HTI family web interface guide

HTI-404 and HTI-424

REF. 3864

REF. 3863

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1. INTRODUCTION

This document explains how to perform the installation of a headend based on HTI modules.

The document describes how the headend is configured. For that, initially the physical mounting is described. After that, it explains how to connect the user pc to the headend through IKUSI HEADEND DISCOVERY application. Finally, all the menu options of the web interface are described.

To ensure the correct use and installation of the headend, it is necessary to read the user manuals and the installation manuals of the modules included in their own packages.

1.1 General safety instructions

Read all of this user manual carefully before plugging in the unit.

Always have these instructions to hand during installation.

Follow all of the instructions and safety notices regarding unit handling.

Danger of death or injury

This safety notice indicates a possible danger for the life and health of people. Not following these instructions may lead to serious consequences to health and may even cause fatal injuries.

Do not install the unit during an electrical storm. This could lead to electrostatic discharge from lightning.

Do not open the unit. There is a risk of electrostatic discharge.

Risk of damage to the unit

This safety notice indicates a possible dangerous situation. Not following these instructions may lead to the unit being damaged.

The unit must be appropriately ventilated. Install the unit in a dust-free location. Do not place the unit in a location where the ventilation slots are covered or blocked. Install the unit in a location with at least 20 cm around it free of other objects.

Do not expose the unit to rain or moisture. Install the equipment in a dry location with no infiltration or condensation of water. Should a liquid enter the unit, disconnect it immediately from the mains.

Keep the unit away from flammable objects, candles and anything that may cause a fire.

Connect the unit to an easily accessible power socket. In the event of an emergency, it will then be possible to quickly unplug the unit.

Do not expose the unit to sources of heat (sun, heating, etc.).

Handling the inside of the unit is forbidden

This notice forbids any work that may affect the working order of the unit or its warranty.

Do not dispose of as urban waste

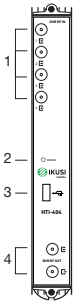
This type of notice indicates that the unit must not be disposed of as unselected urban waste.

NOTE: This type of notice is a note containing applicable advice and useful information for optimum use of the unit.

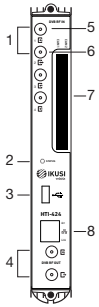
1.2 Installation environment recommendations

- The headend is for indoor use only.
- Do not plug in the headend in moist rooms.
- Never operate the headend immediately after moving it from a cold location to a hot location. When the device is exposed to such a change in temperature, moisture may condense on the crucial internal parts.
- The device must have sufficient ventilation and may not be covered.
- Protect the device against direct sunlight, heat, intense temperature fluctuations and moisture. Do not place the device in the vicinity of heaters or air conditioners.
- Do not allow liquids to enter into the device. Turn off the device and disconnect it from the main supply if liquids or foreign substances end up inside the device.
- If the device gets too hot or emits smoke, shut it down immediately and unplug the power cable. Arrange for your device to be investigated by a technical service centre.
- Under the following conditions, a layer of moisture can appear inside the device which can lead to malfunctions:
  - □ if the device is moved from a cold to a warm area;
  - □ after a cold room is heated;
  - □ when this device is placed in a damp room.
- The device should not be used in a very dusty or saline environment. Dust or salt particles and other foreign objects may damage the device.
- Do not expose the device to extreme vibrations. It may damage the internal components.

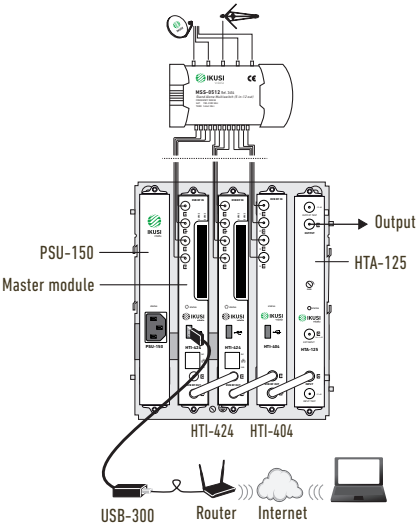
1.3 Description of the HTI modules



1 Input (DVB-T/T2/S/S2/C)
2 Control LED
3 Management port (USB)
4 DVB-T/DVB-C output coupling loop



1. Inputs (DVB-T/T2/S/S2/C)
2. Control LED
3. Management port (USB)
4. DVB-T/DVB-C output coupling loop
5. Input 1, in 1 input + loop through mode
6. Tap loop, in 1 input + loop through mode
7. Slot for CAM (2x)
8. Management port (Ethernet) and streaming



USB to Ethernet adapter for remote or local configuration

2. HEADEND CONNECTION

The instructions for connecting the headend are described in detail in the guide that is provided with the HTI module. Also, that guide can be downloaded from our web page www.ikusi.tv.

Briefly, the steps to follow are:

- Insert the HTI modules and the PSU-150 power supply in the BACK-500 base-plate. One of the HTI modules must be inserted in the slot 2 of the base-plate (master module).
- Connect the different cables from the multiswitch or from the antenna to the module inputs. In the case of the HTI-424, the signal distribution may also be performed using a single antenna cable, using the input loop-through.
- In the case of an RF installation, connect the coaxial bridges F in between the equipment outputs. In the case of an IPTV installation (only HTI-424), lead each streaming output to a Gigabit Ethernet trunk switch with IGMP (snooping and querier).
- Connect the pc to the USB port of the master module, located in the slot 2 of the base-plate, with a USB-ethernet adapter.

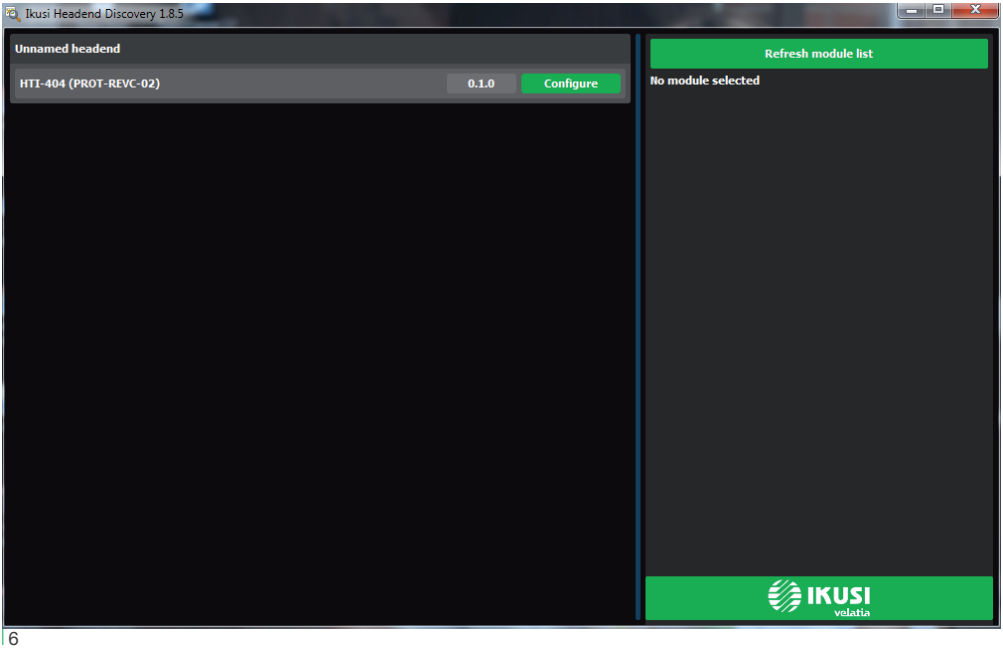
NOTE: It is recommended to use USB-ethernet adapters based on AX88179 or AX88772 chipsets

3. COMMUNICATION WITH THE HEADEND

HTI is configured through a web page generated by the own headend. Use IKUSI HEADEND DISCOVERY application to access this web page without modifying manually the network configuration of your pc. You can download the IKUSI HEADEND DISCOVERY aplication from www.ikusi.tv web page.

NOTE: You must use IKUSI HEADEND DISCOVERY version 1.8.5 or higher

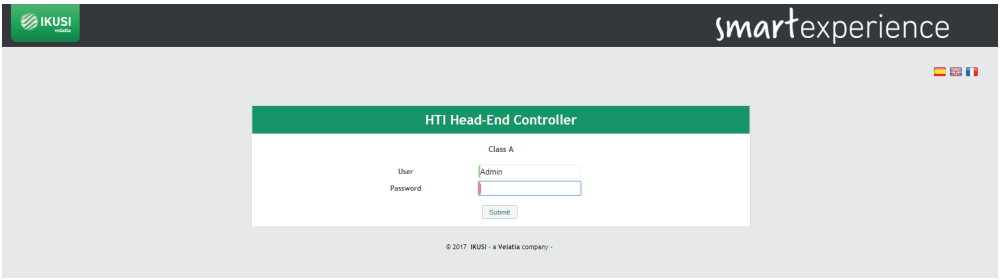
Open IKUSI HEADEND DISCOVERY application (the network card IPV6 protocol will be automatically enabled or permission will be requested to do so).



The window will show the name of the connected master module. Push Configure button and the web browser of the PC will open automatically, showing the access page of the headend.

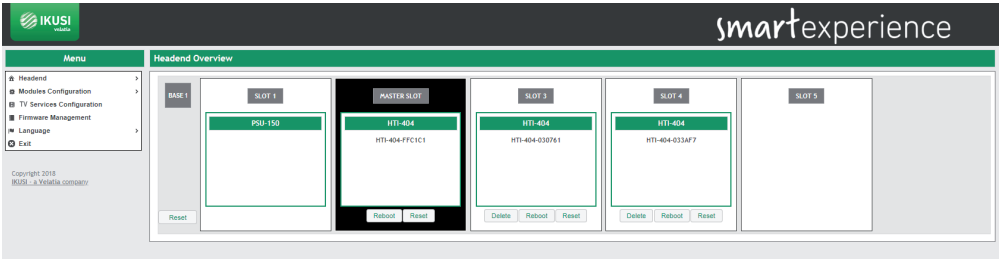
NOTE: HTI web interface uses https protocol. It is likely that your browser doesn't recognize the security certificate generated by the HTI. To continue configuring the module without problems, add the security exception requested by your browser in a permanent way.

NOTE: It is recommended to use Mozilla Firefox or Google Chrome as browser.



By default, the language of the web interface is the same than the one used by the browser. If you want to change it, choose in icon the flag related with the desired language.

Enter the folowing data, User: Admin Password: admin. Push Submit button. The main screen of the configuration interface will open, from where you can configure the headend, as described in the next section.



4. WEB INTERFACE

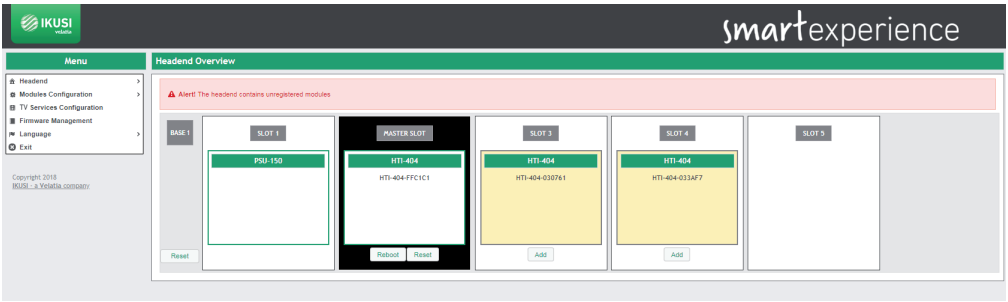
The web interface of the HTI allows to configure the headend, as well as to show status information of the modules. The following sections describe each of the menu options available.

4.1 Headend

Headend menu, through a series of submenus, allows to display status information and to configure the global parameters.

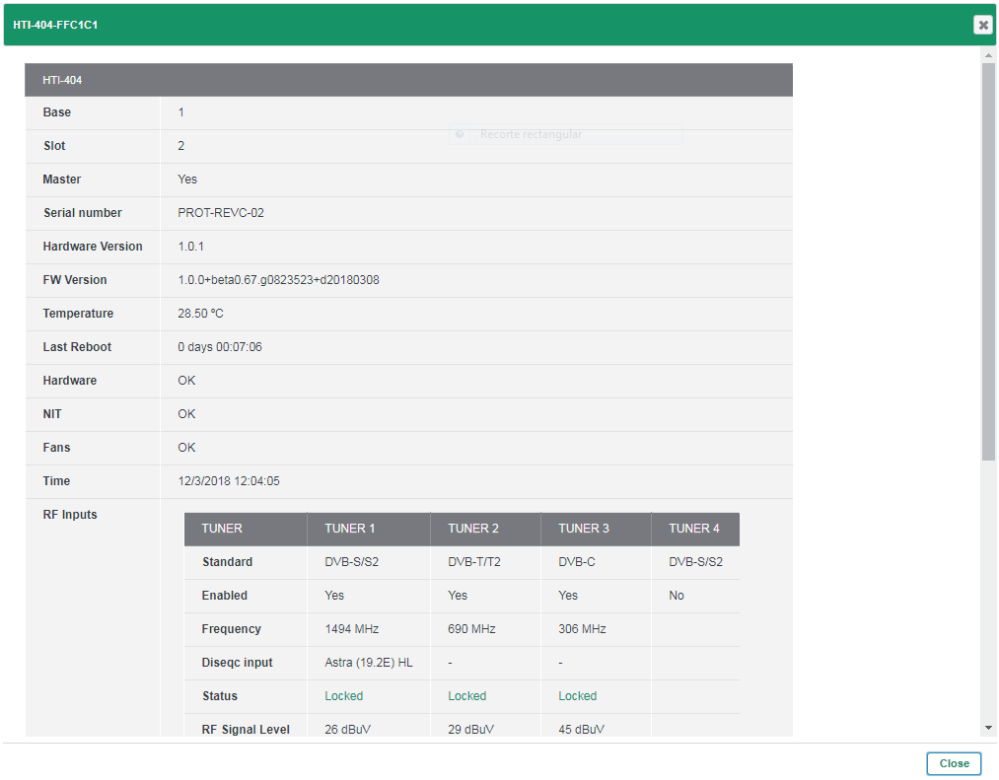
4.1.1 Overview

It is the menu that appears by default when entering the headend. The user can access this menu at any time. To do this, go to Headend → Overview. A screen as the following one will be displayed:



This screen shows the whole headend schematically. The essential information of each module inserted in the base-plate is displayed. The master module always corresponds with the module inserted in slot 2, and it appears in white on black background. The remaining modules appear on white background.

When selecting a specific module, a window with status information and alarms in detail will open.

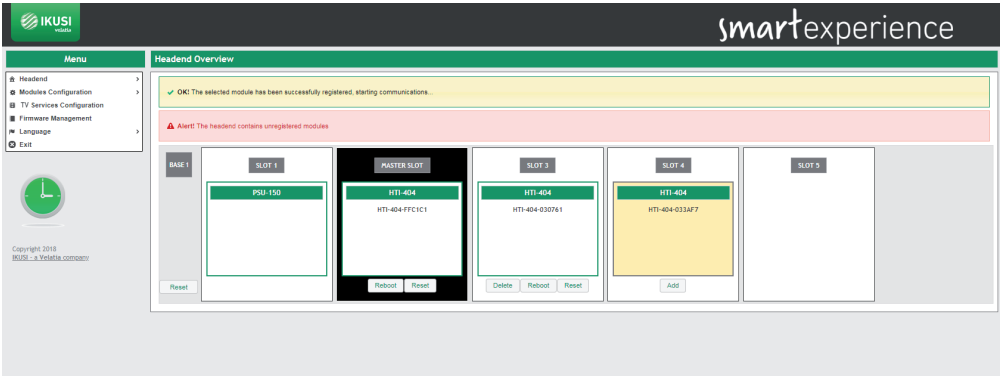


In addition, through a series of buttons you can perform the following actions:

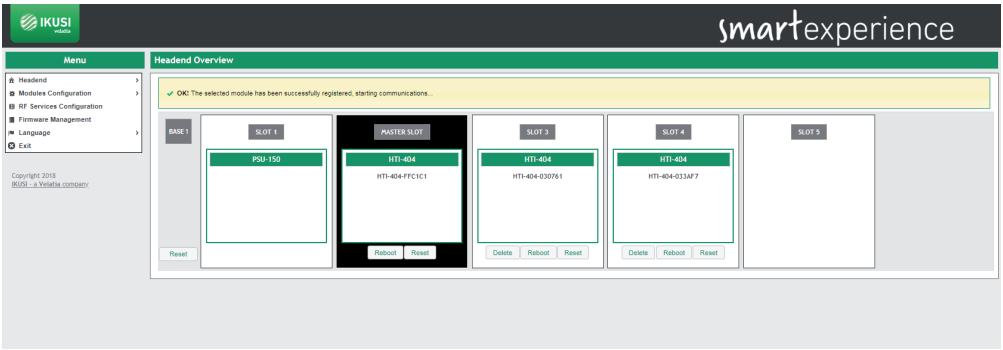
- To register a module.
- To unregister a module.
- To clone settings from an old module to a new one.
- To reboot a module.
- To reset a module with its default settings.
- To reset all modules of a headend, loading their default settings.

4.1.1.1 Registering process

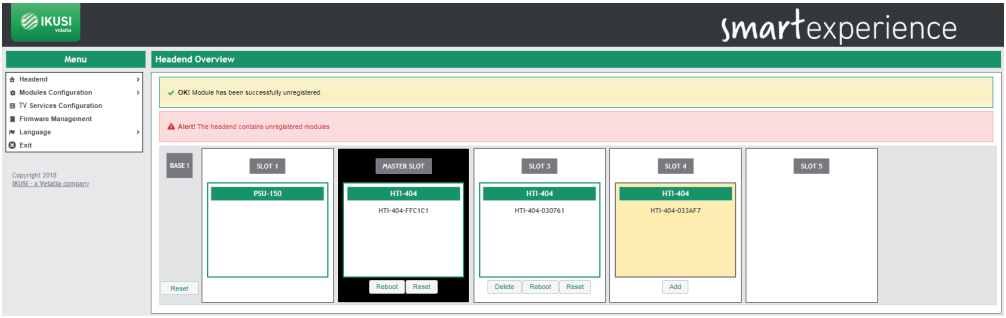
The headend only allows to configure those modules that have been registered previously. The unregistered equipments are shown in yellow on white background. By default, no module except the one inserted in slot 2 (master) is registered. To register a module that has been detected by the master module simply push Add button of that module. The background color change to white indicating that the module has been properly registered.



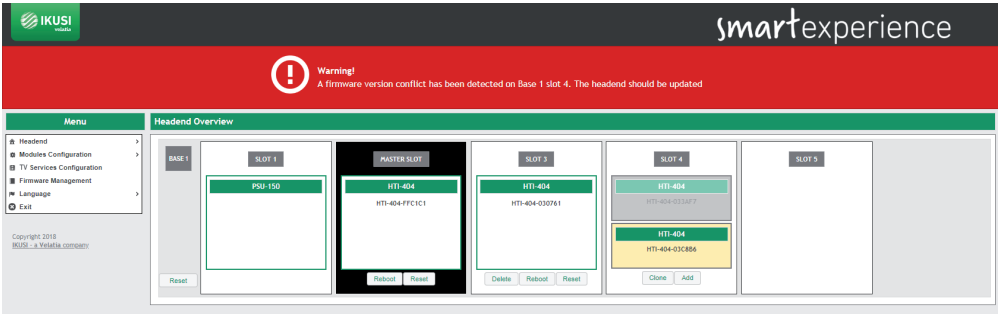
Repeat the registration process with all modules you want to include in the headend.



If, for any reason, you want to unregister a module of the headend, you must push the Delete button. The module will be displayed in yellow background, indicating that has been unregistered correctly.

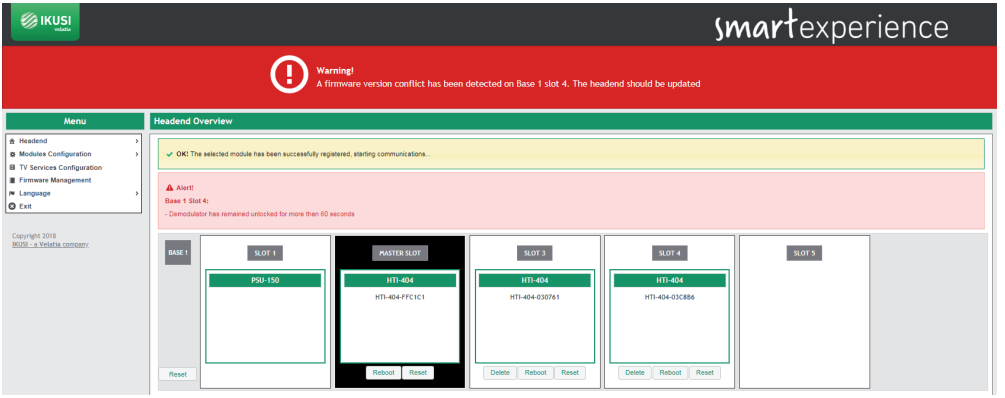


The registration process is different if it is the result of replacing a module (for example, due to failure). In that case, when placing a new module in the position of one that had been already registered by the headend, the user can choose between to add it without modifying the configuration of the module or to copy the configuration of the module that was previously registered in that slot. In the following example, starting from the previous headend with 3 HTIs, all registered, the HTI of slot 4 has been replaced with a new HTI:



A module with two possible configurations is displayed: one in grey background, corresponding to the previous module that was already registered in the headend, and another one in yellow background, corresponding to the configuration of the new module pending registration.

If you want to copy the settings from the previous module, push Clone button. If, instead, you only want to register the new module without copying the previous configuration, push Add button. In both cases, as result a screen will be displayed where the module appears as registered.



4.1.1.2 Reboot and reset

The user can reboot a specific module. To do this, you must push Reboot button of that module.

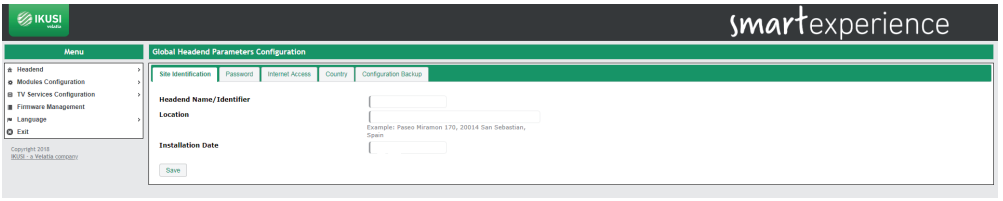
On the other hand, if you just want to load the default settings of the module, just as it comes from the factory, you must use Reset button. If you want to load the default settings of a specific module, push Reset button of that module. However, if you want to load the default settings on all modules of the headend, you can do it pushing Reset button associated with the Base.

In both cases, a warning message indicating that the module will return to its default settings will be displayed. Press OK if you understand the consequences of this action and you agree.

NOTE: In the case of resetting the master module, slave devices will be unegistered.

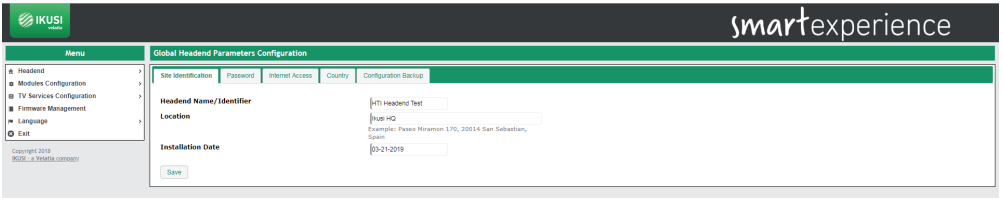
4.1.2 General configuration

This menu displays several tabs that allow to set global parameters of the headend. To access this menu, go to Headend → General Configuration. A window as the following one will open:



4.1.2.1 Site identification

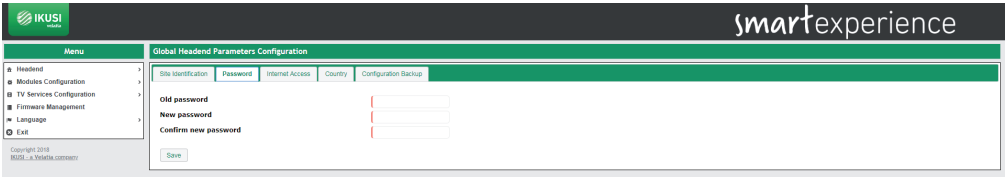
Select the Site Identification tab. In this screen you can introduce information about the headend to distinguish this particular headend with respect to others. This information will appear in the installation report.



Introduce the headend name (or ID) and the facility location (free text). You can also specify the date on which the installation was performed. Push Save button to save the data.

4.1.2.2 Password

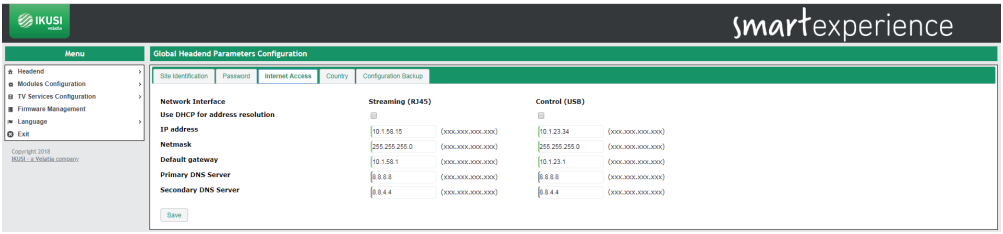
To change the password of the headend, select the Password tab.



Follow the instructions on the screen to make the change of the password (enter the old password, enter the new password and confirm the new password) . Finally, push the Save button.

4.1.2.3 Internet access

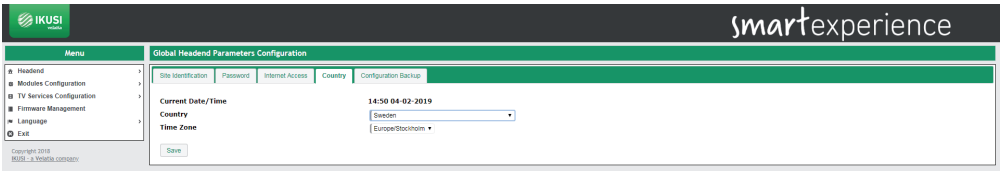
If you want to access to the headend through internet, you must set previously the connectivity parameters of the headend. To do that, select the Internet Access tab.



This window may be used to configure both the streaming port and the control port. Select Use DHCP for address resolution option if the network settings will be automatically provided by a DHCP server. Otherwise, unselect this option and manually enter the settings (IP address, Netmask, Default gateway, Primary DNS Server, Secondary DNS Server). Consult network manager to get those parameters. Push Save button to save the changes.

4.1.2.4 Country

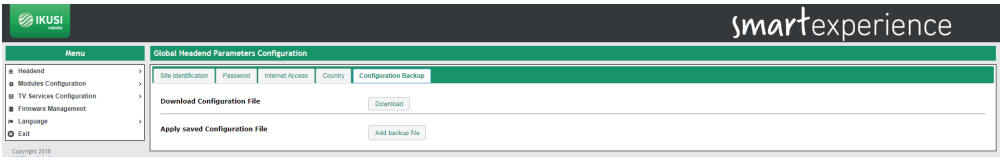
To set the local time and customize certain parameters related to the specific country regulations (LCN, NIT, etc.) select the Country tab.



In this screen you can select the date and current time, time zone and the country in which the headend is installed. To save the changes push the Save button.

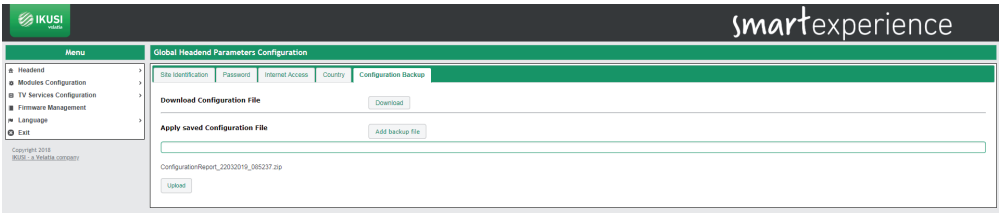
4.1.2.5 Configuration backup

The Configuration Backup tab is used to download or upload a copy of the complete configuration of the headend. Thus, you can replicate the configuration of a headend over another one (or over the same one, if, for any mishandling, it reaches to an undesired state).

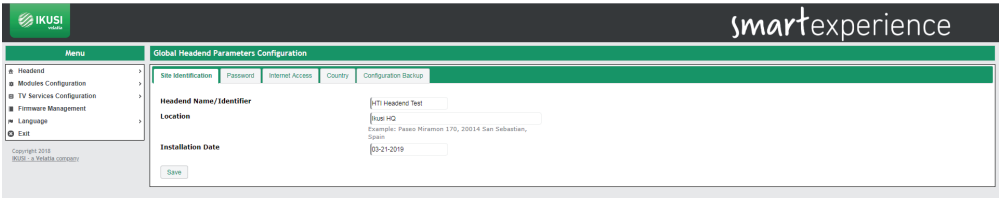


To download a file with the current configuration of the headend, push the Download button.

To apply a configuration previously stored, first choose the file pushing Add backup file button.



After that, push Upload button. A message will appear, indicating configuration is being applied. After some seconds, the configuration will have been applied and the browser will redirect you to the Site identification screen.

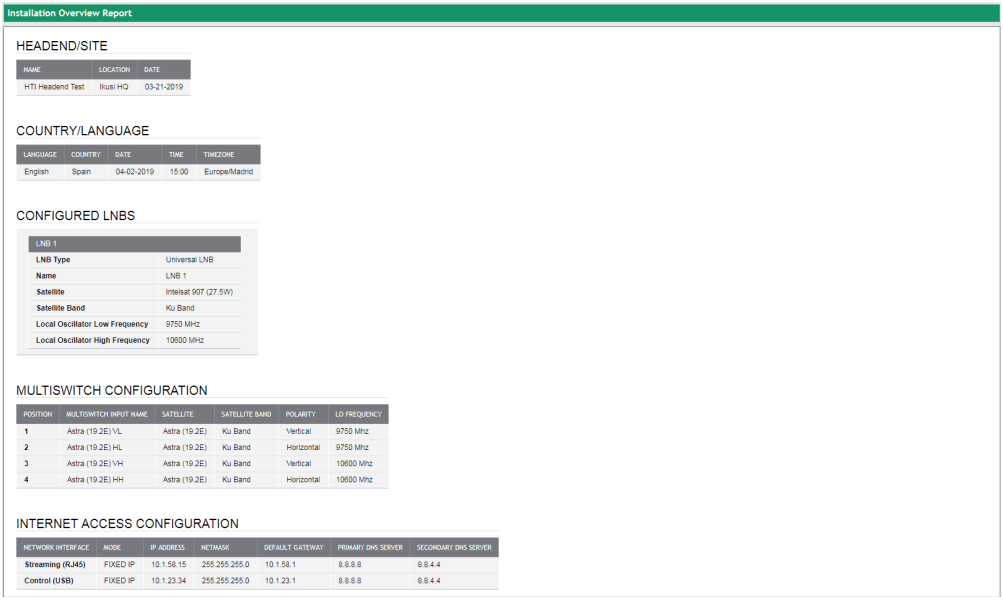


4.1.3 Installation report

Installation report option (Headend → Installation Report) shows, in a grouped way, all the information of the headend. In this report you can find:

- Information about alarms, in the case there are any.
- Installation description.
- Language, data, hour and country information.
- Information about IP connectivity.
- Configuration of the LNB and Multiswitch.
- Headend composition.
- Relevant information of each module, such as serial number, sw version, hw version, temperature or working hours.
- Information about the RF inputs of each module, such as standard, frequency, status, signal strength or signal quality.
- Information about the RF outputs of each module, such as standard, frequency, available space or number of services.

- Information about the MPTS outputs of each module, such as the MPTS address and port, IP address and destination port, SAP group or bitrate.
- Information about the RF, MPTS and SPTS services that each module processes.



Installation Overview Report

HEADEND/SITE

NAME	LOCATION	DATE
HTI Headend Test	Ikusi HQ	03-21-2019

COUNTRY/LANGUAGE

LANGUAGE	COUNTRY	DATE	TIME	TIMEZONE
English	Spain	04-02-2019	15:00	Europe/Madrid

CONFIGURED LNBS

LNB 1	
LNB Type	Universal LNB
Name	LNB 1
Satellite	Intelsat 907 (27.5W)
Satellite Band	Ku Band
Local Oscillator Low Frequency	9750 MHz
Local Oscillator High Frequency	10600 MHz

MULTISWITCH CONFIGURATION

POSITION	MULTISWITCH INPUT NAME	SATELLITE	SATELLITE BAND	POLARITY	LO FREQUENCY
1	Astra (19.2E) VL	Astra (19.2E)	Ku Band	Vertical	9750 Mhz
2	Astra (19.2E) HL	Astra (19.2E)	Ku Band	Horizontal	9750 Mhz
3	Astra (19.2E) VH	Astra (19.2E)	Ku Band	Vertical	10600 Mhz
4	Astra (19.2E) HH	Astra (19.2E)	Ku Band	Horizontal	10600 Mhz

INTERNET ACCESS CONFIGURATION

NETWORK INTERFACE	MODE	IP ADDRESS	NETMASK	DEFAULT GATEWAY	PRIMARY DNS SERVER	SECONDARY DNS SERVER
Streaming (RJ45)	FIXED IP	10.1.58.15	255.255.255.0	10.1.58.1	8.8.8.8	8.8.4.4
Control (USB)	FIXED IP	10.1.23.34	255.255.255.0	10.1.23.1	8.8.8.8	8.8.4.4

Additionally, in the case of there being CAM modules, from this window actions may be carried out on the said CAMs, in the following way:

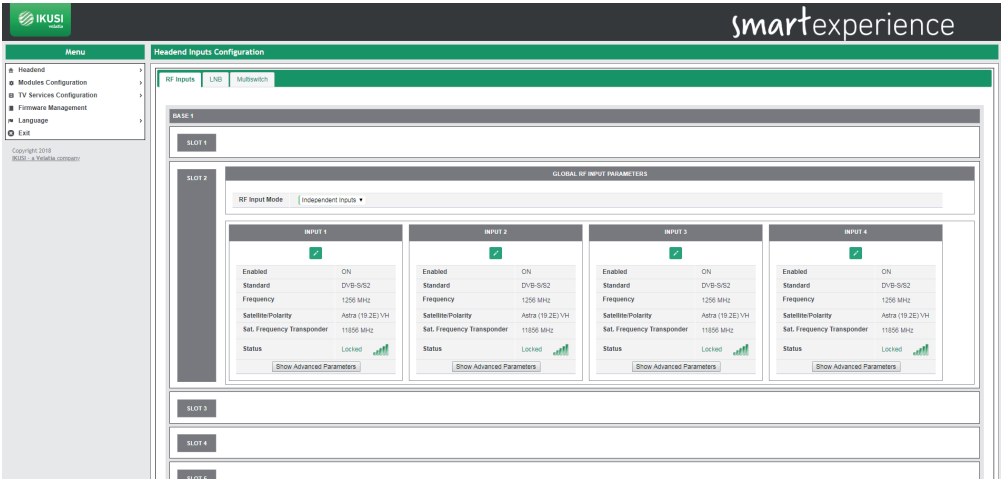
- MMI Interface: pressing the Open Session button of a specific CAM, the MMI menu of the CAM itself is accessed, through which other data provided by the CAM and the smartcard may be viewed.
- Rebooting module CI: pressing Reboot button of a specific CAM the aforementioned CAM will be rebooted.

4.2 Modules configuration

This menu allows you to configure the inputs you want to receive and the carriers that you want to transmit.

4.2.1 Inputs

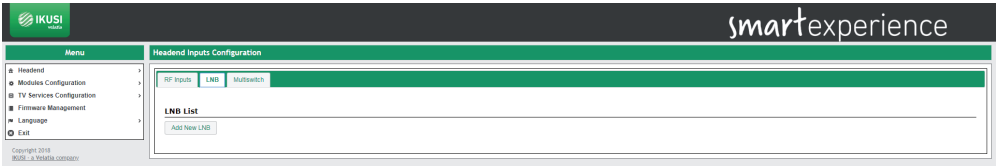
To configure the inputs you want to receive, select Modules Configuration → Inputs. A window as the following one will open:



Three tabs appear in this window: RF Inputs, LNB and Multiswitch. The last two (LNB and Multiswitch) allow the signal sources used to be described. The first one (RF Inputs) is used to configure the inputs of each of the modules. Below, each tab is described in detail.

4.2.1.1 LNB

The LNB tab allows the LNBs that are directly connected to the headend to be described (without passing through a multiswitch). When pressing this tab, a screen such as the one shown below will appear:

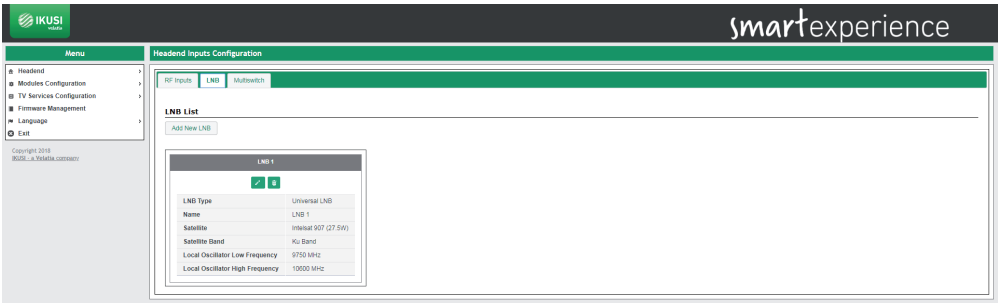


To describe an LNB, press the Add new LNB button. A window will open where you may configure the following parameters:

- LNB type: It allows the type of LNB used to be selected. A choice may be made between LNB Universal, Quad, Twin or Quattro.
- Name: It allows a name to be given to the LNB. This name will appear in the list of signal sources available when configuring the RF input.
- Satellite: It allows the satellite that is being received by the LNB to be identified.
- Satellite Band: It allows the satellite band used to be selected (C, Ku, Ka).
- Number of bands (only in Ku band signals): It allows indication of whether two bands (Low and High) or a single band are being used.

- Polarity (only in C and Ka band signals): It allows the type of polarisation used to be indicated (linear, circular left-right or circular right-left).
- Local Oscillator Low Frequency (only in the case of two bands): It allows the frequency value of the local frequency oscillator to be introduced for the low band.
- Local Oscillator High Frequency (only in the case of two bands): It allows the frequency value of the local oscillator to be introduced for the high band.
- Local Oscillator Frequency (except in the case of two bands): It allows the frequency value of the local frequency oscillator to be introduced.

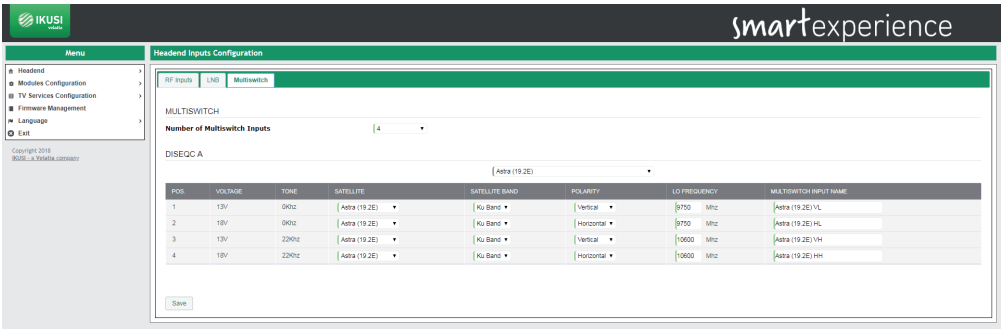
Once the LNB has been described, press the Save button. It will appear on the LNBs tab in the following way:



Add as many LNBs as might be necessary. At any time a specific LNB may be edited by pressing or deleted by pressing .

4.2.1.2 Multiswitch

The Multiswitch tab allows the multiswitch used in the input signal distribution (in case one is used) to be described. When pressing on this tab, a screen such as the following one will be shown:

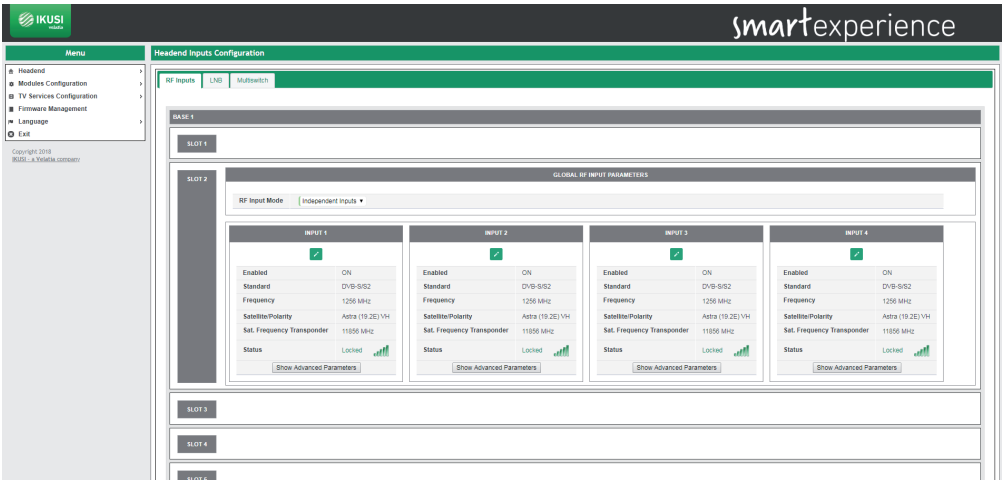


On this screen you may describe what the multiswitch is like that is being used. To do this, indicate the multiswitch's number of inputs. For each of the inputs, defined by their position and grouped in fours, the polarity (Vertical or Horizontal) and the band (Low or High) must be identified. The headend proposes a name for this input as a combination of the satellite, polarity and band. This name may be edited.

Press the Save button to save the changes.

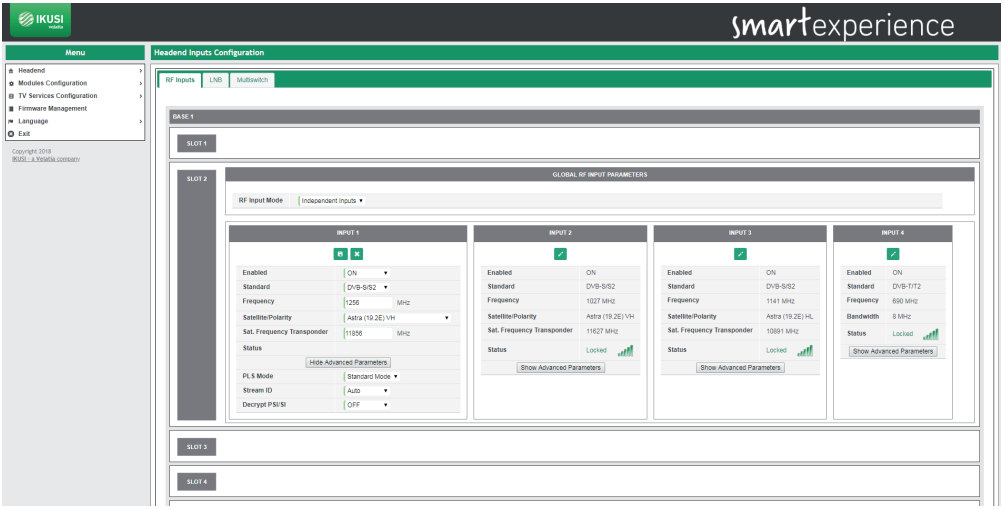
4.2.1.3 RF Inputs

The RF Inputs tab allows each of the receivers of the HTI modules to be configured. When pressing this tab, a screen such as the following one will be shown:



On the screen, each HTI module of the headend is shown, indicating in which slot it is inserted. On each HTI, the RF input mode may be configured. If Independent inputs is chosen, each input connector will be independent and it will carry the signal to one of the receivers. Each connector must have a cable with signal associated to it. If One Input+Loop is chosen, the input signal used will be the one from connector 1. This signal will be distributed internally to the 4 receivers. Additionally, it may be taken to an adjacent HTI module through the connector 2 that will work as a signal loop. Use the F coaxial bridges supplied with the equipment for this.

To configure a specific receiver, press on the icon of the said receiver. A screen like the following one will be shown:



For each input, you must configure if it is enabled or not and what is the reception standard (DVB-S/S2 for satellite, DVB-T/T2 for terrestrial or DVB-C for cable). The rest of parameters will depend on the selected standard, in the following way:

DVB-S/S2

- Frequency (MHz): it allows to select the intermmediate frequency value to be received.
- Satellite/Polarity: it allows to select the multiswitch signal or the LNB signal to be received.
- Sat. Frequency Transponder (MHz): it allows to select the frequency value of the transponder to be received. By modifying this parameter, the value of the Frequency field is automatically updated and vice versa.
- Advanced parameters: it allows to show or hide the advanced parameters related to the reception of multistream signals. They are the following:
  - PLS Mode: choose between Auto, Root or Gold modes.
  - Scrambling ID: enter the scrambling identifier related to the selected PLS mode (it does not appear with PLS Auto Mode).
  - Stream ID: choose the specific stream of the multistream signal that you want to receive.
  - Decrypt PSI/SI: It allows the PSI/SI tables to be decoded. To enable the decoding, select ON and introduce the 16 hexadecimal digit key with which the tables are to be decoded.

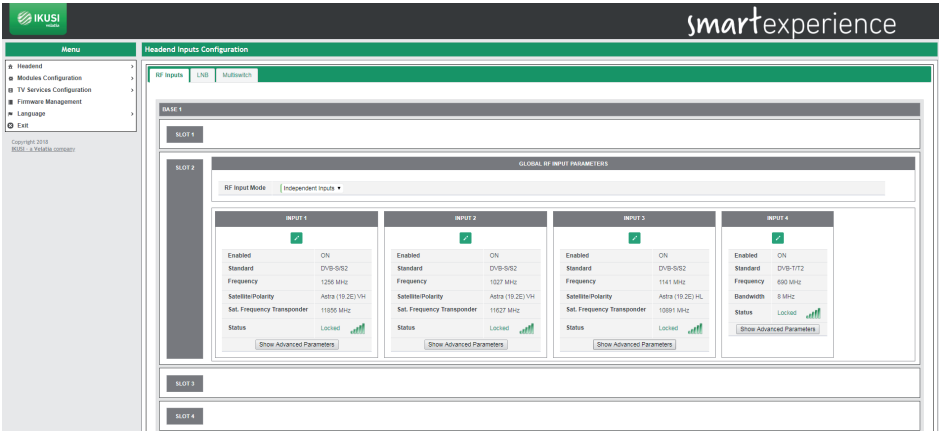
DVB-T/T2

- Frequency (MHz): it allows to select the frequency value of the multiplex to be received.
- Bandwitdth (MHz): it allows to select the bandwith of the multiplex to be received.
- Advanced parameters: it allows to show or hide the advanced parameters related to the reception of DVB-T/T2. They are the following:
  - Hierarchy: in broadcasting with several hierarchies, it allows to select the hierarchy of the signal to be received.
  - Autoscan: it allows to enable/disable automatic scanning of DTT inputs in case of a change in the frequency plan. Thus, if Autoscan is enabled, when a frequency change is done in a DTT signal that was tuned previously, the HTI will lose sync and will launch a scan of the inputs, in order to search the new frequency of the signal (identified with the same TS_ID and SID values). If the Autoscan is disabled, when a change in the frequency plan happens, the HTI must be reconfigured manually.
  - PLP ID: choose the specific PLP that you want to receive in the case of a signal with multiple PLPs.

DVB-C

- Frequency (MHz): it allows to select the frequency value of the multiplex to be received.
- Constellation: it allows to select the constellation of the input signal. In the case it is configured as "Auto", the module will detect the constellation automatically.
- Symbol Rate (Kbaud): it allows to select the symbol rate of the multiplex to be received.

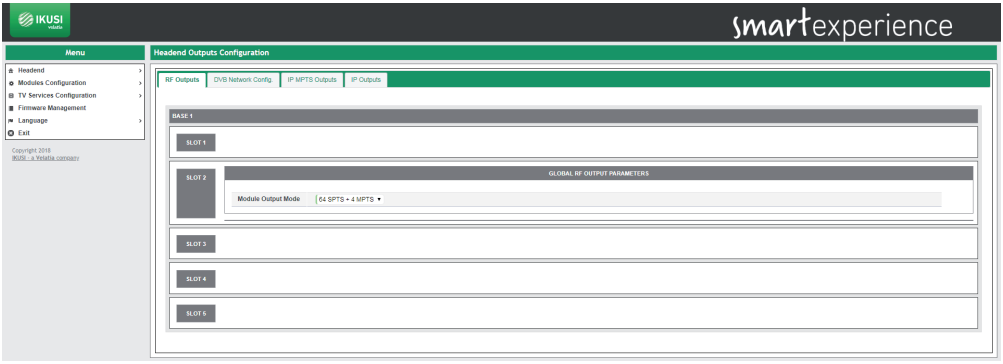
Once the parameters of each input have been selected, push icon to save the changes. If, however, you want to discard them, push icon.



Tuning status (Locked or Unlocked) will appear in each of the inputs. Also, an icon indicating the level of signal and its quality, where red is bad quality, yellow medium quality and green good quality, will be displayed.

4.2.2 Outputs

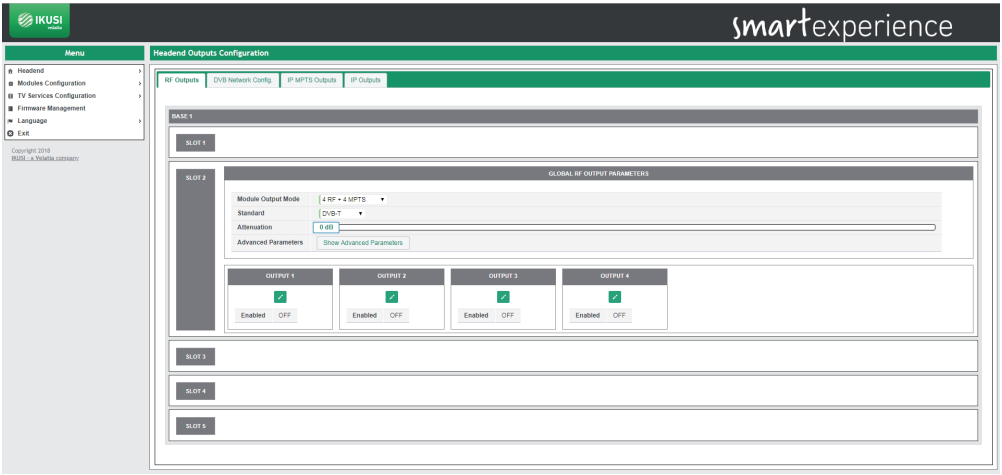
To configure the output carriers that are to be transmitted, select Modules Configuration →Outputs. A window like the following one will appear:



Four tabs will appear on this window: RF Outputs, DVB Network Config., IP MPTS Outputs and IP Outputs. Each tab is described in detail below.

4.2.2.1 RF Outputs

The RF Outputs tab allows each of the four output carriers that are to be transmitted to be configured. To do this, the first thing to do is to configure the output mode of the module as 4 RF + 4 MPTS. By default, this parameter is 64 SPTS + 4 MPTS, and therefore, the default output is IPTV. After enabling the RF output of the chosen module, a window such as the following one will be shown:

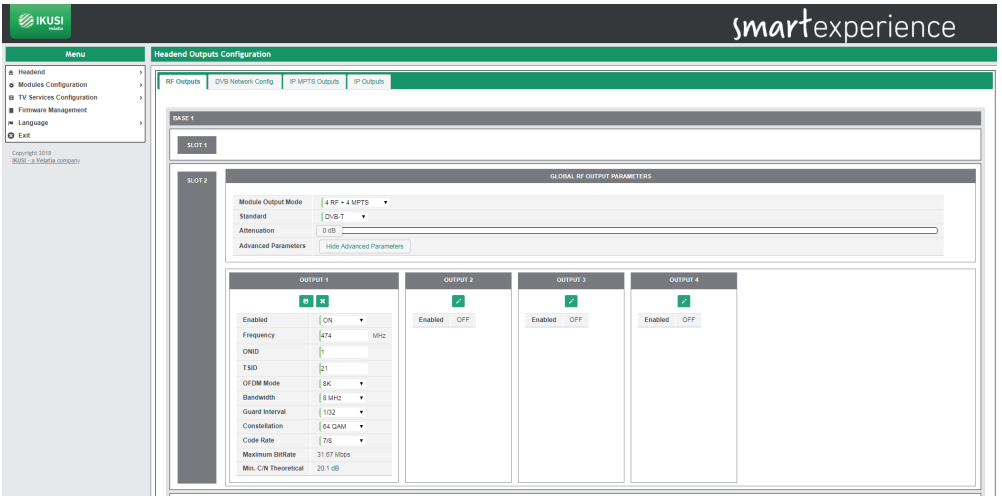


In this window the configuration of the RF output carriers of each module is shown. This configuration is divided up into two parts: a global part associated to the module and another part associated to each of the carriers.

In the global configuration, the output standard (DVB-T or DVB-C), the output attenuation (by way of a scroll bar) and the option to see or hide the advanced parameters will be selected, in addition to the output mode of the module that must already have been configured as 4RF + 4 MPTS to generate output in RF mode.

NOTE: If an output in IPTV mode is to be generated and the RF output turned off, the output mode of the module must be configured as 64 SPTS + 4 MPTS.

In the configuration associated to the output carriers, the four outputs of each HTI are shown. To configure one of them, select the icon associated to the said output.



To enable a carrier, select Enabled ON. Otherwise, select OFF.

The remaining parameters to be configured will depend on the standard selected, in the following way:

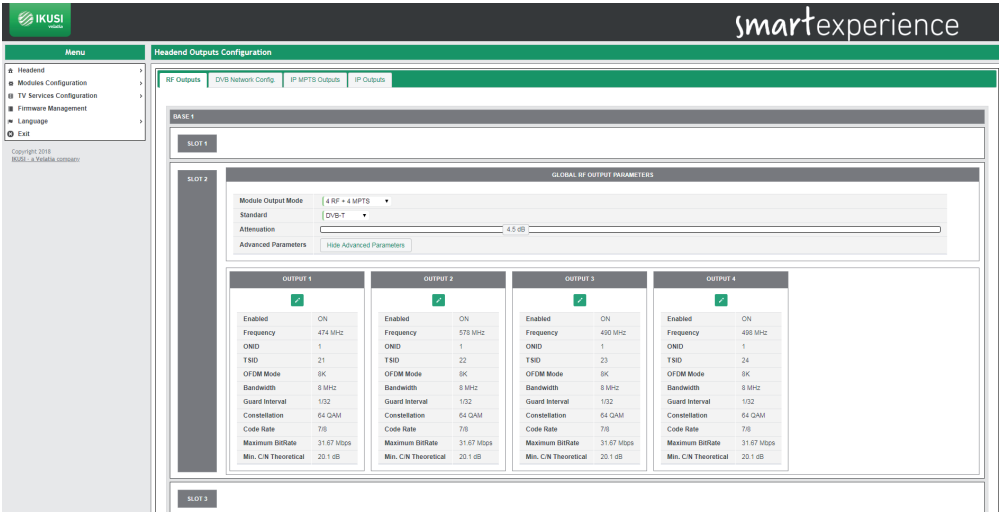
DVB-T

- Frequency (MHz): It allows selection of the frequency value of the carrier that is to be generated.
- ONID: It allows selection of the Original Network Identifier value that will be indicated in the generated multiplex.
- TSID: It allows selection of the Transport Stream Identifier that will be indicated in the generated multiplex.
- OFDM Mode: It allows selection of the number of sub-carriers of the output OFDM that is to be generated (2K or 8K).
- Bandwidth (MHz): It allows selection of the band width of the carrier to be generated. Choose between 6MHz, 7MHz and 8MHz.
- Guard Interval: It allows selection of the guard interval of the output carrier to be generated. Choose between 1/4, 1/8, 1/16 and 1/32.
- Constellation: It allows selection of the constellation of each of the sub-carriers of the OFDM output carrier. Choose between QPSK, 16QAM and 64QAM.
- Code Rate: It allows the convolutional code rate value used as protection against errors to be selected. Choose between 1/2, 2/3, 3/4, 5/6 and 7/8.

DVB-C

- Frequency (MHz): It allows selection of the frequency value of the carrier that is to be generated.
- ONID: It allows selection of the Original Network Identifier value that will be indicated in the multiplex generated.
- TSID: It allows selection of the Transport Stream Identifier that will be indicated in the multiplex generated.
- Symbolrate: It allows selection of the symbol rate of the output carrier to be generated.
- Constellation: It allows the constellation of the output carrier to be selected. Choose between 16QAM, 32QAM, 64QAM, 128QAM, 256QAM.

Once the parameters of each output carrier have been selected, press the icon to save the changes. If, however, they are to be discarded, press the icon.



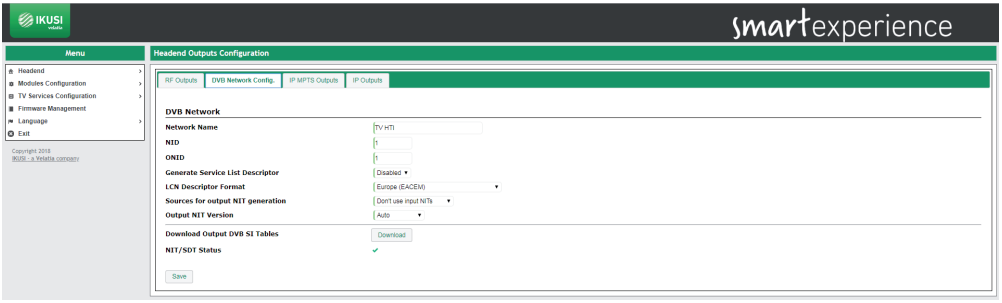
For information purposes, the following data will appear on each of the outputs:

- Maximun Bitrate (Mbps): This is the carrier's capacity to transport information, in Mbps.
- Min. C/N Theoretical (dB): This is the minimum C/N value that the signal must have at the reception point for it to be demodulated without errors.

Both are theoretical and only depend on the selected modulation parameters.

4.2.2.2 DVB Network Config.

The DVB Network Config. tab allows the parameters related to the NIT table to be configured. When pressing the VB Network Config. tab, a window such as the following one will be shown:



In this window the following parameters may be configured:

- Name: This is the name of the network that will be indicated on the NIT table.
- NID: This is the Network Identifier value that will be indicated on the NIT table.
- ONID: This is the Original Network Identifier value that will be indicated for all the carriers on the NIT table.
- Generate Service List Descriptor: If the service_list_descriptor is not to be sent, select Disabled. Otherwise, a service_list_descriptor will be included on the NIT table with the information about the services transmitted by the headend.
- LCN Descriptor Format: If the LCN is not to be sent, select Disabled. Otherwise, select the LCN mode that is used by the installation's televisions.

- Sources for output NIT generation: It allows the NIT generation method to be chosen in the case of there being several NITs at the input. The user may choose between three options:
  - ☐ Don't use NITs: The headend will generate a NIT from zero, using the selected output frequencies, the output services and the selected LCNs.
  - ☐ Merge input NITs: The headend will generate a new NIT taking into account the descriptors of the NIT tables of the input signals.
  - ☐ Use a single input NIT: The headend will generate a new NIT using the descriptors from a specific input NIT table.
- Output NIT version: if Auto is selected, the version of the NIT table will be automatically generated by the headend and it will increase by 1 after each modification. If Fixed Version is selected, the user may introduce the version indicated on the NIT table. This version will remain fixed, regardless of any changes made that modify the NIT table.

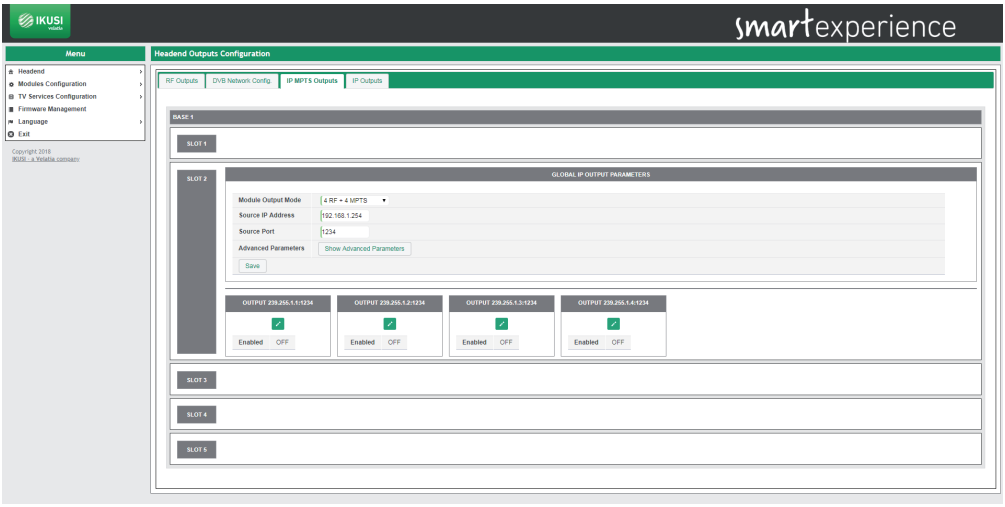
To save the selected parameters, press the Save button. Additionally, by pressing the Download button, the NIT, SDT and TDT tables may be downloaded onto your computer. Finally, the NIT/SDT Status field will indicate whether the table insertion is correct or not.

4.2.2.3 IP MPTS Outputs

The IP MPTS Outputs tab allows each of the four MPTS streams that may be transmitted to be configured.

NOTE: The MPTS outputs are always available, regardless of whether the selected mode is 4 RF + 4 MPTS or 64 SPTS + 4 MPTS.

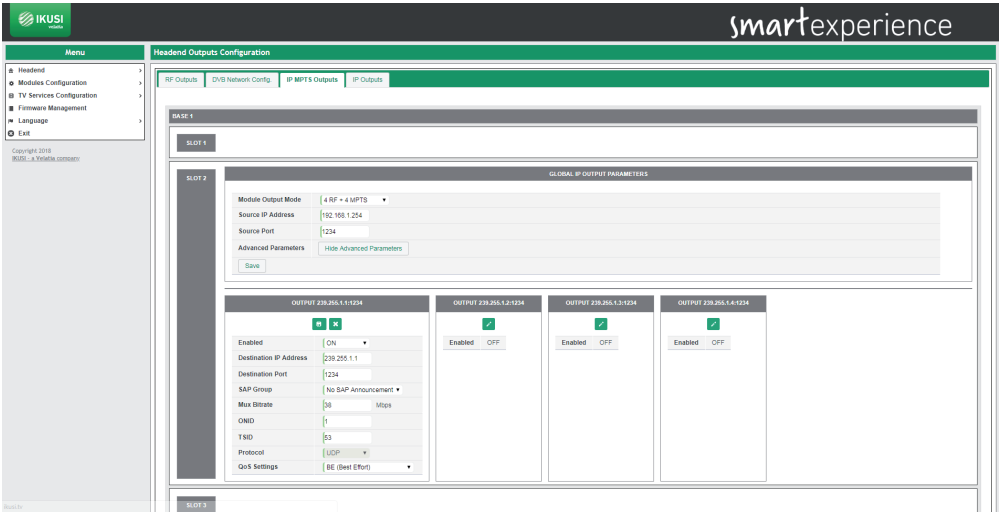
When pressing the IP MPTS Outputs tab, a window such as the following one will be shown:



In this window the configuration of the output MPTS streams for each module are shown. This configuration is divided up into two parts: one global part associated to the module and another part associated to each of the MPTS streams.

In the global configuration, the module's output mode will be selected (4 RF + 4 MPTS or 64 SPTS + 4 MPTS), along with the source IP address of the MPTS streams and the option of seeing or hiding the advanced parameters.

In the configuration associated to the output MPTS streams, the four outputs for each HTI are shown. To configure one of them, select the icon associated to said output.

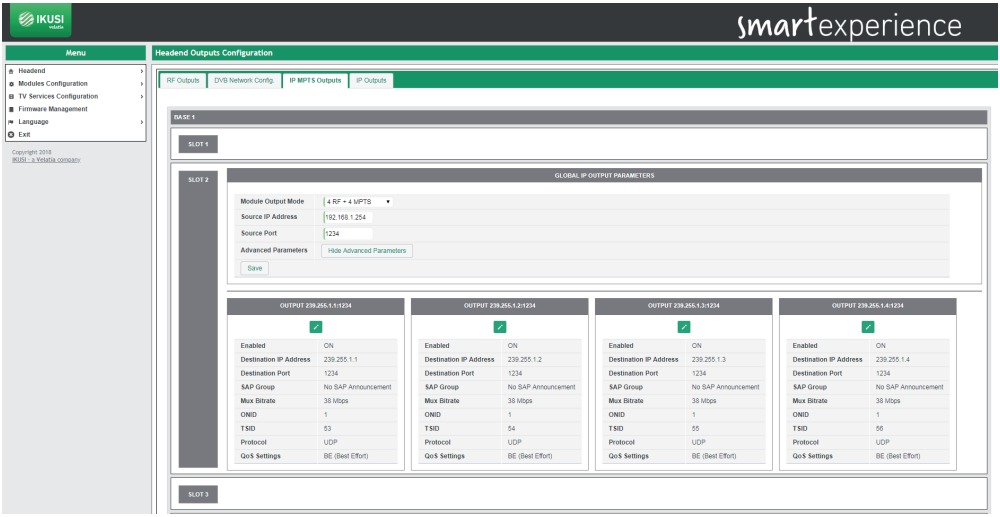


To enable an output, select Enabled ON. Otherwise, select OFF.

The remaining parameters to be configured will be as follows:

- Destination IP Address: It allows selection of the multicast IP address to which the MPTS packages will be sent.
- Destination Port: It allows selection of the IP port to which the MPTS packages will be sent.
- SAP Group: It allows selection of the SAP group that will advertise the MPTS stream services. If SAP advertisements are not to be included for this MPTS stream, select No SAP Announcement. Otherwise, choose an SAP group on the pop-up list. The SAP groups will have been previously defined on the IP Outputs tab.
- Mux Bitrate: It allows the bitrate of the MPTS stream to be configured.
- ONID: It allows selection of the value of the Original Network Identifier that will be indicated on the generated MPTS stream.
- TSID: It allows selection of the value of Transport Stream Identifier that will be indicated on the generated MPTS stream.
- Protocol: It indicates the transport protocol used (currently UDP).
- QoS Settings: It allows the value of Quality of Service (QoS) that will be indicated on the MPTS packages to be configured, in order to allow its prioritisation by the network electronics.

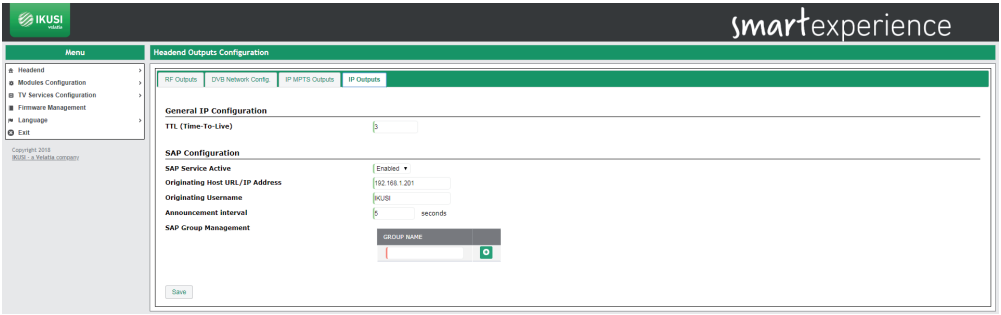
Once the parameters for each output stream have been selected, press the icon to save the changes. If, however, they are to be discarded, press the icon.



4.2.2.4 IP Outputs

The IP Outputs tab allows general parameters related to the IP output to be configured, such as the TTL of the IP packages or the SAP groups.

When pressing the IP Outputs tab, a window like the following one will be shown:



This configuration is divided into two parts: one part associated to the General IP Configuration and the other part associated to the SAP Configuration.

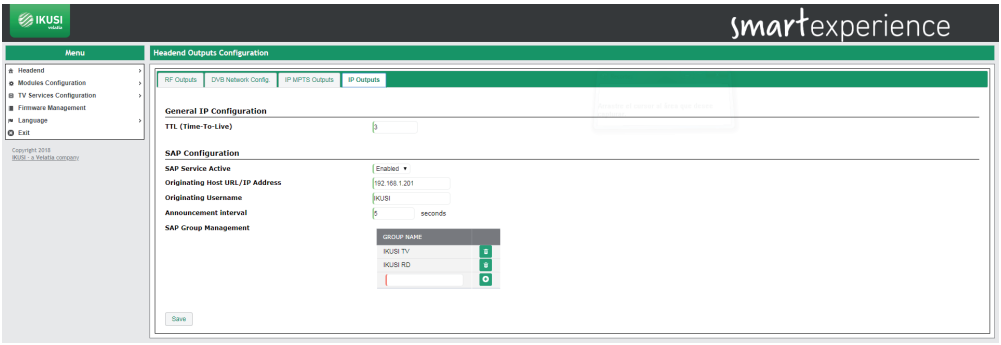
The General IP Configuration allows modification of the TTL (Time-To-Live) value that will be included in the multicast packages.

The SAP Configuration allows the SAP groups that will be advertised in the multicast packages to be defined. The parameters to be configured will be the following ones:

- SAP Service Active: Select Enabled if SAP messages are to be sent. Otherwise, select Disabled.
- Originating Host URL/IP Address: This is the URL or IP address of the source equipment of the TV/Radio streams. This data is used for the multicast receivers for information purposes.
- Originating Username: This is the name of the network that generates the TV/Radio streams. This data is used by the multicast receivers for information purposes.
- Announcement interval: It allows the time interval to be configured in seconds between two SAP announcements.

- SAP Groups Management: It allows SAP groups to be created, giving it a name. If an additional SAP group is to be created, press the icon. If an existing SAP group is to be deleted, press the associated icon.

Once the IP output parameters have been selected, press the Save button to save the changes:



4.3 TV Services configuration

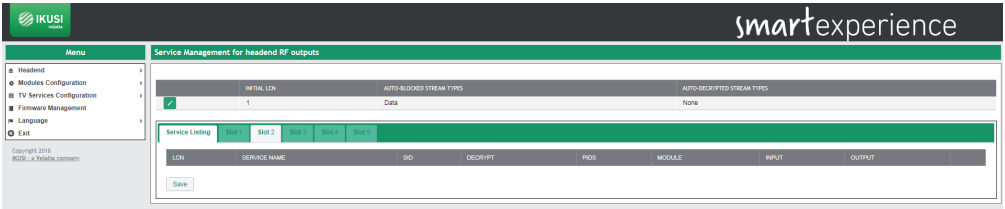
The TV Services Configuration menu allows selection of the services that are going to be transmitted, either in RF, SPTS or MPTS mode. Each mode can have a different services list. For module to transmit services using a specific mode, this mode must be enabled on the Module Output Mode parameter in Modules Configuration → Outputs.

Below the service configuration in each of the three output modes is described in detail.

4.3.1 RF Services Configuration

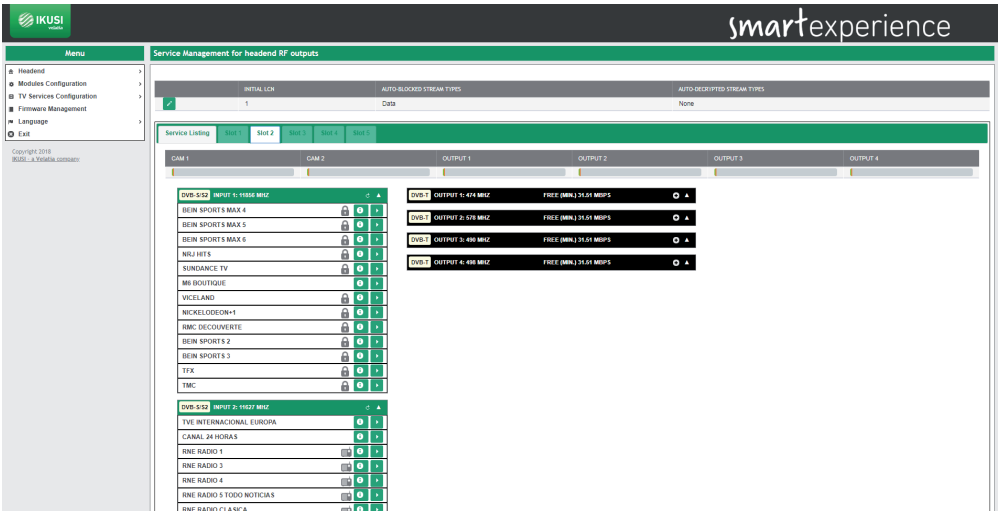
Using the RF Services Configuration menu, the services to be received and on which output carrier they will be broadcasted may be selected. Additionally, these services may be personalised, changing their names, blocking certain streams or editing the LCN value.

To access this menu, select TV Services Configuration → RF Services Configuration. A window similar to the following one will open up:



This window is made up of several tabs, one for each slot in the headend, as well as one with a complete list of services broadcasted by the headend.

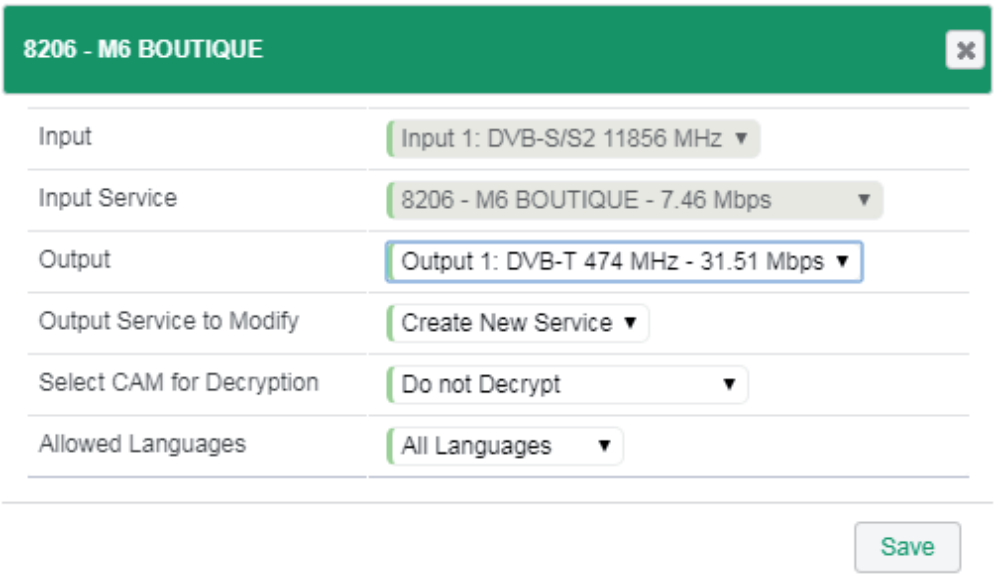
In order to add services on one of the modules, press the tab of the associated slot. A window such as the following one will be shown:



In this window four pop-up menus appear on the left hand side, one for each input and another four on the right hand side, one for each output. To close these menus, press this icon ▲. To open them, press this icon ▼.
On each of the left hand pop-up menus, a list with all the services available on this input will appear. On this list, the encoded services will be identified with the icon; radios with the icon and data services with the icon.

NOTE: In some cases, the list of services appears empty, since the system has yet to detect them. Press the icon to reload the list of services.

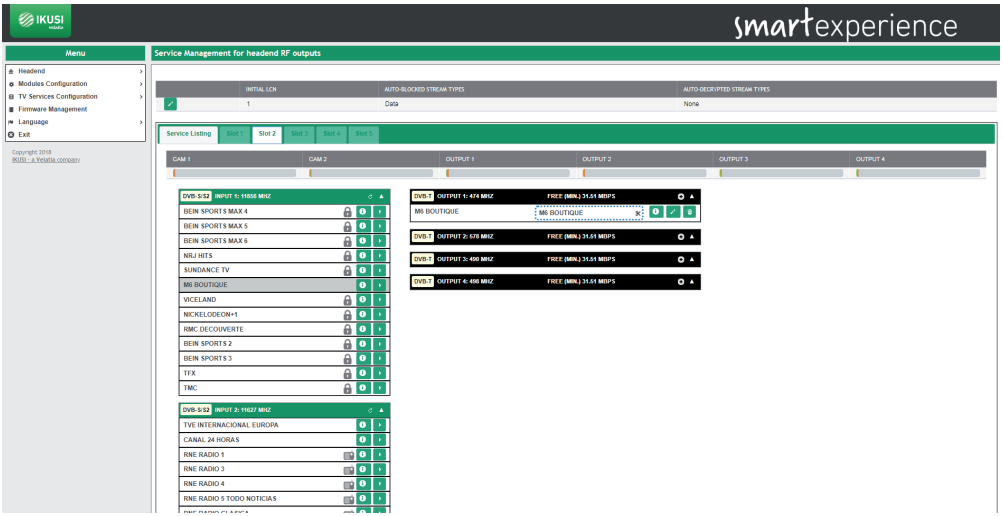
Select the service to be added and press the ▶ icon. A window similar to the following one will open:



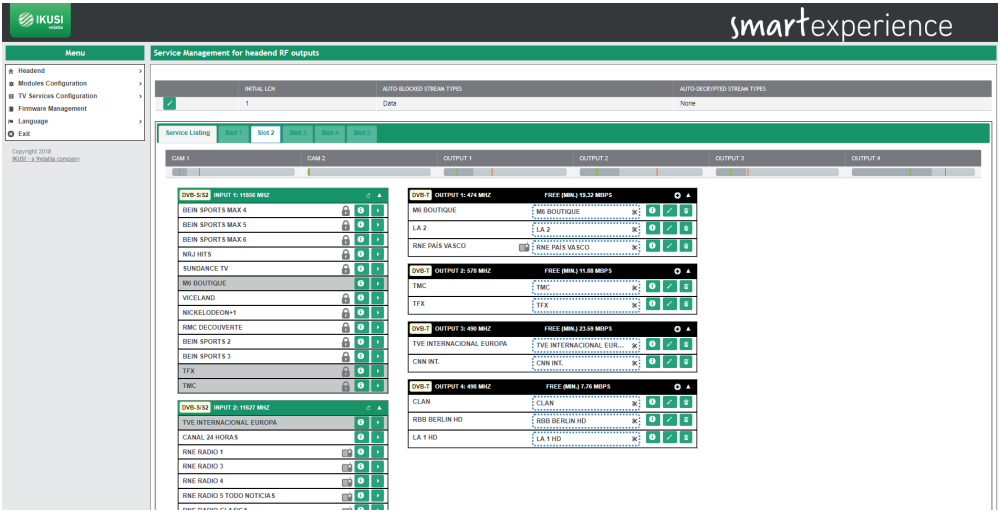
In this window you may:

- Select the output carrier to which the service is going to be added.
- Choose between creating a new service or reusing the space and the signage of one that already exists in the output.
- Select which CAM will be in charge of decoding the service or transmitting it without decoding it.
- Limiting the language of the service to a single one or letting all languages through.

Once the changes have been made, press the Save button. The service will appear on the selected output.

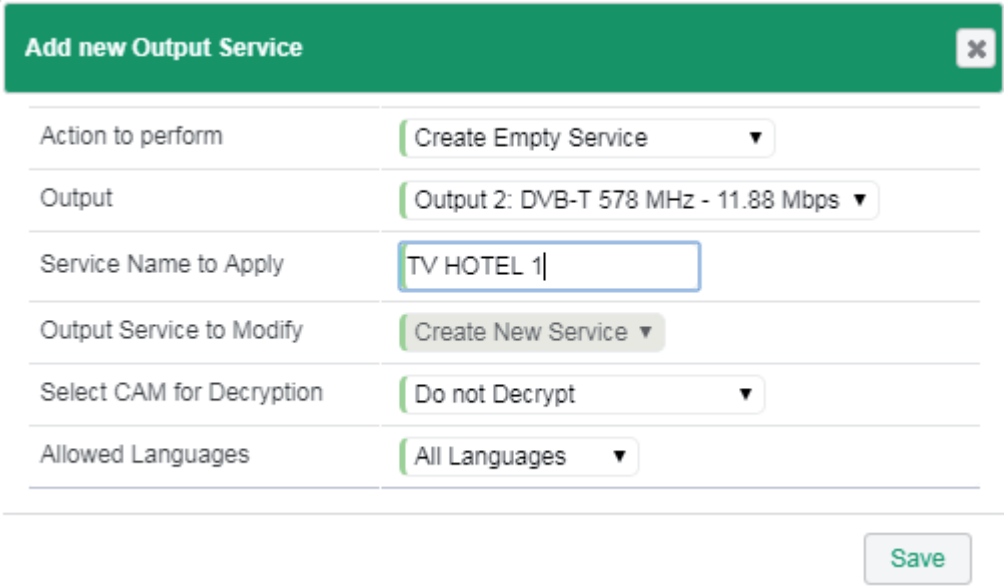


Repeat the process with all the services to be added.

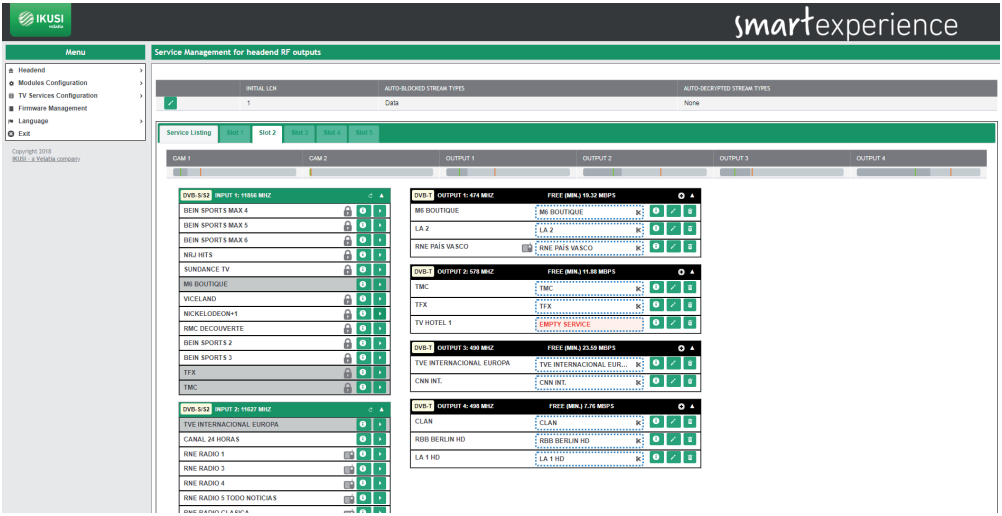


The HTI headends offer, additionally, the option of pre-configuring reserve channels (empty services) that allow the service list to be extended in the future, without having to launch a rescan process in the TVs.

To create an empty service, press the icon on the output where the reserve channel is to be created. A window like the following one will open:

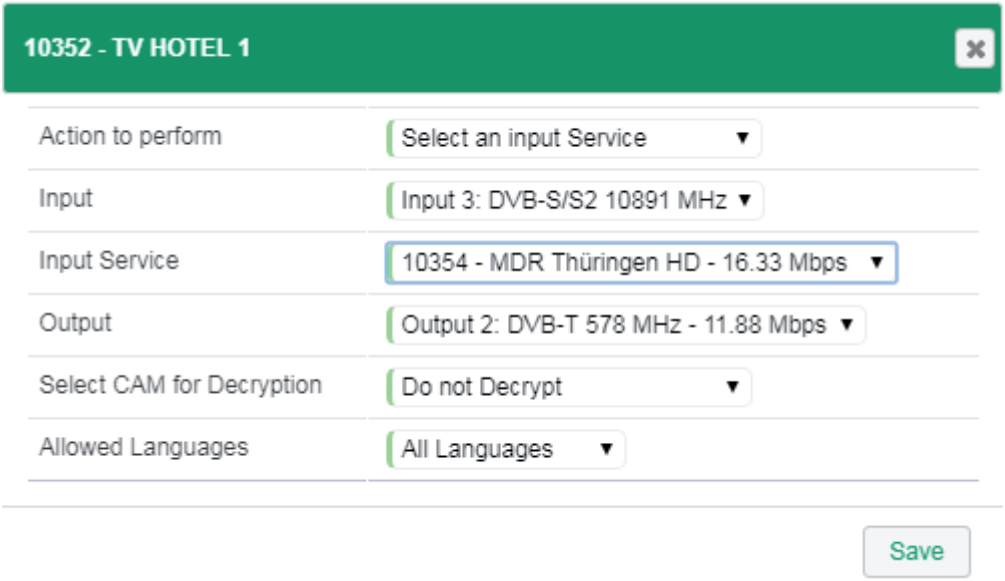


Introduce the name to be assigned to the service (in the example, TV HOTEL 1), which CAM is going to decode it and which language configuration it will have and press the Save button.



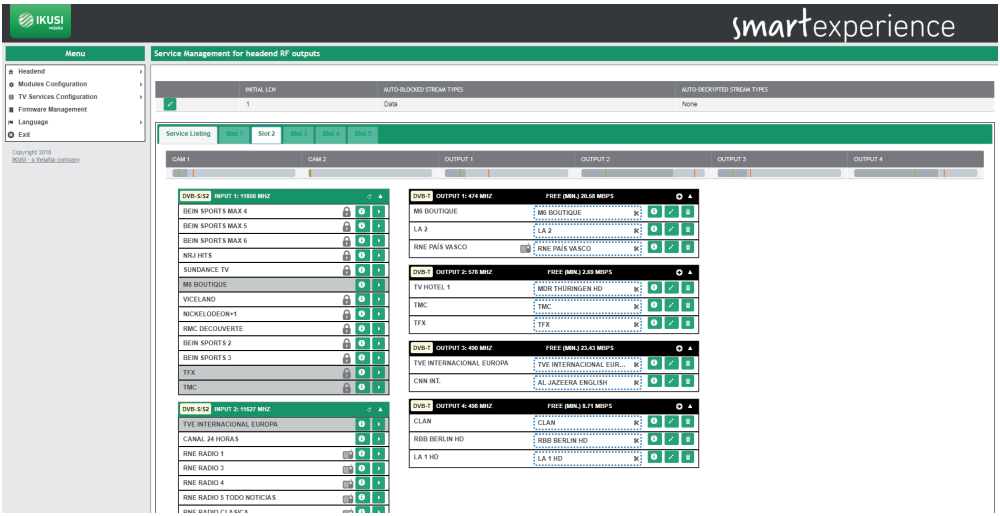
When launching a scan in TVs, they will store all the services in the memory, including the empty ones. These services may be used in the future to transport new contents, without having to launch a new scan in the TVs. Likewise, the HTI headends allow the content of an existing service to be replaced by another one, without the need to rescan the TVs.

To add content to an empty service or to replace the content of an existing service, press the icon associated to the said service. A window like the following one will open:



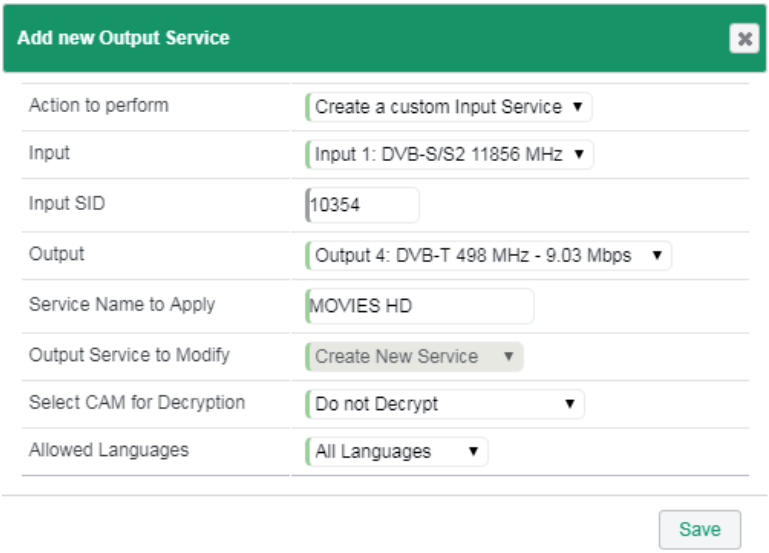
Select the input from which the service is to be extracted. On the Input Service pop-up menu, select the new content that will be transported by the service that has already been scanned on the televisions.

Additionally, select which CAM is going to decode it and which language configuration it will have. Once the service configuration has been modified, press Save.

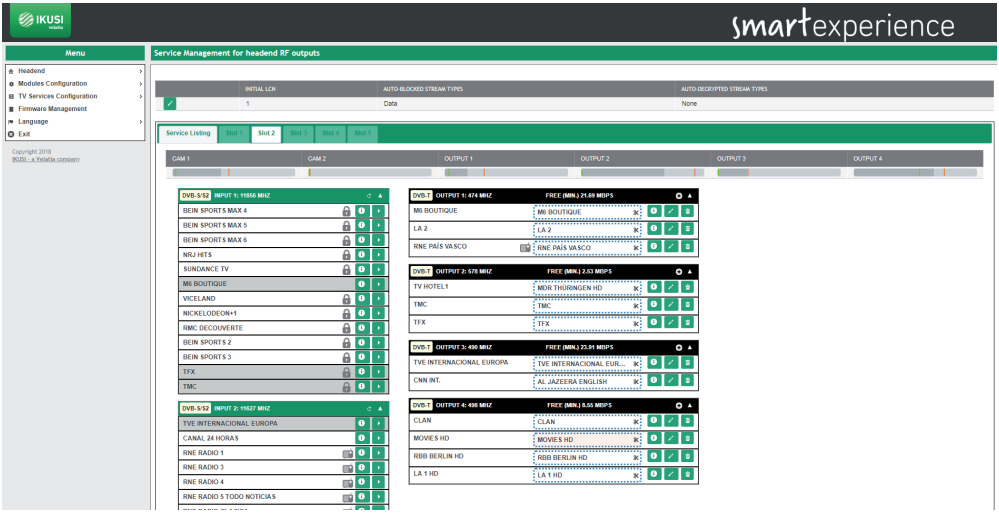


In the example above, the MDR THÜRINGEN HD service has been added in the empty service space TV HOTEL 1 and it has replaced the CNN INT service content with the AL JAZEERA ENGLISH service.

Finally, a service that is not currently being broadcasted (for example services that are only broadcast at night) may also be added to the output service list. To do this, press the icon on the output on which the said service is to be transported and choose “Create a custom Input Service” on the “Action to perform” pop-up menu.



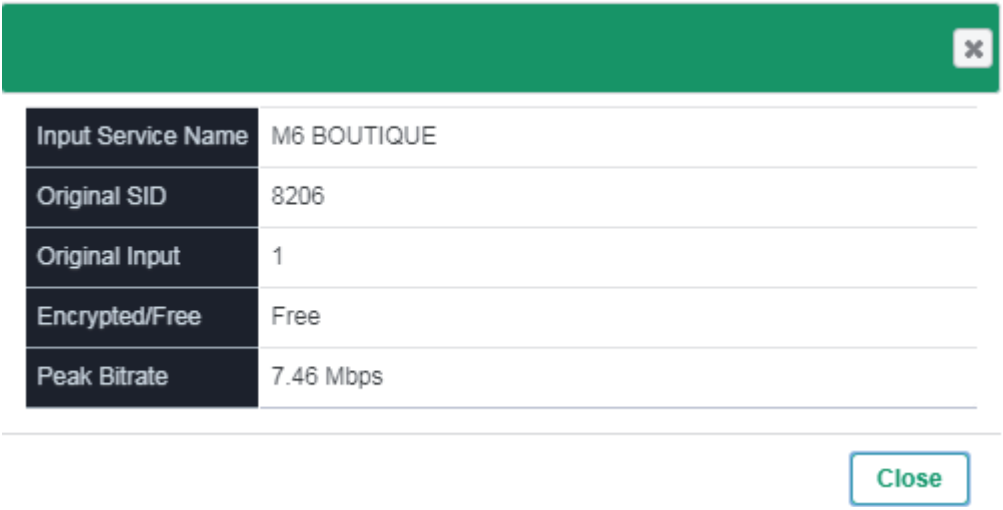
Indicate from which input the service will be extracted, what its SID (Service Identifier) is, on which output it will be transmitted, which name will be assigned to the service, which CAM is going to decode it and which language configuration it will have. To save the changes, press the Save button.



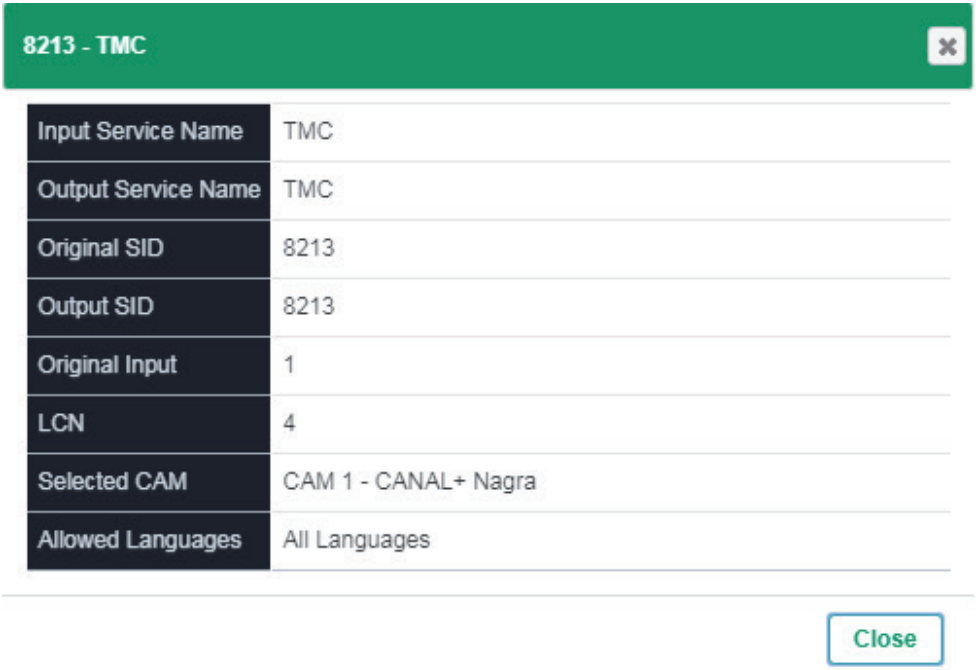
The manual service introduced will appear highlighted on a pink background, which will turn white when the service is available on the input.

As well as adding services, this same tab may be used to perform the following actions:

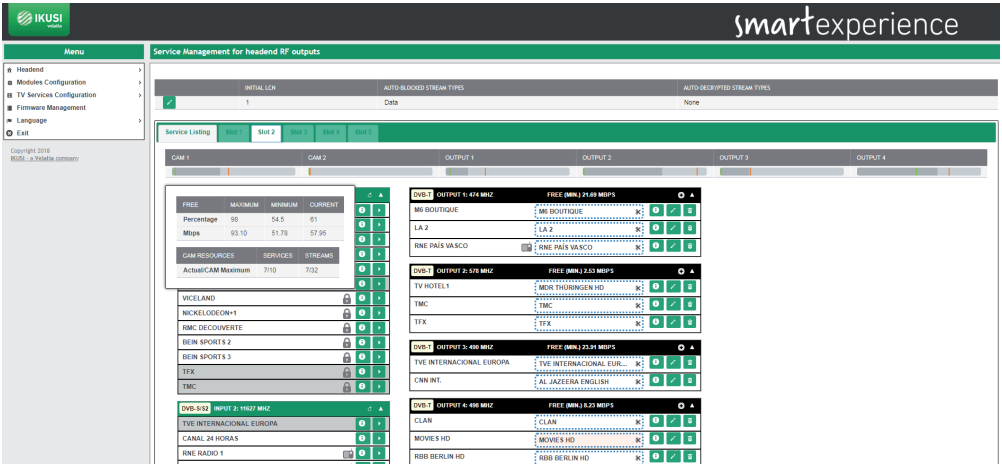
- To obtain information about the input service. When pressing the icon on the input service, a window with information about name, SID, source input, information as to whether the service is free or encoded and peak bitrate detected to date will open up.



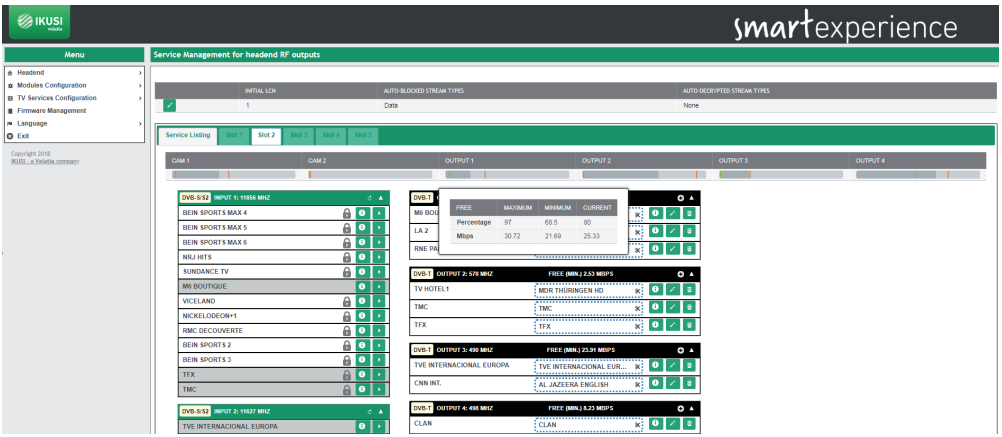
- To obtain information about the output service. When pressing the icon on the output service, a window with information about name, SID, source input, LCN, CAM used for decoding and languages permitted will open up.



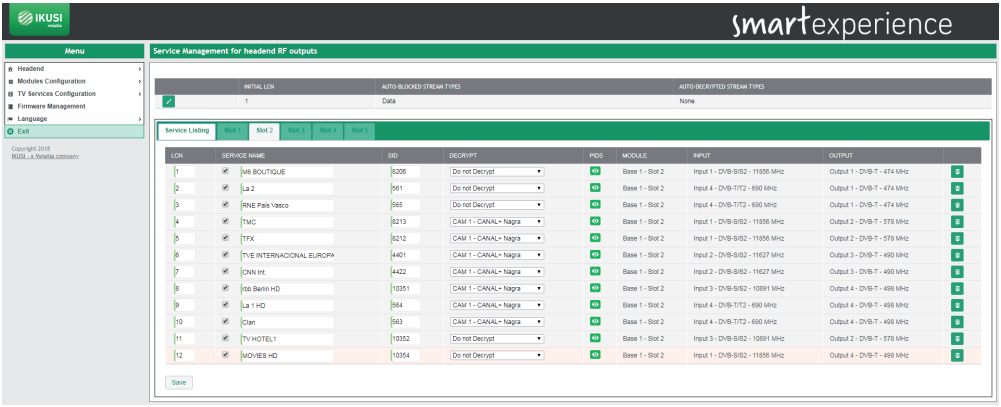
- To delete the contents of a service. When pressing the icon, the content of the current service will be deleted, turning it into an empty service.
- To delete a service from the output service list. When pressing the icon, the service will be completely deleted from the output service list.
- To obtain occupation information for each of the CAMs. At the upper part, a bar with the CAM's current occupation will appear (in grey), along with the minimum occupation (in green) and the maximum occupation (in red). When passing the mouse over the bar a window will open showing this information in percentages and Mbps, in addition to data about the number of resources used with respect to the maximum offered by the CAM.



- To obtain occupation information for one of the output carriers. At the upper part, a bar will appear with the current occupation of the carrier (in grey), along with the minimum occupation (in green) and the maximum occupation (in red). When passing the mouse over the bar, a window will open showing this information in percentages and Mbps.



To see the final result of the programme grid, select the Service Listing tab. A window similar to the following one will be shown:



This window shows a list with all the services generated by the headend. Additionally, at the upper part, a series of global configurations options for the services appear.

On the list of services the following fields appear:

- LCN: It is the Logical Channel Number value associated to the service. It is a value that may be edited by the user.
- SERVICE NAME: It is the name of the service that will be transferred to the TVs. It is a value that may be edited by the user. To force this name and not depend on the name of the service on the input, enable the check box that appears on the left. On the other hand, if the name must change depending on the input name changing, leave the check box disabled.
- SID: It is the Service Identifier value associated to the service. It is a value that may be edited by the user.
- DECRYPT: It allows which CAM will be in charge of decoding the service or transmitting it without decoding to be selected.
- PIDS: It allows the elementary streams to be managed. When pressing the icon, a window will open where the user may force the blocking of a specific PID, moving it to the output, or letting the headend take the decision to process it or not.
- MODULE: It indicates in which module the service is being processed.
- INPUT: It indicates which input is receiving the service.
- OUTPUT: It indicates which output carrier is transmitting the service.

Additionally, any service may be deleted by pressing the icon associated to the said service.

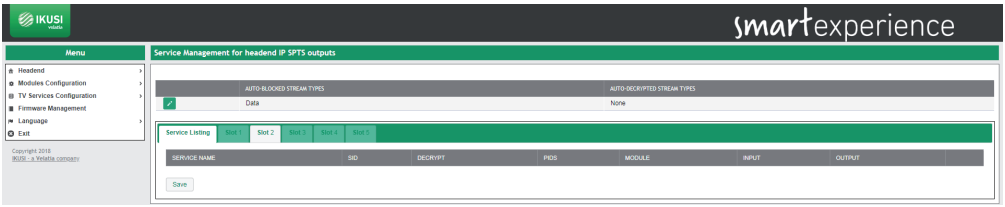
The global options are edited by pressing the icon and they are the following:

- INITIAL LCN: It is the value from which the headend proposes LCNs.
- AUTO-BLOCKED STREAM TYPES: It indicates whether the streams of Teletext, Subtitles or Data are automatically blocked.
- AUTO-DECRYPTED STREAM TYPES: It indicates whether the streams of Teletext, Subtitles or Data are automatically decoded

4.3.2 IP SPTS Services Configuration

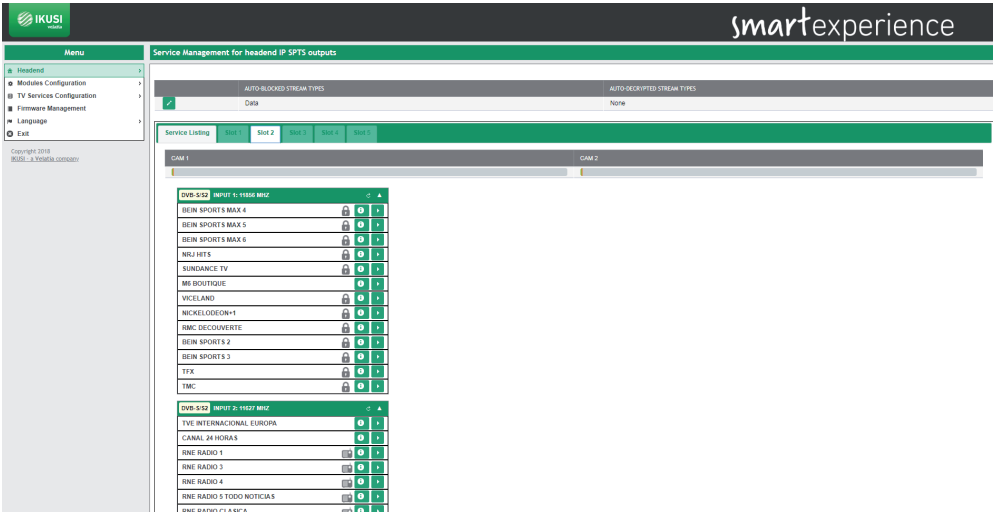
Using the IP SPTS Services Configuration menu, the services to be received and on which output carrier they will be broadcasted may be selected. Additionally, these services may be personalised, changing their names, blocking certain streams or assigning them to a SAP group.

To access this menu, select TV Services Configuration → IP SPTS Services Configuration. A window similar to the following one will open up:



This window is made up of several tabs, one for each slot in the headend, as well as one with a complete list of services broadcasted by the headend.

In order to add services on one of the modules, press the tab of the associated slot. A window such as the following one will be shown:

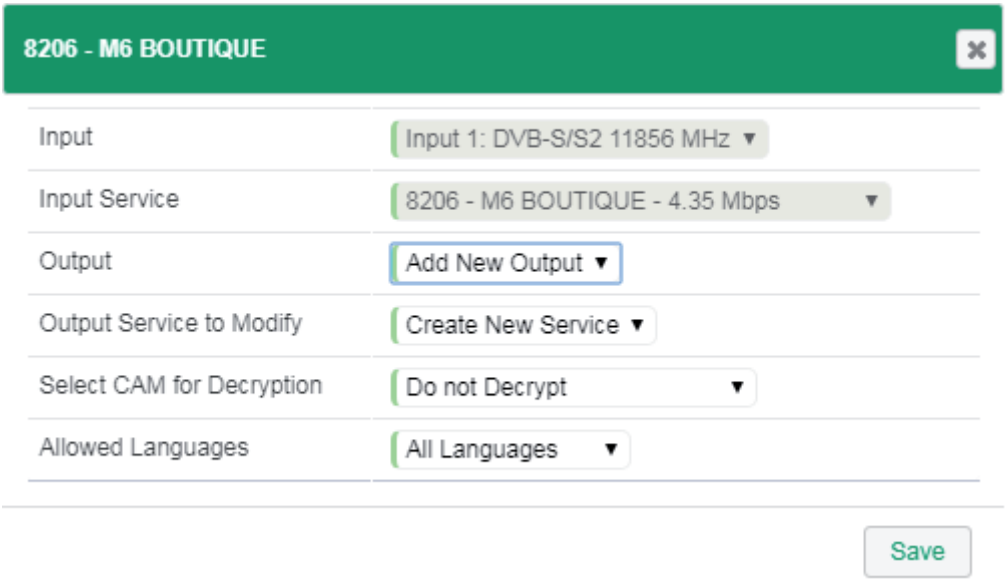


In this window four pop-up menus appear on the left hand side, one for each input. To close these menus, press this ▲ icon. To open them, press this ▼ icon.

On each of the pop-up menus, a list with all the services available on this input will appear. On this list, the encoded services will be identified with the icon; radios with the icon and data services with the icon.

NOTE: In some cases, the list of services appears empty, since the system has yet to detect them. Press the icon to reload the list of services.

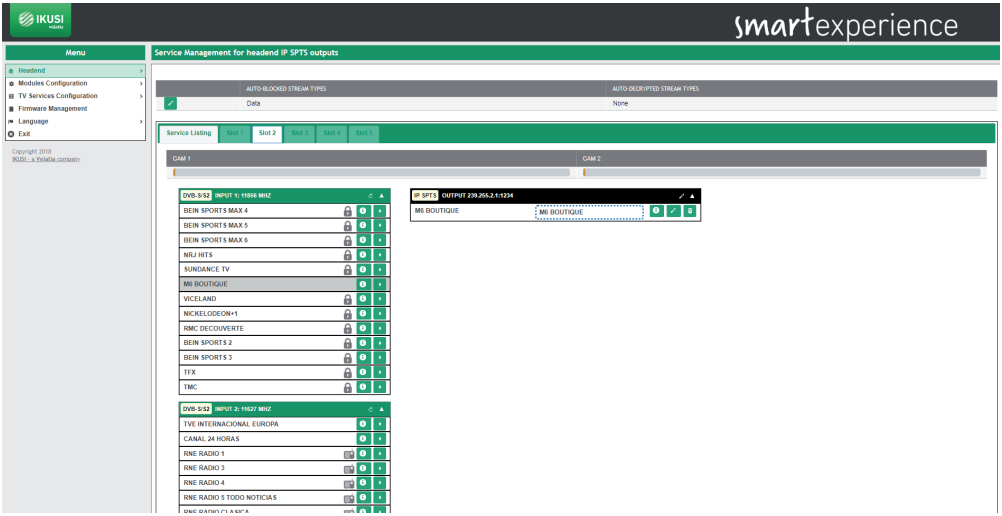
Select the service to be added and press the ▶ icon. A window similar to the following one will open:



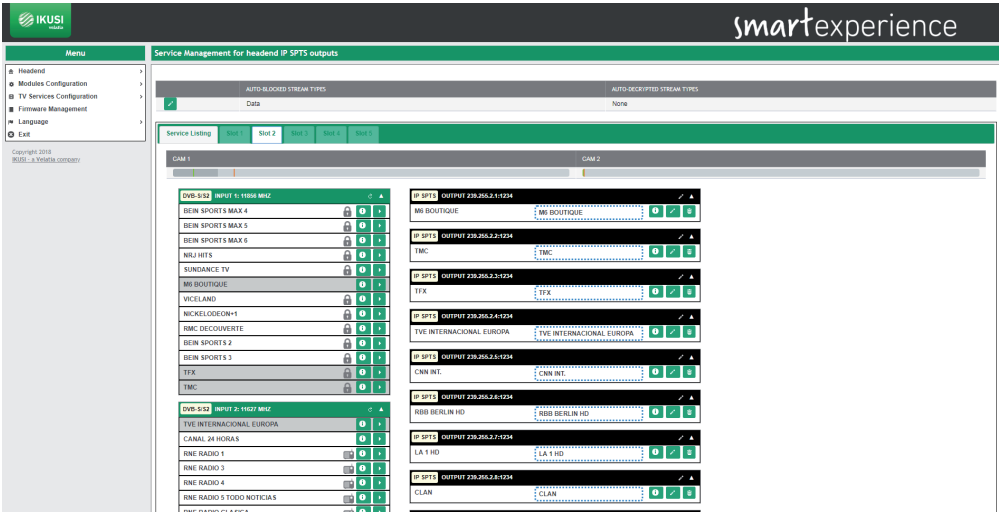
In this window you may:

- Select which CAM will be in charge of decoding the service or transmitting it without decoding it.
- Limiting the language of the service to a single one or letting all languages through.

Once the changes have been made, press the Save button. The service will appear on the selected multicast IP.

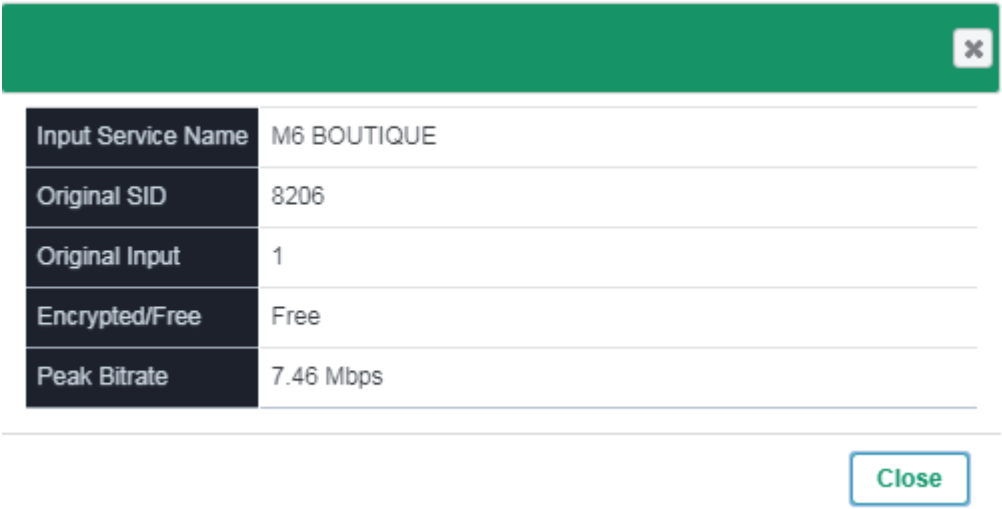


Repeat the process with all the services to be added.

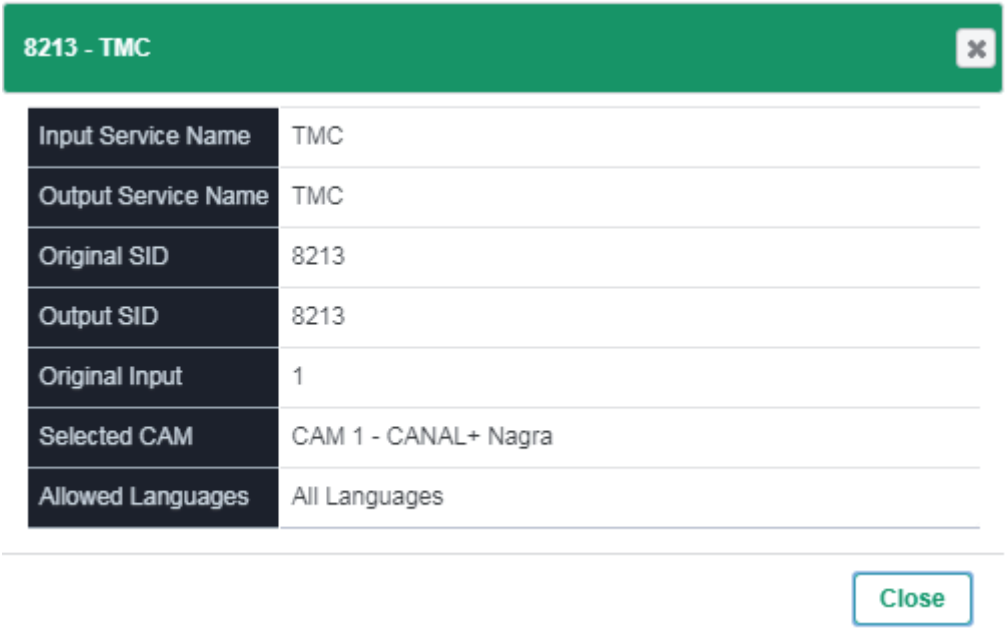


As well as adding services, this same tab may be used to perform the following actions:

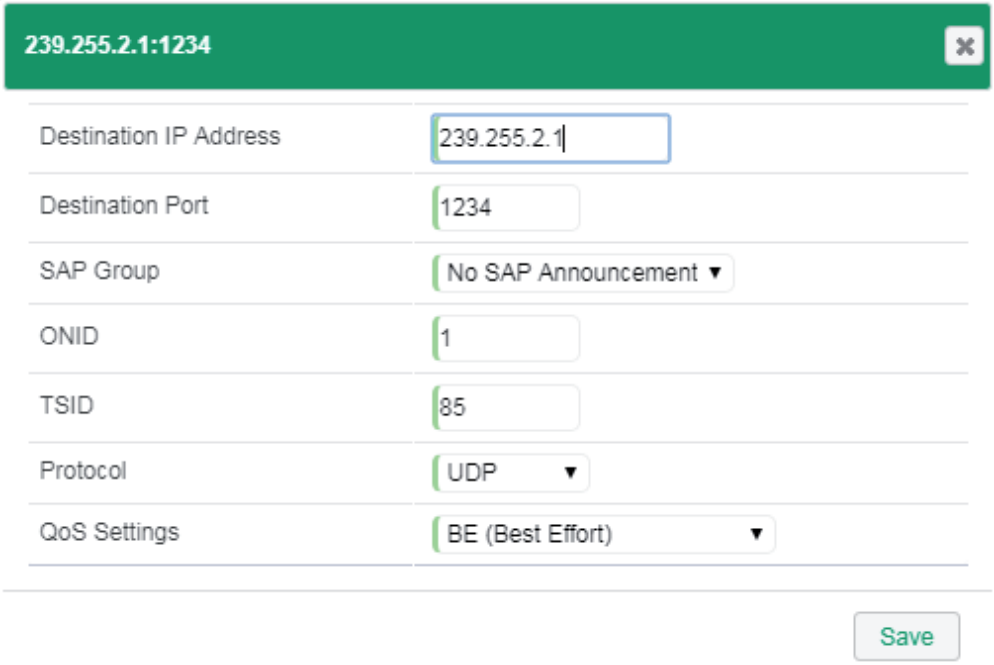
- To obtain information about the input service. When pressing the icon on the input service, a window with information about name, SID, source input, information as to whether the service is free or encoded and peak bitrate detected to date will open up.



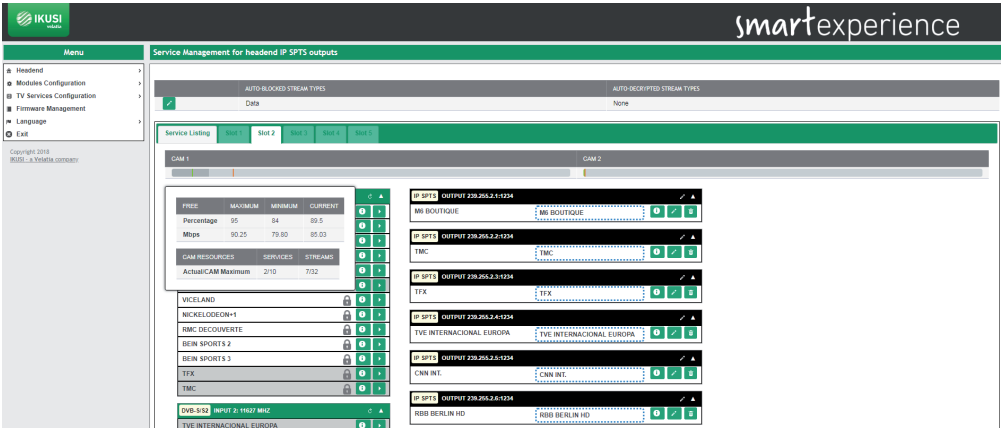
- To obtain information about the output service. When pressing the icon on the output service, a window with information about name, SID, source input, CAM used for decoding and languages permitted will open up.



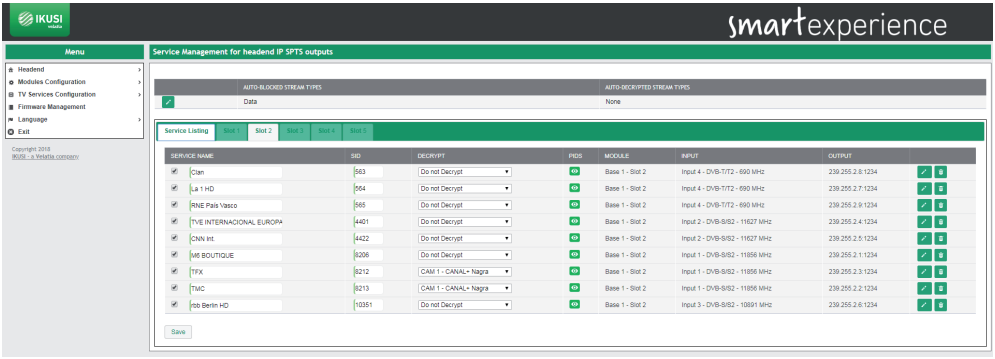
- To edit the parameters related with the multicast broadcasting of a service. Pressing the icon on the input service a window with information about destination multicast IP address, destination port, assigned SAG group, ONID value, TSID value, transmission protocol used and value of Quality of Service (QoS) that will be indicated on the MPTS packages to be configured, in order to allow its prioritisation by the network electronics will open up.



- To delete the contents of a service. When pressing the icon, the content of the current service will be deleted, turning it into an empty service.
- To delete a service from the output service list. When pressing the icon, the service will be completely deleted from the output service list.
- To obtain occupation information for each of the CAMs. At the upper part, a bar with the CAM's current occupation will appear (in grey), along with the minimum occupation (in green) and the maximum occupation (in red). When passing the mouse over the bar a window will open showing this information in percentages and Mbps, in addition to data about the number of resources used with respect to the maximum offered by the CAM.



To see the final result of the programme grid, select the Service Listing tab. A window similar to the following one will be shown:



This window shows a list with all the services generated by the headend. Additionally, at the upper part, a series of global configurations options for the services appear.

On the list of services the following fields appear:

- SERVICE NAME: It is the name of the service that will be transferred to the TVs. It is a value that may be edited by the user. To force this name and not depend on the name of the service on the input, enable the check box that appears on the left. On the other hand, if the name must change depending on the input name changing, leave the check box disabled.
- SID: It is the Service Identifier value associated to the service. It is a value that may be edited by the user.
- DECRYPT: It allows which CAM will be in charge of decoding the service or transmitting it without decoding to be selected.
- PIDS: It allows the elementary streams to be managed. When pressing the icon, a window will open where the user may force the blocking of a specific PID, moving it to the output, or letting the headend take the decision to process it or not.
- MODULE: It indicates in which module the service is being processed.
- INPUT: It indicates which input is receiving the service.
- OUTPUT: It indicates which multicast IP is transmitting the service.

Additionally, any service may be deleted by pressing the icon associated to the said service.

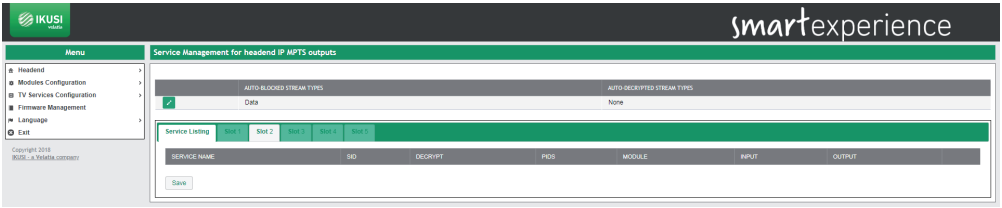
The global options are edited by pressing the icon and they are the following:

- AUTO-BLOCKED STREAM TYPES: It indicates whether the streams of Teletext, Subtitles or Data are automatically blocked.
- AUTO-DECRYPTED STREAM TYPES: It indicates whether the streams of Teletext, Subtitles or Data are automatically decoded.

4.3.3 IP MPTS Services Configuration

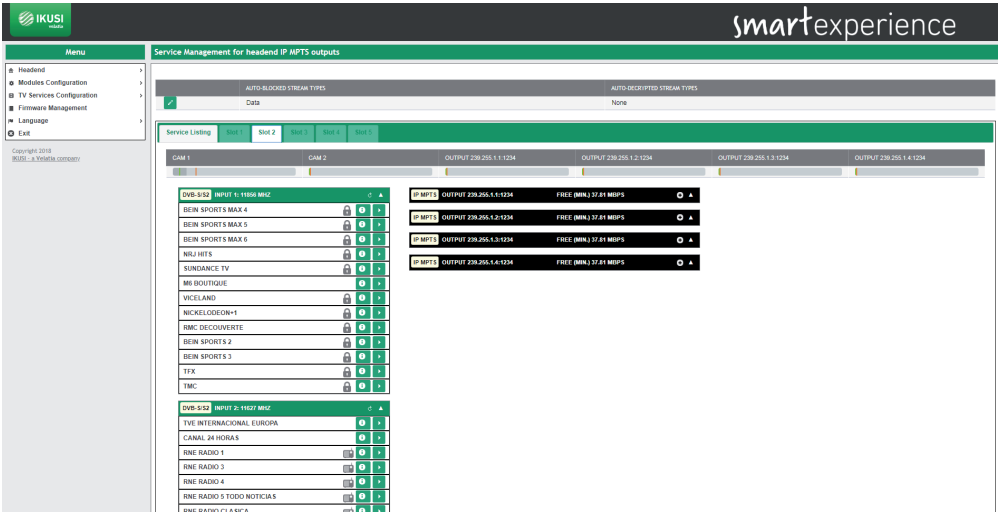
Using the IP MPTS Services Configuration menu, the services to be received and on which output carrier they will be broadcasted may be selected. Additionally, these services may be personalised, changing their names, blocking certain streams or or assigning them to a SAP group.

To access this menu, select TV Services Configuration → IP MPTS Services Configuration. A window similar to the following one will open up:



This window is made up of several tabs, one for each slot in the headend, as well as one with a complete list of services broadcasted by the headend.

In order to add services on one of the modules, press the tab of the associated slot. A window such as the following one will be shown:

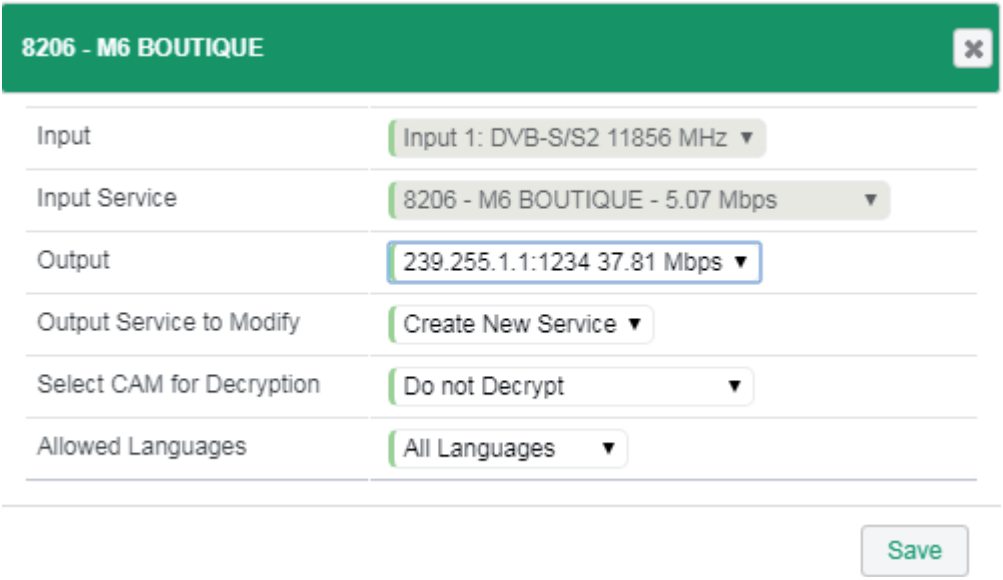


In this window four pop-up menus appear on the left hand side, one for each input and another four on the right hand side, one for each output. To close these menus, press this ▲ icon. To open them, press this ▼ icon.

On each of the left hand pop-up menus, a list with all the services available on this input will appear. On this list, the encoded services will be identified with the 🔒 icon; radios with the 📻 icon and data services with the 💾 icon.

NOTE: In some cases, the list of services appears empty, since the system has yet to detect them. Press the ↻ icon to reload the list of services.

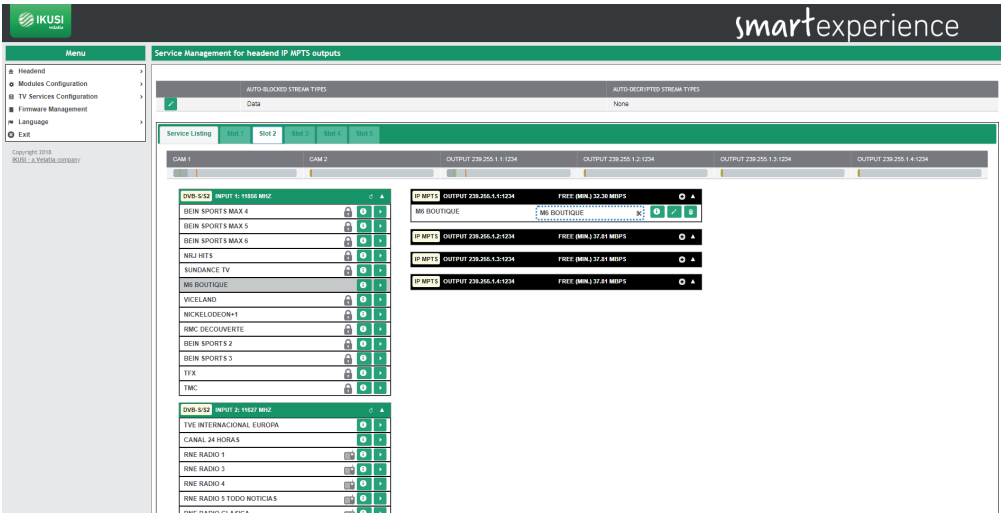
Select the service to be added and press the ▶ icon. A window similar to the following one will open:



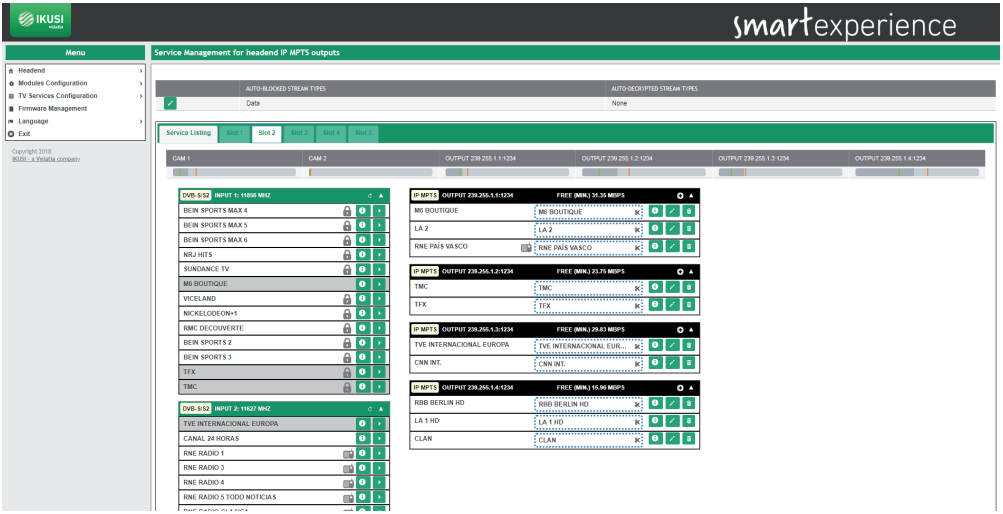
In this window you may:

- Select the MPTS stream to which the service is going to be added.
- Choose between creating a new service or reusing the space and the signage of one that already exists in the output.
- Select which CAM will be in charge of decoding the service or transmitting it without decoding it.
- Limiting the language of the service to a single one or letting all languages through.

Once the changes have been made, press the Save button. The service will appear on the selected output.

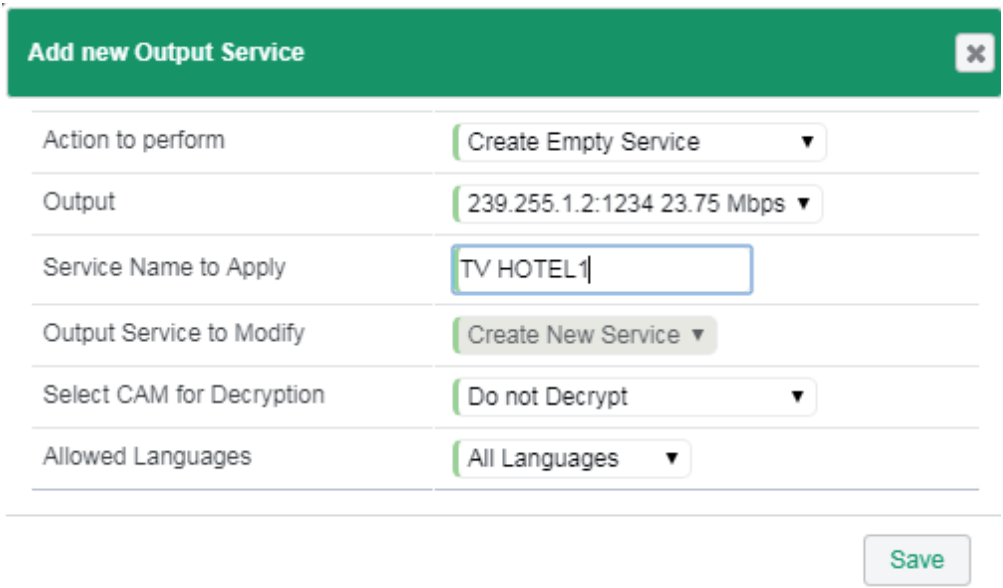


Repeat the process with all the services to be added.

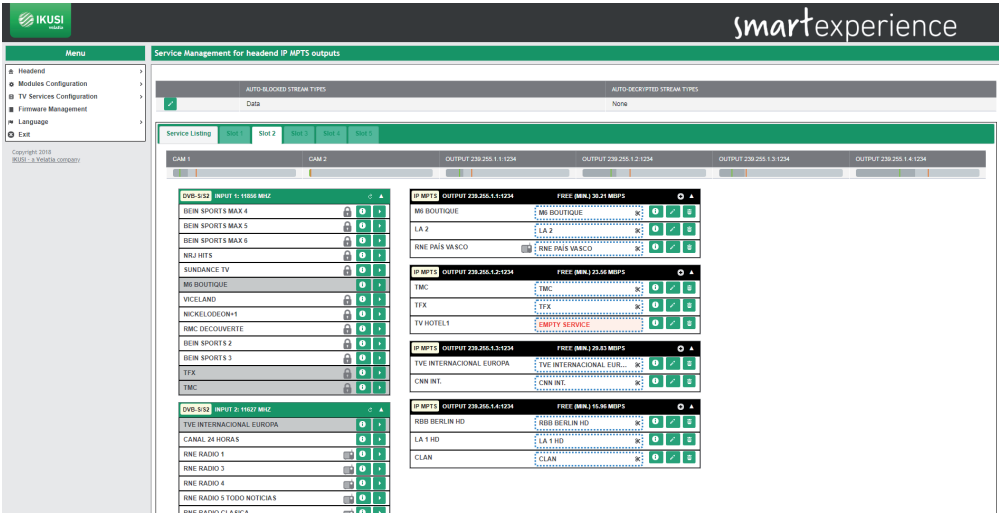


The HTI headends offer, additionally, the option of pre-configuring reserve channels (empty services) that allow the service list to be extended in the future, without having to launch a rescan process in the TVs.

To create an empty service, press the icon on the output where the reserve channel is to be created. A window like the following one will open:

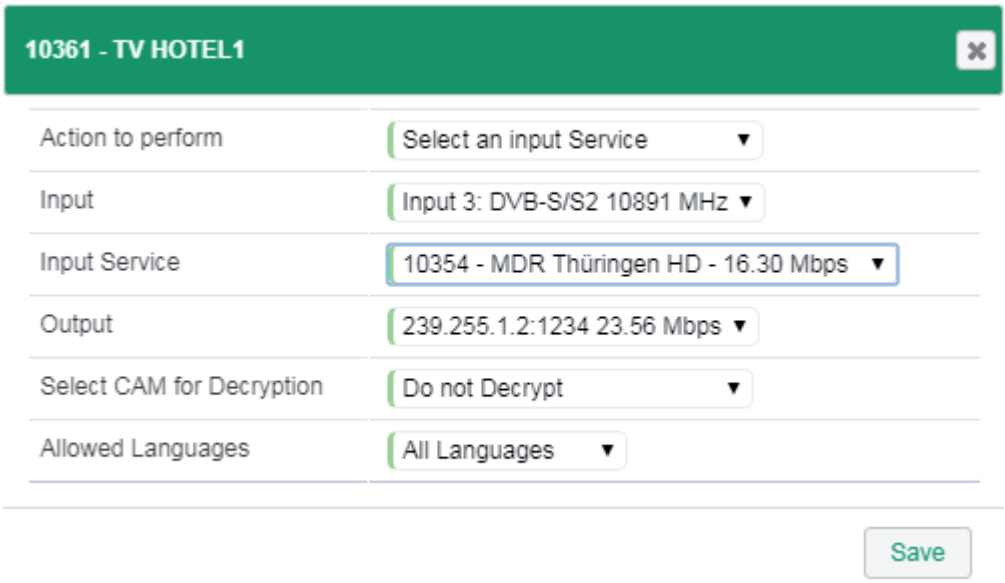


Introduce the name to be assigned to the service (in the example, TV HOTEL 1), which CAM is going to decode it and which language configuration it will have and press the Save button.



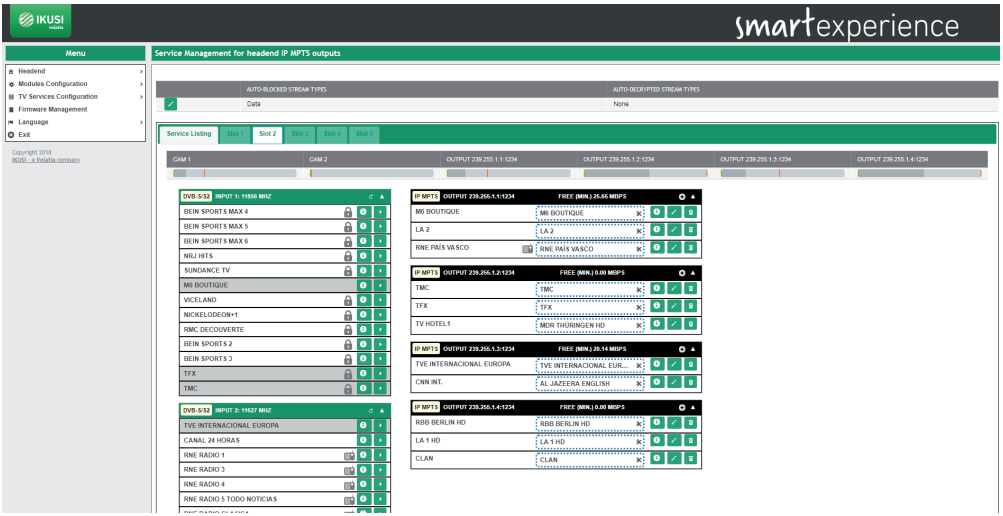
When launching a scan in TVs, they will store all the services in the memory, including the empty ones. These services may be used in the future to transport new contents, without having to launch a new scan in the TVs. Likewise, the HTI headends allow the content of an existing service to be replaced by another one, without the need to rescan the TVs.

To add content to an empty service or to replace the content of an existing service, press the icon associated to the said service. A window like the following one will open:



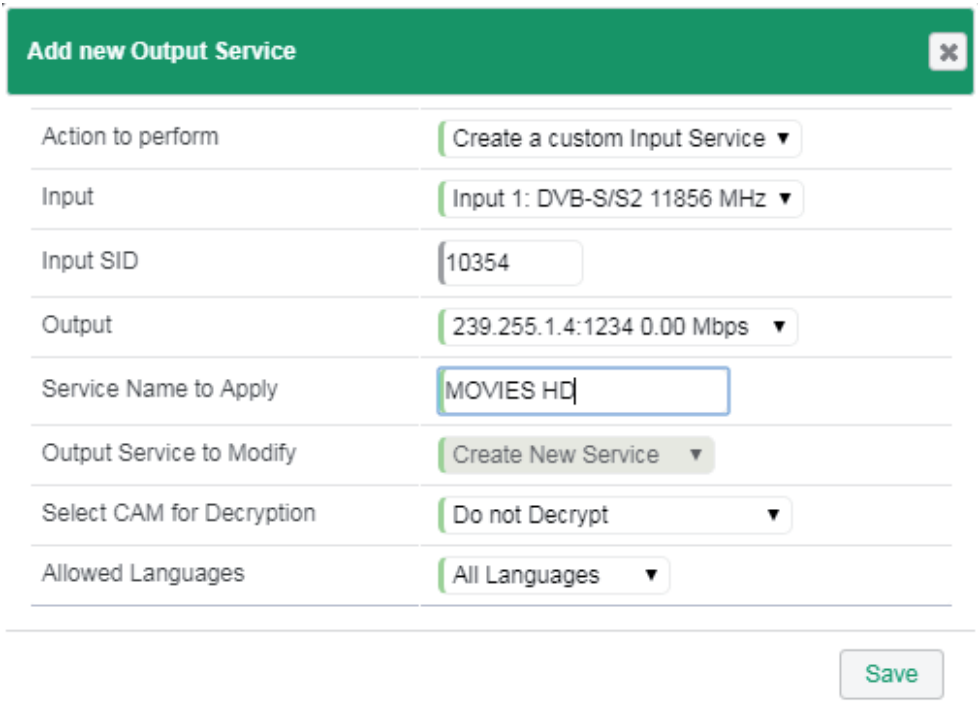
Select the input from which the service is to be extracted. On the Input Service pop-up menu, select the new content that will be transported by the service that has already been scanned on the televisions.

Additionally, select which CAM is going to decode it and which language configuration it will have. Once the service configuration has been modified, press Save.

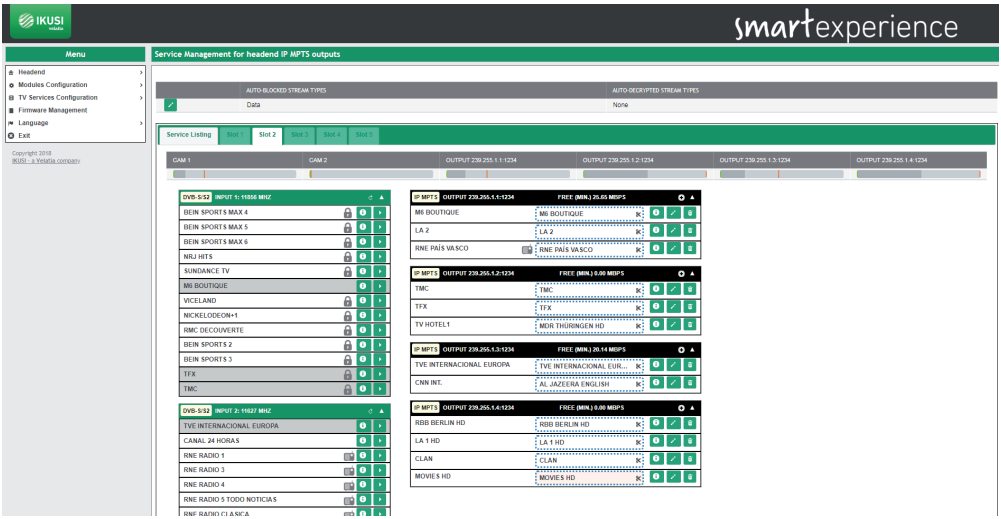


In the example above, the MDR THÜRINGEN HD service has been added in the empty service space TV HOTEL 1 and it has replaced the CNN INT service content with the AL JAZEERA ENGLISH service.

Finally, a service that is not currently being broadcasted (for example services that are only broadcast at night) may also be added to the output service list. To do this, press the icon on the output on which the said service is to be transported and choose “Create a custom Input Service” on the “Action to perform” pop-up menu.

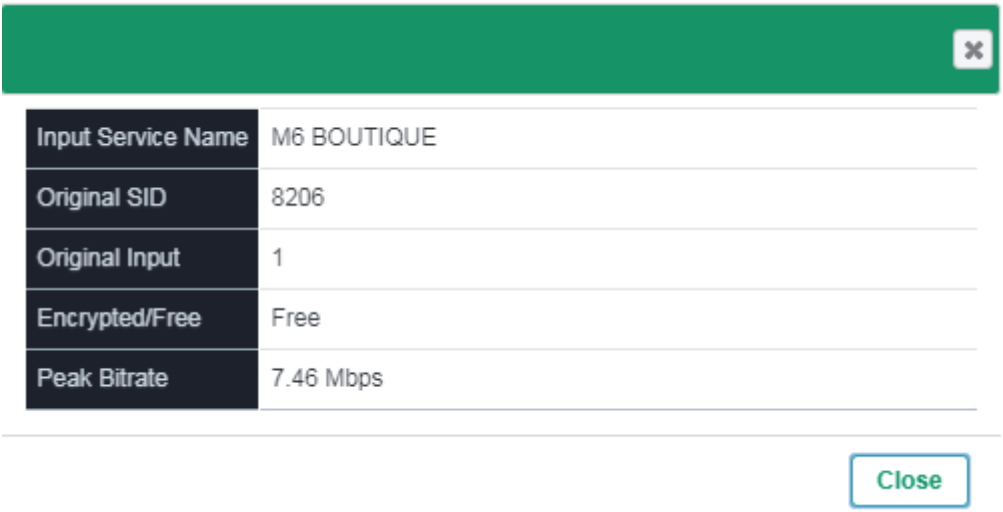


Indicate from which input the service will be extracted, what its SID (Service Identifier) is, on which output it will be transmitted, which name will be assigned to the service, which CAM is going to decode it and which language configuration it will have. To save the changes, press the Save button.



- The manual service introduced will appear highlighted on a pink background, which will turn white when the service is available on the input.

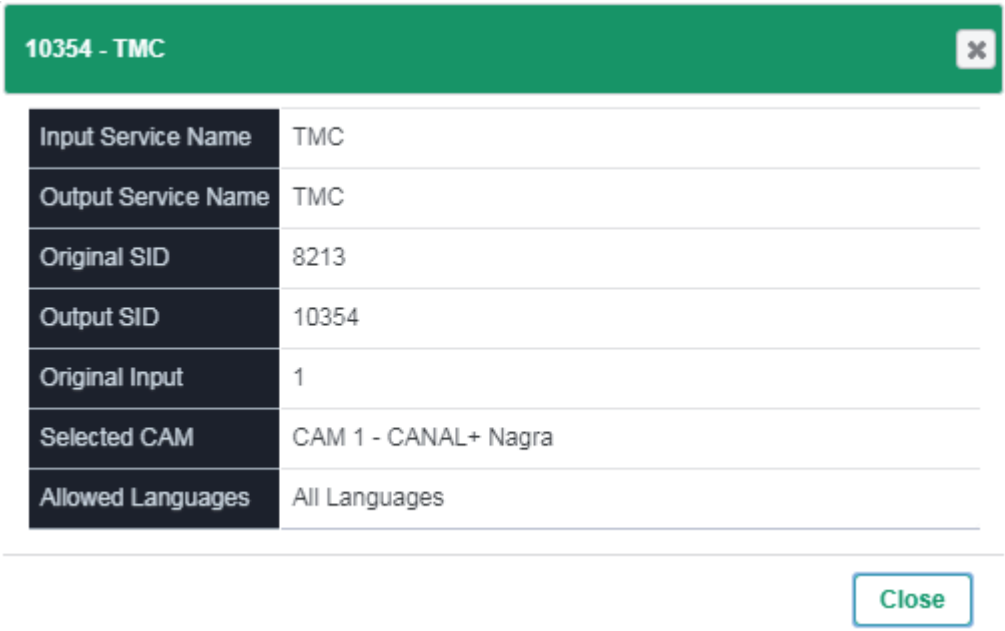
- As well as adding services, this same tab may be used to perform the following actions:
- To obtain information about the input service. When pressing the icon on the input service, a window with information about name, SID, source input, information as to whether the service is free or encoded and peak bitrate detected to date will open up.



Input Service Name	M6 BOUTIQUE
Original SID	8206
Original Input	1
Encrypted/Free	Free
Peak Bitrate	7.46 Mbps

Close

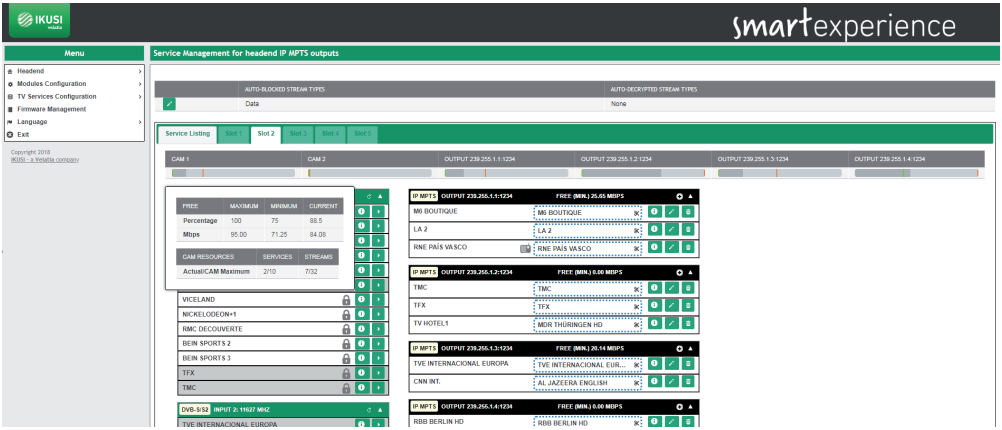
- To obtain information about the output service. When pressing the icon on the output service, a window with information about name, SID, source input, CAM used for decoding and languages permitted will open up.



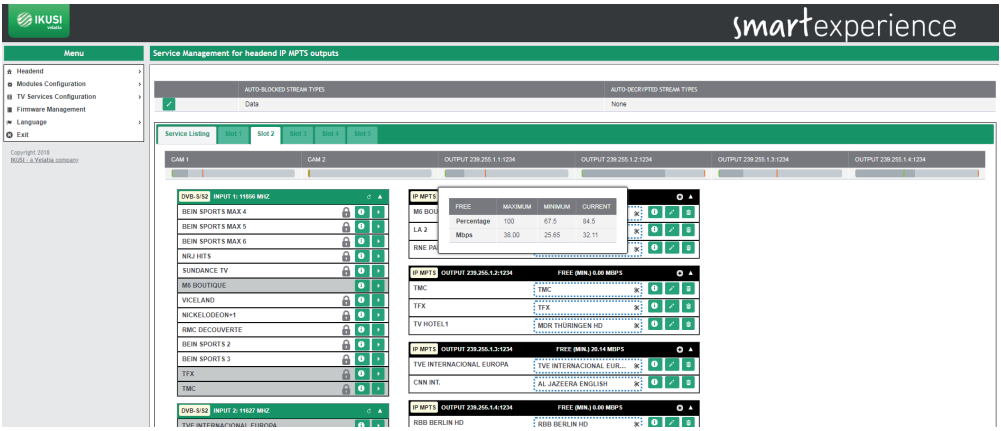
Input Service Name	TMC
Output Service Name	TMC
Original SID	8213
Output SID	10354
Original Input	1
Selected CAM	CAM 1 - CANAL+ Nagra
Allowed Languages	All Languages

Close

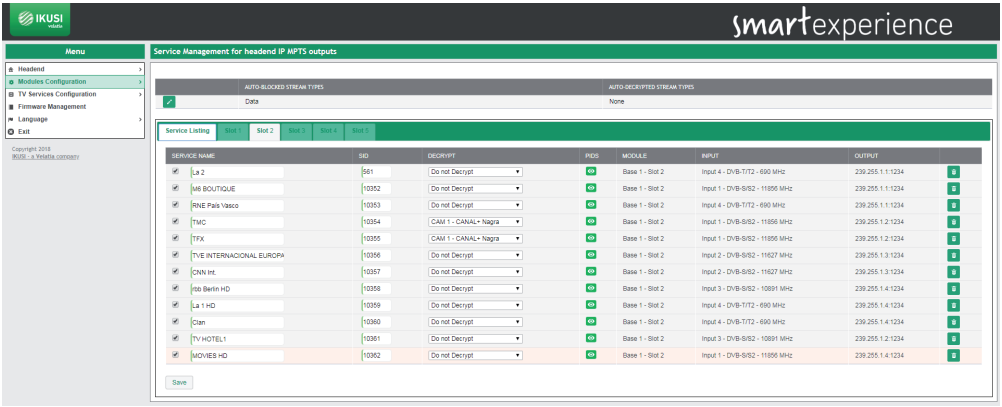
- To delete the contents of a service. When pressing the icon, the content of the current service will be deleted, turning it into an empty service.
- To delete a service from the output service list. When pressing the icon, the service will be completely deleted from the output service list.
- To obtain occupation information for each of the CAMs. At the upper part, a bar with the CAM's current occupation will appear (in grey), along with the minimum occupation (in green) and the maximum occupation (in red). When passing the mouse over the bar a window will open showing this information in percentages and Mbps, in addition to data about the number of resources used with respect to the maximum offered by the CAM.



- To obtain occupation information for one of the MPTS streams. At the upper part, a bar will appear with the current occupation of the carrier (in grey), along with the minimum occupation (in green) and the maximum occupation (in red). When passing the mouse over the bar, a window will open showing this information in percentages and Mbps.



To see the final result of the programme grid, select the Service Listing tab. A window similar to the following one will be shown:



This window shows a list with all the services generated by the headend. Additionally, at the upper part, a series of global configurations options for the services appear.

On the list of services the following fields appear:

- SERVICE NAME: It is the name of the service that will be transferred to the TVs. It is a value that may be edited by the user. To force this name and not depend on the name of the service on the input, enable the check box that appears on the left. On the other hand, if the name must change depending on the input name changing, leave the check box disabled.
- SID: It is the Service Identifier value associated to the service. It is a value that may be edited by the user.
- DECRYPT: It allows which CAM will be in charge of decoding the service or transmitting it without decoding to be selected.
- PIDS: It allows the elementary streams to be managed. When pressing the icon, a window will open where the user may force the blocking of a specific PID, moving it to the output, or letting the headend take the decision to process it or not.
- MODULE: It indicates in which module the service is being processed.
- INPUT: It indicates which input is receiving the service.
- OUTPUT: It indicates which MPTS stream is transmitting the service.

The global options are edited by pressing the icon and they are the following:

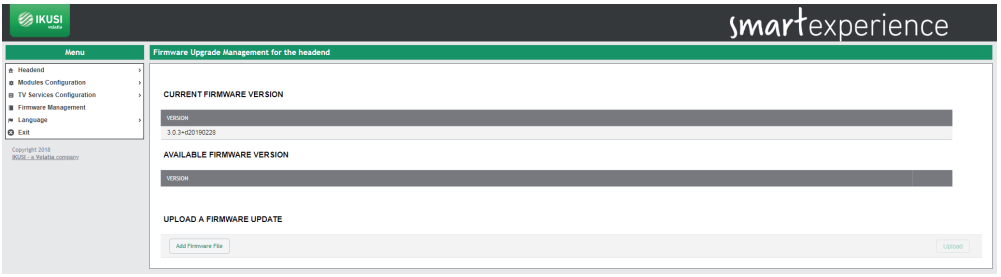
- AUTO-BLOCKED STREAM TYPES: It indicates whether the streams of Teletext, Subtitles or Data are automatically blocked.
- AUTO-DECRYPTED STREAM TYPES: It indicates whether the streams of Teletext, Subtitles or Data are automatically decoded.

4.4 Firmware management

Firmware Management option allows to upgrade the headend with a new firmware version.

NOTE: the HTI headend does not allow to downgrade the modules to an older version.

The screen to manage firmware files is as follows:



This screen is divided into three blocks:

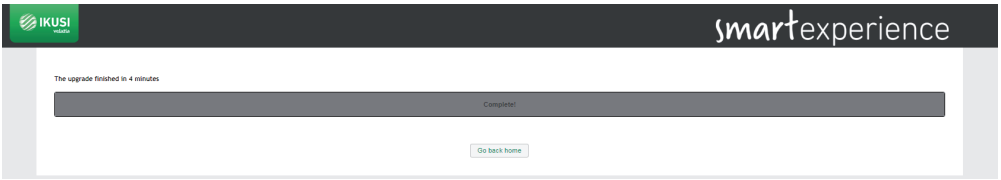
- CURRENT FIRMWARE VERSION: it informs about the firmware version of the headend.
- AVAILABLE FIRMWARE VERSION: it allows to upgrade the whole headend with a firmware version that, previously, has been uploaded from the PC. Push Install button to upgrade the headend with this version.
- UPLOAD A FIRMWARE UPDATE: use this option to upload to the headend a firmware version. Select the firmware through Add Firmware File button. After that, push Upload button. Once the firmware has been uploaded, it will appear in the AVAILABLE FIRMWARE VERSION section.

To update the headend, push the Install button associated with the desired firmware version. If necessary, upload the version previously through the web interface, using UPLOAD A FIRMWARE UPDATE option.

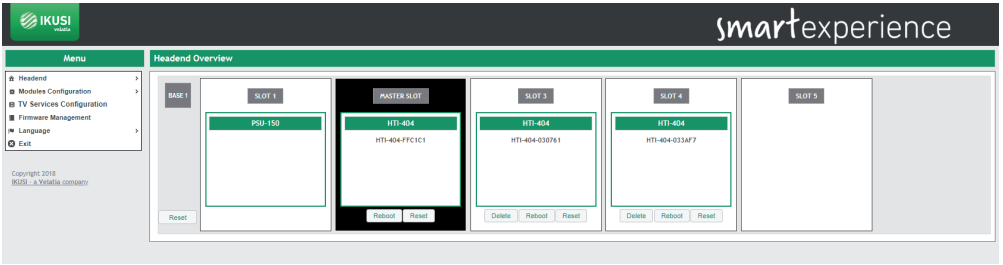
After pushing the Install button, the upgrade progress screen will open.

This screen shows an estimate of the time remaining to complete the update, a progress bar indicating the progress of the update and information on what action is currently running.

At the conclusion of the upgrade, a message will appear as follows:



Push the Go back home button. The web interface will redirect you to Overview screen.

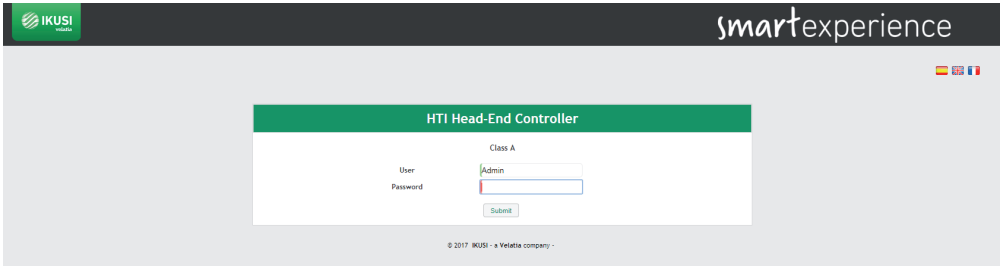


4.5 Language

Language menu allows to select the language you want the interface will be shown.

4.6 Exit

Select this option to close the session with the headend. The browser will redirect you to the welcome screen.



5. EQUIPMENT RECYCLING

RECYCLING OF ELECTRICAL AND ELECTRONIC EQUIPMENT

(Applicable in the European Union and in European countries with selective waste collection systems)

This symbol on your equipment or its packaging indicates that this product cannot be treated as general domestic waste and must be handed in at the corresponding point of collection for electric and electronic equipment. By ensuring this product is disposed of correctly you will help prevent negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. Recycling of materials helps preserve natural resources. For more detailed information on the recycling of this product, please contact your local council, your nearest collection point or the distributor from whom you purchased the product.

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