DAB+ headend aXemble manual V2.0

Broadcast Partners January 2020



Authors: Davy van Delft / Rene van de Kolk

Number: Tnz 202635

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Introduction

The aXemble headend is a DAB+ multiplexer solution that gathers different DAB+ program services and their audio-and data sources and produces the necessary signalling and EDI output required for DAB+ transmission.

The aXemble headend has a user-friendly web interface to configure audio and data sources, program services and the multiplex, available as a 19" hardware or cloud solution.

Besides the headend (aXemble MUX), a standalone aXemble Audio and Data encoder (aXemble ENC) is separate available to provide effectively and interference free audio quality by avoiding codec cascading.

A cloud connector appliance is also available for transport of the EDI output over congested networks like the internet. (aXemble CC)

In this document we describe the aXemble DAB+ headend V2.0 released in January 2020. The information in this document has been compiled with the utmost care. However, any liability is excluded for inaccuracies, incompleteness and any consequences of acting or omitting to act on the basis of the information available in of via this document.





Features overview

General

- $19^{\prime\prime}\,x$ 1U housing with front panel display and control or as a cloud

appliance.

- HTML5 user-friendly web interface
- EDI output
- Redundant power supply (optional)
- Synchronisation via NTP
- Full 864 CU multiplex configuration
- Configuration backup and restore options
- Firmware update options
- Scheduled maintenance options
- Full remote control
- SNMP monitoring
- Logging and email notification

Audio sources (Main and backup audio source configuration)

- Analog and digital input (available in hardware solution only)
- Stream input (Icecast / Shoutcast)
- PCM stream
- Icecast source client (BUTT, Ices, EZstream, Rocket Broadcaster etc.)
- aXemble Encoder (has all here mentioned audio source options)
- Livewire
- AES67 / Ravenna
- AVT Magic DAB+ encoder
- Gstreamer
- SIP connection (RTP)
- SDP file
- MP3 files

Services

- Audio: HE-AAC v1, HE-AAC v2 , AAC-LC (16-192 kbps)
- Data: TPEG
- Protection levels EEP-A and EEP-B

PAD insertion (DLS(+) and SLS/MOT Slideshow

- Static
- UECP stream (RT)
- FTP download
- Icecast/Shoutcast stream extraction
- RSS feeds (DLS and image)
- JSON URL
- ICY text

Output

- EDI unicast and multicast
- FEC and interleaving
- Cloud connector secure transport

Network

- 2x Gbit Ethernet network interface (Control and Data)
- Routing over control or data interface configuration

Tools

- NTP statistics
- Show network and routing settings
- Ping a host
- Traceroute
- Speedtest

aXemble product line

The aXemble product line consists of 4 products:

1. aXemble MUX (IPC based multiplexing headend)



The aXemble MUX is an appliance with optional analog and digital audio inputs built in a convenient 19" 1HU rack casing.

With the help of a user-friendly front panel access and web interface, the unit can be configured quickly and controlled from anywhere. All mentioned inputs are supported.

The output of the aXemble MUX is an EDI (UDP) stream and needs to be transported over a LAN to the transmitter.

Transporting the EDI output over congested networks like the internet is possible when using the aXemble connector.

2. aXemble as a Service (Cloud based multiplexing headend)

	Dashboard		🛗 Scheduler 📑 Manual 🔒 Logout 🕫 Settings
(1) DASHBOARD	The log contains 4 messages		Clearing Version
 WALTPROES SEMMOS GOMOS 	Multiplex: DAB MUX Extended (E. 1972). Load: DAB MUX. Total caperty 845 CVI – Available: 408 CVI – In une: 456 CVI – 14601 14601 14602	100.00 and	
	CKE FM State of United Hanness Hanness State of United Hanness Hanness State of United Hannes	Grand Prox Radi Met diverse little in the manufacture set Region in the set of the set of the set region in the set of the set of the set region in the set of the set of the set of the set region in the set of the set of the set of the set of the set region in the set of	Radio Capital Still Diverse Tables - Hith Discussionary
	TOPrado Se of prime of the stress measurements Top of the st	Radio Sputnik N., soliti Carlo Vitage Alexandro Handia Tara da Santa da S	Classifier to an of officer of their share waters to an of officer of the share waters to an officer office

The aXemble as a service is the cloud based solution running on a Virtual Private Server (VPS) in the cloud. The user-friendly web interface can be accessed from anywhere and makes configuration easy.

The aXemble as a service can handle stream inputs.

All of the mentioned inputs can be used when using the aXemble ENC for remote encoding (for instance in the studio)

The output of the aXemble as a Service headend is transported over the internet to the transmitter by using the aXemble connector. VPS requirements: 2 core XEON CPU, 2 GB RAM and 20 GB storage, Debian OS

3. aXemble ENC (IPC based encoder)



The aXemble ENC is an appliance with analog and digital audio inputs built in a convenient 19" 1HU rack casing.

With the help of a user-friendly front panel access and web interface, the unit can be configured quickly and controlled from anywhere. All mentioned inputs are supported.

The encoder actively communicates with an aXemble DAB+ multiplexing headend and automatically follows changes to service settings when they are made.

Service settings like audio parameters, labels, DLS, MOT Slideshow and dynamic content can be changed in the aXemble ENC without interrupting other configured services in the multiplex running on the aXemble MUX or aXemble as a Service.

This way participants in an ensemble will have easy control over their own service.

4. aXemble connector (IPC based converter)



The aXemble connector is an appliance built in a small 1HU casing and can be used to transport the EDI stream over congested networks like the internet to the transmitter. With the help of a user-friendly front panel access and web interface, the unit can be configured quickly and controlled from anywhere. The aXemble connector uses a secure connection to the aXemble MUX or aXemble as a Service headend.

Example application configurations

Some examples of available configuration options:

1 aXemble headend on transmitter site and audio inputs local or via LAN/internet

aXemble hardware solution



2 aXemble encoders in studio and aXemble headend on transmitter site



aXemble hardware solution



3 aXemble headend cloud solution with aXemble encoders in studio



Login and first time configuration

The aXemble headend hardware appliance is configured with the following IP-addresses:

Control interface (CTRL)	:	IΡ	192.168.12.34
Data interface (DATA)	:	IΡ	10.0.0.10

The Control interface has a permanent second IP address (192.168.12.35) for recovery purposes.

When assigning a static IP address on a laptop or PC in the range of one of the above IP-addresses, i.e. 10.0.0.10, the web interface can be opened by using <u>http://192.168.12.34</u>, <u>http://192.168.12.35</u> or <u>http://10.0.0.10</u>

To logon, the default username and password are *admin* and password

	100
4	admin
8	
	Logi

Then from the SETTINGS menu in the top right corner, the network settings can be changed.

aXemble	Dashboard	🛗 Scheduler	🖹 Manual	Logout	Settings
DASHBOARD	✓ No log messages			Clear log	View Log
MULTIPLEXES	No multiplex actived				
services	Please create and activate a multiplex				

aXemble	Settings		🛗 Scheduler	Manual	Logout	¢ Settings	*
🔐 DASHBOARD	NEW PASSWORD						
MULTIPLEXES	(REPEAT)						
Sources	Please fill in your prefer	ences				10	
	IP ADDRESS	192.168.12.34	Network configure	ation info			
	SUBNET	255.255.255.0	Shows current network con	ifiguration			ł
	GATEWAY	192.168.12.254	IP-address / Hostname	: (i.e. 8.8.8.8)			l
			Show network configu	ration Ping	Traceroute		I
	Data interface Please fill in your prefer	ences	Speedtest				l
7 102	IP ADDRESS	10.0.0.10					I
	SUBNET	255.255.255.0					I
	GATEWAY	10.0.0.254					I
10 M	DNS RESOLVER 1	8.8.8.8					ł
	DNS RESOLVER 2	1.1.1.1					
	Routes					H SAVE	÷
Press the Sav to save the c	ve button in th hanges made	ne right bottom	corner				

Press the *Reboot* button from the *Maintenance* section in the left top corner to Reboot the aXemble and apply changes

After changing the IP settings and connecting to the aXemble headend again, the Timezone settings can be changed in the *Settings* menu. See 5. Settings on page 20.

Configuring and running a multiplex

Configuring a multiplex takes 4 steps:

- 1 Configure audio and/or data sources first
- 2 Configure services and bind a configured audio or data source to it.
- 3 Configure a multiplex and add configured services to it
- 4 Activate a configured multiplex from the multiplexes overview

Work your way up from the bottom of the menu on the left side

aXemble						
æ	DASHBOARD					
	MULTIPLEXES					
Ţ	SERVICES					
ନ	SOURCES					

Audio and Data sources 1.

aXemble	Sources	#		o°,	Î
DASHBOARD	Sources overview				
MULTIPLEXES	NAME SOURCE				
SERVICES	GrandPrixRadio Stream				
	OKE FM Icecast source client (BUTT, Ices, Ezstream etc.)		/		
	R101 stream HQ Stream		1		
100	Radio Sputnik NL MP3 file(s)				
	SDP-file sdp-file		/		
77 - 24	TOPradio stream Stream				
1 - Alexandre	TPEG Data TPEG				
1 the second	+ New Audio source + New Data source				
	Li Taul and ensure 7				1
SE C	um rotal audo sources: /				1

Audio and Data sources main page

The audio and data sources overview can be shown by selecting SOURCES from the main menu on the left.

Press <i>New Audio source</i> or <i>New Data source</i> to add a new source	+ New Audio source	+ New Data source
Press the <i>Edit</i> icon on the right to edit an existing source		

General audio settings:

dit source preferences		NAME: Provide a name for the audio source for easy selection when adding an audio source to a service. (required)
NAME	GrandPrixRadio	
COMMENT		<i>COMMENT:</i> Provide a more detailed description of the audio source if needed. (optional)
TYPE	Stream	<i>TYPE:</i> Select the type of audio source used:
STREAM	http://214.141.167.19:9780/stream	- Analog (Analog input left and right XLR) This option is only available in an aXemble hard-
CDC	Enabled Disabled	ware appliance
	▲ CLOCK DRIFT COMPENSATION	- Digital (XLR)
ICY OVERRIDE	Enabled	This option is only available in an aXemble hard- ware appliance
	▲ USE ICY AS DLS TEXT	- Stream (Icecast of SHOUTcast stream)
GAIN	0 dB	- Stream - PCM (PCM stream from device)
		Rocket Broadcaster etc.)
		- Livewire host connection
		- aXemble encoder connection
		- SDP file configuration for AFS67 Ravenna
		Dante available
		GAIN: gain that can be applied by the encoder

O an and			
General Edit source preferences			<i>NAME:</i> Provide a name for the data source for easy selection when adding an data source to a service. (required)
NAME	TPEG Data		
COMMENT		A	<i>COMMENT:</i> Provide a more detailed description of the audio source if needed. (optional)
TYPE	TPEG	•	TYPE: Select the type of data source used:
UDP INPUT PORT	9250		- TPEG
DATA TYPE	enhanced packet	¥	<i>UDP INPUT PORT:</i> Port number where TPEG data is sent to
PACKET ADDRESS	2	*	
DATAGROUP	Yes	Ŧ	DATA TYPE: Select enhanced packet or packet type
			PACKET ADDRESS: Packet addres to select
			DATAGROUP: Yes / No : Yes when data is grouped

General data settings:

Audio source types:

TYPE	Stream
STREAM	Analog input Digital input Stream
CDC	Stream – PCM Icecast source client (BUTT, Ices, Ezstream etc.)
/ OVERRIDE	Livewire host aXemble encoder AVT Magic DAB+ GO SIP connection sdp-file MP3 file(s)

After selecting the desired audio source, the following required values will be shown per source type:

Analog input:	- Select analog input 1 or 2
Digital input:	- Select digital input 1 or 2
Stream:	 Stream URL CDC enabled/disabled (Clock Drift Compensation) to compensate clock differences between source and aXemble ICY override enabled/disabled use ICY text from stream and override DLS text
Stream PCM:	- Stream URL - Fourcc <i>(4 bytes indicator for used data format s16l , s24l)</i> - Sample rate <i>(source sample rate 48 kHz or 32 kHz)</i>
Icecast source client:	 Username (create username and apply in source client) Password (create password and apply in source client) Listening port (allowed port range is indicated)
Livewire host:	 Host IP address Channel (SDP settings will be generated internally)
aXemble encoder:	 Username (create username and apply in aXemble encoder) Password (create password and apply in aXemble encoder)
AVT Magic DAB+ Go:	- input URI - Control port - PAD port
SIP connection:	- Registrar IP address - Username - Password - Dial number
SDP-file:	- SDP file content as text (<i>sdp file can be uploaded or content can be typed or pasted</i>)
MP3 file:	- Name (name will be used to generate a unique upload location)

Examples:

Stream:

TYPE	Stream 🔻
STREAM	http://214.141.167.19:9780/stream
CDC	Enabled Disabled CLOCK DRIFT COMPENSATION
ICY OVERRIDE	 Enabled Disabled USE ICY AS DLS TEXT
GAIN	0 dB •

Analog input:

TYPE	Analog input	¥
ANALOG SERVICE	1	•

SDP file:

SDP FILE	Place your SDP file contents here or upload a file below
	Bestand kiezen Geen bestand gekozen

Save / Delete settings

H SAVE

DELETE

Remember to save all settings by pressing Save in the right bottom corner.

2. Services

aXemble	Services					🛗 S	cheduler 📑 N	lanual	Logout	📽 Settings
 dashboard multiplexes 	Service overview Add, edit or remove service NAME	ces SERVICE ID	AUDIO TYPE	AUDIO CODEC	BITRATE	PROTECTION	AUDIO SOURCE			
SERVICES	OKE FM	A527	Stereo/32kHz	HE-AAC v2	48 kbps	EEP 3-A	OKE FM			1
	Grand Prix Radio	8998	Stereo/48kHz	AAC-LC	120 kbps	EEP 2-A	GrandPrixRadio			 2
Sources	Radio Capital	5072	Stereo/48kHz	AAC-LC	96 kbps	EEP 3-A	OKE FM			 41
	TOPradio	6453	Stereo/48kHz	AAC-LC	96 kbps	EEP 3-A	TOPradio stream			2
	Radio Sputnik NL	8996	Stereo/48kHz	AAC-LC	144 kbps	EEP 3-A	TOPradio stream			 4
579	TPEG BeMobile	E183185		AAC-LC	32 kbps	EEP 1-A	TPEG Data			 2
17	classicnl	83C3	Stereo/48kHz	HE-AAC v2	64 kbps	EEP 3-A	R101 stream HQ			 41
	+ New Audio service	+ New Data	service							
	Lill Total services: 7									
<u>- 7 2</u> 2										

Services main page

The services overview can be shown by selecting SERVICES from the main menu on the left

ø

Press *New Audio service* or *New Data service* to add a new service

+ New Audio service	+ New Data service
---------------------	--------------------

Press the *Edit* icon on the right to edit an existing service

aXemble	Edit service			🛗 Sched	uler 🖺 Manual 🔒 Logout 📽 Settings
DASHBOARD	General Please fill in your prefere	nces		Audio source Please fill in your prefere	nces
SERVICES	NAME	Grand Prix Radio		MAIN SOURCE	GrandPrixRadio
Sources	COMMENT			BACKUP SOURCE	- Select -
	LABEL	Grand Prix Radio		PAD, DLS and Slideshow itself! SWITCHOVER TIME	settings for encoders are handled on the Encoder
	SHORT LABEL	GP Radio			▲ (5-60) SECONDS : SWITCHOVER AFTER SILENCE DETECTED FOR SECONDS
in the second	REGION	International	Ŧ	Program Associ	ated Data (PAD) (for Main source)
and the second	PROGRAM TYPE	Sport (4)	×	PAD size (bytes) affects Choose a pad size that s Slideshow in a desired ti	the effective audio bitrate. Lower is better uites the need for transferring the DLS and/or me window
Sala	COUNTRY	Netherlands (8)	×		
100 m <	SERVICE ID	8 998		PAD SIZE	58 (8-196) BYTES
Sec. 1.	LANGUAGE ID	Dutch (1D)	¥		
				DLS and MOT sl	ideshow (for Main source)

Edit services main page

General Please fill in your prefere	ences
NAME	Grand Prix Radio
COMMENT	6
LABEL	Grand Prix Radio
SHORT LABEL	GP Radio

NAME: Provide a name for the service for easy selection when adding a service to a multiplex. (required)

COMMENT: Provide a more detailed description of the service if needed. (optional)

LABEL: Provide a label which describes the service. The label will be displayed in the services selection list on the display of the DAB+ receiver. Max. 16 characters allowed (required)

SHORT LABEL: Provide a short label of max. 8 characters containing no other than the characters used in LABEL. (case sensitive)

REGION: Select the region where the DAB transmitters will operate.

PROGRAM TYPE: Select the desired program type to identify the programme content for their intended audience.

COUNTRY: Select the country where the DAB transmitters will operate.

SERVICE ID: Provide a unique ID that identifies the service within a multiplex

LANGUAGE ID: Select the desired language to identify the programme for the receiver.

REGION	International •					
PROGRAM TYPE	Sport (4)					
COUNTRY	Netherlands (8)					
SERVICE ID	8 998					
LANGUAGE ID	Dutch (1D)					
INPUT BUFFER	960 ms RECOMMEND: 960 MS					
PROTECTION	EEP 2-A RECOMMENDED EEP-3A					
BITRATE	120 kbps •					
SAMPLE RATE	48 kHz 32 kHz 48 kHz 32 kHz 48					
AUDIO MODE	● Stereo ● Mono ● Parametric Stereo					
SBR	Oisabled O Enabled					
CAPACITY	120 CU					

MAIN SOURCE	GrandPrixRadio 🔻 🖊
BACKUP SOURCE	- Select -
PAD, DLS and Slideshow set	tings for encoders are handled on the Encoder itself!
SWITCHOVER TIME	10
	 (5-60) SECONDS - SWITCHOVER AFTER SILENCE DETECTED FOR SECONDS
Program Associate	ed Data (PAD) (for Main source) effective audio bitrate. Lower is better

PROTECTION: Select a desired Equal Error Protection (*1). EEP-3A is the most common used protection.

BITRATE: Select a desired bitrate. >= 96 kbps is recommended for music. aXemble sets the sample rate, audio mode and SBR to recommended settings.

SAMPLE RATE: Select a desired sample rate. The DAB+ encoder resamples the input. When using AES input, the chosen sample rate must match the sample rate of the AES input signal.

AUDIO MODE: Select a desired audio mode. Parametric Stereo is disabled and cannot be used in combination with bitrates above 64 kbps. See table 1. for recommended settings.

SBR: Spectral Band Replication is an option to enhance audio or speech codecs, especially at low bit rates. SBR cannot be used for bitrates above 128 kbps.

CAPACITY: Capacity shows the CU's (Capacity Units) that the service occupies in the whole service. 864 CU's max.

AUDIO SOURCE: Select an audio source needed for the service. (required) Backup audio source provides the possibility to add a secondary feed. In case of interruption automatic switchover is available. Time settings for switchover adjustable from 5 till 60 seconds before watchdog activates backup source switched on air. Manual reset to main feed is the preferred way to manage. (referring to latency times in STL)

PAD: Select the preferred PAD size for the associated data file. Choose a pad size that suites the need for transferring the DLS and/or Slideshow in a desired time window.

STATIC DLS TEXT	GP Radio
	▲ MAX. 128 CHARACTERS. WILL BE INSERTED AT START AND WHEN NO DYNAMIC DLS IS AVAILABLE.
DYNAMIC DLS TYPE	UECP
INCOMING PORT	
	▲ (5000 - 9000)
lideshow (v-i	
ITUESTION (for Main source)	
	GRAND
SLIDE 1	KAND SEPRIX RADION
SLIDE 1 SLIDE 2	RADIO
SLIDE 1 SLIDE 2 NEW SLIDE	RANN RANN RANN RANN RANN RANN Bestand klezen Geen bestand gekozen

STATIC DLS TEXT: Provide text that will be shown when there is no Dynamic DLS available

DYNAMIC DLS TYPE: Select a dynamic DLS type:

- UECP (RT text to DLS)
- RSS feed (Text and image from RSS feed)
 JSON url (Text and image from JSON webpage)

- FTP download (download image and text from FTP url at given intervals)

SLIDESHOW: Upload images for MOT slideshow.

Table 1: Recommended Audio mode settings

Bitrate	Sample rate	Audio mode	PS recommended	PS availa- ble	SBR recommen- ded	SBR avai- lable
24	32	stereo	V	V	V	V
32	32	stereo	V	٧	V	٧
40	32	stereo	V	V	V	V
48	32	stereo	V	٧	V	٧
56	48	stereo	V	V	V	V
64	48	stereo	V	V	V	V
72	32	stereo			V	٧
80	32	stereo			V	٧
88	32	stereo			V	V
96	48	stereo				٧
104	48	stereo				V
112	48	stereo				V
120	48	stereo				V
128	48	stereo				V
136	48	stereo				
144	48	stereo				
152	48	stereo				
160	48	stereo				
168	48	stereo				
176	48	stereo				
184	48	stereo				

192

Save / Delete settings

Remember to save all settings by pressing *Save* in the right bottom corner.

Optionally you can delete a service by pressing Delete

3. Multiplexes

aXemble	Multiplexes	🛗 Scheduler 🗎 Manual 🔒 Logout 🛭 📽 Settings
dashiboard multiplexes	Multiplex overview Add, edit or remove multiplex NAME COMMENT	SUBSERVICES
services	DAB Multiplex	6 Activate Show Config Schedule
Sources	+ New multiplex	

Multiplexes main page

The multiplexes overview can be shown by selecting MULTIPLEXES from the main menu on the left

Press New Multiplex to add a new multiplex	+ New multiplex					
Press the <i>Edit</i> icon on the right to edit an ex-						
Press the <i>Duplicate</i> icon on the right to clone an existing multiplex for easy editing						
When a multiplex is inactive, the following buttons are visible:						
Activate Show coming Schedule						
When a multiplex is active, the following buttons are visible:						
Deactivate Update Show Config Schedule						
Press the <i>Activate</i> button to activate a multiplex and begin transmission						
Press the <i>Deactivate</i> button when a multiplex Deactivate is active						

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Update

the active multiplex to apply changes immediately

Press the *Show config* button to get a listing of all configured multiplex settings

Press the *Schedule* or *Scheduler* button to schedule actions on the multiplex (update and restart, activate and de-activate)

Sh	ow Config
	Scheduler
Sc	bedule

Edit a multiplex:

aXemble	Edit multiplex		🛗 Scheduler	🖺 Manual	A Logout	o: Settings
Cashidoand	General Please fill in your preferences					
	NAME	DAB Multiplex				
Sources	COMMENT					e
	DABMODE	1 • 0 MEN ® SEN				
		▲ 0-20 SEC MAXIMUM				
	COUNTRY	Netherlands (8)				-
	LOCAL TIME OFFSET	auto				,
	LANGUAGE ID	Dutch (1D)				•
	LABEL	DAB MUX A 16 CHARS. MAXIMUM				
	SHORT LABEL	DAB MUX + II CHARS MAXIMUM				
	Services Please fill in your preferences					
	NAME COMMEN				DELETE	H SAVE

Multiplexes main page

NAME	DAB Multiplex	
COMMENT		
DABMODE	1 • MEN ® SEN	
SFN OFFSET	0	
	▲ 0 - 20 SEC. MAXIMUM	
COUNTRY	Netherlands (8)	
ENSEMBLE ID	8 123	
LOCAL TIME OFFSET	auto	
LANGUAGE ID	Dutch (1D)	
LABEL	DAB MUX	

NAME: Provide a name for the multiplex.

COMMENT: Provide a more detailed description of the multiplex if needed. (optional)

DABMODE: Currently only DAB transmission mode I is supported. Choose to operate the transmitter in MFN mode (Multi Frequency Network) or SFN mode (Single Frequency Network). MFN is chosen for a single transmitter and SFN is needed if more than 1 transmitter will operate in a network.

SFN OFFSET: Add a delay to compensate transport delay for SFN transmitting

COUNTRY: Select the country where the DAB transmitters will operate.

ENSEMBLE ID: Provide a 4 digit ID to identify the multiplex. For test purposes this ID can be anything but when used on-air this ID must be unique among other multiplexes.

LOCAL TIME OFFSET: Choose a system time offset if needed. Auto is the preferred selection. LANGUAGE ID: Choose the language used for services in the multiplex

LABEL: Provide a label which describes the multiplex. The label will be displayed in advanced information menus of the DAB+ receiver. Max. 16 characters allowed (required)

SHORT LABEL: Provide a short label of max. 8 characters containing none other than the characters used in LA-BEL. (case sensitive)

Add services to a multiplex:

To add services to the multiplex, select a configured service and click Add

The horizontal bar will show how many capacity units are used and how many are available.

S	ervice ease fill ir	S n your preferences							
	NAM	E	COMMENT			SERVICE ID	CU		
	≡ ОКЕ	FM				A527	36	×	3
	≡ Gran	d Prix Radio				8998	120	X	3
	≡ class	sicnl				83C3	48	X	
	≡ тор	radio				6453	72	×	3
	≡ Radi	o Capital				5072	72	×	3
	≡ Radi	o Sputnik NL				8996	108	×	3
	OKE FM	1 (service id: A527)			1 - Sele	ct	•	Add	I
c	OKE FN Grand F Radio C	I (service id: A527) Prix Radio (service id Capital (service id: 50	l: 8998) 072)					2 - A	dd
Т 3	TOPrad Radio S TPEG B classicr	io (service id: 6453) putnik NL (service i eMobile (service id: nl (service id: 83C3)	d: 8996) E183185)	2					

Multiplex destinations

The generated multiplex (EDI transport stream) can be sent to multiple transmitters.

Both unicast and multicast streams can be used.

TYPE DESCRIPTION		10.20.210.27	
TYPE DESCRIPTION			
		DEST IP	
EDI REORDERING DEPTH (INTERLEAVE)	0 ms		
REED SOLOMON EDI-FEC	3		
▲ P	PORT: 12000 - 49151		
DESTINATION PORT	2005		

DESTINATION PORT: Provide a destination port on which the transmitter will listen. The destination port is used for all destinations

REED SOLOMON EDI-FEC: FEC is a Forward Error Correction mechanism to detect and correct multiple symbol errors in the transport stream. FEC 0 can be used on LAN networks, for other networks FEC 5 is recommended.

Destinations

Add Select type (unicast/multicast) and add a description and a destination IP-address and press to add the destination to the multiplex.

Press **u** to remove a destination entry.

Save / Delete settings

Remember to save all settings by pressing Save in the right bottom corner.

Optionally you can delete a multiplex by pressing Delete.

4. Dashboard

aXemble	Dashboard		🛗 Scheduler 📑 Manual 🔒 Logout 🛛 📽 Settings
DASHBOARD	No log messages		Clear log View Log
	Multiplex: DAB MUX		
SERVICES	Ensemble id: 8123 , Label: DAB MUX , Short label: DAB MUX Total capacity: 864 CU's — Available: 408 CU's — In use: 456 CU's		
Sources	36 CU 120 CU 72 CU 72 CU	108 CU 48 CU	
	OKE FM. HE ALL'S (Desemble 4) Adapter / 22 Mark (Mathe markers)	Grand Prix Radi Aud LC (Strevel) 12 Mar / 6 Ald (Mar audo search GRANN COST 20 19 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Radio Capital Add CE Donney Hol May / Al Mc (Main Hude secred)
	TOPracio Adc La Claverel 36 Glad / dd Mar, Marke mause Sector 10 Claverel 36 Glad / dd Mar, Marke mause Sector 10 Claverel 36 Glad / dd Market Rever DLS: We love musici	Radio Sputnik N Ad:L: [Draven]: V44 Hey / 44 Hey (Man mular source)	Classicnl HC-ACC /2 (Sheen) 64 Maps, 44 Maps, Mana made marce) Classicn DLS: Klassisk twork inderem

Dashboard main page

On the main dashboard overview, general performance of the aXemble multiplexer with the channels on air in the multiplex is available. At this main page also the logout is available for the user interface. At dashboard in one overview of all services including audio indication, live DLS and SLS monitoring. Also live refresh of all SLS pictures is shown at this page. On the top of the dashboard live viewing of logs regarding aXemble performance is available.

From the dashboard the available main and backup audio sources can be checked and monitored. (Green = available, Red = not available)

Click on the main of backup button to listen to the audio source, a web player will appear and play the audio.

5. Settings

aXemble	Settings		🛗 Scheduler 📲 Manual 🔒 Logout 😋 Settings
DASHBOARD	Maintenance Please fill in your preferences	Global Settings Change app and dashboard set	tings
	Heboor Update firmware	Shutdown APP THEME	BroadcastPartners
Sources	P. J.	DASHBOARD DLS REFRESH PATE	3 • (1-60) SECONDS
1.5	Backup Create and restore backup configurations	DASHBOARD SLIDESHOW REFRESH NATE	5 • (1-60) SECONOS
A 16	Create backup	Restore backup	
	License code Please fiil in your license code	Regional Please fill in your preferences	
Sty - Ar	SYSTEM ID 0C60400FFF8530	TIMEZONE	Europe\Amsterdam •
77 - N.S.	▲ PROVIDE THE SYSTEM ID WHEN R	IEQUESTING A LICENSE NTP SERVER 1	2.nl.pool.ntp.org
	LICENSE CODE	NTP SERVER 2	1.nl.pool.ntp.org
	LICENSED SERVICES 28	Show NTP/time statistic	cs
100 m 2			
24	Administration Please fill in your preferences		
	NEW PASSWORD		HSAVE

Settings main page

The *Settings* page has 10 sections in which the following options are available:

- Maintenance (reboot, shutdown, update firmware)
- Backup (backup and restore configuration)
- License code (manage number of licensed services)
- Administration (change password)
- Control interface
- Data interface
- Routes (redirect traffic over desired interface)
- Global settings (manage theme and refresh rates)
- Regional (manage timezone and NTP settings)
- Network configuration info (check network settings and statistics)

Maintenance

Maintenance Please fill in your preferences	
Reboot	Shutdown
Update firmware	

Backup

Backup Create and restore backup configurations	
Create backup	Restore backup

License code

License code Please fill in your license code	
SYSTEM ID	0C60400FFFB530
LICENSE CODE	PROVIDE THE SYSTEM ID WHEN REQUESTING A LICENSE
LICENSED SERVICES	0

Administration

Administration Please fill in your preferences	
NEW PASSWORD	
NEW PASSWORD (REPEAT)	

Control interface

Control interface Please fill in your preferences	
IP ADDRESS	192.168.12.34
SUBNET	255.255.255.0
GATEWAY	192.168.12.254

Data interface

Data interface Please fill in your preferences	
IP ADDRESS	10.0.0.10
SUBNET	255.255.255.0
GATEWAY	10.0.254
DNS RESOLVER 1	8.8.8.8
DNS RESOLVER 2	1.1.1.1

Routes

Routes Define custom rout Valid routes will be	es here. applied immediately!			
IP address		•	Data	v
Add route				
IP ADDRESS	NETMASK		INTERFACE	ACTION

Global settings

Global Settings Change app and dashboard settings	
APP THEME	BroadcastPartners SELECT YOUR THEME (SAVE TO SHOW)
DASHBOARD DLS REFRESH RATE	3 (1-60) SECONDS
DASHBOARD SLIDESHOW REFRESH RATE	5 (1-60) SECONDS

Regional settings

TIMEZONE	Europe\Amsterdam	
NTP SERVER 1	2.nl.pool.ntp.org	
NTP SERVER 2	1.nl.pool.ntp.org	
Show NTP/time statistics		

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Network configuration info

ws current network configuration	on		
IP-address / Hostname (i.e. 8.8	.8.8)		
Show network configuration	Ping Traceroute	Speedtest	

6. Scheduler

aXemble	Scheduler		🛗 Scheduler 🛛 🗎 Manu	al 🖴 Logout 🕫 S
DASHBOARD	Scheduler You can schedule timed actions here			
	Action	Update and restart multiplex		¥
Sources	Multiplex	DAB Multiplex		•
		APLEASE MAKE SURE THE TIME IS NOT IN THE PAST. IT WILL NOT BE SC	HEDULED OTHERWISE.	
	ACTION FOR MULTIPLEX	DATETIME	Add to Schedule STATUS A	Clear finished tasks
	Update and restart multiplex DAB Multiplex	2020-03-18 00:02	**	Delete

Scheduler main page

With the Scheduler page maintenance tasks can be automated by scheduling the task to be performed at a convenient day and time.

Scheduler You can schedule timed actions	here			
Action		Update and restart multiplex		v
Multiplex		DAB Multiplex		¥
Datetime		Click here to select date		
		▲ PLEASE MAKE SURE THE TIME IS NOT IN THE PAST. IT WILL NOT E	BE SCHEDULED OTHERWIS	Ε.
			Add to Schedule	Clear finished tasks
ACTION	FOR MULTIPLEX	DATETIME	STATUS	ACTIONS
Update and restart multiplex	DAB Multiplex	2020-03-18 00:02	#	Delete

Select an Action from the dropdown list first followed by selecting the name of the configured multiplex. Choose a date and time by using the gray Date and Time selector

Click here to select date						
← May 2020						•
Su	u Mo Tu We Th Fr					
26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

Press the Add to Schedule button to add the task to the scheduler	Add to Schedule
Press the Delete button to remove a scheduled task	Delete
Press the Clear finished tasks to clear all fin- ished tasks	Clear finished tasks

