

<b>Release Title:</b>	RTS-ROAMEO Release v8.5.2
<b>Release Date:</b>	23-October-2020
<b>Version:</b>	8.5.2

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### Remarks

#### 1. Important Notes

- To ensure compatibility, update all beltpacks and access points to the same ROAMEO release.

#### 2. File Details

The following files are included with this ROAMEO release:

RTS-ROAMEO Release v8.5.2.pdf	Release notes and setup instructions.
.\firmware\	Directory for firmware files.
BP_V_1_0_21.bin	BP application image. Loaded via USB flash drive.
OAP-Firmware_v8.5.2_signed.capfw	AP complete [FPGA+HP+AP+DECT] application image. Loaded via FWUT PC application v5.40.5418 (or newer).
pp_app_rev441.dct	BP DECT application image. Loaded via USB flash drive.
.\downgrade\	Directory for downgrade firmware and instructions
RTS-ROAMEO Application Note - Downgrade from v8.5.0.pdf	Downgrade application note.
OAP-Firmware_FPGA_V_6_40_6217_signed.capfw	Downgrade FPGA only image.

#### 3. Version Details

The following list details all individual component versions associated with this ROAMEO release:

##### TR-1800 Beltpack

Application	1.0.21
Boot	0.0.4
DECT	03.02.0441
Font	2.1

##### AP-1800 Access Point

FPGA	6.62.6876
Host Processor ("HP")	8.5.2
Application ("AP")	1.5.2
Boot	0.0.8
DECT	03.18.2439

#### 4. Compatibility

The following Matrix components and PC applications must be running the listed versions below (or later):

##### Matrix

OMI	6.1.10 (FPGA 0.75)
MCII-e	3.4.0

##### PC Applications

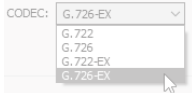
Firmware Upload Tool (FWUT)	5.40.5418
IPedit	3.6.3
AZedit	5.4.2

### Change History

#### Release v8.5.2

<b>Remarks:</b>	<p>This release contains new features for AP-1800.</p> <p>After updating the AP-1800 to release v8.5.2, which contains FPGA component v6.62.6876, the device cannot be downgraded directly to previous releases 8.4.1 and older. Please see the supplied application note for special downgrade instructions.</p>
<b>New Features:</b>	<ul style="list-style-type: none"><li>• AP – Support for connecting to an OMS (#8144).</li><li>• AP – Support for secure authentication with IPedit (#8096).</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>• n/a</li></ul>

#### Release v8.5.1

<b>Remarks:</b>	<p>This release contains bug fixes and new features for AP-1800 and TR-1800.</p> <p>After updating the AP-1800 to release v8.5.1, which contains FPGA component v6.62.6876, the device cannot be downgraded directly to previous releases 8.4.1 and older. Please see the supplied application note for special downgrade instructions.</p>
<b>New Features:</b>	<ul style="list-style-type: none"><li>• AP/BP – Enhancements for improved narrowband audio performance in tough RF environments such as operating in stadiums or other tall ceiling, highly reflective environments. Selected via IPedit CODEC option G.726-EX. </li><li>• BP – Support for keypanel exclusive key option (#7966). Exclusive key option allows the user to setup keys that cause any other exclusive keys to turn off when activated.</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>• AP – AES67 becomes disabled after enabling (#8117).</li></ul>

#### Release v8.5.0

<b>Remarks:</b>	<p>This release contains bug fixes and new features for AP-1800 and TR-1800.</p> <p>From this version onward, only signed .capfw files are released. This requires FWUT V5.40 (or newer) and associated plugins.</p> <p>This release requires IPedit V3.6.3 (or newer).</p> <p>After updating the AP-1800 to release v8.5.0, which contains FPGA component v6.62.6876, the device cannot be downgraded directly to any previous release. Please see the supplied application note for special downgrade instructions.</p>
<b>New Features:</b>	<ul style="list-style-type: none"><li>• AP – Support for DDM (Dante Domain Manager), Dante Version 4.2.0.3.</li><li>• AP – Reporting PTP clock source and status to IPedit.</li><li>• AP – Improve configuration of DECT full capacity (#7524). A checkbox is now available in IPedit labeled “Allow Full Capacity”.<ul style="list-style-type: none"><li>◦ When unselected (default), the AP will reserve timeslots to automatically adjust and optimize performance when interference is detected. This is the recommended setting.</li><li>◦ When selected, the AP will allow the maximum number of beltacks to connect, but does not reserve timeslots to automatically adjust and optimize performance with interference.</li></ul></li><li>• BP – Enhanced Diagnostics Features to assist with setup and installation (#7915).<ul style="list-style-type: none"><li>◦ Site Survey logging.</li><li>◦ Ability to disable roaming during Site Survey.</li><li>◦ New Enhanced Diagnostics screen.</li></ul></li></ul>

<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>• AP – Close all IPedit sessions on authentication table change to force re-authentication (#7855).</li><li>• BP – Missing support for 2-wire call function (#7957).</li></ul>
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### Release v8.4.1

<b>Remarks:</b>	This release is necessary for compliance with California Law, re: SB327: An act to add Title 1.81.26 (commencing with Section 1798.91.04) to Part 4 of Division 3 of the California Civil Code, relating to information privacy.
<b>New Features:</b>	<ul style="list-style-type: none"><li>• AP – Added security features for compliance with California Senate Bill 327. For new devices, authentication must now be configured when first connecting to the device. For existing devices, no change needs to be made, however, if the authentication table is reset, or a factory reset is performed on the device, it will enter the state where it requires authentication to be configured.</li><li>• AP – Added security for various commands. The following operations have been re-implemented so that they are more secure and difficult to spoof: clear channel statistics, tear down channel(s), reboot device, and enable Telnet. These commands now require IPedit v3.6.2 or later.</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>• n/a</li></ul>

### Release v8.4.0

<b>Remarks:</b>	This release contains bug fixes and improvements for AP-1800 and TR-1800.
<b>New Features:</b>	<ul style="list-style-type: none"><li>• AP/BP – enhancements for improved performance in tough RF environments. Selected via IPedit CODEC option G722-EX.</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>• AP – BP transmit audio becomes distorted (#6671).</li><li>• AP – DECT firmware update sometimes fails to start (#1892).</li><li>• AP – Duplicate PMID assignment during subscription (#1878).</li><li>• BP – Application version not reported correctly in AZedit (#7599).</li></ul>

### Release v8.3.1

<b>Remarks:</b>	This release contains bug fixes and improvements for AP-1800 and TR-1800.
<b>New Features:</b>	<ul style="list-style-type: none"><li>• BP – added debug and RSSI logging capabilities (#7237).</li><li>• BP – added dark mode top panel dim LED feature (#7149).</li><li>• BP – changed call waiting window behavior to reflect keypad's auto mode (#7147).</li><li>• BP – added talk/listen button lockout via press and hold the clear button for 3 seconds (#7148).</li><li>• BP – prevent key volume changes before key volume is known (#6781).</li><li>• BP – prevent volume changes while master switch is active (#7146).</li><li>• BP – changed text of selected settings to a yellow green (from red), and lessened the intensity of non-local Matrix name text.</li><li>• BP – allow more than 250 scroll list entries of a particular function type.</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>• AP – missing power-up data with 8char Unicode alphas (#6958).</li><li>• AP – BP does not connect, does not avoid a full narrowband AP (#7094).</li><li>• AP – Telnet, additional diagnostics information (#7098).</li><li>• AP – allow activating talk button from AZedit (#7082).</li><li>• AP – roaming exception, missing link down, entry not cleared (#7103).</li><li>• AP – roaming exception, link-down received out of sequence (#7109).</li><li>• AP – OAP fails to load config file from IPedit V350 'Failed: invalid channel specified' (#7176).</li><li>• BP – allow custom splash screen from pnm files without expected comments (#7219).</li><li>• BP – synchronize top panel LEDs and QVGA bars when coming back into range (#7242).</li><li>• BP – validate talk keys when switching master latch setting (#7230).</li><li>• BP – query key volume index before changing to acquire any AZedit changes that weren't relayed to the beltpack (#6782).</li><li>• BP – turn off listen LED for auto mute assignment if talk key is active (#6711).</li><li>• BP – convert all unicode scroll list entries to the wide-width font (#7079).</li><li>• BP – corrected sorting of unicode alphas in scroll lists (#7090).</li><li>• BP – handle force key status keypad message (#7082).</li><li>• BP – correct CWW reply/clear button press affecting top panel LED tally indication (#7061).</li><li>• BP – correct CWW assignment when manually editing key assignments (#7078/7081).</li></ul>

	<ul style="list-style-type: none"><li>• BP – correct QVGA/top panel LED mismatch when auto reciprocal assignments are used (#7077).</li><li>• BP – correct bug where mic audio was cut if reply button was pressed while pressing another top panel key (#7060).</li><li>• BP – display "N/A" when attempting to edit the key volume of a trunked key or other key without editing capabilities (#7051).</li><li>• BP – allow key volume edit on listen keys received after power up from AZedit (#7050).</li><li>• BP – illumination menu setting edit fixes for CWW backlight and top panel LED brightness (#7075).</li><li>• BP – allow key volume changes when the listen key is already latched (#7049).</li><li>• BP – allow hot mic and sidetone editing while activating and deactivating talk switches (#7015).</li><li>• BP – BP does not connect, pp reset repeating (#7105).</li><li>• BP – TR-1800 can lockup where unit is unresponsive to top panel and front panel buttons (#6951).</li></ul>
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### Release v8.2.0

<b>Remarks:</b>	This release contains bug fixes and improvements for AP-1800 and TR-1800.
<b>New Features:</b>	<ul style="list-style-type: none"><li>• AP/BP – ODIN compatibility (#6959, #6960, #7001).</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>• BP – improved quality factor meter (#6918).</li><li>• BP – invalid characters for scroll list updates with 8U alphas (#6974).</li><li>• BP – trunking, not displaying full Matrix name with 6 or 8 char alphas (#6976).</li><li>• BP – trunking, corrected Matrix name update/delete handling (#6978).</li><li>• BP – trunking, menu navigation fixes (#6977, #7048).</li><li>• BP – clear the "AP ID" when the BP has no DECT connection (#6808).</li><li>• BP – four button reset still connects to AP using old system ID (#6643).</li><li>• BP – accidental volume adjust with master talk switch (#7020).</li><li>• BP – out of range alphas with fake keypanel data (#6746).</li><li>• BP – TR-1800 can lockup where unit is unresponsive to top panel and front panel buttons (#6951).</li></ul>

### Release v8.1.0

<b>Remarks:</b>	This release contains bug fixes and improvements for AP-1800 and TR-1800.
<b>New Features:</b>	<ul style="list-style-type: none"><li>• n/a</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>• AP – #6271 – reduced audio gap while roaming.</li><li>• AP – #6720 – OAP device cannot connect to more than 5 different OMI devices.</li><li>• AP – #6749 – IPedit, OAP device does not save DECT Zone Selection to file correctly.</li><li>• AP – #6795 – incorrect DECT zone configuration.</li><li>• AP – #6743 – Telnet enhancements, 'exit' now ends session gracefully.</li><li>• AP – #6737 – Telnet enhancements, additional display information available.</li><li>• AP – #6722 – sometimes BP does not re-request power-up packet if OMI was disconnected then re-connected.</li><li>• AP – #6721 – audio setup failure if OMI was disconnected then re-connected.</li><li>• AP – #6710 – missing data packet when BP disconnects/re-connects.</li><li>• AP – #6790 – faster recovery for DECT reset.</li><li>• BP – #6741 – BP does not request power-up packet if OMI connection is established after DECT connection.</li></ul>

### Release v7.10.1

<b>Remarks:</b>	This release contains bug fixes and improvements for AP-1800 and TR-1800.
<b>New Features:</b>	<ul style="list-style-type: none"><li>• n/a</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>• AP – #1813 – sync error recovery.</li><li>• AP – #6686 – system misconfiguration, duplicate sync masters with same APID.</li><li>• AP – #6683 – reduce occurrence of audible high-frequency tone in keypanel when BP connected without audio.</li><li>• BP – #1804/#1821 – improve roaming performance.</li><li>• BP – #1806/#1823/#1825 – improve data reliability over DECT link.</li></ul>

	<ul style="list-style-type: none"><li>BP – #1794/#1661/#1807 – BP does not connect after power-on or does not re-connect after going out of range.</li><li>BP – #6604 – Added non-latching option to master switch.</li><li>BP – #3912 – Listen-only keys not displaying Alpha.</li><li>BP – #6605 – Add option to simultaneously display 4 char talk &amp; listen Alphas.</li><li>BP – keys with no Alpha assigned do not display **** when DECT connection is lost.</li><li>BP – Reduce Alpha flicker when talk/listen keys are pressed.</li><li>BP – Remove delay start option from test menu.</li><li>BP – #6699 – Duplicate scroll list entries.</li><li>BP – #6700 – BP receives duplicate data packets.</li><li>BP – #6701 – Trunked matrices does not show up in Scroll List.</li><li>BP – Trunking, fixed key assigned with AF and direct call thru CWW.</li></ul>
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### Release v7.9.2

<b>Remarks:</b>	This release contains bug fixes and improvements for AP-1800 and TR-1800.
<b>New Features:</b>	<ul style="list-style-type: none"><li>n/a</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>AP/BP – #1801 – DECT module manufacturing issue, excess deviation for US.</li><li>BP – #1795 – BP sometimes stops roaming.</li></ul>

### Release v7.9.1

<b>Remarks:</b>	This release contains bug fixes and improvements for AP-1800 and TR-1800.
<b>New Features:</b>	<ul style="list-style-type: none"><li>BP – DECT logging to USB Flash drive.</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>BP – #5822 – AZedit displays TR-1800/4, TR-1800/6, TR-1800/8 and TR-1800/U Alpha Sizes.</li><li>BP – Fix incorrect alpha text colors.</li><li>BP – #6017 – Aux DIM level % swap.</li><li>BP – Fix US TBR6 mode reset.</li><li>AP – Improved recovery if DECT module resets.</li><li>AP – Improved reliability of DECT module interface.</li><li>AP – Improve performance of consecutive Visitor-to-Visitor roaming.</li></ul>

### Release v7.8.0

<b>Remarks:</b>	This release contains bug fixes and improvements for TR-1800.
<b>New Features:</b>	<ul style="list-style-type: none"><li>n/a</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>BP – Fix disappearing alpha colors on page change &amp; BP alpha centering on Home Screen.</li></ul>

### Release v7.7.1

<b>Remarks:</b>	This release contains bug fixes and improvements for TR-1800.
<b>New Features:</b>	<ul style="list-style-type: none"><li>n/a</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>BP – Disappearing Key Alphas.</li></ul>

### Release v7.7.0

<b>Remarks:</b>	This release contains bug fixes and improvements for AP-1800 and TR-1800.
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<b>New Features:</b>	<ul style="list-style-type: none"><li>• AP – #6096 – Telnet features. Add new Telnet user interface with basic functions.</li><li>• BP – added key alpha text colors.</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>• AP – #6213 – Handling for failed DECT firmware update.</li><li>• AP – #6442 – Adjust time for reporting badcut to Matrix after BP disconnected.</li><li>• AP – #5943 – Update Home-AP OMNEO status from ST.</li><li>• AP – #6160 – DECT timeout exception handling.</li><li>• AP – #6496 – Improve simultaneous PUP request handling.</li><li>• AP – #6554 – Modify clear link payload behavior on call release.</li><li>• AP – #6553 – Handling for failed ETP packet reception.</li><li>• AP – #6547 – Improve handling for fp crash recovery.</li><li>• AP – #6544 – Improve ETP handling on BP disconnect.</li><li>• AP – #6570 – ST queue recovery after full.</li><li>• AP – #6574 – BP receives incomplete data on startup.</li><li>• BP – #6343 – Maximum Volume setting does not work.</li><li>• BP – #6535 – Aux DIM level remains DIM after Pt to Pt call to a beltpack.</li><li>• BP – #6504 – When assigning keys BP should assign both Talk and AF when Talk + AF is selected.</li><li>• BP – #6400 – Support for Trunking complete.</li><li>• BP – #5837 - Beltpack now sends disconnect message to AP during orderly shut-down.</li><li>• BP – #5837 – Beltpack now displays "****" when matrix disconnected and recovers when reconnected.</li><li>• BP – #6209 – Added code to prevent bp from sending ETP packets if call state is active.</li><li>• BP – Fixed scroll lists &gt; 256 (max allowed = 250) not handled properly.</li><li>• BP – Fixed one source of multiple PUP2 packet requests.</li><li>• BP – #6534 – CWW should time out if caller is already defined as a key alpha.</li><li>• BP – #6563 – AZedit Restrict box honored but displayed incorrectly.</li><li>• BP – #6576 – Adjacent Talk/Listen LEDs sometimes flash when Talk/Listen buttons pushed.</li></ul>

### Release v7.6.1

<b>Remarks:</b>	This release contains bug fixes and improvements for TR-1800.
<b>New Features:</b>	<ul style="list-style-type: none"><li>• n/a</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>• BP – fix RSSI subscription threshold.</li></ul>

### Release v7.6.0


<b>Remarks:</b>	Initial release for production build.
<b>New Features:</b>	<ul style="list-style-type: none"><li>• SYSTEM – now using ETSI EIC.</li><li>• AP – set DECT busy flag depending on number of configured beltpacks. For improved roaming, limit number of connections per AP to 4 for wideband and 8 for narrowband. The AP will allow 5 wideband if 5 BPIDs are entered in IPedit. The AP will allow 10 narrowband if 10 BPIDs are entered in IPedit.</li></ul>
<b>Bug Fixes:</b>	<ul style="list-style-type: none"><li>• AP/BP – DECT EEPROM reset causes US unit to change to EU.</li><li>• AP – reduced occurrence of audible “ticks” in keypanel during bootstrap.</li><li>• BP – wb/nb flag fixed.</li><li>• BP – does not connect to RPN modulo-8.</li><li>• BP – Individual Key Listen Volumes fixed.</li><li>• BP – Cannot update DECT module in bootloader mode.</li><li>• BP – Continuously / rapidly pressing listen keys hangs DECT ETP channel.</li><li>• BP – BP Zone change doesn't take place on Subscription, it takes place on next boot.</li><li>• BP – Maximum Volume setting does not work.</li></ul>

### Beltpack Firmware Update

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Updates to the TR-1800 are performed using the USB port on the beltpack. Updates to the TR-1800 are given in .bin or .dct files. These files are to be placed on a flash drive that is formatted as FAT32.

**NOTE:** When updating both the Application and DECT Module, update the Application first.

1. Navigate menu and select the “Firmware Update”  icon.
2. Select the desired component to be updated.
3. When prompted, insert the USB stick.
4. Select the desired image to update.

## Access Point Firmware Update


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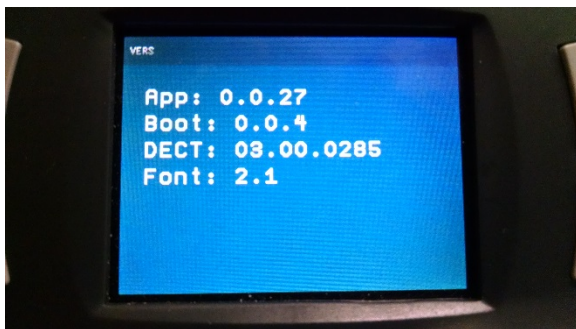
Updates to the AP-1800 are performed using the Firmware Upload Tool (FWUT) PC application. Updates to the AP-1800 are given in the form of a .capfw file. This is a package of one or more .bin files to be sent to the AP-1800 for various components. The .capfw file must be placed in the update directory that FWUT looks for.

1. Launch FWUT application.
2. Select desired OMNEO Access Point (OAP) device and press "Upload".
3. Select the desired .capfw image to update with and press "Start".  
This will begin the update procedure of all components [FPGA, HP, AP, and DECT] over Ethernet.

### Version Identification

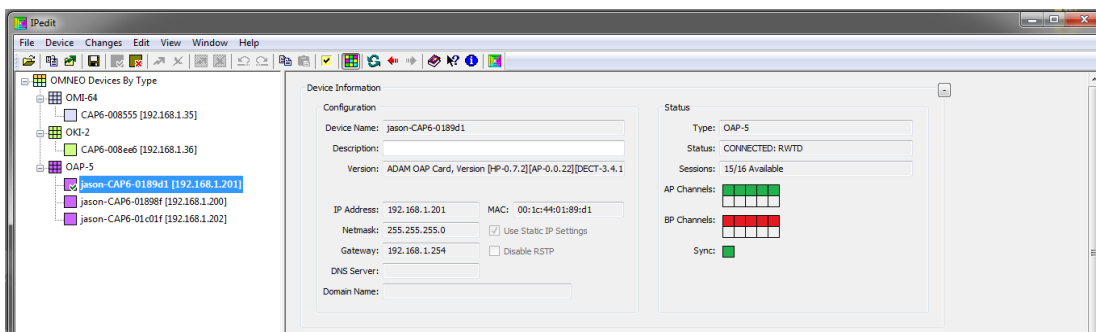
#### 1. Beltpack

Navigate menu to version  icon:



#### 2. Access Point

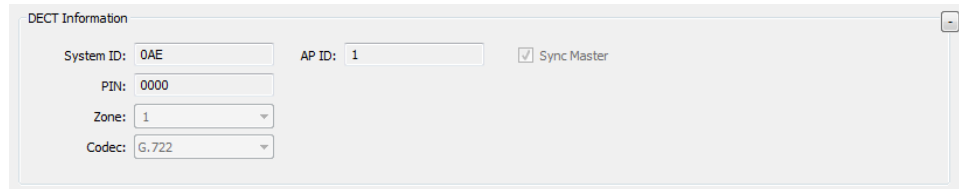
In IPedit, **Device Information**→**Version**



### Initial Setup & Configuration

The following instructions explain how to setup and configure a ROAMEO AP-1800 access point (AP) and TR-1800 beltpack (BP) to begin communicating with the Matrix over OMNEO.

#### 1. Access Point Configuration (via IPedit)



DECT Information

System ID:	0AE	AP ID:	1	<input checked="" type="checkbox"/> Sync Master
PIN:	0000			
Zone:	1			
Codec:	G.722			

- Add OMNEO Access Point (OAP) device and login as “admin” to make DECT changes.  
**Device→Change User**, username: **admin**, password: **password**.
- Enter a valid “System ID” for the AP.  
The “System ID” is a 3-hex digit entry (e.g., “0AE”).  
**NOTE:** All APs within a *roaming system* must have the same “System ID”.
- Enter a valid “AP ID” for the AP.  
The “AP ID” is a decimal entry (1-255).  
**NOTE:** Each AP within a *roaming system* must have a unique “AP ID”.
- Setup the “Sync Master”  
Check the “Sync Master” box for only one AP within the system.  
**NOTE:** Only one AP within a *roaming system* must be selected as the “Sync Master”.
- Enter a “PIN” code.  
Default “PIN” code is 0000.
- Select the desired “Zone”.  
Default “Zone” is 1.
- Select the desired “Codec”.  
Default “Codec” is G.722.
- Set “DECT Zone Selection” for each beltpack.  
Default Zone Selection is blank (all zones).
- Send all IPedit changes to the devices.  
Wait until the “Sync” Status box is green (indicating the AP is synchronized and active).

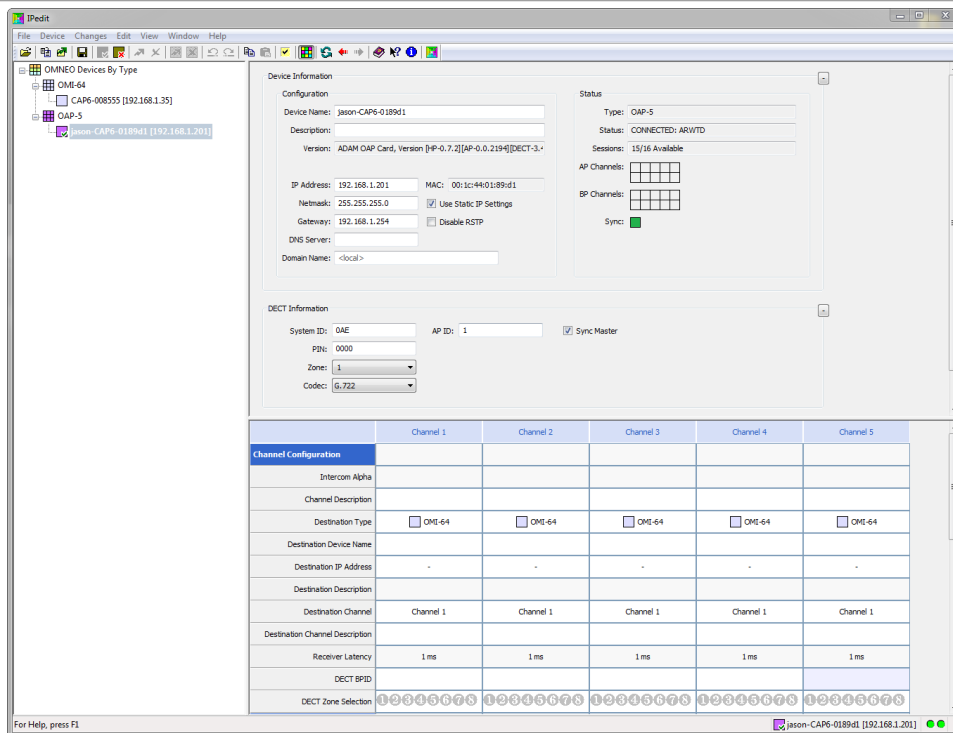


Figure 1: Configured AP

### 2. Matrix Channel Assignment

To enable audio and data between the Matrix (OMI) and the AP, OMNEO channels must be mapped between them. An AP has either 5 or 10 OMNEO channels available for assignment (depending on which CODEC is selected).

- a. Assign OAP OMNEO channels to OMI OMNEO channels.
  - i. From the OAP device, select an OMI Destination Device and OMI Destination channel.

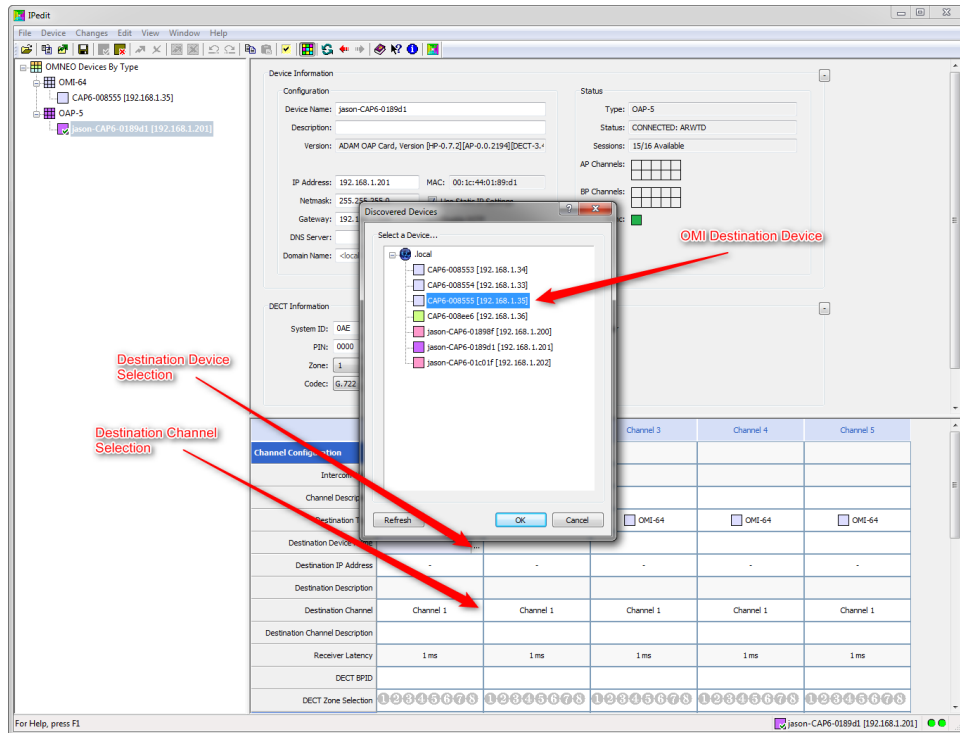


Figure 2: OMNEO channel mapping

- ii. In the opposite direction, from the OMI device, select the corresponding OAP Destination Device and OAP Destination channel.
- iii. Repeat to setup all desired channels.

The example below shows that AP OMNEO channels 1-5 are mapped to OMI OMNEO channels 1-5. The “AP Channels” status is green boxes indicating that the channels have been mapped successfully.

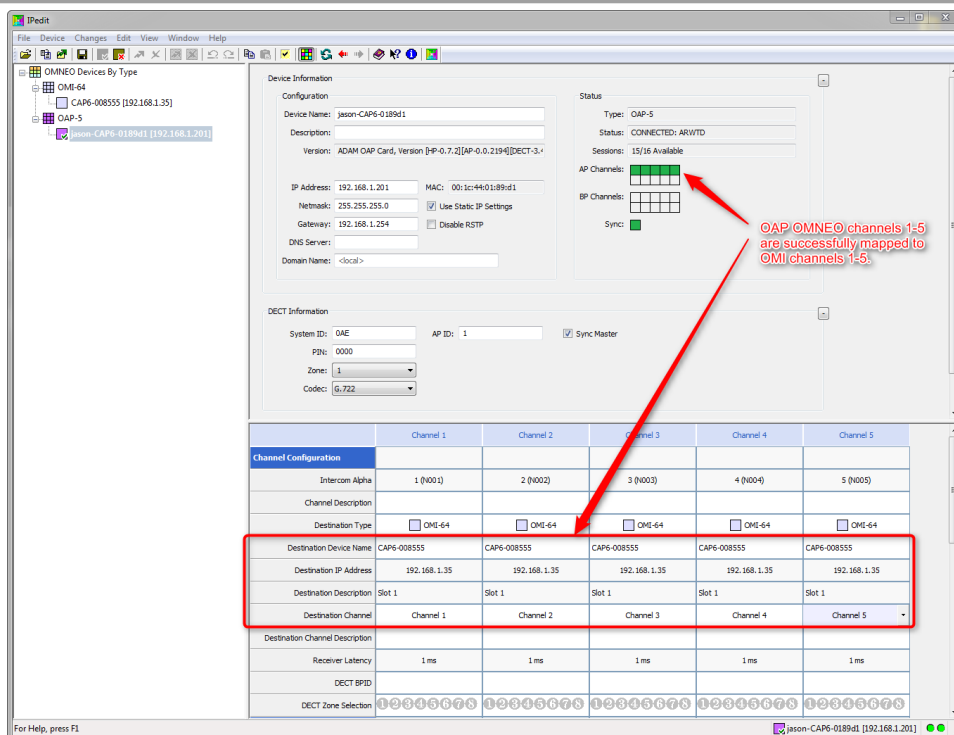


Figure 3: Example, OAP OMNEO channels 1-5 are successfully mapped to OMI OMNEO channels 1-5

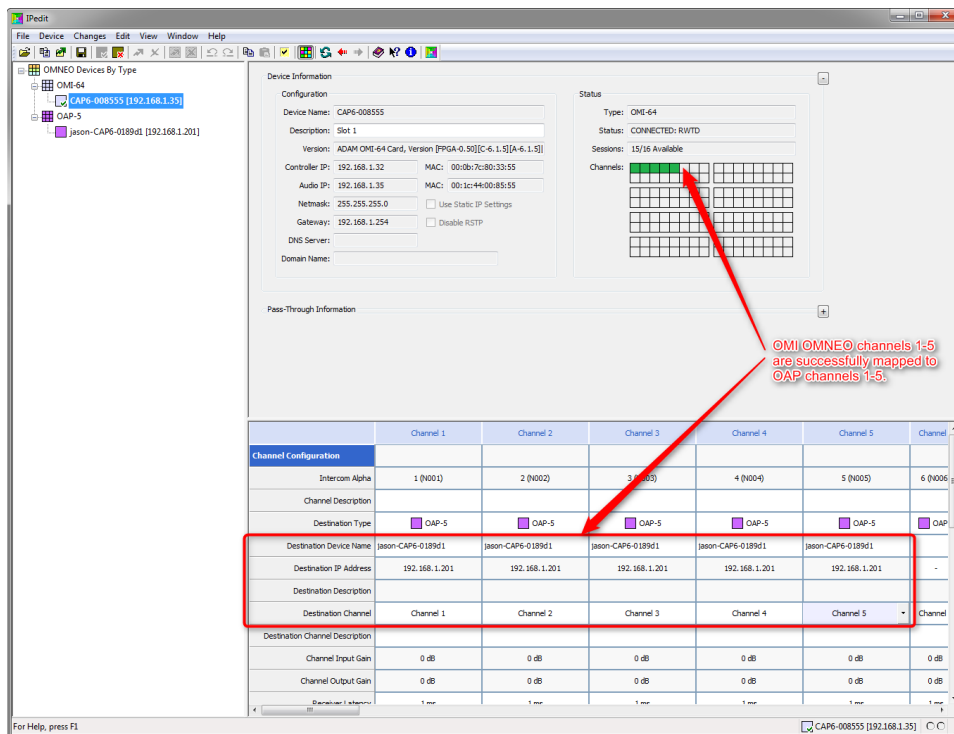


Figure 4: Example, OMI OMNEO channels 1-5 are successfully mapped to OAP OMNEO channels 1-5

- b. Assign each beltack to a particular Intercom Alpha.
  - i. Power-on all beltacks and identify each BPID on the LCD screen.
  - ii. Assign each beltack by entering each BPID.

**NOTE:** This will assign that beltack to a particular OAP Channel. This beltack will assume the Matrix identity of the “Intercom Alpha” field.

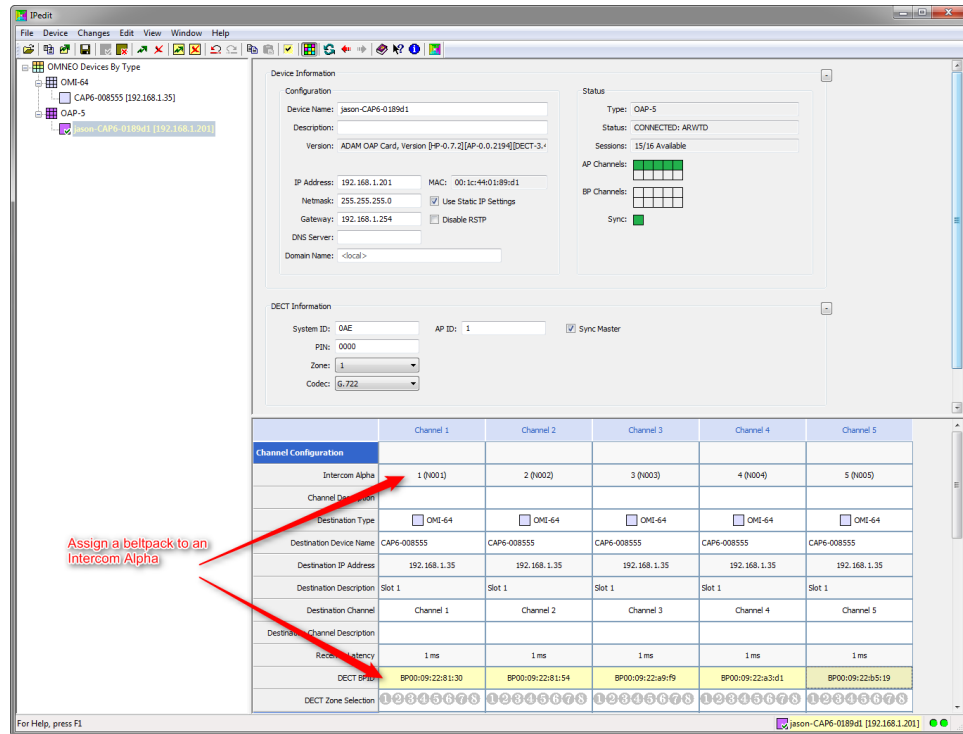


Figure 5: Assign BPIDs


For example, in the figure above, BPID 00:09:22:81:30 will become port 1 on the Matrix “N001”. BPID 00:09:22:81:54 will become port 2 on the Matrix “N002”.

- c. Send all IPedit changes to the devices.

### 3. Beltpack Subscription

**NOTE:** Move to a line-of-sight location within 40 feet (12 meters) of an AP-1800 on the system.

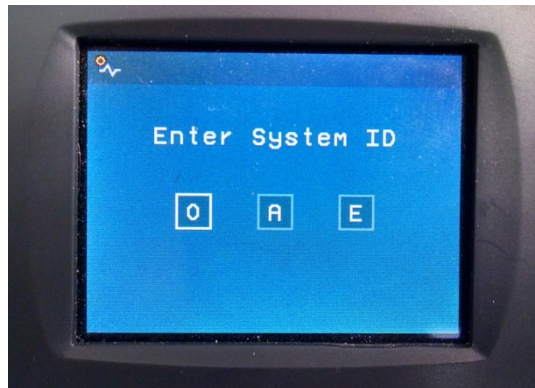
- a. Initiate System Setup.

Navigate menu and select the “System Setup”  icon.

- b. Enter the “System ID”.

**NOTE:** Antennas should be attached to AP during this process.



For example, if the “System ID” (as entered in IPedit) is “OAE”, the “System ID” should also be entered on the BP as “OAE” on the beltpack:



- c. Enter the “PIN” code

Default pin is “0000”.

### 4. Verification

- a. After BP is subscribed, a DECT connection is established and the DECT icon  is displayed.
- b. A Matrix power-up packet is requested and the Matrix icon  is displayed.
- c. In IPedit, “BP Channel” will turn green indicating a connection, and BP will begin to receive the power up packet data from Matrix.
- d. The beltpack will show key assignments and alpha background colors as assigned in AZedit.
- e. After power-up is received, the beltpack is ready to communicate.