



Headend Installation and Setting guide

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1. INTRODUCTION

This document explains how to perform a basic installation of the Ikusi Flow headend.

The document is divided in two parts. In the first part, the physical mounting is described, both in rack mounting and in wall mounting. The second part describes how to configure the headend. In order to do that, initially, it explains how to connect the user configuration terminal (tablet, pc...) to Ikusi Flow. After that, it describes the steps that must be followed in order to define a channel line-up, while mainly focusing on the Service wizard.

2. MOUNTING

Ikusi Flow can be installed both in a rack cabinet and in wall. Both types of installations are described below.

2.1 Rack cabinet mounting

When opening the box containing Ikusi Flow, you will find a set of modules, numbered from 1 to 5. Follow the order of numbering for a correct installation.



Step 1: Install FLOW BASE

Extract FLOW BASE from the box numbered as 1. The following figure describes the steps that must be followed in order to install FLOW BASE in a rack cabinet



Step 2: Install FLOW PSU

Extract FLOW PSU module from the box numbered as 2 The module must be inserted in the first slot of FLOW BASE. Put it in the rails and slide it until the connectors reach the end. After inserting it, connect the power cord.



Step 3 : Install FLOW HUB

Extract FLOW HUB module from the box numbered as 3. The module must be inserted in the second slot of FLOW BASE. Put it in the rails and slide it until the connectors reach the end.



In the case of IPTV installation, connect TV1 and TV2 ports to two ports of the backbone Gigabit Ethernet switch.

Step 4 : Install the rest of the FLOW modules

Extract, one by one, the rest of the FLOW modules from the boxes numbered as 4, and insert them in any of the free slots. Put it in the rails and slide it until the connectors reach the end.



In the case of processing of encrypted TV channels, insert the CAMs and the operator smartcards in the FLOW SEC modules.

Step 5: Install FLOW COVER

Extract the lower deflector plate from the box numbered as 5 and insert it in FLOW BASE, as it is shown in the picture. The lower deflector plate will allow to gather the coaxial cables. Repeat the same process with the upper deflector plate. Finally, put the cover. If the cover is properly inserted, the fans will start spinning.



2.1 Wall mounting

Step 1: Install FLOW BASE

Extract FLOW BASE from the box numbered as 1. The following figure describes the steps that must be followed in order to install FLOW BASE in the wall.



Following steps

Repeat steps 2 through 5 as per the Cabinet Rack Installation. The headend is for indoor use only.

2.3 Installation environment recommendations

- 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 heatersor 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.

3. BASIC CONFIGURATION

3.1 Connection to the headend

Ikusi Flow is configured through a web page generated by the own headend. To access to that web, you must connect to the headend via WiFi or via Ethernet cable.

- <u>WiFi option</u>

• Connect your terminal (tablet, pc,...) to the Ikusi Flow WiFi network. To do this, choose, among the available WiFi networks, the one named "IKUSI_FLOW_10_0_1_XXXX" (where "XXXX" are the last digits of the FLOW HUB MAC address).

• Open your browser and go to 10.0.0.1 address.

) 10.0.0.1	×	Pr.	 	1	le le		23
\leftrightarrow \rightarrow \times (i) 10.0.0.1	l					☆	:

- Ethernet cable option

- Connect your terminal (for example, your pc) to the configuration port of the FLOW HUB module, identified as 🔤 , through an Ethernet cable.
- Configure your terminal to be in the same network than the FLOW HUB module (by default, the FLOW HUB module is 192.168.1.100 IP address). To do this, edit the data related with the IP address of your terminal, for example, with the following information:
 - . IP address: 192.168.1.2
 - . Subnet mask: 255.255.255.0
 - . Default gateway: 192.168.1.1
- Open your browser and go to 192.168.1.100 address



3.2 Initial configuration

The first time you access to the headend, you must introduce a set of basic data.

Step 1: Language and password

FAGOR 🗲	
WELCOME TO	
flow	
This is the first time entry to Ikusi Flow.	
Select your preferred language and set a login password. For best security, password should be more than 6 characters long, using upper with lower case letters and numbers.	
English	
SAVE >	

In this first screen, you must choose the desired language for the user interface. You must also define the password that will be used in the next connections.

Step 2 : Required settings

FAGOR Ә				
REQUIRED Set the main installation is headend to provide the control of the contr	SETTINGS settings. These settings are used by the orrect behaviour for this installation. er anyway.			
Choose a country	T			
Choose a timezone	. •			
Date and time:	03/02/2017 11:20			
Type of output:	IP O RF O IP+RF O			
Output modulation:	qam 🔿 cofdm 💿			
TV type:	HD O SD O			
Multiple headends:				
	SAVE >			

In this screen you must define the basic parameters of the installation:

- Country: select the country where the headend is installed. In the case the country doesn't appear in the list, you can select "Other".
- Time zone: select the time zone where the headend is located.
- Date and time: by default, the date and time are configured automatically. In the case you need other date and time, different to the proposed one, push 🖉 button to edit them.
- Type of output: choose IP when the TV distribution network is pure IP, RF when it is pure RF, or IP+RF when the distribution network is mixed.
- Output modulation: select the type of modulation used in the RF distribution.
- TV type: select the type of TVs that are being used in the installation (HD or SD). This parameter will be used by the headend in order to choose the codecs that will be employed by the FLOW ENC modules. In the case both type of TVs are present, select SD.
- Multiple headends: turn on this option in the case there were more than one Ikusi Flow headend in the same installation.

Step 3: Installation description

 FAGOR 7
INSTALLATION DESCRIPTION Type the relevant information into the fields below: Name, Location & Description and save
This information identifies the specific installation, and is used to complete the installation report. Information can be altered at anytime.
Name LOCATION
DESCRIPTION
Description

Introduce in this screen the information about name, address and installation description (free text). This information will appear in the reports, and it will allow you to distinguish this particular headend with respect to others.

3.3 "Home" screen

It is the main screen of the user interface. It allows to:

- Know which antennas are being used.
- Know if the current RF distribution is conveyed any TV signal that has not been generated by Ikusi Flow.
- Access to the advanced menu.
- Review each of the modules and its status.
- Launch the service wizard.
- Know which channel line-up is currently configured and its status.



In the example, the top bar informs that two antennas have been connected: one terrestrial antenna identified as DTV1 and one satellite dish pointing to Astra 19.2°E satellite. Also, you could see that RF signal that has not been generated by Ikusi Flow has been detected.

In the same example, you can see that the headend consists of one FLOW PSU module, one FLOW HUB module, two FLOW IN modules, one FLOW SEC module with one FLOW CAM, one FLOW ENC module with one FLOW HDMI source connected to it, and one FLOW OUT module.

Also, you can see that there are three coaxial cables connected to the inputs. One of them with terrestrial signal and the other two with Astra 19.2°E satellite signal. Clicking in each of the used satellite connectors, you could see that the connected polarities are Astra 19.2°E Vertical Low and Astra 19.2°E Horizontal High.

In the required settings screen, the output type that has been selected is IP+RF. For that reason, there are two taps with the service list : one for IP and another one for RF. Both lists are empty, since the headend has not been configured yet.

3.4 Automatic scan & LNB powering

Ikusi Flow performs an automatic scanning of the signals. Scanning is launched automatically as soon as a coax cable is connected to the input connectors. During the scanning process, SCANNING message appears in the screen. Until scanning ends, you will not be able to add services through the Service wizard. The input signal connectors will inform about the status and the result of the scanning, using the following color code:

No cable detected
 Detected cable, scanning
 Detected cable without signal
 Detected cable, ended scanning, detected services

Each connector automatically powers the preamplifiers connected to it (in the case of T/C connectors) with 12/24V (depending on country configuration) or the LNBs (in the case of SAT connectors) with 12V (required voltage to power a Quattro LNB).

Moreover, SAT1 and SAT2 connectors are able to manage universal LNBs (or dual or quad). If this is your case, before launching the Service wizard, modify the power configuration of those connectors. To do that, click over the connector. A window where you could configure the type of LNB will open.

CONNECTOR INFORMATION

SATELLITE	Astra 19.2° E
POLARITY	Vertical Low
NUMBER OF SATELLITE SERVICES FOUND	317
NUMBER OF SATELLITE MUXES FOUND	27
TYPE OF LNB	Quattro •
	Quad/Dual Universal
	SAVE

In the case you use a 13/18V without tones switching LNB (tipically used in Australia) select TYPE OF LNB: Quad/Dual.

CONNECTOR INFORMATION

SATELLITE	Astra 19.2° E
POLARITY	Vertical Low
NUMBER OF SATELLITE SERVICES FOUND	317
NUMBER OF SATELLITE MUXES FOUND	27
TYPE OF LNB	Quad/Dual •
LNB POLARITY	Horizontal Horizontal Vertical
	SAVE

In LNB POLARITY, select the desired polarity, Horizontal or Vertical.

In the case you use a Universal LNB select TYPE OF LNB: Universal.

CONNECTOR INFORMATION

SATELLITE	Astra 19.2° E
POLARITY	Vertical Low
NUMBER OF SATELLITE SERVICES FOUND	317
NUMBER OF SATELLITE MUXES FOUND	27
TYPE OF LNB	Universal •
LNB POLARITY	Horizontal High
	Horizontal Figh Horizontal Low Vertical High Vertical Low SAVE

In LNB POLARITY, select the desired polarity, Horizontal High, Horizontal Low, Vertical High or Vertical Low.

Once the connector setup has been done, push SAVE button

3.5 Service wizard

The Ikusi Flow configuration is performed through a wizard that will guide us step by step. To launch the wizard, push "SERVICE WIZARD" button.

Step 1: Terrestrial services selection

$\langle \rangle$		\otimes \otimes
		A ENCRYPTED RADIO SCAN LAST SCAN WAS 03/02/2017 11:41 GMT +01:00
IP TERRESTRIAL SERVICES	RF TERRESTRIAL SERVICES	
490.00 MHz	554.00 MHz	562.00 MHz +
TELEDONOSTI	ANTENA3 HD	ATRESERIES HD
НАМАІКА ТВ GIPUZKOA	ANTENA3	BEMAD TV HD
GLOBAL7	LASEXTA HD	REALMADRID TV HD
	LASEXTA	
	NEOX NEOX	
	NOVA NOVA	
626.00 MHz	634.00 MHz +	658.00 MHz +
MEGA	TELECINCO	DISNEY CHANNEL
ONDA CERO iii	CUATRO	PARAMOUNT CHANNEL
EUROPA FM	FDF FDF	DMAX

This screen allows the selection of the desired terrestrial services.

There are two identical tabs, one for defining the terrestrial services that will be conveyed in the IP network ("IP TERRESTRIAL SERVICES") and the other one for defining the terrestrial services that will conveyed in the RF network ("RF TERRESTRIAL SERVICES").

TER > (X)()+ MEGA TELECINCO DISNEY CHANNEL \square PARAMOUNT CHANNEL ONDA CERO CUATRO \square EUROPA FM FDF DMAX \square MELODIA FM DIVINITY GOL \square ۳Ó 13 TV DEFINITIVO TELECINCO HD RADIO MARCA , COPE DEFINITIVO VAUGHAN RADIO CUATRO HD ١. , ENERGY CADENA 100 (III) RADIO MARIA BOING \Box \Box m ESRADIO m + × \square LA 1 ETB1 TDP \square LA 2 ETB2 TDP HD \square 24H ETB3 RADIO CLASICA HQ m \square CLAN ETB4 \Box RADIO 3 HQ mà LA 1 HD. ETB1 HD RADIO EXTERIOR RNE \square \Box \square RADIO NACIONAL PAÍS VASCO ETB2 HD DKISS RADIO 5 EUSKADI IRRATIA KISS FM \square RADIO EUSKADI HIT FM ١. ۳Ó CATEA TEN _ _

Perform the same procedure in the RF tab with the services that must be conveyed in RF (in the current example, they are the same as in IP).

$\langle \rangle$		\otimes \otimes
		encrypted 📷 Radio SCAN LAST SCAN WAS
IP TERRESTRIAL SERVICES	RF TERRESTRIAL SERVICES	
490.00 MHz.	554.00 MHz	562.00 MHz +
TELEDONOSTI	ANTENA3 HD	ATRESERIES HD
HAMAIKA TB GIPUZKOA	ANTENA3	BEMAD TV HD
GLOBAL7	LASEXTA HD	REALMADRID TV HD
	LASEXTA	
	NEOX NEOX	
	NOVA NOVA	
626.00 MHz +		
ONDA CERO	CUAI RO	PARAMOUNI CHANNEL
EUROPA FM	FDF FDF	DMAX

Start with the IP tab. The screen shows all the terrestrial services detected in the cable, grouped by mux. To choose a complete terrestrial mux, push + button. Also, you can select particular services, clicking them individually.

Push 🕑 button to advance to the next step.

(>)

Step 2: satellite services selection $\langle \rangle$ TER > SAT > (X) ENCRYPTED
 RADIO
 SCAN
 LAST SCAN WAS
 03/02/2017 11:36 GMT +01:00 RF SAT SERVICES IP SAT SERVICES Last scan found a total of 851 satellite services. Type in specific name of service to filter individually, or leave blank and click on green search button to select full listing. ADD MANUALLY Q Service.

This screen allows the selection of the desired satellite services.

As the previous step, there are two identical tabs, one for defining the satellite services that will be conveyed in the IP network ("IP SAT SERVICES") and the other one for defining the satellite services that will conveyed in the RF network ("RF SAT SERVICES").

Start with the IP tab. Use the search box to search by name a service among all the detected ones in the satellite cables. For example, if you type "FOX", a list with all the detected services whose name include "FOX" will appear:

$\langle \rangle$		TER > SAT		\otimes \otimes
			10 30 10 00 3 4 5 6 7 8 9 10 11 12	
				encrypted in Radio SCAN LAST SCAN WAS 03/02/2017 11:36 GMT +01:00
	IP SAT SERVICES		RF SAT SERVICES	
Last scan found a to	otal of 851 satellite services. me of service to filter individually, or leave t	blank and click on green s	search button to select full listing.	
Last scan found a to Type in specific nan FOX	otal of 851 satellite services. ne of service to filter individually, or leave t	blank and click on green s	search button to select full listing.	ADD MANUALLY
Last scan found a to Type in specific nan FOX	otal of 851 satellite services. me of service to filter individually, or leave t	blank and click on green s	Search button to select full listing.	ADD MANUALLY
Last scan found a tu Type in specific nan FOX SEARCH RESULTS FOX Serie FOX NEWS	otal of 851 satellite services. me of service to filter individually, or leave t	blank and click on green s	Search button to select full listing.	ADD MANUALLY
Last scan found a to Type in specific nan FOX SEARCH RESULTS FOX Serie FOX NEWS FOX LIFE HD	otal of 851 satellite services. me of service to filter individually, or leave t	blank and click on green s SID 16 29851 30901	Search button to select full listing.	ADD MANUALLY
Last scan found a to Type in specific nam FOX SEARCH RESULTS FOX Serie FOX NEWS FOX LIFE HD FOX LIFE	otal of 851 satellite services. me of service to filter individually, or leave t	blank and click on green a	search button to select full listing.	ADD MANUALLY
Last scan found a to Type in specific nam FOX SEARCH RESULTS FOX Serie FOX NEWS FOX LIFE HD FOX LIFE FOX	otal of 851 satellite services. me of service to filter individually, or leave t	SID SID 16 29851 30901 29800 29807	search button to select full listing.	ADD MANUALLY

To obtain more information about a particular service, click over the name of the service. For example, clicking over FOX LIFE HD service, the following window will open:

FOX LIFE HD

SID	30901
AUDIO LANGUAGES	qaa, spa
ENCRYPTED	yes

TRANSPONDER INFORMATION

SATELLITE	19.2° E
POLARITY	Vertical Low
FREQUENCY	11256 MHz
	ADD SERVICE

To add the service to the output, push "ADD SERVICE" button. Also, it can be added from the previous screen, pushing ≥ .

$\langle \rangle$	TER > SAT)	> HDMI > FREE > OUT > :=			(\times) $(>$
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 x2 x2 x2 x4			
			PTED 📑 RADIO	SCAN	LAST SCAN WAS 03/02/2017 11:36 GMT +0
IP SAT SERVICES		RF SAT SERVICES			
Last scan found a total of 851 satellite servic Type in specific name of service to filter indiv	es. idually, or leave blank and click on green sea	arch button to select full listing.			
Last scan found a total of 851 satellite servic Type in specific name of service to filter indiv FOX	es. idually, or leave blank and click on green sea	arch button to select full listing.		ADD	MANUALLY +
Last scan found a total of 851 satellite servic Type in specific name of service to filter indiv FOX SEARCH RESULTS	es. idually, or leave blank and click on green sea Q	arch button to select full listing.	LANGUAGE	ADD SID	MANUALLY +
Last scan found a total of 851 satellite servic Type in specific name of service to filter indiv FOX SEARCH RESULTS Fox Serie	es. idually, or leave blank and click on green sea	SELECTED SERVICES	LANGUAGE Qaa spa	ADD SID 30901	MANUALLY +
Last scan found a total of 851 satellite servic Type in specific name of service to filter indiv FOX SEARCH RESULTS FOX Serie FOX NEWS	es. idually, or leave blank and click on green sea SID 16 29851	SELECTED SERVICES	LANGUAGE qaa spa	ADD SID 30901	MANUALLY +
Last scan found a total of 851 satellite servic Type in specific name of service to filter indiv FOX FOX SEARCH RESULTS Fox Serie FOX NEWS FOX LIFE	es. idually, or leave blank and click on green sea SID 16 29851 29800	arch button to select full listing. SELECTED SERVICES FOX LIFE HD S S	LANGUAGE qaa spa	ADD SID 30901	MANUALLY +
Last scan found a total of 851 satellite servic Type in specific name of service to filter indiv FOX SEARCH RESULTS FOX Serie FOX NEWS FOX LIFE FOX	es. idually, or leave blank and click on green set SID SID 29851 29800 29807	arch button to select full listing. SELECTED SERVICES SOLUTION SOLUTION SOLUTION	LANGUAGE qaa spa	ADD SID 30901	MANUALLY +
Last scan found a total of 851 satellite servic Type in specific name of service to filter indiv FOX SEARCH RESULTS FOX Serie FOX NEWS FOX LIFE FOX FOX HD	es. idually, or leave blank and click on green sea SID 16 29851 29800 29807 29956	arch button to select full listing. SELECTED SERVICES FOX LIFE HD S S S S	LANGUAGE qaa spa	ADD SID 30901	

One by one, search the desired services and add them to the output.

\bigcirc	TER > SAT > HDMI > FREE	> 0UT > ==			\otimes \otimes
		7 8 9 10 11 12			
			encrypted 📷 Radio	ి SCAN	LAST SCAN WAS 03/02/2017 11:36 GMT +01:
IP SAT SERVICES	RF SAT SI	ERVICES			
Last scan found a total of 851 satellite services.					
Type in specific name of service to filter individually, or leave blank a	and click on green search button to sele	ect full listing.			
3sat	Q			ADD	MANUALLY +
SEARCH RESULTS	SID	SELECTED SERVICES	LANGUAGE	SID	
3sat HD	11150	FOX LIFE HD	qaa spa	30901	
		BEIN SPORTS	ndl qaa spa	30900	
		COMEDYCENTRALHD	qaa spa	30912	
		KIKA	ger mis	28008	×
		ZDF	ger mis mul	28006	×
		3sat	ger mis mul	28007	×

NOTE : If instead of looking for a specific service, you leave the search box empty and press the Q, button , a list will appear with all the services detected in the satellite cables.

Repeat the process in the RF tap to configure the satellite services that must be conveyed in the RF network.

Image:	\odot	TER > SAT > HDMI > FREE	>@>			\otimes	
Image: Control of AST SERVICES Image: Control of AST SERVICES Image: Control of AST setellites services. State scan found a total of AST setellites services. State scan found a total of AST setellites services. State scan found a total of AST setellites services. State scan found a total of AST setellites services. State Eact setere services. State Eact setere services. State Eact setere services. State Eact set set setere services. State Eact set set set set set set set set set se			27 8 9 10 11 12				
Last scan found a total of 851 satellite services. Type in specific name of service to filter individually or leave blank and click on green search button to select full listing. Sat SEARCH RESULTS Sat SEARCH RESULTS ALT RESULT SEARCH RESULTS SEARCH RESULTS <td c<="" td=""><td>IP SAT SERVICES</td><td>RF SAT SE</td><td>RVICES</td><td>ncrypted 📷 radio</td><td>S SCAN</td><td>LAST BCAN WAS 03/02/2017 11:36 GMT</td></td>	<td>IP SAT SERVICES</td> <td>RF SAT SE</td> <td>RVICES</td> <td>ncrypted 📷 radio</td> <td>S SCAN</td> <td>LAST BCAN WAS 03/02/2017 11:36 GMT</td>	IP SAT SERVICES	RF SAT SE	RVICES	ncrypted 📷 radio	S SCAN	LAST BCAN WAS 03/02/2017 11:36 GMT
SEARCH RESULTS SU SELECTED SERVICES LANGUAGE SU 3sat HD 11150 Image: Spanner Single Si	Last scan found a total of 851 satellite services. Type in specific name of service to filter individually, or leave blank and 3Sat	d click on green search button to sele	tt full listing.		ADD	MANUALLY	
SPA SPA BEIN SPORTS ndl qaa spa 30900 COMEDYCENTRALHD qaa spa 30912 KIKA ger mis 28008 ZDF ger mis 28006	SEARCH RESULTS	<u>SID</u> 11150	SELECTED SERVICES	LANGUAGE	SID 30901		
COMEDYCENTRALHDqaa spa30912Image: SpaKIKAger mis28008Image: SpaZDFger price28006Image: Spa			BEIN SPORTS	spa ndl qaa spa	30900		
KIKA ger 28008 X mis mis X ZDF ger 28006 X			COMEDYCENTRALHD	qaa spa	30912		
ZDF ger 28006			KiKA	ger mis	28008	×	
mul			ZDF	ger mis mul	28006	×	
3sat ger 28007 X mis mul			3sat	ger mis mul	28007	×	



Push 🕑 button to advance to the next step.

Step 3: HDMI services selection

\bigcirc		\otimes \otimes
	100 110 100 100 100 100 100 1 2 3 4 5 6 7 8 9 10 11 12	
IP HDMI SERVICES	RE HDMI SERVICES	
You can enable/disable and/or rename the HDMI so	urces that IKUSI Flow manages.	
ENC 6		
SOURCE		INPUT DESCRIPTION INPUT TYPE
A		
В		-
С		
D		-

This screen allows the selection of the desired services comming from HDMI sources (DVD, STB,...).

There are two identical tabs, one for defining the HDMI services that will be conveyed in the IP network ("IP HDMI SERVICES") and the other one for defining the HDMI services that will conveyed in the RF network ("RF HDMI SERVICES").

Start with the IP tab. The screen shows all the available HDMI sources, grouped by FLOW ENC module. Each FLOW ENC has 4 HDMI inputs, labelled as A, B, C and D.

Turn on the input you want to process (in the example, A input of the FLOW ENC module inserted in the 6th slot).

\bigcirc		\otimes \otimes
IP HDMI SERVICE	ES RF HDMI SERVICES	
You can enable/disable and/or rename the	HDMI sources that IKUSI Flow manages.	
ENC 6		
SOURCE	INPUT DESCRIPTION	INPUT TYPE
A N	6-A	D HD
В		-
С		-
D		-

By default, the assigned name to the service is composed by the combination of the slot number and the connector position, in this case 6-A. If you want to change the name of the service, push \square button and edit it (in the example, the name has been changed from 6-A to STB 1).

\langle))	\otimes \otimes
			11 12	
	IP HDMI SERVICES	RF HDMI SERVICES		
You c	an enable/disable and/or rename the HDMI sources that IKU	ISI Flow manages.		
	NC D		INPUT DESCRIPTION	INPUT TYPE
	A A		STB 1	HD
	В			
1	С			-
	D			

Repeat the process in the RF tap to configure the HDMI services that must be conveyed in the RF network.

\langle)	TER > SAT > HOMI > FREE > OL	•••			\otimes \otimes
			3 9 10 11 12			
			ES			
You ca	in enable/disable and/or rename the HDMI	sources that IKUSI Flow manages.	23			
EN	NC 6					
	SOURCE		INPUT DESCRIPTION			INPUT TYPE
6	A ≤ 1		STB 1		D	HD
						-
C	D					
sh 🕥 b	outton to advance to th	e next step.				
sh 🔊 b tep 4: "I	outton to advance to th IP services for FREE"	e next step. selection				
sh 🔊 b tep 4: "I	outton to advance to th I P services for FREE "	e next step. selection FREE TER > SAT > HOM > FREE > OU				\times \bigcirc
sh 🔊 b tep 4: "I	outton to advance to th IP services for FREE"	e next step. selection TER > SAT > HOM > FREE > OU I 2 3 4 5 6 7				(\times)
sh 🔊 b tep 4: "I	outton to advance to th IP services for FREE"	e next step. selection TER > SAT > HOM > FREE > OU IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				
sh 🔊 b tep 4: "I	outton to advance to th IP services for FREE"	e next step. selection TER > SAT > HOM > FREE > OU IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				ENCRYPTED RADIO
sh 🔊 b tep 4: "I (IP Based	Dutton to advance to th IP services for FREE"	e next step. selection TER SAT HOM > FREE O TER SAT HOM > FREE O				ENCRYPTED RADIO
sh 🔊 b tep 4: "I (Based	Dutton to advance to the IP services for FREE"	e next step. selection				► ENCRYPTED ■ RADIO
sh 🔊 b tep 4: "I (Based	Dutton to advance to the IP services for FREE"	e next step. selection Image: Sate Hold (REC) text services to the IP lineup without using more IN tuners.		SOURCE	SID 277	ENCRYPTED ENCRYPTED RADIO
sh 🔊 b tep 4: "I () Based	SERVICES FOR FREE On the services added, you can add all the SERVICE DMAX	e next step. selection			SID 277	ENCRYPTED RADIO
sh 🔊 b tep 4: "I C	Dutton to advance to the	e next step. selection		SOURCE TERRESTRIAL SATELLITE	SID 277 28014	ENCRYPTED RADIO
sh 🔊 b tep 4: "I C	Dutton to advance to the IP services for FREE SERVICES FOR FREE on the services added, you can add all the TV SERVICE DMAX ZDF_NEO ZDFINFO ZDFINFO	e next step. selection		SOURCE SOURCE TERRESTRIAL SATELLITE SATELLITE	SID 2777 28014 28011	ENCRYPTED RADIO

This screen shows a list with all the services (TV and radio) that shares mux with the already selected services in the previous steps, but have not been added by the user.

Taking for granted that the IP network has enough bandwidth, these services could be added to the IP channel line up without using any additional hardware ("IP SERVICES FOR FREE").

If it so wishes, you can add any of these services in this screen.

Push 🕑 button to advance to the next step.

Step 5: Output RF channels selection

$\langle \rangle$		TER > SAT >	HDMI > FREE > OUT >			\otimes \otimes	
				10 11 12			
						SCAN LAST SCAN WAS 05/02/2017 11:35 GMT +01:00	
OUTPU	T CHANNELS						
C21 flow	C22 flow	C23 flow	C24 flow	C25	C26	C27	
C28	C29	C30	C31 뒨	C32 뒨	C33	C34	
C35	C36	C37	C38	C39	C40 ∋	C41 Э	
C42	C43	C44	C45	C46	C47	C48	
C49	C50	C51	C52	C53	C54 →	C55	
C56	C57	C58	C59	C60	C61	C62	
C63	C64	C65	C66	C67	C68	C69	

This screen allows to select the output RF channels where the contents will be transmitted.

By default, the headend choose the output channels automatically, using the first ones that were declared as eligible. The used channels will labelled with the flow icon.

There are two reasons why a channel could be declared as non-eligible:

- 1. The headend has detected another signal in the installation that is using that channel, and, therefore, it could cause some interference. Those channels are labelled with the \exists icon. You can relaunch the detection of external signals that has not been generated by Ikusi Flow pushing the "SCAN" button.
- 2. The user has decided manually that channel should not be used. To do that, you must click over the channel. The channel will become red and automatically the headend will leave to use it.

\bigcirc		TER > SAT >				\otimes \otimes
		1 2 3		10 11 12		
						SCAN LAST 6CAN WAS 09/02/2017 11:85 GMT+01-00
OUTPUT	CHANNELS					
C21 flow	C22 flow	C23	C24 flow	C25 flow	C26	C27
C28	C29	C30	C31 	C32	C33	C34
C35	C36	C37	C38	C39	C40 - 권	C41
C42	C43	C44	C45	C46	C47	C48
C49	C50	C51	C52	C53	C54 -∋	C55
C56	C57	C58	C59	C60	C61	C62
C63	C64	C65	C66	C67	C68	C69

Push 🕑 button to advance to the next step



The summary screen allows to perform the last adjustments over the channel line-up before being sent to the headend. There are two tabs, one related with the services that will be conveyed in the IP network ("IP SERVICES LISTING") and another one with the services that will conveyed in the RF network ("RF SERVICES LISTING").

Select "IP SERVICES LISTING" tab. This tab shows a list with all the services that are going to be conveyed over IP, with a multicast address that has been assigned automatically. The user could perform the following adjustments over the channel list:

- INITIAL IP: the headend assigns multicast IP address automatically starting from 239.255.4.1 address. If this range was not the proper one (because it is already in use or because it has been reserved by the network manager for other purposes), you must change the initial IP and push OK button.
- RESET PORT: by default, the headend uses the 1234 port in all the multicast channels. If you want to change it, edit the port in the RESET PORT box and push OK.
- LANGUAGES: the headend has two working modes, separated languages or combined languages. When separated languages mode is selected, in the case a multi-language service, one multicast stream will be generated for each language. When combined languages mode is selected, a single multicast stream will be generated. That stream will include all the languages of that multi-language service.
- IP: you will be able to edit the IP address and port, suggested automatically by the headend, individually. To do that, click over 🖉 button and configure the desired IP address and port.
- SERVICE NAME TO SHOW: you can change the service name that will be shown in the TV. To do that, edit the name suggested by the headend pushing 🖉 button.
- LANGUAGE: you can delete the audio channels (languages) of a particular service that you don't want to transmit. To do that, click over the audio channel, and it will become red, indicating that it has been deleted.
- CAM: the headend automatically decides which CAM will decrypt a particular service. The user can cancel this selection, and choose manually the proper CAM, among the list of the CAMs that are inserted in the headend.
- SERVICE REMOVAL: if you want to fully remove a service from the IP channel line-up, push 🗴 button corresponding to that service.

IP	SERVICE LISTING	RF SERVICE LISTING			
Check the new services	added.				
Reset multicast IP can be Reset multicast port for Languages can be togg	be changed manually and selecting OK b r all entries an once with Reset port . Ied between combined&separate by sele	outton. ecting as required.			
INITIAL IP 239.255.4	OK RESET PORT 1	234 OK LANGUAGES Combined •			
<u>IP</u>	SERVICE NAME TO SHOW		LANGUAGE	САМ	
239.255.4.9			Ø AAØ		×
			SPA 🗸		
239.255.4.1			D NOL Ø		×
			SPA 🗸		
239.255.4.3	BEIN SPORTS		D NDL Ø	Autoselect	• ×
			QAA Ø		
			SPA 🗸		
239.255.4.4			Ø AA Ø	Autoselect	• ×
			SPA 🗸		

After doing all the desired changes over the IP channel line-up, you should perform a similar process over the RF channel line-up. To do that, select the "RF SERVICE LISTING" tab.

			\otimes
			encrypted 📷 Radio
IP SERVICE LISTING	RF SERVICE LISTING		
Languages can be toggled between combined&separate by			
INITIAL LCN/VCN 1 OK LANGUAGES Com	selecting as required.	LANGUAGE CAM	
INITIAL LCN/VCN 1 OK LANGUAGES Com	selecting as required. Ibined •	LANGUAGE CAM QAA Ø SPA ✓	×
INITIAL LCN/VCN 1 OK LANGUAGES Com	selecting as required.	LANGUAGE CAM QAA Ø SPA ✓ QAA Ø SPA ✓	×

This tab shows a list with all the services that are going to be conveyed over RF with an LCN/VCN that has been assigned automatically. The LCN/VCN value corresponds with the LCN parameter in the case DVB signalling was used or with the minor_channel_number (VCN) parameter in the case ATSC signalling was used. The user could perform the following adjustments over the channel list:

- INITIAL LCN/VCN: the headend assigns LCN/VCN values automatically starting from 1. If this range was not the proper one (because it is already in use or because it has been reserved by the network manager for other purposes), you must change the initial LCN/VCN and push OK button.
- LANGUAGES: the headend has two working modes, separated languages or combined languages. When separated languages mode is selected, in the case a multi-language service, one service will be generated for each language. The separation is done at logical level, i.e., the used bandwidth is the same as the used with a single service conveying all the languages; however the TV is detecting several independent services. Therefore, the final user can select the desired language simply changing the channel. When combined languages mode is selected, a single service will all the languages will be generated.
- LCN/VCN: you will be able to edit the LCN/VCN value suggested automatically by the headend, individually. To do that, click over 2, button and configure the desired LCN/VCN.
- SERVICE NAME TO SHOW: you can change the service name that will be shown in the TV. To do that, edit the name suggested by the headend pushing 🖉 button.
- LANGUAGE: you can delete the audio channels (languages) of a particular service that you don't want to transmit. To do that, click over the audio channel, and it will become red, indicating that it has been deleted.
- CAM: the headend automatically decides which CAM will decrypt a particular service. The user can cancel this selection, and choose manually the proper CAM, among the list of the CAMs that are inserted in the headend.
- SERVICE REMOVAL: if you want to fully remove a service from the RF channel line-up, push 🗴 button corresponding to that service.

After doing all the required adjustments over the IP and RF channel line-ups, push dutton to apply the configuration to the headend. After a while, the configuration will have been applied, the wizard will close, and the "Home" screen will appear again.

3.6 "Home" screen review

After applying the configuration, the "Home" screen will have a look as the following one:

	DTV 1 ASTRA 19.2° E				FAGC	or				≡ м	ENU
				$\begin{array}{c c} & & & & \\ & & & \\ & &$	SEC P 5 6 5 6 5 6	C OUT A B C D 7 8 SAT 5 SAT 6 SAT	9 10 7 SAT 8	11 12 TV TEST TV OUT			
SERVICE WIZARD											
		IP SERVICE LISTING			RF SERVI	CE LISTING					
	<u>IP</u>	SERVICE				SERVICE NAME TO SH	<u>IOW</u>			LANGUAGE	
	239.255.4.1	La 1				La 1				qaa spa	
	239.255.4.10	GOL				GOL				nol spa	
	239.255.4.12	BEIN SPORTS				BEIN SPORTS				ndl qaa spa	6

In this screen you can see a list of the configured services, in IP and in RF. In the case any of them fails, it become red.

Also, from this screen you will be able to:

• Change the RF output level. To do that, push TV OUT connector. A window with a slider will open. Move the slider to adjust the output level.



• Obtain information about the coaxial cables that are connected to each input, clicking over the connector.

CONNECTOR INFORMATION

SATELLITE	Astra 19.2° E
POLARITY	Horizontal High
NUMBER OF SATELLITE SERVICES FOUND	468
NUMBER OF SATELLITE MUXES FOUND gular	30
TYPE OF LNB	Quattro

• Obtain information about each module. When you click over a module, a window opens, with information about position, serial number, hardware version, firmware version, temperature, other data related to each particular module, and data about the TV processing that it is performing. From this window, the module can be rebooted pushing "REBOOT" button.

MODULE INFORMATION

SLOT NUMBER	2
SERIAL NUMBER	4314SB013455
HARDWARE VERSION	2
FIRMWARE VERSION	2.2.0+alpha10.8.gaf453b6+d201702
GIGABIT SWITCH FIRMWARE VERSION	dev-build by sergio@sergio-Precisior T1600 2014-10-30T15:02:50+01:00 Config:web_switch_sparxIII_26_I26_r
TEMPERATURE	38°C
CONTROL NETWORK INTERFACE MAC	78:a5:04:cb:a4:82





Fagor Multimedia Solutions SL.

Araba hiribidea, 34 E-20500 Mondragón - Guipúzcoa Tel: +34 943 71 25 26 e-mail: rf.sales@fagorelectronica.es www.fagorelectronica.com

Donostia Ibilbidea, 28 E-20115 Astigarraga - Guipúzcoa Tel:+34 943 44 89 44 e-mail: support@fagormultimedia.com www.fagormultimedia.com

