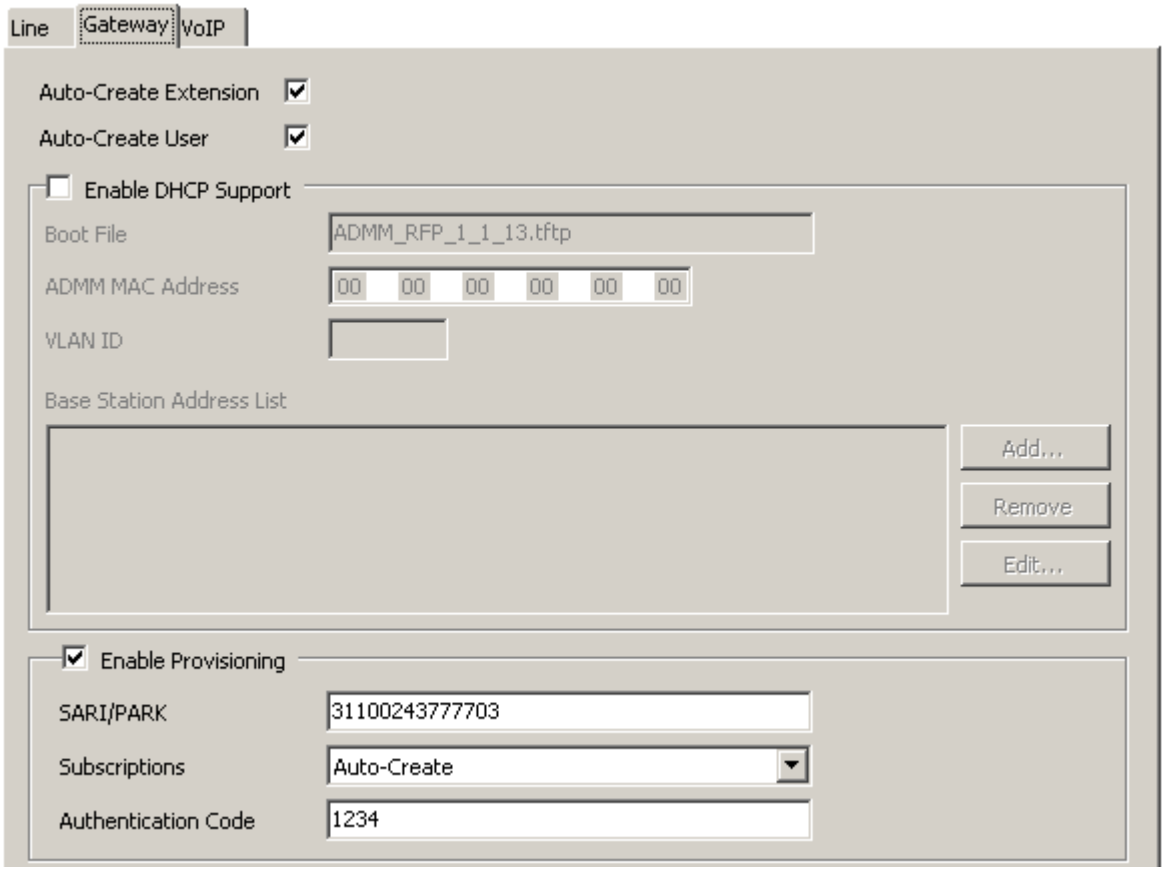
5. Select the **VoIP** tab. This table is used to set details of the master base station.



   a. Set the **Gateway IP Address** to match the IP address that will be assigned to the master base station. The **MAC Address** field is not used.

   b. Leave the other fields at their default settings.

6. Select the **Gateway** tab.



a. If you want to use anonymous handset subscription, select the **Auto-Create Extension** and **Auto-Create User** options.

- **Subscription Using IP Office Auto-Create**
  Allowing phone subscription using the IP Office auto-create options for extensions and or users makes changes to the current running configuration of the IP Office system. For this method to work, you must ensure that no copies of the configuration are also open in Manager during subscription, as sending such a copy of the configuration back to the IP Office system will replace the subscriptions and require the handsets to be subscribed again. Following any handset subscription, a new copy of the configuration should always be loaded in IP Office Manager if any other configuration changes are required.

b. For a provisioning installation select **Enable Provisioning**.

c. In the **SARI/PARK** field enter the SARI code that will be provided to the master base station.

d. In the **Subscriptions** drop down select either ***Auto-Create*** or ***Preconfigured***.

- ***Auto-Create***
  If you select this option, extension and user entries are automatically created in the IP Office configuration when a new handset is subscribed. Use this option for anonymous subscription. Ensure that the **Auto-Create User** and **Auto-Create Extension** settings are also selected. For a provisioned installation, this mode should be used if the installation includes just 3720, 3725, 3740 and 3749 phones.

  - **Subscription Using IP Office Auto-Create**
    Allowing phone subscription using the IP Office auto-create options for extensions and or users makes changes to the current running configuration of the IP Office system. For this method to work, you must ensure that no copies of the configuration are also open in Manager during subscription, as sending such a copy of the configuration back to the IP Office system will replace the subscriptions and require the handsets to be subscribed again. Following any handset subscription, a new copy of the configuration should always be loaded in IP Office Manager if any other configuration changes are required.

- ***Preconfigured***
  If you select this option, handset will only be able to subscribe if they match an existing IP DECT extension configured in the IP Office configuration, including an IPEI. For a provisioned installation, this mode should be used if the installation includes a mix of 3720, 3725, 3740, 3749 phones and other DECT phones.

- ***Disabled***
  After installation and subscription of the handsets, this option can be selected to prevent the further subscription of handsets.

- In the **Authentication Code** field enter the numeric code that handset should enter during the subscription process. This needs to be 4 to 8 digits long.

7. Save the configuration back to the IP Office system.

3.2.3 Adding Licenses

Each IP DECT extension requires an Avaya IP Endpoint license. This applies even if the handset subscribed to the IP DECT R4 system is not an Avaya phone.

Phones without a license will still be able to subscribe and register but will be limited to making emergency calls only (calls that match an IP Office **Dial Emergency** short code). The associated user will be treated as if logged off. If a license becomes available, it will be assigned to any unlicensed DECT handsets first and then to any other unlicensed Avaya IP phone in the order that the phones registered.

- **Avaya IP Endpoint Licenses**
  Licenses are added to the IP Office configuration and are based on a serial number unique to the system.
  - Phones can be licensed up to the 384 extension limit for all phone extensions of any type.
  - For each IP500 VCM 32 or IP500 VCM 64 card installed in the system also enables 12 Avaya IP endpoints without requiring licenses.
  - For each IP400 VCM card installed in the system, each VCM channel supported by the card allows support for 3 Avaya IP phones.
  - The VCM channels provided by IP500 Combination cards do not enable any Avaya IP endpoints.
  - Licenses are normally automatically assigned to extensions in order of registration. However, existing extensions can be configured to reserve a license 42. This ensures that they do not become unlicensed when newly added extensions manage to register first following a system reboot.

3.2.3.1 Checking the Licensing Number

IP Office licenses are issued against a unique dongle serial number. For IP500 control units, the number is unique to the smart card fitted to the control unit. For IP500v2 control units, the number is unique to the System SD card fitted to the system. For any licenses entered into the system configuration to be valid, they must be licenses issued against that serial number.

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Select  **System**.
3. Select the **System** tab.
4. The feature key serial number is shown by the **Dongle Serial Number** field.

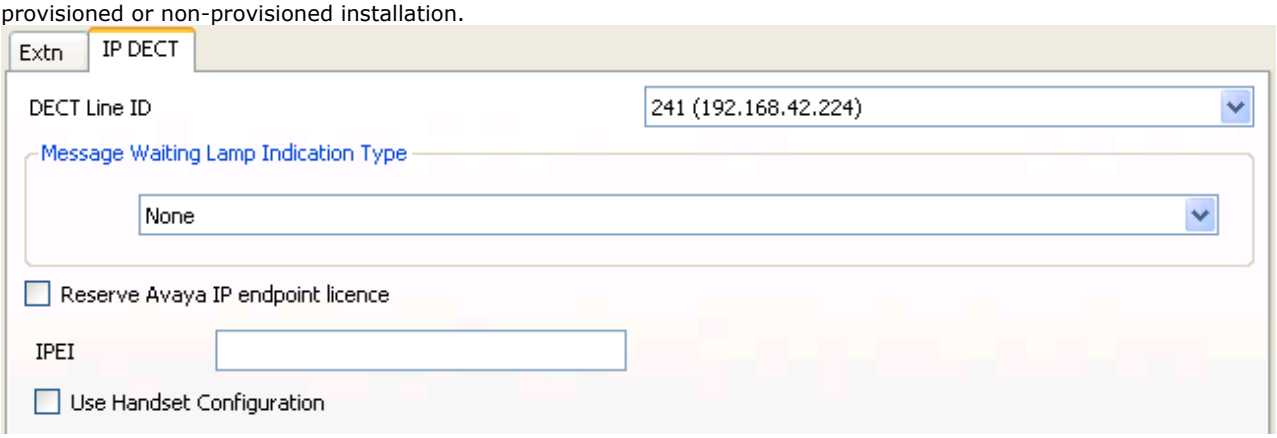
3.2.3.2 Adding Licenses

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Select  **License**.
3. The current licenses in the system configuration are displayed.
4. To add a license click on  and select **License**.
5. Enter the license which you have been supplied and click **OK**.
6. The type of the license, ***Avaya IP endpoints***, should be displayed but with its **License Status** set to ***Unknown***. If the **License Type** was not recognized, check that the key was entered correctly.
7. Save the configuration back to the IP Office system and then receive the configuration from the IP Office system again.
8. The **License Status** should now be ***Valid***.

3.2.3.3 Reserving Licenses

Licenses are normally automatically assigned to extensions in order of registration. However existing extensions can reserve a license in order to ensure they do not become unlicensed when new extensions added to the system manage to register first following a system reboot.

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Select **Extension** and then select the DECT extension.
3. Select the **IP DECT** tab. Note, the appearance of this menu will vary depending on whether you are doing a provisioned or non-provisioned installation.

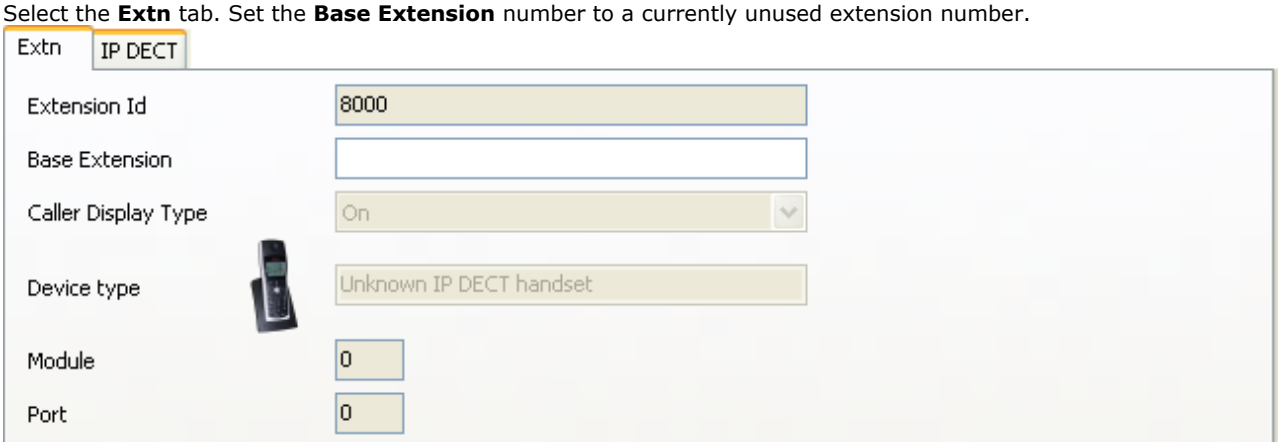


4. The **Reserve Avaya IP endpoint license** setting is used to reserve an existing license for the extension. The option is greyed out if the configuration does not have sufficient unreserved licenses remaining.
5. Repeat the process for any other extensions for which you want to reserve the license.
6. Save the configuration back to the IP Office system.

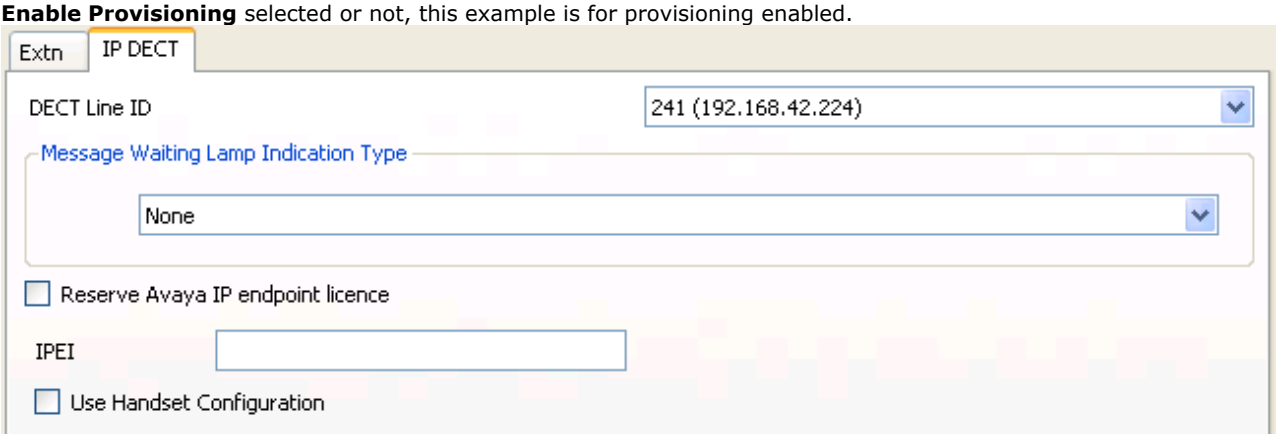
3.2.4 Manually Creating Extensions

If the IP DECT line's subscription setting is set to ***Preconfigured***, you must manually add extension and user entries for each handset to the IP Office configuration.

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Click on  **Extension**.
3. Click on the  icon and select **IP DECT Extension**. This option is greyed out until an IP DECT line is added to the configuration.
4. Select the **Extn** tab. Set the **Base Extension** number to a currently unused extension number.



5. Select the **IP DECT** tab. Note that the appearance of this tab varies depend on whether the IP DECT line has **Enable Provisioning** selected or not, this example is for provisioning enabled.



   a. Set the **Message Waiting Lamp Indication Type** to ***On***. For

   b. Select the **Reserved Avaya IP endpoint license** option. This option will be greyed out if there are insufficient licenses. If this option is selected, the phone will be licensed before any other Avaya IP endpoints for which this option has not be set.

   c. Set the IPEI to match that of the handset. For new phones the IPEI is shown on the screen. For other phones it can be displayed by selecting **Menu | Settings | Device Info | IPEI/IPDI**. It is also shown on a label under the battery.

      - For 3720, 3725, 3740 and 3749 phones, the IPEI can be displayed by selecting **Menu | Settings | Device Info | IPEI/IPDI**. It is also printed on a label under the phone's battery.

   d. If **Use Handset Configuration**. is selected, the handset user is able to set the phone language and date/time format. If not seelcted, those settings will be driven by the system or user locale settings in the IP Office configuration.

6. Click **OK**.
7. IP Office Manager will prompt whether you want to create an associated user. Select **Yes**.
8. The user settings are displayed. Adjust any of these if required and click **OK**.
9. Repeat the process to create any other extension and user entries required. Then save the configuration back to the IP Office system.

3.3 Master Base Station Setup

The DECT master base station configuration for a provision installation consists of the following steps:

1. **Default the Base Station** 44.
2. **Determine the Base Station IP Address** 44.
3. **Access the Base Station Configuration** 45.
4. **Set the Base Station IP Address** 46.
5. **Update the Base Station Software** 47.
6. **Select Simplified Administration** 49.
7. **Select Master Mode** 50.
8. **Set the DECT Password** 50.
9. **Accept Radio Devices** 52.
10. **Enable Provisioning** 53.
11. **Phonebook Integration** 54

3.3.1 Defaulting the Base Station

This process will default a base station or IP DECT Gateway, erasing its configuration. After the unit restarts it will default to the IP address 192.168.0.1/255.255.255.0.

1. With the unit not connected to anything else, connect the power supply and switch on.
2. Wait approximately 5 seconds.
3. Using a fine point, depress the unit's reset switch for at least 10 seconds.
4. Release the switch. The unit will restart.
5. After approximately 5 seconds the unit will default to the address 192.168.0.1.

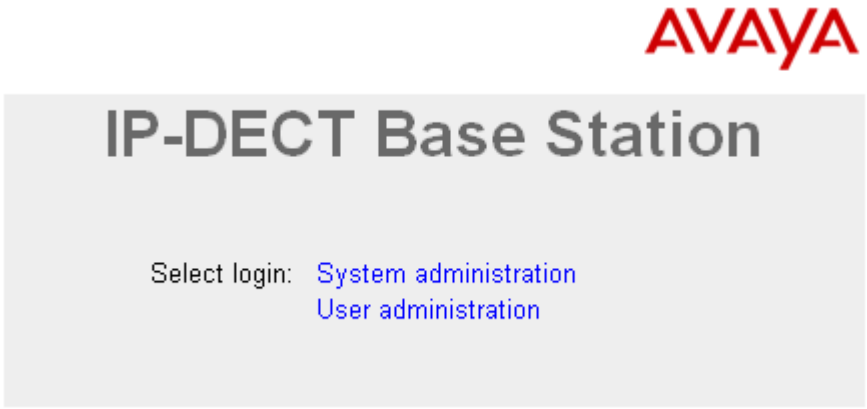
3.3.2 Determining the Base Station IP Address

The address an existing base station or IP DECT Gateway is using can be determined using the following process. It uses the MAC address of the unit which is printed on a label on the back or bottom of the unit.

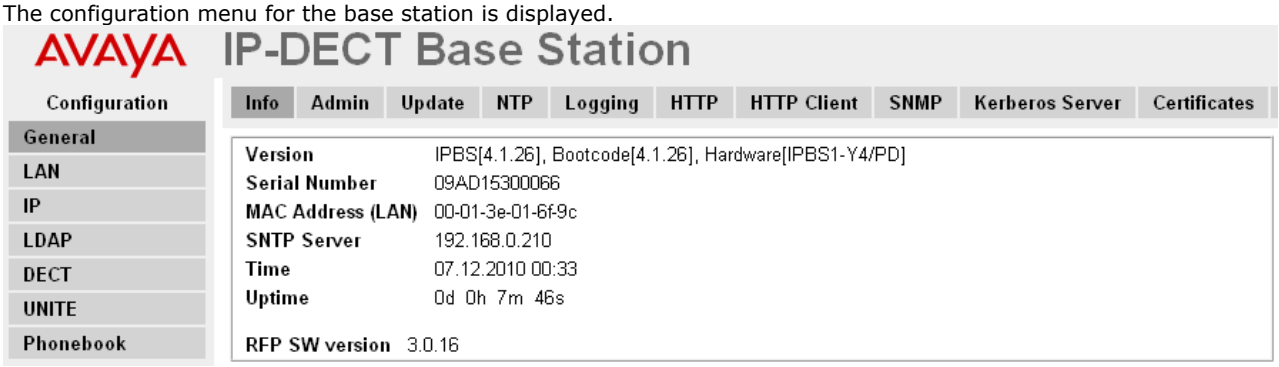
1. Open a Windows command window by selecting **Start | Run** and enter ***cmd***.
2. Enter **nbtstat -R**. The PC should respond that is has purged and reloaded the NBT remote cache table.
3. For a base station enter **nbtstat -a ipbs-*xx-xx-xx*** when *xx-xx-xx* is replaced with the last 6 hexadecimal digits of the base stations MAC address. For a IP DECT Gateway, enter **nbtstat -a ipbl-*xx-xx-xx***.
4. The results will show the IP address which it being used.

3.3.3 Access the Base Station Configuration

1. Depending on whether DHCP is being used or not:
   - If connected directly to the base station, change your programming PC's network address to 192.168.0.200 with subnet mask 255.255.255.0. Connect the LAN cable from your PC to the base station.
   - If both your PC and the base station are connected to a LAN network with DHCP server, ensure your PC is set to act as a DHCP client or has a fixed address that is valid on the network.
2. Start your web browser and enter the http:// or https:// followed by the IP address of the base station. The default IP address is 192.168.0.1. If a security certificate warning is displayed, select to continue to this website.
3. The base station should respond with its initial configuration menu.



4. Select **System administration**. A password entry dialog will be displayed. Enter the default user name (***admin***) and password (***changeme***).
5. The configuration menu for the base station is displayed.

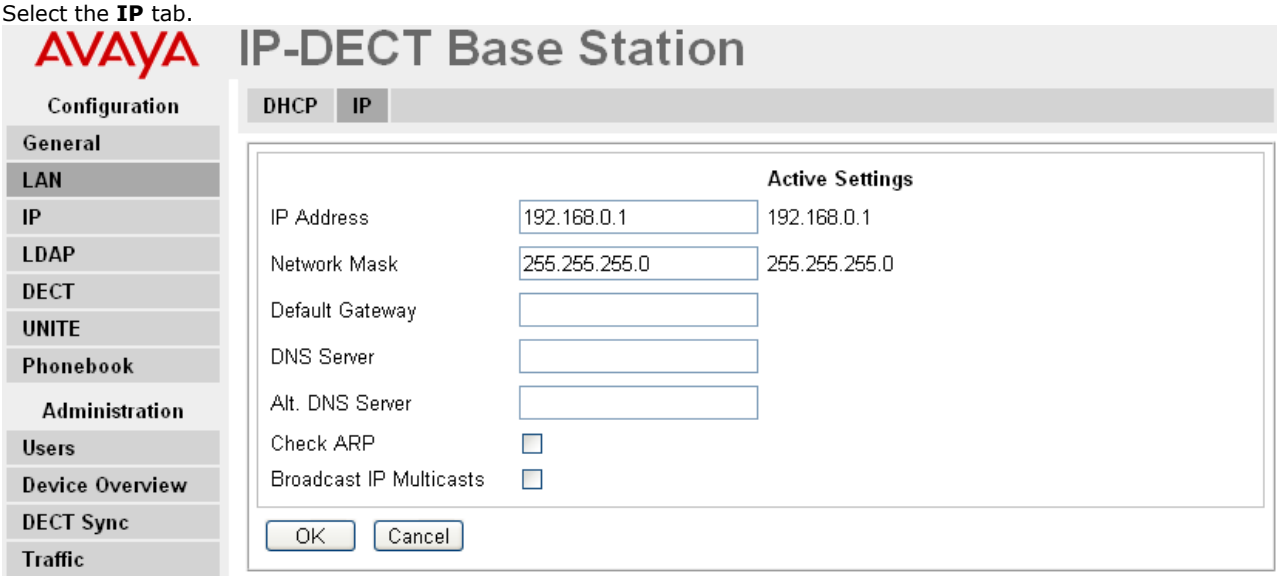


6. Note the software levels shown in the Version screen. These will determine whether the base station software needs to be upgraded.

3.3.4 Set the Base Station IP Address

By default a base station defaults to 192.168.0.1. The process below can be used to change the DHCP mode and IP address of the base station.

1. Having browsed into the base station's configuration, in the left-hand column select **LAN**.
2. Select the **IP** tab.



   a. Enter the required **IP Address** and **Network Mask** for the base station. The other settings are optional.

   b. Click **OK**.

3. Select the **DHCP** tab.

   a. Using the **Mode** drop-down, select ***Disabled***.

   b. Click **OK**.

4. The menu will prompt you with the message **Reset Required**. Do not click this or reset the base station at this stage.

   a. Select **Reset** and then select the **Reset** tab.

   b. Click on **OK**.

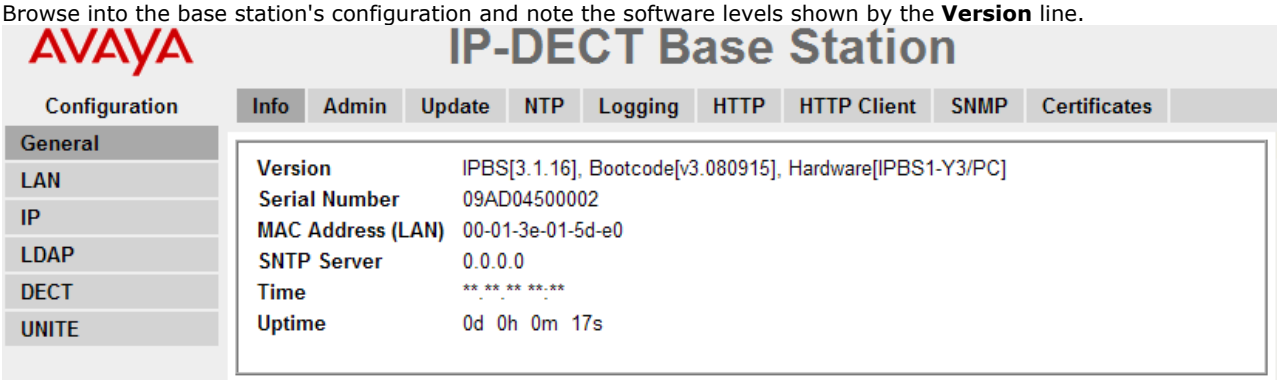
   c. Observing the base station, wait for the lower light to return to solid green.

5. Log in again using the new IP address.

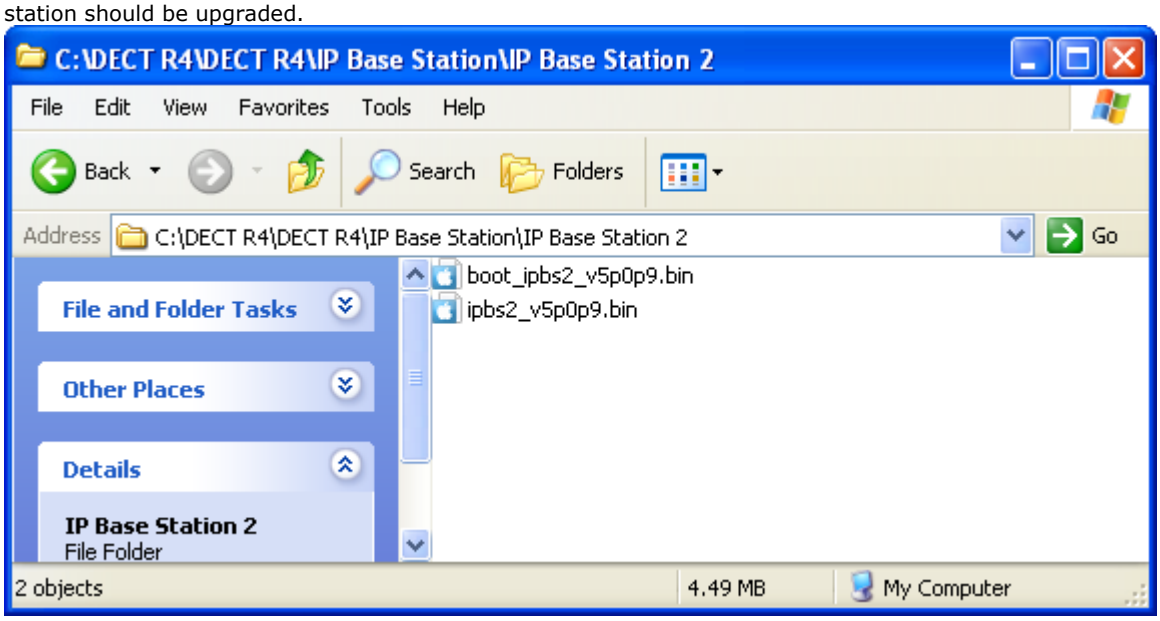
3.3.5 Update the Base Station Software

The base station may need to be upgraded to the software supplied for use with IP Office administration software. That software consists of two parts, a firmware file and a boot file. All base stations in a DECT system should use the same software.

1. Browse into the base station's configuration and note the software levels shown by the **Version** line.

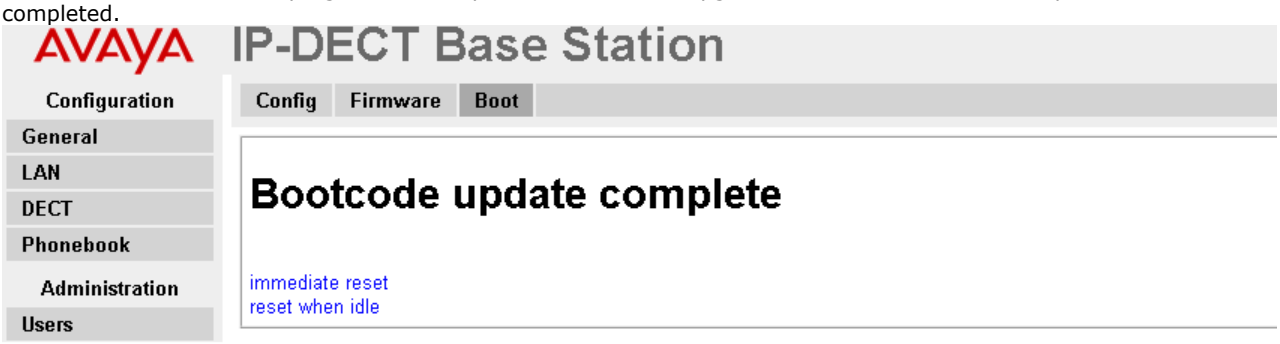


- Check that these match the versions supplied with the IP Office administration software. Ensure that you are checking against the correct folder for an IPBS1 or IPBS2 base station. If they do not not match, then the base station should be upgraded.

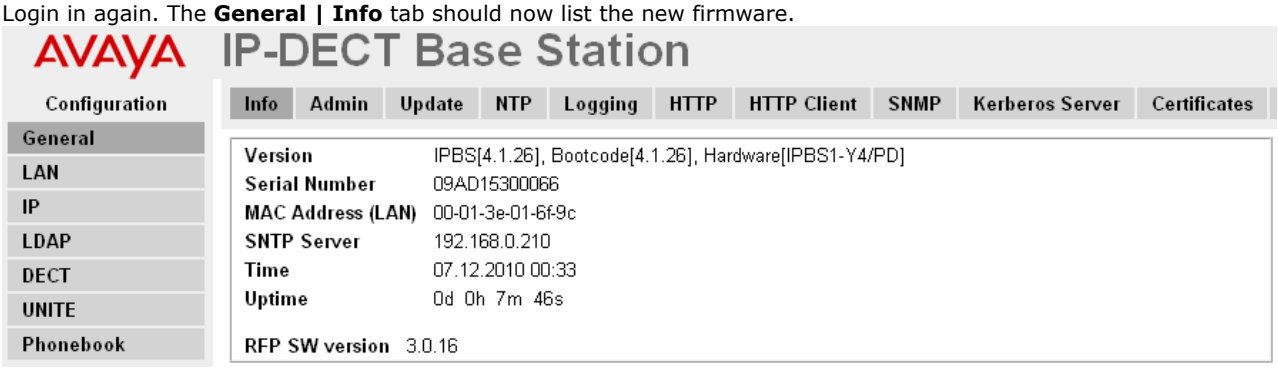


- If both software files need to be upgraded, the boot file should be upgraded first.

2. To upgrade the boot file, in the left-hand column select **Update** and then select the **Boot** tab. To upgrade the base station file, select **Update** and then select the **Firmware** tab. The method for both files is similar, however ensure you upgrade the boot file first if both need to be upgraded.
3. Click on the **Choose File** button and browse to the ***IP Base Station*** sub-folder of the IP DECT R4 software you previously extracted onto the programming PC.
4. Select the appropriate file for the upgrade you are performing, ie. the file with boot in the file name if doing a boot file upgrade. Click **OK**.
5. Click on the **Upload** button.
6. The browser will show the progress of the upload and firmware upgrade. It will indicate when the process has been completed.



7. Click on **immediate reset**.
8. Login in again. The **General | Info** tab should now list the new firmware.



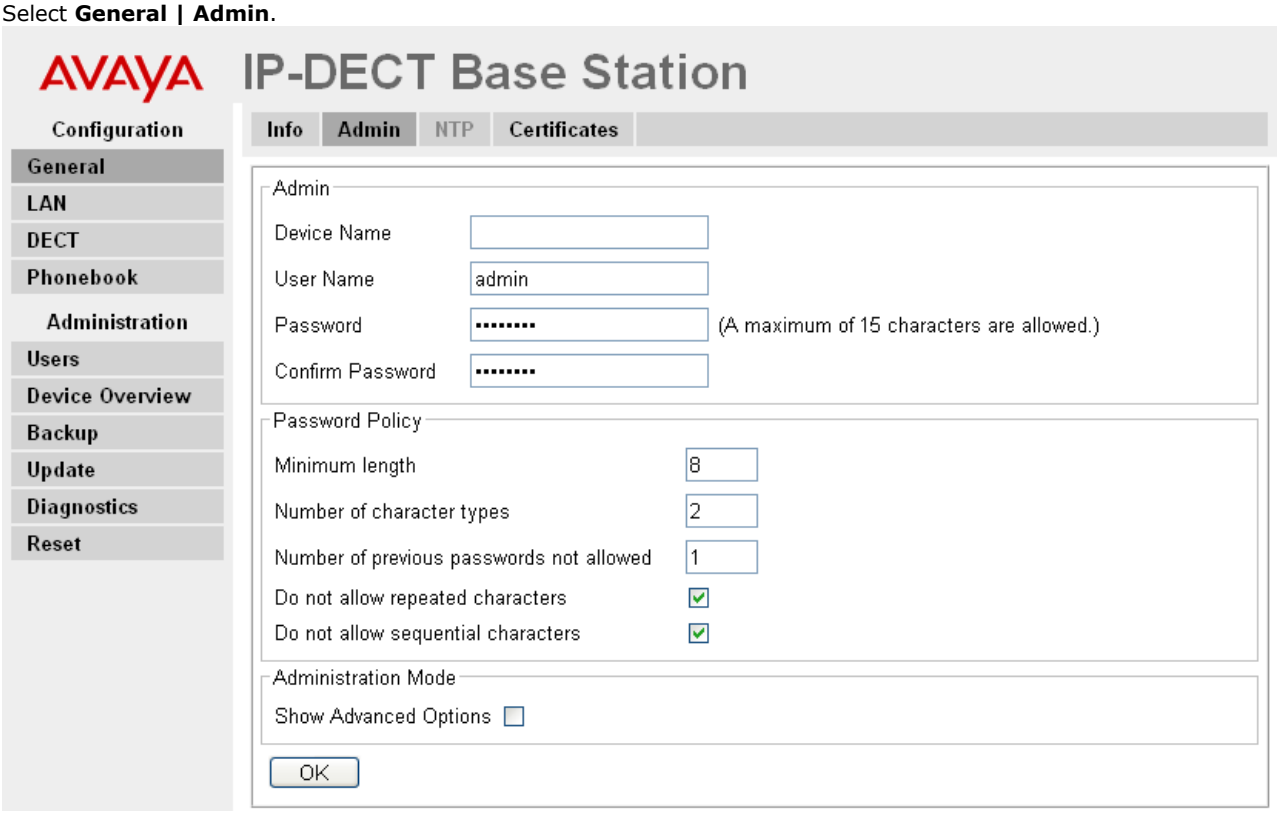
9. If necessary, repeat the process for the firmware using the **Update | Firmware** menu.
10. For a IP DECT Gateway, if necessary also repeat the process for base station firmware for base stations that will be connected to the IP DECT Gateway using the **Update | RFPs** menu.

3.3.6 Select Simplified Administration

By default all base station menus and menu options are visible, including numerous settings that are not applicable for IP Office operation. By turning off advanced options, only those menus and settings applicable to IP Office mode are shown. While this is not necessary for installation it is recommended.

This process is not necessary on the Compact Base Station which have advanced options hidden by default. This option is not supported on a IP DECT Gateway.

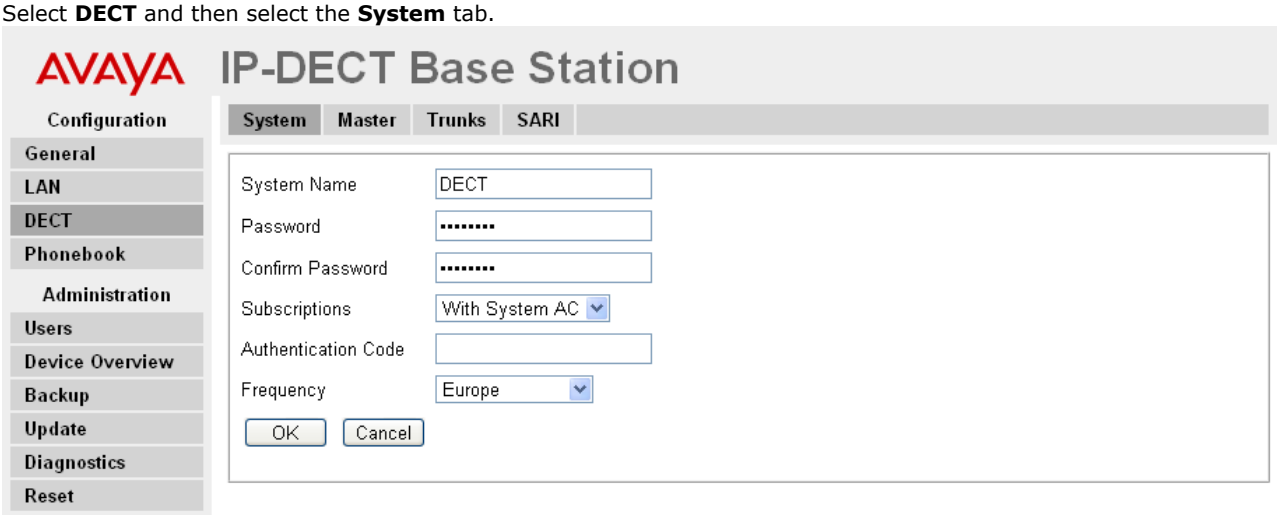
1. Select **General | Admin**.



2. Deselect **Show Advanced Options**.
3. Click **OK**.
    a. Select **Reset** and then select the **Reset** tab.
    b. Click on **OK**.
    c. Observing the base station, wait for the lower light to return to solid green.

3.3.7 Set the DECT Password

1. Select **DECT** and then select the **System** tab.

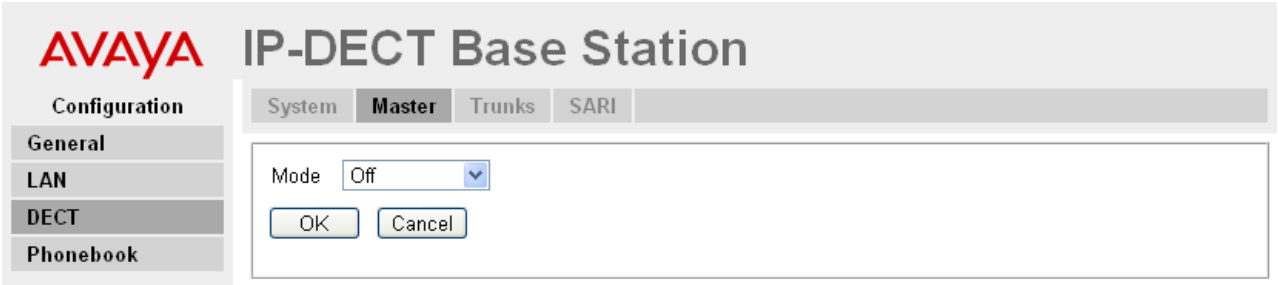


2. Enter and confirm the password you want to use.
3. The **Subscriptions** and **Authentication Code** fields should not be adjusted. These will be set by the IP Office one the base station is in provisioning mode.
4. Check that the **Frequency** field is set correctly for your location.
5. Click **OK**.
    a. Select **Reset** and then select the **Reset** tab.
    b. Click on **OK**.
    c. Observing the base station, wait for the lower light to return to solid green.

3.3.8 Select Master Mode

The base station needs to be told to act as a master base station and needs to be told what type of telephone system it will be operating with.

1. Select **DECT** and then select the **Master** tab.



2. Change the **Mode** to ***Active*** and click **OK**.
3. Reset the base station.
    a. Select **Reset** and then select the **Reset** tab.
    b. Click on **OK**.
    c. Observing the base station, wait for the lower light to return to solid green.

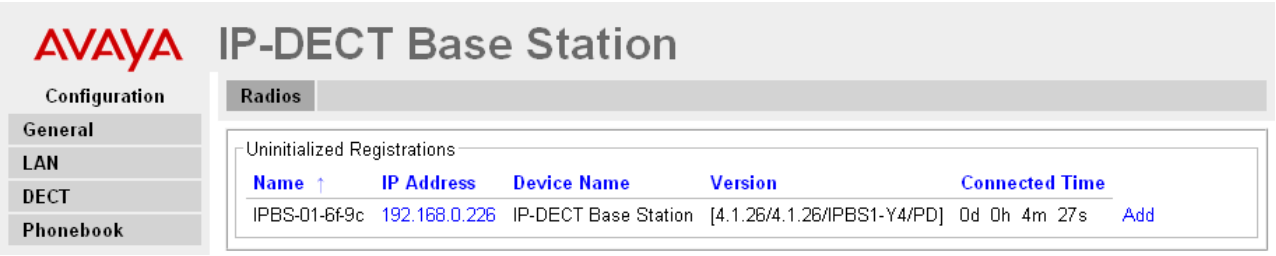
4. Select DECT and then select the Master tab again.

5. Change the **PBX** setting to ***IPO*** and click **OK**.
6. Reset the base station.
    d. Select **Reset** and then select the **Reset** tab.
    e. Click on **OK**.
    f. Observing the base station, wait for the lower light to return to solid green.

3.3.9 Accept Devices

Each base station has a radio interface that needs to connect with the master base station. This includes the master base stations own radio interface.

1. Select **Device Overview** and then select the **Radios** tab.

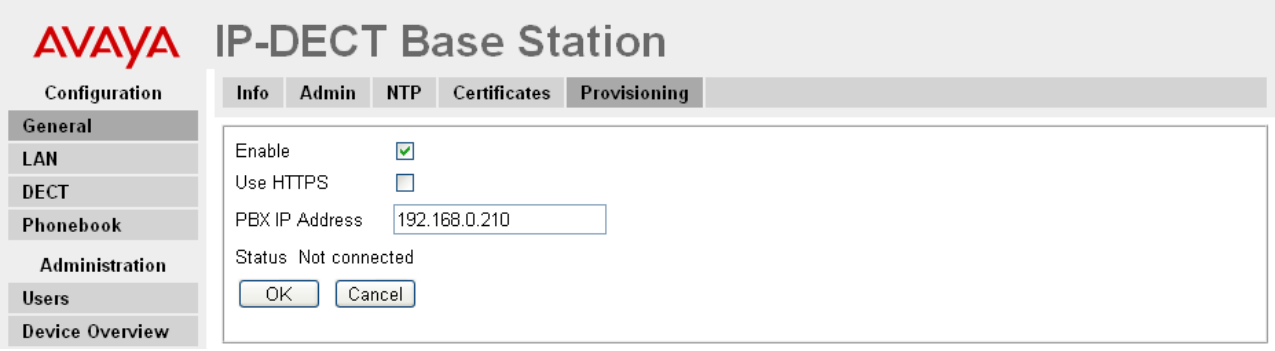


2. The list shows those base stations that the master can detect. It should include the master's own radio interface. Click **Add**.
3. On the popup form that appears, click **OK**.
4. Wait for the **Radios** tab to refresh. Note that this can take a couple of minutes.
5. The upper lamp on the base station will still be flashing. It takes up to 5 minutes as the radio part of the base station receives software from the master and performs other synchronization actions. The synchronization following future restarts is less than a minute.

3.3.10 Enable Provisioning

The master base station can now be configured for IP Office provisioning. Once this is enabled, several fields of the base station configuration will be set by the IP Office system. Other fields are greyed out and or automatically set to the values required for IP Office operation.

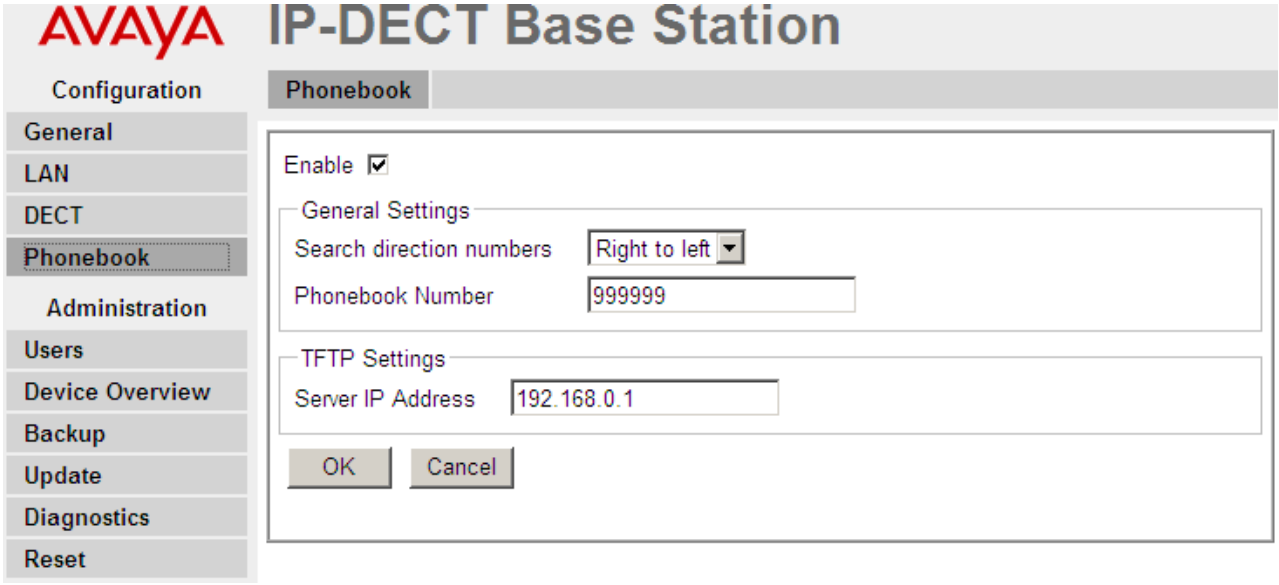
1. Select **General** and then select the **Provisioning** tab. This tab is only available when the base station's **Master** setting is ***Active*** and the **PBX** setting is set to ***IPO*** (see Select Master Mode 50).



   - Select the **Enable** option.
   - The IP Office security settings 36 control whether HTTPS is supported between the IP Office control unit and the master base station (by default it is supported).
   - Set the **PBX IP Address** to match the IP Office system on which the IP DECT line was configured.
2. Click **OK**.
3. Reset the base station.
   a. Select **Reset** and then select the **Reset** tab.
   b. Click on **OK**.
   c. Observing the base station, wait for the lower light to return to solid green.
4. Select the **General | Provisioning** tab again. The Status should have changed to ***Connected***.
5. Select **DECT | SARI**. The value of the SARI entered into the IP Office configuration should now also be visible in the base station configuration.
6. Select **DECT | System**. The message System in Provisioning Mode is shown. The Subscriptions mode is greyed out and set to With System AC. The Authentication Code will match the one set in the IP Office configuration.

3.3.11 Phonebook Integration

In an IP Office provisioned installation, the phonebook settings are automatically set by the IP Office system. However use of IP Office users, groups and directory as part of the DECT phone directory still needs to be enabled if required. If not enabled, the Central Phonebook functions on the DECT phones will not work. For DECT systems using an AIWS, central phone book provision is done via the AIWS.



1. Select **Phonebook**.
2. Select **Enable**.

3.4 IP Slave Base Station Setup

The slave base station configuration for a provision installation consists of the following steps:

1. **Default the Base Station** 55.
2. **Determine the Base Station IP Address** 55.
3. **Access the Base Station Configuration** 56.
4. **Set the Base Station IP Address** 57.
5. **Update the Base Station Software** 58.

3.4.1 Defaulting the Base Station

This process will default a base station or IP DECT Gateway, erasing its configuration. After the unit restarts it will default to the IP address 192.168.0.1/255.255.255.0.

1. With the unit not connected to anything else, connect the power supply and switch on.
2. Wait approximately 5 seconds.
3. Using a fine point, depress the unit's reset switch for at least 10 seconds.
4. Release the switch. The unit will restart.
5. After approximately 5 seconds the unit will default to the address 192.168.0.1.

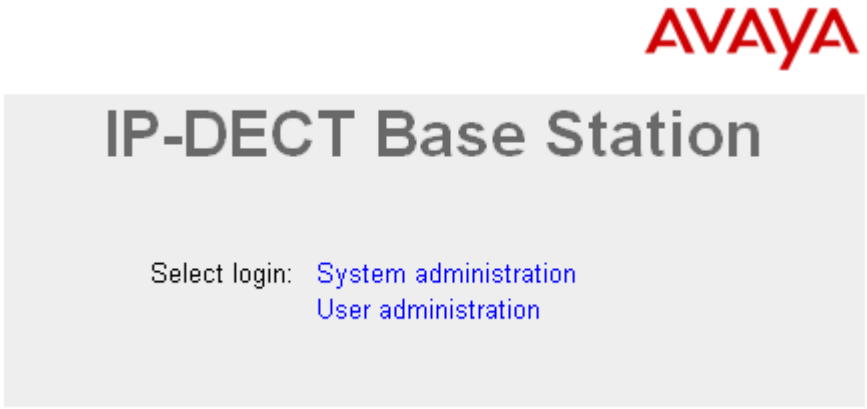
3.4.2 Determining the Base Station IP Address

The address an existing base station or IP DECT Gateway is using can be determined using the following process. It uses the MAC address of the unit which is printed on a label on the back or bottom of the unit.

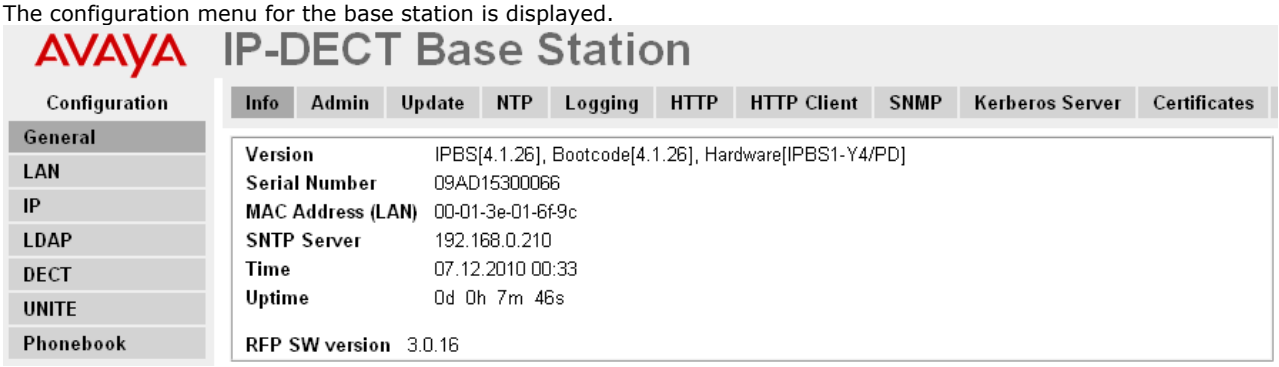
1. Open a Windows command window by selecting **Start | Run** and enter ***cmd***.
2. Enter **nbtstat -R**. The PC should respond that is has purged and reloaded the NBT remote cache table.
3. For a base station enter **nbtstat -a ipbs-*xx-xx-xx*** when *xx-xx-xx* is replaced with the last 6 hexadecimal digits of the base stations MAC address. For a IP DECT Gateway, enter **nbtstat -a ipbl-*xx-xx-xx***.
4. The results will show the IP address which it being used.
4. Use that address to access the base stations configuration and set it to a fixed address.

3.4.3 Access the Base Station Configuration

1. Depending on whether DHCP is being used or not:
   - If connected directly to the base station, change your programming PC's network address to 192.168.0.200 with subnet mask 255.255.255.0. Connect the LAN cable from your PC to the base station.
   - If both your PC and the base station are connected to a LAN network with DHCP server, ensure your PC is set to act as a DHCP client or has a fixed address that is valid on the network.
2. Start your web browser and enter the http:// or https:// followed by the IP address of the base station. The default IP address is 192.168.0.1. If a security certificate warning is displayed, select to continue to this website.
3. The base station should respond with its initial configuration menu.



4. Select **System administration**. A password entry dialog will be displayed. Enter the default user name (***admin***) and password (***changeme***).
5. The configuration menu for the base station is displayed.

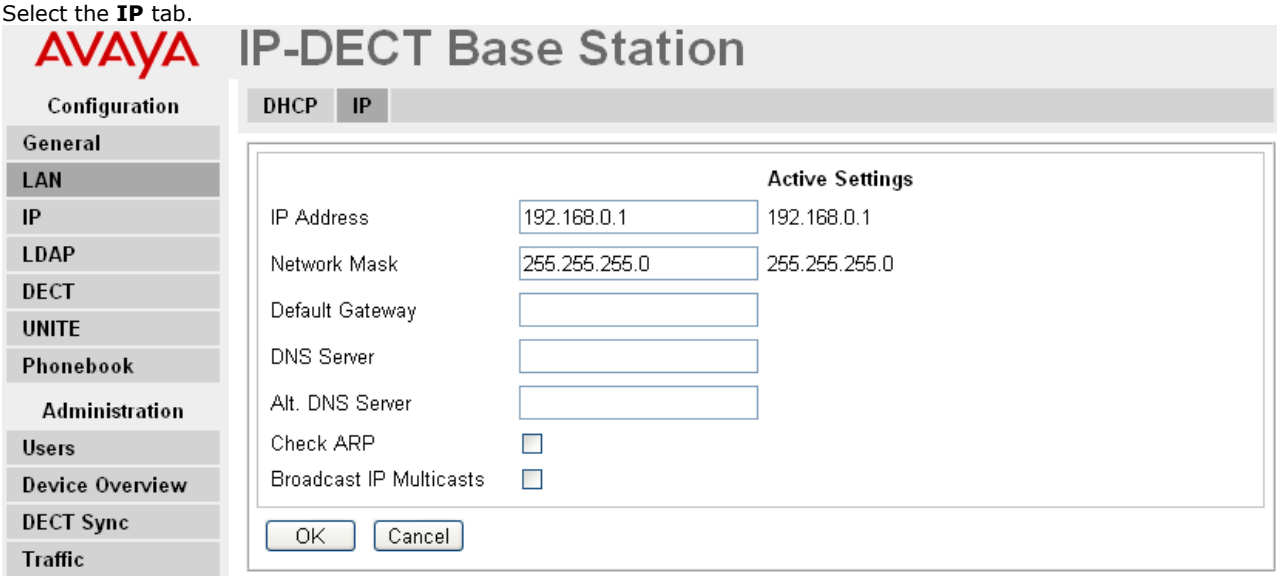


6. Note the software levels shown in the Version screen. These will determine whether the base station software needs to be upgraded.

3.4.4 Set the Base Station IP Address

By default a base station defaults to 192.168.0.1. The process below can be used to change the DHCP mode and IP address of the base station.

1. Having browsed into the base station's configuration, in the left-hand column select **LAN**.
2. Select the **IP** tab.



   a. Enter the required **IP Address** and **Network Mask** for the base station. The other settings are optional.

   b. Click **OK**.

3. Select the **DHCP** tab.

   a. Using the **Mode** drop-down, select ***Disabled***.

   b. Click **OK**.

4. The menu will prompt you with the message **Reset Required**. Do not click this or reset the base station at this stage.

   a. Select **Reset** and then select the **Reset** tab.

   b. Click on **OK**.

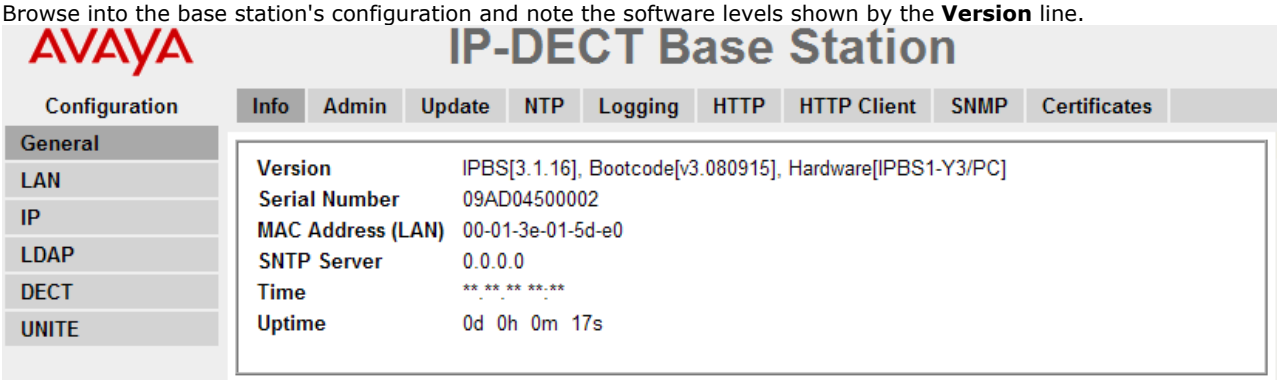
   c. Observing the base station, wait for the lower light to return to solid green.

5. Log in again using the new IP address.

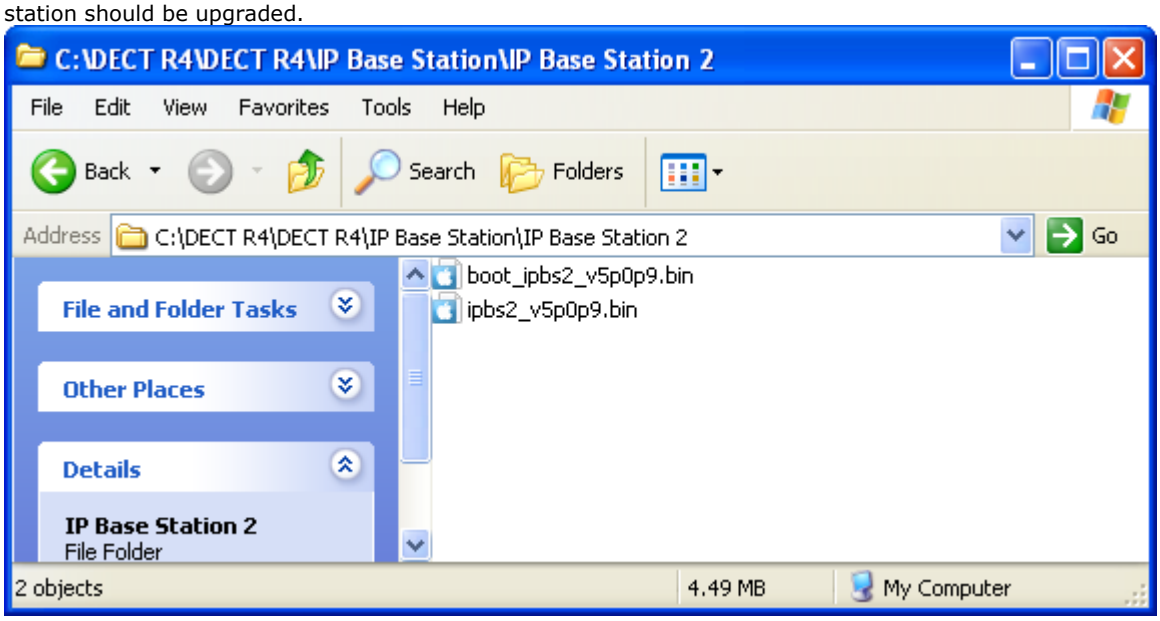
3.4.5 Update the Base Station Software

The base station may need to be upgraded to the software supplied for use with IP Office administration software. That software consists of two parts, a firmware file and a boot file. All base stations in a DECT system should use the same software.

1. Browse into the base station's configuration and note the software levels shown by the **Version** line.

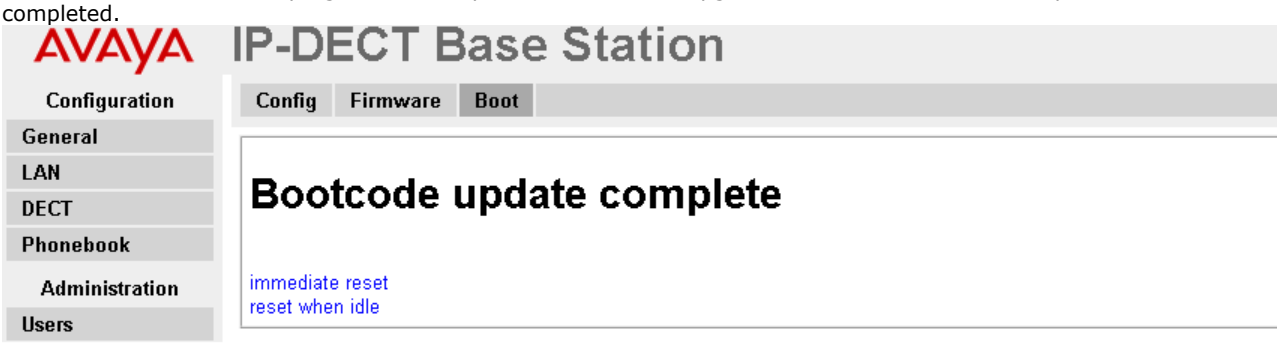


- Check that these match the versions supplied with the IP Office administration software. Ensure that you are checking against the correct folder for an IPBS1 or IPBS2 base station. If they do not not match, then the base station should be upgraded.

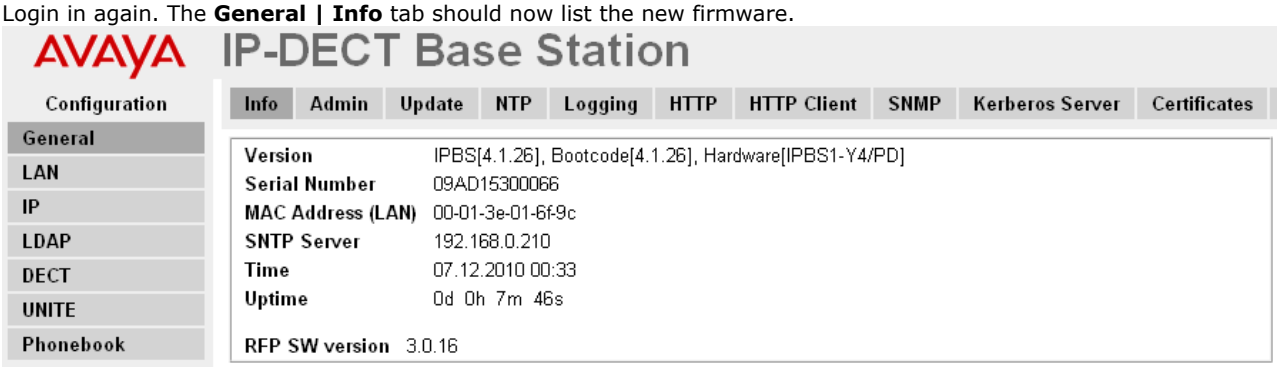


- If both software files need to be upgraded, the boot file should be upgraded first.

2. To upgrade the boot file, in the left-hand column select **Update** and then select the **Boot** tab. To upgrade the base station file, select **Update** and then select the **Firmware** tab. The method for both files is similar, however ensure you upgrade the boot file first if both need to be upgraded.
3. Click on the **Choose File** button and browse to the ***IP Base Station*** sub-folder of the IP DECT R4 software you previously extracted onto the programming PC.
4. Select the appropriate file for the upgrade you are performing, ie. the file with boot in the file name if doing a boot file upgrade. Click **OK**.
5. Click on the **Upload** button.
6. The browser will show the progress of the upload and firmware upgrade. It will indicate when the process has been completed.



7. Click on **immediate reset**.
8. Login in again. The **General | Info** tab should now list the new firmware.



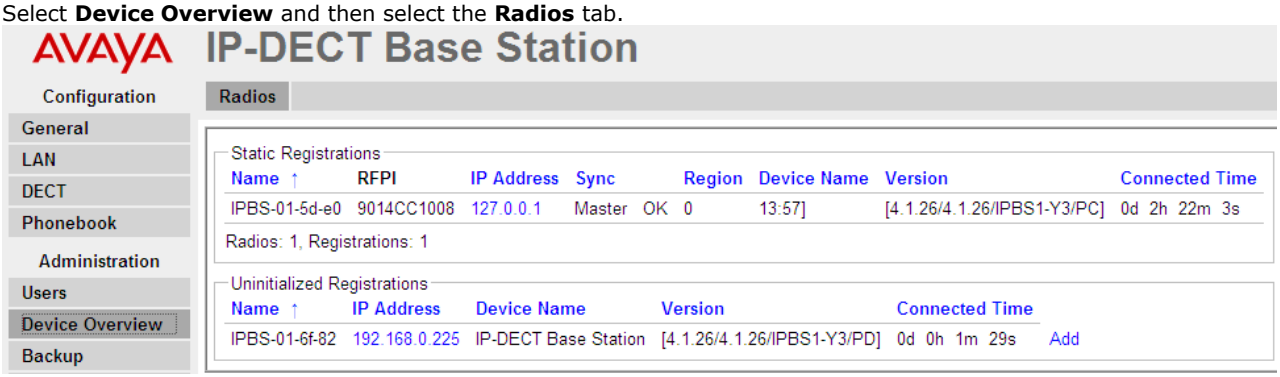
9. If necessary, repeat the process for the firmware using the **Update | Firmware** menu.
10. For a IP DECT Gateway, if necessary also repeat the process for base station firmware for base stations that will be connected to the IP DECT Gateway using the **Update | RFPs** menu.

Repeat the steps above for any other base stations that are also being installed. All the base stations should use the same firmware.

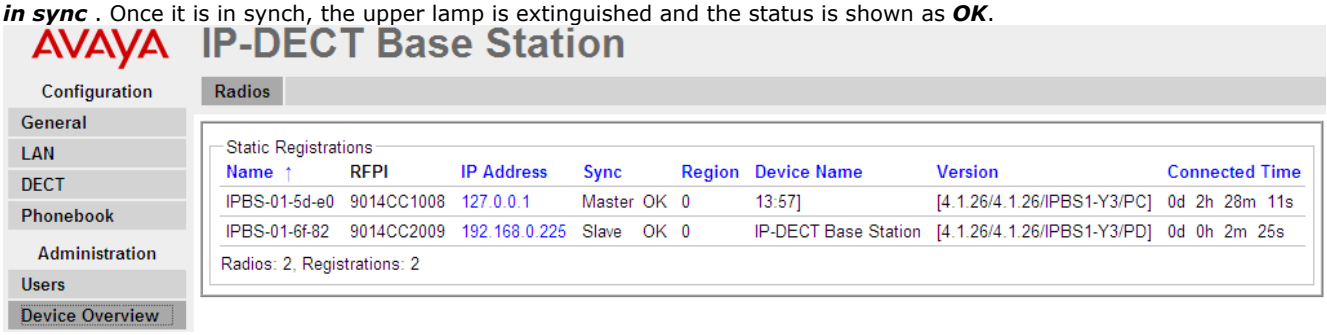
3.4.6 Register the Slave Base Station

The slave base station needs to register and be synchronized with the master base station. This is done in the master base station configuration.

1. Login to the master base station.
2. Select **Device Overview** and then select the **Radios** tab.



3. The new slave base station is shown as an unregistered device. Click on **Add**.
4. On the popup form that appears, click **OK**.
5. The slave base station will be listed as a registered device. It can take up to 2 minutes for the base station to synchronize with the master base station. During this time its upper lamp will flash red and the status shows as ***Not in sync*** . Once it is in synch, the upper lamp is extinguished and the status is shown as ***OK***.

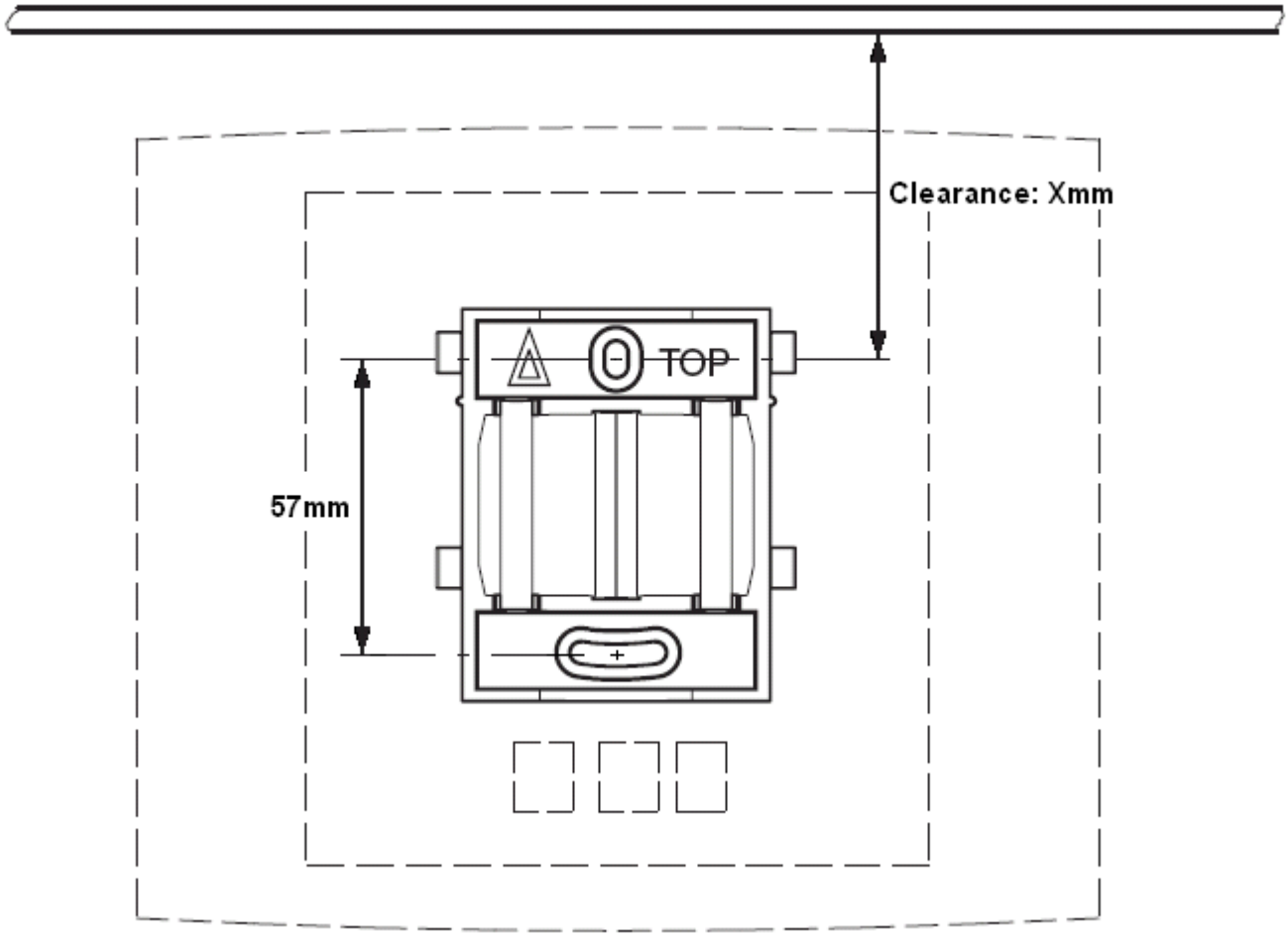


3.5 Base Station Mounting

The base station can now be powered down and mounted in its intended operating position. The removable bracket on the back of the base stations can be used for either wall mounting using two screws suitable for the surface or for mounting on columns using two metal bands.

Wall Mounting

Remove the mounting bracket from the base station. Use it as a template for marking the screw fixing holes. Note the diagram below indicating the required clearance for getting the base station onto the mounting bracket.



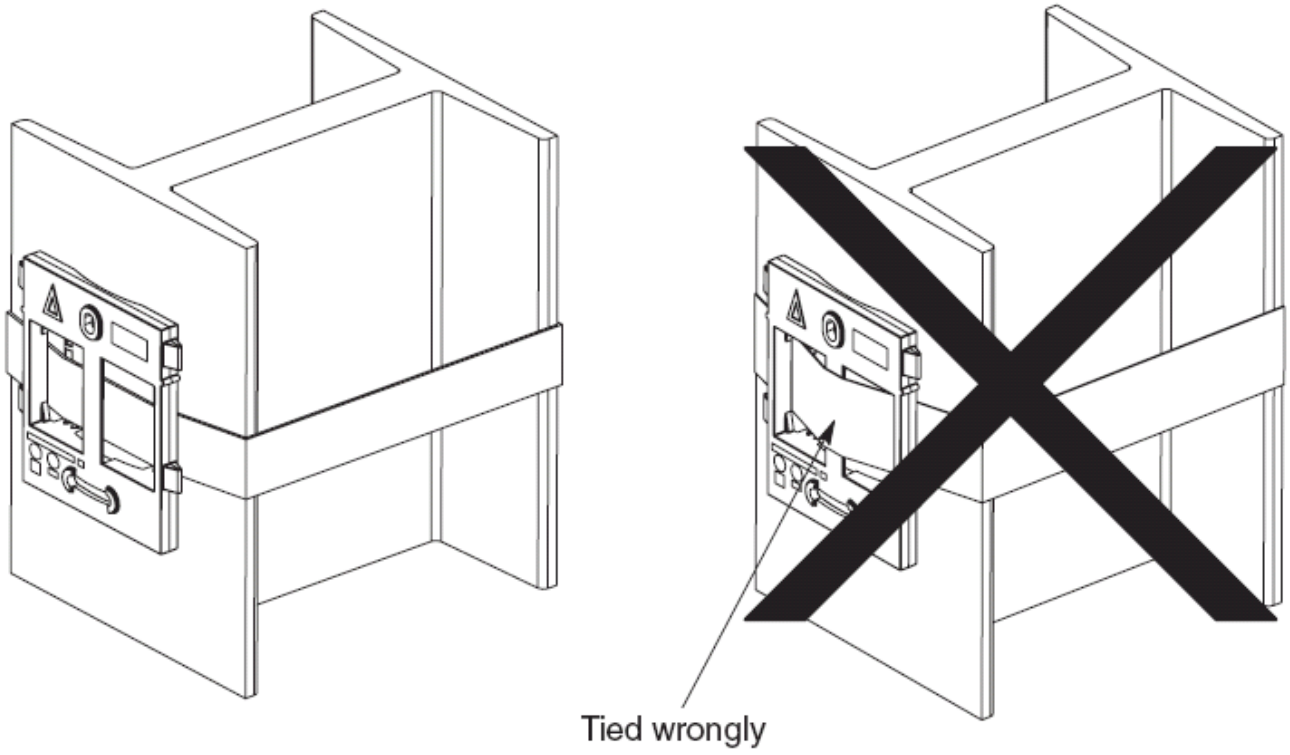
1. Hold the mounting bracket with its flat side against the wall with the text 'TOP' upwards and mark the two holes. Observe the minimum distance between the top screw hole and the ceiling. This depends on the base station type as follows:

Base Station Type	Internal Aerials	External Aerials
IPBS1 or Digital Base Station	65mm	160mm
IPBS2	100mm	195mm

2. Drill the two holes using a 6mm diameter drill and insert the included wall plugs.
3. Position the mounting bracket with its flat side to the wall and fasten it with the two included 3.5mm diameter screws.

Column/Pillar Mounting

The mounting bracket can be fixed to a pole of 45mm diameter or greater, or a beam of 50mm width minimum by using a strap or flexible metal band less than 30 mm wide. A suitable strap or flexible metal band is not included with the base station.



3.6 Phone Subscription

There are two methods of phone subscription; **pre-configured** or **anonymous**.

In both cases, the IP Office configuration should also contain available **Avaya IP Endpoint Licenses** 41. The PARK code and Authentication Code of the DECT R4 system are required during subscription. The values set on the IP DECT line in the IP Office configuration are used.

Anonymous Phone Subscription

This method is used when the IP Office IP DECT line's **Subscriptions** setting is set to ***Auto-Create***. After successfully subscribing, the phone is assigned a temporary extension number just about the highest existing extension number. This can either be accepted or another extension number specified.

- **Subscription Using IP Office Auto-Create**
  Allowing phone subscription using the IP Office auto-create options for extensions and or users makes changes to the current running configuration of the IP Office system. For this method to work, you must ensure that no copies of the configuration are also open in Manager during subscription, as sending such a copy of the configuration back to the IP Office system will replace the subscriptions and require the handsets to be subscribed again. Following any handset subscription, a new copy of the configuration should always be loaded in IP Office Manager if any other configuration changes are required.

1. Set the IP DECT line's **Subscriptions** mode to ***Auto-Create***. Ensure that the **Auto-Create User** and **Auto-Create Extension** options are also selected.
2. Subscribe the phone to a temporary extension number 70.
3. Accept the temporary extension number (70 ***#** 70) or enter an alternate extension number (70 *XXX* 70 ***** 70 *LLL* 70 **#** 70) 70.
4. Disable subscription when all phones have been subscribed 75.

Preconfigured Phone Subscription

This method is used when the IP Office IP DECT line's **Subscriptions** setting is set to ***Preconfigured***. The SARI and Authentication Code set in the IP Office configuration are used. Using this method, entries for the IP DECT extensions and users must first be created in the IP Office configuration. The matching phones can then be subscribed.

1. Set the IP DECT line's **Subscriptions** mode to ***Preconfigured***.
2. Create an IP DECT extension and user entry for each phone 69.
3. Subscribe the phones 70.
4. Disable subscription when all phones have been subscribed 75.

Requirements

Information

- Service user name and password for IP Office configuration.
- User names and extension numbers for the DECT phones.
- Phone IPEI numbers if using an pre-configured installation mode.

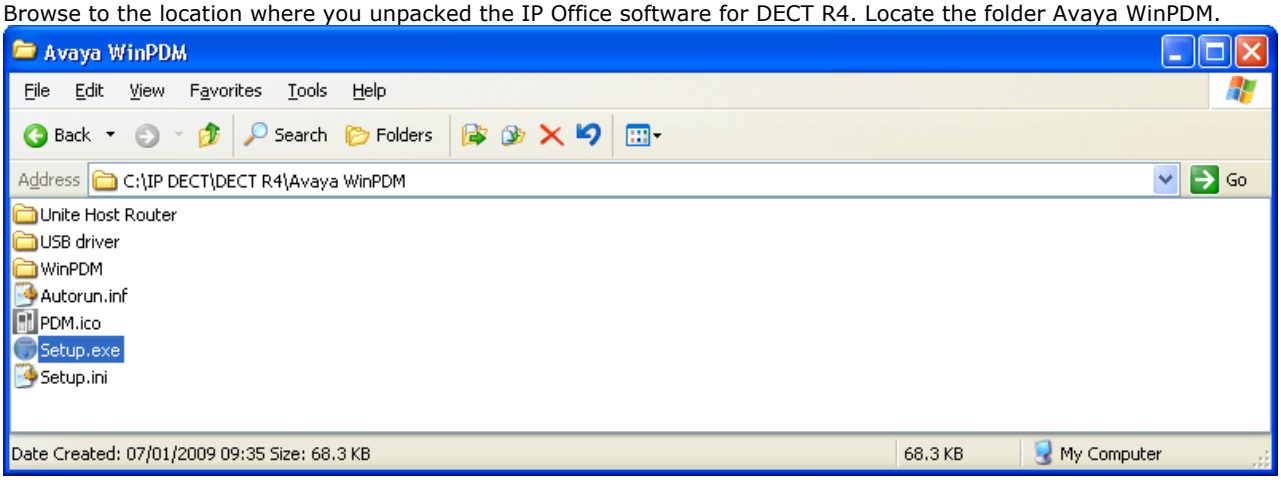
Tools

- **IP Office Manager**.
- **Device Manager**
  The software installed on each handset may need to be upgraded to match that supplied with the DECT R4 software 34. This is done using the Windows Device Manager software to upgrade phones via an advanced charger or using AIWS Device Manager 95 to upgrade phones over the air.
- Web browser (Internet Explorer or Firefox are supported).

3.6.1 Install Windows Device Manager

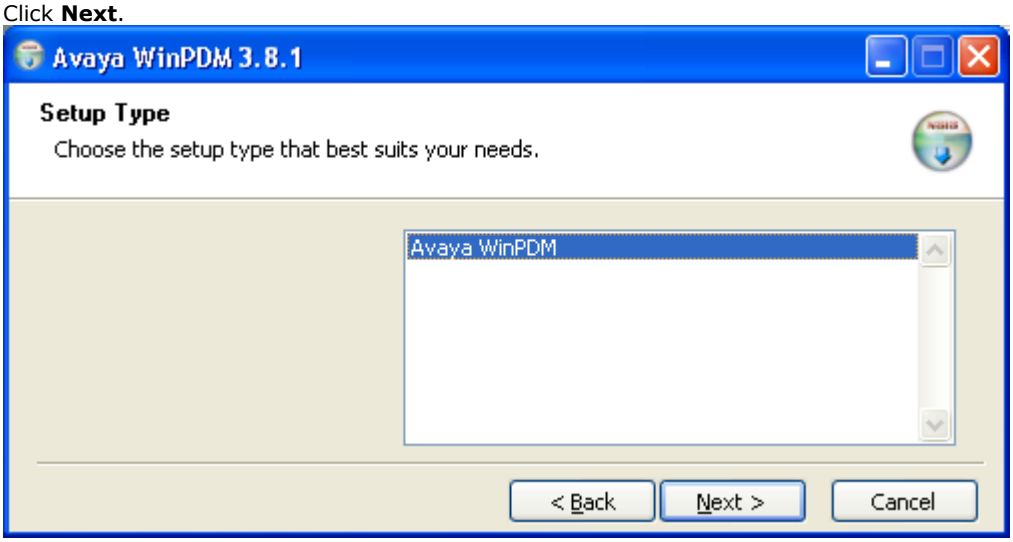
It may be necessary to upgrade to software used by the 3720, 3725, 3740 and 3749 phones. For new installations it is assumed that the Windows Device Manager and advanced chargers will be used for this.

1. Browse to the location where you unpacked the IP Office software for DECT R4. Locate the folder Avaya WinPDM.

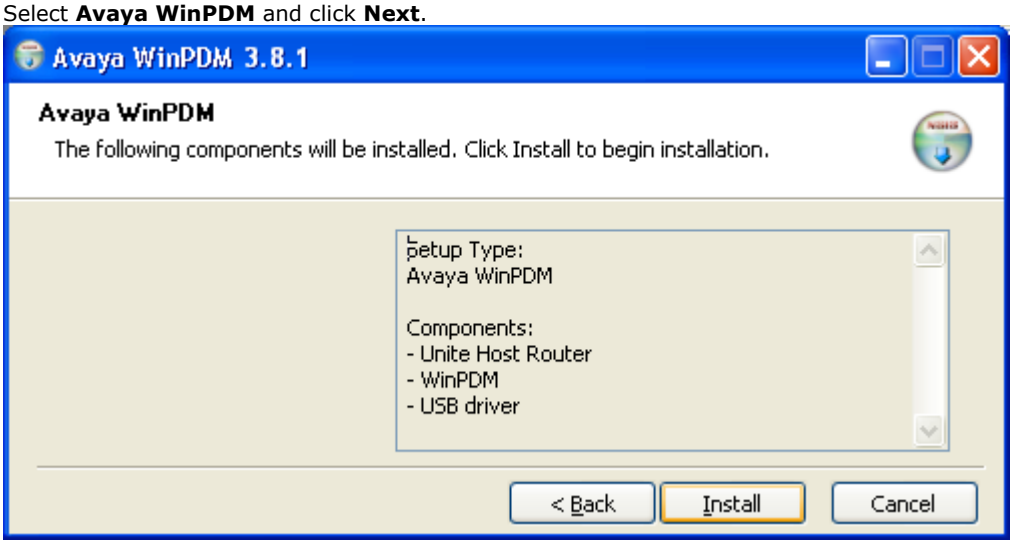


2. Double-click on **Setup.exe**.

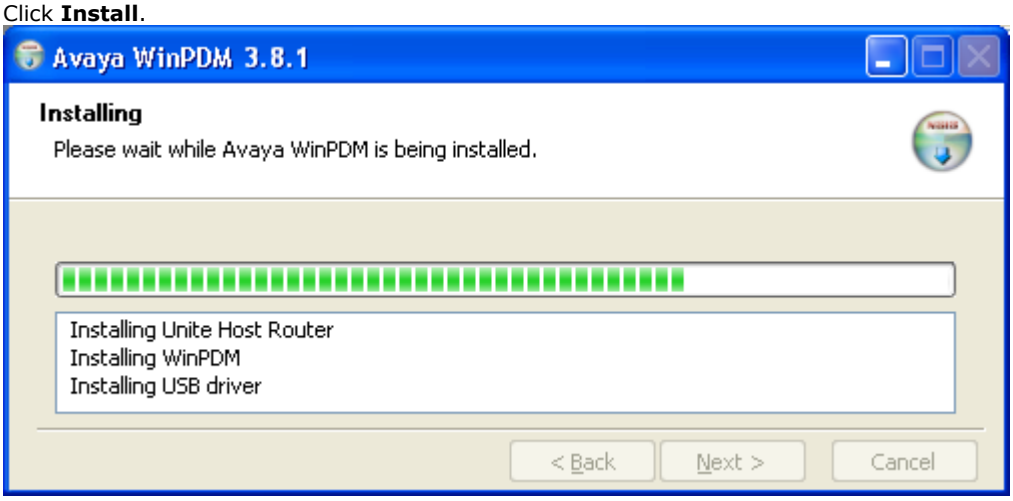
3. Click **Next**.



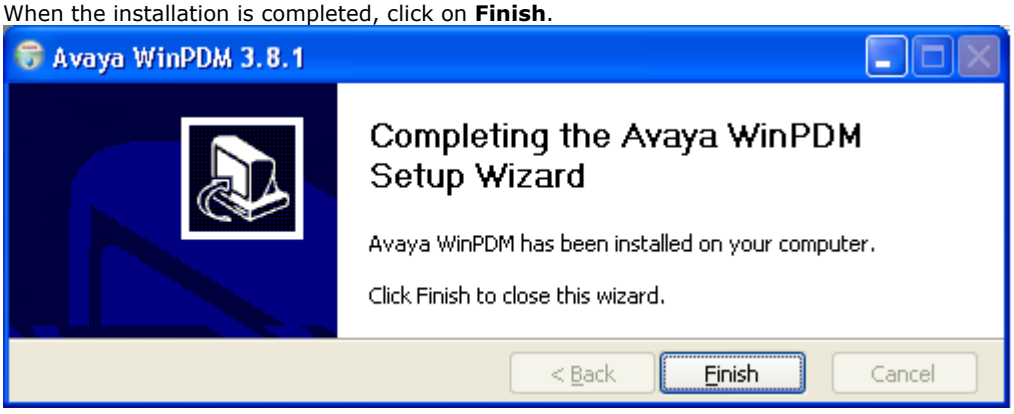
4. Select **Avaya WinPDM** and click **Next**.



5. Click **Install**.



6. When the installation is completed, click on **Finish**.

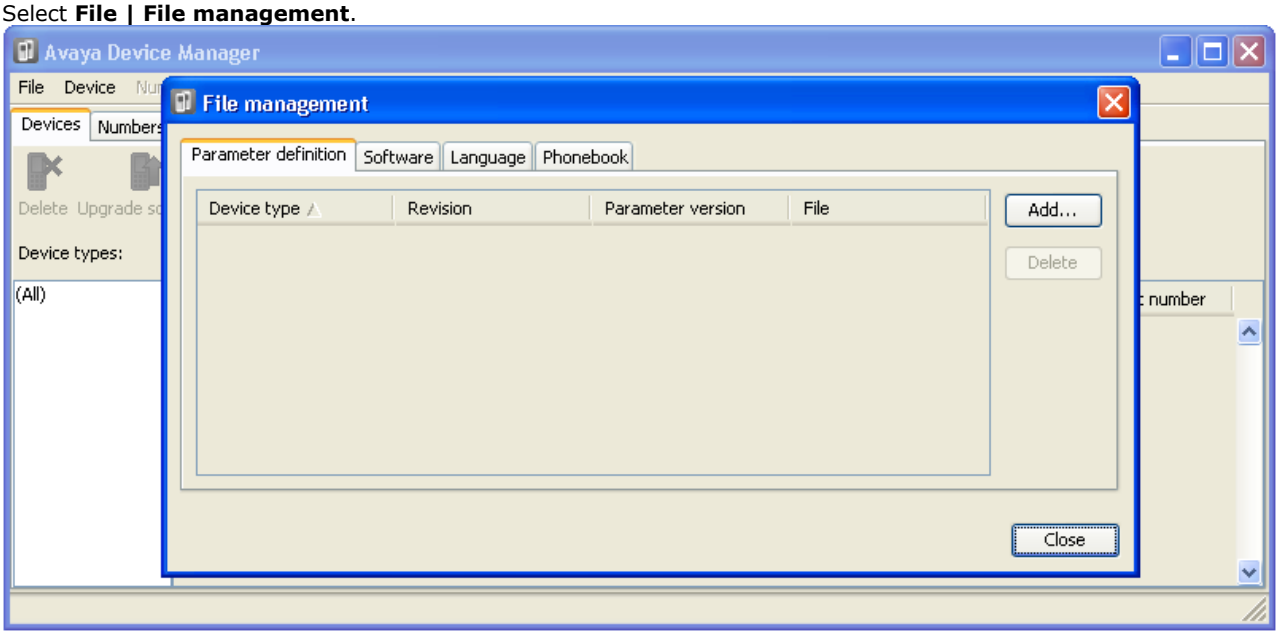


3.6.2 Loading Parameter Definition Files

The parameter definition files supplied with the DECT R4 software include software files used to update the phone software. These files must be uploaded to WinPDM in order to allow phones to be upgraded.

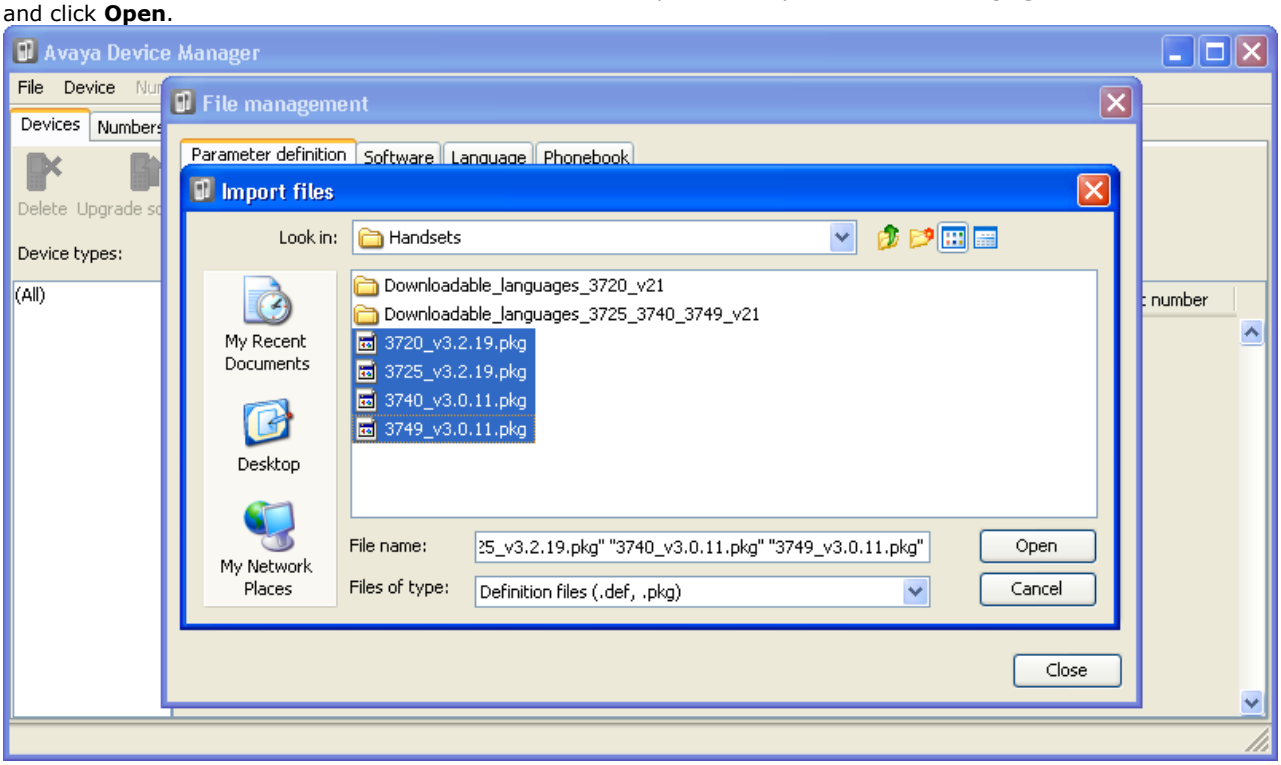
1. Start the AIWS Device Manager 95 or Windows Device Manager 95.

2. Select **File | File management**.

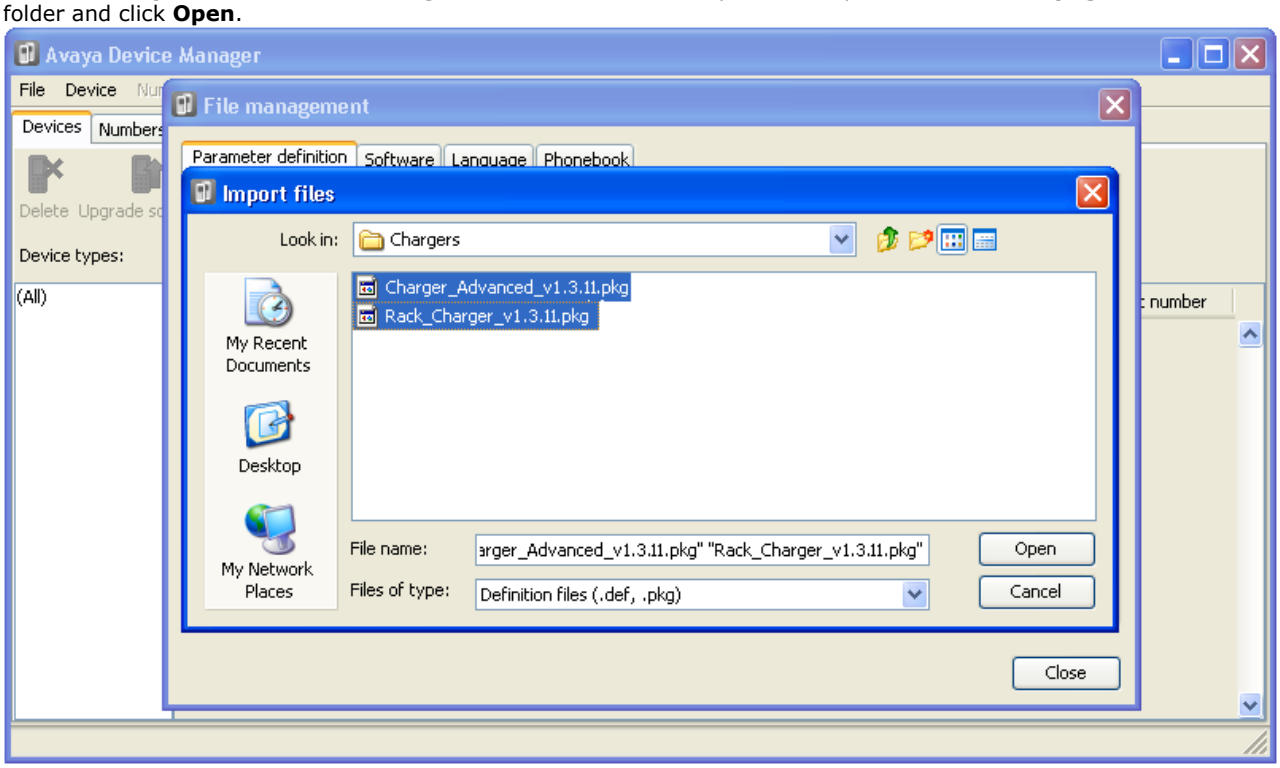


3. Select the **Parameter definition** tab.

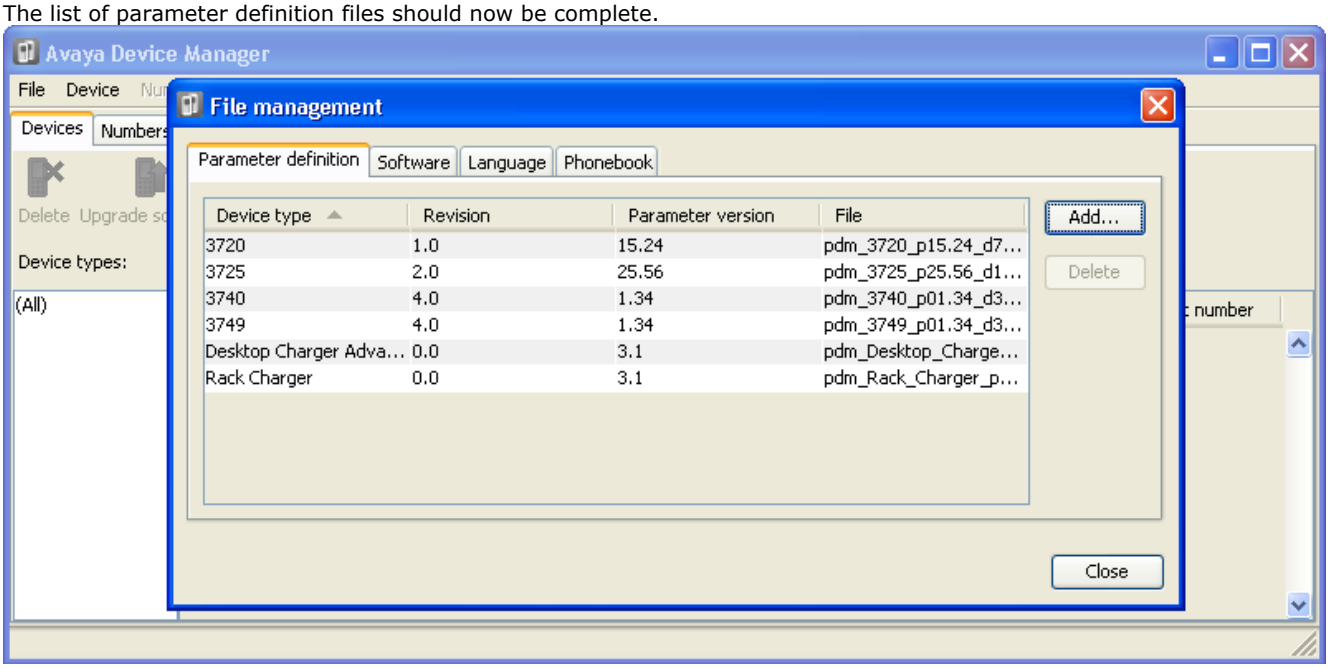
4. Click **Add...**. Browse to the **Handsets** folder in the software previous unpacked. Select the ***.pkg*** files in the folder and click **Open**.



5. Click **Add...** again. Browse to the **Chargers** folder in the software previous unpacked. Select the ***.pkg*** files in the folder and click **Open**.



6. The list of parameter definition files should now be complete.

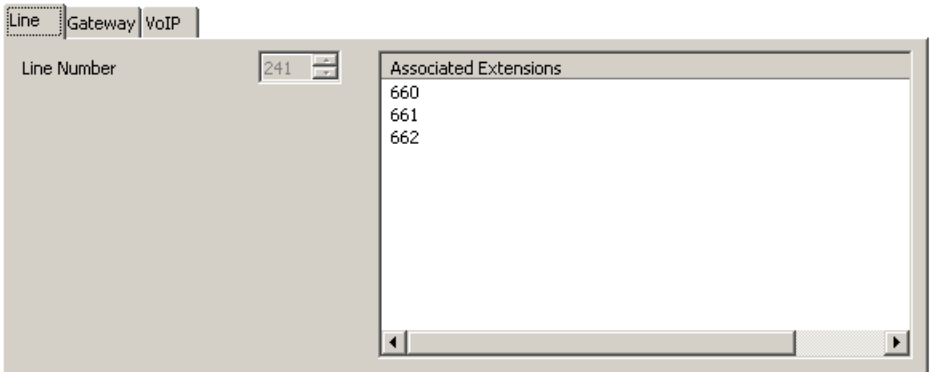


7. Select **Close**.

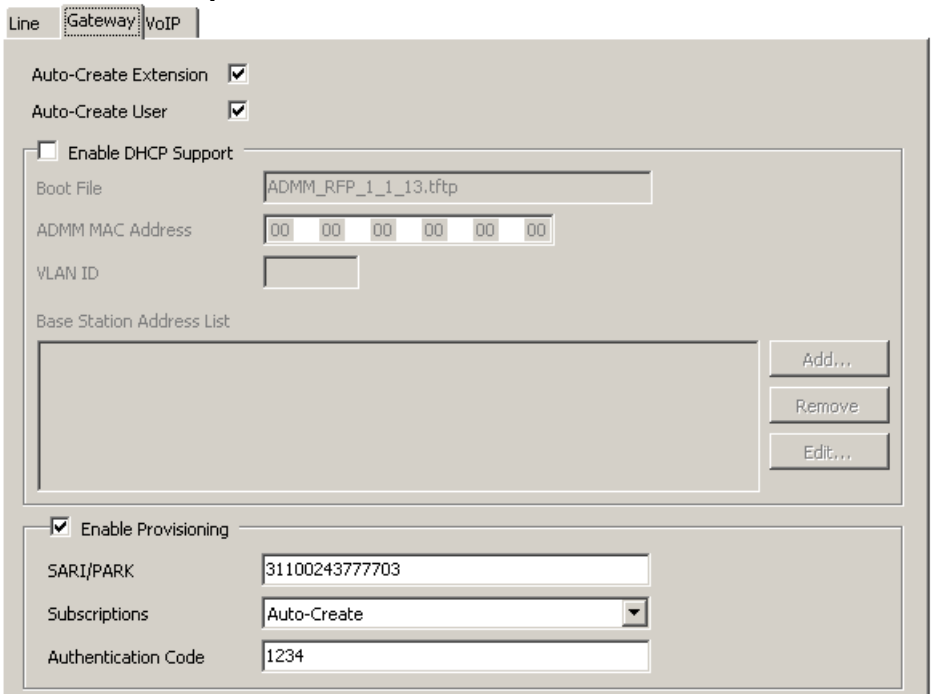
3.6.3 Enabling Subscription

The IP DECT line settings control whether DECT handsets are able to subscribe.

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Click on **Line**. The list of existing lines is shown.
3. Click on the icon and select **IP DECT Line**. The settings for an IP DECT line are displayed. If the option is greyed out then the configuration already contains an IP DECT line.
3. The **Line** tab will list any DECT extensions already subscribed.



4. Select the **Gateway** tab.

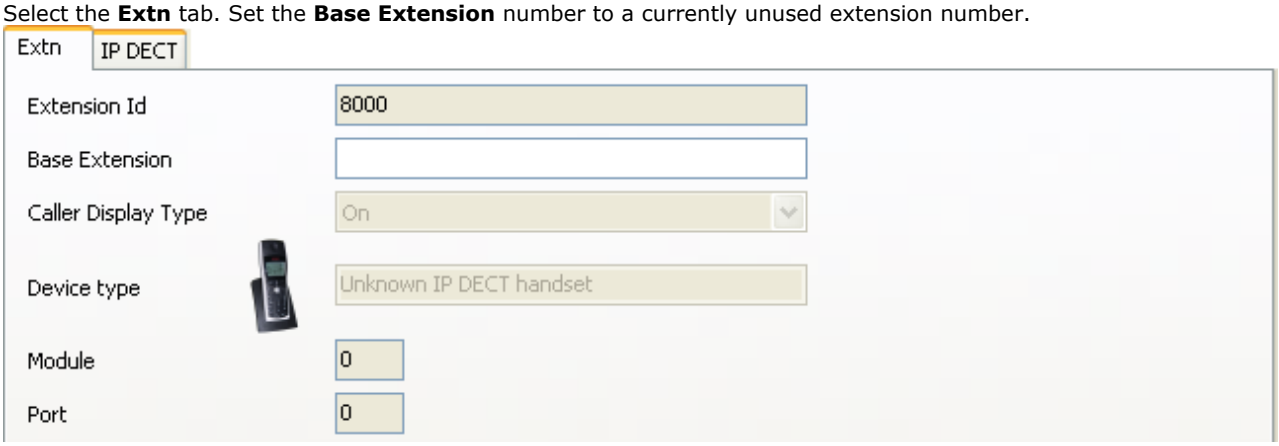


5. Note the values set in the **SARI/PARK** and **Authentication Code** fields. These values are used during the phone subscription.
6. Change the Subscriptions mode to either ***Auto-Create*** or ***Preconfigured***.
    - ***Auto-Create***
      If you select this option, extension and user entries are automatically created in the IP Office configuration when the handsets are subscribed. Use this option for anonymous subscription. Ensure that
    - ***Preconfigured***
      If you select this option, handset will only be able to subscribe if they match an existing IP DECT extension in the IP Office configuration.
7. Save the configuration back to the IP Office system.

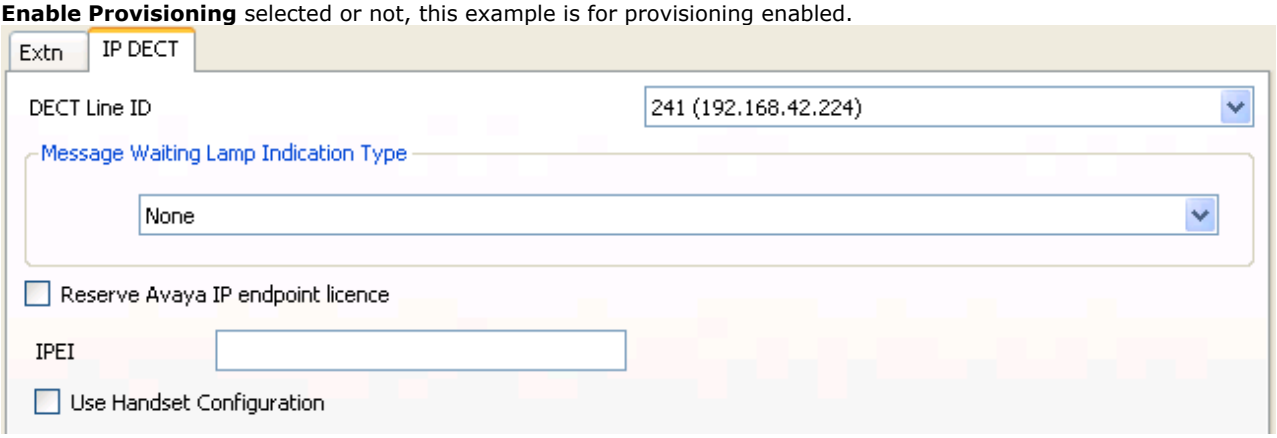
3.6.4 Manually Creating Extensions

If the IP DECT line's subscription setting is set to ***Preconfigured***, you must manually add extension and user entries for each handset to the IP Office configuration.

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Click on  **Extension**.
3. Click on the  icon and select **IP DECT Extension**. This option is greyed out until an IP DECT line is added to the configuration.
4. Select the **Extn** tab. Set the **Base Extension** number to a currently unused extension number.



5. Select the **IP DECT** tab. Note that the appearance of this tab varies depend on whether the IP DECT line has **Enable Provisioning** selected or not, this example is for provisioning enabled.



   a. Set the **Message Waiting Lamp Indication Type** to ***On***. For

   b. Select the **Reserved Avaya IP endpoint license** option. This option will be greyed out if there are insufficient licenses. If this option is selected, the phone will be licensed before any other Avaya IP endpoints for which this option has not be set.

   c. Set the IPEI to match that of the handset. For new phones the IPEI is shown on the screen. For other phones it can be displayed by selecting **Menu | Settings | Device Info | IPEI/IPDI**. It is also shown on a label under the battery.

      - For 3720, 3725, 3740 and 3749 phones, the IPEI can be displayed by selecting **Menu | Settings | Device Info | IPEI/IPDI**. It is also printed on a label under the phone's battery.

   d. If **Use Handset Configuration**. is selected, the handset user is able to set the phone language and date/time format. If not seelcted, those settings will be driven by the system or user locale settings in the IP Office configuration.

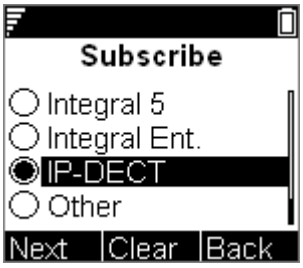
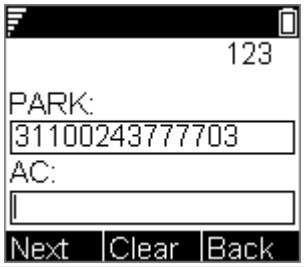
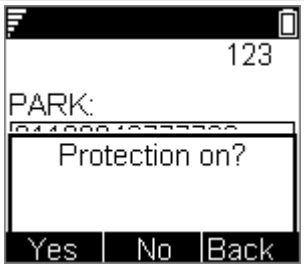
6. Click **OK**.
7. IP Office Manager will prompt whether you want to create an associated user. Select **Yes**.
8. The user settings are displayed. Adjust any of these if required and click **OK**.
9. Repeat the process to create any other extension and user entries required. Then save the configuration back to the IP Office system.

3.6.5 Subscribing a Phone

The method of subscription is largely the same regardless of whether the IP Office's IP DECT line's 38 **Subscriptions** setting is set to ***Auto-Create*** or ***Preconfigured***. The SARI and Authentication Code set in the IP DECT line configuration are requested during the subscription process.

3720, 3725, 3740, 3749 Phones

- Switch on the phone:
    - **3720**: Select **Menu | Settings | System | Subscribe**.
    - **3725/3740/3749**: Select **Menu | Connections | System | Subscribe**.

Display	Actions
	Details of the phone's current subscription are displayed. Select **Next**.
	The **System name** is just used by the phone to identify the different subscriptions it may have. Enter any name and select **Next**.
	The phone will display a list of telephone system types to which it can connect. Scroll the selected option to **IP-DECT** and select **Next**.
	The phone now requires the **PARK** (SARI) and **AC** (authentication code) of the system to which it should subscribe. Enter the **PARK** and then scroll to the **AC** field. Enter the **AC** and select **Next**.
	The **Protection on**? prompt is displayed. • If you select **No**, the user can delete the subscription from the list of subscriptions known by the phone. • If you select **Yes**, the user cannot delete the subscription.

Display	Actions
	A summary of the subscription details is shown. Check that the values are correct
	Select **OK**. The phone broadcast for DECT systems to which it can subscribe.
	When a DECT system is located, the handset will attempt to subscribe to that system.
	The success or failure of the subscription is indicated.

The display shown after successful subscription will depend on whether anonymous subscription is being used or the phone matches an existing extension in the IP Office configuration.

Auto-Create Subscription Mode

	If the phone display **Enter New Login**, it has been assigned a temporary extension number, shown in brackets. The temporary number is simply the highest existing extension number plus 1. • To accept the temporary extension number as permanent, dial ***#** and make the call. • To specify a different extension number, dial ***XXX*LLL#*** where *XXX* is the extension number to use and *LLL* is the Login Code to assign to the user. • To accept the temporary extension as permanent but set a login code for the user, dial ***LLL#*** where *LLL* is the Login Code to assign to the user.

Preconfigured Subscription Mode

	If the phone's IPEI matches an existing extension entry in the IP Office configuration, the phone will use that extension's settings. This may occur even when using anonymous subscription if the phone is an existing extensions re-subscribing to the system.

3701/3711 Phones

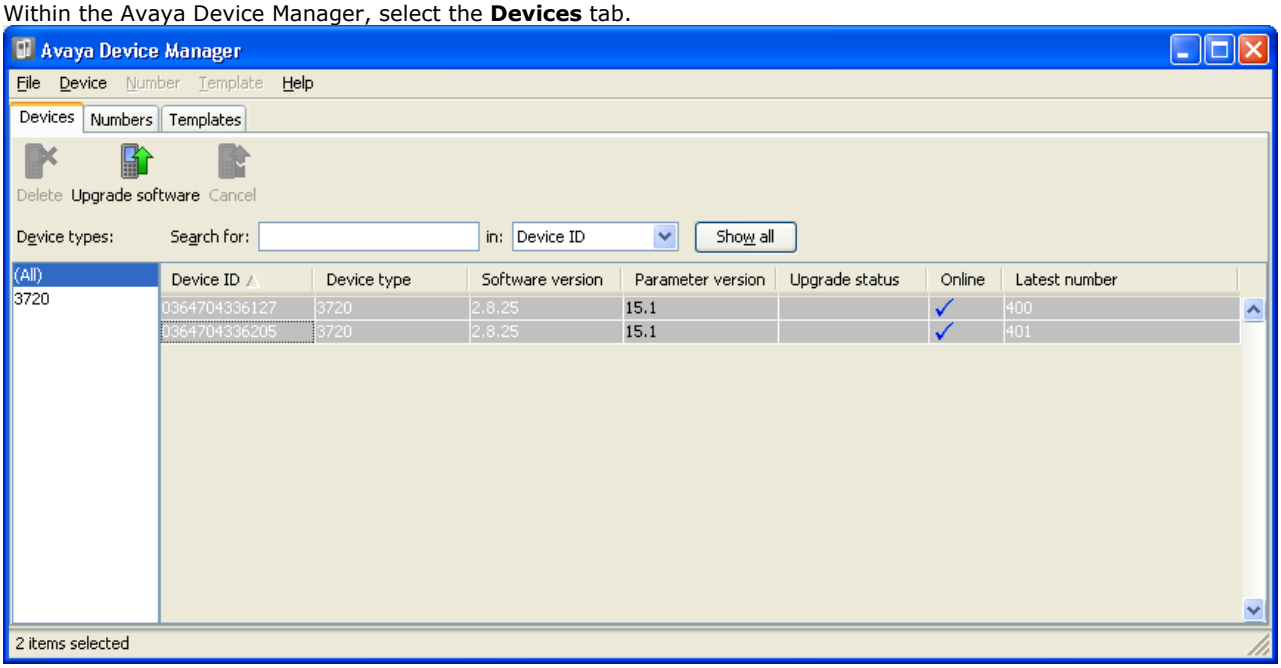
This method is only supported if the IP DECT line's **Subscriptions** setting is set to ***Preconfigured*** and matching configuration entries for the extensions have been created.

1. Switch on the phone.
2. Select **Menu | System | Subscription | Subscribe HS**.
3. Select **PABX-PIN**.
4. Enter the authentication code.

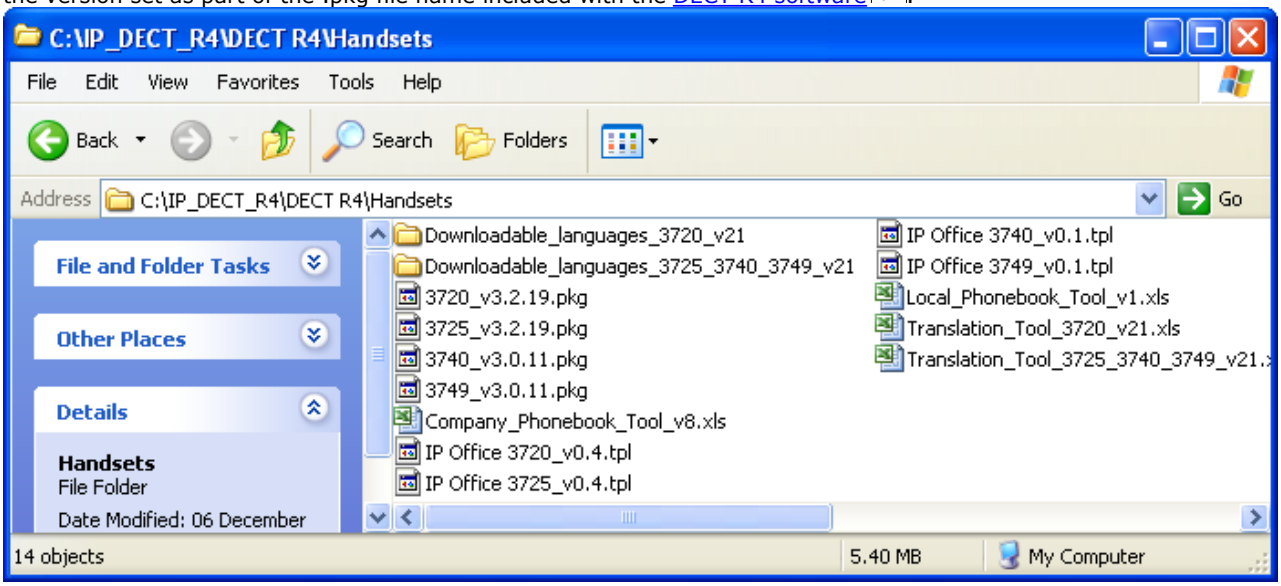
3.6.6 Upgrading Phones

DECT R4 is supported on a range of Avaya systems. However, for IP Office operation, only software specifically documented as having been tested and supported with IP Office should be used. Details of supported software for any particular IP Office release is included in IP Office Technical Bulletin for that release.

1. Start the AIWS Device Manager 95 or Windows Device Manager 95.
2. Within the Avaya Device Manager, select the **Devices** tab.

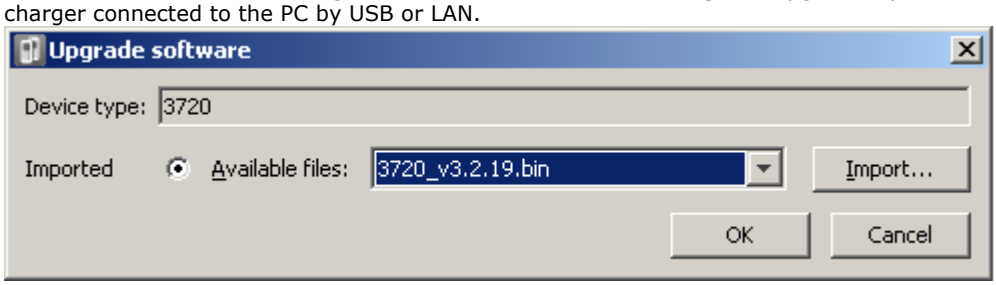


3. The current software version of each phone is shown. Compare this to the software versions available, shown by the version set as part of the .pkg file name included with the DECT R4 software 34.

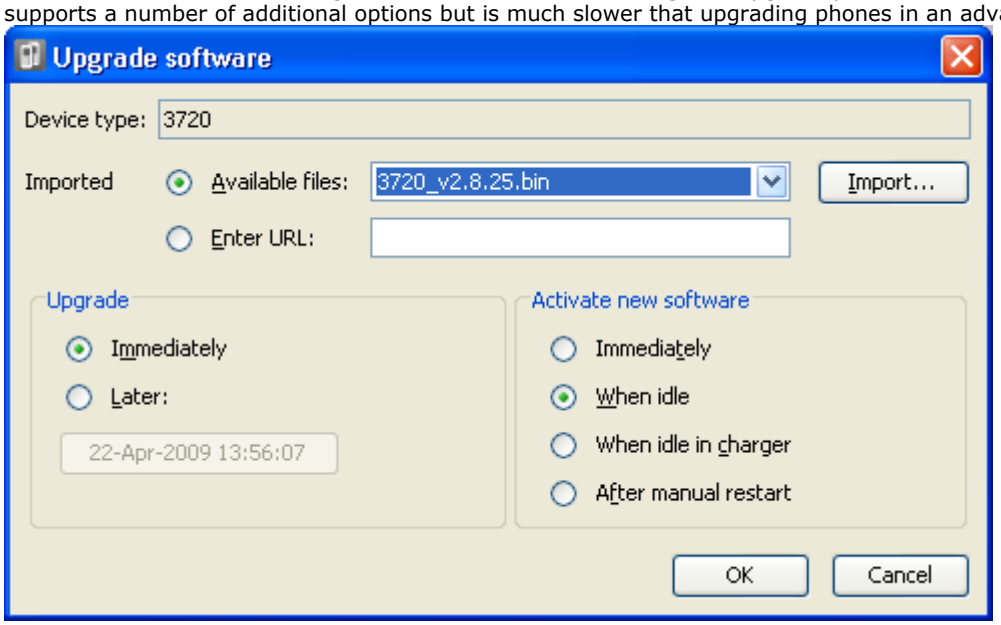


4. In the device manager, select the phones that you want to upgrade.
5. Click **Upgrade Software**. The menu shown will depend on whether you are using the AIWS for an over the air upgrade or WinPDM for an in charger upgrade.

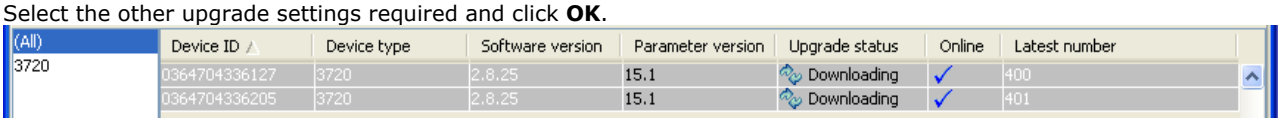
- **Advanced Charger/WinPDM Upgrade Menu**
  This menu is shown when using the Windows based device manager to upgrade a phone currently in an advanced charger connected to the PC by USB or LAN.

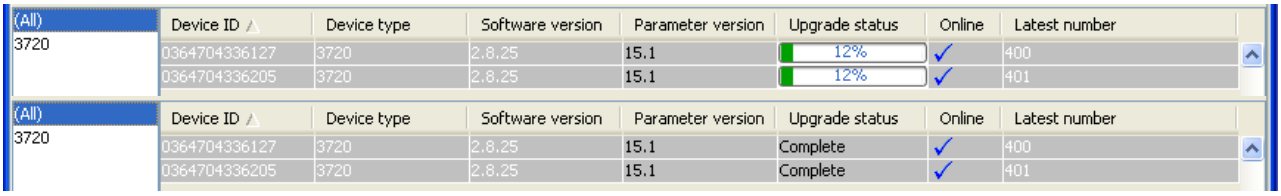


- **AIWS Upgrade Software Menu**
  This menu is shown when using the AIWS based device manager to upgrade phones over the air. This method supports a number of additional options but is much slower that upgrading phones in an advanced charger.



6. If you have already imported the parameter definition files for the phones, use the **Available Files** drop-down to select the software bin file for the type of phone being upgraded. Otherwise click on **Import** and browse to the .pkg files for the phone type.
7. Select the other upgrade settings required and click **OK**.





3.6.7 Disabling Subscription

Subscription can be disabled. This does not affect re-subscription by extensions that are already configured in the IP Office configuration.

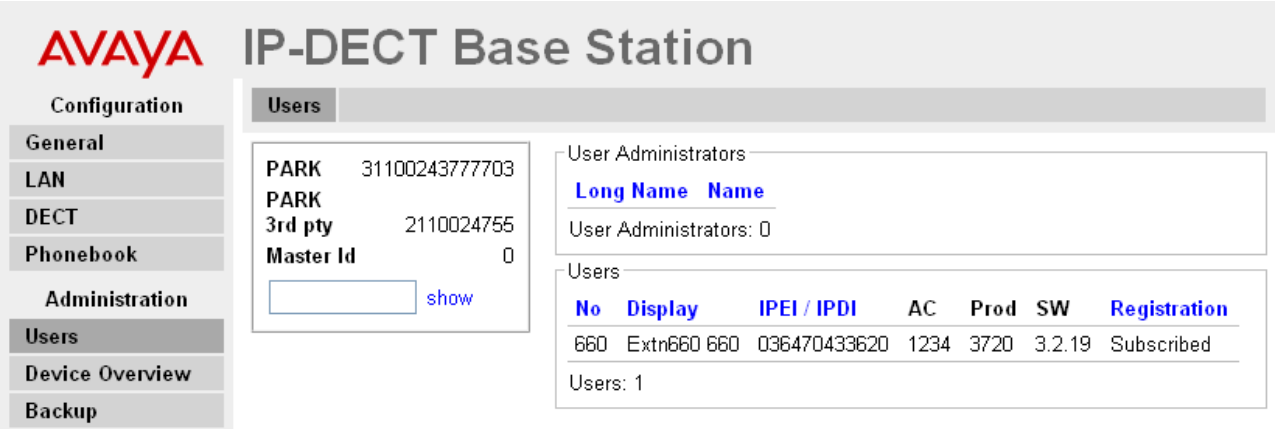
1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Click on  **Line**. The list of existing lines is shown.
3. Click on the  icon and select **IP DECT Line**. The settings for an IP DECT line are displayed. If the option is greyed out then the configuration already contains an IP DECT line.
4. Click on the **Gateway** tab.
5. Change the **Subscriptions** setting to ***Disabled***.

3.6.8 Displaying Subscribed Users

There are a number of ways to display the phones subscribed to the system.

Using the Master Base Station

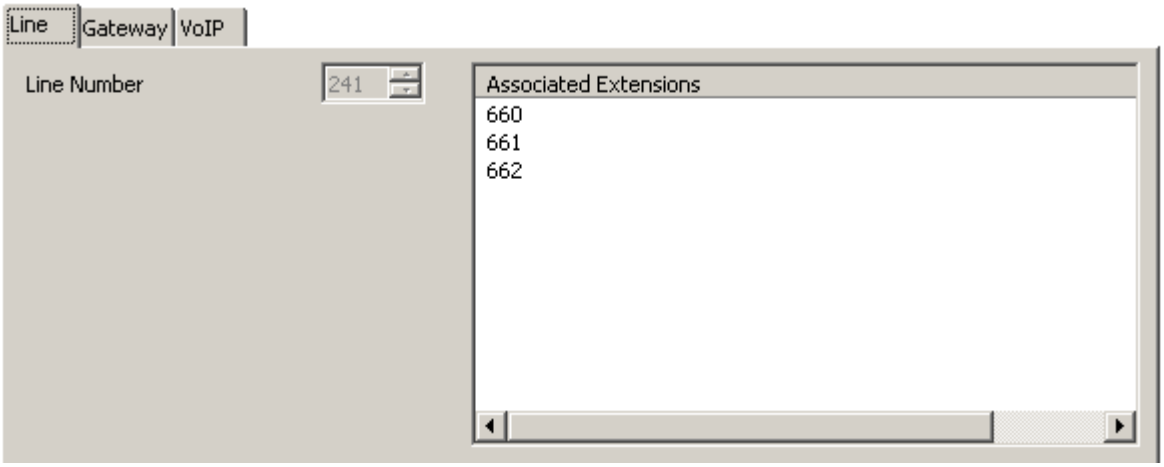
1. Login to the master base station.
2. Select Users and select the Users tab.
3. Click on **show**.



4. Details of the subscribed phones are shown.

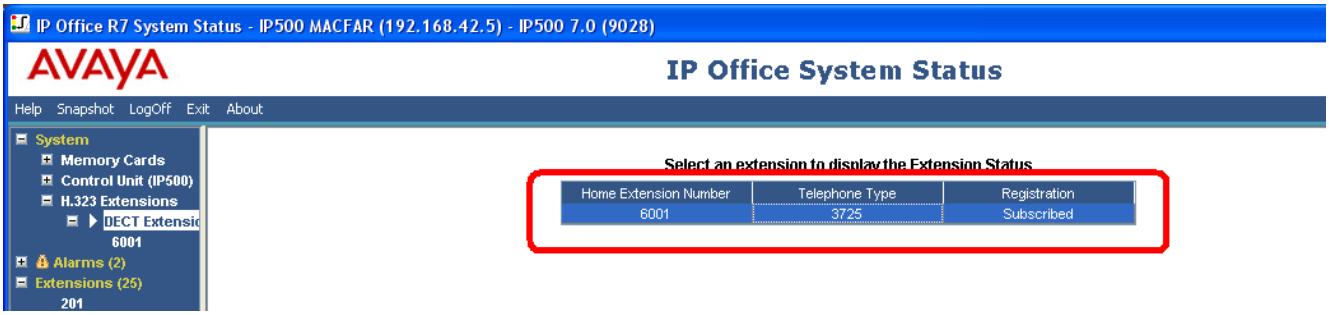
Using IP Office Manager

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Click on  **Line**. The list of existing lines is shown.
3. Click on the  icon and select **IP DECT Line**. The settings for an IP DECT line are displayed. If the option is greyed out then the configuration already contains an IP DECT line.
4. On the **Line** tab there are no adjustable settings. Once the system is installed and operational, this tab will list the DECT extensions.



Using the IP Office System Status Application

The System Status application list DECT extensions as a subset of H.323 extensions. It can also be used to force the unsubscription of a phone.



3.6.9 Unsubscribing Phones

DECT phones can subscribe to multiple DECT systems and can then be switched between the system to which they are currently subscribed.

The **Unsubscribe** option provided through phone menus does not unsubscribe a phone from the DECT R4 system or IP Office. It just removes details of the subscribed system from the phone. The Unsubscribe function only works for subscriptions where the **Protection** option was set to ***No*** during the original subscription 70.

Resubscribing the phone reinstates the DECT R4 system in the list of systems of which the phone can select to be currently subscribed.

To remove a phone from a system that is used IP Office provisioning, the phone's extension entry should be deleted from the IP Office configuration. To remove a phone from a system that is not using IP Office provisioning, the phone's extension entry must be deleted from both the IP Office configuration and the master base station configuration.

Chapter 4.
IP DECT Gateway Installation

4. IP DECT Gateway Installation

Before installation ensure that you have performed an assessment of the power consumption requirements 81 of the digital base stations. This will determine whether the base stations can be powered directly by the IP DECT Gateway or each need their own separate power adapters. If powered using separate power adapters, the EPP power wires from the IP DECT Gateway should not also be connected.

IP DECT Gateway Installation Summary

The configuration process for the IP DECT Gateway is very similar to that for an IP base station. In a new DECT R4 system installation, we recommend that the IP DECT Gateway is installed as the master base station for the system. This does not affect the allowed number of IP and or digital base stations.

The installation of a IP DECT Gateway as a master base station can be done as part of either a provisioned installation 44 or non-provisioned installation 159 installation. If the IP DECT Gateway is being added to an existing system, it can be added in the same way as for a new slave base station.

A summary of the installation stages is as follows:

1. Install in rack.
2. Attach power cable.
3. Connect the unit to the LAN using the LAN 1 port.
4. Connect the digital base station cables.
5. Power on the unit.
6. Access and configure the unit in the same way as for a base station. The configuration required will depend on whether the IP DECT Gateway is being used as a master base station for the system.

4.1 Digital Base Station Power Consumption

The IP DECT Gateway can be used to power digital base stations via the same cable connection as used for signalling. However, the maximum power provision of the IP DECT Gateway is 15W and the power consumption of each digital base station is dependent on the cable wire size and length. The table below indicates the power consumption and can be used to calculate if the IP DECT Gateway can directly power the digital base stations. In cases where the IP DECT Gateway cannot directly power all the digital base stations, some of the base stations will need a separate power connection.

Cable Length in Meters	0.4mm Wire Diameter		0.5mm Wire Diameter		0.6mm Wire Diameter	
	0 EPP	1 EPP	0 EPP	1 EPP	0 EPP	1 EPP
0	5.0	5.0	5.0	5.0	5.0	5.0
100	5.2	5.1	5.1	5.1	5.1	5.1
200	5.3	5.2	5.2	5.1	5.1	5.1
300	5.6	5.3	5.3	5.2	5.2	5.1
400	5.8	5.5	5.5	5.3	5.3	5.2
500	6.1	5.6	5.6	5.4	5.4	5.2
600	6.5	5.8	5.8	5.5	5.4	5.3
700	7.1	6.0	6.0	5.6	5.5	5.3
800	8.1	6.2	6.2	5.7	5.6	5.4
900	–	6.5	6.5	5.8	5.7	5.4
1000	–	6.9	6.9	5.9	5.8	5.5
1100	–	7.3	7.3	6.1	5.9	5.6
1200	–	8.1	8.1	6.2	6.1	5.6
1300	–	–	–	6.4	6.2	5.7
1400	–	–	–	6.6	6.4	5.8
1500	–	–	–	6.9	6.6	5.8

The following power supply adapters are available to power a base station locally. The maximum length of cable from the adapter to the base station must not exceed 10 meters.

- **For European countries:** Version 130137B.
- **For the United Kingdom:** Version 130136B.
- **For the United States and Canada:** Version 130138A.
- **For Australia:** Version 130139B.

4.2 Installing the Digital Base Stations

Apart from the physical connection and power requirements, not configuration is required. The appropriate firmware files are automatically provided to the base stations by the IP DECT Gateway.

Use the following cable pin-out to prepare the cable for connecting the digital base station to the IP DECT Gateway. Remember to allow sufficient cable length to allow for any potential repositioning of the base stations that may be required.

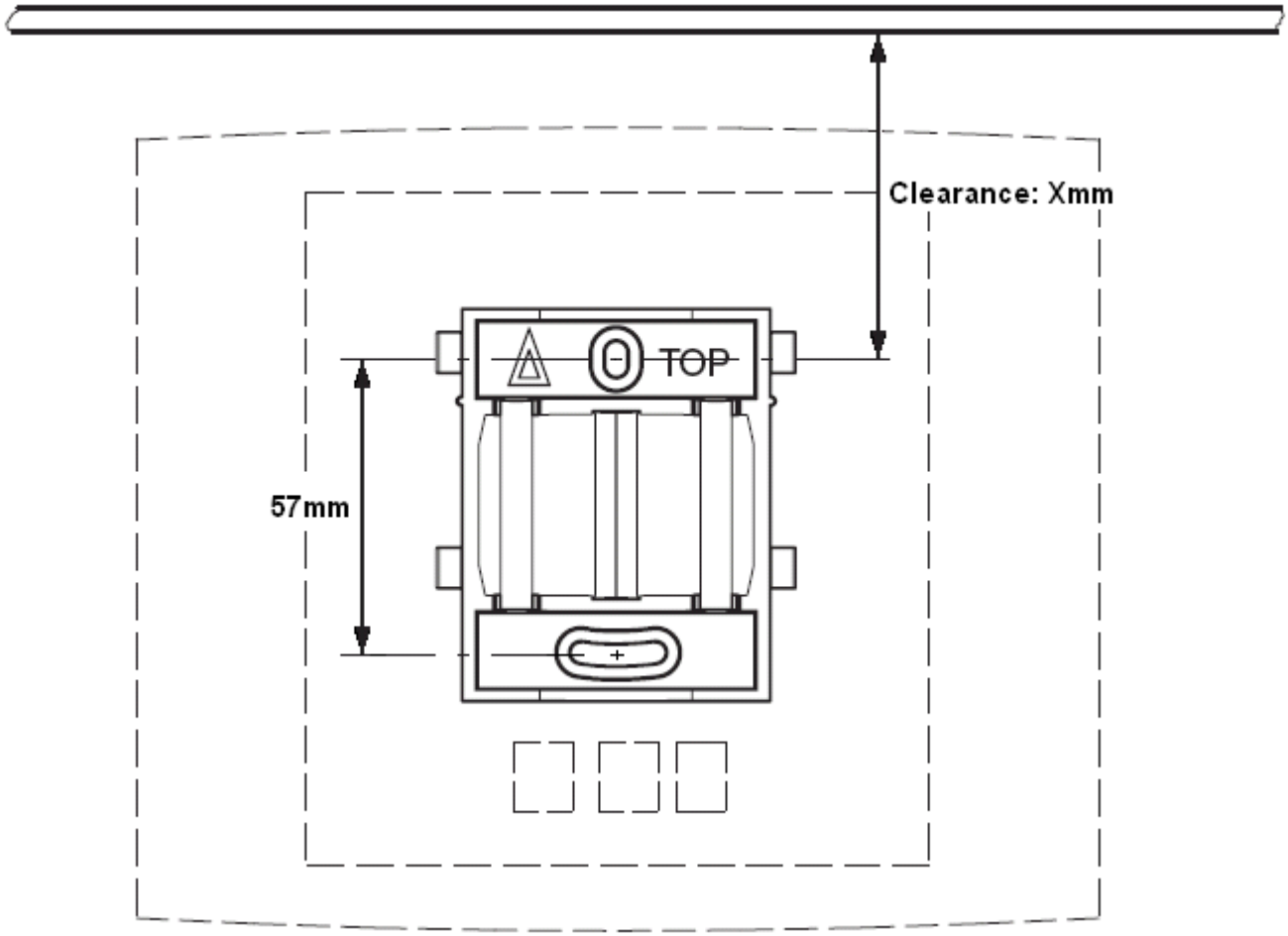
Base Station	Pin	MDI (Crossover)	Wire	Note
RJ45 8 1	1	Power	White/Orange	On connection if using the IP DECT Gateway for power. Do not connect if powering the digital base station using a separate power supply adapter. Refer to Digital Base Station Power Consumption 81.
	2	Power.	Orange/White	
	3	Date 1a.	White/Green	–
	4	Data 0a.	Blue/White	–
	5	Data 0b.	White/Blue	–
	6	Data 1b.	Green/White	–
	7	Not used.	White/Brown	–
	8	Not used.	Brown/White	–

Mounting

The base station can now be powered down and mounted in its intended operating position. The removable bracket on the back of the base stations can be used for either wall mounting using two screws suitable for the surface or for mounting on columns using two metal bands.

Wall Mounting

Remove the mounting bracket from the base station. Use it as a template for marking the screw fixing holes. Note the diagram below indicating the required clearance for getting the base station onto the mounting bracket.



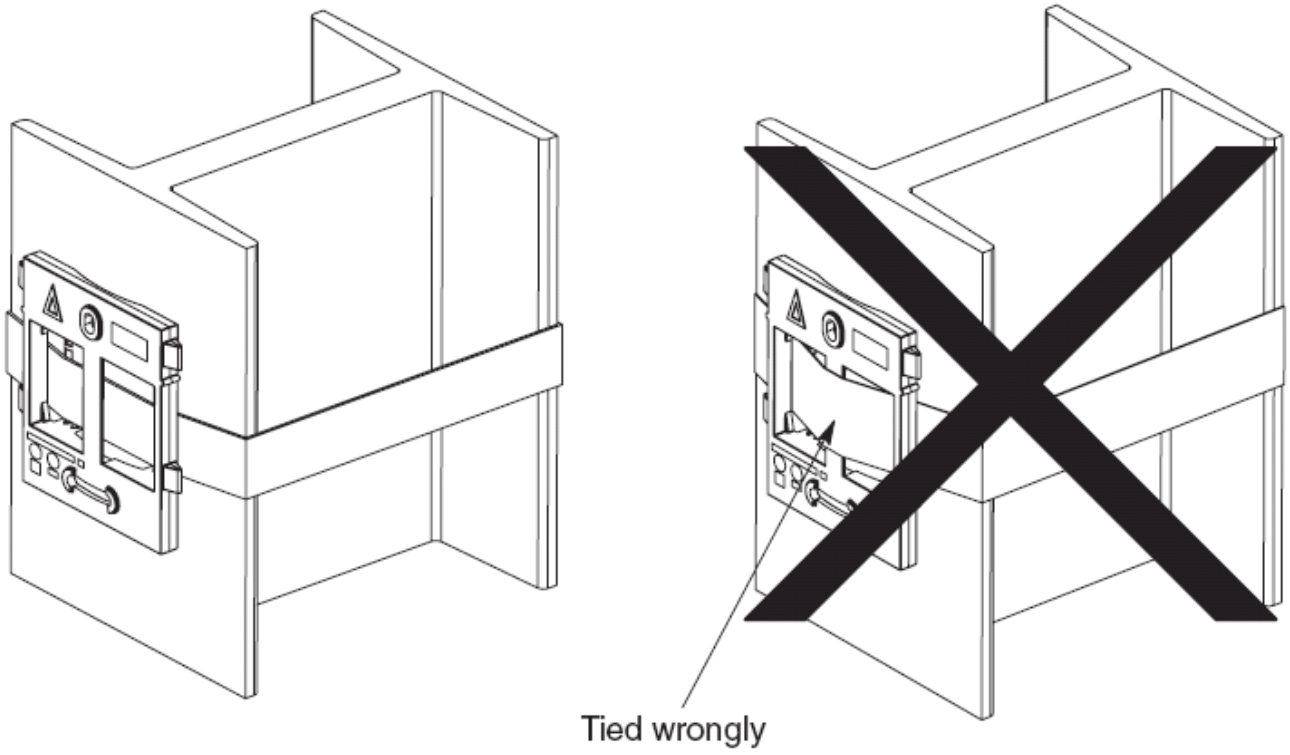
1. Hold the mounting bracket with its flat side against the wall with the text 'TOP' upwards and mark the two holes. Observe the minimum distance between the top screw hole and the ceiling. This depends on the base station type as follows:

Base Station Type	Internal Aerials	External Aerials
IPBS1 or Digital Base Station	65mm	160mm
IPBS2	100mm	195mm

2. Drill the two holes using a 6mm diameter drill and insert the included wall plugs.
3. Position the mounting bracket with its flat side to the wall and fasten it with the two included 3.5mm diameter screws.

Column/Pillar Mounting

The mounting bracket can be fixed to a pole of 45mm diameter or greater, or a beam of 50mm width minimum by using a strap or flexible metal band less than 30 mm wide. A suitable strap or flexible metal band is not included with the base station.



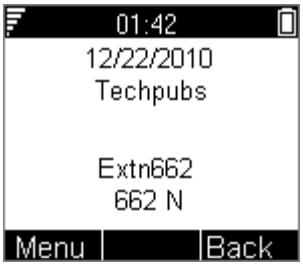
Chapter 5.
IP Office User Features

5. IP Office User Features

For systems installed using IP Office provisioning, the IP Office system provides 3720, 3725, 3740 and 3749 users with a range of additional IP Office specific features. These are in addition to the features detailed in the Avaya user guides for those phones.

Idle Display

The phone idle display shows a number of information elements. They are, from top down:



- The signal strength, time and battery charge. The battery charge will flash when below 5%.
- The date from the IP Office system.
- The name of the current subscription.
- The IP Office user name.
- The IP Office extension number and status indicators (see below).
- The soft key labels. The options here relate to the 3 buttons below the screen and change according according to the current phone state.

5.1 Status Indicators

The IP Office status indicators are shown after your extension number on the display. There may be more than one indicator shown. The possible status indicators are:

- **B = Barred**
  A **B** is shown on your phone's display when the system administrator has set you to outgoing call barred status. You will only be able to make internal calls while this is applied.
- **D = Diverting (Forwarding) Calls**
  A **D** is shown after your extension name on the phone's idle display when you have forward unconditional enabled.
- **G = Group Member (In Group)**
  A **G** is shown after your extension name on the phone's idle display when have been configured as a member of a hunt group and your membership is enabled. While this is the case, you may receive calls targeted to the hunt group.
- **H = Held Call**
  An **H** is shown after your extension name to indicate that you have a held call or calls on the IP Office system.
- **N = No Calls (Do Not Disturb)**
  An **N** is shown after your extension name when you have do not disturb enabled.
- **O = Out of Service**
  An **O** is shown on your phone's display when any of the groups of which you are enabled as a member is set to night service mode. In that mode calls to that group are diverted to its fallback if set or otherwise to voicemail if available.
- **P = Parked Call**
  A **P** is shown after your extension name to indicate that you have a park call or calls.
- **T = Twinned**
  A **T** is shown after your extension name on the phone's idle display if it is internally twinned with your deskphone. Calls to you will alert on both phones and can be answered by you at either phone.
- **R = Resilience**
  An **R** is shown after your extension name on the phone's idle display your phone is working in resilience mode. This is used when there may have been a problem with the telephone system to which your phone was registered and another IP Office system is currently providing support for your phone. In this mode, some features may not be available and calls may be routed differently.
- **S = System Alarm**
  If you are configured as a system administrator, an **S** in the phone's display indicates a system alarm. This is for information only, you are not expected to fix the alarm, just report it. (IP500 V2 only)

5.2 Call Services

The following options can be accessed when the phone is idle or the current call is parked or held.

1. Press **Menu**. Scroll the display to  **Calls** and press **Select**.
2. Scroll down to **Call services** and press **Select**.
3. The list of available services is displayed. Scroll to the required service and press **Select**.
4. For some functions you may need to enter additional data on the display or select from a list. Do this and press **OK**.
5. The phone sends the appropriate signals to the IP Office.
6. Hang up the call.

The available services are:

- **Call Pickup Any**
  Answer the first available call ringing anywhere on the phone system (unless the call is on a private line). Details of the callers and the original call destination will be displayed.
- **Call Pickup**
  You can use this option to answer a call ringing at another extension. Select the option and enter the extension number.
- **Call UnPark**
  Retrieve a call from the parked state. To do this you need to enter the park slot number assigned to the call when it was parked. You can park a call using the Park Call option and assign it an park slot number at the same time that you or another user can then use to unpark the call.
- **Call Waiting Suspend**
  You can use this option to temporarily switch off call waiting 90. It will remain off until the end of your next call. Use this when you do not want a call interrupted by call waiting tones.
- **Cancel All Fwd**
  You can use this option to switch off all your call forwarding. It does not affect the forwarding numbers, just your use of forwarding. If you have redirected your calls to another phone using follow me on that phone, this option also cancels the follow me.
- **Do Not Disturb On**
  Your can use this option to switch do not disturb on. Calls to you go to your voicemail mailbox if available, otherwise they receive busy. They do not follow any forwarding settings. A N for no calls is shown on the phone's idle screen when you have do not disturb switched on.
  - Some numbers can be configured as do not disturb exceptions. You can do this using the one-X Portal for IP Office application or from the menu of some desk phones (contact your system administrator for details). Those numbers are able to call you and transfer calls to you while you have do not disturb switched on.
- **Do Not Disturb Off**
  You can use this option to switch do not disturb off. When off, calls will alert the handset and or follow your forwarding settings.
- **Fwd Unconditional On**
  You can use this option to switch immediate call forwarding on. A forwarding number needs to be set for this to work, use the **Fwd number** call service to see and edit your current forwarding number. By default internal and external calls to you are forwarded but hunt group calls are not. However the settings for internal and hunt group calls can be adjusted by your system administrator. To switch off forwarding, use **Cancel All Fwd**.
- **Fwd Busy On**
  You can use this option to switch on forwarding of any additional calls when you are already have a call connected. If you have call waiting 90 enabled, it is used for additional calls when you already have a call connected and another one waiting. To switch off forwarding, use **Cancel All Fwd**.
- **Fwd No Answer On**
  You can use this option to forward any call that rings the handset without being answered. To switch off forwarding, use **Cancel All Fwd**.
  - The default no answer time used to trigger the forward is 15 seconds. However this time can be adjusted by your system administrator if required.
  - If you use voicemail, the forward is used first. However if the call is still unanswered, the phone system will still attempt to redirect the call to voicemail. This may not be possible for calls forwarded to external numbers.

- **Fwd Number**
  You can use this option to see and set the number to which your calls are forwarded when you select **Fwd Unconditional On**. If your system uses an external dialing prefix, remember to include it if you want to forward calls to an external number. However, note that external forwarding may be restricted by your system administrator. This number is also used for **Fwd Busy On** and **Fwd No Answer On** unless you set a separate **Fwd Busy Number**.

- **Fwd Busy Number**
  You can use this option to see and set the number to which your calls are forwarded when you select **Fwd Busy On** and or **Fwd No Answer On**. If your system uses an external dialing prefix, remember to include it if you want to forward calls to an external number. However, note that external forwarding may be restricted by your system administrator. To switch off forwarding, use **Cancel All Fwd**.

- **Follow Me Here On**
  If you are a temporary user of the phone, you can use this option to have calls to your desk phone redirected to the handset. Select this option and enter your extension number.

- **Follow Me Here Off**
  To end a follow me set using **Follow Me Here On**, select this option and enter your extension number. Calls to that number will no longer be redirected to the handset.

- **Login**
  Users with a login code can 'hot desk', that is login at any phone on the system and, when finished making or taking calls, log out. While logged in on a phone, that phone adopts all their user settings and their calls are routed to it. This option can be used in a number of ways.

  - The DECT handsets can be configured with no permanently associated user. To use the phone, you need to login using your extension number and login code.
  - The DECT handsets can be configured with an associated user. However, you can use log in and log out as a method of security for your phone.
  - Other users can use their log in code when they temporarily need to use your handset as their own phone. While they do this you are logged out.
  - Note that SMS messaging, provided by the AIWS, always goes to the same original handset even when the associate user hot desks to another handset.

- **Logout**
  If you have a login code, you can log out of the phone you are currently using. When you log out, if you are normally associated with another phone, you are automatically logged back in on that phone unless someone else is using it or you are set to forced login. If you are not automatically logged in elsewhere, then while logged out your are treated as being busy to all calls. Instead your calls go to voicemail if available.

5.3 In Call Options

During a call, the **More** soft key can be used to access a number of handset and IP Office functions while still remaining connected to the call.

1. During the call, press **More**.
   - If the phone is not currently on the call details screen, you may have to press Back to get to that screen before you can press **More**.
2. Select the function required.
3. Some functions may require you to enter some data, for example the destination for a transfer.

The possible functions are:

- **Auto Callback**
  If you are making a call to another extension and it has not been answered, setting a callback tells the phone system to ring you when that extension finishes its next call. When you answer the target extension is rung again.
- **Call Park**
  You can use this option to park your current call. You can enter a park slot number which is then useable by anyone else on the system to unpark the call.
  - If you do not enter a park slot number when parking a call, one is automatically assigned using your extension number plus a digit 0 to 9.
  - When you park a call, a **P** is shown on your phone's idle display until the call is unparked or the caller hangs up.
  - Parked calls automatically re-ring you if left parked for too long (the default time is 5 minutes).
- **Clear Call**
  Use this option to end the current call and answer a held call. This may be useful when trying to transfer a held call and you find yourself connected to the transfer destinations voicemail or busy tone. Similarly you can use it when trying to add another party to a conference if the other party does not answer or does not want to be part of the conference.
- **Clear Call Waiting**
  You can use this option to end your current call and automatically answer the waiting call.
- **Conference**
  You can use this option to start a conference with the current call and any calls you current have on hold. The conference is automatically assigned a conference number that is shown on the display. To add another party to the conference, press **R** to put your connection to it on hold, dial the other party and when answered select **Conference** again.
- **Conference Add**
  You can use this option to turn your current call into a conference call. To add another party to the conference, press **R** to put your connection to it on hold, dial the other party and when answered select **Conference** again.
- **Hold Call Waiting**
  You can use this option to put your current call on hold and automatically answer the waiting call.
- **Call Record**
  You can use this option to switch on call recording if your phone system includes IP Office Voicemail Pro.
- **Microphone Off**
  You can use this option to turn the handset's microphone off. A  icon is displayed on the call details screen. The microphone is automatically re-enabled when you next make or answer a call.
- **Microphone On**
  You can use this option to turn the handset's microphone back on if you have turned it off during the call.
- **Transfer**
  You can use this option to put the call on hold and enter the number to which you want it transferred. You can then hangup and the call is automatically transferred.

5.4 Call Waiting Options

By default call waiting is turned on for all users. On the DECT display with a call already connected, another incoming call will cause you to hear a single beep and the phone display will alternate between details of your current call and the waiting call.

You can only have one connected call plus one waiting call. Any further calls will see you as being busy and will either follow your forward on busy settings if set or else go to voicemail if available. If you don't answer the waiting call, it will follow your forward on no answer settings if set or else go to voicemail.

If you end your current call while you have a call waiting, the waiting call will start ringing and can be answered. You can end your current call and automatically answer the waiting call by using the **Clear Call Waiting** 90 option. You can hold your current call and automatically answer the waiting call by using the **Hold Call Waiting** 90 option.

Chapter 6.
Device Management

6. Device Management

This section covers the use of the Device Management application to update the firmware on the phones and to apply customized features templates to the phones.

There are two variants of the device management application that can be used. They look similar and offer the similar features but operate differently:

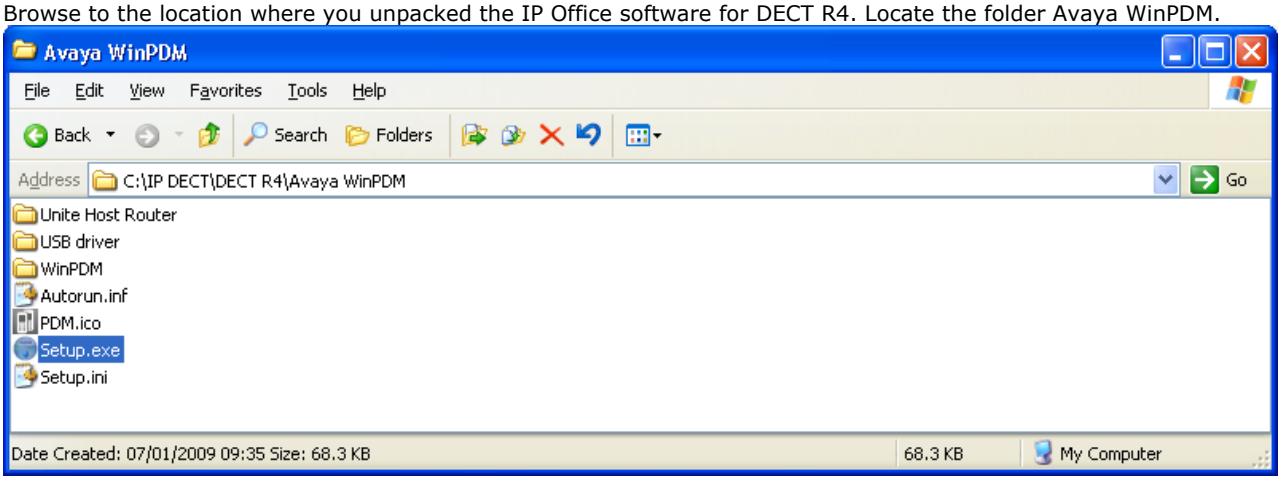
- **AIWS Device Manager**
  This is a version of the device manager application embedded into the AIWS unit. It can be started via browser access to the AIWS unit rather than having to be installed on a particular PC.
- **WinPDM (Windows Portable Device Manager)**
  This is a version of the device manager application that can be installed onto a Windows PC.

- The use of templates is not supported for systems installed and maintained using IP Office provisioning. With provisioned systems, device management should only be used for updating handset firmware.

6.1 Installing Windows Device Manager

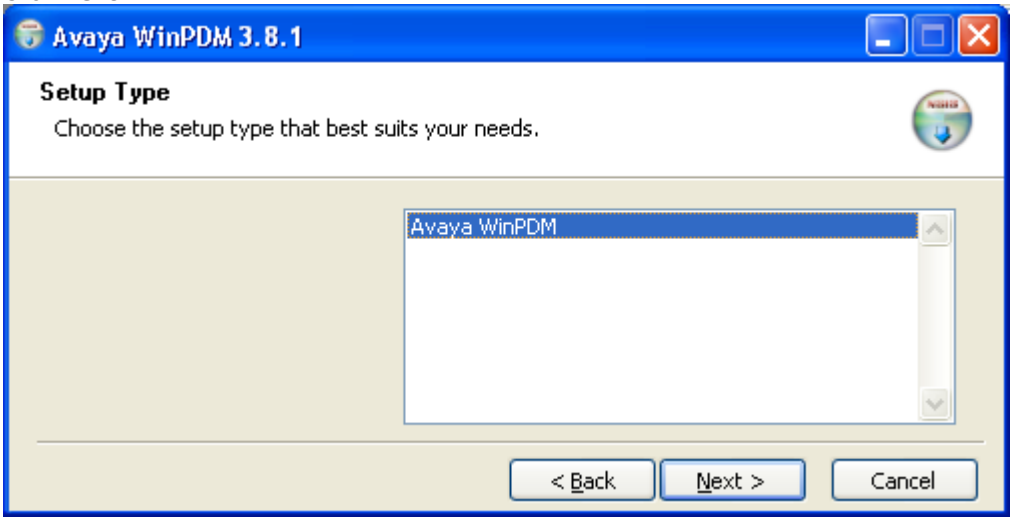
As an alternative to the Device Manager application integrated into the AIWS unit, a copy of Windows Device Manager can be installed onto a Windows PC (Windows XP or Vista).

1. Browse to the location where you unpacked the IP Office software for DECT R4. Locate the folder Avaya WinPDM.

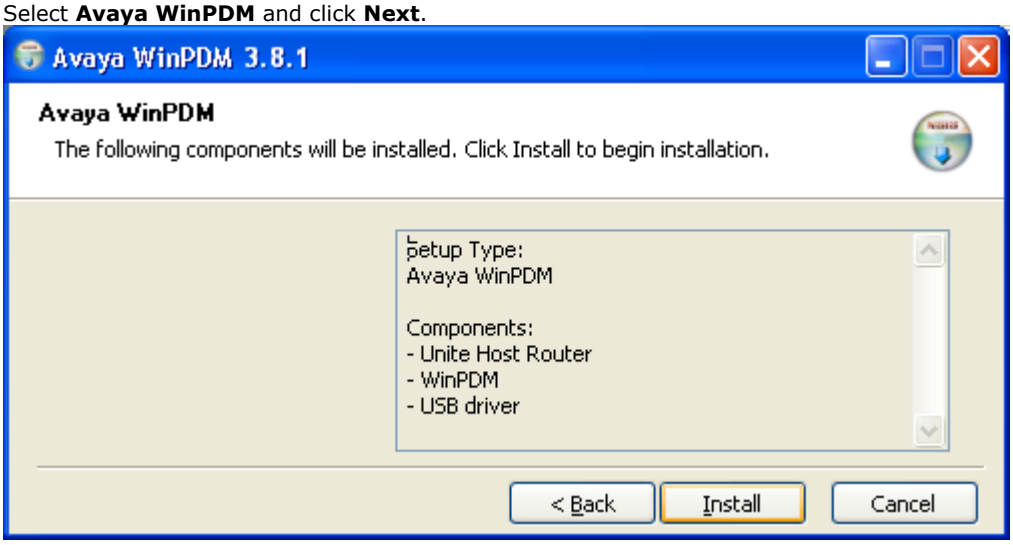


2. Double-click on **Setup.exe**.

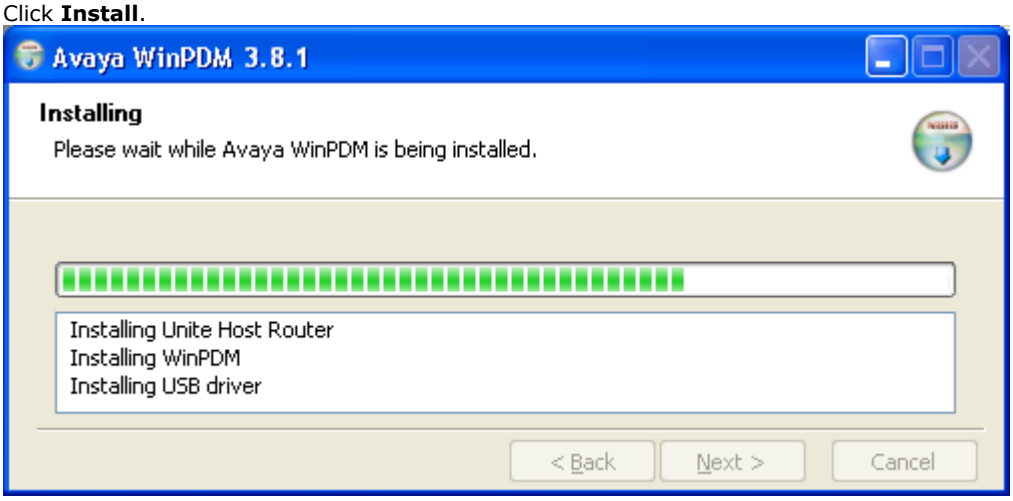
3. Click **Next**.



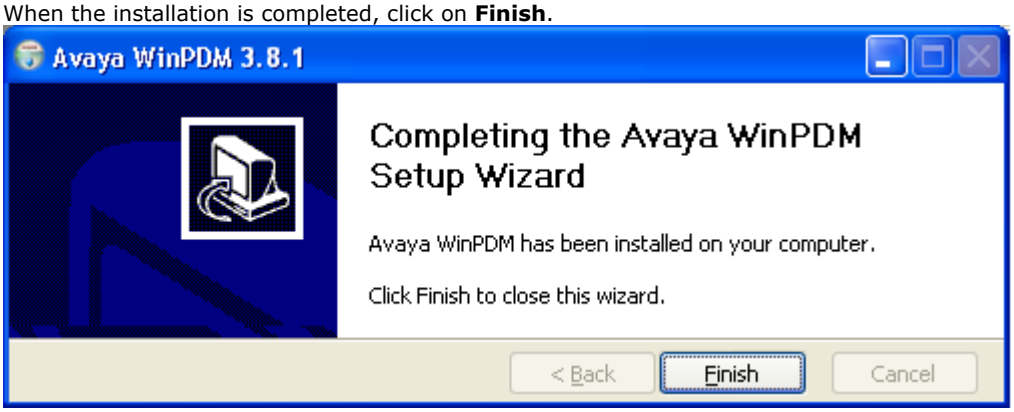
4. Select **Avaya WinPDM** and click **Next**.



5. Click **Install**.

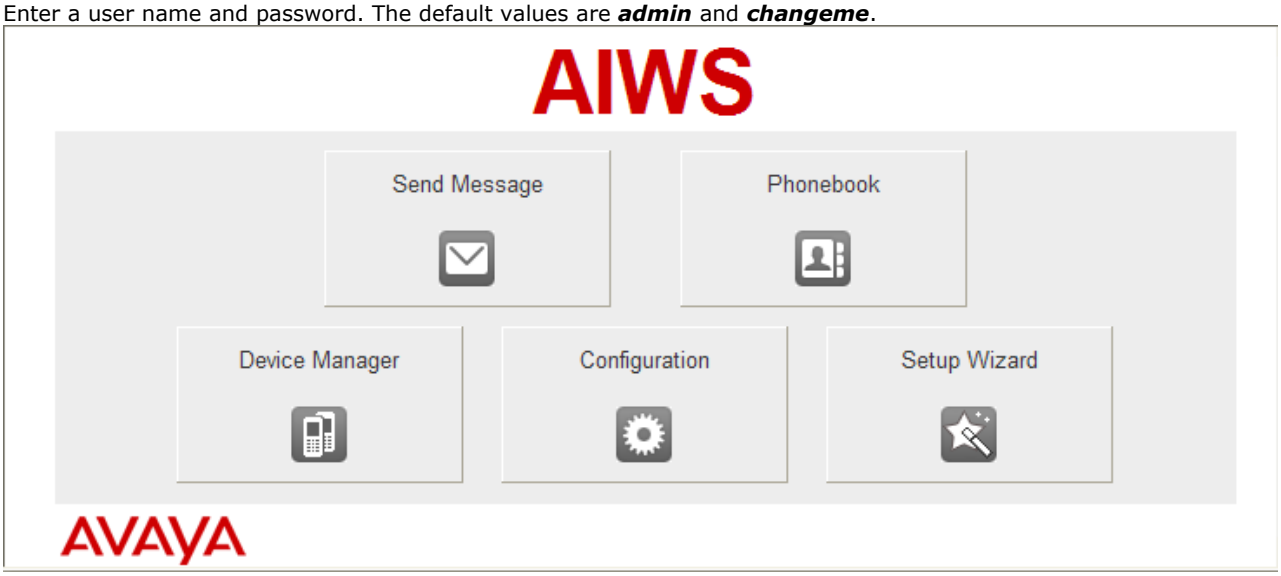


6. When the installation is completed, click on **Finish**.



6.2 Starting AIWS Device Manager

1. Enter the IP address of the AIWS into the browser address field.
   - Alternatively enter ***http://Elise-0091921*** as the address, replacing the digits with the AIWS unit's Module Key. The Module Key is printed on the AIWS circuit board 124.
2. If a security certificate warning appears, select to continue.
3. Enter a user name and password. The default values are ***admin*** and ***changeme***.



4. Select **Device Manager**.
5. If a web site certificate warning is displayed select to continue.
6. The Avaya Device Manager application is started.
   - If this is the first time that it has been started, it will prompt that no parameter definition files have been imported. Select **Yes**.

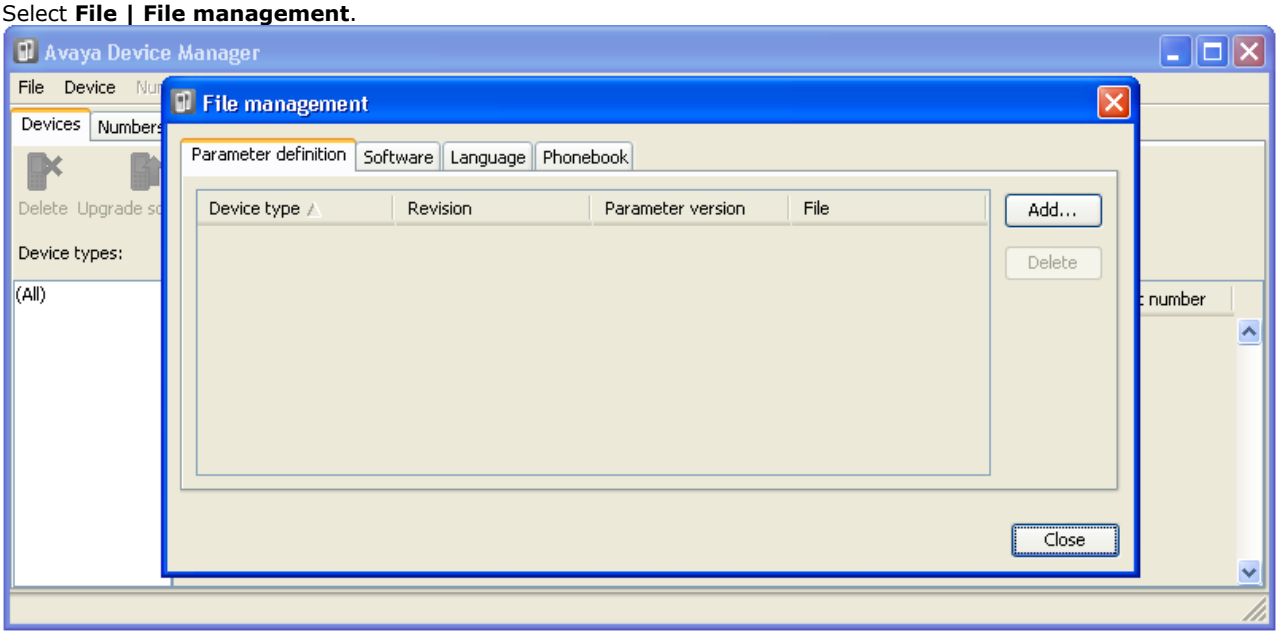
6.3 Starting Windows Device Manager

1. Select **Start | All Programs | Avaya WinPDM**.
2. Click on the **Avaya WinPDM** icon.
   - If this is the first time that Avaya WinPDM has been run, you will be asked to create a site. Enter a name for the site that you have been installing and click **OK**.
   - If this is the first time that Avaya WinPDM has been run, you will be prompted to import parameter definition files.

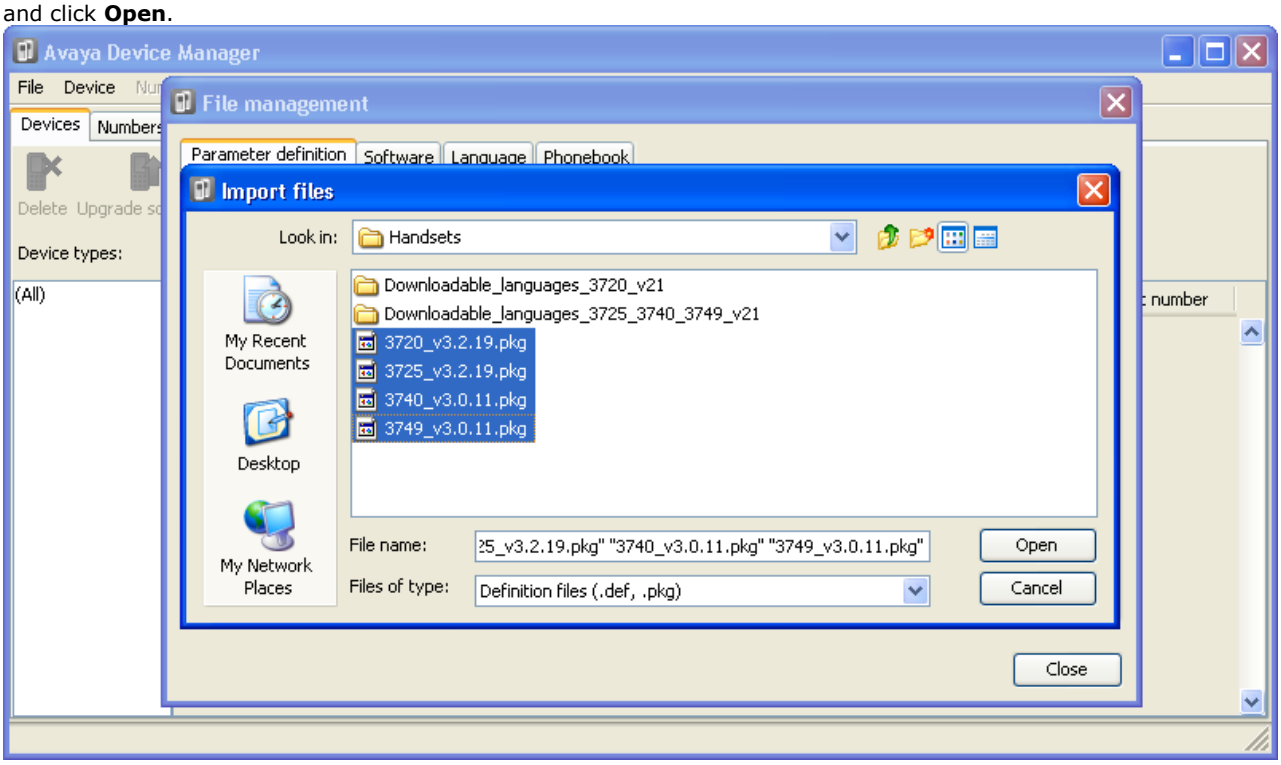
6.4 Load Parameter Definition Files

The parameter definition files supplied with the DECT R4 software include software files used to update the phone software. These files must be uploaded to WinPDM in order to allow phones to be upgraded.

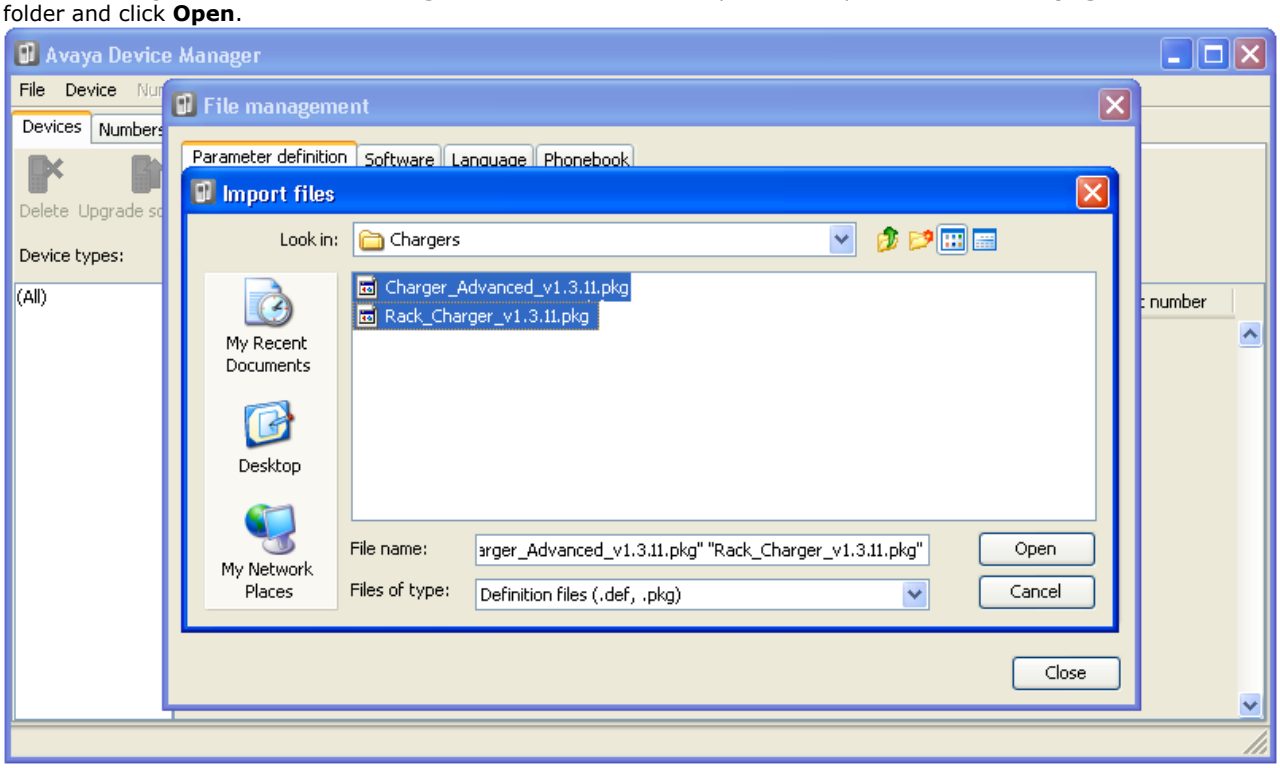
1. Start the AIWS Device Manager 95 or Windows Device Manager 95.
2. Select **File | File management**.



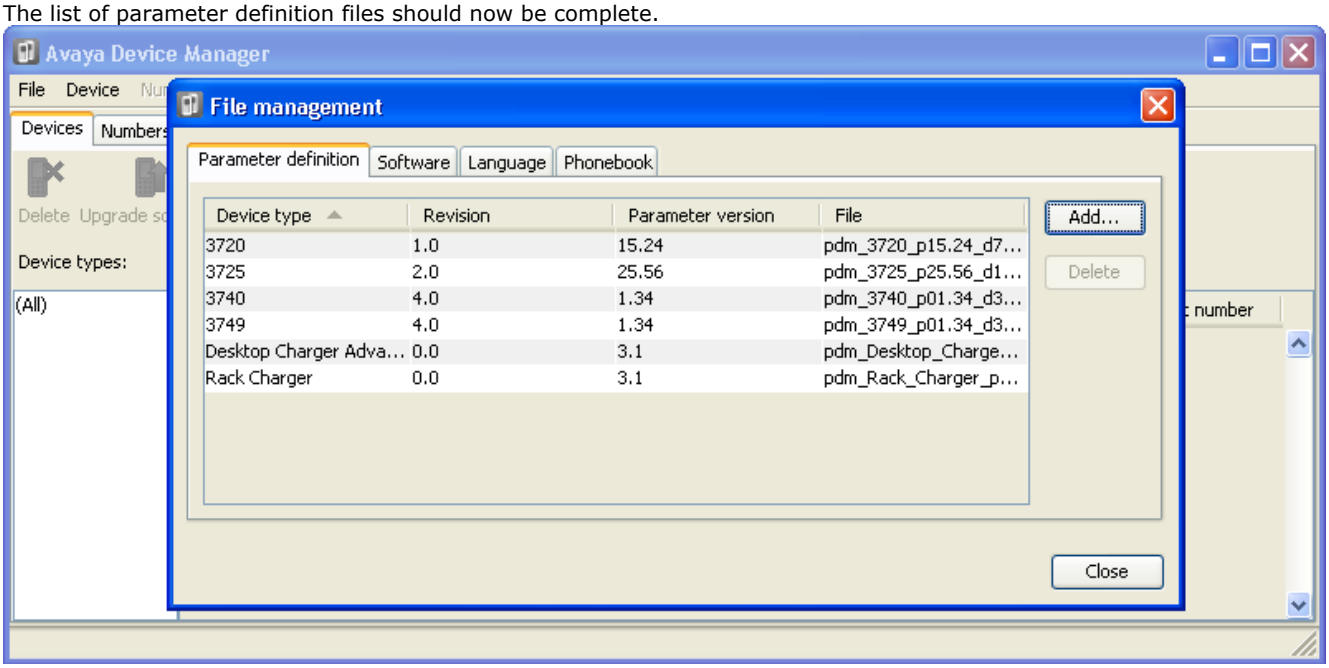
3. Select the **Parameter definition** tab.
4. Click **Add...**. Browse to the **Handsets** folder in the software previous unpacked. Select the ***.pkg*** files in the folder and click **Open**.



5. Click **Add...** again. Browse to the **Chargers** folder in the software previous unpacked. Select the ***.pkg*** files in the folder and click **Open**.



6. The list of parameter definition files should now be complete.



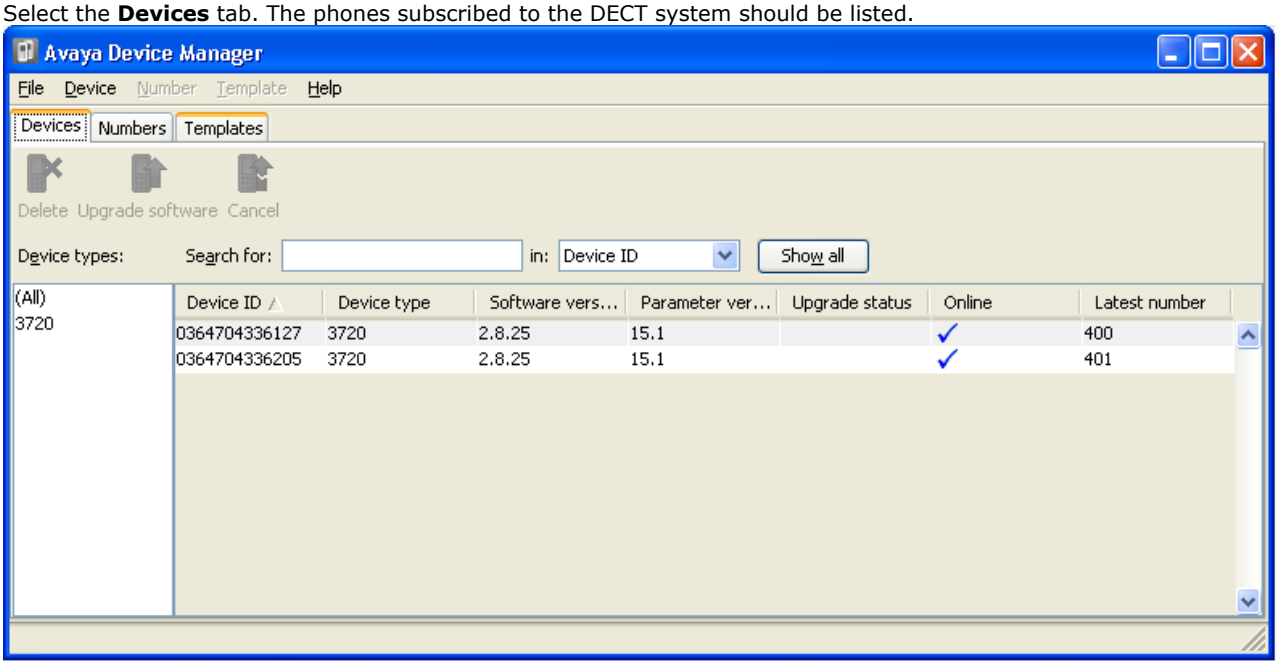
7. Select **Close**.

6.5 Loading Phone Templates into Device Manager

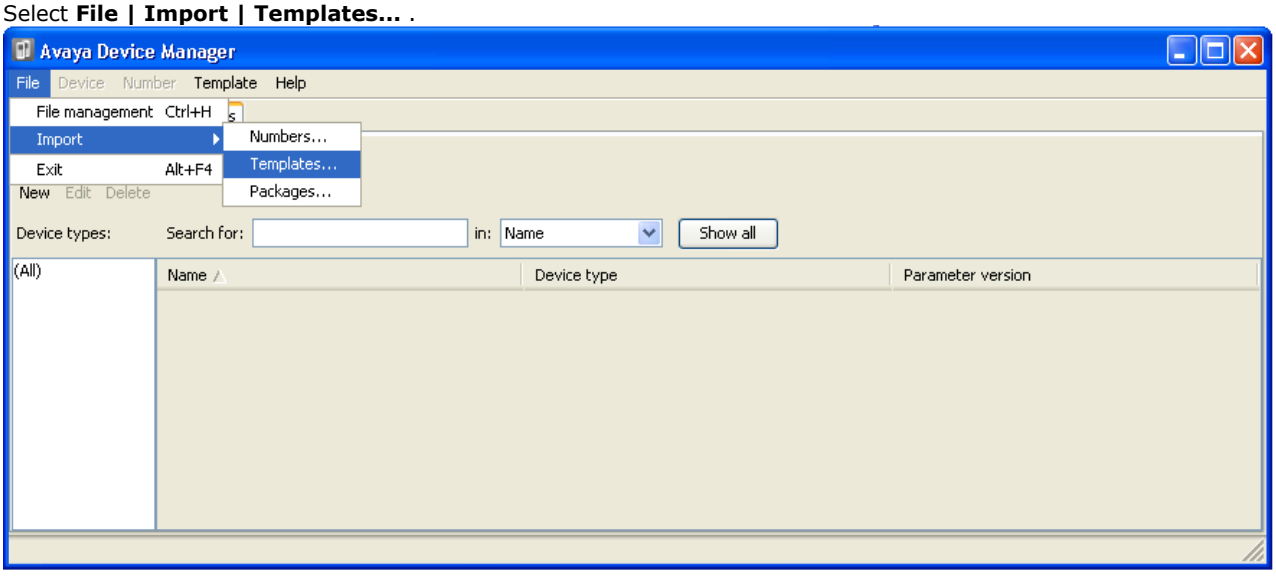
Templates allow you to apply common settings to phones and chargers. The IP Office DECT R4 software set includes default templates for 3720, 3725, 3740 and 3749 phones that allow those phones to access IP Office functions through the phone menus.

- The use of templates is not supported for systems installed and maintained using IP Office provisioning. With provisioned systems, device management should only be used for updating handset firmware.

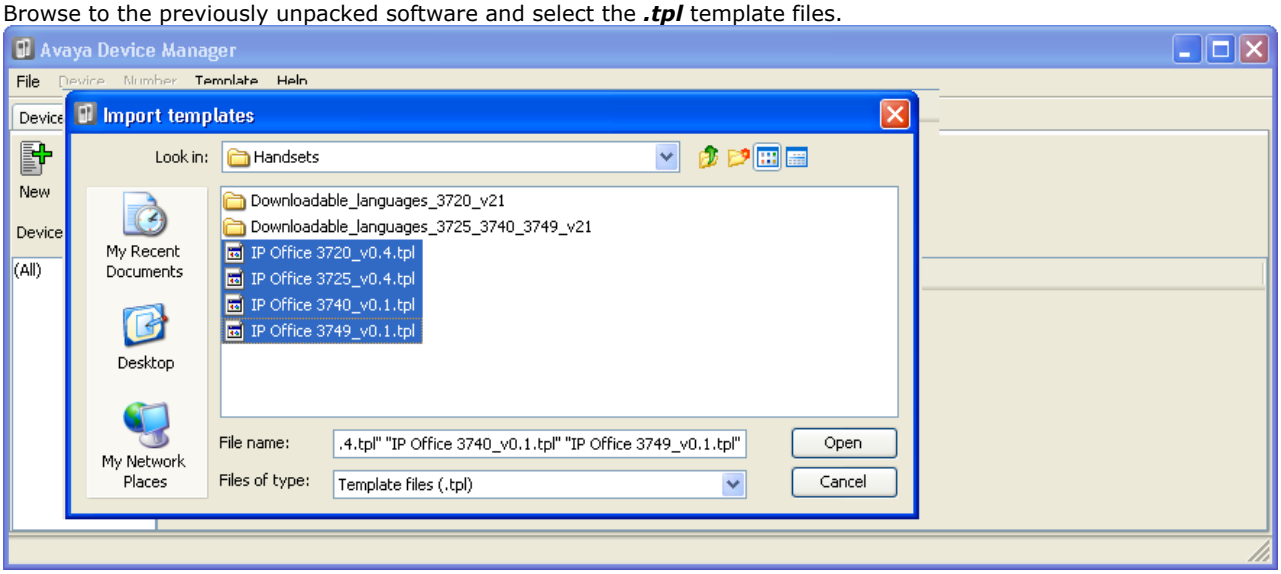
1. Start the AIWS Device Manager 95 or Windows Device Manager 95.
2. Select the **Devices** tab. The phones subscribed to the DECT system should be listed.



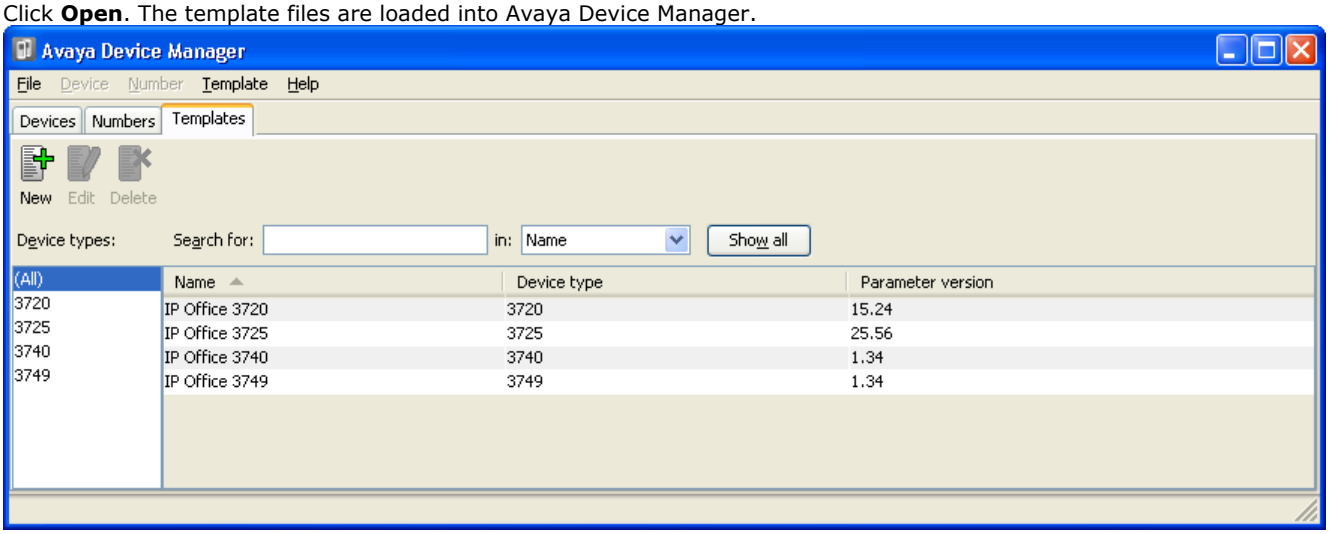
3. Select **File | Import | Templates...** .



4. Browse to the previously unpacked software and select the ***.tpl*** template files.



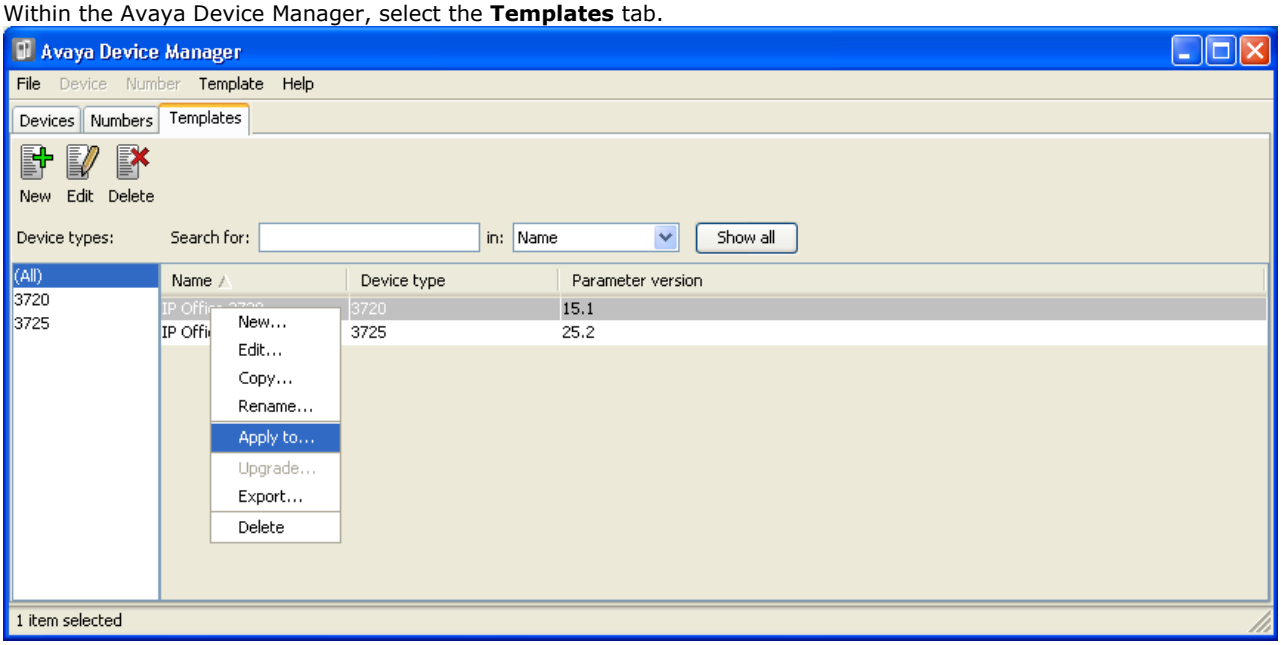
5. Click **Open**. The template files are loaded into Avaya Device Manager.



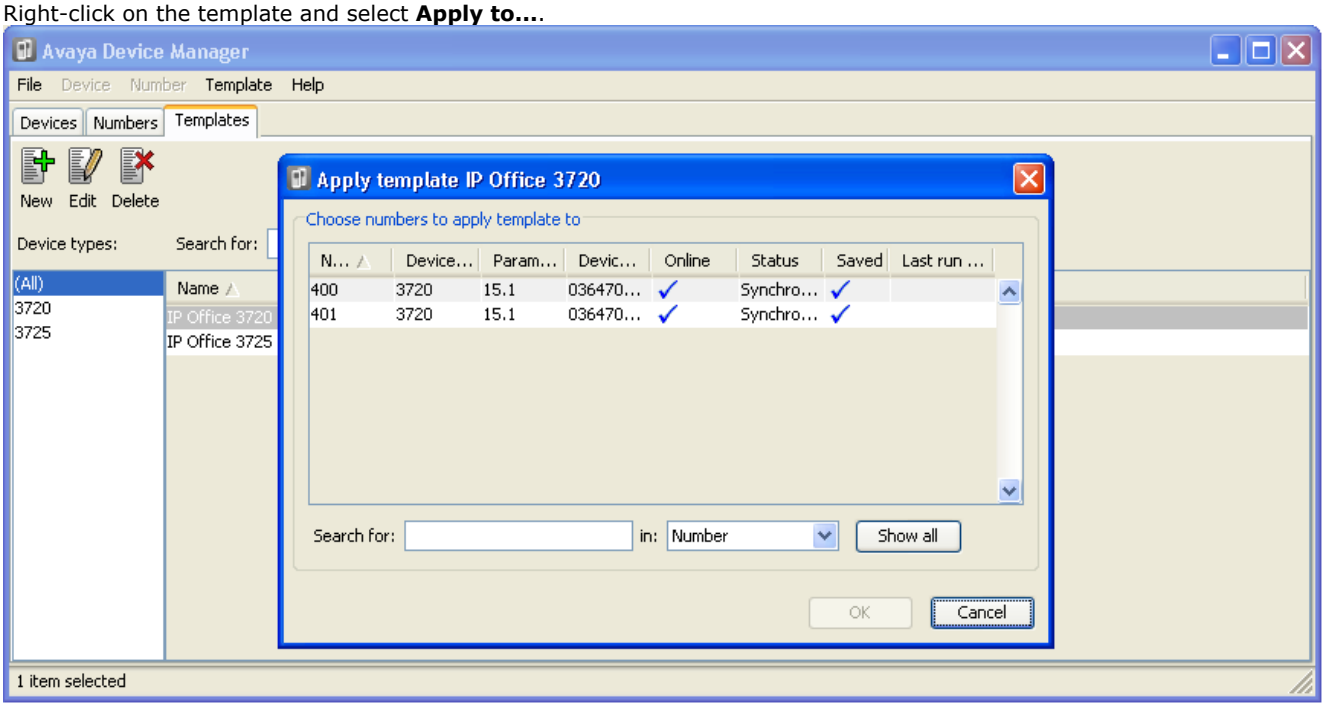
6.6 Applying Templates to Phones

- The use of templates is not supported for systems installed and maintained using IP Office provisioning. With provisioned systems, device management should only be used for updating handset firmware.

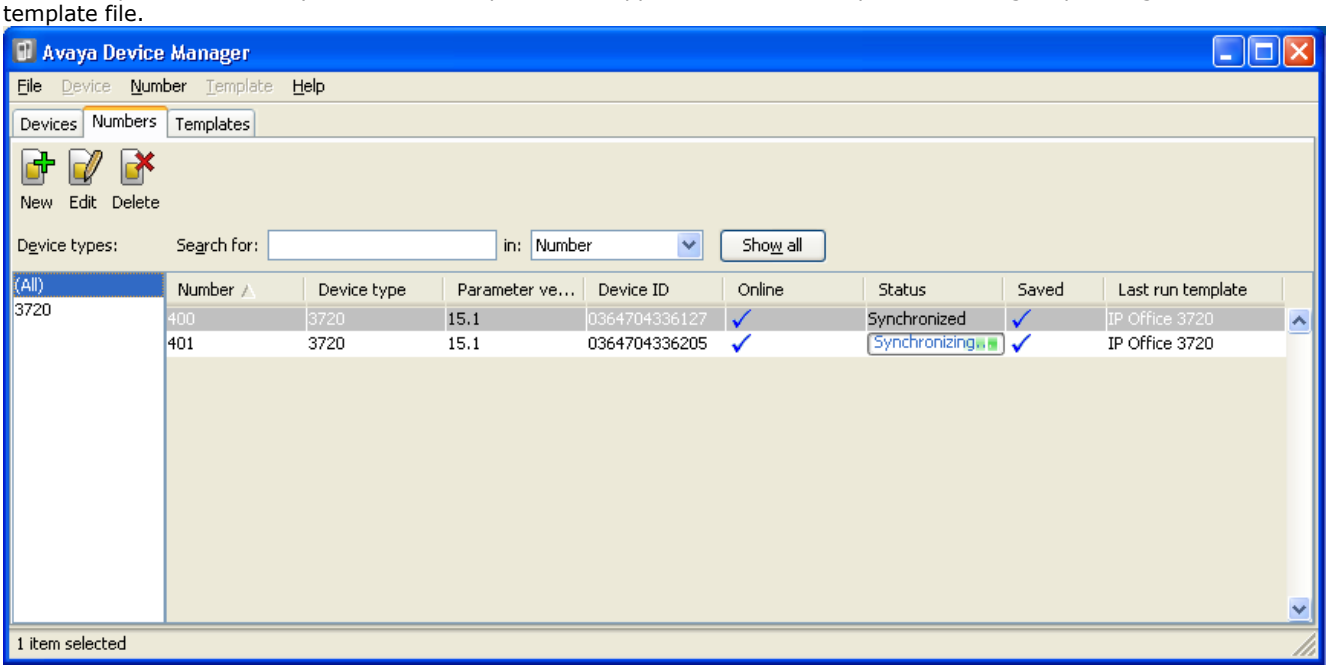
1. Start the AIWS Device Manager 95 or Windows Device Manager 95.
2. Within the Avaya Device Manager, select the **Templates** tab.



3. Right-click on the template and select **Apply to...**.

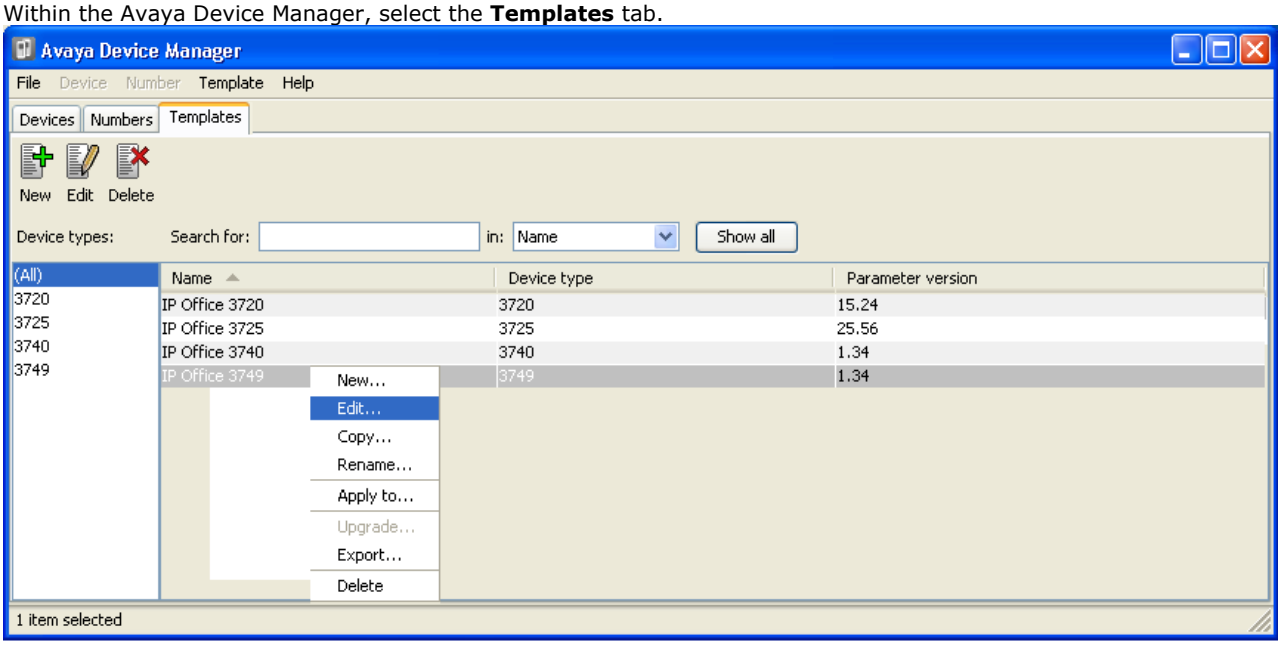


4. Select the phones to which you want the template to be applied. Click **OK**. The phones will begin uploading the template file.

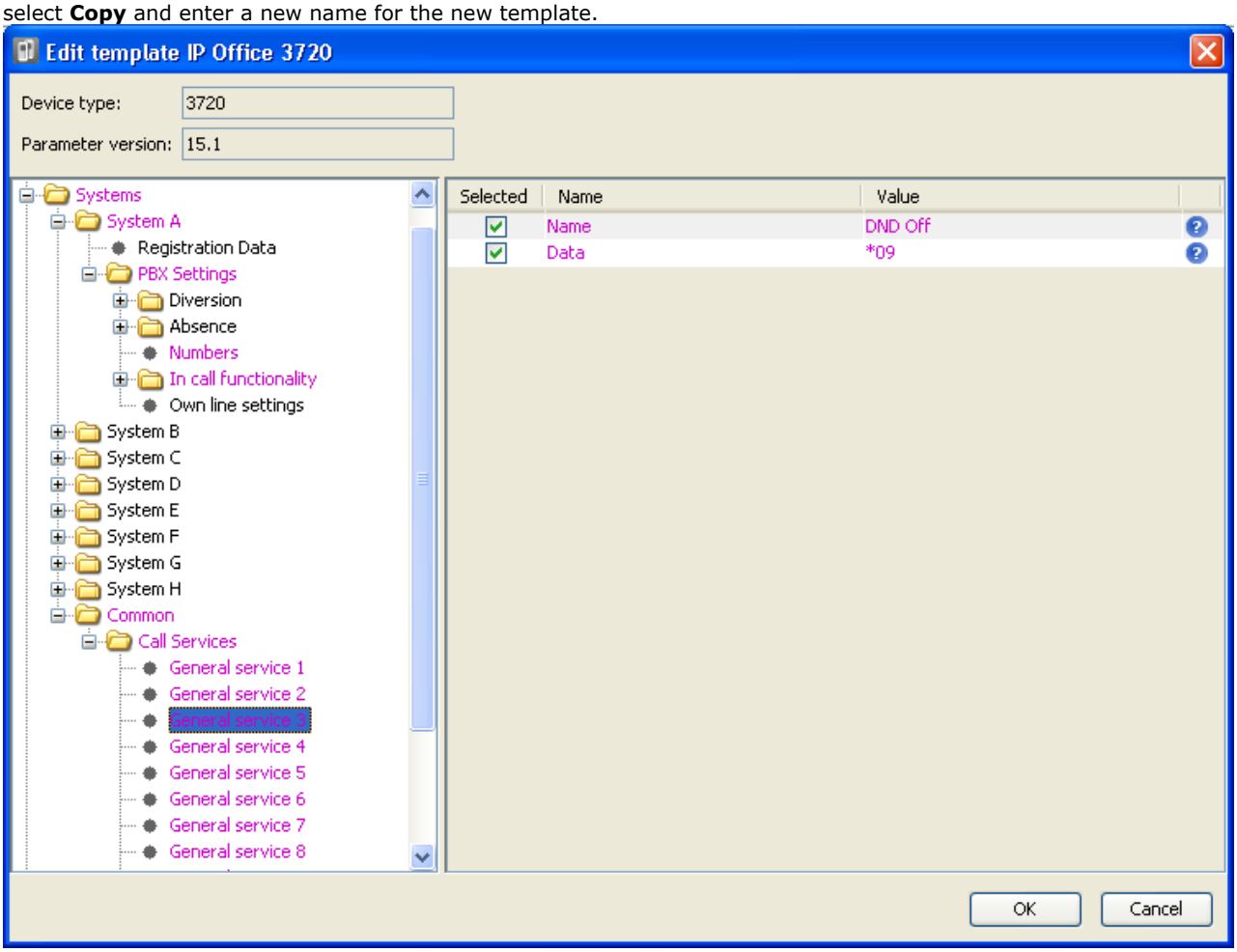


6.7 Editing Templates

1. Start the AIWS Device Manager 95 or Windows Device Manager 95.
2. Within the Avaya Device Manager, select the **Templates** tab.



3. Right click on the template and select **Edit**. Alternatively to create a new template, right-click on the template and select **Copy** and enter a new name for the new template.



- **Systems | System A | PBX Settings | In call functionality**
  Defines the options shown on the **More** menu shown on 3720, 3725, 3740 and 3749 phones when on a call. This can be used to enter the IP Office short codes for functions such as call park, conference and transfer.

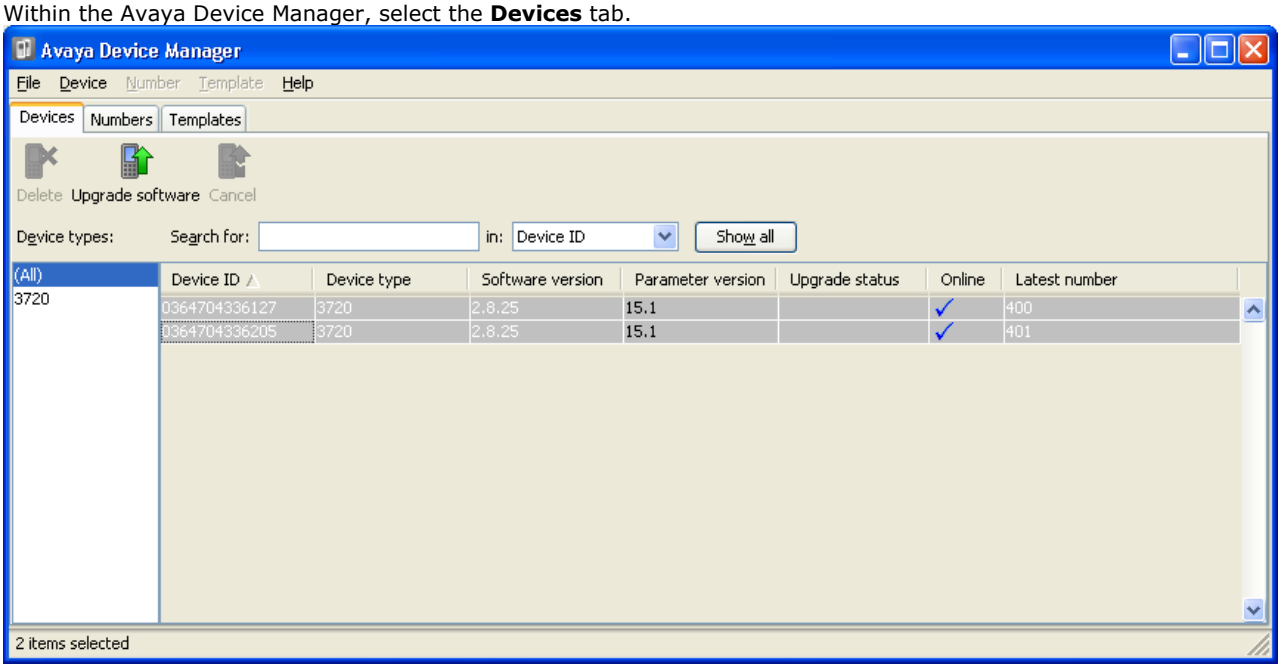
- **Systems | Common | Call Services**
  Defines the options shown on the 3720, 3725, 3740 and 3749 phone Call services menu. This can be used to enter the IP Office short codes for functions such as call pickup, DND on/off.

4. This items shown in pink indicate areas of the template that contains settings selected to be applied to the device when the template is uploaded to the device. Items shown in blue have been changed during this editing session.
   - **Black:** Normal
   - **Dark Blue:** Parameter has been edited during the current session.
   - **Purple:** The parameter is enabled in the template.
   - **Red:** Value not valid.
   - **Turqoise:** The value differs from the default value
5. Each item within the template consists of 3 parts:
   - **Selected** - If selected, the template value will be applied to devices to which the template is uploaded.
   - **Name** - The non-editable name for the template item.
   - **Value** - The value for the template item. This may be a drop-down list from which selection can be made.
6. Click **OK**.

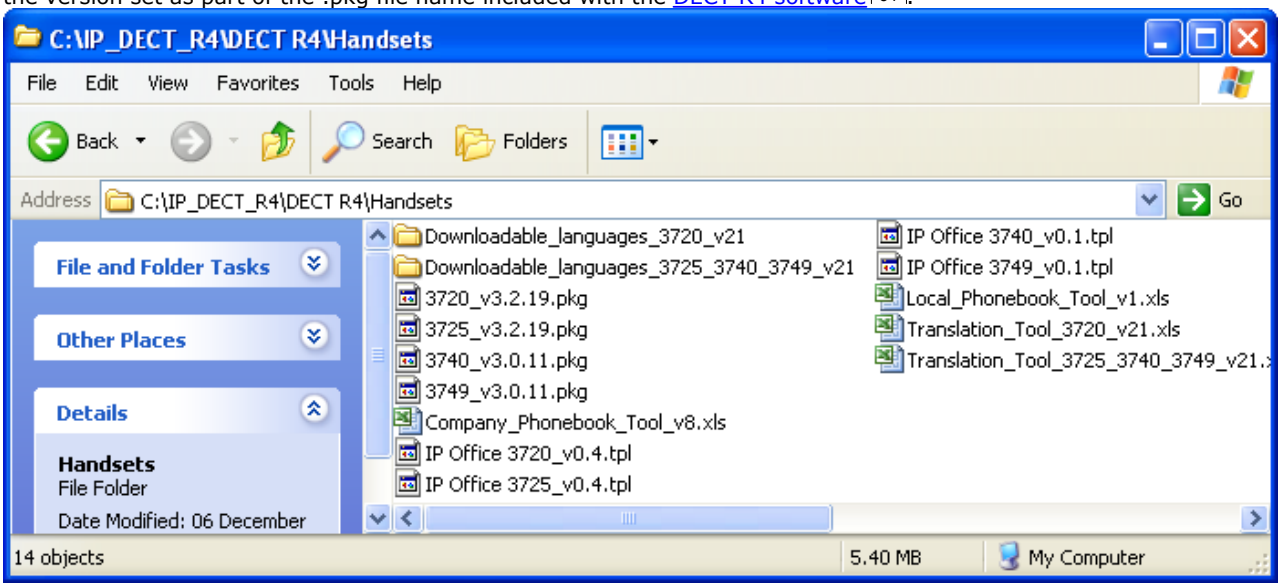
6.8 Upgrading Phone Software

DECT R4 is supported on a range of Avaya systems. However, for IP Office operation, only software specifically documented as having been tested and supported with IP Office should be used. Details of supported software for any particular IP Office release is included in IP Office Technical Bulletin for that release.

1. Start the AIWS Device Manager 95 or Windows Device Manager 95.
2. Within the Avaya Device Manager, select the **Devices** tab.

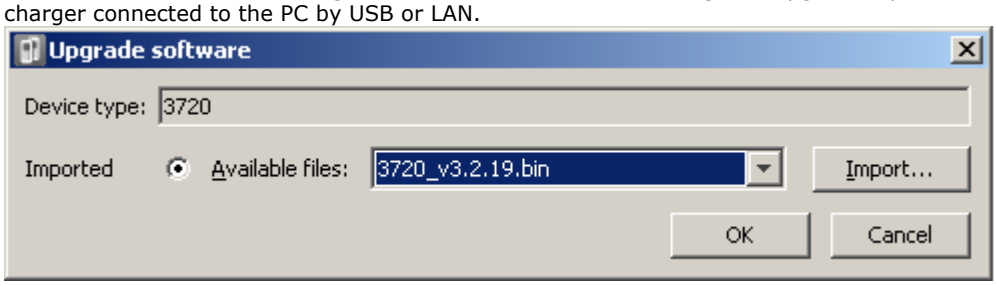


3. The current software version of each phone is shown. Compare this to the software versions available, shown by the version set as part of the .pkg file name included with the DECT R4 software 34.

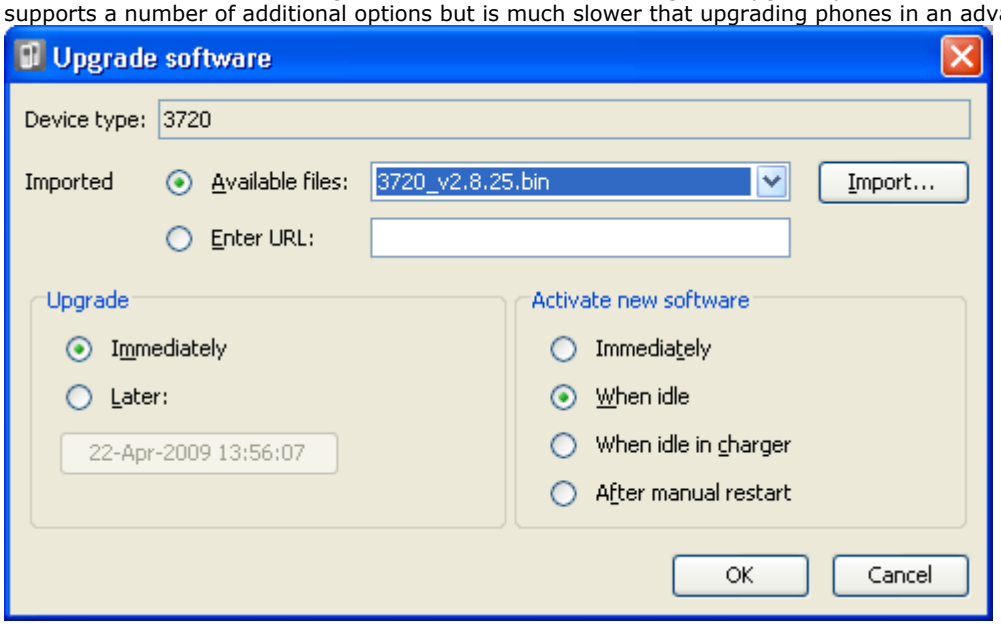


4. In the device manager, select the phones that you want to upgrade.
5. Click **Upgrade Software**. The menu shown will depend on whether you are using the AIWS for an over the air upgrade or WinPDM for an in charger upgrade.

- **Advanced Charger/WinPDM Upgrade Menu**
  This menu is shown when using the Windows based device manager to upgrade a phone currently in an advanced charger connected to the PC by USB or LAN.

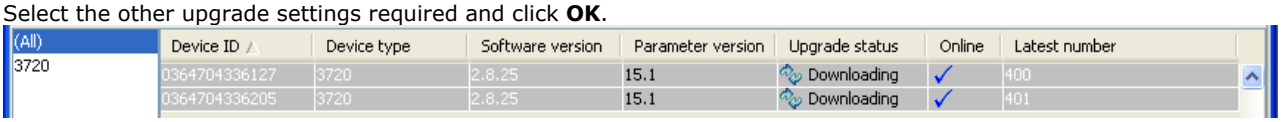


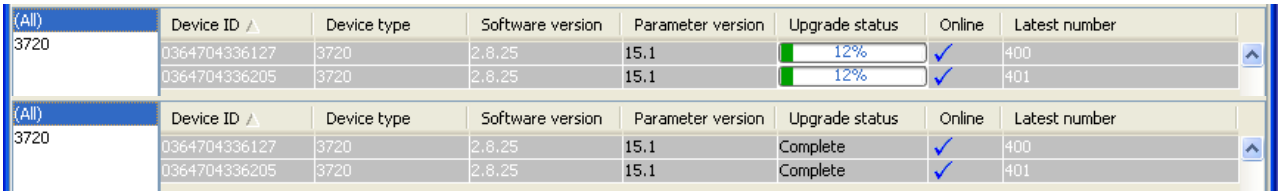
- **AIWS Upgrade Software Menu**
  This menu is shown when using the AIWS based device manager to upgrade phones over the air. This method supports a number of additional options but is much slower that upgrading phones in an advanced charger.



6. If you have already imported the parameter definition files for the phones, use the **Available Files** drop-down to select the software bin file for the type of phone being upgraded. Otherwise click on **Import** and browse to the .pkg files for the phone type.

7. Select the other upgrade settings required and click **OK**.

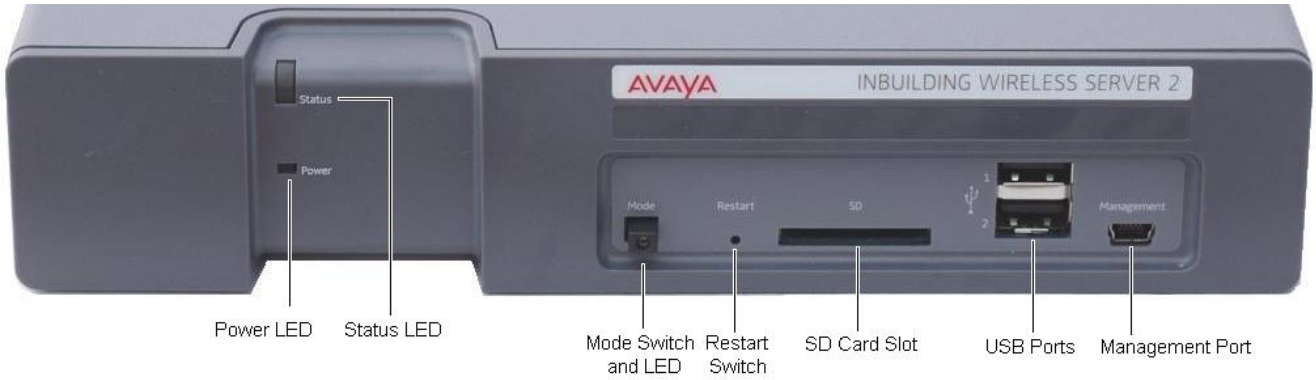




Chapter 7.
AIWS Installation

7. AIWS Installation
7.1 AIWS2 Installation
7.1.1 AIWS2

Front Panel



1. **Power LED**
   Indicates the status of the power supply to the unit. See AIWS2 Status Lamps 122.
2. **Status LED**
   Indicates the status of the unit.
3. **Mode Switch and LED**
   Pressing this switch twice will put the unit into mass storage mode. The unit will automatically return to normal operation after 10 minutes. While in mass storage mode, the LED in the switch flashes. Mass storage mode is used to allow a Windows PC to download the suitable drivers for USB cable connection to the Management port.
4. **Restart Switch**
5. **SD Card Slot**
   Not used for IP Office operation.
6. **USB Ports**
   Not used for IP Office operation.
7. **Management Port**
   This port can be used for a USB connection to a PC in order to do unit configuration. Installation of the drivers for this requires the unit to be put into mass storage mode using the Mode Switch (see above). The address used for this port is 192.5.36.229.

Rear Panel

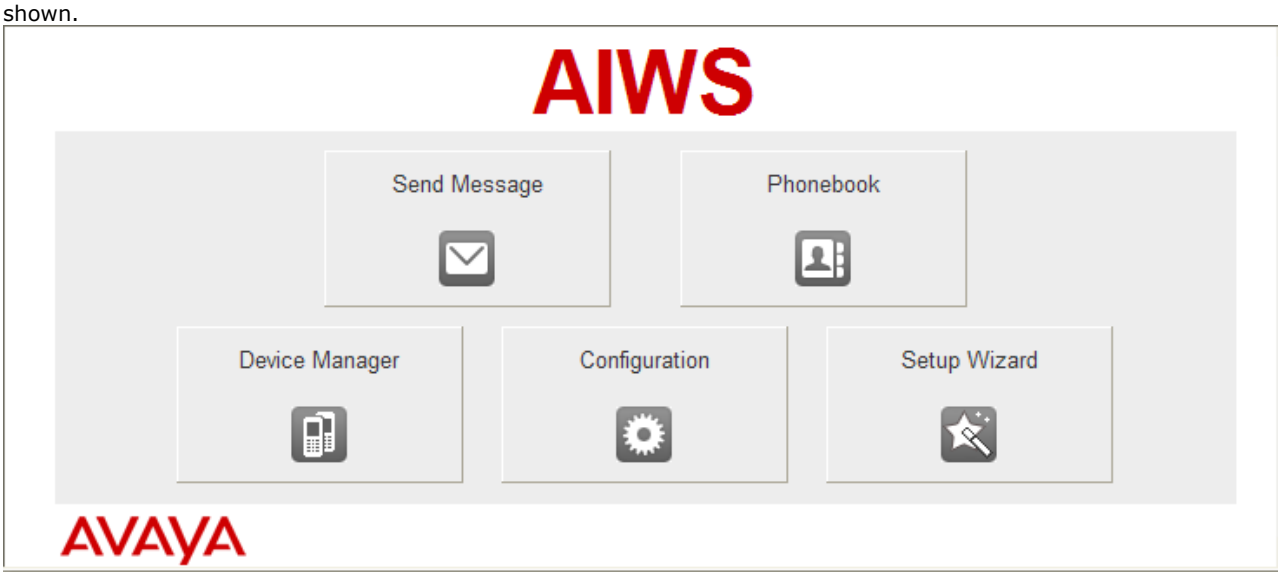
1. **LAN 1**
   This is the LAN port which should be used for connection to the same LAN as the DECT system and IP Office.
2. **LAN 2**
   Not used.
3. **Power Connectors**
   The unit supports a number of different methods for power connection. If using the C10 port, a number of power cables are supplied with the unit.

7.1.2 Browse to the AIWS2

By default the AIWS2 will obtain an IP address for it LAN 1 port using DHCP if possible. Using the unit's LAN 1 MAC address, printed on the back of the unit,

Network Connection

1. Connect the AIWS2 unit to the LAN using the LAN 1 port on the rear of the unit.
2. Connect the appropriate power cable to the unit and switch on the power supply.
3. The Status LED should change to a fast flashing blue while the unit is starting up.
4. When the starting up indication stops, you can attempt to browse to the unit.
5. Enter the IP address of the AIWS into the browser address field.
   - Alternatively enter ***http://elise-XXXXXXXX*** as the address, where ***XXXXXXXX*** is the module key number printed on the back of the unit. Leading zeros can be omitted.
6. If a security certificate warning appears, select to continue.
7. Enter a user name and password. The default values are ***admin*** and ***changeme***.
8. If this is the first time the AIWS2 has been started, the setup wizard is displayed. Otherwise the AIWS menu is shown.



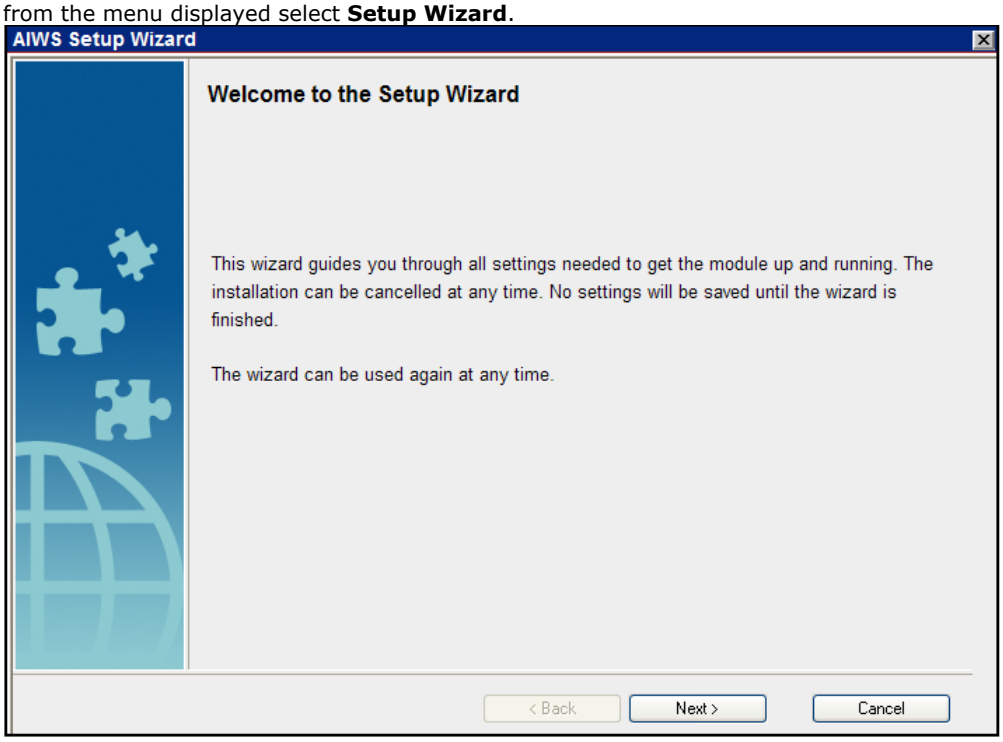
USB Management Connection

The AIWS2 supports connection and administration via a USB cable connected to the **Management** port on the front of the unit. This requires the installation of a device driver that can be obtained from the unit by putting it into its **Mass Storage** mode. Full details for installation and use are provided in the documentation provided with the unit.

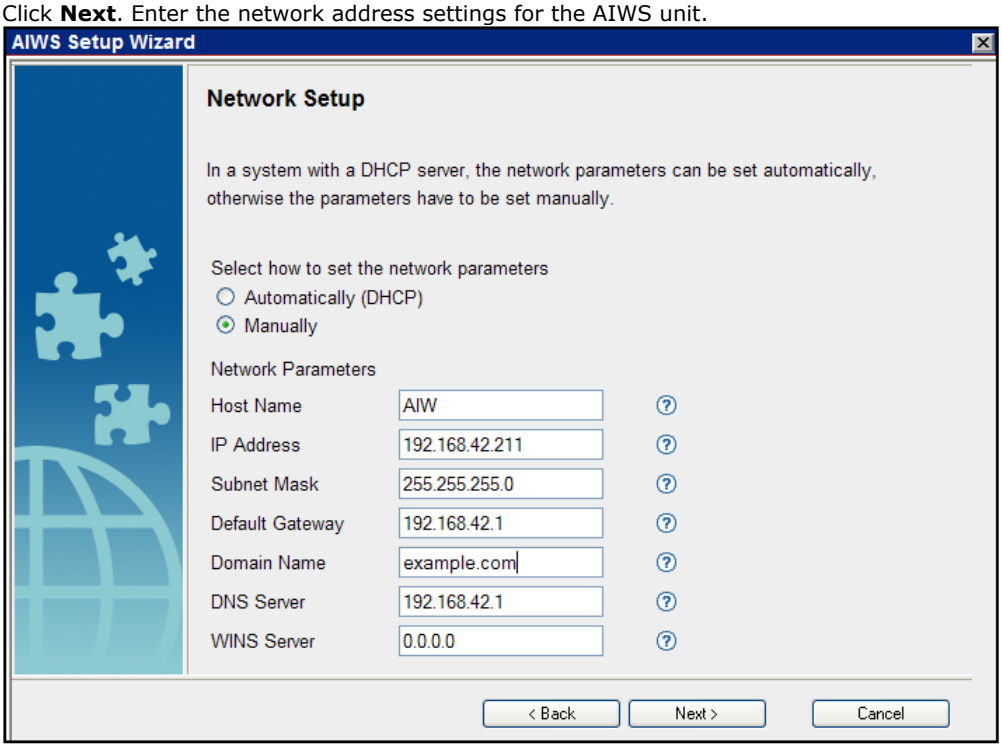
7.1.3 Run the Setup Wizard

The first time the AIWS is accessed it runs he setup wizard.

1. Access the AIWS using your browser.
2. If the unit is defaulted, the setup wizard is run automatically. If the unit already has configuration settings, then from the menu displayed select **Setup Wizard**.

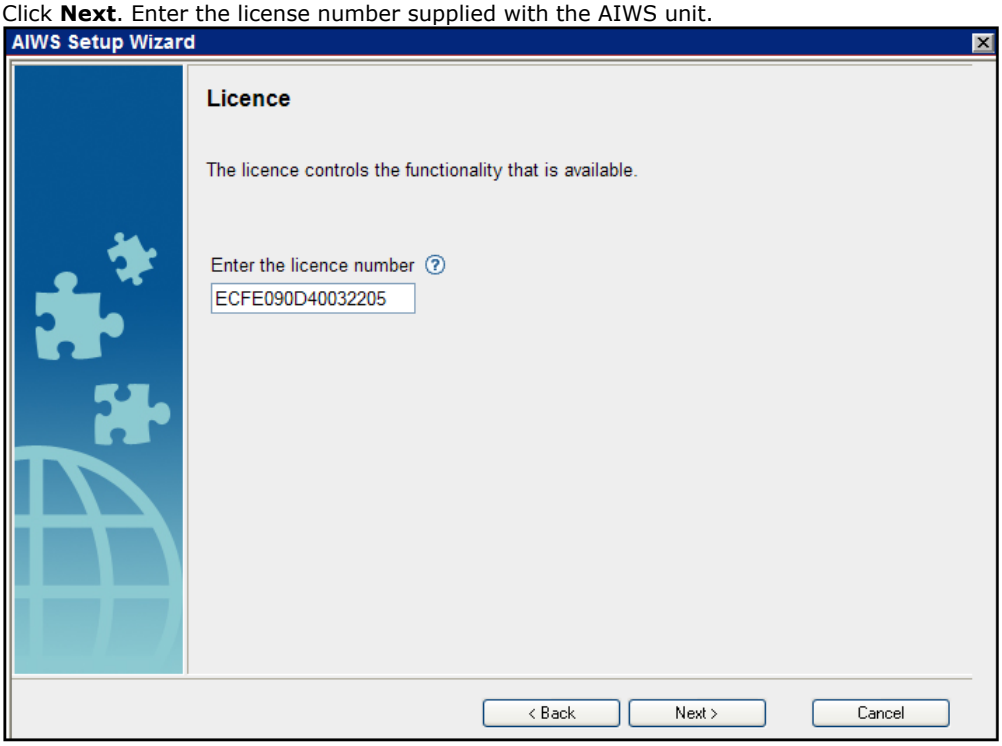


3. Click **Next**. Enter the network address settings for the AIWS unit.

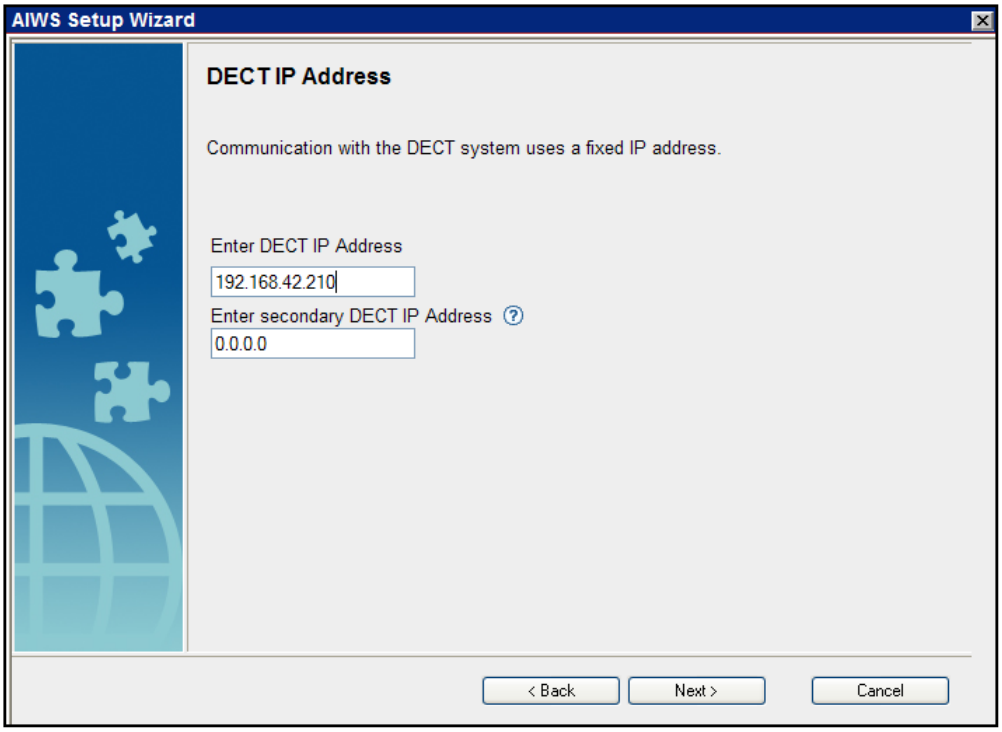


- Set the network parameters mode to ***Manually***.
- **Host Name**
  Enter a name to help identify the AIWS on the network.
- **IP Address/Subnet Mask**
  Enter the static IP address details that the AIWS should use.
- Set the remaining details to match those being used by other devices on the network.

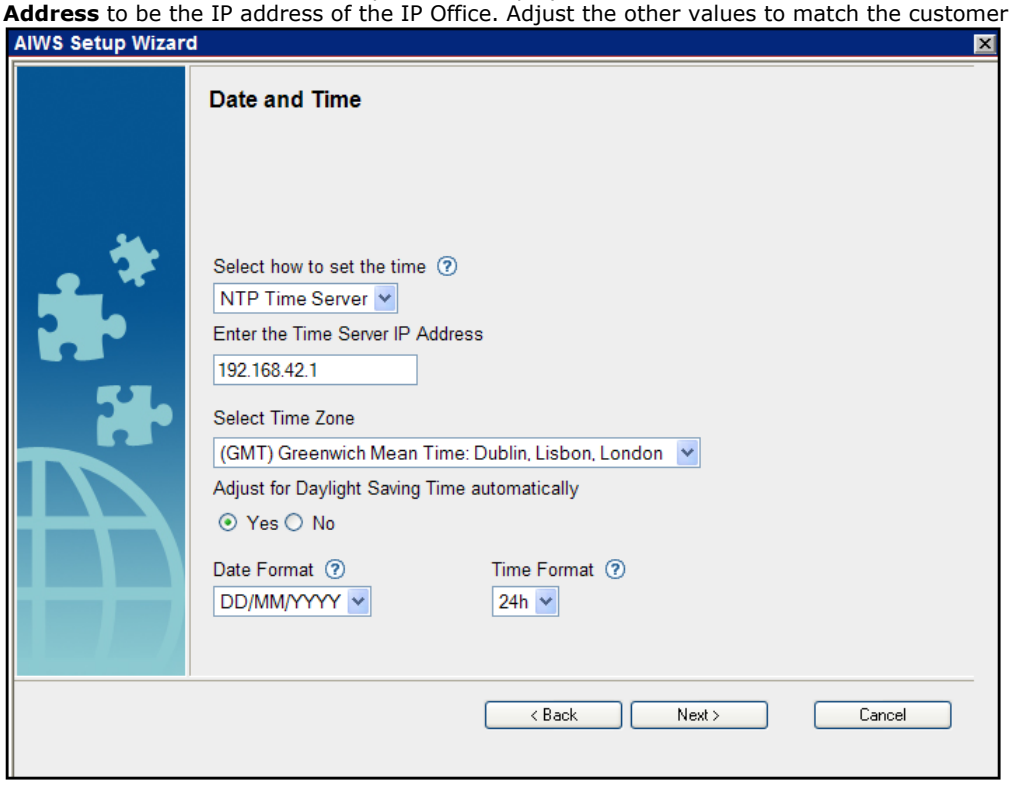
4. Click **Next**. Enter the license number supplied with the AIWS unit.



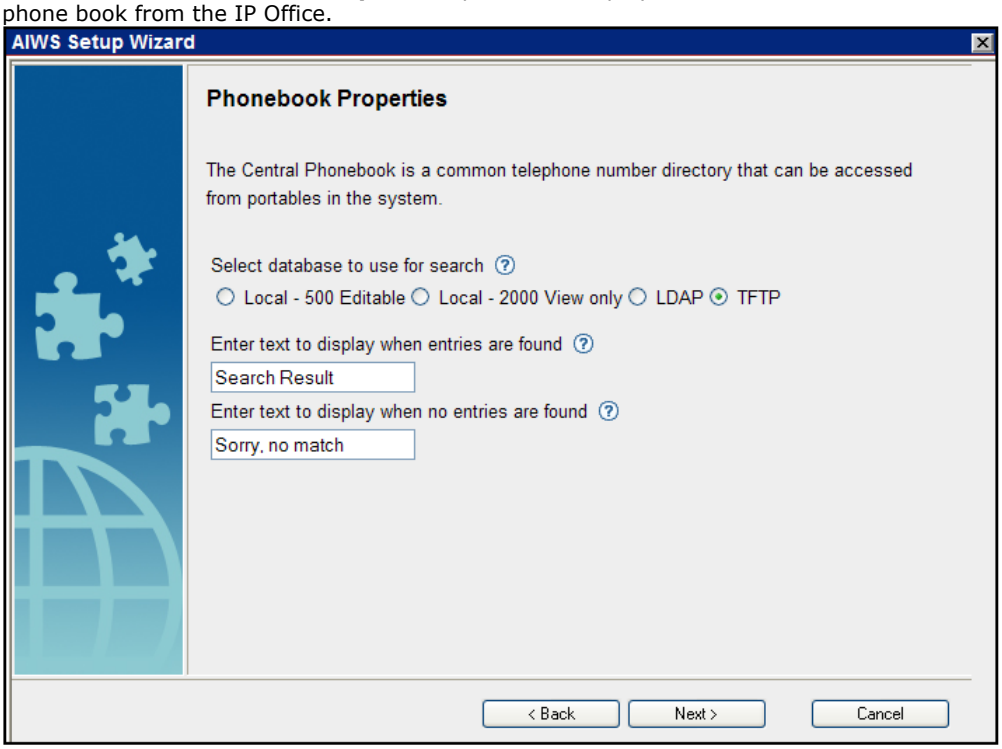
5. Click **Next**. Enter the IP address of the master base station.



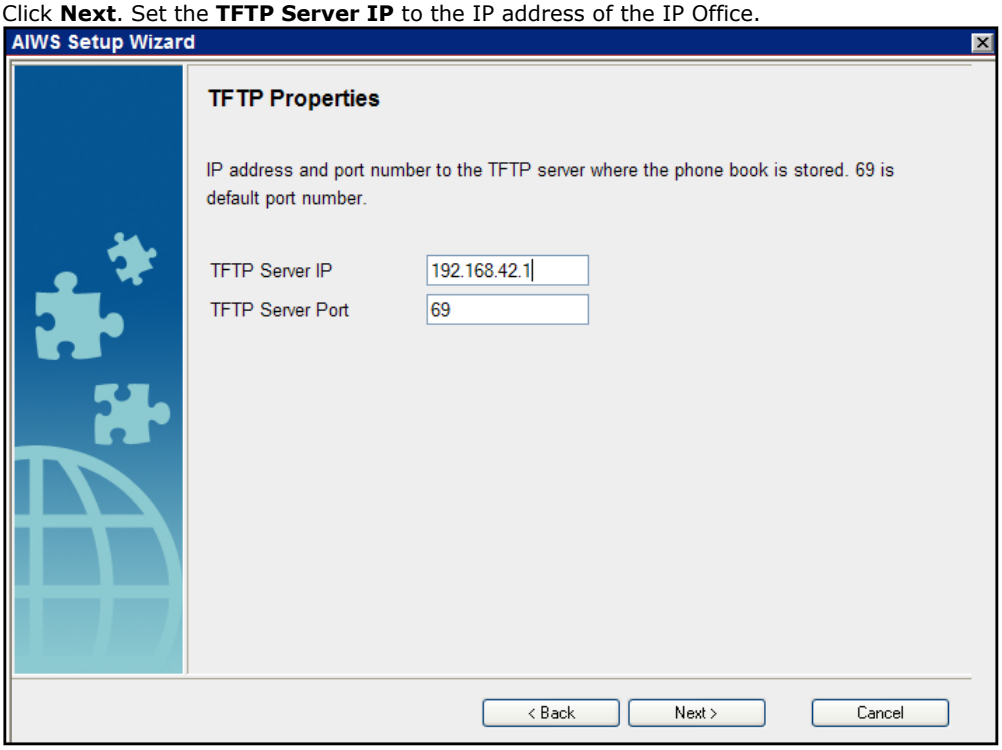
6. Click **Next**. The **Date and Time** options are displayed. Select ***NTP Time Server*** and set the **Time Server IP Address** to be the IP address of the IP Office. Adjust the other values to match the customer site.



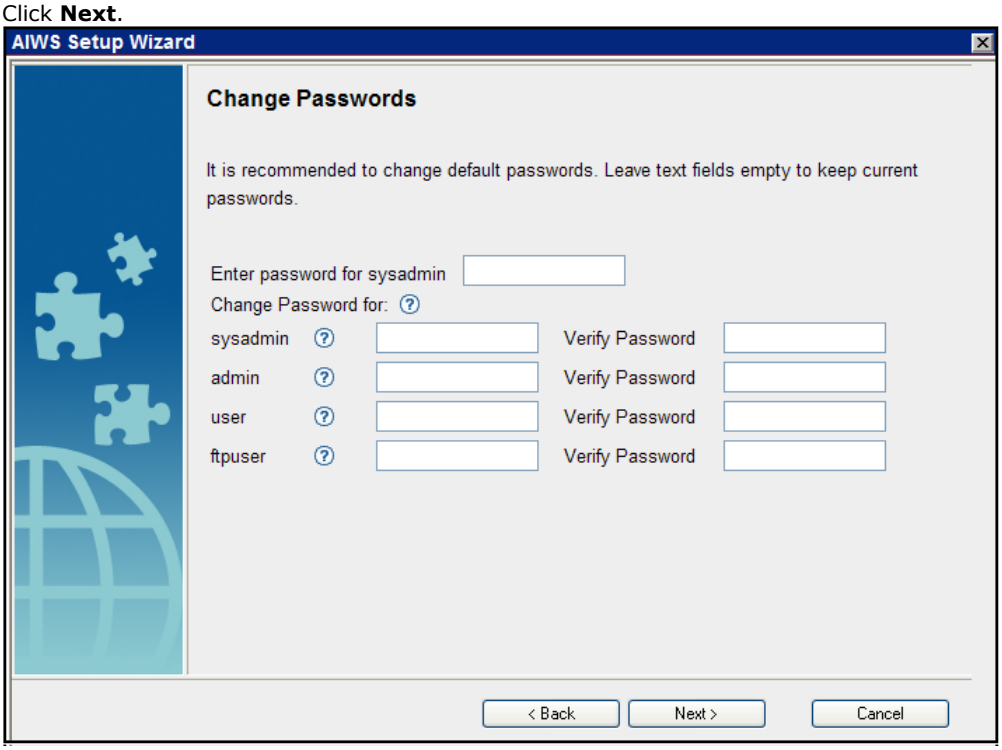
7. Click **Next**. The **Phonebook Properties** options are displayed. Select ***TFTP*** in order to have the AIWS obtain the phone book from the IP Office.



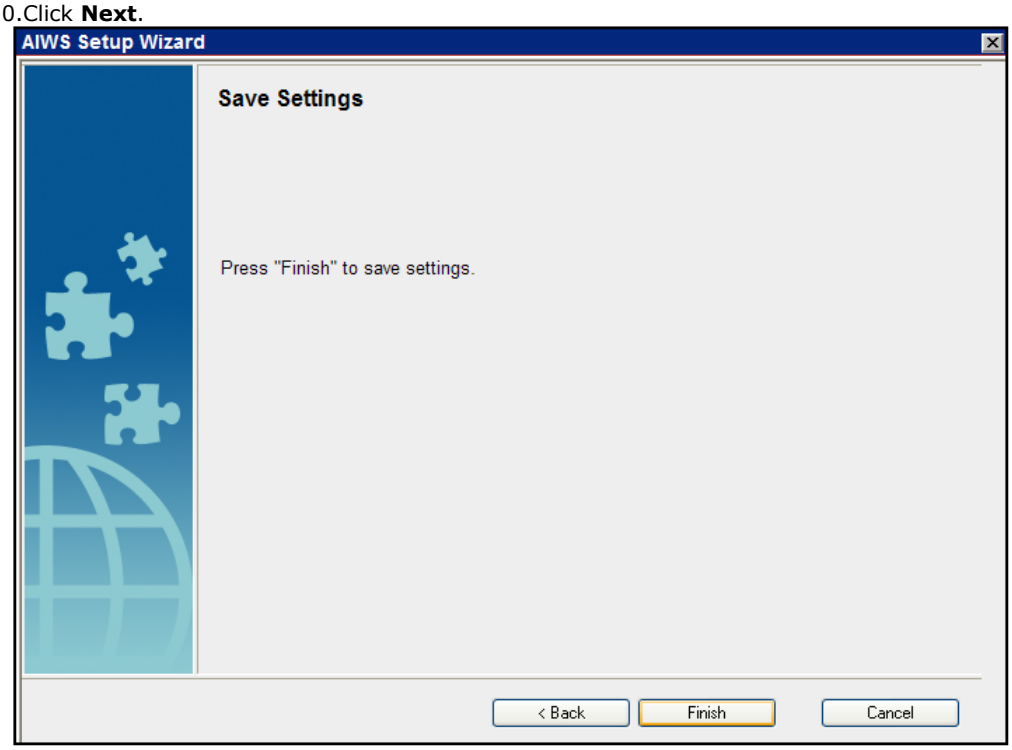
8. Click **Next**. Set the **TFTP Server IP** to the IP address of the IP Office.



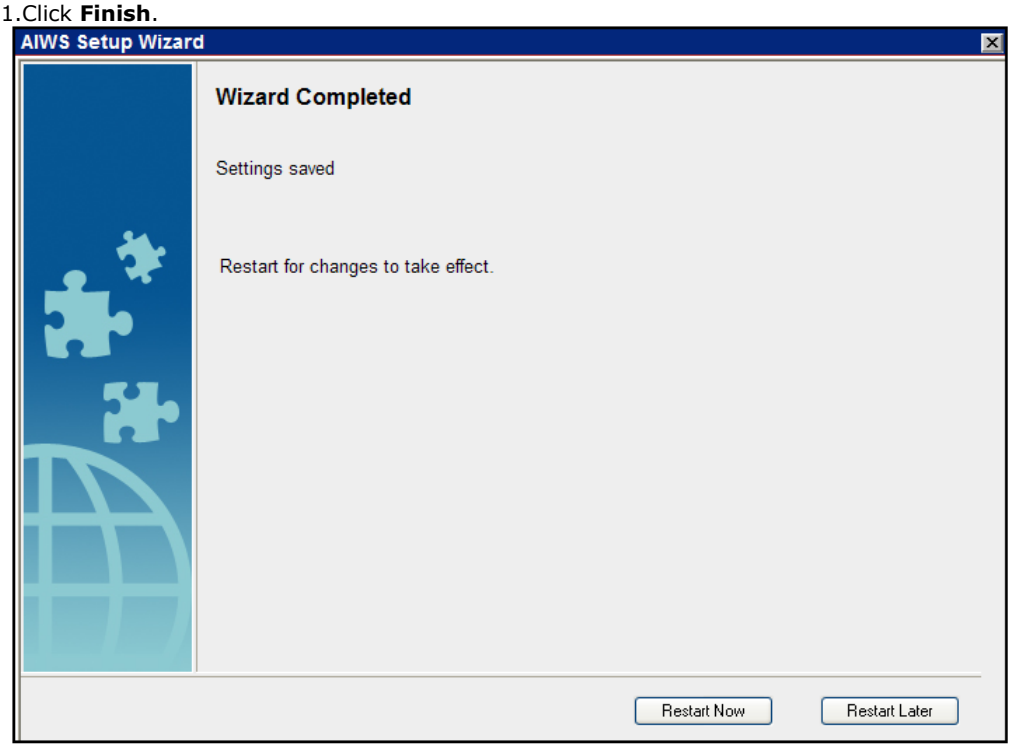
9. Click **Next**.



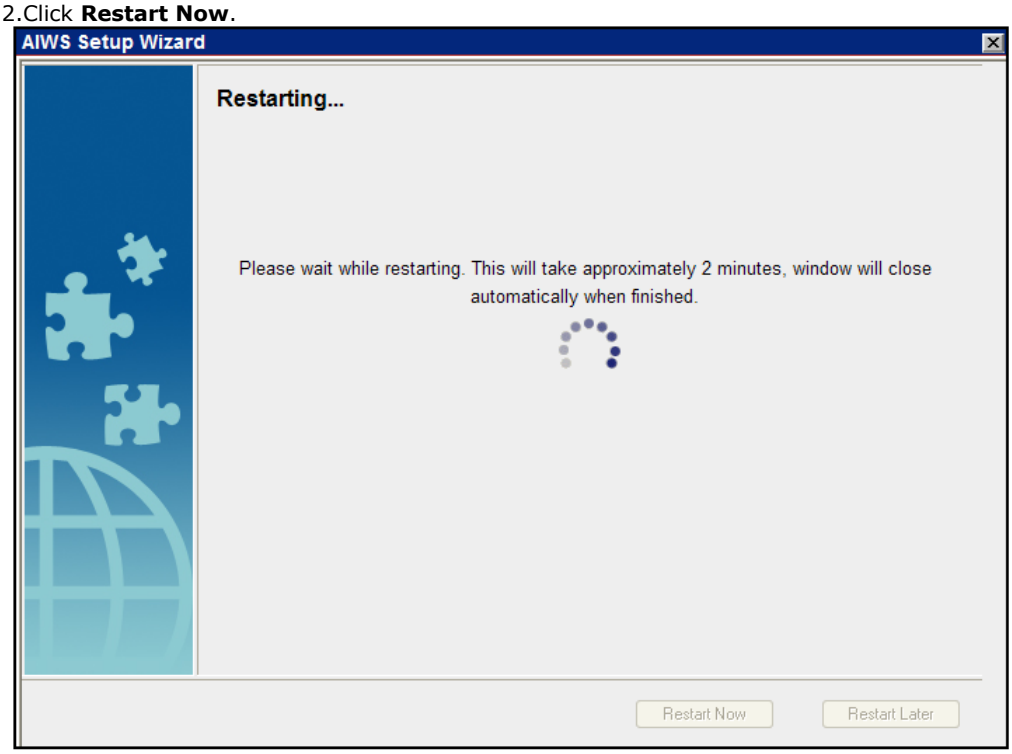
10.Click **Next**.



11.Click **Finish**.



12.Click **Restart Now**.



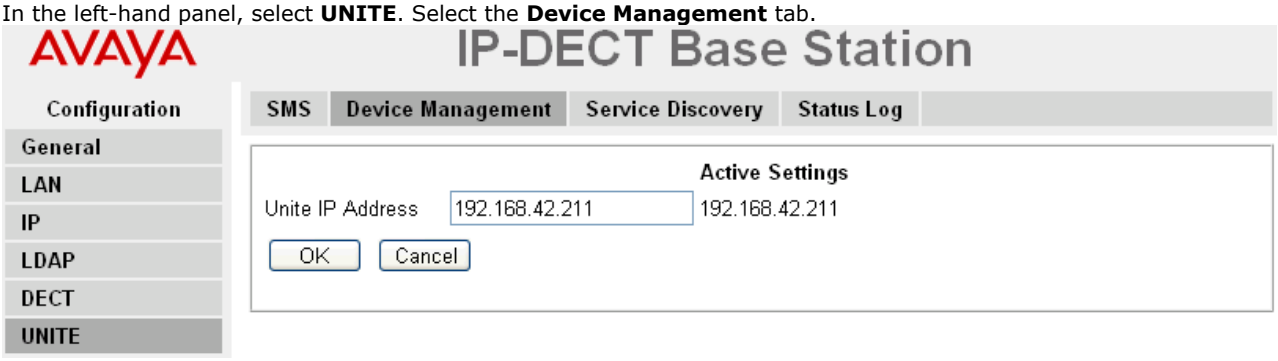
13.Close the browser access session. Start a new session using the new IP address.

7.1.4 Enable Base Station/AIWS Connection

The IP address of the AIWS needs to be entered into the configuration of the base stations.

Master Only

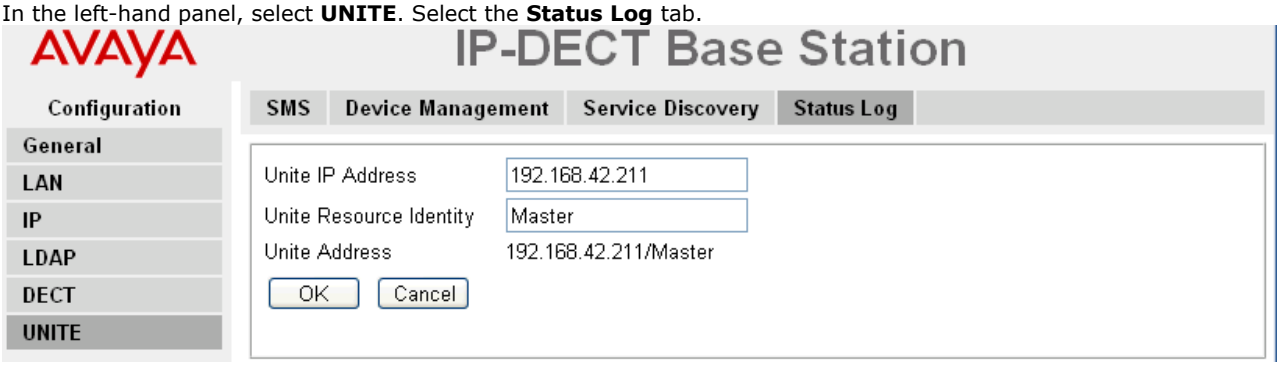
1. In the left-hand panel, select **UNITE**. Select the **Device Management** tab.



2. For the **Unite IP Address**, enter the IP address that will be assigned to the AIWS unit when installed in the DECT system.
3. Click **OK**.
4. In the left-hand panel select **General**. Select the **Admin** tab. Enable **Show Advanced Options** and refresh.
5. In the left-hand panel select **Phonebook** and disable the phonebook option.
6. Click **OK** and reset the master base station.

Master and Slave

1. In the left-hand panel, select **UNITE**. Select the **Status Log** tab.



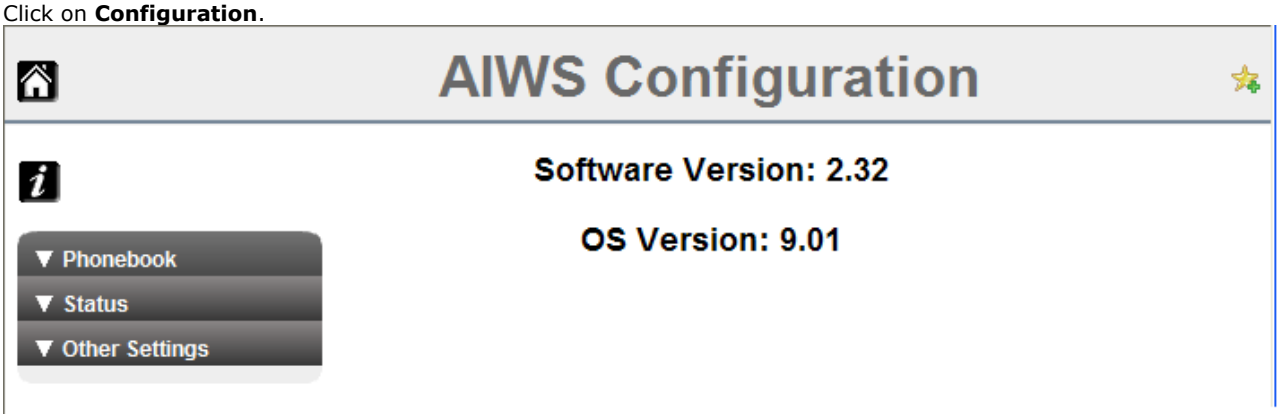
2. For the **Unite IP Address**, enter the IP address that will be assigned to the AIWS unit when installed in the DECT system.
3. For the **Unite Resource Identity** enter a unique name to be associated with the base station.
4. Click **OK**.
5. Select the **SMS** tab. Again enter the IP address that will be assigned to the AIWS unit when installed in the DECT system.
6. Click **OK**.

7.1.5 Upgrade the AIWS Firmware

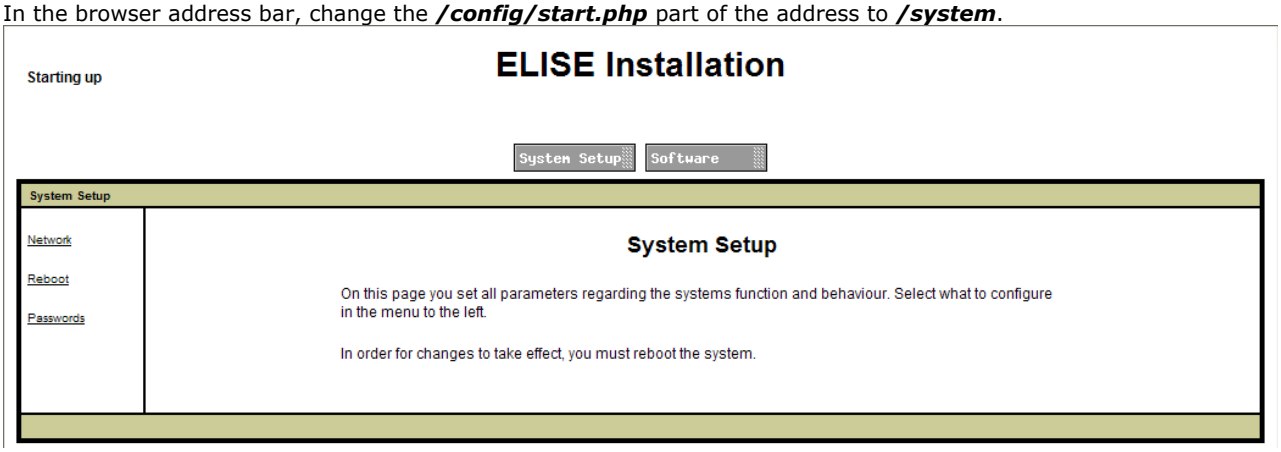
The AIWS will have been supplied with a default set of firmware. This must be upgraded to the firmware provided with the IP Office application software. Only the firmware supplied with the IP Office application software or indicated in IP Office Technical Bulletin should be used with AIWS units on IP Office DECT R4 systems.

- **Important:** This process can take up to 40 minutes.

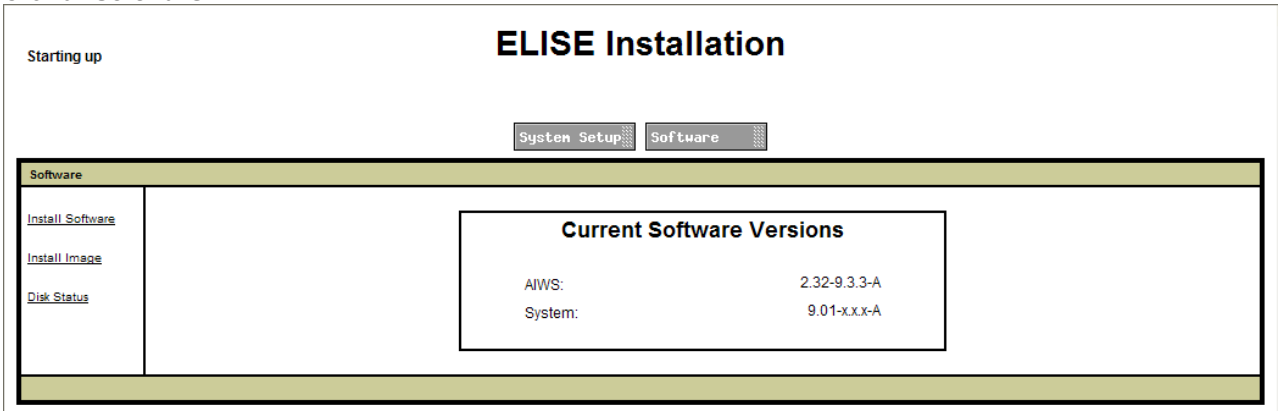
1. Using a browser login to the unit.
2. Click on **Configuration**.



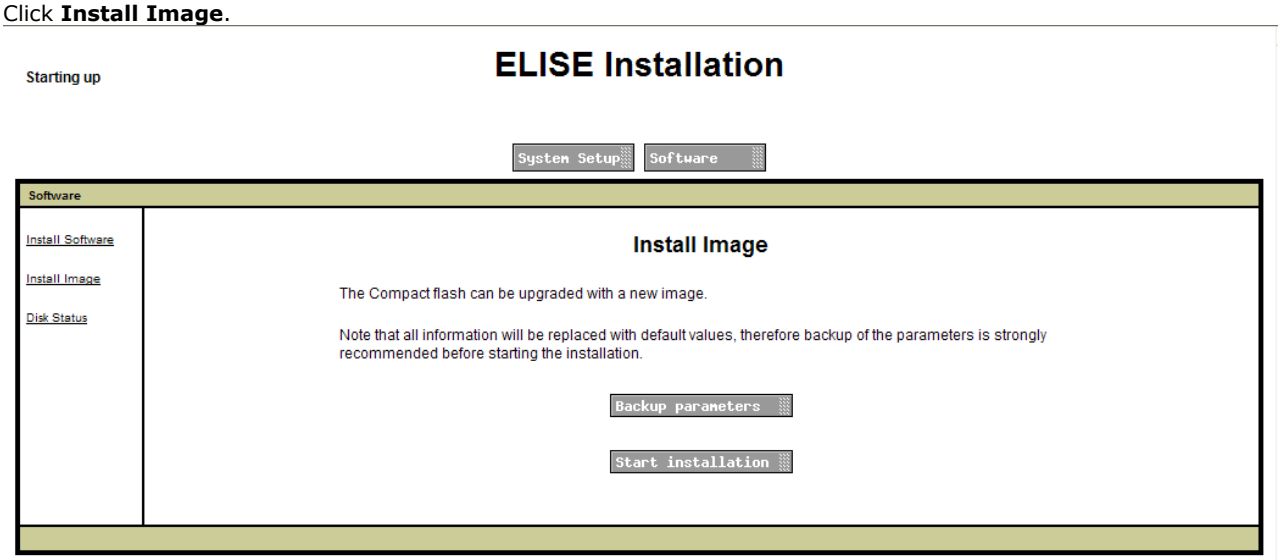
3. Note the software version. Check whether this already matches the firmware detailed as supported by the level of software on the IP Office system.
4. In the browser address bar, change the ***/config/start.php*** part of the address to ***/system***.



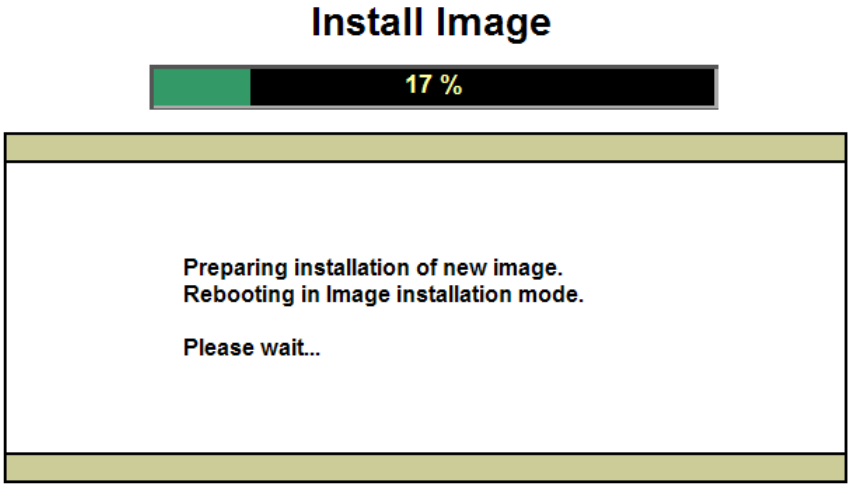
5. Click on **Software**.



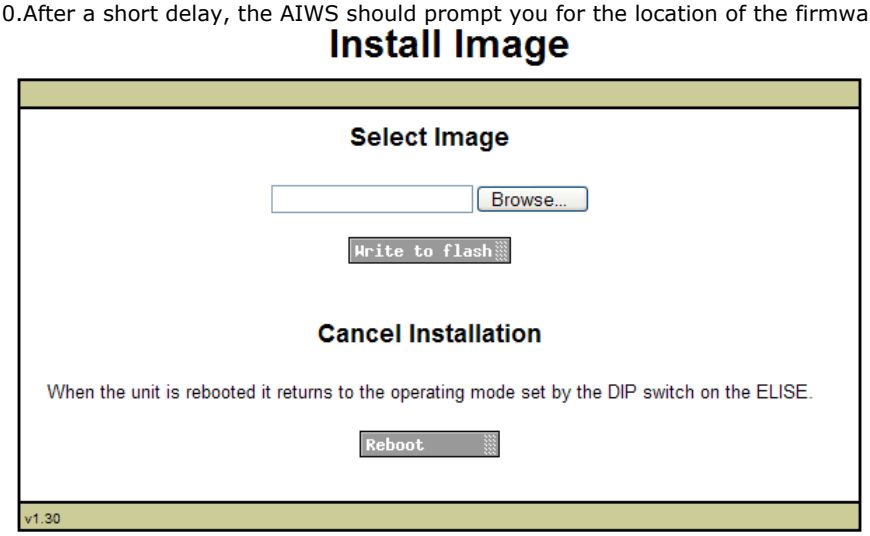
6. Click **Install Image**.



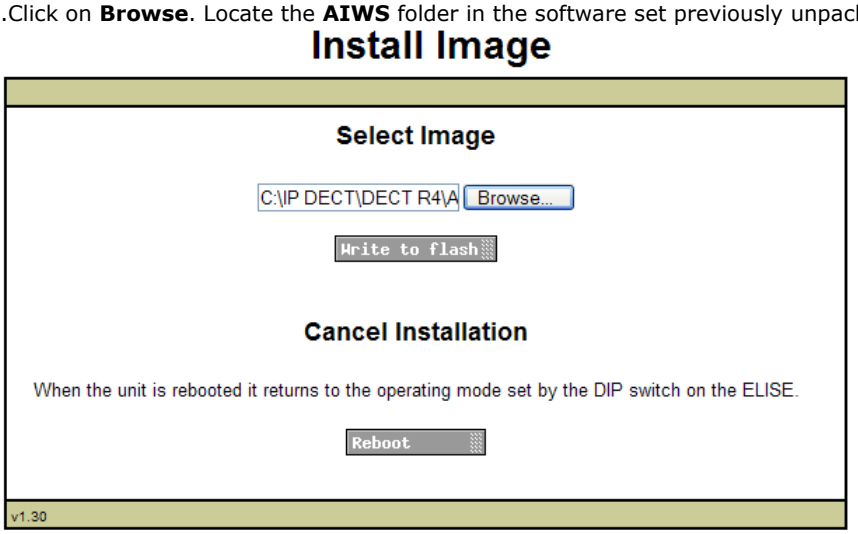
7. Click **Backup parameters**.
8. The browser will show it dialog for downloading a file called aiws-backup from the AIWS unit. Select the option to save the file and select a location to which it should be saved. Note the location as the file needs to be reloaded after the firmware upgrade.
9. Click **Start installation**.



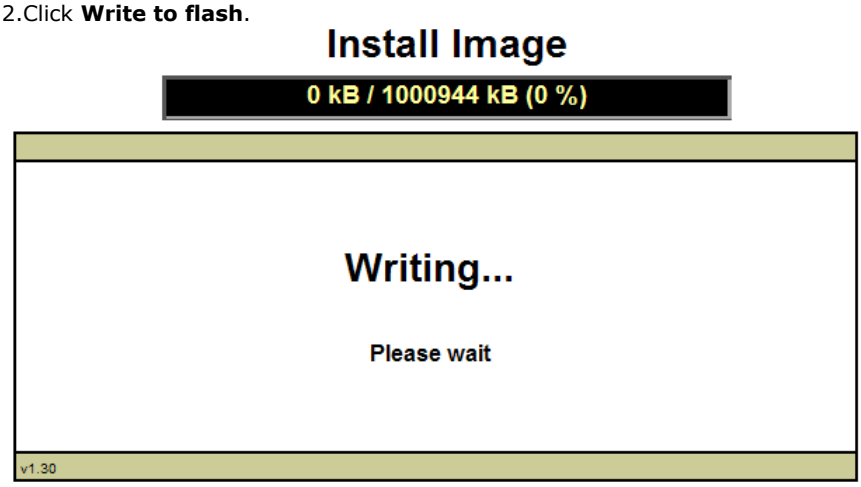
10. After a short delay, the AIWS should prompt you for the location of the firmware file for the upload.



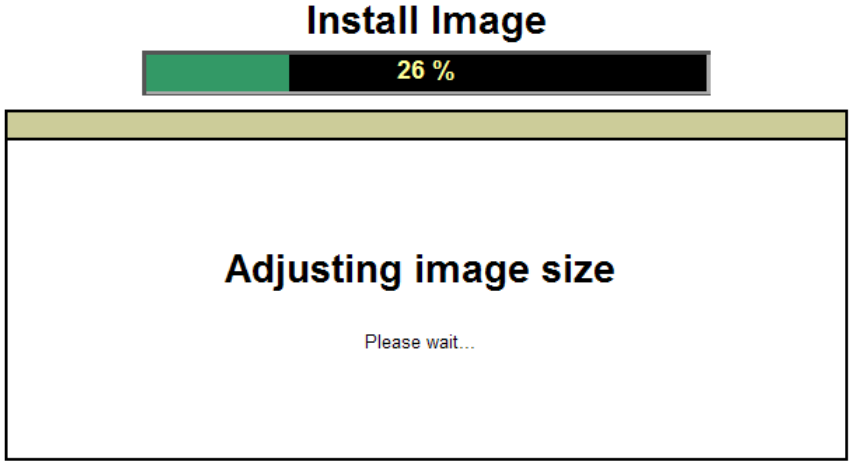
11.Click on **Browse**. Locate the **AIWS** folder in the software set previously unpacked. Select the ***.img*** file.



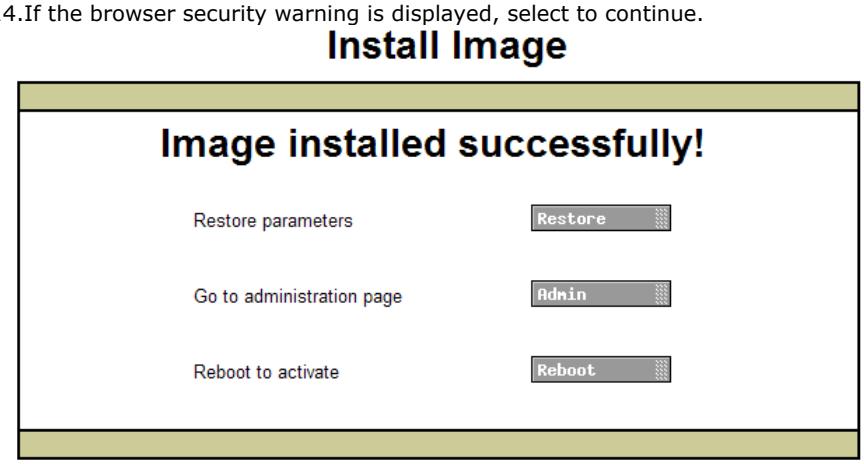
12.Click **Write to flash**.



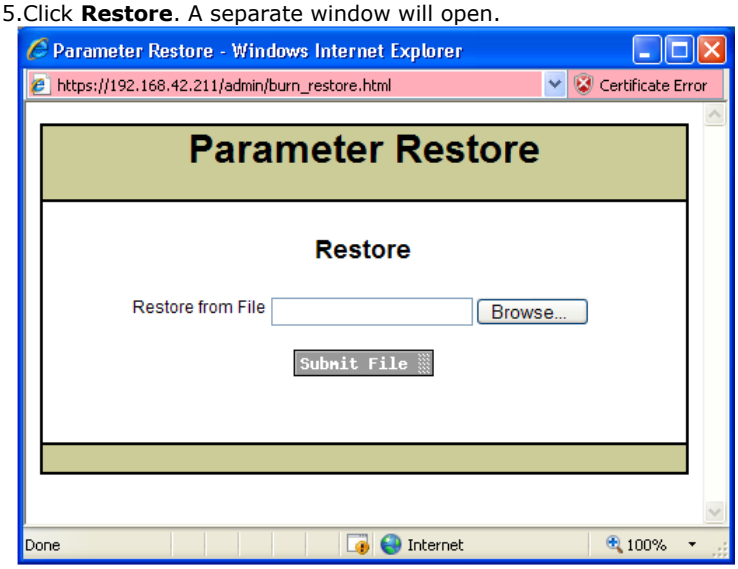
13.Now go make a cup of tea and maybe read a book - It is not fast and must be allowed to complete.



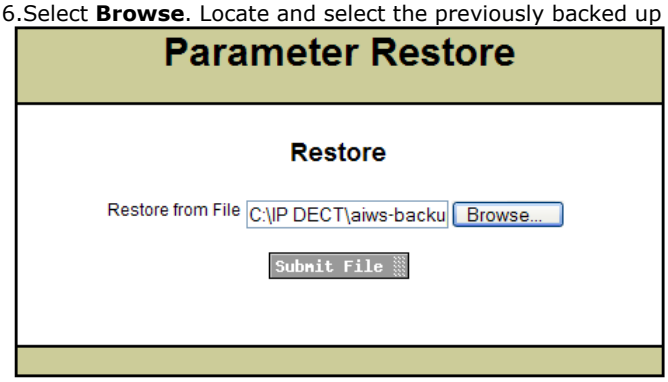
14.If the browser security warning is displayed, select to continue.



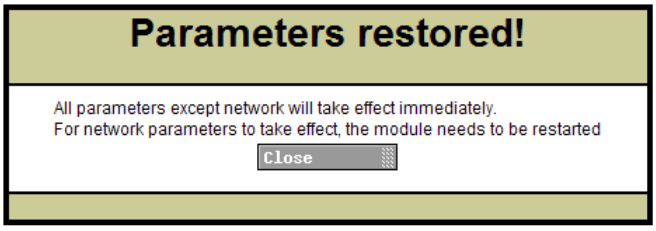
15.Click **Restore**. A separate window will open.



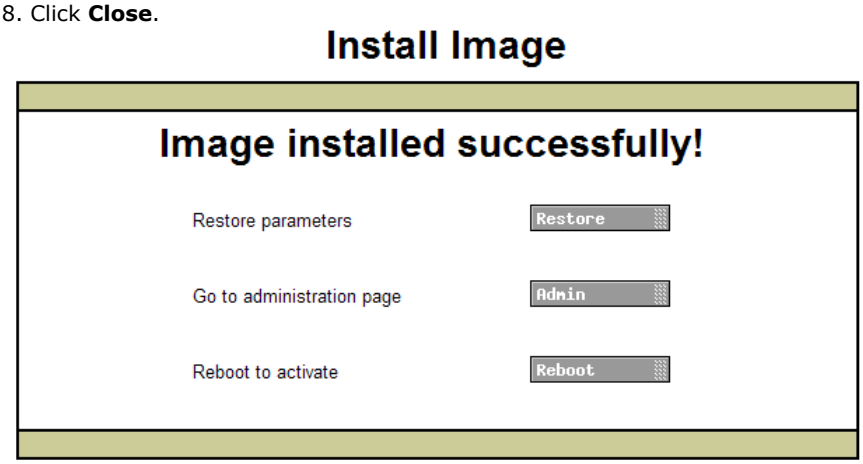
16.Select **Browse**. Locate and select the previously backed up ***aiws-backup*** file.



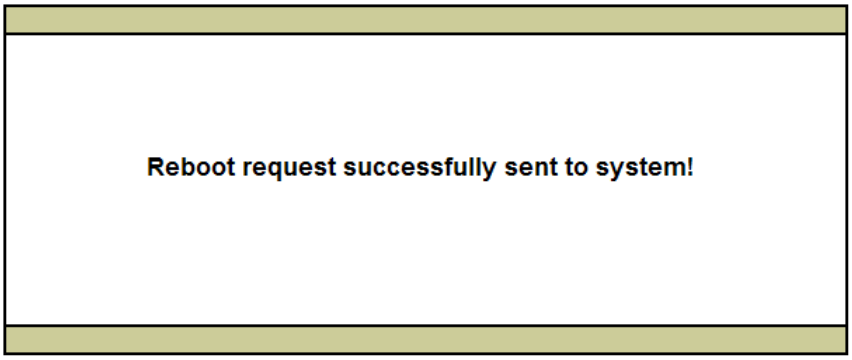
17.Click **Submit file**.



18. Click **Close**.



19.Select **Reboot**.



7.1.6 AIWS2 Status Lamps

Status LED

Colour	State	Description
Blue	On	OK. AIWS operational.
	Fast Flash	Starting up or shutting down.
Red	Fast flash	Error or fault.
	Slow flash	Warning
Yellow	Double blink	Waiting for automatic startup.

Power LED

Colour	State	Description
Blue	On	Power OK.
Red	Fast flash	Shutting down due to low voltage.
	Slow flash	Low voltage.

Mode LED

This LED is incorporated into the Mode button on the front of the unit.

Colour	State	Description
Blue	Slow flash	Mass storage mode.

7.2 AIWS1 Installation

The AIWS *(Avaya In-Built Wireless Server)* unit allows SMS messaging between handsets. It also allows wireless software upgrades and configuration of the handsets. Without an AIWS, handsets can only be upgraded and configured when in an advanced charger.

For IP Office Release 5 this unit also provides directory integration between the IP Office and the DECT R4 system.

For IP Office Release 6 and higher, directory integration is done by the master base station without requiring an AIWS. However an AIWS is still required for both functions if SMS is needed.

The unit is managed via web browser and requires a fixed IP address.

The AIWS installation consists of the following stages:

1. **Remove the AIWS Cover.**
2. **Connect the RTC Battery.**
3. **Connect the LAN and Power Cables.**
4. **Browse to the AIWS.**
5. **Run the Setup Wizard.**
6. **Enable Base Station/AIWS Connections.**
7. **Upgrade the AIWS Firmware.**
8. **Switch off the AIWS.**
9. **Wall Mount the AIWS.**
10. **Replace the AIWS Cover.**

Pre-Requisites

- ☐ Master base station installed and connected to the network.
- ☐ IP Office connected to the network.
- ☐ Phones subscribed.

Parts Required

- ☐ AIWS Unit which includes:
  - ☐ AIWS Unit
  - ☐ AIWS Power Supply unit and selection of IEC60320 C7 power leads (CEE7/16 (Europlug), BS1363, NEMA1-15 and AS/NZS 3112).
  - ☐ 1.2 metre (4 foot) LAN cable.
    If this is replaced with a longer cable the replacement should be a CAT5 Ethernet LAN cable.
  - ☐ AIWS License sheet.
- ☐ 3 x 3.5mm Screws and suitable wall plugs for the wall mounting of the AIWS.
- ☐ LAN Socket
- ☐ Mains power outlet socket.

Information

- ☐ IP Address for the AIWS
- ☐ Other standard network settings (Default Gateway, DNS, WINS)
- ☐ AIWS License Key (this should have been supplied with the AIWS)
- ☐ IP Address of the DECT Master base station.
- ☐ IP Address of the IP Office
- ☐ Preferred time settings (date format, time format)
- ☐ Wall mounting location selected for the AIWS
- ☐ Access information (name and password) for configuring the base stations.

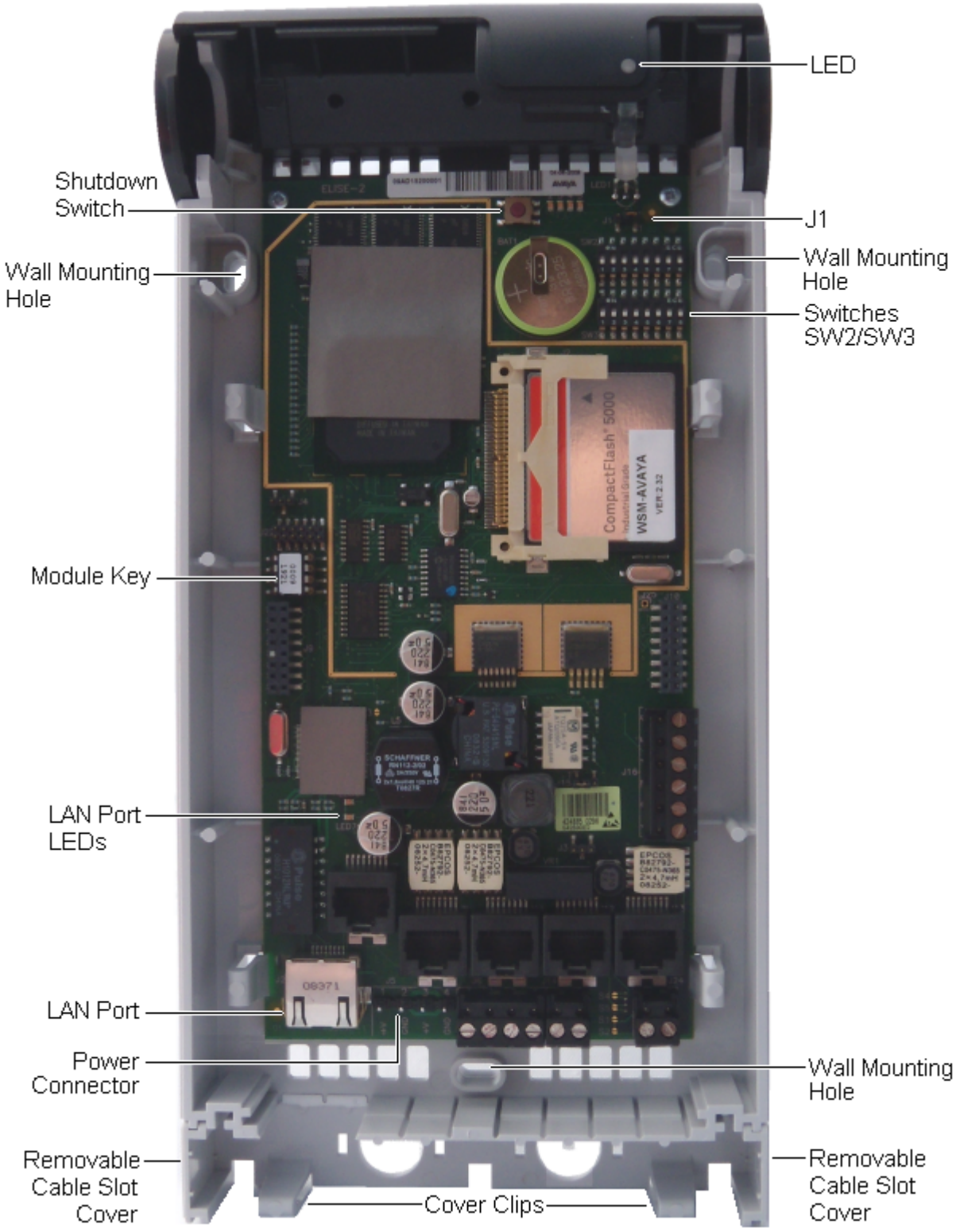
Tools

- ☐ Programming PC with DECT R4 software.
- ☐ Web browser.
- ☐ Pliers and sharp knife for removal of plastic cable cut-outs from AIWS case.
- ☐ Drill and drill bits suitable for the selected wall mounting position of the AIWS.
- ☐ Screwdrivers for use with the screws selected for AIWS wall mounting.

7.2.1 Removing the AIWS Cover

The AIWS cover can be removed without using any tools.

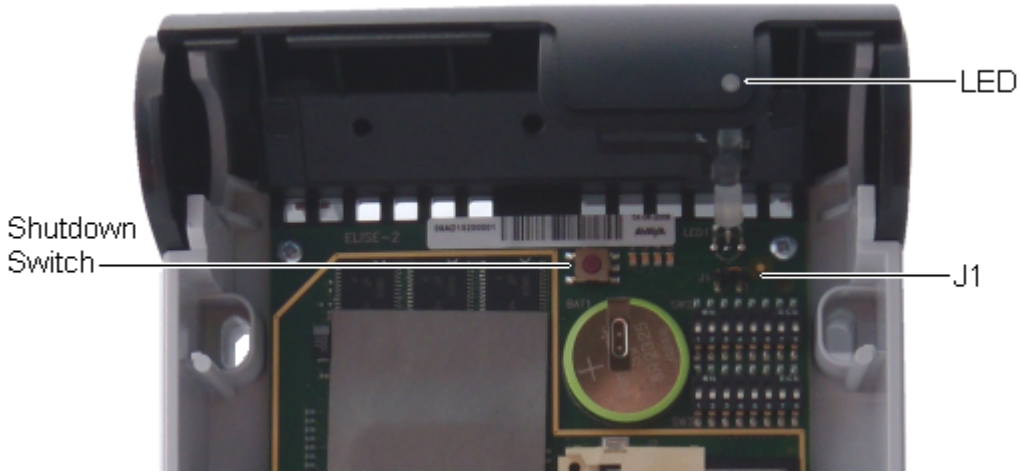
1. On the base of the unit (opposite the rounded end) are two depressible clips. Depress these whilst lifting the cover.
2. It should be possible to lift the cover off the unit.



3. With the cover removed, familiarize yourself with the various features labeled above. These will be referred to during other parts of the installation process.

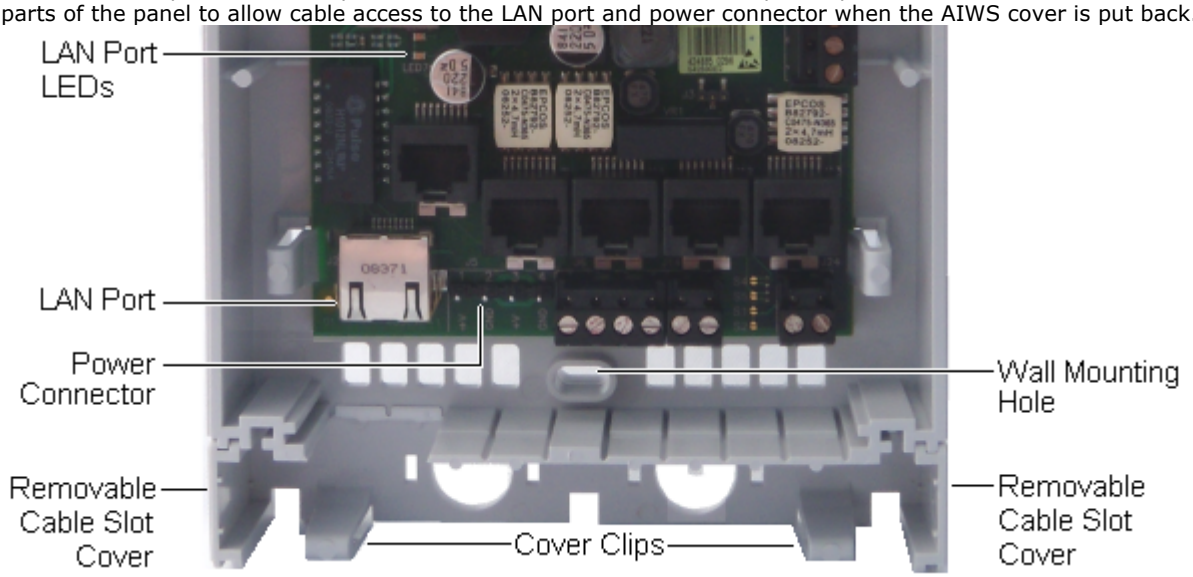
7.2.2 Connect the RTC Battery

The AIWS circuit board includes a 3V lithium battery which will keep the boards real time clock (RTC) running when power to the AIWS is off. The AIWS is shipped with the battery disconnected. To connect the battery, locate the switch **J1** at the top right of the board. Move the switch jumper to position 2-3.



7.2.3 Cable Connections

1. Locate the switch sets **SW2** and **SW3** at the top-right of the AIWS circuit board. Ensure that all the switches are set to ***Off***.
2. Locate the LAN port and the J5 power connector. Just below these is a plastic panel. With care remove sufficient parts of the panel to allow cable access to the LAN port and power connector when the AIWS cover is put back.

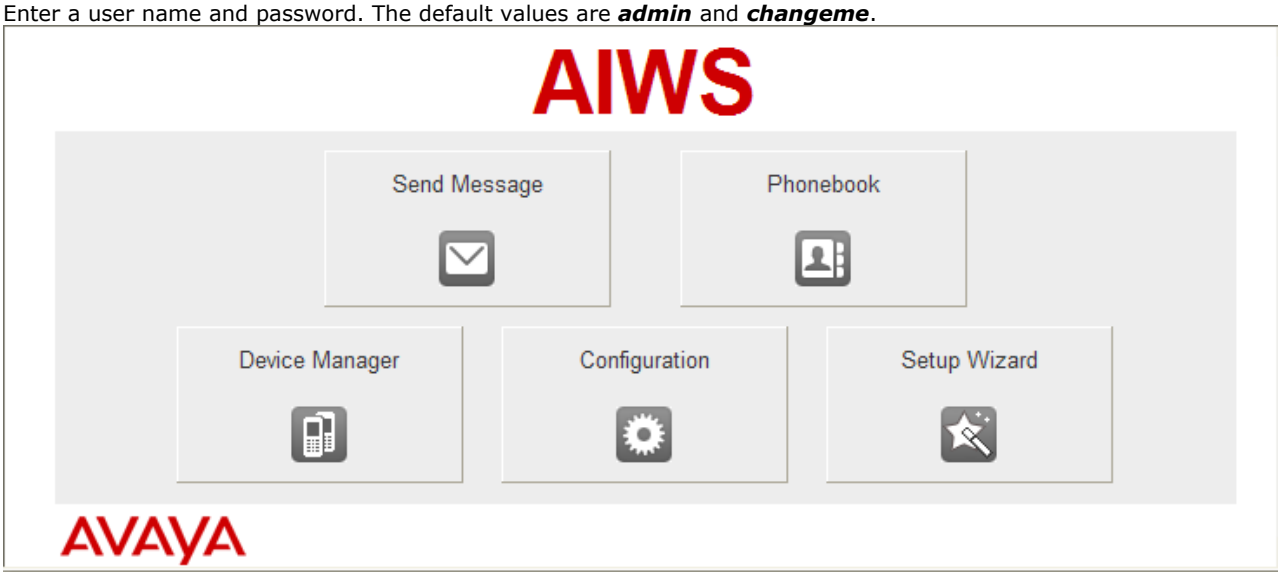


3. Connect the LAN cable from the IP Office to the AIWS.
4. Connect the power supply cable to the J5 power connector next to the AIWS LAN port.
5. Switch on power to the AIWS unit.

7.2.4 Browse the AIWS

The AIWS can be accessed using a web browser.

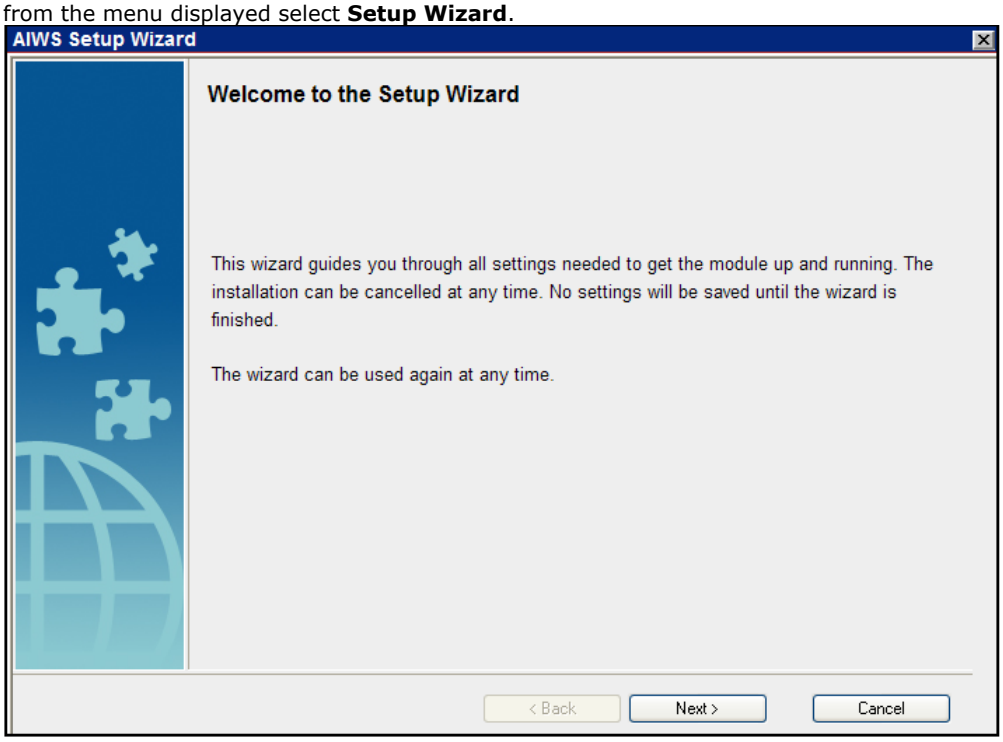
1. Enter the IP address of the AIWS into the browser address field.
   - Alternatively enter ***http://Elise-0091921*** as the address, replacing the digits with the AIWS unit's Module Key. The Module Key is printed on the AIWS circuit board 124.
2. If a security certificate warning appears, select to continue.
3. Enter a user name and password. The default values are ***admin*** and ***changeme***.



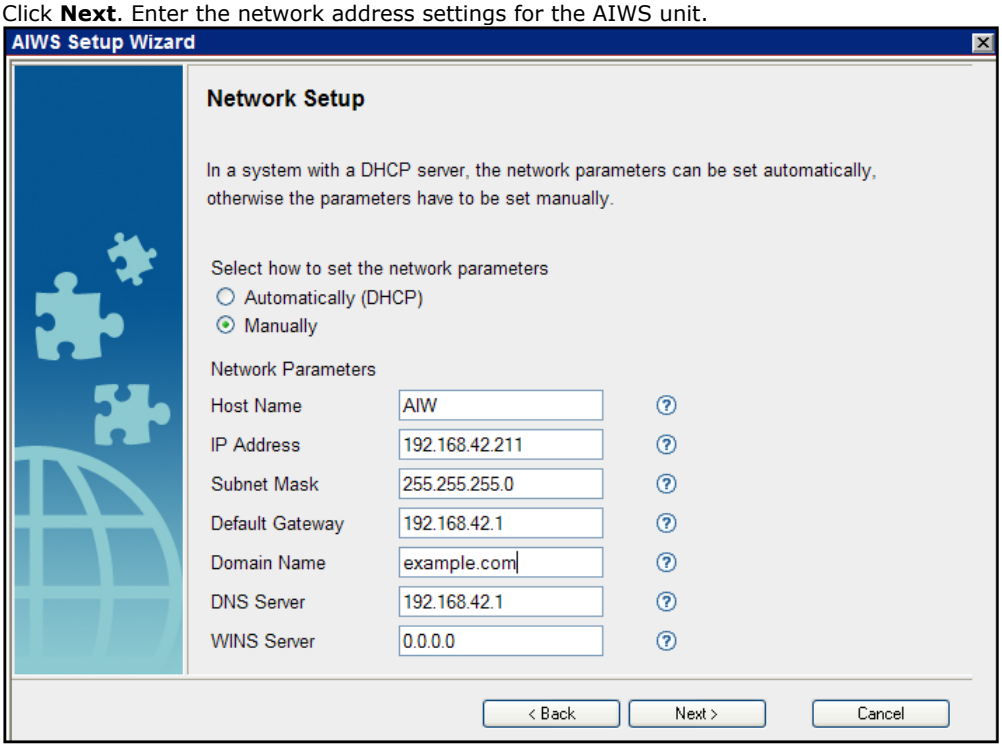
7.2.5 Run the Setup Wizard

The first time the AIWS is accessed it runs he setup wizard.

1. Access the AIWS using your browser.
2. If the unit is defaulted, the setup wizard is run automatically. If the unit already has configuration settings, then from the menu displayed select **Setup Wizard**.

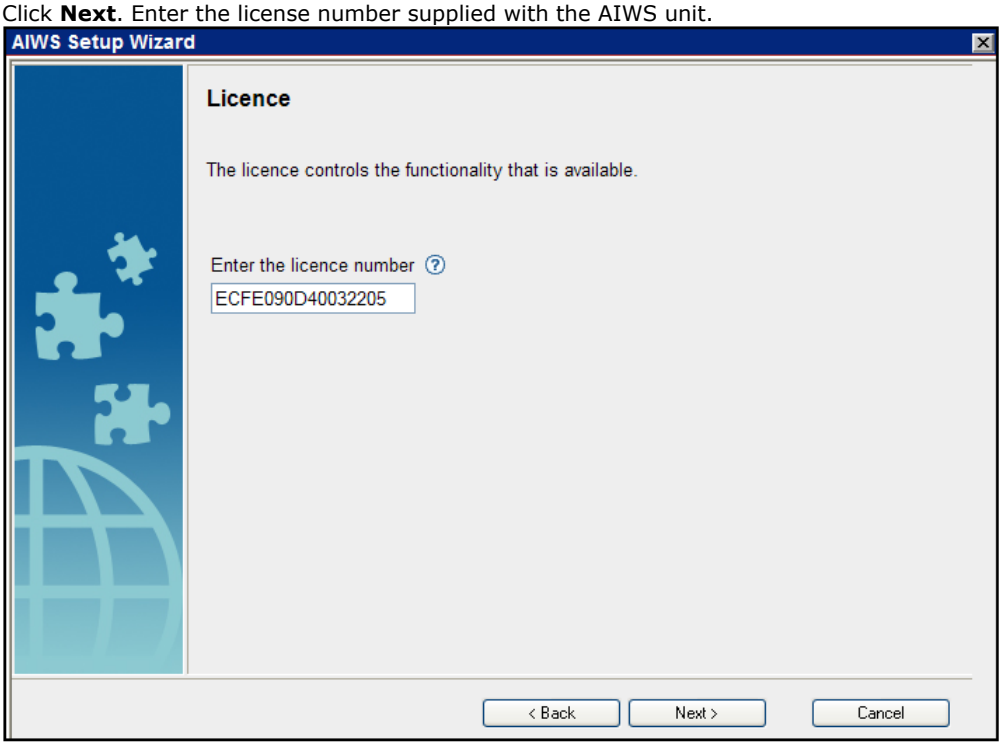


3. Click **Next**. Enter the network address settings for the AIWS unit.

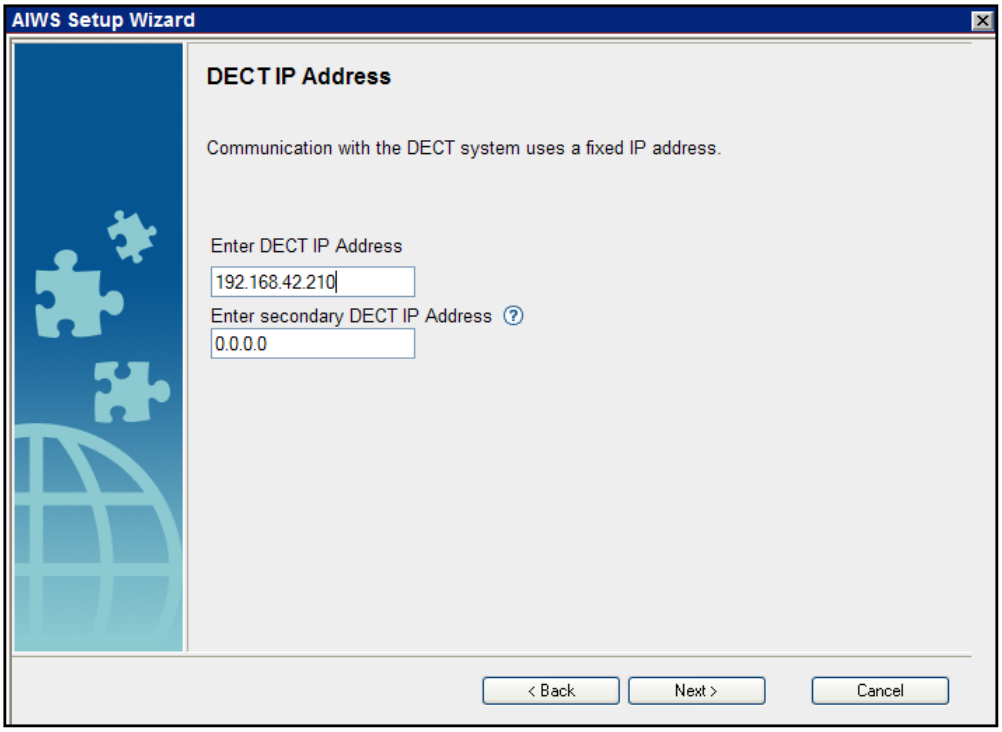


- Set the network parameters mode to ***Manually***.
- **Host Name**
  Enter a name to help identify the AIWS on the network.
- **IP Address/Subnet Mask**
  Enter the static IP address details that the AIWS should use.
- Set the remaining details to match those being used by other devices on the network.

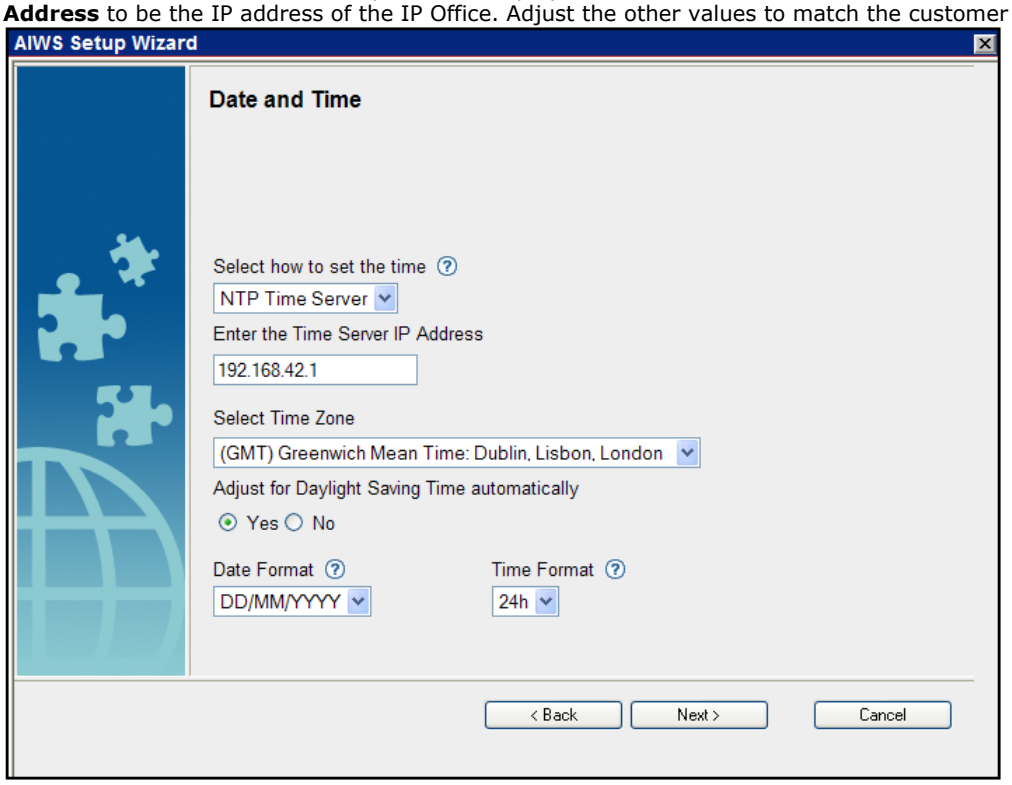
4. Click **Next**. Enter the license number supplied with the AIWS unit.



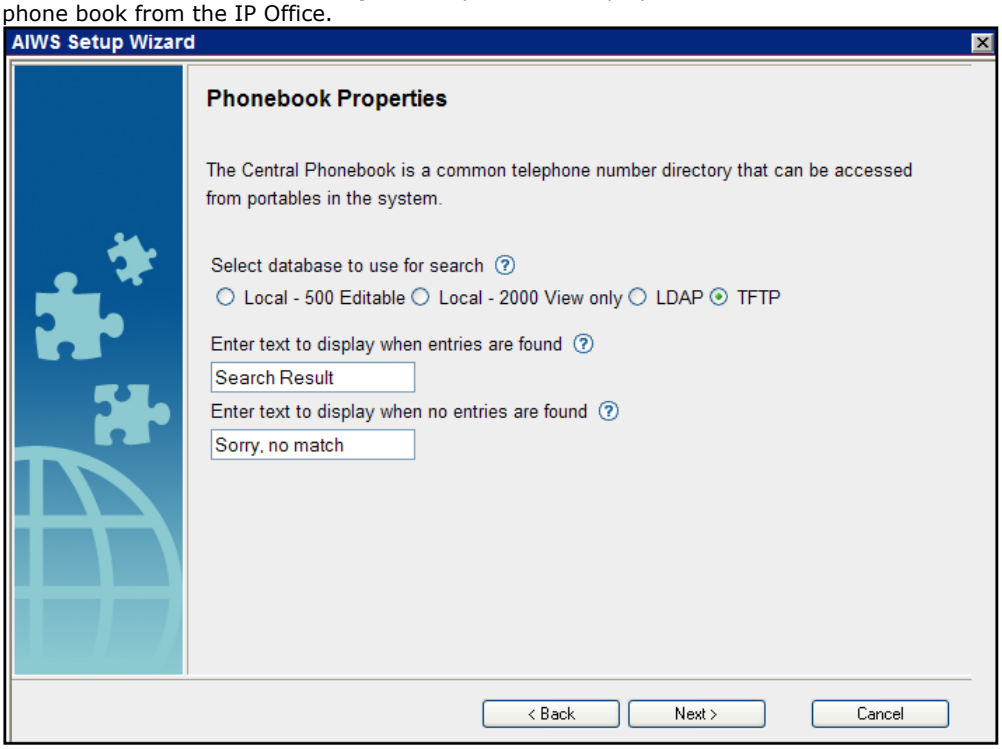
5. Click **Next**. Enter the IP address of the master base station.



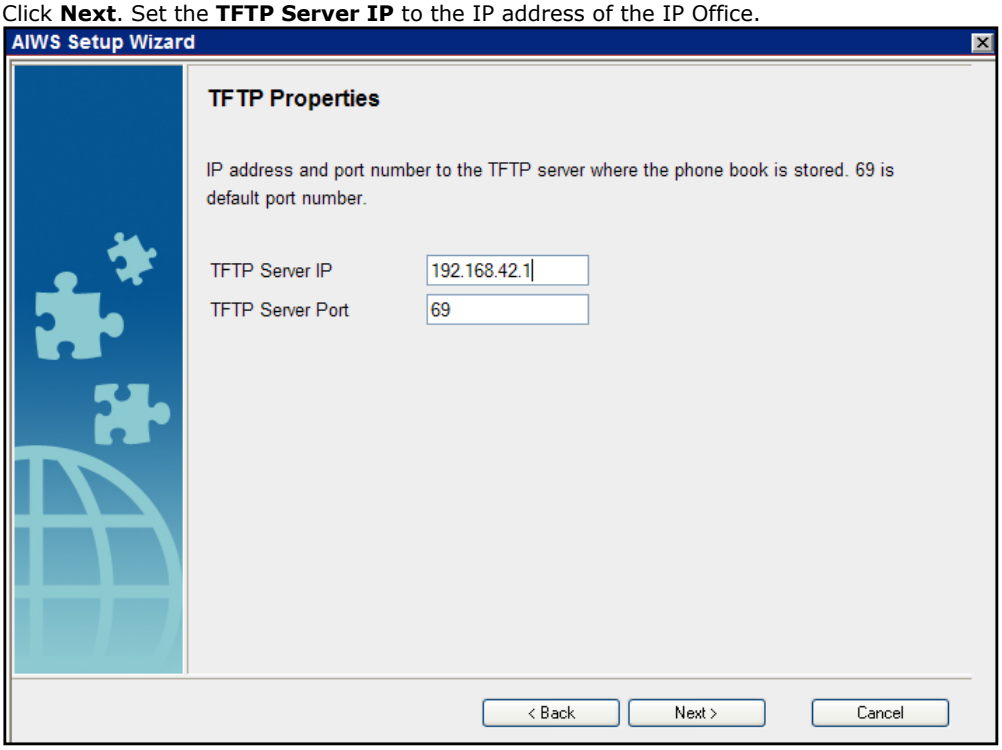
6. Click **Next**. The **Date and Time** options are displayed. Select ***NTP Time Server*** and set the **Time Server IP Address** to be the IP address of the IP Office. Adjust the other values to match the customer site.



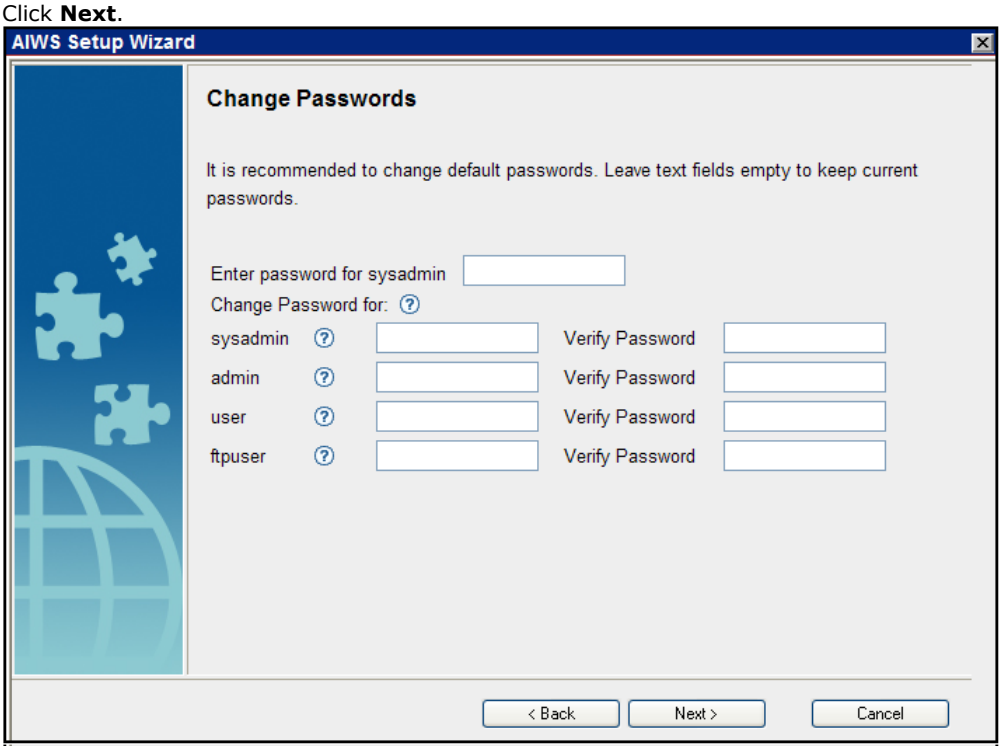
7. Click **Next**. The **Phonebook Properties** options are displayed. Select ***TFTP*** in order to have the AIWS obtain the phone book from the IP Office.



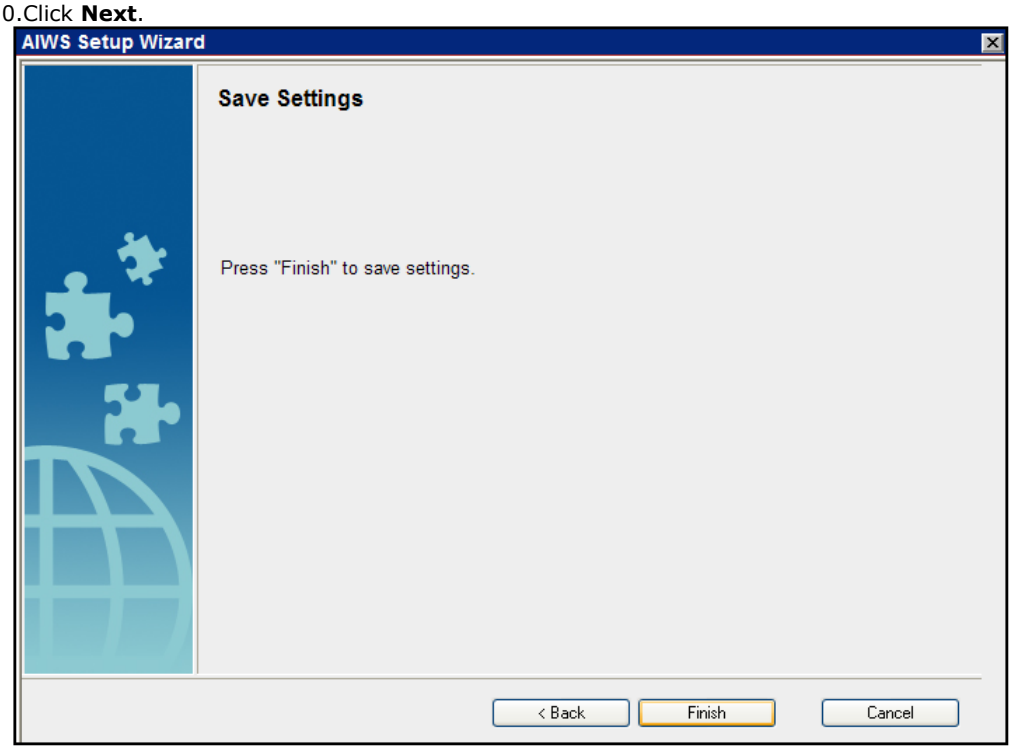
8. Click **Next**. Set the **TFTP Server IP** to the IP address of the IP Office.



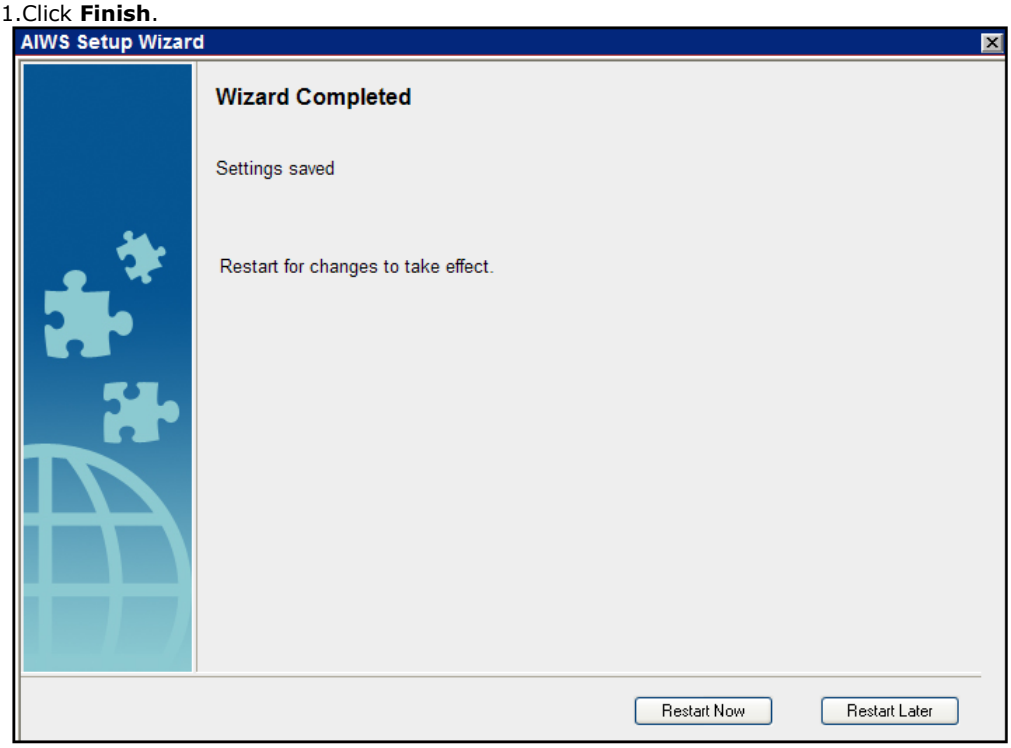
9. Click **Next**.



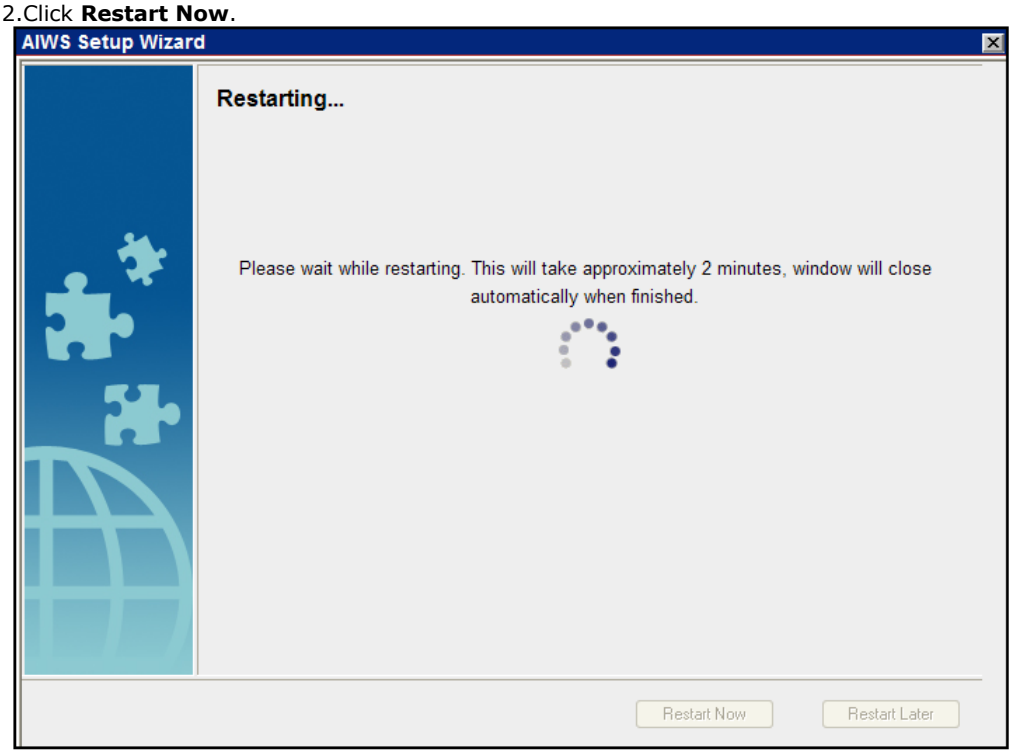
10.Click **Next**.



11.Click **Finish**.



12.Click **Restart Now**.



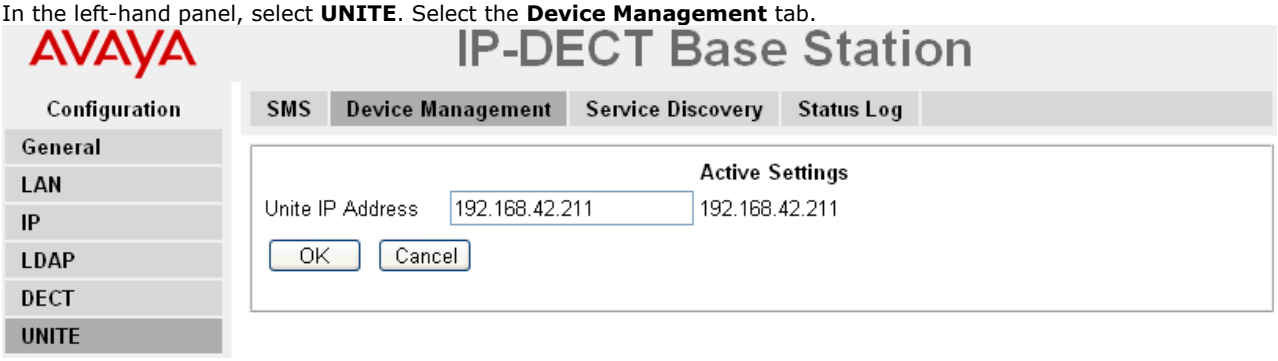
13.Close the browser access session. Start a new session using the new IP address.

7.2.6 Enable Base Station/AIWS Connection

The IP address of the AIWS needs to be entered into the configuration of the base stations.

Master Only

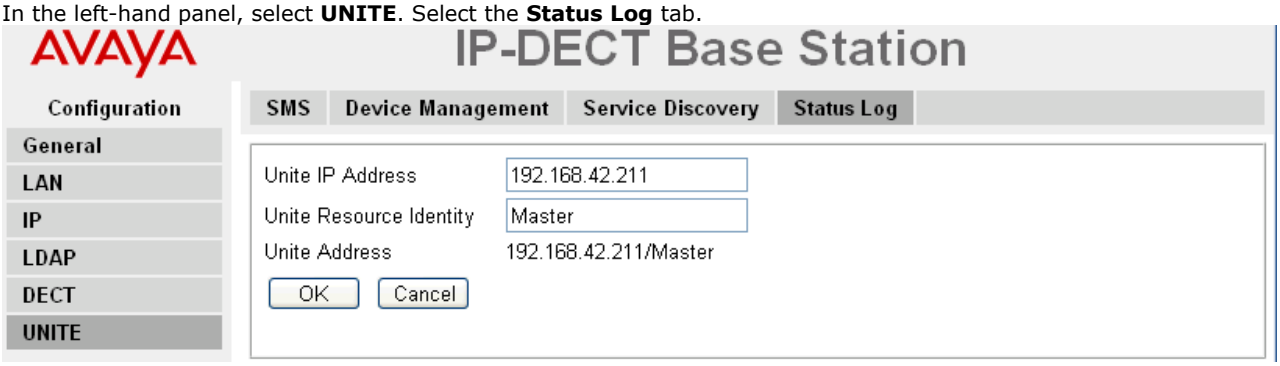
1. In the left-hand panel, select **UNITE**. Select the **Device Management** tab.



2. For the **Unite IP Address**, enter the IP address that will be assigned to the AIWS unit when installed in the DECT system.
3. Click **OK**.
4. In the left-hand panel select **General**. Select the **Admin** tab. Enable **Show Advanced Options** and refresh.
5. In the left-hand panel select **Phonebook** and disable the phonebook option.
6. Click **OK** and reset the master base station.

Master and Slave

1. In the left-hand panel, select **UNITE**. Select the **Status Log** tab.



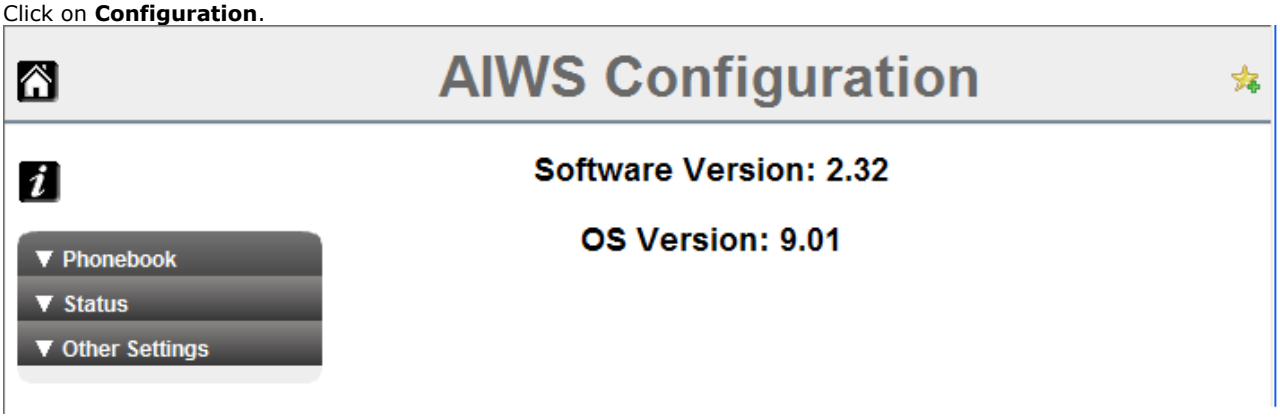
2. For the **Unite IP Address**, enter the IP address that will be assigned to the AIWS unit when installed in the DECT system.
3. For the **Unite Resource Identity** enter a unique name to be associated with the base station.
4. Click **OK**.
5. Select the **SMS** tab. Again enter the IP address that will be assigned to the AIWS unit when installed in the DECT system.
6. Click **OK**.

7.2.7 Upgrade the AIWS Firmware

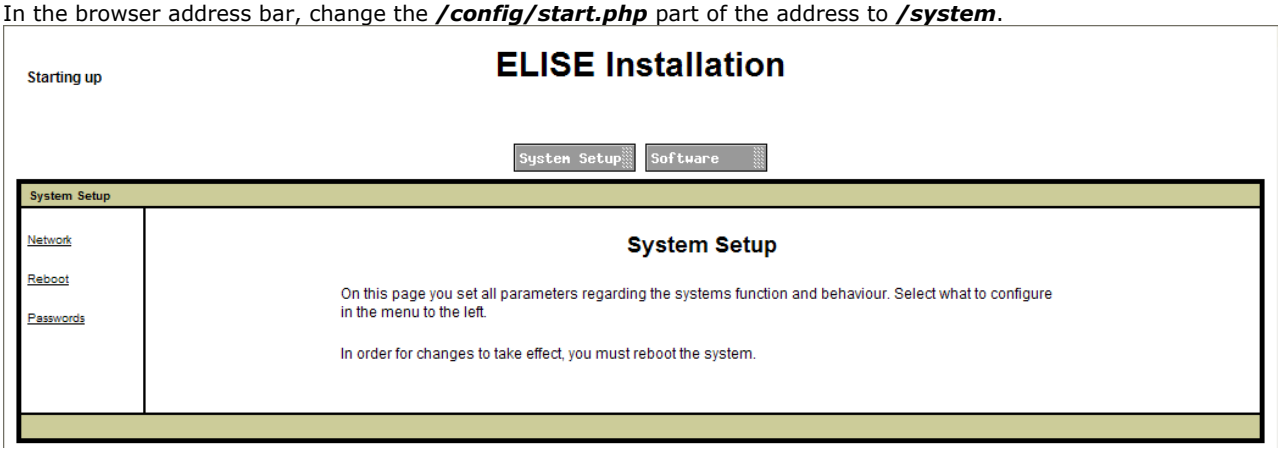
The AIWS will have been supplied with a default set of firmware. This must be upgraded to the firmware provided with the IP Office application software. Only the firmware supplied with the IP Office application software or indicated in IP Office Technical Bulletin should be used with AIWS units on IP Office DECT R4 systems.

- **Important:** This process can take up to 40 minutes.

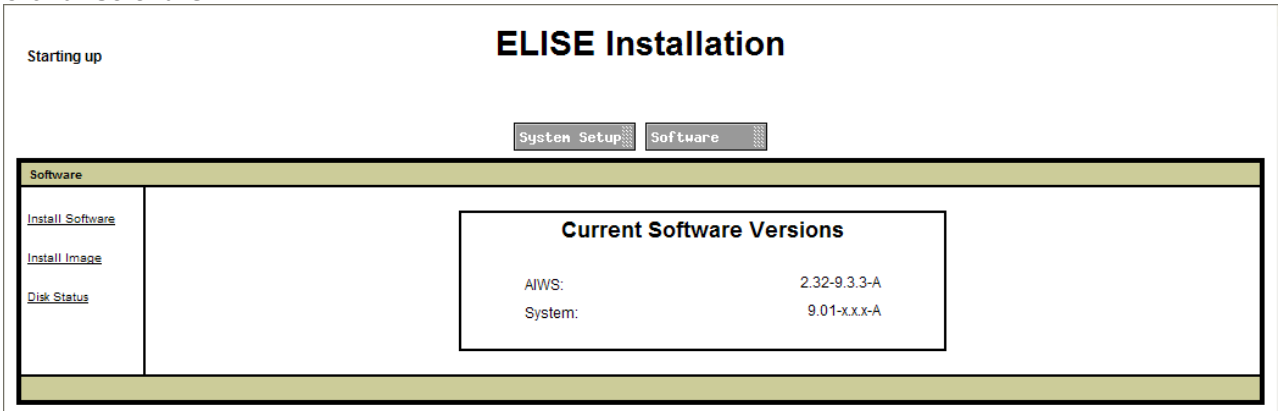
1. Using a browser login to the unit.
2. Click on **Configuration**.



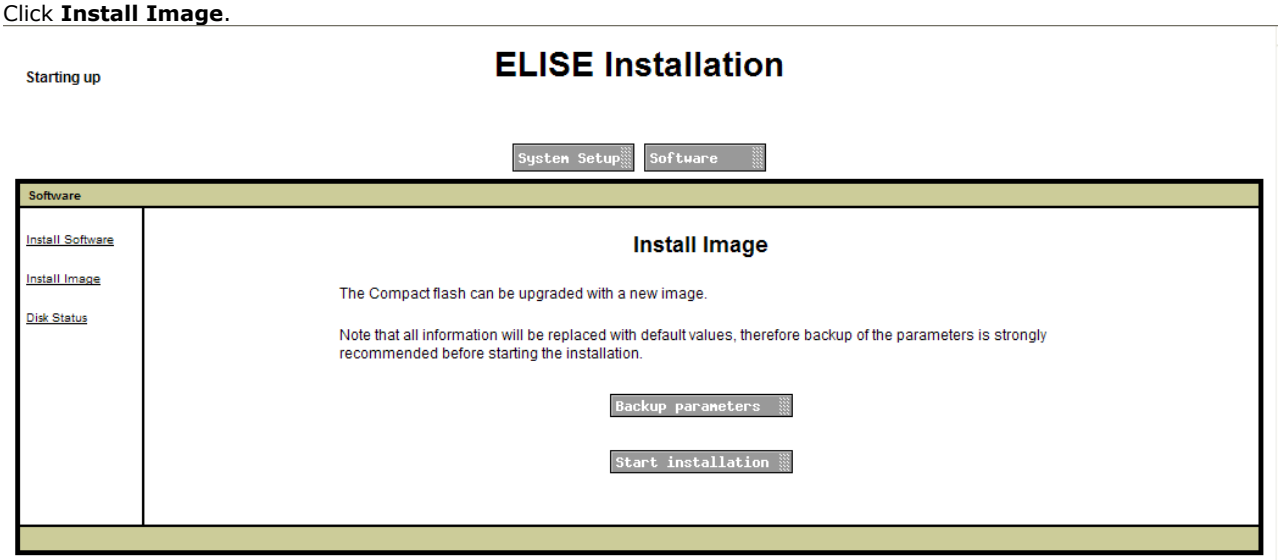
3. Note the software version. Check whether this already matches the firmware detailed as supported by the level of software on the IP Office system.
4. In the browser address bar, change the ***/config/start.php*** part of the address to ***/system***.



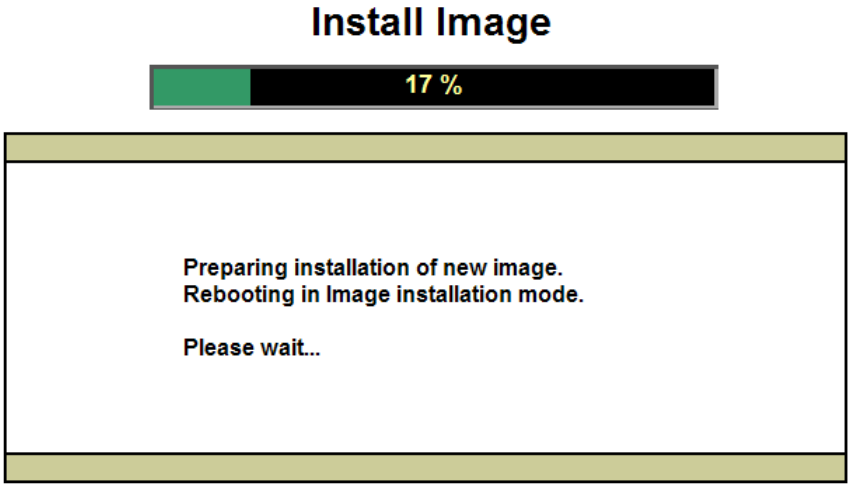
5. Click on **Software**.



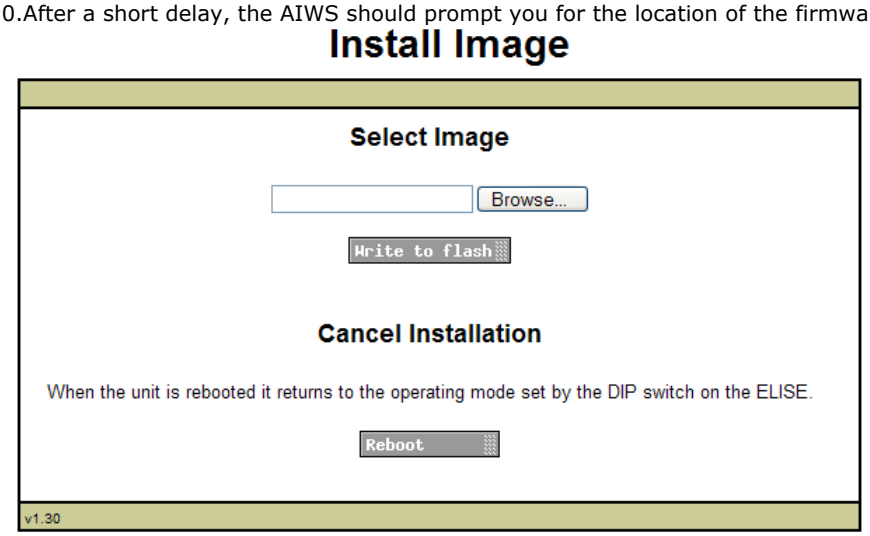
6. Click **Install Image**.



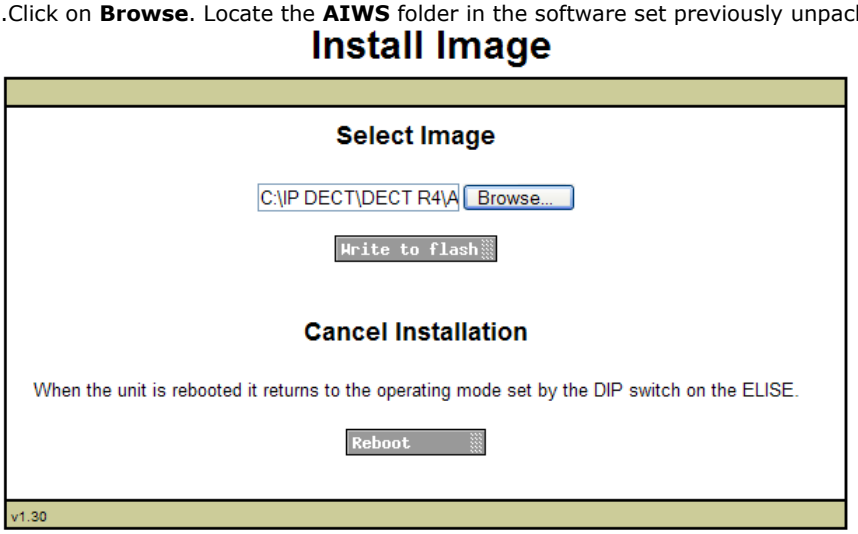
7. Click **Backup parameters**.
8. The browser will show it dialog for downloading a file called aiws-backup from the AIWS unit. Select the option to save the file and select a location to which it should be saved. Note the location as the file needs to be reloaded after the firmware upgrade.
9. Click **Start installation**.



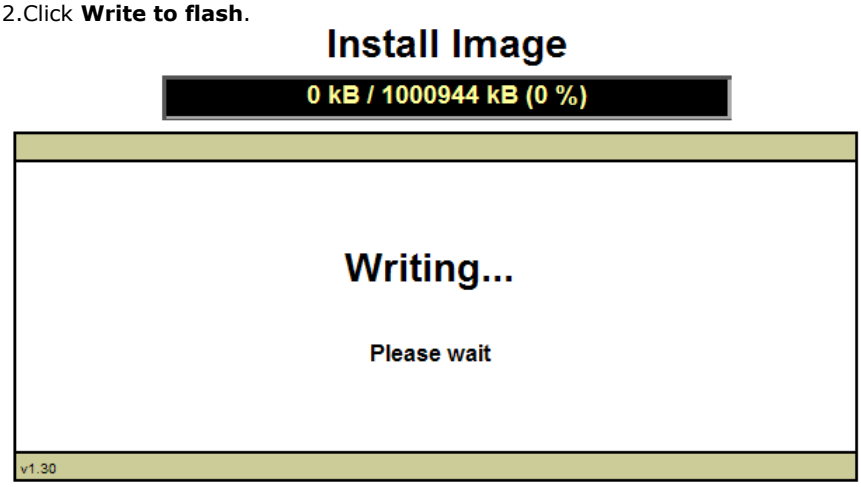
10. After a short delay, the AIWS should prompt you for the location of the firmware file for the upload.



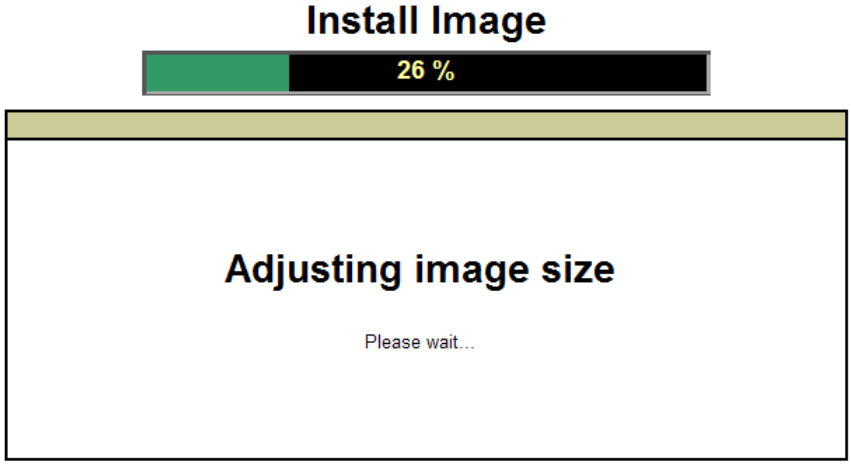
11.Click on **Browse**. Locate the **AIWS** folder in the software set previously unpacked. Select the ***.img*** file.



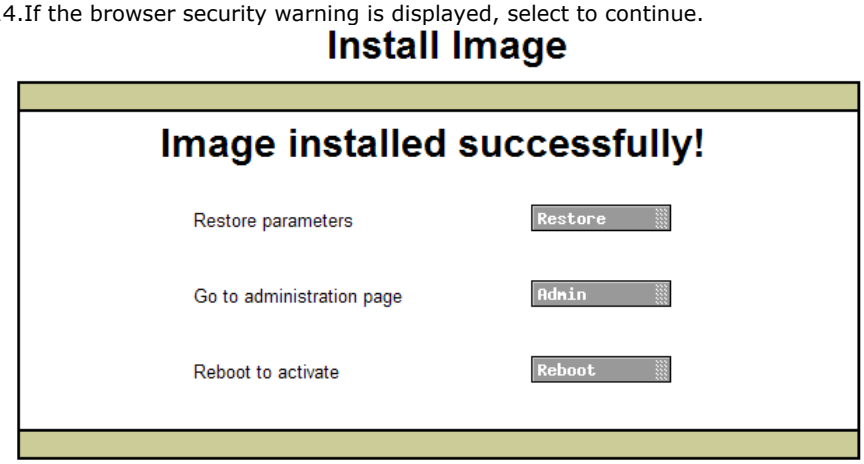
12.Click **Write to flash**.



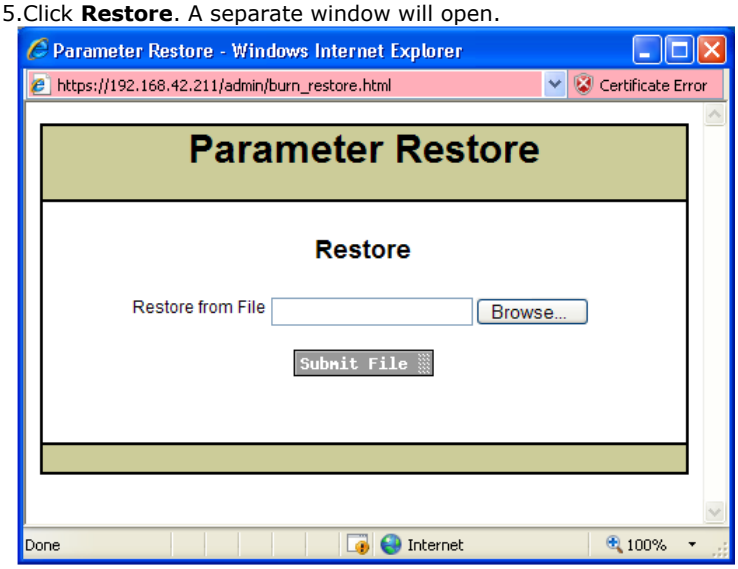
13.Now go make a cup of tea and maybe read a book - It is not fast and must be allowed to complete.



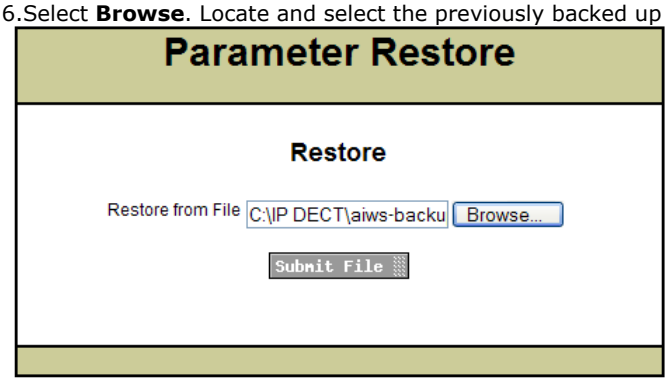
14.If the browser security warning is displayed, select to continue.



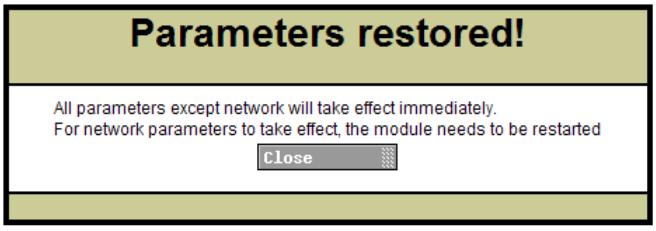
15.Click **Restore**. A separate window will open.



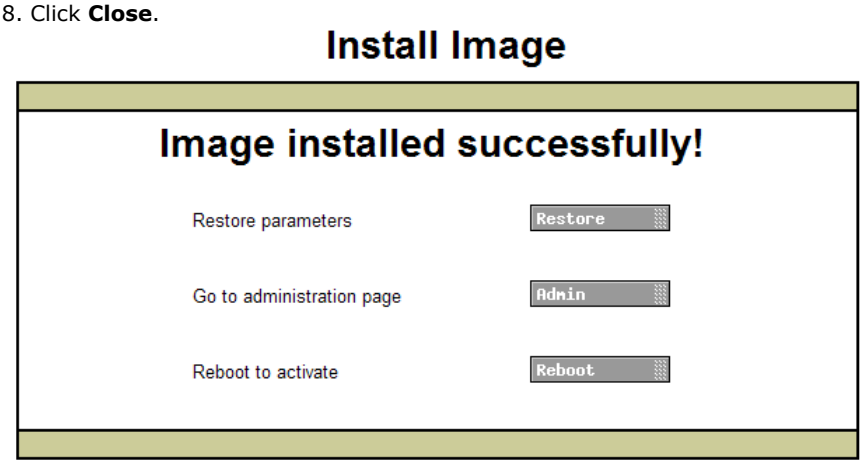
16.Select **Browse**. Locate and select the previously backed up ***aiws-backup*** file.



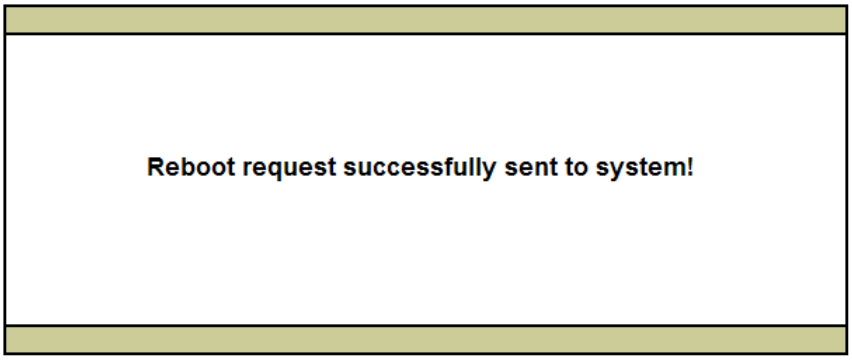
17.Click **Submit file**.



18. Click **Close**.



19.Select **Reboot**.



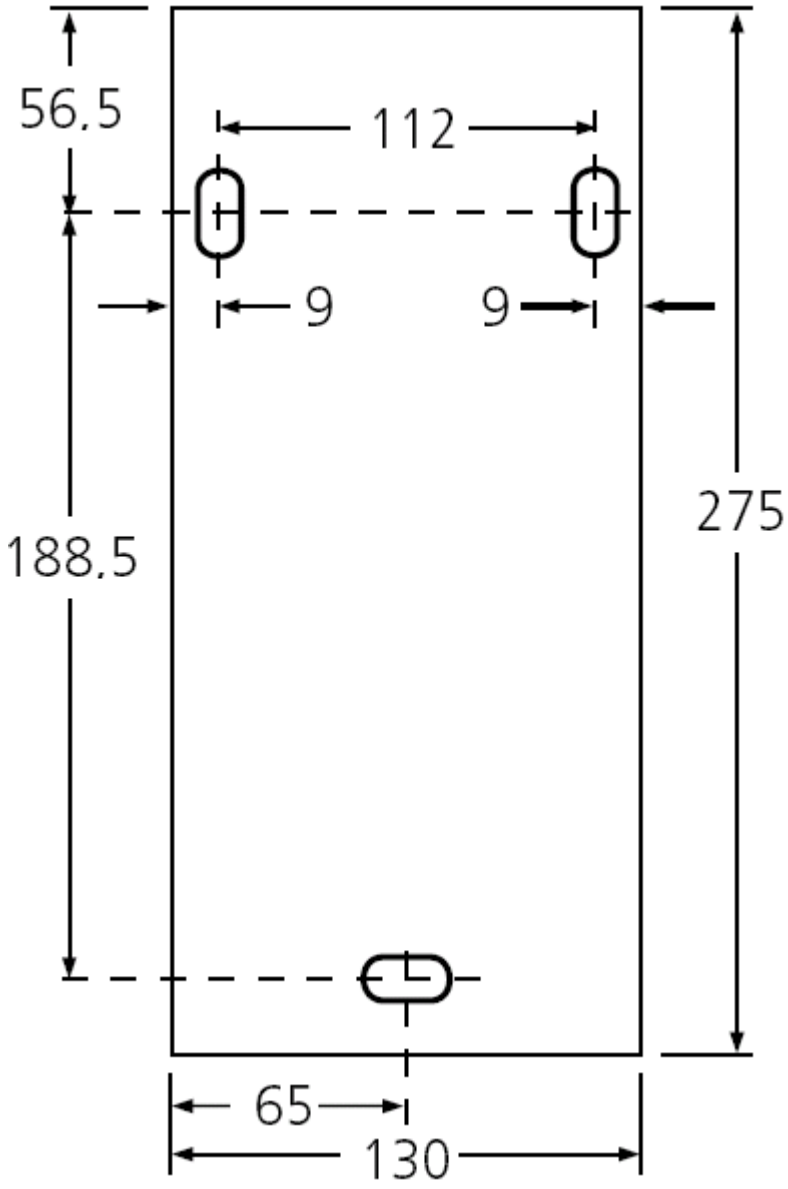
7.2.8 Switching Off the AIWS

Having now configured and upgraded the AIWS, it should be switched off and disconnected prior to being wall mounted

1. At the top right of the AIWS circuit board 124, locate the SW4 push button.
2. Press the button until the AIWS lamp starts to flash orange.
3. Remove the power cable. The power must be removed within 10 minutes or the AIWS will restart. If the AIWS restarts, wait until the Function Indicator is not indicating starting up (flashing orange) before pressing the SW4 button again.

7.2.9 Wall Mount the AIWS

The AIWS can be wall mounted. To facilitate service after the unit is installed, we recommend a free space of about 150 mm above and 50 mm below the unit.



7.2.10 Replace the AIWS Cover

The AIWS cover can be clipped back into place without using any tools.

1. Check that the AIWS is fully operating (green lamp) and can be browsed from the network.
2. Check that the cables are routed such that they will not be trapped when the cover is replaced.
3. Engage the cover with the top edge of the AIWS. Pivot the cover back into position, checking that the various plastic edges are in their original positions.
4. The cover clips will spring into position.

7.2.11 AIWS Status Lamp

Colour	State	Description
Green	On	Running.
Orange	On	Failsafe or Network setup mode.
	Flashing (1 second on/off)	Image installation mode.
	Fast flash (100ms on/off)	Starting.
	Intermittent flash (100ms on/1 second off)	Restart.
	Slow flash (2 seconds on/3 seconds off)	Halted (auto restart after 10 minutes).
	Wink (5 seconds on/100ms off)	Unlicensed.
Red	On	Low voltage.
	Intermittent flash (100ms on/1 second off)	License error.
	Flashing (1 second on/off)	Watch dog reset.
	Slow flash (2 seconds on/3 seconds off)	Shutdown.
	Very slow flash (3 seconds on/3 seconds off)	Memory error
	Wink (5 seconds on/100ms off)	Network error/Module key error.

7.2.12 Image Installation Mode

This is the maintenance process to put an AIWS into Image Installation mode. This is used to upload a .img file to the AIWS1 unit.

1. Remove the AIWS cover 124.
2. To set the AIWS to Image Installation mode:
   a. Looking at the AIWS without the cover, the status LED should be towards the upper right corner
   b. Beneath it there should be two rows of small switches, to the right of the round battery
   c. The bottom one is of interest, as a way of being sure there should be a mark on the board right next to it saying **SW3**.
   d. All the switches should be marked with numbers in range 1 to 8, there should also be a mark **ON**.
   e. Set only the switch labeled 4 to **ON**, the rest **OFF**.
3. From the browser make a reboot of the AIWS
   a. If unable, there is another way: press the small button above and a bit to the left of the round battery on the AIWS circuit board
   b. The press does not have to be long, a short one will do
   c. There is a 10 minute waiting time when doing so, in addition to the actual shutdown and startup of the AIWS
   d. The reboot from the browser does not have this waiting time, so it is preferred.
4. Access the AIWS through the web browser. Be sure to not type https in the address bar: in image installation mode it only works with http
5. Select the image file and upload it
6. Set the AIWS back to normal mode
   a. Set the switch labeled 4 back to OFF like all the rest
7. Reboot the AIWS, preferably from the browser again.
8. You must reconfigure the AIWS settings. Although the IP address should have not been changed, if having trouble accessing it try:
   a. Setting the AIWS in network mode by turning the switch labeled 1 to ON
   b. Reboot the AIWS
   c. The status LED should be steady orange (not blinking at all)
   d. Access the AIWS by the reserved IP address **192.5.36.229**.
   e. Enter the desired IP settings
   f. Set the AIWS into normal mode by turning switch **1** back to **OFF**.
   g. Reboot the AIWS
   h. Access the AIWS using the newly entered LAN settings.

Chapter 8. Miscellaneous

8. Miscellaneous

8.1 Reset /Restart Switch

The base stations (all types), IP DECT Gateway and AIWS2 all include a reset switch. To press it requires a fine point. How long the switch is depressed affects the type of reset.

Action	Duration	Effect
Short press	Less than 1 second	Restart
Medium press	Approximately 3 seconds	Restart in TFTP mode. This mode is intended for development only.
Long press	Approximately 10 seconds	Factory reset. All configuration parameters will be set to default values.

8.2 Base Station Status Lamps

IPBS2 Base Stations

IPBS2 base stations have one LED to indicate status.

LED	Description
Blue On	Idle, no calls in progress.
Blue Fast Flash	Starting up or searching for air synchronization.
Blue On - Regular Blink	Calls in progress.
Blue On - Red Blink	Maximum calls in progress.
Blue Slow Flash	Firmware download in progress.
Yellow Fast Flash	IPBS2 is in mini firmware mode.
Yellow On	TFTP Mode *(not used)*.
Red Fast Flash	No Ethernet connection.
Red On	Hardware error.
Blue On - Yellow Blink	The IPBS2 is in deployment mode and has air synchronization.
Red On - Yellow Blink	The IPBS2 is in deployment mode and has no air synchronization.
Blue Slow Flash/Yellow Flash	The IPBS2 is in deployment mode and does not have adequate air synchronization.
Green	Reset button depressed.

IPBS1 Base Stations

Each IPBS1 base station has two LED lamps.

LED	Color	Description
LED 2 - Activity	**Off**	Idle, no calls in progress.
	Green	Calls in progress.
	Green Flashing	Maximum calls in progress.
	Amber*	Air synchronization insufficient and calls in progress.
	Amber Flashing*	Air synchronization insufficient and no calls in progress.
	Amber Slow Flashing*	Air synchronization insufficient and maximum calls in progress.
	Red Flashing	No air synchronization. Searching for synchronization signal.

	Red Fast Flashing	Download of RFP software in progress.
LED 1 - Status This is the lower LED on the bottom edge of the base station.	**Green**	Operational
	Flashing Amber	Firmware download in progress.
	Amber Fast Flash	TFTP Mode *(not used)*.
	Alternating Red/Green	No Ethernet connection.

Digital Base Station

Digital base stations have two LED lamps.

LED	Color	Description
LED 2 - Activity	**Off**	Idle, no calls in progress.
	Green	Calls in progress.
	Green Flashing	Maximum calls in progress.
	Amber	Base station OK but not operational (self-test, no communication with IP DECT Gateway).
	Amber Flashing	Software download in progress.
LED 1 - Status This is the lower LED on the bottom edge of the base station.	**Green**	Operational
	–	–
	–	–

8.3 IP DECT Gateway Status Lamps

IP DECT Gateway Status Lamp

This LED is located at the left-hand end of the front panel of the IP DECT Gateway.

LED	Description
Off	No power.
Green slow flash	Reset switch 144 pressed.
Green fast flash	Firmware update in progress or config cleared after reset.
Green on	OK.
Red on	Error.
Amber on	TFTP mode.

Base Station Port Lamps

Each base station port has a left-hand and right-hand LED. These are used as follows:

Left-hand LED		Right-hand LED	
LED	**Description**	**LED**	**Description**
Off	No link to base station.	**Off**	No calls in progress.
On	Linked and base station operational.	**On**	Calls in progress.
Flashing	Linked but base station not operational.	**Flashing**	Maximum calls in progress.

LAN Port Lamps

Each LAN port has a left-hand and right-hand LED. These are used as follows:

Left-hand LED		Right-hand LED	
LED	**Description**	**LED**	**Description**
Off	No link or Ethernet connection.	**Off**	No connection or 10Mbps connection.
On	No network activity.	**On**	100Mbps connection
Flashing	Network activity.	**–**	–

8.4 AIWS2 Status Lamps

Status LED

Colour	State	Description
Blue	On	OK. AIWS operational.
	Fast Flash	Starting up or shutting down.
Red	Fast flash	Error or fault.
	Slow flash	Warning
Yellow	Double blink	Waiting for automatic startup.

Power LED

Colour	State	Description
Blue	On	Power OK.
Red	Fast flash	Shutting down due to low voltage.
	Slow flash	Low voltage.

Mode LED

This LED is incorporated into the Mode button on the front of the unit.

Colour	State	Description
Blue	Slow flash	Mass storage mode.

8.5 AIWS1 Status Lamp

Colour	State	Description
Green	On	Running.
Orange	On	Failsafe or Network setup mode.
	Flashing (1 second on/off)	Image installation mode.
	Fast flash (100ms on/off)	Starting.
	Intermittent flash (100ms on/1 second off)	Restart.
	Slow flash (2 seconds on/3 seconds off)	Halted (auto restart after 10 minutes).
	Wink (5 seconds on/100ms off)	Unlicensed.
Red	On	Low voltage.
	Intermittent flash (100ms on/1 second off)	License error.
	Flashing (1 second on/off)	Watch dog reset.
	Slow flash (2 seconds on/3 seconds off)	Shutdown.
	Very slow flash (3 seconds on/3 seconds off)	Memory error
	Wink (5 seconds on/100ms off)	Network error/Module key error.

Chapter 9.
Non-Provisioned Installation

9. Non-Provisioned Installation

This method of installation is used with pre-IP Office Release 7.0 systems and systems that include handsets that do not support IP Office provisioning.

- **When to Use Non-Provisioned Installation**
  The use of IP Office provisioned installation 32 is recommended for all installations except those that contain no 3720, 3725, 3740 or 3749 phones.

- It is assumed that you are familiar with installation and configuration of IP Office systems.

Information

- Service user name and password for IP Office configuration access.
- Service user name and password for IP Office security settings access.
- IP Office IP address.
- Avaya IP Endpoint licenses

Parts Required

- IP Office Release 7.0 software DVD or image of the IP Office Release 7.0 admin software.

Tools Required

- Programming PC with IP Office Manager application installed. You must have rights on this PC to change its IP address settings unless it is a DHCP client.
- Software for zip file extraction.

IP Base Station Installation Requirements

Parts Required

- Base station
  Includes:
  - Base station.
  - Two 3.5mm screws and two 6mm wall plugs suitable for wall mounting onto a solid wall (brick or similar).
  - 1.2 metre (4 foot) LAN cable. If this is replaced with a longer cable the replacement should be a CAT5 Ethernet LAN cable.
- If using Power over Ethernet:
  - The base station supports Power over Ethernet, IEEE 802.3af, class 2.
- If not using Power over Ethernet:
  - Base station power supply unit.
    Required if not using Power over Ethernet to power the base station. Note that the base station power supply units include an 8 metre (26 feet) cable from the PSU to the base station. Check that you have the correct type of power supply unit for the locale.
    - BSX-0013: Europe (except United Kingdom).
    - BSX-0014: United Kingdom.
    - BSX-0015: USA/Canada.
    - BSX-0016: Australia.
  - Mains power outlet socket.
- LAN Socket.

Information

- DECT R4 SARI.
- Base Station IP Addresses.
- Detailed plans from the site survey indicating the intended base station locations, LAN sockets and if necessary power supply outlets.

Tools

- Programming PC with DECT R4 software.
- Web browser.
- Drill and drill bits suitable for the selected wall mounting position of the AIWS.
- Screwdrivers for use with the screws selected for AIWS wall mounting.

Phone Subscription Requirements

Information

- Service user name and password for IP Office configuration.
- User names and extension numbers for the DECT phones.
- Phone IPEI numbers if using an pre-configured installation mode.

Tools

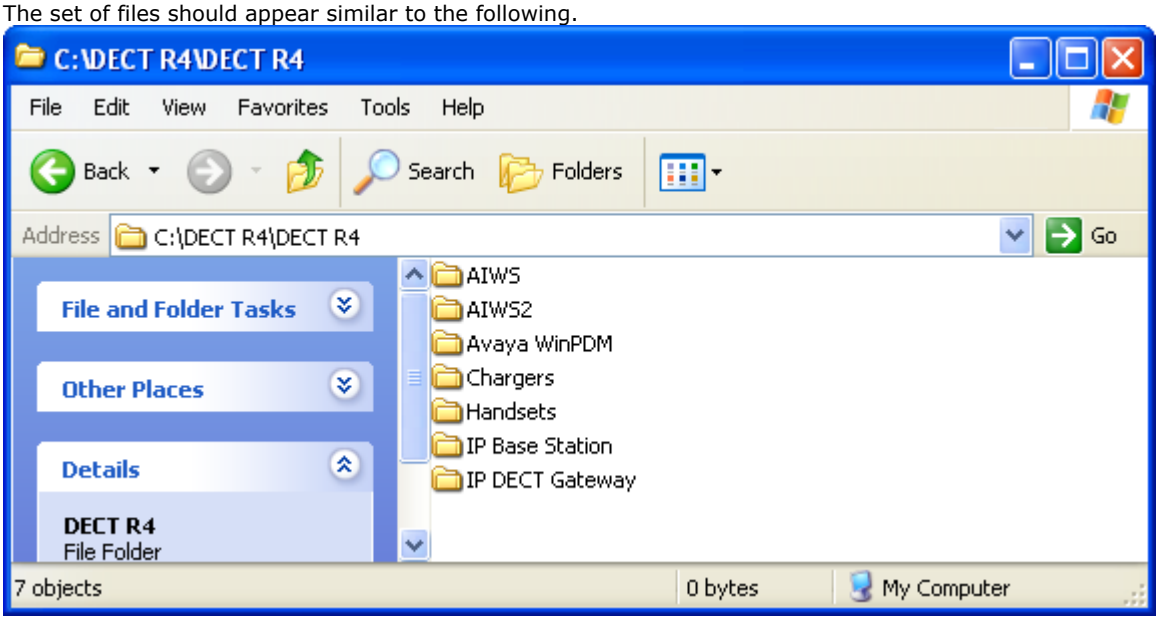
- **IP Office Manager**.
- **Device Manager**
  The software installed on each handset may need to be upgraded to match that supplied with the DECT R4 software 34. This is done using the Windows Device Manager software to upgrade phones via an advanced charger or using AIWS Device Manager 95 to upgrade phones over the air.
- Web browser (Internet Explorer or Firefox are supported).

9.1 DECT Software

Before beginning installation, in addition to having IP Office Manager installed, you need to unpack the DECT R4 software onto your programming PC.

DECT R4 is supported on a range of Avaya systems. However, for IP Office operation, only firmware specifically documented as having been tested and supported with IP Office should be used. Details of supported firmware will be included in IP Office Technical Bulletins and Technical Tips.

1. On the programming PC, create a folder with a name indicating its purpose, for example ***c:\IP_DECT_R4***.
2. Within the IP Office Administrator Application software (ie. the software from which IP Office Manager is installed), locate the folder **IPDECT**.
3. The folder contains a file ***DECT R4.zip***. This is the file containing software for DECT R4. The file ***IPDECT.zip*** contains software for the previously supported IP DECT product and not for DECT R4.
4. Copy the ***DECT R4.zip*** file to the folder created on the programming PC.
5. Using WinZip or a similar tool, extract the contents of the zip file into the folder, maintaining the directory structure of the zip files.
6. The set of files should appear similar to the following.



7. Check the software levels as follows:
   - Open the **IP Base Station** folder. There are separate sub-folders for **IPBS1** and **IPBS2** base stations. Open each and note the software level shown as part of the .bin file filenames, there are separate files for the base station boot file and firmware file. All the base station in the installed system should be run the same levels of software.
   - Open the **Handsets** folder and note the software level shown as part of the .pkg file filenames. The handsets in the system should be running this level of software or higher.
   - Open the **IP DECT Gateway** folder and note the software level shown as part of the .bin filenames.

9.2 Adding Licenses

Each IP DECT extension requires an Avaya IP Endpoint license. This applies even if the handset subscribed to the IP DECT R4 system is not an Avaya phone.

Phones without a license will still be able to subscribe and register but will be limited to making emergency calls only (calls that match an IP Office **Dial Emergency** short code). The associated user will be treated as if logged off. If a license becomes available, it will be assigned to any unlicensed DECT handsets first and then to any other unlicensed Avaya IP phone in the order that the phones registered.

- **Avaya IP Endpoint Licenses**
  Licenses are added to the IP Office configuration and are based on a serial number unique to the system.
  - Phones can be licensed up to the 384 extension limit for all phone extensions of any type.
  - For each IP500 VCM 32 or IP500 VCM 64 card installed in the system also enables 12 Avaya IP endpoints without requiring licenses.
  - For each IP400 VCM card installed in the system, each VCM channel supported by the card allows support for 3 Avaya IP phones.
  - The VCM channels provided by IP500 Combination cards do not enable any Avaya IP endpoints.
  - Licenses are normally automatically assigned to extensions in order of registration. However, existing extensions can be configured to reserve a license 42. This ensures that they do not become unlicensed when newly added extensions manage to register first following a system reboot.

9.2.1 Checking the Licensing Number

IP Office licenses are issued against a unique dongle serial number. For IP500 control units, the number is unique to the smart card fitted to the control unit. For IP500v2 control units, the number is unique to the System SD card fitted to the system. For any licenses entered into the system configuration to be valid, they must be licenses issued against that serial number.

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Select  **System**.
3. Select the **System** tab.
4. The feature key serial number is shown by the **Dongle Serial Number** field.

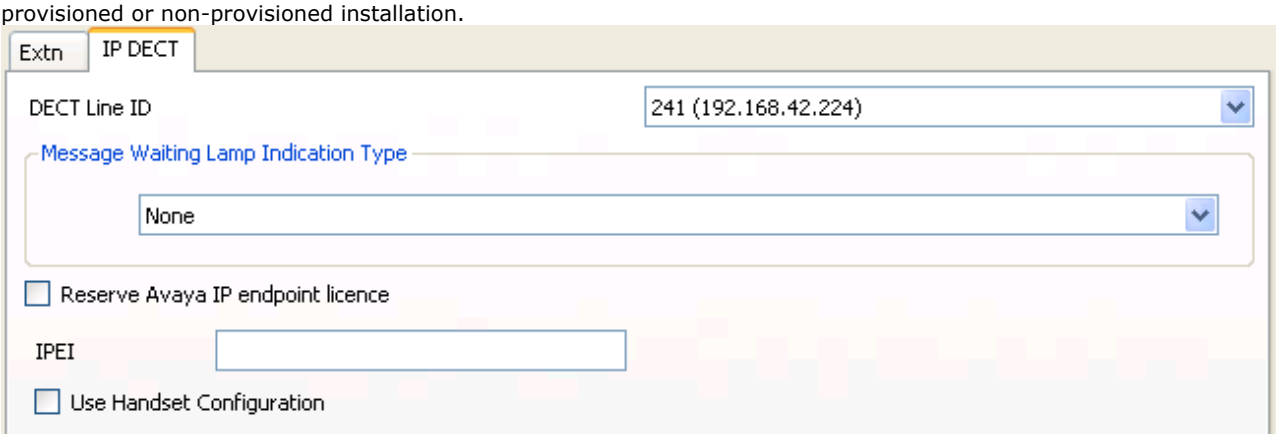
9.2.2 Adding Licenses

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Select  **License**.
3. The current licenses in the system configuration are displayed.
4. To add a license click on  and select **License**.
5. Enter the license which you have been supplied and click **OK**.
6. The type of the license, ***Avaya IP endpoints***, should be displayed but with its **License Status** set to ***Unknown***. If the **License Type** was not recognized, check that the key was entered correctly.
7. Save the configuration back to the IP Office system and then receive the configuration from the IP Office system again.
8. The **License Status** should now be ***Valid***.

9.2.3 Reserving Licenses

Licenses are normally automatically assigned to extensions in order of registration. However existing extensions can reserve a license in order to ensure they do not become unlicensed when new extensions added to the system manage to register first following a system reboot.

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Select  **Extension** and then select the DECT extension.
3. Select the **IP DECT** tab. Note, the appearance of this menu will vary depending on whether you are doing a provisioned or non-provisioned installation.



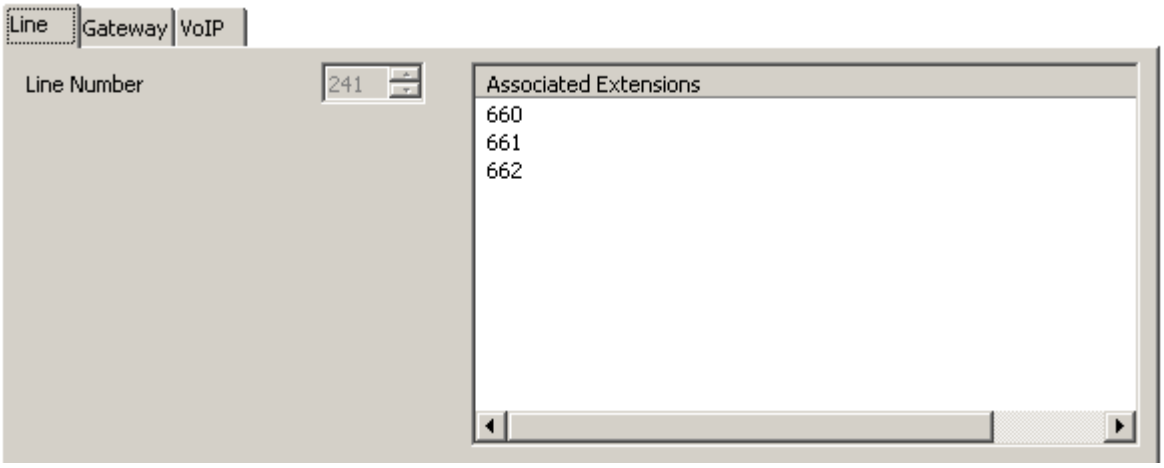
4. The **Reserve Avaya IP endpoint license** setting is used to reserve an existing license for the extension. The option is greyed out if the configuration does not have sufficient unreserved licenses remaining.
5. Repeat the process for any other extensions for which you want to reserve the license.
6. Save the configuration back to the IP Office system.

9.3 IP DECT Line Setup

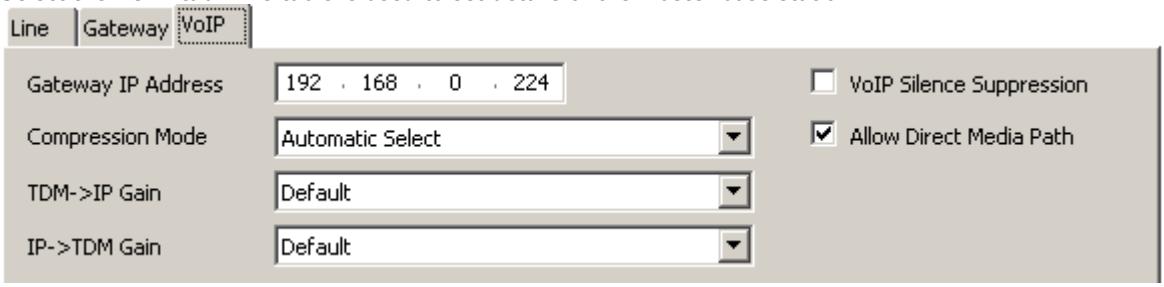
At this stage we will create an IP DECT line for traffic between the IP Office and the DECT R4 system. The line is configured with the IP address of the master base station. The IP Office configuration only requires and allows a single IP DECT line.

- **Reboot Required**
  Add or removing a line from the IP Office configuration requires the IP Office system to reboot. This will end all calls and services in progress.

1. Using IP Office Manager, receive the configuration from the IP Office system.
2. Click on **Line**. The list of existing lines is shown.
3. Click on the icon and select **IP DECT Line**. The settings for an IP DECT line are displayed. If the option is greyed out then the configuration already contains an IP DECT line.
4. On the **Line** tab there are no adjustable settings. Once the system is installed and operational, this tab will list the DECT extensions.



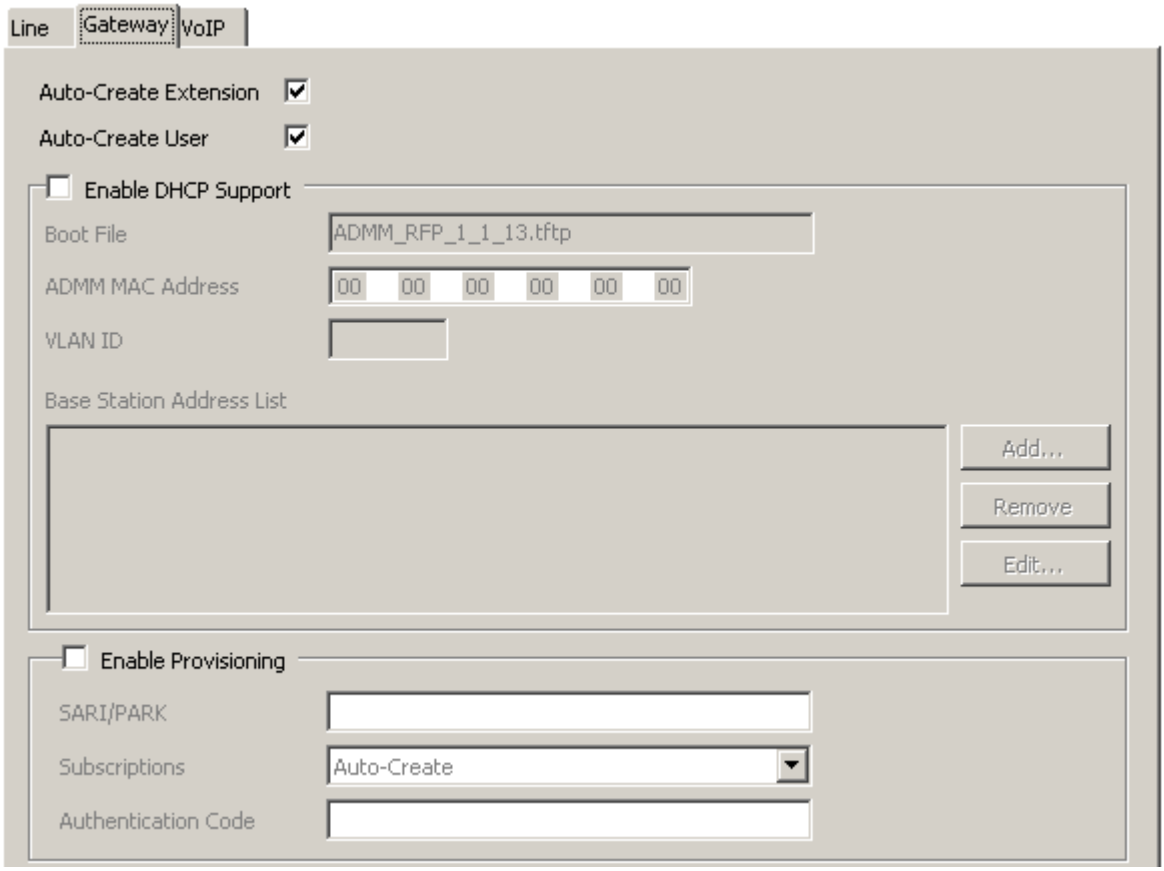
5. Select the **VoIP** tab. This table is used to set details of the master base station.



   a. Set the **Gateway IP Address** to match the IP address that will be assigned to the master base station. The **MAC Address** field is not used.

   b. Leave the other fields at their default settings.

6. Select the **Gateway** tab.



   a. If you want to use anonymous handset subscription, select the **Auto-Create Extension** and **Auto-Create User** options.

   b. The **Enable DHCP Support** options are not used for DECT R4 systems. Do not enable.

   c. The **Enable Provisioning** options are used for a provisioned installation 32. Do not enable for a non-provisioned installation.

7. Save the configuration back to the IP Office system. If the system request a reboot select one of the reboot modes.

9.4 Master Base Station Configuration

The base station installation process consists of the following stages:

1. **Default the base station.**
2. **Access the base station configuration.**
3. **Update the base station firmware.**
4. **Set the base station IP address.**
5. **Set the time source.**
6. **Set the QoS/ToS settings.**
7. **Enable status logging by the AIWS.**
8. **Set the base station as the master base station.**
9. **Select the PBX Switch mode.**
10. **Configure the IP trunk.**
11. **Enable the radio settings.**
12. **Enter the PARI code.**
13. **Enter the SARI/PARK code.**
14. **Configure Air Synch.**
15. **Configure IP Office Directory Integration.**
16. **Reset the base station.**
17. **Check the base station.**

Pre-Requisites

- ☐ IP Office connected to the LAN with IP DECT line configured for master base station IP address.

Parts Required

- Base station
  Includes:
  - Base station.
  - Two 3.5mm screws and two 6mm wall plugs suitable for wall mounting onto a solid wall (brick or similar).
  - 1.2 metre (4 foot) LAN cable. If this is replaced with a longer cable the replacement should be a CAT5 Ethernet LAN cable.
- If using Power over Ethernet:
  - The base station supports Power over Ethernet, IEEE 802.3af, class 2.
- If not using Power over Ethernet:
  - Base station power supply unit.
    Required if not using Power over Ethernet to power the base station. Note that the base station power supply units include an 8 metre (26 feet) cable from the PSU to the base station. Check that you have the correct type of power supply unit for the locale.
    - BSX-0013: Europe (except United Kingdom).
    - BSX-0014: United Kingdom.
    - BSX-0015: USA/Canada.
    - BSX-0016: Australia.
  - Mains power outlet socket.
- LAN Socket.

Information

- DECT R4 SARI.
- Base Station IP Addresses.
- Detailed plans from the site survey indicating the intended base station locations, LAN sockets and if necessary power supply outlets.

Tools

- Programming PC with DECT R4 software.
- Web browser.
- Drill and drill bits suitable for the selected wall mounting position of the AIWS.
- Screwdrivers for use with the screws selected for AIWS wall mounting.

9.4.1 Default the Base Station

This process will default a base station or IP DECT Gateway, erasing its configuration. After the unit restarts it will default to the IP address 192.168.0.1/255.255.255.0.

1. With the unit not connected to anything else, connect the power supply and switch on.
2. Wait approximately 5 seconds.
3. Using a fine point, depress the unit's reset switch for at least 10 seconds.
4. Release the switch. The unit will restart.
5. After approximately 5 seconds the unit will default to the address 192.168.0.1.

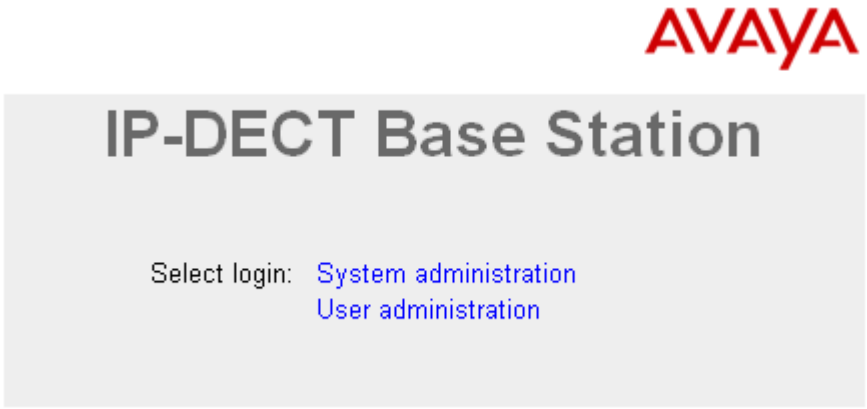
Alternate Method

The address an existing base station or IP DECT Gateway is using can be determined using the following process. It uses the MAC address of the unit which is printed on a label on the back or bottom of the unit.

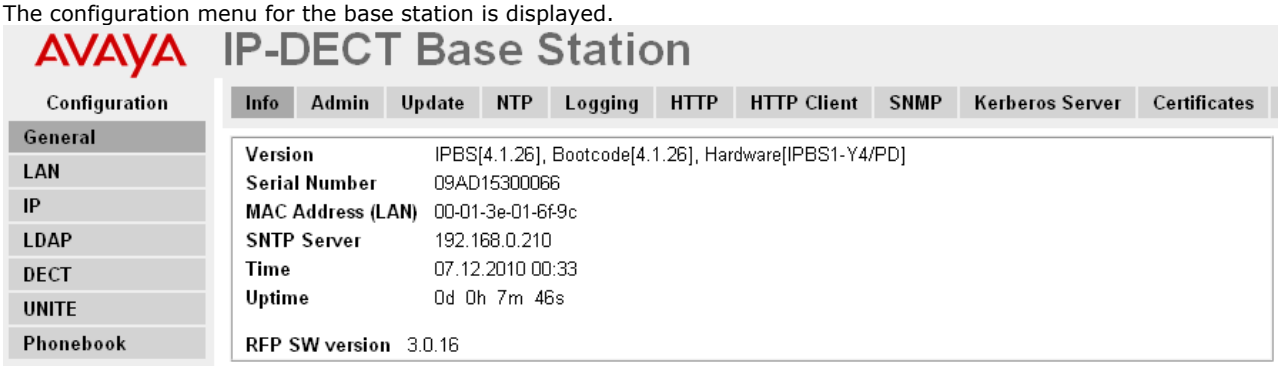
1. Open a Windows command window by selecting **Start | Run** and enter ***cmd***.
2. Enter **nbtstat -R**. The PC should respond that is has purged and reloaded the NBT remote cache table.
3. For a base station enter **nbtstat -a ipbs-*xx-xx-xx*** when *xx-xx-xx* is replaced with the last 6 hexadecimal digits of the base stations MAC address. For a IP DECT Gateway, enter **nbtstat -a ipbl-*xx-xx-xx***.
4. The results will show the IP address which it being used.
4. Use that address to access the base stations configuration and set it to a fixed address.

9.4.2 Access the Base Station's Configuration

1. Depending on whether DHCP is being used or not:
   - If connected directly to the base station, change your programming PC's network address to 192.168.0.200 with subnet mask 255.255.255.0. Connect the LAN cable from your PC to the base station.
   - If both your PC and the base station are connected to a LAN network with DHCP server, ensure your PC is set to act as a DHCP client or has a fixed address that is valid on the network.
2. Start your web browser and enter the http:// or https:// followed by the IP address of the base station. The default IP address is 192.168.0.1. If a security certificate warning is displayed, select to continue to this website.
3. The base station should respond with its initial configuration menu.



4. Select **System administration**. A password entry dialog will be displayed. Enter the default user name (***admin***) and password (***changeme***).
5. The configuration menu for the base station is displayed.

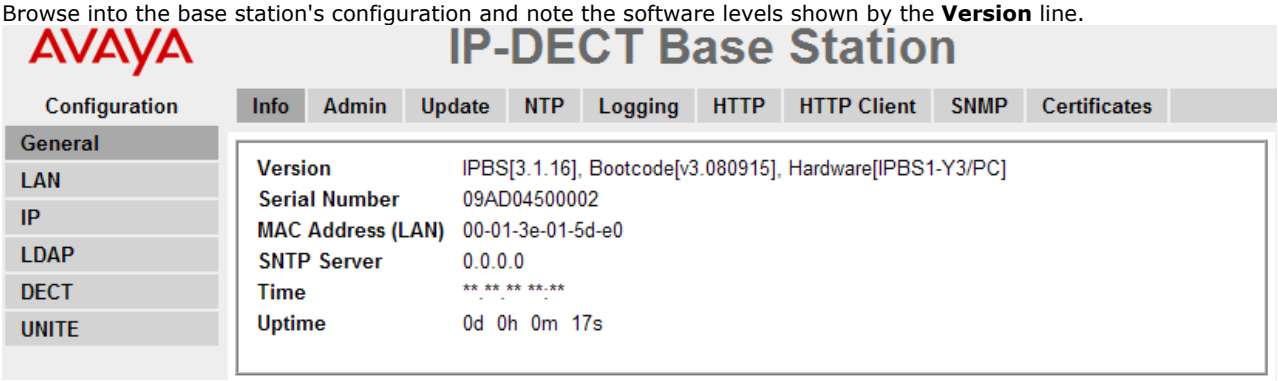


6. Note the software levels shown in the Version screen. These will determine whether the base station software needs to be upgraded.

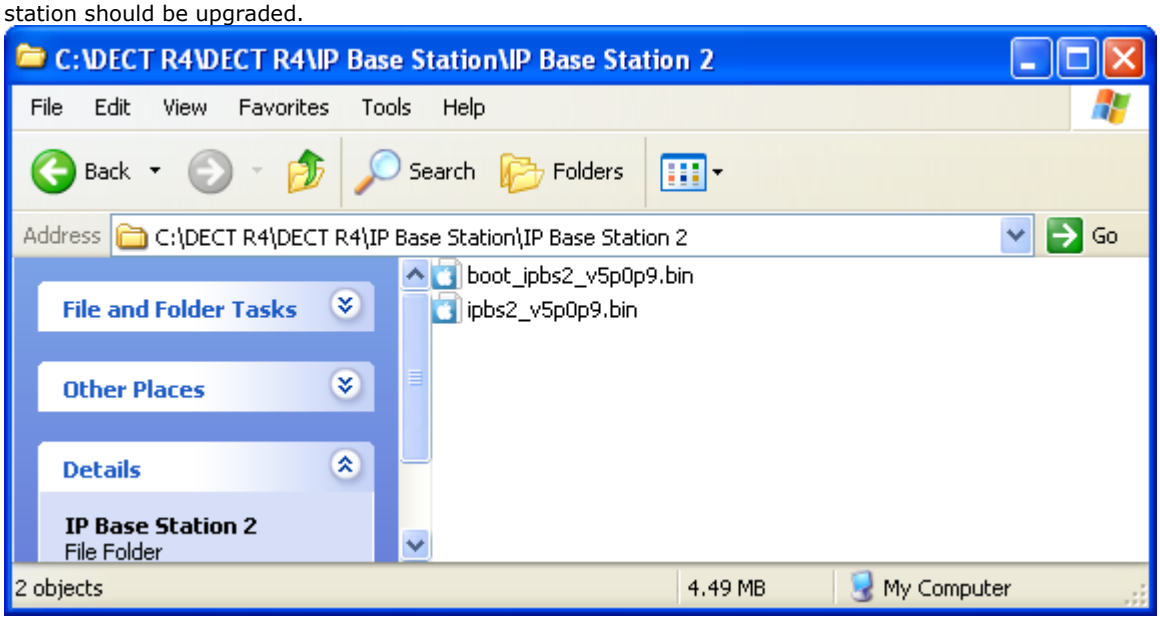
9.4.3 Update the Base Station Firmware

The base station may need to be upgraded to the software supplied for use with IP Office administration software. That software consists of two parts, a firmware file and a boot file. All base stations in a DECT system should use the same software.

1. Browse into the base station's configuration and note the software levels shown by the **Version** line.

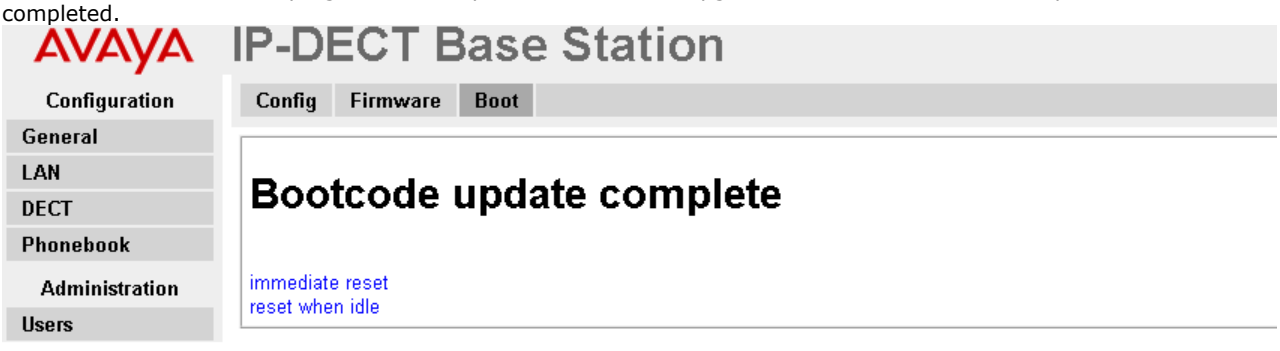


- Check that these match the versions supplied with the IP Office administration software. Ensure that you are checking against the correct folder for an IPBS1 or IPBS2 base station. If they do not not match, then the base station should be upgraded.

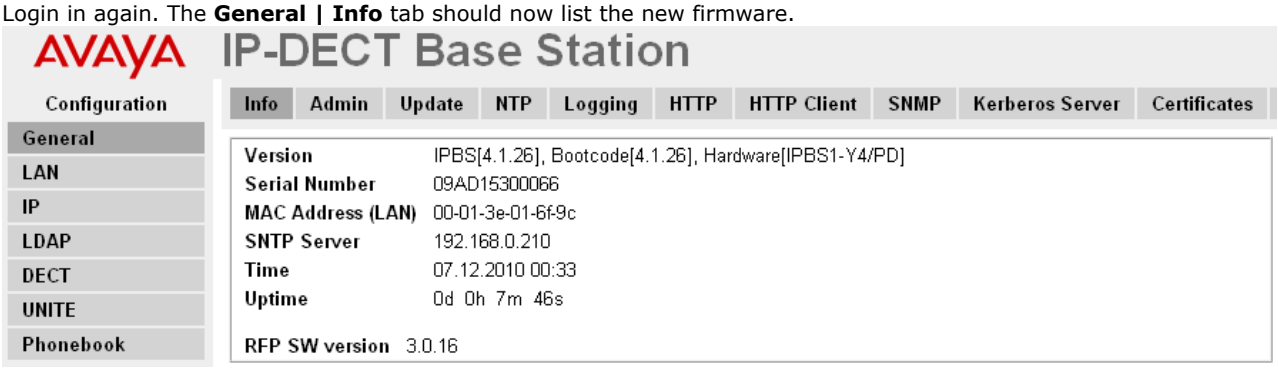


- If both software files need to be upgraded, the boot file should be upgraded first.

2. To upgrade the boot file, in the left-hand column select **Update** and then select the **Boot** tab. To upgrade the base station file, select **Update** and then select the **Firmware** tab. The method for both files is similar, however ensure you upgrade the boot file first if both need to be upgraded.
3. Click on the **Choose File** button and browse to the ***IP Base Station*** sub-folder of the IP DECT R4 software you previously extracted onto the programming PC.
4. Select the appropriate file for the upgrade you are performing, ie. the file with boot in the file name if doing a boot file upgrade. Click **OK**.
5. Click on the **Upload** button.
6. The browser will show the progress of the upload and firmware upgrade. It will indicate when the process has been completed.



7. Click on **immediate reset**.
8. Login in again. The **General | Info** tab should now list the new firmware.



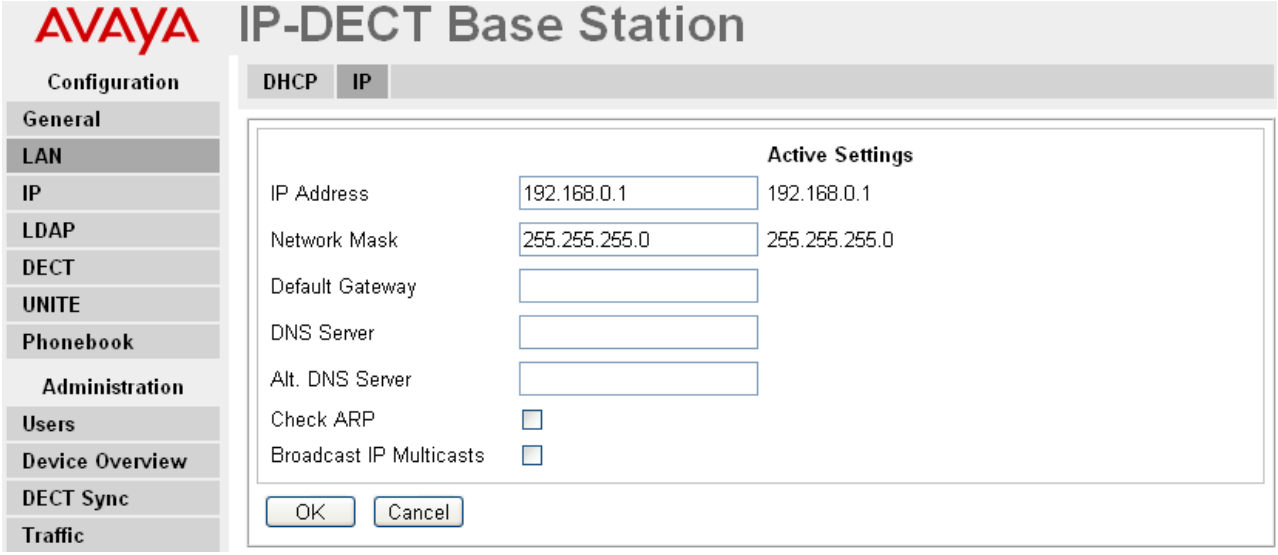
9. If necessary, repeat the process for the firmware using the **Update | Firmware** menu.
10. For a IP DECT Gateway, if necessary also repeat the process for base station firmware for base stations that will be connected to the IP DECT Gateway using the **Update | RFPs** menu.

Repeat the steps above for any other base stations that are also being installed. All the base stations should use the same firmware.

9.4.4 Set the Base Station IP Address

By default a base station defaults to 192.168.0.1. The process below can be used to change the DHCP mode and IP address of the base station.

1. Having browsed into the base station's configuration, in the left-hand column select **LAN**.
2. Select the **IP** tab.



   a. Enter the required **IP Address** and **Network Mask** for the base station. The other settings are optional.

   b. Click **OK**.

3. Select the **DHCP** tab.

   a. Using the **Mode** drop-down, select ***Disabled***.

   b. Click **OK**.

4. The menu will prompt you with the message **Reset Required**. Do not click this or reset the base station at this stage.

   a. Select **Reset** and then select the **Reset** tab.

   b. Click on **OK**.

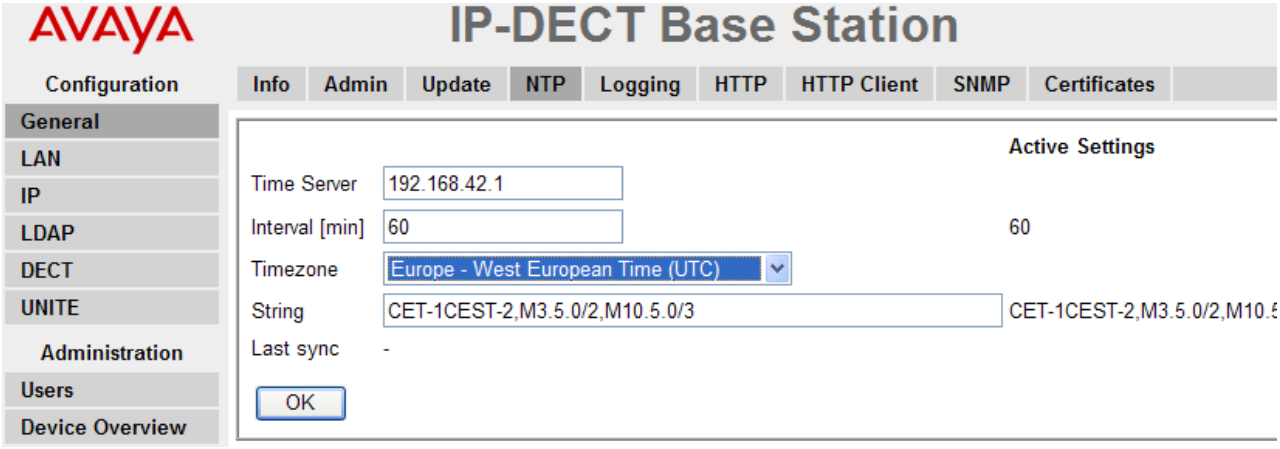
   c. Observing the base station, wait for the lower light to return to solid green.

5. Log in again using the new IP address.

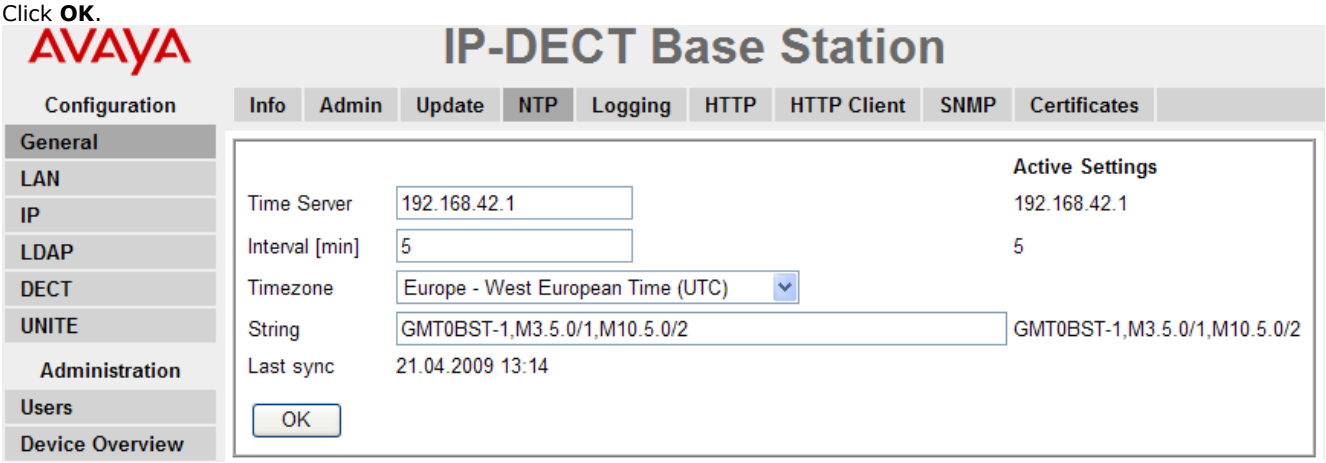
9.4.5 Set the Time Source

The base station can obtain its time from the IP Office control unit.

1. In the left-hand column select **General**. Select the **NTP** tab.



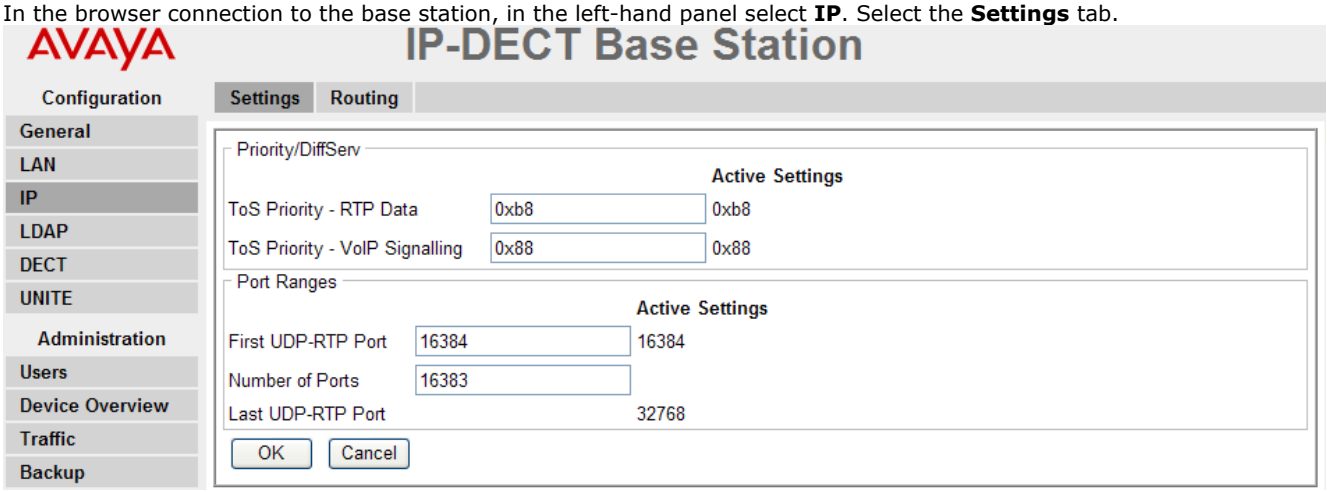
2. In the **Time Server** field enter the IP address of the IP Office.
3. Click **OK**.



9.4.6 QoS/ToS Settings

If the network uses QoS/ToS for VoIP traffic, the base station should be configured to use the same settings.

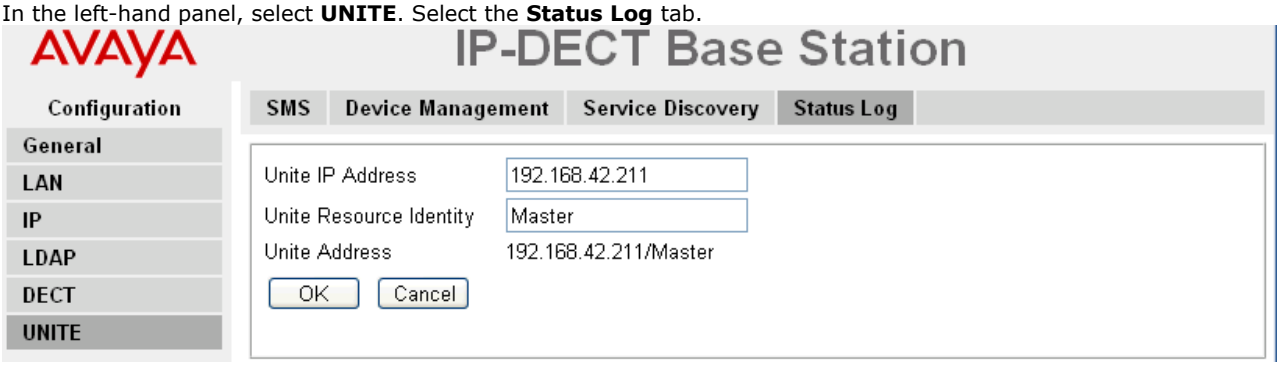
1. In the browser connection to the base station, in the left-hand panel select **IP**. Select the **Settings** tab.



2. Set the **ToS Priority - RTP Data** value to match the IP Office's **DSCP (Hex)** value.
3. Set the **ToS Priority - VoIP Signalling** value to match the IP Office's **SIG DSCP (Hex)** value.
4. Click **OK**.

9.4.7 Enable Status Logging

1. In the left-hand panel, select **UNITE**. Select the **Status Log** tab.



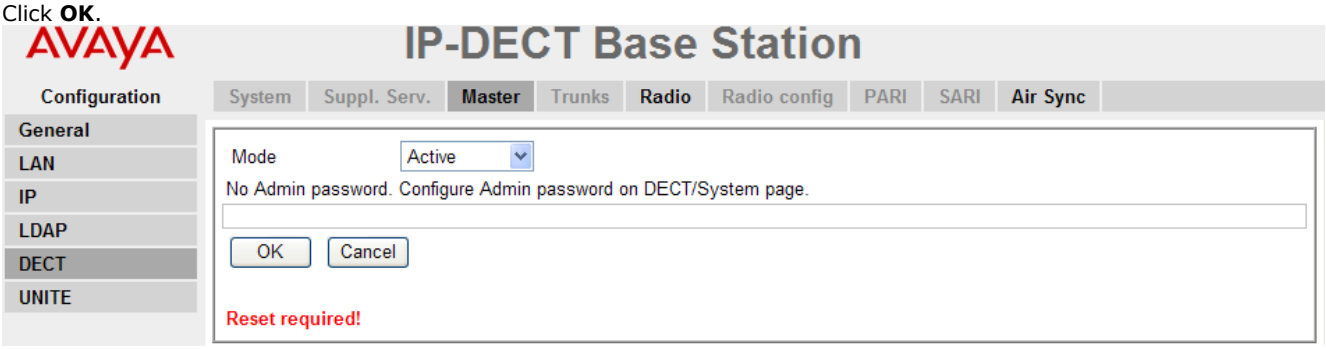
2. For the **Unite IP Address**, enter the IP address that will be assigned to the AIWS unit when installed in the DECT system.
3. For the **Unite Resource Identity** enter a unique name to be associated with the base station.
4. Click **OK**.

9.4.8 Set the Base Station as the Master

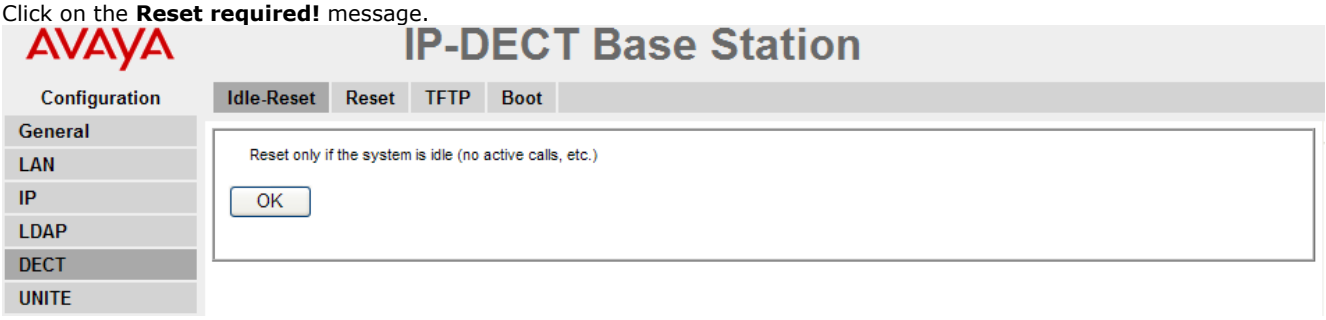
A number of menus are disabled until the base station has been set a being the master base station for the IP Office DECT R4 system.

1. In the left-hand panel select **DECT**. Select the **Master** tab.

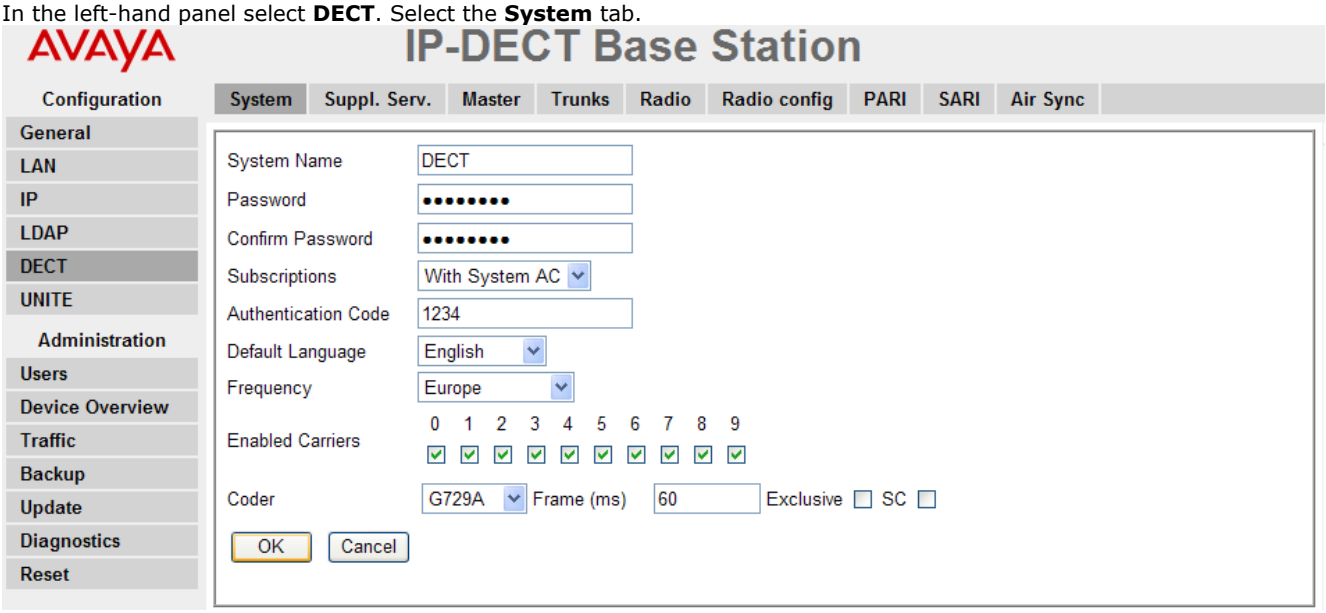
2. Use the **Mode** drop-down box to select ***Active***.
3. Click **OK**.



4. Click on the **Reset required!** message.



5. Click **OK**.
6. In the left-hand panel select **DECT**. Select the **System** tab.



7. Set and check the following values:

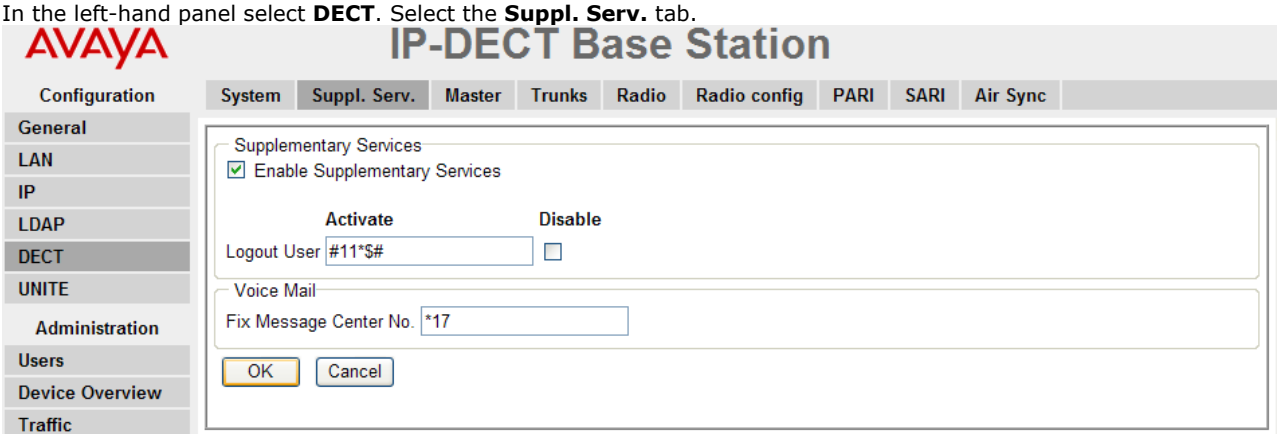
- **System Name**
  Enter name to identify the DECT system. This must be a unique name if there are other DECT systems in the same area.
- **Password**
  Enter the same password as being used for admin access to the base stations. The default is ***changeme***. Re-enter the password in the **Confirm Password** field.
- **Subscriptions**
  Select ***With System AC***. This allows phones to be subscribed to the system using the system authentication code as set below.
- **Authentication Code**
  This code is required by phones during subscription to the DECT system.
- **Default Language**
  Select the language required by the customer.
- **Frequency**
  You must ensure that the correct region is selected. This affects the frequency used for DECT wireless signalling and other factors.

8. Do not adjust the **Coder** options.
9. Click **OK**.

9.4.9 Enable Supplementary Services

Enabling supplementary services is required for IP Office operation.

1. In the left-hand panel select **DECT**. Select the **Suppl. Serv.** tab.

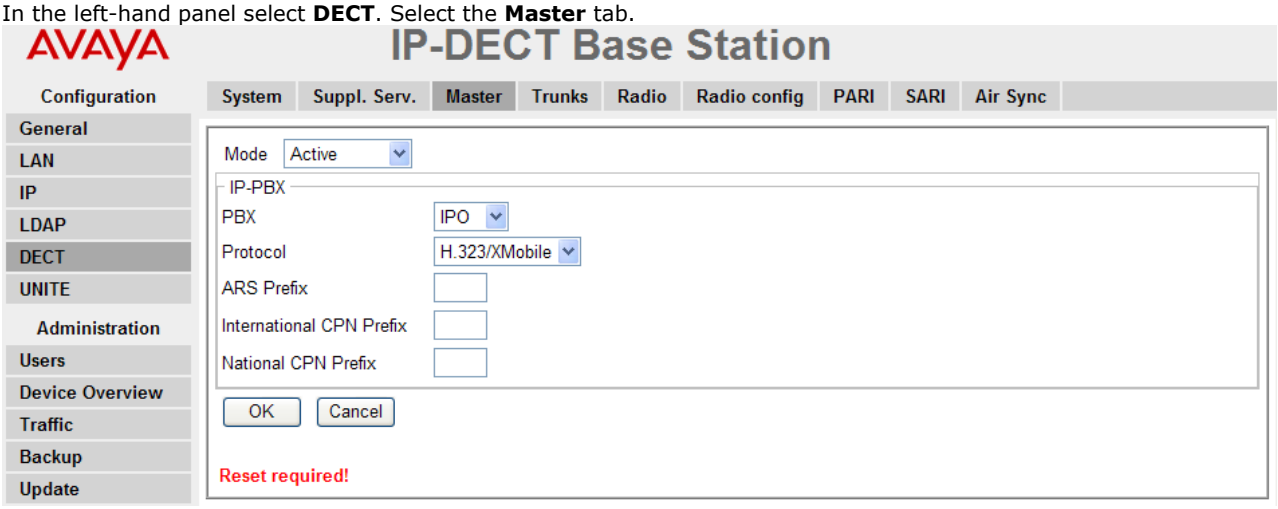


2. Select **Enable Supplementary Services**.
3. In the **Fix Message Center No.** field enter ****17***. This is the IP Office default short code for voicemail access. If the IP Office has been configured to use a different short code enter that short code.
4. Click **OK**.

9.4.10 Set the PBX Switch Mode

The master base station needs to be informed what type of PBX it is working with and the protocol to use for communication with that PBX.

1. In the left-hand panel select **DECT**. Select the **Master** tab.

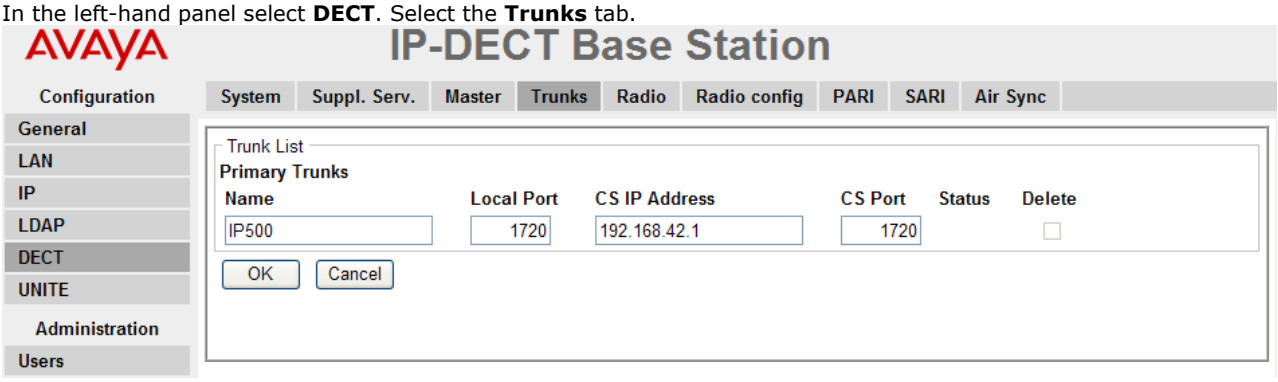


2. Using the **PBX** drop-down list, select ***IPO***.
3. Check that the **Protocol** is set to ***H.323/XMobile***.
4. Click **OK**.
   - The message ***Reset required!*** is displayed. At this stage further changes are required so do not reset the base station.

9.4.11 IP Trunk Configuration

An IP trunk to the IP Office must be configured. Only one trunk is supported.

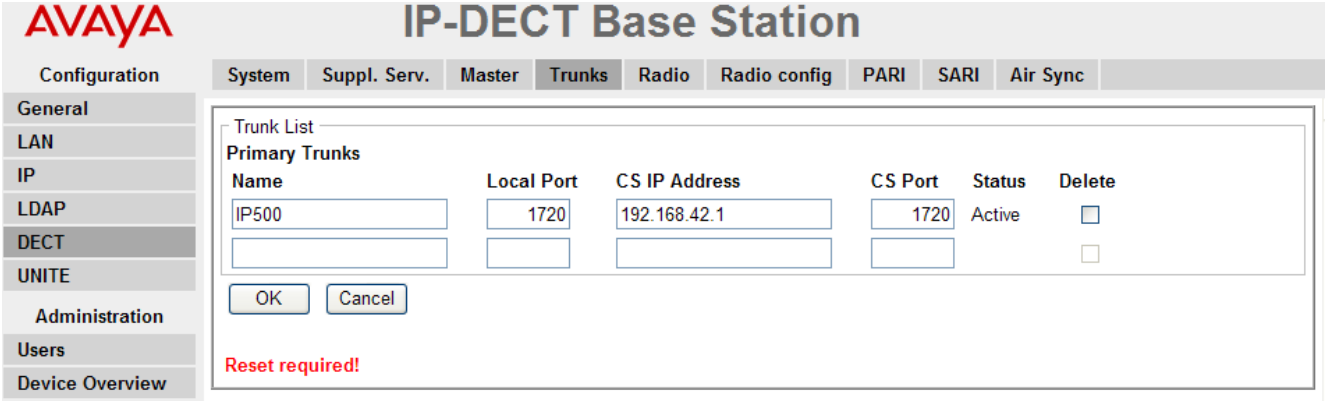
1. In the left-hand panel select **DECT**. Select the **Trunks** tab.



2. Enter the following settings:

- **Name**
  Set a name that identifies the IP Office system.
- **Local Port**
  set this to ***1720***.
- **CS IP Address**
  Set this field to the IP address of the IP Office system.
- **CS Port**
  Set this to ***1720***.

3. Click **OK**.

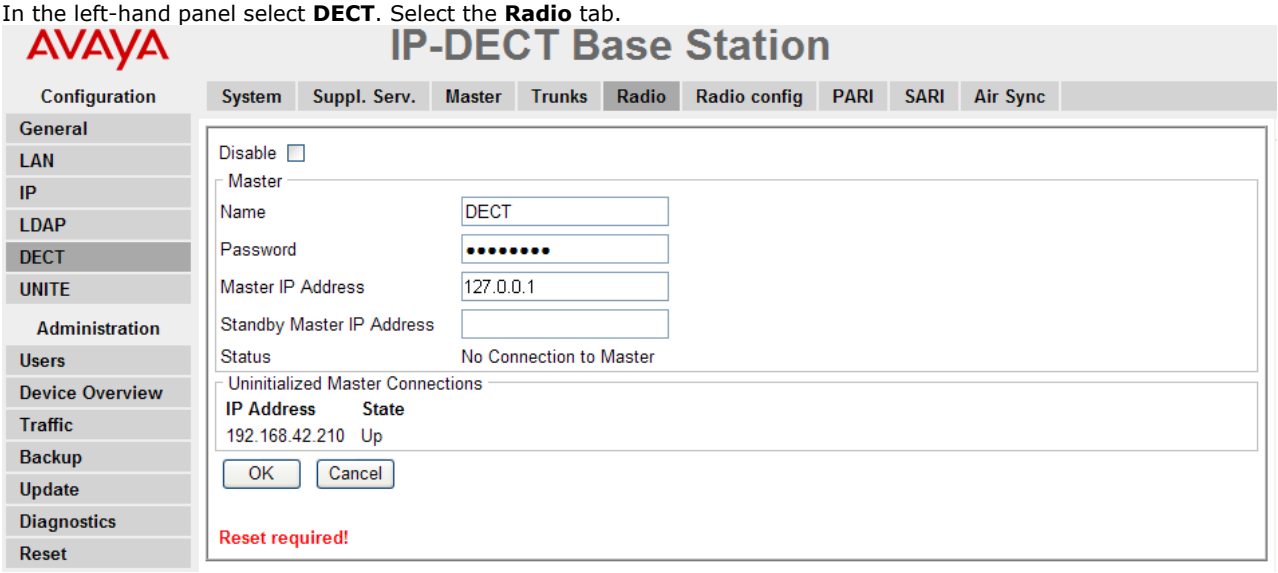


- The message ***Reset required!*** is displayed. At this stage further changes are required so do not reset the base station.

9.4.12 Enter the Radio Settings

Having been configured as the master base station, the radio aspect of the base station can be configured. Note that IP Office does not support use of a standby master base station.

1. In the left-hand panel select **DECT**. Select the **Radio** tab.



2. Set the following values:

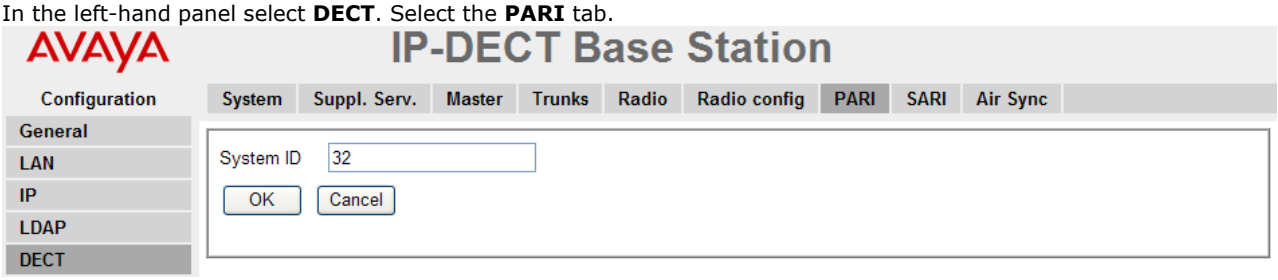
   - **Name**
     Set this to match the **System Name** set on the **DECT | System** tab.
   - **Password**
     Set this to match the **Password** set on the **DECT | System** tab.
   - **Master IP Address**
     Set the address 127.0.0.1 for the base station to refer to itself. (Alternatively set this to match the IP address assigned to the base station on the **LAN | IP** tab).

3. Click **OK**.

   - The message ***Reset required!*** is displayed. At this stage further changes are required so do not reset the base station.

9.4.13 Enter the PARI

1. In the left-hand panel select **DECT**. Select the **PARI** tab.

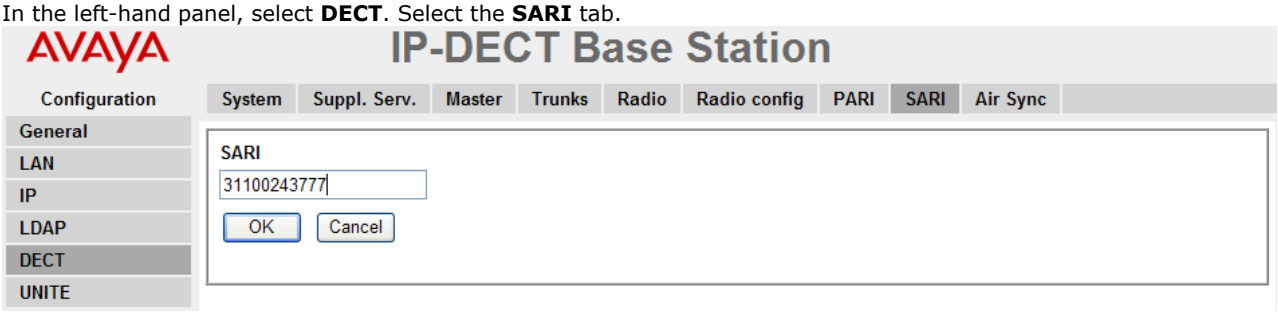


2. Enter a value between 1 and 35. This value must be unique from any other DECT R4 master base station in the area.
3. Click **OK**.

9.4.14 Enter the SARI/PARK

The SARI is the license for the DECT R4 system.

1. In the left-hand panel, select **DECT**. Select the **SARI** tab.



2. Enter the SARI code provided with the DECT R4 equipment.
3. Click **OK**.

9.4.15 Air Sync

Base stations in the DECT R4 system need to be synchronized with each other. This can be done with a signal as low as -90dB between base stations.

One base station is assigned as the 'air synch master', typically the master base station. Each other base station can synch directly with it or indirectly via a synchronization chain. However, it is preferable that the number of synchronization 'hops' between any particular base station and its air synch master base station is kept as low as possible. To help achieve this it is recommended that the air synch master is placed centrally within the set of base stations.

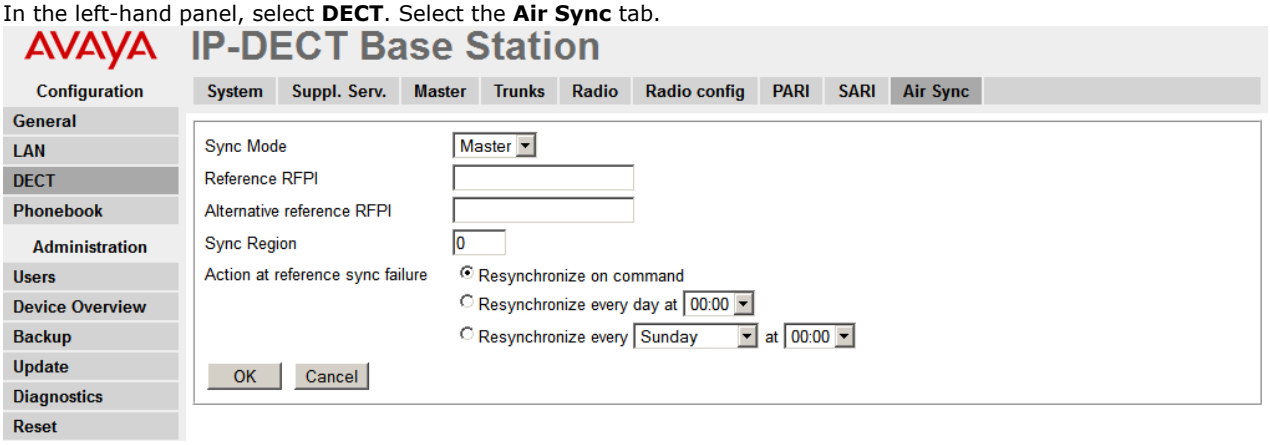
Where possible, each base station should be placed in synchronization range of more than one base station. That allows the base stations to maintain synchronization should one base station fail or be switched off for maintenance. The process of synchronizing by the shortest route to the air synch master when in synchronization range of multiple base stations is automatic.

Advanced Scenario: Separated Locations

In most scenarios, the master base station is also used as the air synch master for all the other slave base stations and that is the scenario documented in this manual. However, in scenarios where you have base stations in separate locations that are not within synchronization range of each other, it is permissible to assign separate air synch masters in each location. However, there must be absolutely no overlap (<-90dB) between the separate groups of base stations. Any overlap will cause frequent lose of synchronization.

Having separate locations, each with its own synchronization is done through the settings on the **DECT | Air Sync** tab of each base station. For each location, set the same **Sync Region** number for all the base stations at that location, using a different number for each location. In addition, set the **Sync Mode** of one of the base stations in each location as ***Master***
.

1. In the left-hand panel, select **DECT**. Select the **Air Sync** tab.



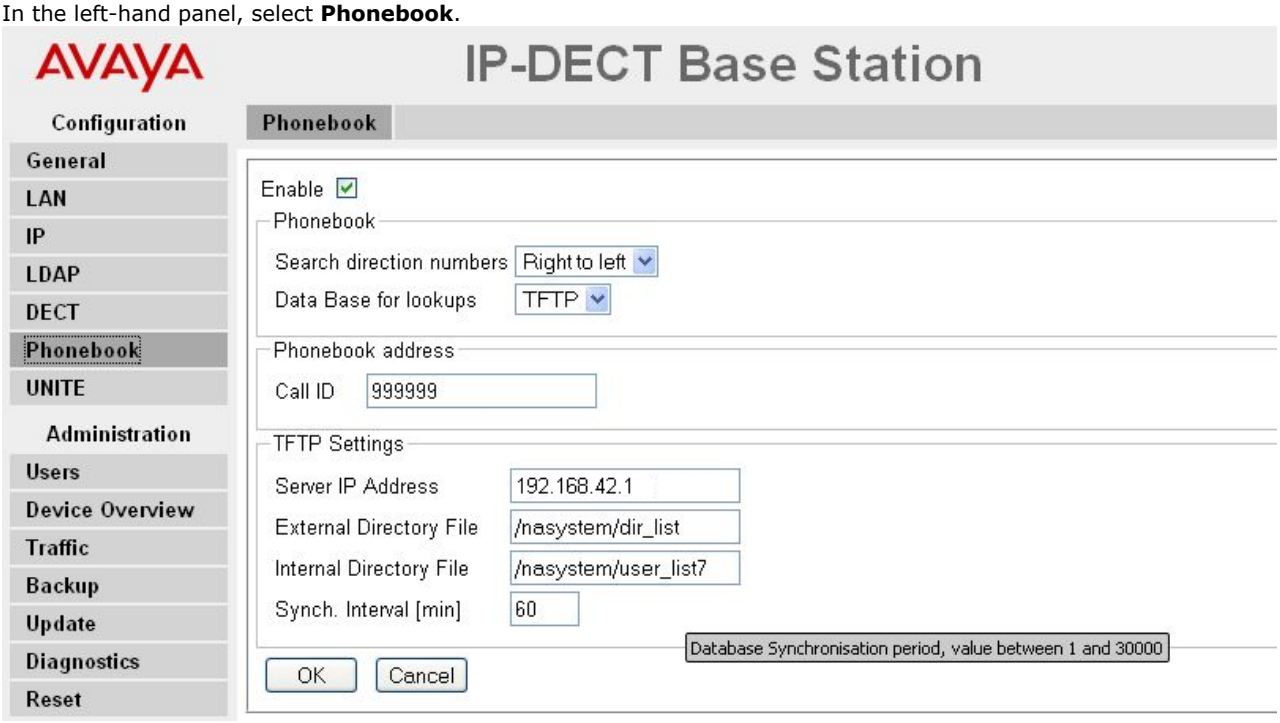
2. Set the **Sync Mode** to ***Master***.
3. Click **OK**.

9.4.16 IP Office Directory Integration

For IP Office Release 6+, the master base station can obtain directory information direct from the IP Office control unit rather than the system requiring an AIWS unit to do this. This requires the master base station to be able to access the IP Office control unit using TFTP. The directory import is limited to 6000 entries.

Note that enabling directory integration via the master base station disables support for SMS. If both SMS and directory integration are required then an AIWS unit must be used.

1. In the left-hand panel, select **Phonebook**.

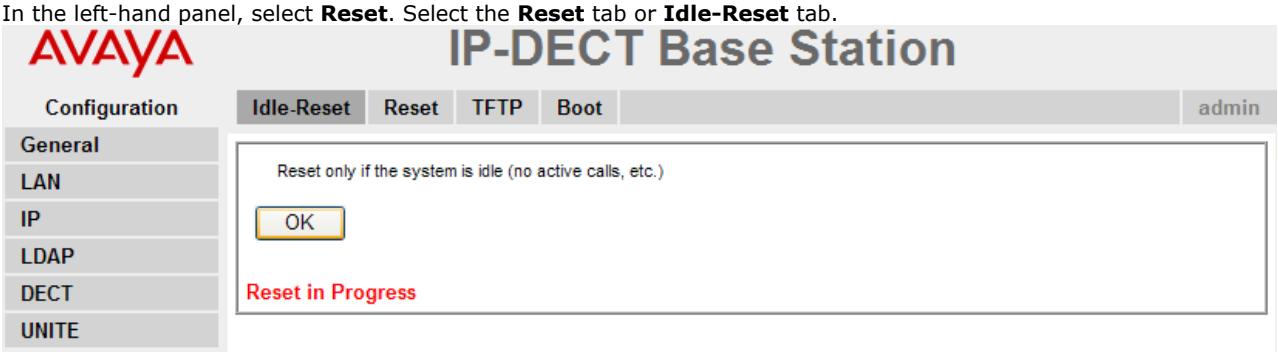


2. Select **Enable**.
3. Select the other settings as shown above, with the **Server IP Address** set to the IP address of the IP Office control unit.
4. Click on **OK**.

9.4.17 Reset the Base Station

Having completed the configuration changes, the master base station should be reset.

1. In the left-hand panel, select **Reset**. Select the **Reset** tab or **Idle-Reset** tab.

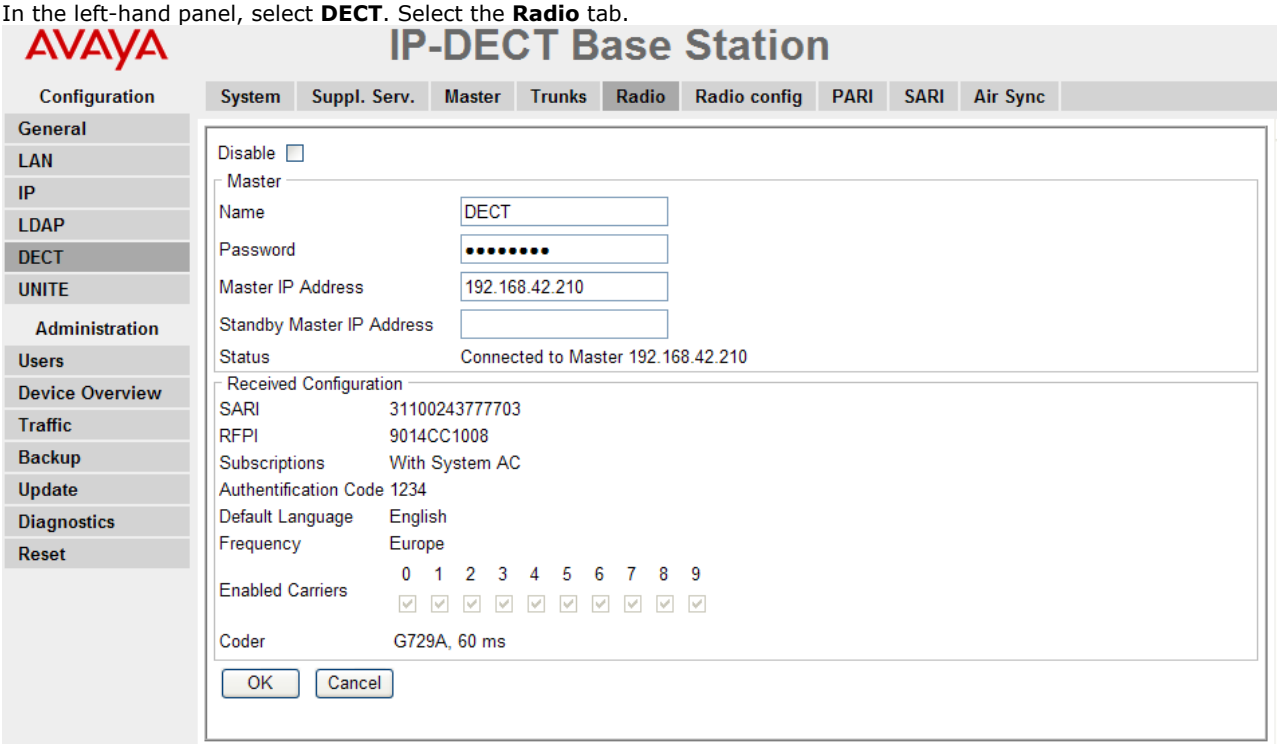


2. Click **OK**.

9.4.18 Check the Base Station

Following the reset, the operation of the radio part can be checked.

1. In the left-hand panel, select **DECT**. Select the **Radio** tab.



2. The **Status** should indicate ***Connected to Master***.
3. The **Received Configuration** settings should match the parameters entered during configuration.
4. On the base station, LED 2 should be off.

9.5 IP Slave Base Station Configuration

The base station installation process consists of the following stages:

1. **Default the base station.**
2. **Access the base station configuration.**
3. **Update the base station firmware.**
4. **Set the base station IP address.**
5. **Set the base station to slave mode.**
6. **Reset the base station.**
7. **Check the base stations.**

Pre-Requisites

- ☐ IP Office connected to the LAN with IP DECT line configured for master base station IP address.

Parts Required

- Base station
  Includes:
  - Base station.
  - Two 3.5mm screws and two 6mm wall plugs suitable for wall mounting onto a solid wall (brick or similar).
  - 1.2 metre (4 foot) LAN cable. If this is replaced with a longer cable the replacement should be a CAT5 Ethernet LAN cable.
- If using Power over Ethernet:
  - The base station supports Power over Ethernet, IEEE 802.3af, class 2.
- If not using Power over Ethernet:
  - Base station power supply unit.
    Required if not using Power over Ethernet to power the base station. Note that the base station power supply units include an 8 metre (26 feet) cable from the PSU to the base station. Check that you have the correct type of power supply unit for the locale.
    - BSX-0013: Europe (except United Kingdom).
    - BSX-0014: United Kingdom.
    - BSX-0015: USA/Canada.
    - BSX-0016: Australia.
  - Mains power outlet socket.
- LAN Socket.

Information

- DECT R4 SARI.
- Base Station IP Addresses.
- Detailed plans from the site survey indicating the intended base station locations, LAN sockets and if necessary power supply outlets.

Tools

- Programming PC with DECT R4 software.
- Web browser.
- Drill and drill bits suitable for the selected wall mounting position of the AIWS.
- Screwdrivers for use with the screws selected for AIWS wall mounting.

9.5.1 Default the Base Station

This process will default a base station or IP DECT Gateway, erasing its configuration. After the unit restarts it will default to the IP address 192.168.0.1/255.255.255.0.

1. With the unit not connected to anything else, connect the power supply and switch on.
2. Wait approximately 5 seconds.
3. Using a fine point, depress the unit's reset switch for at least 10 seconds.
4. Release the switch. The unit will restart.
5. After approximately 5 seconds the unit will default to the address 192.168.0.1.

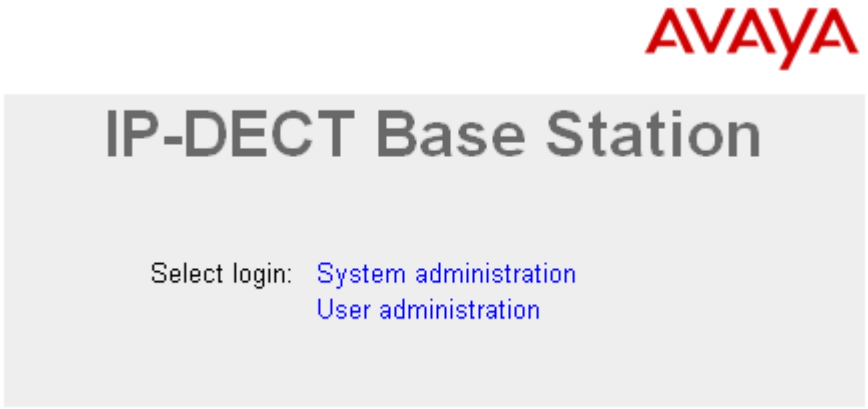
Alternate Method

The address an existing base station or IP DECT Gateway is using can be determined using the following process. It uses the MAC address of the unit which is printed on a label on the back or bottom of the unit.

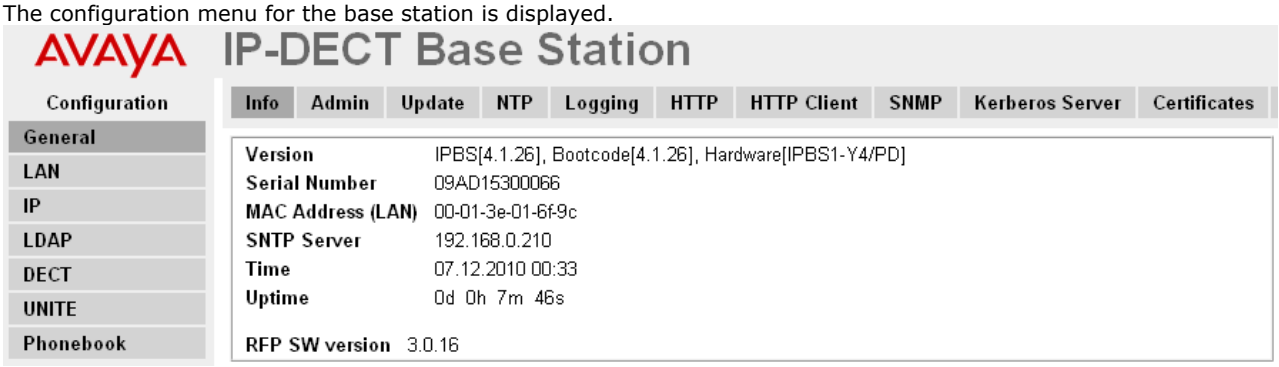
1. Open a Windows command window by selecting **Start | Run** and enter ***cmd***.
2. Enter **nbtstat -R**. The PC should respond that is has purged and reloaded the NBT remote cache table.
3. For a base station enter **nbtstat -a ipbs-*xx-xx-xx*** when *xx-xx-xx* is replaced with the last 6 hexadecimal digits of the base stations MAC address. For a IP DECT Gateway, enter **nbtstat -a ipbl-*xx-xx-xx***.
4. The results will show the IP address which it being used.
4. Use that address to access the base stations configuration and set it to a fixed address.

9.5.2 Access the Base Station's Configuration

1. Depending on whether DHCP is being used or not:
   - If connected directly to the base station, change your programming PC's network address to 192.168.0.200 with subnet mask 255.255.255.0. Connect the LAN cable from your PC to the base station.
   - If both your PC and the base station are connected to a LAN network with DHCP server, ensure your PC is set to act as a DHCP client or has a fixed address that is valid on the network.
2. Start your web browser and enter the http:// or https:// followed by the IP address of the base station. The default IP address is 192.168.0.1. If a security certificate warning is displayed, select to continue to this website.
3. The base station should respond with its initial configuration menu.



4. Select **System administration**. A password entry dialog will be displayed. Enter the default user name (***admin***) and password (***changeme***).
5. The configuration menu for the base station is displayed.

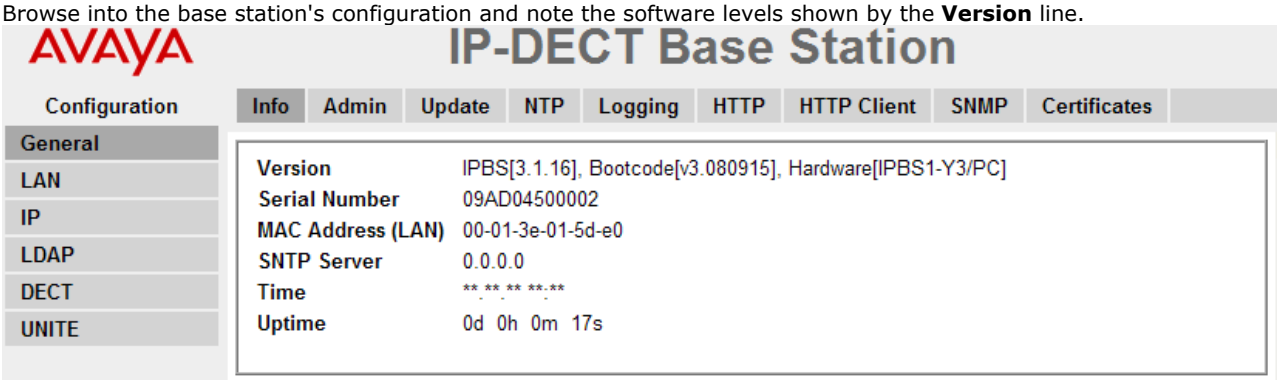


6. Note the software levels shown in the Version screen. These will determine whether the base station software needs to be upgraded.

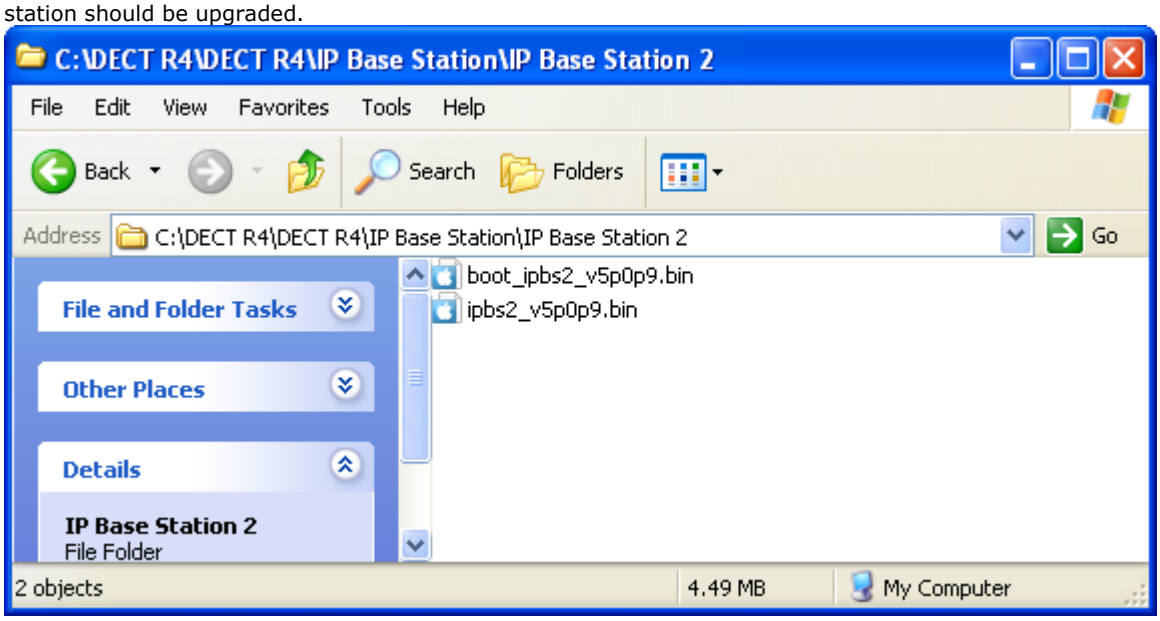
9.5.3 Update the Base Station Firmware

The base station may need to be upgraded to the software supplied for use with IP Office administration software. That software consists of two parts, a firmware file and a boot file. All base stations in a DECT system should use the same software.

1. Browse into the base station's configuration and note the software levels shown by the **Version** line.

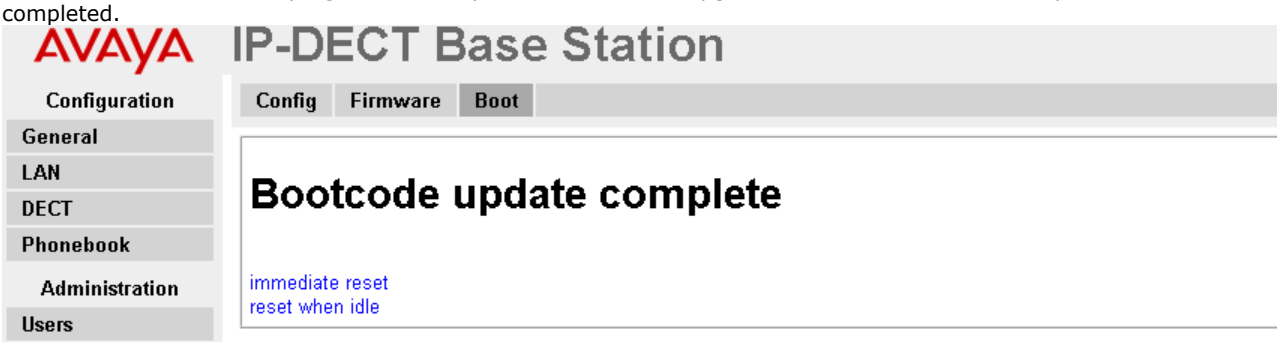


- Check that these match the versions supplied with the IP Office administration software. Ensure that you are checking against the correct folder for an IPBS1 or IPBS2 base station. If they do not not match, then the base station should be upgraded.

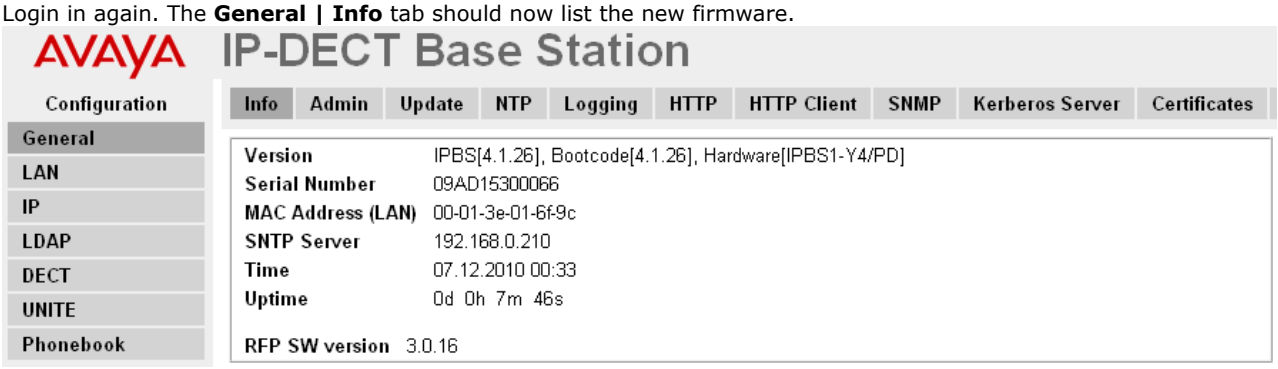


- If both software files need to be upgraded, the boot file should be upgraded first.

2. To upgrade the boot file, in the left-hand column select **Update** and then select the **Boot** tab. To upgrade the base station file, select **Update** and then select the **Firmware** tab. The method for both files is similar, however ensure you upgrade the boot file first if both need to be upgraded.
3. Click on the **Choose File** button and browse to the ***IP Base Station*** sub-folder of the IP DECT R4 software you previously extracted onto the programming PC.
4. Select the appropriate file for the upgrade you are performing, ie. the file with boot in the file name if doing a boot file upgrade. Click **OK**.
5. Click on the **Upload** button.
6. The browser will show the progress of the upload and firmware upgrade. It will indicate when the process has been completed.



7. Click on **immediate reset**.
8. Login in again. The **General | Info** tab should now list the new firmware.



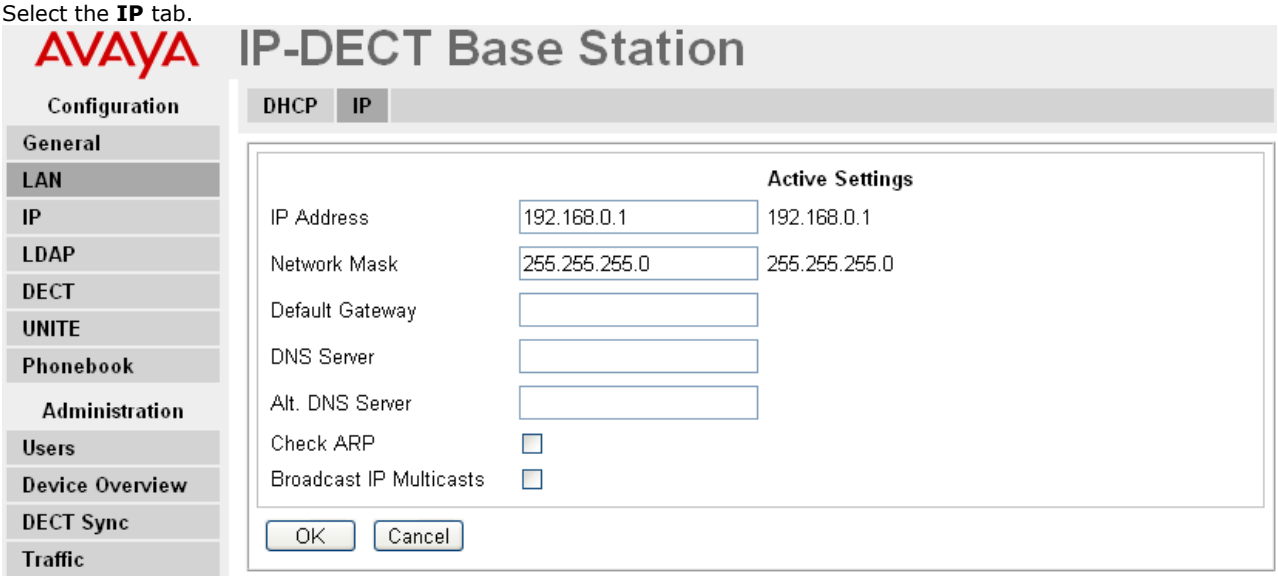
9. If necessary, repeat the process for the firmware using the **Update | Firmware** menu.
10. For a IP DECT Gateway, if necessary also repeat the process for base station firmware for base stations that will be connected to the IP DECT Gateway using the **Update | RFPs** menu.

Repeat the steps above for any other base stations that are also being installed. All the base stations should use the same firmware.

9.5.4 Set the Base Station IP Address

By default a base station defaults to 192.168.0.1. The process below can be used to change the DHCP mode and IP address of the base station.

1. Having browsed into the base station's configuration, in the left-hand column select **LAN**.
2. Select the **IP** tab.



   a. Enter the required **IP Address** and **Network Mask** for the base station. The other settings are optional.

   b. Click **OK**.

3. Select the **DHCP** tab.

   a. Using the **Mode** drop-down, select ***Disabled***.

   b. Click **OK**.

4. The menu will prompt you with the message **Reset Required**. Do not click this or reset the base station at this stage.

   a. Select **Reset** and then select the **Reset** tab.

   b. Click on **OK**.

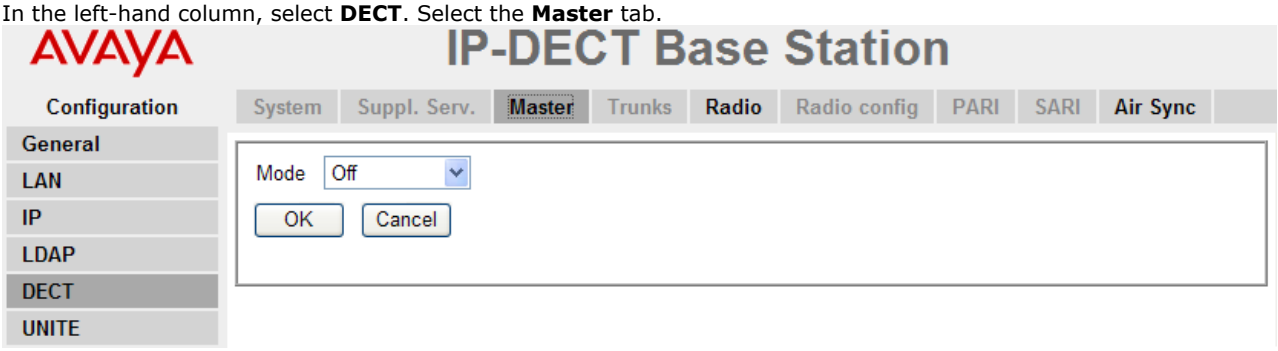
   c. Observing the base station, wait for the lower light to return to solid green.

5. Log in again using the new IP address.

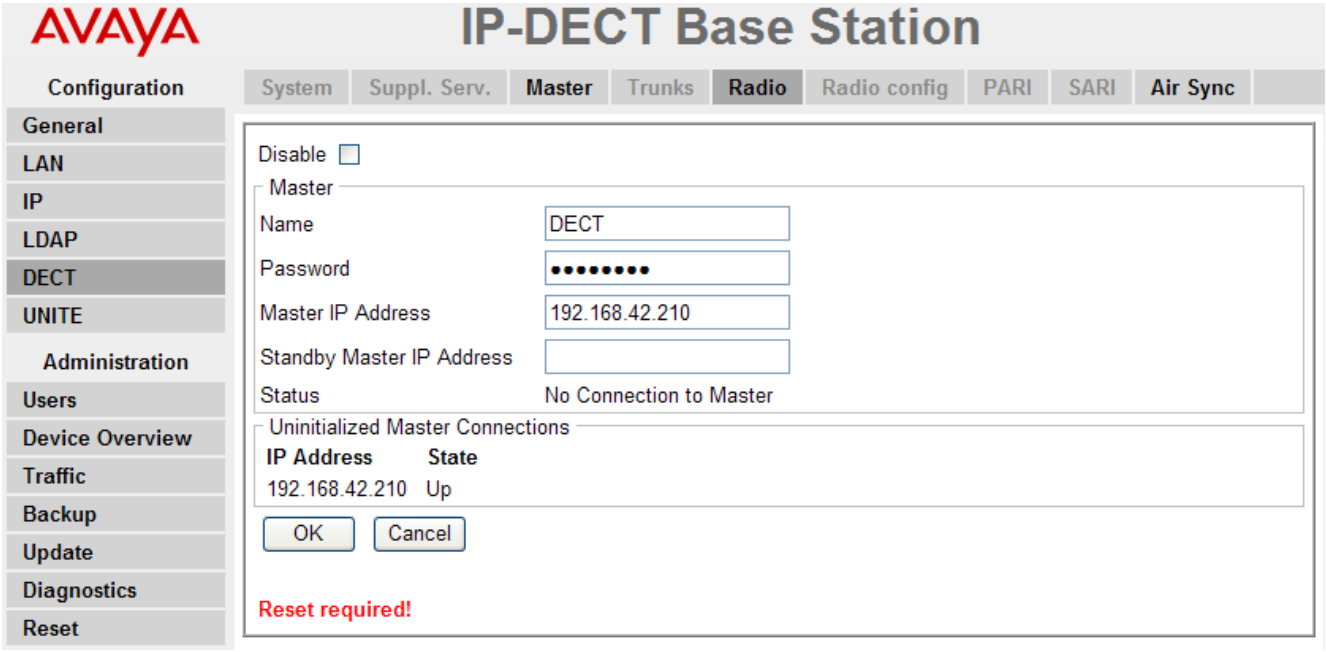
9.5.5 Set the Base Station to Slave Mode

There can be only 1 master base station in the IP Office DECT R4 system. In this process we check that the base station is not set to act as a master and then configure its radio settings to access the master base station.

1. In the left-hand column, select **DECT**. Select the **Master** tab.



2. Check that the **Mode** is set to ***Off***.
3. Click **OK**.
4. Select the **Radio** tab.



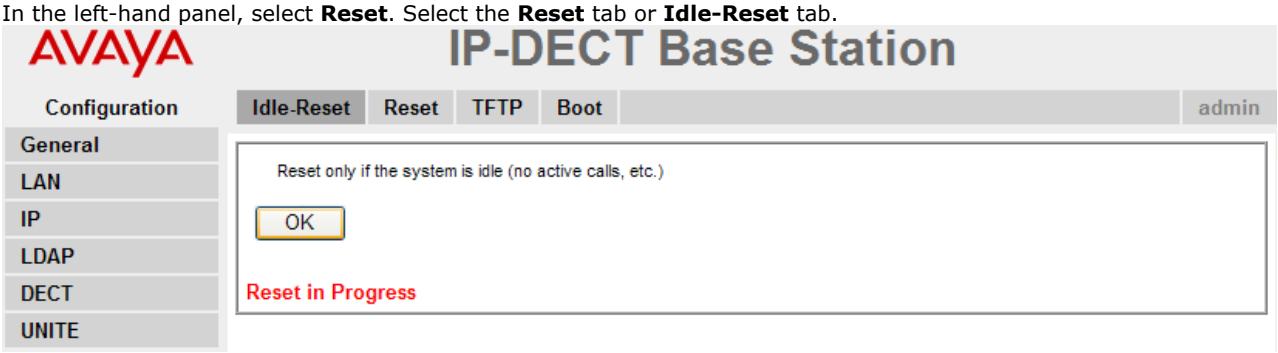
5. Set the following details:
   - **Name**
     Set this to match the **System Name** set on the master base station's **DECT | System** tab.
   - **Password**
     Set this to match the **Password** set on the master base station's **DECT | System** tab.
   - **Master IP Address**
     Enter the IP address of the master base station set on its **LAN | IP** tab.
6. Click **OK**.

7. Select the **Air Sync** tab.

8. Set the **Sync Mode** to ***Slave***.
9. Enable **LED Indication**. This enables the amber flashing mode of the base station's LED 2 which is used to indicate when the base station has no air synchronization signal but does have call traffic in progress.
10. Click **OK**.

9.5.6 Reset the Base Station

1. In the left-hand panel, select **Reset**. Select the **Reset** tab or **Idle-Reset** tab.



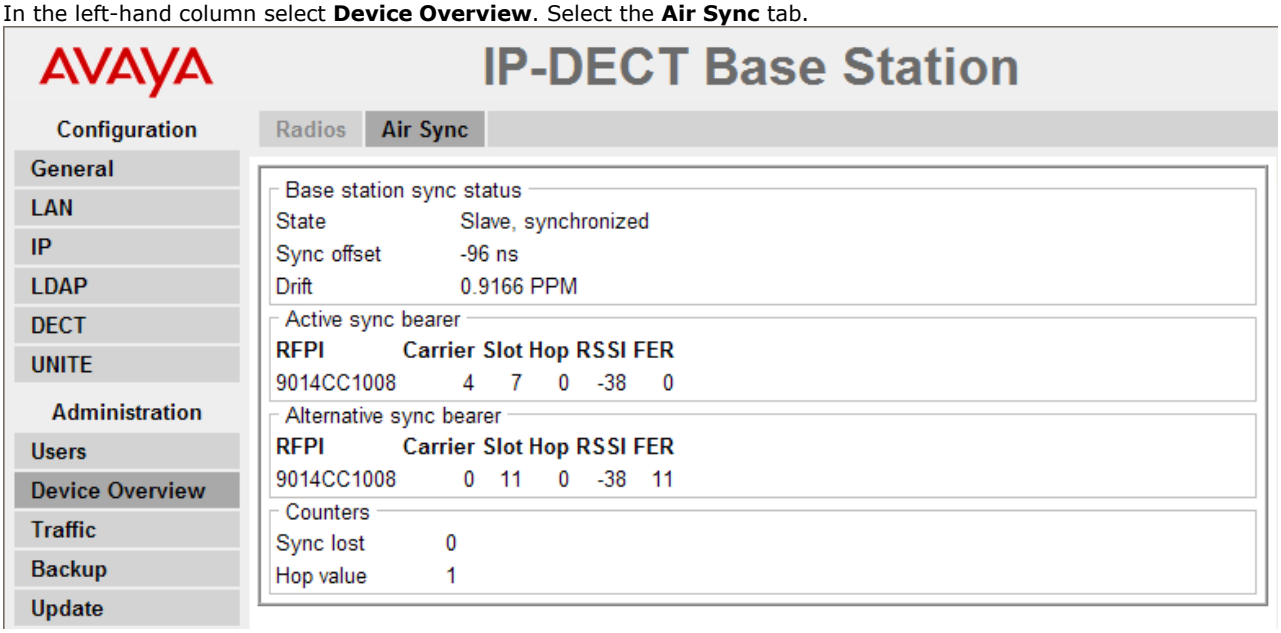
2. Click **OK**.

9.5.7 Check the Base Stations

Through the configuration of the slave and the master base status it is possible to check the signalling between the base stations.

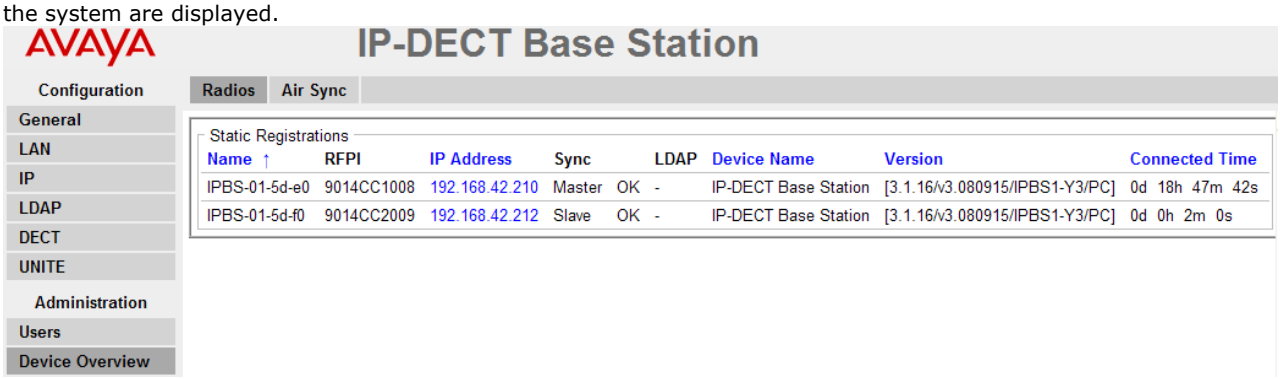
Slave Base Station

1. In the left-hand column select **Device Overview**. Select the **Air Sync** tab.

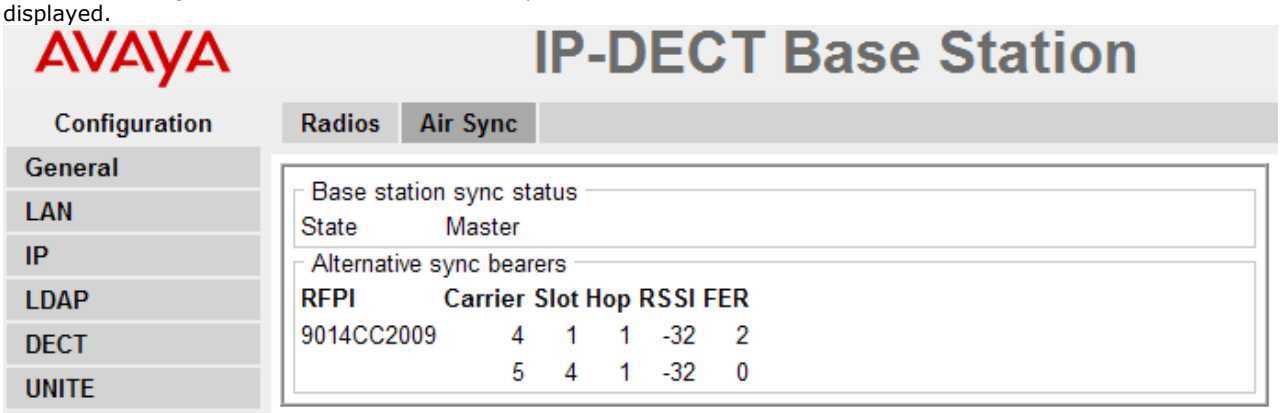


Master Base Station

1. In the left-hand column select **Device Overview**. Select the **Radios** tab. The details of the base stations within the system are displayed.



2. Select the **Air Sync** tab. The status of wireless synchronization between the master and other base stations is displayed.

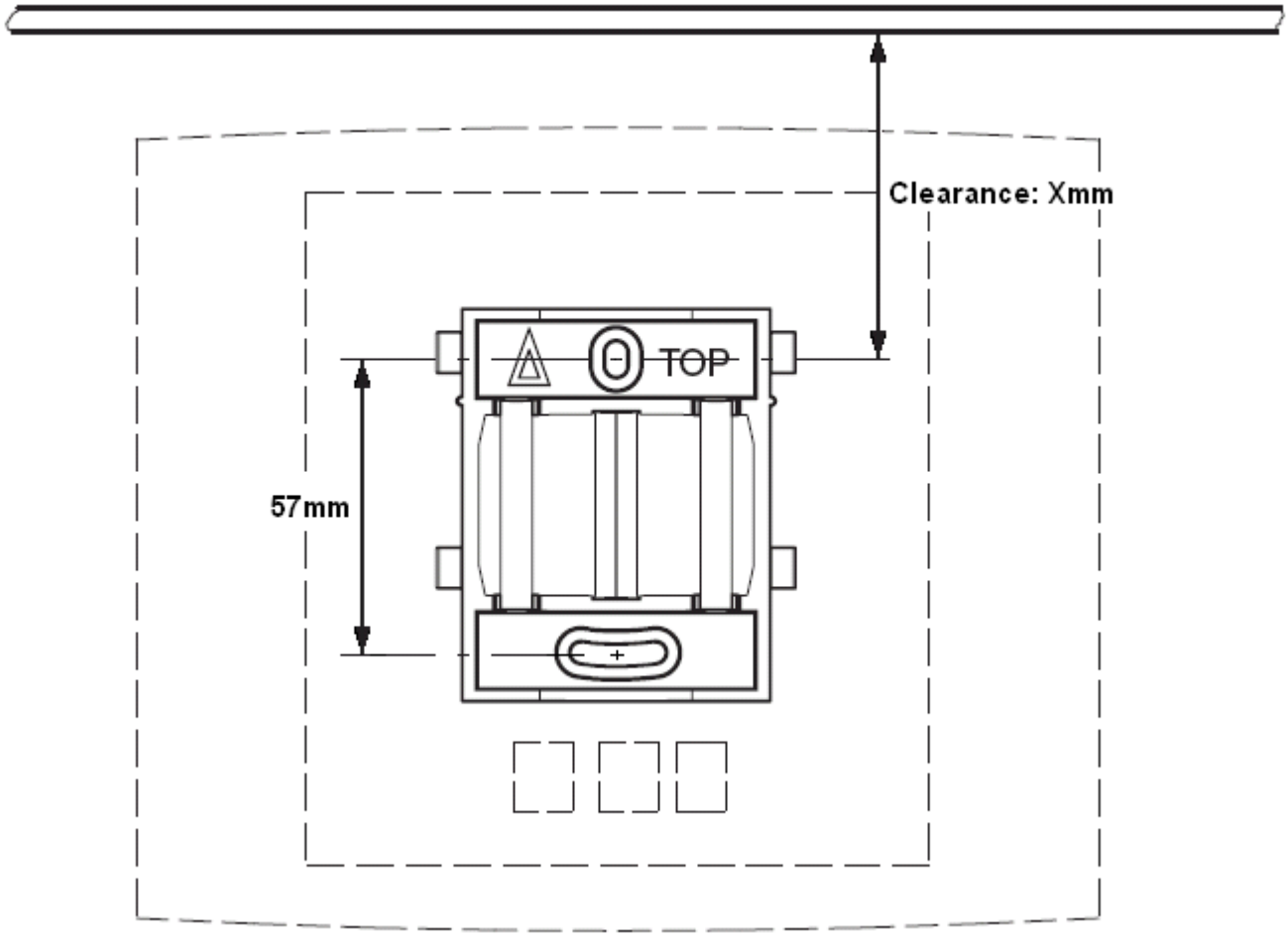


9.6 Base Station Mounting

The base station can now be powered down and mounted in its intended operating position. The removable bracket on the back of the base stations can be used for either wall mounting using two screws suitable for the surface or for mounting on columns using two metal bands.

Wall Mounting

Remove the mounting bracket from the base station. Use it as a template for marking the screw fixing holes. Note the diagram below indicating the required clearance for getting the base station onto the mounting bracket.



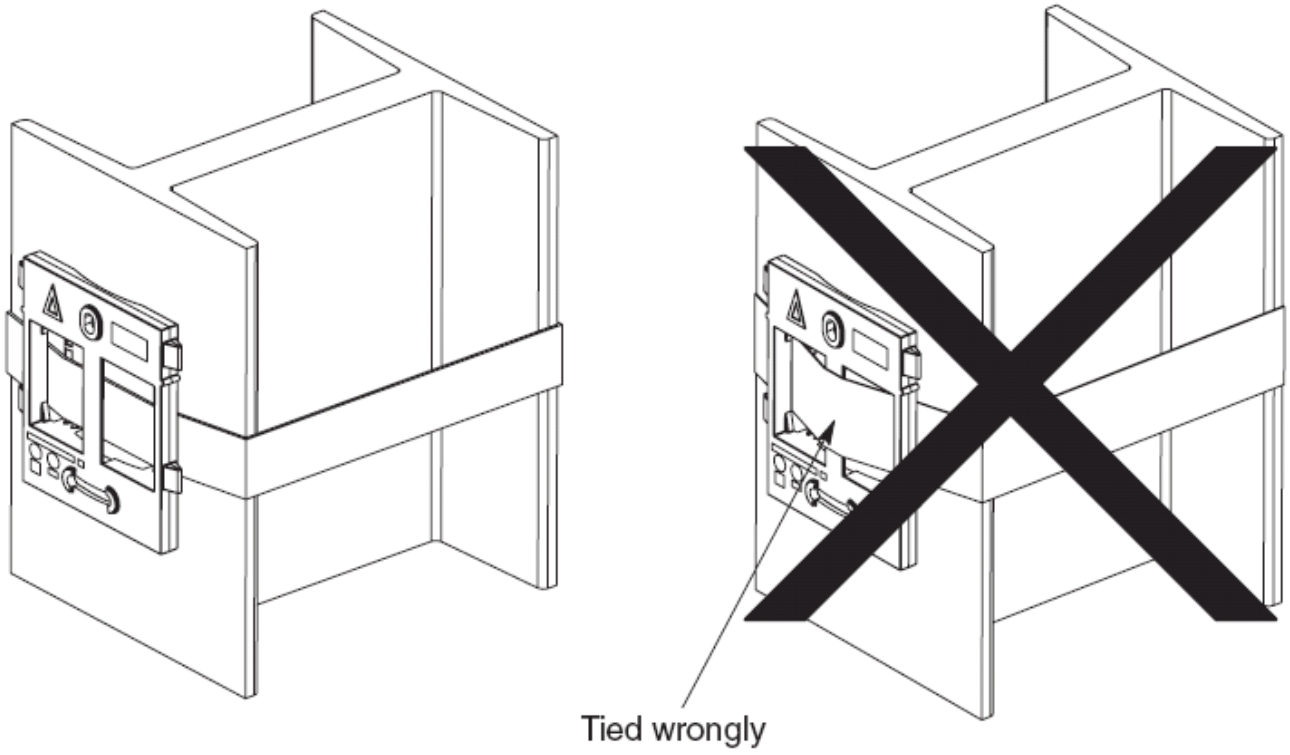
1. Hold the mounting bracket with its flat side against the wall with the text 'TOP' upwards and mark the two holes. Observe the minimum distance between the top screw hole and the ceiling. This depends on the base station type as follows:

Base Station Type	Internal Aerials	External Aerials
IPBS1 or Digital Base Station	65mm	160mm
IPBS2	100mm	195mm

2. Drill the two holes using a 6mm diameter drill and insert the included wall plugs.
3. Position the mounting bracket with its flat side to the wall and fasten it with the two included 3.5mm diameter screws.

Column/Pillar Mounting

The mounting bracket can be fixed to a pole of 45mm diameter or greater, or a beam of 50mm width minimum by using a strap or flexible metal band less than 30 mm wide. A suitable strap or flexible metal band is not included with the base station.



9.7 Phone Subscription

Once the master base station has been configured and is connected to the IP Office, you can begin phone subscription.

There are two methods of subscription; anonymous phone subscription and pre-configured phone subscription. Both methods require the DECT users to be pre-configured in the master base station configuration. However, anonymous phone subscription allows the user pre-configuration to be done without knowing the IPEI of the DECT phone the user will actually use.

- **Subscription Using IP Office Auto-Create**
  Allowing phone subscription using the IP Office auto-create options for extensions and or users makes changes to the current running configuration of the IP Office system. For this method to work, you must ensure that no copies of the configuration are also open in Manager during subscription, as sending such a copy of the configuration back to the IP Office system will replace the subscriptions and require the handsets to be subscribed again. Following any handset subscription, a new copy of the configuration should always be loaded in IP Office Manager if any other configuration changes are required.

The anonymous phone installation process consists of the following stages:

1. **Allow Subscription.**
2. **Create User Entries in the Master Base Station Configuration.**
3. **Subscribe the Phones.**
4. **Complete Anonymous Login.**
5. **Disable Subscription.**

- This method makes changes to the IP Office system configuration. Ensure that no copies of the configuration are open in Manager during subscription as sending that configuration back to the IP Office system will remove the subscriptions and require the handsets to be resubscribed.

Pre-Requisites

- ☐ Master base station installed and connected to the network.
- ☐ IP Office connected to the network.

Information

- Service user name and password for IP Office configuration.
- User names and extension numbers for the DECT phones.
- Phone IPEI numbers if using an pre-configured installation mode.

Tools

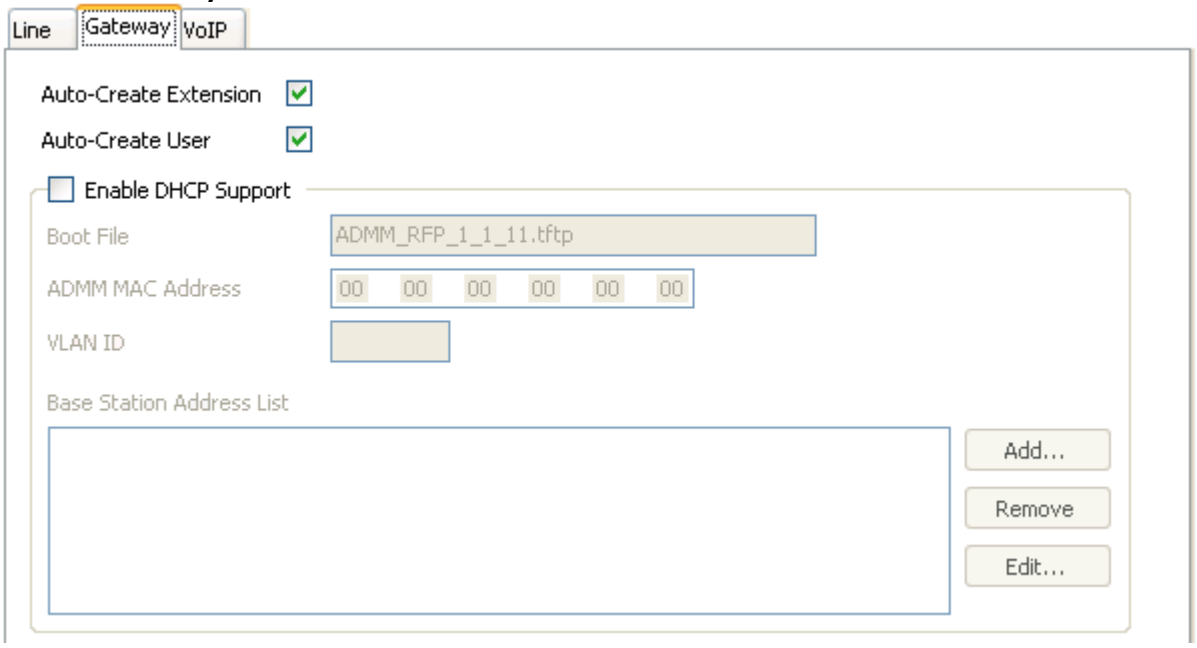
- **IP Office Manager**.
- **Device Manager**
  The software installed on each handset may need to be upgraded to match that supplied with the DECT R4 software 34. This is done using the Windows Device Manager software to upgrade phones via an advanced charger or using AIWS Device Manager 95 to upgrade phones over the air.
- Web browser (Internet Explorer or Firefox are supported).

9.7.1 Allow Subscription

Before phones are subscribed subscription needs to be allowed by both the IP Office and the DECT R4 system.

IP Office

1. Start IP Office Manager and receive the configuration from the IP Office system.
2. In the left-hand navigation pane, click on **Line** icon.
3. Select the **IP DECT Line**.
4. Select the **Gateway** tab.



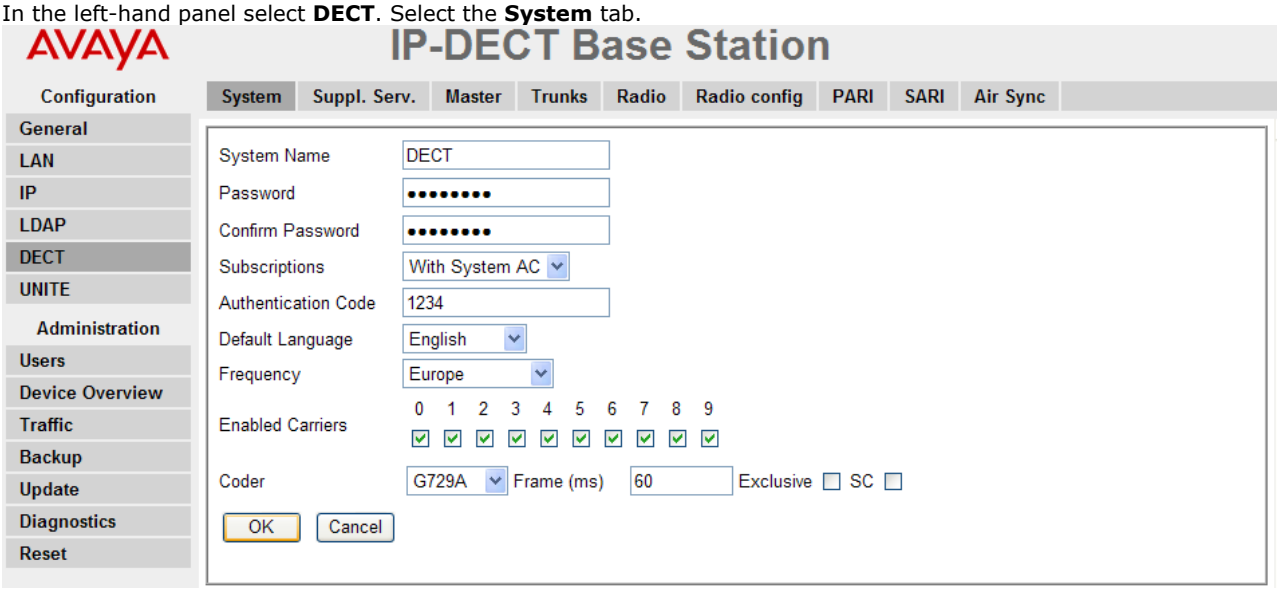
5. Check that the **Auto-Create Extension** and **Auto-Create User** options are selected.

   - **Subscription Using IP Office Auto-Create**
     Allowing phone subscription using the IP Office auto-create options for extensions and or users makes changes to the current running configuration of the IP Office system. For this method to work, you must ensure that no copies of the configuration are also open in Manager during subscription, as sending such a copy of the configuration back to the IP Office system will replace the subscriptions and require the handsets to be subscribed again. Following any handset subscription, a new copy of the configuration should always be loaded in IP Office Manager if any other configuration changes are required.

6. Click **OK**.
7. Send the configuration back to the IP Office.

Master Base Station

1. Access the master base stations configuration.
2. In the left-hand panel select **DECT**. Select the **System** tab.



3. Check that the **Subscriptions** field:

   - **With System AC**
     Select this option to allow anonymous subscription of phones.
   - **With User AC**
     Select this option to allow subscription against user entries.

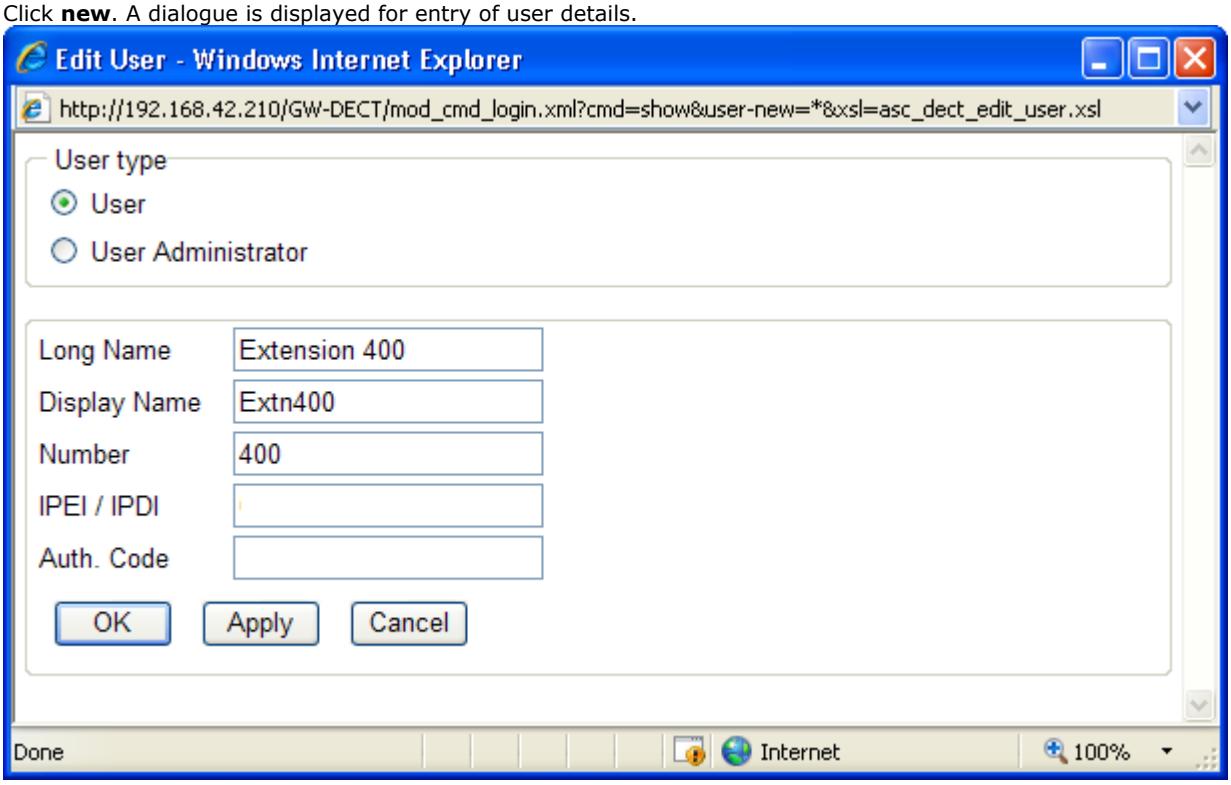
4. Note the number set in the **Authentication Code** field. This number is used as part of the anonymous subscription.

9.7.2 Create User Entries

Subscription requires a user entry within the master base station configuration. On completion of subscription, matching extension and user entries are automatically created in the IP Office configuration.

1. In the left-hand panel, select **Users**. Select the **Users** tab.

2. Click **new**. A dialogue is displayed for entry of user details.



3. Enter the user details:

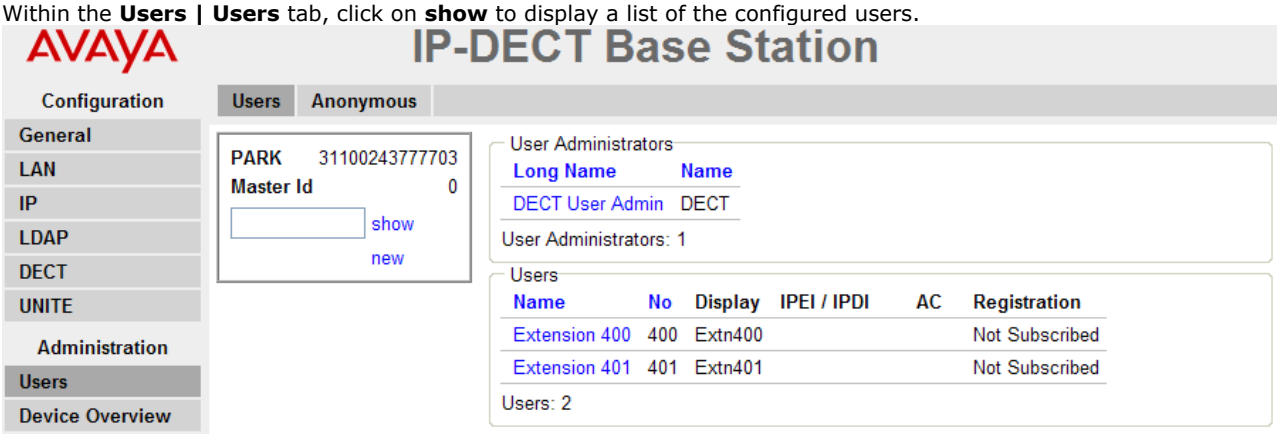
   - **Long Name**
     This name is used for information within the DECT R4 system settings.
   - **Display Name**
     This name displayed on the phone when idle. It is also the name used for the user created in the IP Office configuration. The name must be unique.
   - **Number**
     This will be the extension number of the phone on both the IP Office and DECT R4 systems. The number must be unique.

   The remaining two fields should not be completed if you want to use anonymous subscription. This removes the requirement of knowing the phone IPEI numbers during installation.

   - **IPEI/IPDI**
     Enter the phones IPEI number. For 3720, 3725 phones this is printed on the label inside the phones battery compartment.
     - For 3720, 3725, 3740 and 3749 phones, the IPEI can be displayed by selecting **Menu | Settings | Device Info | IPEI/IPDI**. It is also printed on a label under the phone's battery.
   - **Auth. Code**
     Enter the account code that should be used when the phone is subscribed.

4. Click **OK**.
5. Repeat the process for any other phones that you want to subscribe.

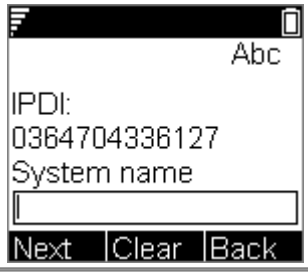
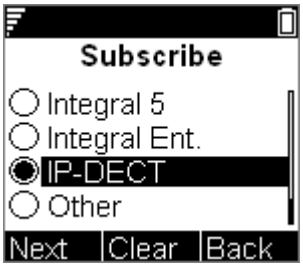
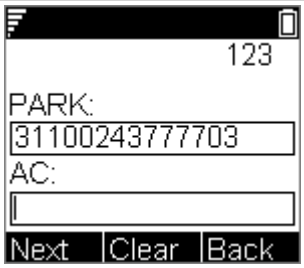
6. Within the **Users | Users** tab, click on **show** to display a list of the configured users.

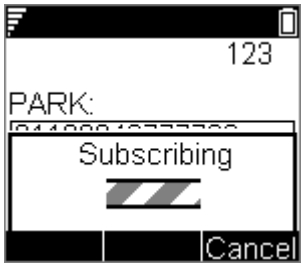


7. The phones configured will be displayed. You can now begin subscribing the phones.

9.7.3 Phone Subscription

- Switch on the phone:
    - **3720**: Select **Menu | Settings | System | Subscribe**.
    - **3725/3740/3749**: Select **Menu | Connections | System | Subscribe**.

Display	Actions
	Details of the phone's current subscription are displayed. Select **Next**.
	The **System name** is just used by the phone to identify the different subscriptions it may have. Enter any name and select **Next**.
	The phone will display a list of telephone system types to which it can connect. Scroll the selected option to **IP-DECT** and select **Next**.
	The phone now requires the **PARK** (SARI) and **AC** (authentication code) of the system to which it should subscribe. Enter the **PARK** and then scroll to the **AC** field. Enter the **AC** and select **Next**.
	The **Protection on**? prompt is displayed. • If you select **No**, the user can delete the subscription from the list of subscriptions known by the phone. • If you select **Yes**, the user cannot delete the subscription.
	A summary of the subscription details is shown. Check that the values are correct

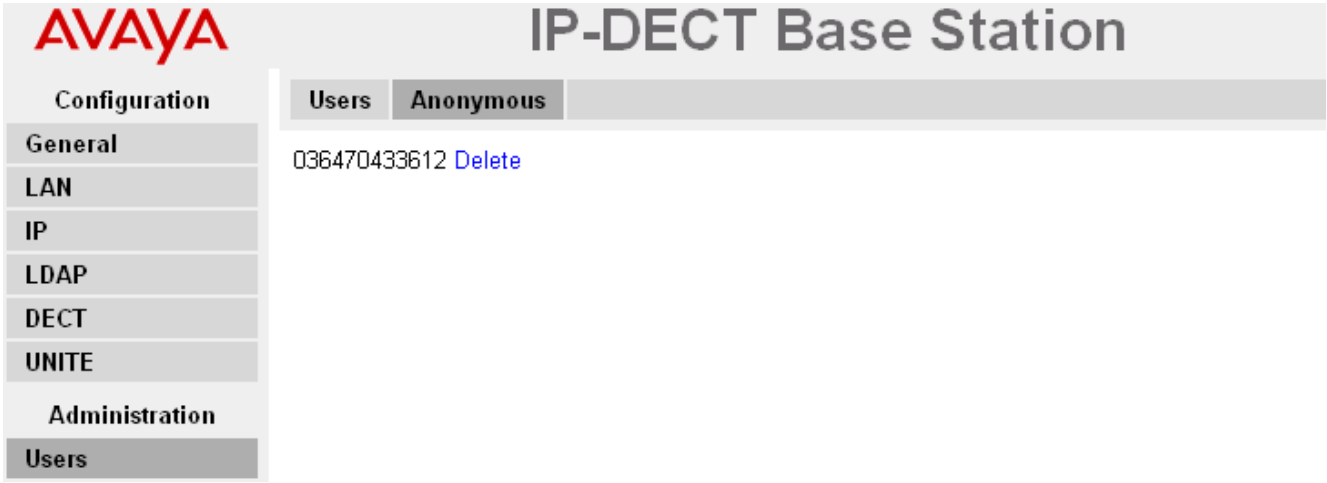
Display	Actions
	Select **OK**. The phone broadcast for DECT systems to which it can subscribe.
	When a DECT system is located, the handset will attempt to subscribe to that system.
	The success or failure of the subscription is indicated.

3701/3711 Phone Subscription

1. Switch on the phone.
2. Select **Menu | System | Subscription | Subscribe HS**.
3. Select **PABX-PIN**.
4. Enter the authentication code.
5. The phone is subscribed anonymously and should display ***Please Login***.

9.7.4 Completing Anonymous Login

In the master base station configuration select the **Users | Anonymous** tab. This tab shows those phones currently anonymously subscribed to the DECT system. The DECT system will allow up to 8 anonymous devices to be subscribed at the same time.



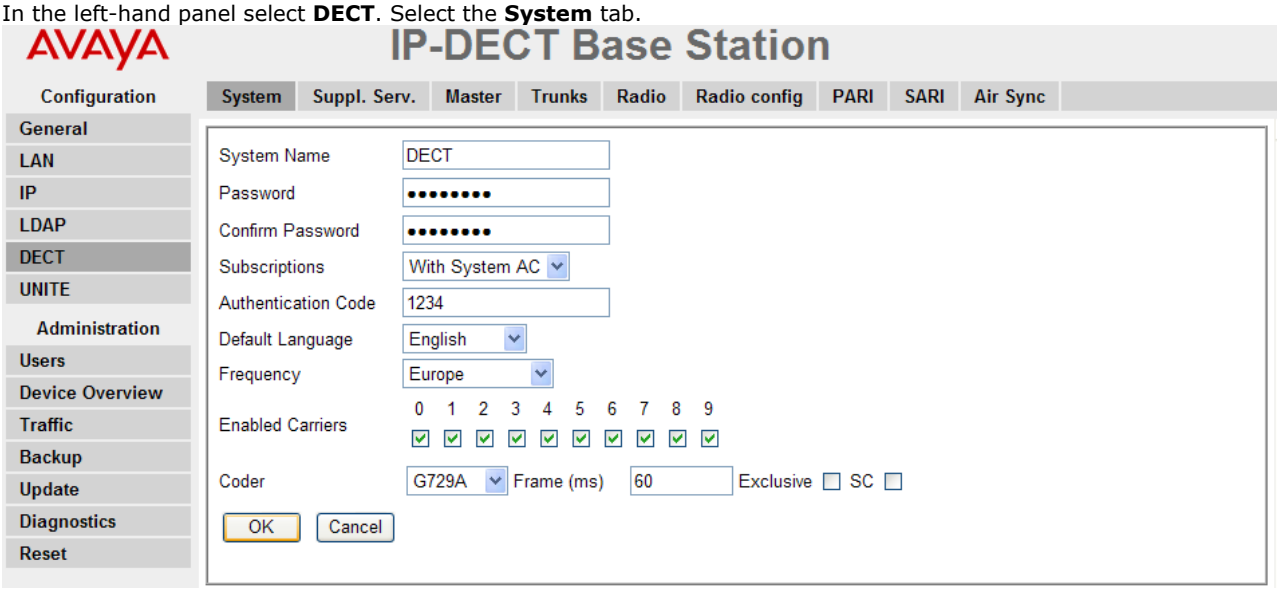
This process changes the anonymous subscription [196] to a known subscription. While a phone is in anonymous subscription state it displays a screen showing **Please login**.

1. To login, dial ***M*N#** where:
   - ***M*** is the DECT system's **Master Id**. This is shown on the base station's **Users | Users** tab.
   - ***N*** is the extension number required. This must match an existing unsubscribed user entry on the **Users | Users** tab in the master base station configuration.
2. For example, on a system with master ID 0, to register an anonymously subscribed device as extension 403, dial *0*403#.

9.7.5 Disable Subscription

When all the DECT phones have been subscribed, it is recommended that you disable any further subscriptions.

1. Access the master base stations configuration.
2. In the left-hand panel select **DECT**. Select the **System** tab.



3. Check that the **Subscriptions** field to ***Disabled***.
4. Click **OK**.

Chapter 10.
Glossary

10. Glossary

The following are definitions for common abbreviations used within the DECT R4 system applications.

10.1 AIWS

Avaya In-Building Wireless Server

10.2 IPBS

IP-DECT Base Station

10.3 SS

Signal Strength

10.4 SARI

An alternate name for the **PARK** 200.

10.5 PARI

Primary Access Right Identity

10.6 PARK

Portable Access Rights Key

10.7 FER

Frame Error Rate

10.8 DECT

Digital Enhanced Cordless Telecommunications - Global standard for cordless telephony.

10.9 CAP

Common Access Profile

10.10 GAP

Generic Access Profile - Standard used for DECT.

10.11 IPDI

At delivery of the telephone, IPEI and IPDI are the same and either can be used for network subscription. If one telephone is replaced with another using the Easy replacement procedure the IPDI will be exchanged and IPEI and IPDI will no longer be the same. If the IPEI and the IPDI differ, the IPDI shall be used for network subscription.

10.12 IPEI

International Portable Equipment Identity - The unique global GAP identity number for the phone. This code is needed for the system administrator to enable network subscription.

10.13 PBX

PBX Private Branch Exchange - Telephone system within an enterprise that switches calls between local lines and allows all users to share a certain number of external lines.

10.14 PDM

Portable Device Manager

10.15 WSM

Wireless Services and Message -Module that enables wireless services like central phone book and messaging to and from the portable devices. An alternate term for the AIWS 200.

10.16 ELISE

Embedded LInux SErver - A term for the AIWS 200.

10.17 SST

Site Survey Tool

10.18 PP

Portable Part - A term for DECT phones.

10.19 RFP

Radio Fixed Part - A term for DECT base-stations.

10.20 RFPI

Radio Fixed Part Identity.

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