

CHAMELEON

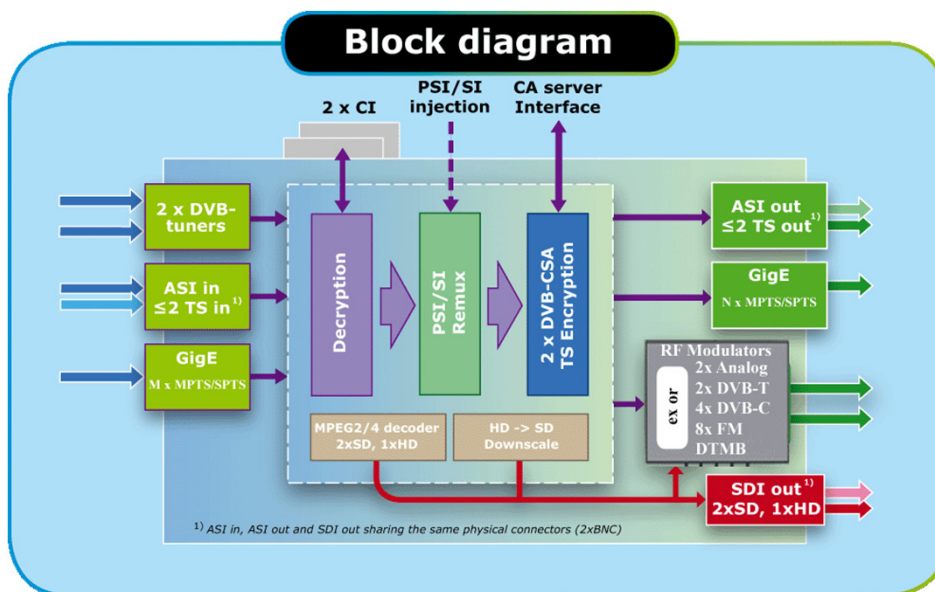
CHAMELEON - SINGLE HARDWARE PRODUCT LINE

The CHAMELEON product line covers almost every need for Cable-TV and SMATV distribution with only one hardware.

The different inputs, processing and outputs are defined by software options, and all software options can be updated at any time.

The CHAMELEON includes a dual DVB-S/S2/T(T2)/C receiver, furthermore it includes decoding of MPEG-2 and MPEG-4 video formats as well as it supports MPEG and AAC HE audio decoding.

The SW options define the different "product realisations" you can implement with the unique HW. For your specific application, you simply buy the SW options you need. When you need further functionality, just purchase additional SW options, and update the installed HW.



CHAMELEON products range from receiver, to edge, to streamer and to scrambler.

Some examples:

- Receiver DVB-S/S2/T(T2)/C
- Transmodulators
- DVB-C, DVB-T modulators
- Analog VSB RF-modulators
- FM modulator
- Edge QAM/COFDM
- MPEG2/4 SD/HD decoder
- CI multi-decryptions
- Remultiplexer multiple TS
- DVB_CSA Scrambler
- IP streamer
- ASI streamer
- SDI generator



Service and support

Support

For support information and help, please contact our support organisations. The support organisation is manned by support staff from both Sweden and Germany.

E-mail: support@chameleonconnect.tv

Telephone:

+46 141 22 91 15

+49 7233 66 621

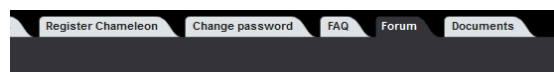
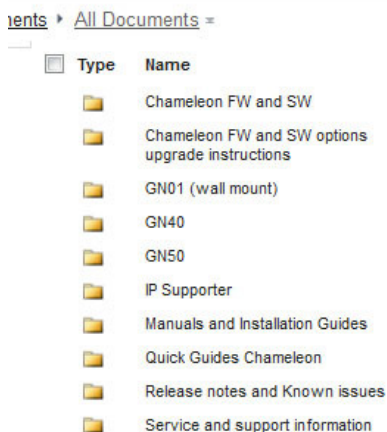
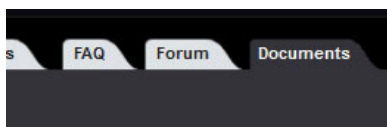
E-mails sent to the above e-mail address will be available to all support staff. The general (Swedish) support telephone number +46 141 22 91 15 will have staff answering both from Sweden and from Germany.

Chameleon installation guide

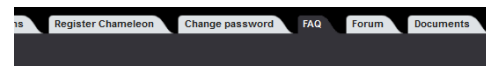
This installation guide is also available at the chameleonconnect.tv portal, under Documents/Chameleon/Installation guides.

Support information available at the chameleonconnect.tv portal

At the chameleonconnect.tv portal, there is further information and support tools. Here you will find a Forum, a FAQ section and documentation such as Release Notes and Known Issues.



Subject	Created By	Replies	Last Updated
<input type="checkbox"/> Problem with DVB-C from some IP CBR big streams.	rds@mail.ru	0	10/6/2012 10:22 AM
<input type="checkbox"/> Editing TOT/TDT	paul.kumlin@anviatv.fi	2	10/6/2012 10:17 AM
<input type="checkbox"/> Simulcast SD/HD	infos-rodier@orange.fr	0	9/27/2012 2:55 PM



Question
<input type="checkbox"/> Categories : 01. FW upgrade (1)
<input type="checkbox"/> Categories : 02. Factory reset (1)
<input type="checkbox"/> Categories : 03. Rescue mode (1)
<input type="checkbox"/> Categories : 04. Input - Satellite reception (2)
<input type="checkbox"/> Categories : 10. Service management. (1)
<input type="checkbox"/> Categories : 13. IPTV out (1)
Add new item



Content

1. Getting started	page 4
2. General information and SW options	page 5
3. The chameleonconnect.tv portal	page 5
4. Registering the Chameleon & downloading SW options	page 6
5. Upgrading the Chameleon FW & SW options	page 7
6. Connecting to the Chameleon web GUI	page 8
7. Select Operation mode	page 9
8. Add and configure inputs	page 10
8.1 Add ASI and IP inputs	page 11
8.2 Add tuner inputs	page 12
9. Add and configure outputs	page 13
9.1 Add and configure analogue PAL/SECAM outputs	page 14
9.2 Add and configure ASI, SDI and FM outputs	page 17
9.3 Add and configure DVB-T and DVB-C outputs	page 18
9.4 Add and configure IP (SPTS/MPTS) outputs	page 19
10. Service selection and remultiplexing	page 20
10.1 Adding and removing services to/from Outputs	page 21
10.2 Decryption and Common Interface	page 22
10.3 Remultiplexing and PSI/SI	page 23
10.4 PIDs and PID management	page 24
10.5 Outputs TS network settings	page 25
10.6 HE system management and DVB Network PSI/SI	page 26
10.7 Transmodulation and transparent outputs	page 27
11. Encryption – DVB_CSA scrambling	page 28
11.1 Add EMM Generator connections	page 29
11.2 Add EMM connection to the output(s)	page 30
11.3 Add ECM Generator connections	page 31
11.4 Add ECM streams to the ECM Generator(s)	page 32
11.5 Scrambling Control Groups & connect to ECM Streams	page 33
11.6 Connect the service to be scrambled to an SCG	page 34
12. Settings: Managing the Chameleon module	page 35
12.1 Add and configure Network interfaces	page 36
12.2 Date and time (NTP server access and Time sources)	page 37
12.3 Scheduler – commands scripting	page 38
12.4 SNMP	page 39
12.5 User management – password protection	page 40
12.6 Software and SW options (entitlement) upgrade	page 41
12.7 Module maintenance	page 42
12.7 Factory reset & Backup / Restore	page 43
13. Status information	page 44
14. SW options	page 45

CHAMELEON

1. Getting started

1. Register your Chameleon at chameleonconnect.tv

After registration and uploading the entitlement file to the Chameleon, your purchased SW options are loaded, and a 30 days trial period for all SW options is initiated.

Register new Chameleon

Serial number:	<input type="text" value="0430011041500005"/>
Module name:	<input type="text" value="My first Chameleon"/>
Firmware version:	<input type="text" value="1.4"/>
Vendor:	<input type="text" value="My distributor"/>
Description:	<input type="text" value="Alfa Bravo"/>

2. Assemble in base unit

Mount your Chameleon in the base unit, and connect the power supply.



3. Connect: 192.168.0.20

Use an IP cable, start your web browser, and connect by entering 192.168.0.20 in the address field of the browser.

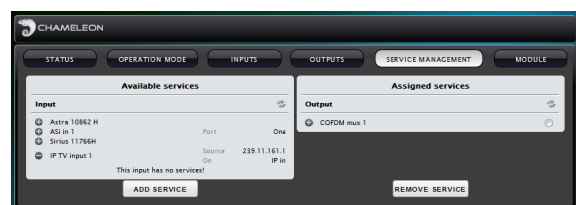


4. Change the IP address (optionally)

When using a system of Chameleons, it is recommended to change the default management address 192.168.0.20 to a system unique IP address.

5. Configure your Chameleon

Connect and configure inputs and outputs. Select services from your inputs to your outputs.



2. General information and SW options

Delivery without SW options – please register at the portal

The Chameleons are delivered without any SW options loaded. You can connect to the Chameleon directly using a web browser and the default management IP address 192.168.0.20. In a non-registered Chameleon, you have access to the web UI, but no configuration or settings can be done. To enable the normal functionality, the Chameleon has to be registered at the chameleonconnect.tv portal, see §3.

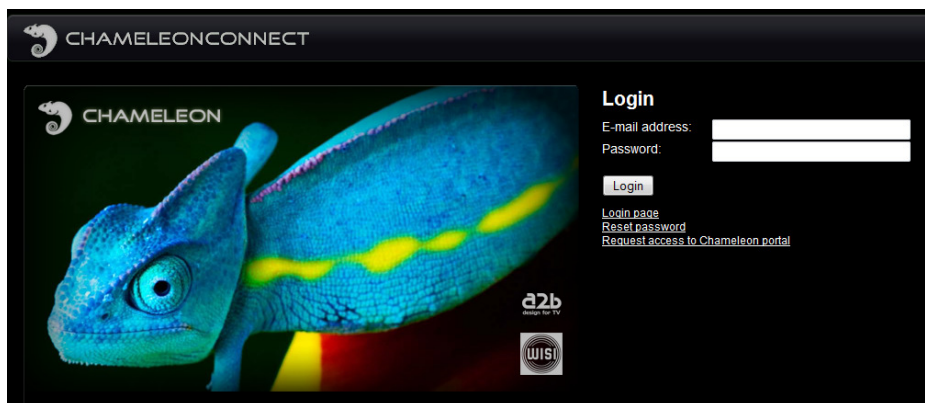
SW options and 30 days installation period with all SW options

After registering your Chameleon, and uploading the entitlement file to the Chameleon, you have access to the functionalities you have purchased, and a 30 days (uptime) trial period for all currently available SW options is initiated.

3. The chameleonconnect.tv portal

Portal URL: <http://chameleonconnect.tv>

Connect to the Chameleon portal using the URL: <http://chameleonconnect.tv>



Login to the chameleonconnect.tv

Enter your e-mail address and password, and click Login. If you have forgotten your password, click the [Reset password](#) link, and an e-mail will be sent to the entered e-mail address. The e-mail contains a hyper-link that you should follow to confirm the request for a new password.

Requesting access to the chameleonconnect.tv portal

If you do not have a password for access to the portal, please click the [Request access to Chameleon portal](#) link.



CHAMELEON

4. Registering the Chameleon & downloading SW options

Registering Chameleons at the chameleonconnect.tv portal

After login, and clicking the **Register Chameleon** tab, enter the serial number of your Chameleon. Optionally, also enter Module name, Vendor, and Description (these fields are intended for your own use, to be able to track and maintain your installed base). Information about SLA End date and SW options are entered automatically from the information stored in the Unit Data Base.

Click the **Register** button to register the Chameleon.

Register new Chameleon

Serial number: 0430011041500005
Module name: Charlie
Firmware version: 1.0
Vendor: A2B
Description: Test module

Downloading SW options (entitlement file) to your computer

Go to the tab **My Chameleons**, and click the serial number for the module to download SW options (entitlement file) for. In the Edit Chameleon view, click **Download file**. Save the file to your computer.

Edit Chameleon

Serial number: 0430011041500005
Module name: Kloors Chameleon
Installation site: Mjärdevi
Firmware version: 1.0
Vendor: Wisi
Description: Test module Per

SLA End date: 11/30/2012

Date	Option
1/1/0001	GNHWUA

Entitlement file:

[My Chameleon list](#)

Uploading SW options (entitlement file) to your Chameleon

Via the Chameleon web UI

Under **SETTINGS / SOFTWARE AND ENTITLEMENT UPGRADE**, browse for the entitlement file you previously downloaded to your computer. Click Upload, and reboot the module when the upload is ready.

Using the IP Supporter

With the Chameleon connected to your computer, and your computer connected to Internet, you can upload the entitlement file directly. Select you Chameleon, and check the box for "Entitlement from A2B server", and click Upload.

A2B IP Supporter

Serial	IP address
0420010083100003	172.18.0.119
0430011010400001	172.18.0.103
0430011040100002	172.18.0.121
0430011041500005	172.18.70.99

IP settings Entitlement

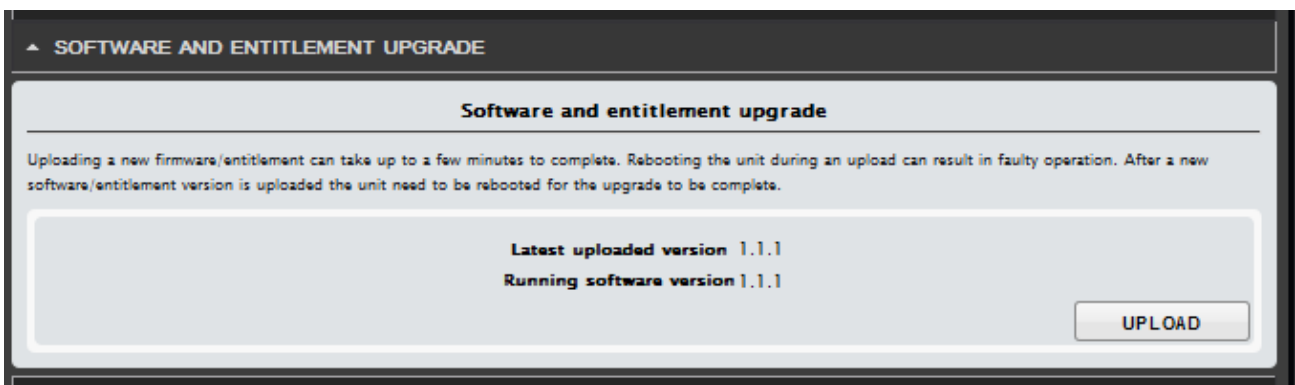
Entitlement from A2B server

Entitlement file:



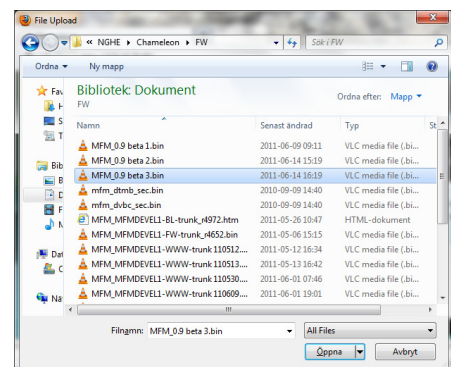
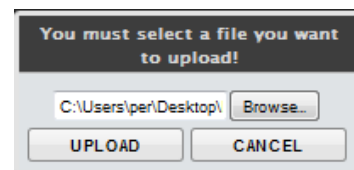
5. Upgrading the Chameleon FW & SW options

Both FW and SW options (entitlements) are uploaded via the **SOFTWARE AND ENTITLEMENT UPGRADE** in the **SETTINGS** tab.



Uploading firmware

1. Click on the UPLOAD button to browse for the firmware file to be uploaded from your PC
2. Locate the firmware file (.bin file) on your PC, and select it
3. Click Open in the browsing window
4. Click the Upload button in the Chameleon web UI
5. Wait for the feedback that the upload is OK
6. Reboot the module



Uploading SW options (.ent file)

1. Click on the UPLOAD button to browse for the entitlement file to be uploaded from your PC
2. Locate the software file (<serial number>.ent) on your PC, and select it
3. Click Open in the browsing window
4. Click the UPLOAD button in the Chameleon web GUI
5. Wait for the feedback that the upload is OK
6. Reboot the module



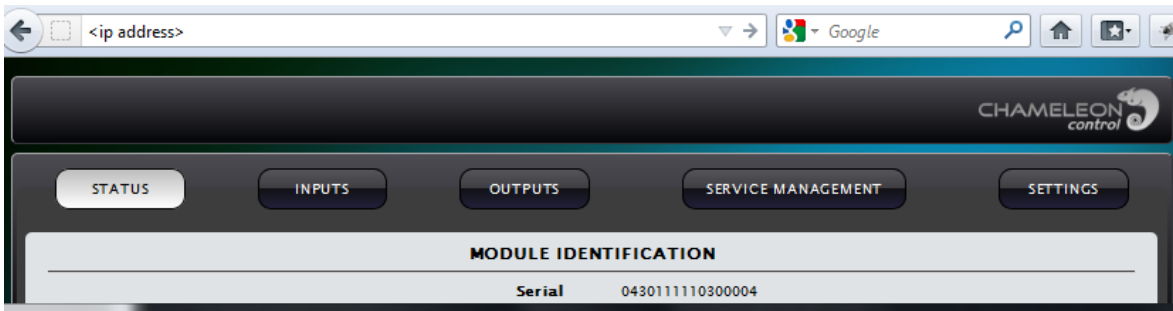
6. Connecting to the Chameleon web UI

Default IP address: 192.168.0.20

The default IP address for a Chameleon module is 192.168.0.20. Change the IP address to a unique IP address in your network, in the web UI under **SETTINGS / NETWORKING**, or by using the “IP-Supporter”.

Connecting with web browser

Use a standard web browser on your computer to connect by typing the IP address of the Chameleon in the address field.



Supported web browsers

The Chameleon web interface is verified for Firefox version 14 and Internet Explorer 9. Other browsers might work, but the functionality cannot be guaranteed.

General information about the web interface structure

The web UI is designed to get a logical structure for the user/installer, and an overview of the module via the top tabs.

Operation mode must be selected before starting to use the Chameleon. The selected Operation mode will have implications on the general functionality of the module, e.g. the possible output standard and the IP streaming capability.

The main interface while managing services is the **SERVICE MANAGEMENT**. Here, you will have an overview of the configured inputs and outputs, and you will also manage the service selection, remultiplexing and decryption.

Before you start managing the services, you should add and configure the inputs and the outputs in their respective tabs.

The **SETTINGS** tab contains module settings such as Networking, Headend System Management, Operation Mode, Common Interface, SW and Entitlement Upgrade, Maintenance, and Log. The CAM menu, if available, is also displayed in the Common Interface menu under the **SETTINGS** tab.



7. Select Operation mode

Select Operation mode

Click **OPERATION MODE** under the **SETTINGS** tab. Select the generic operation mode by clicking Edit, and selecting operation mode with the radio buttons. Click Save.

Operation modes:

Analogue mode; DVB-T mode; DVB-C mode; Streaming mode, FM mode

Mode selection implications

The selected operation mode will have an impact on the possible selection of output.

Analog mode: for 1 or 2 analog RF and/or SDI output.

DVB-T mode: for 1 or 2 digital terrestrial modulation (COFDM).

DVB-C mode: for digital cable TV modulation (QAM), 1 to 4 DVB-C multiplexes.

Streaming mode: for IP-TV output (TS over IP). Up to 20 IPTS out.

FM mode: for up to 8 analog FM outputs.

For all the different operation modes, your Chameleon module must also be equipped with the appropriate SW options, see more details in §13.

ASI and IP for all operation modes

In all operation modes, input and/or output via ASI is available simultaneously. The ASI in/out can be used simultaneously with the modulated and IPTS outputs. The different operation modes also have capability for simultaneous IPTS (SPTS and/or MPTS) inputs and outputs. The number of IPTS in different operation modes are given to the right.

Number of IPTS*) in/out in different operation modes

Analog: 4 IPTS in / 4 IPTS out

FM: 8 IPTS in / 2 IPTS out

DVB-T: 20 IPTS in / 4 IPTS out

DVB-C: 20 IPTS in / 6 IPTS out

Streaming: 4 IPTS in / 20 IPTS out

*) IPTS = SPTS and/or MPTS





8. Add and configure inputs

Go to **INPUTS**

Click on the **INPUTS** tab

Depending on the SW options you have for your Chameleon, you can configure inputs from:

- Tuner (up to 2 tuner inputs)
- ASI (up to 2 ASI inputs)
- IP (up to 20 IPTS inputs, depending on Operation Mode)

STATUS	INPUTS	OUTPUTS	SERVICE MANAGEMENT	SETTINGS
Sort by: Name <input type="radio"/> Ascending <input type="radio"/> Descending				
+ Add new input				
+ HB 12558V	Locked, 12 services found. DVB-S	SNR Level	12.0 dB -56 dBm 58 dBµV	BER <1.0E-08
+ HB 12597V	Locked, 32 services found. DVB-S	SNR Level	11.0 dB -60 dBm 49 dBµV	BER <1.0E-08

Add an input

- Click on “Add new input” or the
- Select input type in the **Choose input type** drop-down list (*ASI, DVB-C, DVB-S, DVB-S2, DVB-T, DVB-T2, IPTV. Selectable tuner inputs will depend on the tuner installed*).

Choose input type:

Name:

Physical port:

- ASI
- DVB-C
- DVB-S
- DVB-S2
- DVB-T
- IPTV

Configure the input

For each type of input, you will get configuration settings in the expanded view.

- Type a name for the input. This name will be shown in the overview of the inputs.
- Fill out the required information/parameters and click **SAVE**.

Input status


If your settings were OK, the status will show you services found and additional input type related data.

+ Hotbird 10723H	Locked, 19 services found. DVBS
------------------	------------------------------------



8.1 Add ASI and IP inputs

Adding ASI inputs

Go to **INPUTS**, and click on “Add new input” or the 

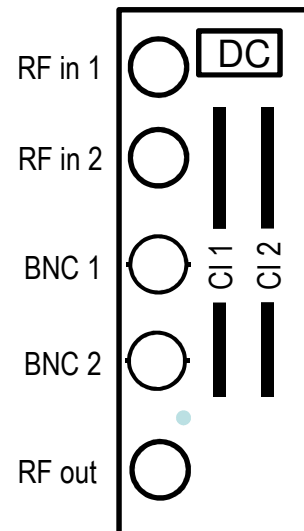
Select ASI in the drop down list for **Choose input type**

Type a name for your ASI input.

Select the Physical port from the drop down list. Port 1 is the top BNC 1 connector, port 2 is the lower BNC 2 connector.

Click SAVE

Note: ASI inputs automatically detects the incoming bit rate



Add IP inputs

Go to **INPUTS**, click “Add new input” or the 

Select IPTV in the **Choose input type** list

Type a name for your new IPTV input

Select **Bitrate mode**

- CBR Automatic (auto-detects the incoming bit rate)
- CBR Manual (manual setting of bit rate in)
- VBR (only available in Analogue Operation mode)

Select **Network interface**. If no network interface is available, you can use the link Create a new interface

Select **Routing scheme**, Multicast or Unicast

- For Multicast; enter the **Multicast address** and **Port**
- For Unicast: enter the **Port** (address will be the same as the IP address of the streaming interface)

Click SAVE

Input status


If your settings were OK, the status will show you services found and additional input type related data.





8.2 Add tuner inputs

Adding tuner inputs

Go to **INPUTS**, and click on “Add new input” or the 

Select the tuner type in the **Choose input type** list

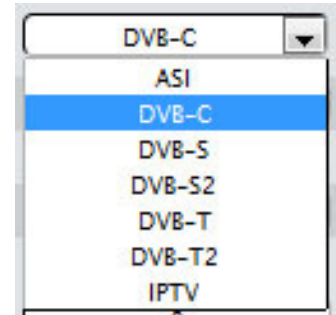
Note: The available tuner input types will depend on the SW options, and on your HW.

Type a name for your input

Select the Physical port from the drop down list. Port 1 is the top F-connector (RF in 1), port 2 is the lower F-connector (RF in 2), see picture in §8.1.

Fill out the required settings and click **SAVE**.

Note: Each input type has its own set of input settings. Below some examples.



Satellite input settings:

Choose input type	DVB-S
Name	Type input name
Physical port	Two
LNB type	Universal
Polarisation	Vertical
Voltage	Auto
22 kHz tone	Auto
FEC	Auto
Symbol rate (kBaude)	27500
Transponder frequency (MHz)	12558
DiSEqC type	None

Terrestrial input settings:

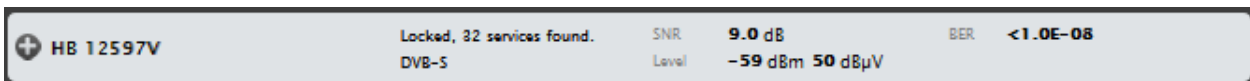
Choose input type	DVB-T
Name	Terrestrial input name
Physical port	Two
Bandwidth	8 MHz
Frequency (MHz)	E36
	594

Cable TV input settings:

Choose input type	DVB-C
Name	QAM input name
Physical port	Two
Symbol rate (kBaude/s)	6875
Frequency (MHz)	E52
	722
Constellation	Auto

Input status

If your settings were OK, the status will show you services found and additional input type related data.



9. Add and configure outputs

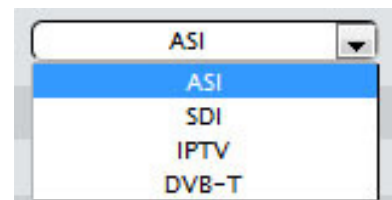
Go to **OUTPUTS**

Depending on SW options, and on the Operation mode, you can configure up to:

- 2 Analogue RF out (PAL, SECAM)
- 8 analogue FM radio
- 2 SDI out
- 2 ASI out

Note: ASI in/out and SDI shares the 2 BNC ports. These ports are controlled by SW.

- 2 DVB-T out
- 4 DVB-C out
- 20 IPTS out

A screenshot of the 'Add new output' configuration form in the CHAMELEON interface. The form is titled 'Add new output' and has a green minus icon to its left. It features several fields: 'Choose output type' with a dropdown menu set to 'ASI', 'Output enabled' with a toggle switch set to 'ON', 'Name' with a text input field containing 'New ASI output 1', 'Physical port' with a dropdown menu set to 'One', and 'Bitrate (MBit/s)' with a text input field containing '0'. At the bottom right, there are 'SAVE' and 'CANCEL' buttons. The form is part of a larger interface with tabs for 'STATUS', 'INPUTS', 'OUTPUTS', 'SERVICE MANAGEMENT', and 'SETTINGS'. A 'Sort by:' section is visible above the form, with 'Name' selected and 'Ascending' radio button checked.

Add and configure an output

In the **OUTPUTS** tab, click **Add new output**.

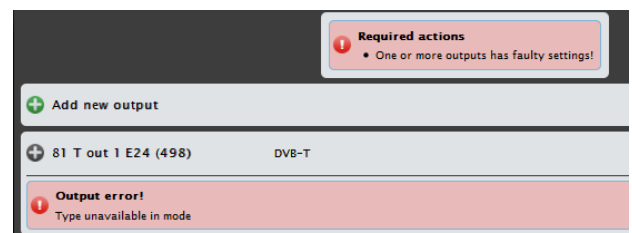
- Select output type (*ASI, SDI, IPTV, DVB-C, DVB-T, ANALOG, FM*) from the drop-down list.

For each type, you will get different configuration settings in the expanded view.

- Fill out the required information/parameters
- Click **SAVE**.

Output status

After saving, the status of the configured outputs is shown. If e.g. too many outputs are configured, or an output that is not supported in the current Operation mode, there will be an error message displayed.





9.1 Add and configure analogue (PAL, SECAM) outputs

Adding analogue output and Decoder settings

0. Select Analog mode as Operation Mode, see also §7.
1. In the **OUTPUT**, select ANALOG in the **Choose output type** list
2. Type a name for the output
3. Select decoder instance
4. Select the service in the **Services** drop down list. Note: if the incoming service is encrypted, you have to select the input to the CAM in SETTINGS/COMMON INTERFACE, and select to descramble the service in the Service Management. In the **Services** drop down list, make sure to select the decrypted service.
5. Select PAL or SECAM video standard in the **Video standard** drop down list
6. Optional: select video conversion in the drop down list **Video Conversion**



Decoder settings for analogue output (cont.)

7. Optional: Select audio language
8. If subtitling is used, select subtitling “ON”, and set the subtitling parameters:
 - Subtitling language
 - Subtitling priority (DVB or Teletext)
 - Subtitle type (Normal or Hearing impaired)
 - Teletext codepage
 - Subtitle conversion (None, Auto, 14:9, 16:9)
 - WSS subtitle configuration (Auto, In picture, Out of picture)
9. Set the WSS parameters (Auto, Off, Forced 4:3 / 14:9 / 1 6:9)
10. Optional: for VPS signalling*), select the VPS signalling source (*From Teletext or from EIT*), and enter the CNI code.

Language selection for audio language and subtitling

For audio language, you can use default language, select the language from the drop down list, or manually enter the 3 letter language code according to ISO 639-2. When you use the manual settings, you can find the PID number in the Service Management, on the input side, when expanding to service level.

For subtitle language, you can select language from the drop down list, or enter the ISO 639-2 code.

*VPS (Video Programming System) is used on terrestrial channels in some European countries (e.g. Czech Republic, Germany) and also on some of the channels on the Astra satellites.

CHAMELEON

Modulator settings for analogue output

11. Select the TV standard (B/G, B/H, D/K, I, L, M/N)
12. Select the Video bandwidth (4.2, 5.0, 6.0)
13. Set the Picture carrier modulation depth (from 80% to 90%)
14. Set the Video group delay pre-correction (None, BG general, D/K GOST 20532-75, M FCC)
15. Chose to enable or disable test lines (Test lines ON or OFF)
16. Select audio system (NICAM, A2, A2*, Mono)
17. Use the sliding button for setting of Dual mono ON/OFF
18. Set the Audio deviation (-6dB to 6dB in 1 dB steps)
19. Set the Mono subcarrier level (Auto, Off, -10dBc to -30dBc in 1 dB steps)
20. Set the Stereo subcarrier level (Auto, Off, -10dBc to -30dBc in 1 dB steps)
21. Select frequency table (CCIR, OIRT)
22. Enter the output frequency, as a channel frequency name, or manually in MHz
23. Set output carrier level
24. Click SAVE

The screenshot shows the 'Modulator settings' window for an analogue output. At the top, there is a dropdown menu set to 'ANALOG' and a radio button for 'ON' (selected) and 'OFF'. Below this is a yellow button labeled 'My new analogue output'. The main settings area is titled 'Modulator settings' and contains the following items:

- 11. TV standard: B/G
- 12. Video bandwidth (MHz): 5.0
- 13. Picture carrier modulation depth: 90%
- 14. Video group delay pre-correction: B/G general
- 15. Test lines: OFF
- 16. Audio system: NICAM
- 17. Dual mono: OFF
- 18. Audio deviation: 0 dB
- 19. Mono subcarrier level: Auto
- 20. Stereo subcarrier level: Auto
- 21. Frequency table: CCIR
- 22. Frequency: E35, 583.25, 90
- 23. Carrier level (dBµV): A tooltip indicates 'Carrier level is a global setting that will affect all analog and fm outputs!'.

At the bottom of the window are 'SAVE' and 'CANCEL' buttons.

Note: many of the settings can be left with the default settings for most applications.

Dual mono output

It is possible to set up one analogue output with dual mono sound (different languages in left/right audio channel).

- Create 2 analogue outputs
- Set up both decoders with the same service but different audio languages
- Select Stereo mode: Dual mono (Decoder settings)
- Deactivate the second analogue output (Output enabled = OFF)
- In the Modulator settings, select Audio system A2 Dual mono or NICAM Dual mono
- Select Dual mono source: Both decoders



9.2 Add and configure ASI, SDI, and FM outputs

Add ASI outputs

1. In the **OUTPUT**, select ASI in the drop down list for **Choose output type**
2. Enter name, physical port and bitrate
3. Click SAVE

Choose output type	ASI
Output enabled	ON <input type="radio"/> OFF <input type="radio"/>
Name	ASI output name
Physical port	Two
Bitrate (MBit/s)	56

Add and configure SDI outputs

0. Select Analog Operation Mode
1. In the **OUTPUT**, select SDI in the **Choose output type** list
2. Select the service in the **Services** drop down list
3. Set the audio language and subtitle settings
4. Set the WSS configurations
5. Click SAVE

See also §9.1 for more information about these settings.

Choose output type	SDI
Output enabled	ON <input type="radio"/> OFF <input type="radio"/>
Name	New SDI output 1
Decoder instance / BNC port	One
Services	Disabled
Video conversion	Ignore
Audio language	Default
Subtitling	ON <input type="radio"/> OFF <input type="radio"/>
WSS configuration	Auto
WSS subtitle configuration	Auto

Add new output															
Choose output type	FM														
Output enabled	ON <input type="radio"/> OFF <input type="radio"/>														
Name	My new FM out														
<table border="1"> <thead> <tr> <th>Decoder settings</th> <th>Modulator settings</th> </tr> </thead> <tbody> <tr> <td>Decoder instance</td> <td>Audio deviation</td> </tr> <tr> <td>Services</td> <td>Channel frequency (MHz)</td> </tr> <tr> <td>RDS</td> <td>Carrier level (dBµV)</td> </tr> <tr> <td>PI source</td> <td></td> </tr> <tr> <td>PS source</td> <td></td> </tr> <tr> <td>PTY source</td> <td></td> </tr> </tbody> </table>		Decoder settings	Modulator settings	Decoder instance	Audio deviation	Services	Channel frequency (MHz)	RDS	Carrier level (dBµV)	PI source		PS source		PTY source	
Decoder settings	Modulator settings														
Decoder instance	Audio deviation														
Services	Channel frequency (MHz)														
RDS	Carrier level (dBµV)														
PI source															
PS source															
PTY source															
<p><small>Carrier level is a global setting that will affect all analog and fm outputs!</small></p>															

Add FM radio outputs

0. Select FM mode as Operation Mode
1. In the **OUTPUT**, select FM in the drop down list for **Choose output type**
2. Select the service in the **Services** drop down list
3. Enter output frequency and output level
4. Optional: for RDS signalling, select the PI, PS and PTY sources, and enter the values if using manual settings.





9.3 Add and configure DVB-T and DVB-C outputs

Add DVB-T outputs

1. In the **OUTPUT**, select DVB-T in the drop down list for **Choose output type**
2. Enter the required parameters and settings.
3. Click SAVE

Add new output

Choose output type	DVB-T
Output enabled	ON <input type="radio"/> OFF <input type="radio"/>
Name	COFDM out 1
Frequency (MHz)	E26
	514
Bandwidth (MHz)	8
Carrier level (dBμV)	85
Forward error correction	7/8
Guard interval	1/32
Carrier mode	8k
Constellation	64QAM

Add DVB-C outputs

1. In the **OUTPUT**, select DVB-C in the drop down list for **Choose output type**
2. Enter the required parameters and settings.
3. Click SAVE

Add new output

Choose output type	DVB-C
Output enabled	ON <input type="radio"/> OFF <input type="radio"/>
Name	QAM out 1
Frequency (MHz)	E62
	802
Constellation	256QAM
Symbol rate (kBaud)	6900
Carrier level (dBμV)	95



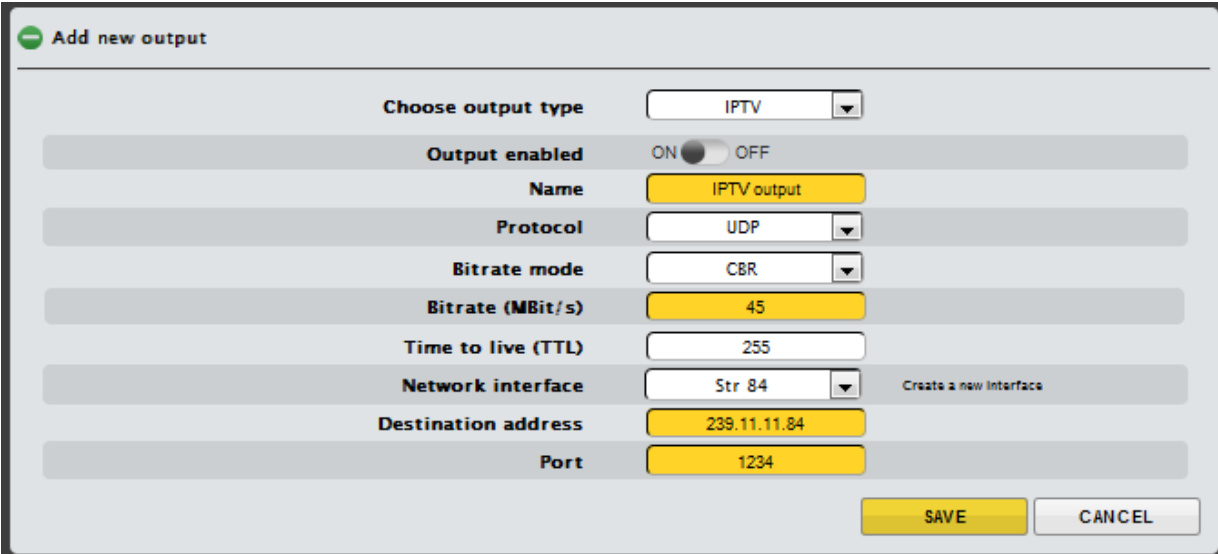
9.4 Add and configure IP (SPTS/MPTS) outputs

Configure a network interface for streaming (see also §11.1)

1. Go to NETWORKING in the **SETTINGS** tab, and click Add new interface
*For GN01 or GN40 mounting, add a new network interface for the streaming port.
For GN50 mounting, add a new network interface to the backplane port.*
2. Enter name for the interface, and IP parameters
3. Select Streaming ON, and click SAVE

Add IPTV outputs

1. In the **OUTPUT**, select IPTV in the drop down list for **Choose output type**
2. Enter the required parameters and settings.
3. Click SAVE.



The screenshot shows the 'Add new output' configuration window. It contains the following fields and controls:

- Choose output type:** A dropdown menu with 'IPTV' selected.
- Output enabled:** A toggle switch set to 'ON'.
- Name:** A text field containing 'IPTV output'.
- Protocol:** A dropdown menu with 'UDP' selected.
- Bitrate mode:** A dropdown menu with 'CBR' selected.
- Bitrate (MBit/s):** A text field containing '45'.
- Time to live (TTL):** A text field containing '255'.
- Network interface:** A dropdown menu with 'Str 84' selected. A link 'Create a new Interface' is visible to the right.
- Destination address:** A text field containing '239.11.11.84'.
- Port:** A text field containing '1234'.
- Buttons:** 'SAVE' and 'CANCEL' buttons are located at the bottom right.



10. Service selection and remultiplexing

Service management functionality and pre-requisites

The SERVICE MANAGEMENT tab is the main view for handling remultiplexing, service selection, decryption, encryption and PID management. Before starting with the Service management, the inputs and outputs must be defined, see §8 and §9.

Inputs, Outputs, and their available/assigned services

The left part of the SERVICE MANAGEMENT view shows the Inputs with their available services. The right part shows Outputs with the names you have typed while configuring the output. By default, Output have no assigned services, no services has been added. To see the services in the inputs or in the outputs, expand the input (or output) by clicking the heading plus sign .

The PIDs of each input service can be shown by clicking the to expand the service.

INPUTS		OUTPUTS				
NAME	TYPE	NAME	TSID	ONID	NID	LCN
Astra11362H	Tuner	ASI out	101	0	2117	EACEM
Astra 11303H	Tuner	Network Name Per				
SERVICES		SERVICES				
NAME	SID	NAME	PROVIDER	SID	LCN	
ORF1 HD	4911	ARD		11120	1	
ORF2 HD	4912	ServusTV		4914	2	
PVoD	4915	ZDFvision		11110	3	
ServusTV HD	4914					

Structure of the available/assigned services under INPUTS and OUTPUTS

Input: Each **Input/service** has 3 (or 4 for a CI module input) columns; **Name** (service names), **SID** (service id), and an “edit arrow” for adding to output or decryption. Decryption (descrambling) is explained in §10.2.


Assigning services from the inputs to the outputs is done by clicking the , and selecting the output to add the service to in the appearing pop-up boxes, details in §10.1

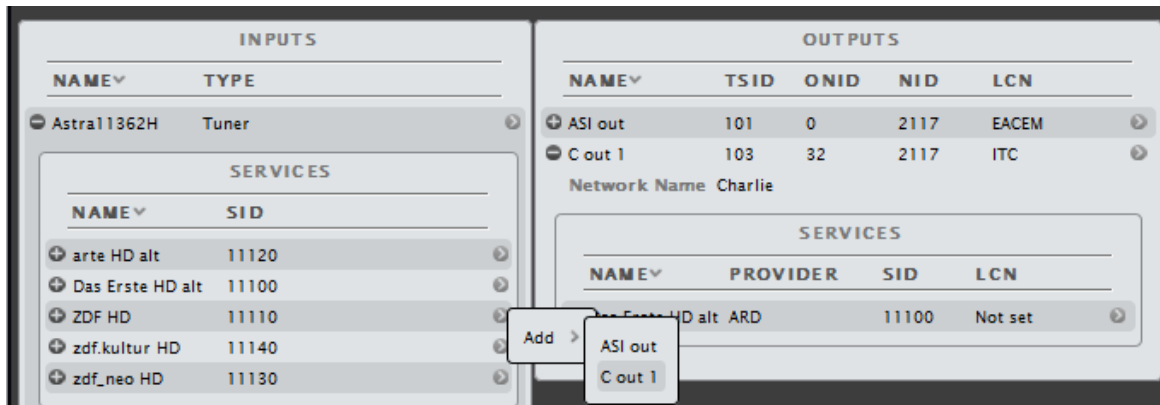
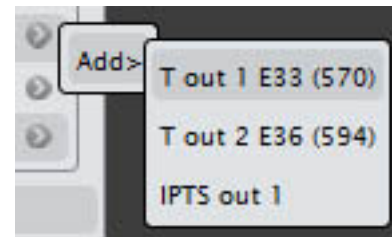
Output: Each **Output** has 6 columns; **Name** (mux names), **TSID** (transport stream id), **ONID** (Original Network id), **NID** (Network id), **LCN** (LCN type) and the “edit arrow” . Each **Output/service** has 5 columns; **Name** (service name), **Provider** (service provider name), **SID** (service id), **LCN** (service LCN number)) and the “edit arrow” .




10.1 Adding and removing services to/from Outputs

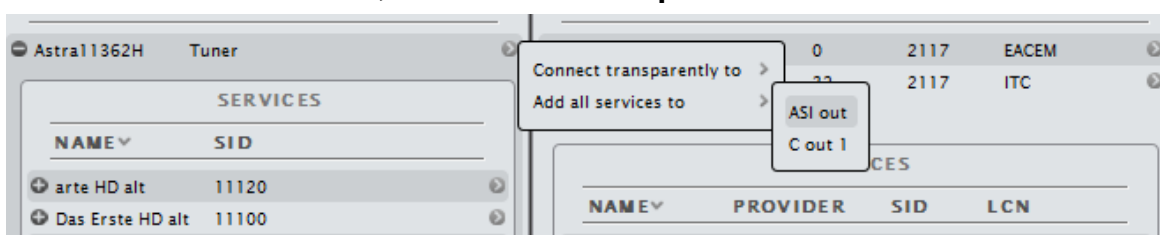
Adding services to the outputs

1. Click the edit arrow  tailing an input service. When you click the arrow, an “Add” pop-up will appear.
2. Move the mouse pointer to the Add pop-up.
3. Select the **Output** to which you would like to add the service.




Adding all services to the outputs

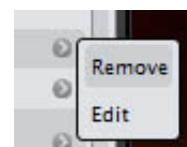
1. Click the edit arrow  tailing an input. When you click the arrow, a pop-up will appear with “Connect transparently to” and “Add all services to”.
2. Select “Add all services to”, and select the **Output** to add services to.




Removing services from the outputs

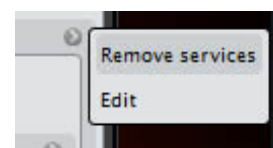
Removing a single service from an output

1. Click the edit arrow  of an output service.
2. Click “Remove” in the pop-up window.



Removing all services from an output

1. Click the edit arrow  of an output.
2. Click “Remove services” in the pop-up window.



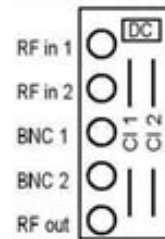
CHAMELEON

10.2 Decryption and Common Interface

Insert the CAM and smart card in the CI slot

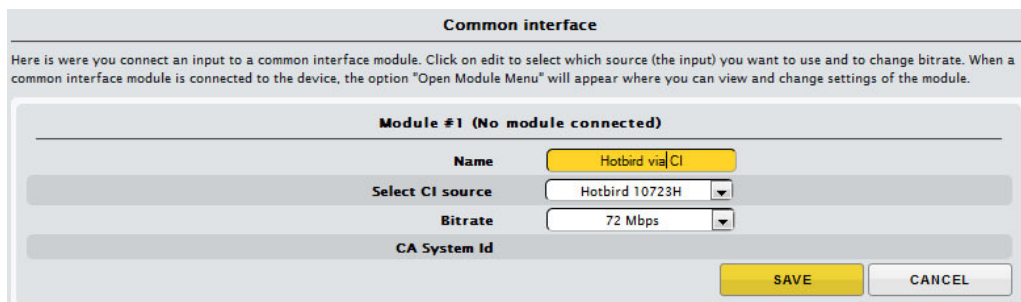
Insert the CAM and smart card into the correct CI slot. From a rear view, CI slot 1 is to the left, CI slot 2 to the right.

NOTE! Make sure that CAM is inserted with text side to the right



Select CI source

Go to the **SETTINGS** top tab, and click **COMMON INTERFACE**. The name as it will appear in the Service Management can be edited. In the drop-down list of Select CI source, select the input source for this common interface slot. The Bitrate selection in the drop-down list (72 Mbps, 62 MBPS, 55 Mbps) can normally be left at the default value 72 Mbps for all modern CAMs.



Common interface

Here is where you connect an input to a common interface module. Click on edit to select which source (the input) you want to use and to change bitrate. When a common interface module is connected to the device, the option "Open Module Menu" will appear where you can view and change settings of the module.

Module #1 (No module connected)

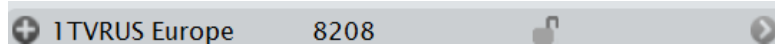
Name	Hotbird via CI
Select CI source	Hotbird 10723H
Bitrate	72 Mbps
CA System Id	

SAVE CANCEL

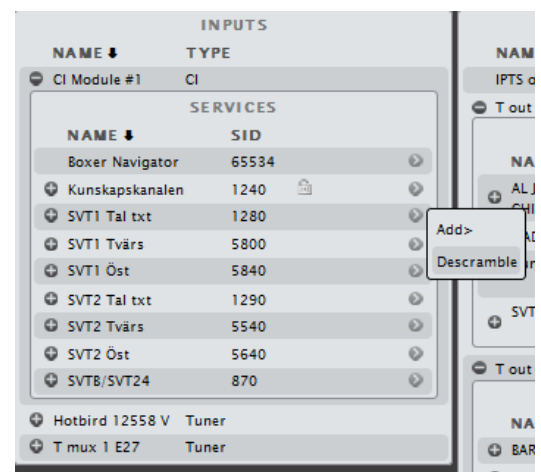
Select the services to be decrypted

After having selected the CI source, a new "input" with the name you have entered will be displayed in the Service Management Inputs menu. Click the edit arrow of the service you want to decrypt, and select "descramble".

The descrambled services are indicated by an open padlock.



To output a decrypted service, select the decrypted service from the CI input to an output (see §10.1)



Notes: Decryption in analog mode

In Analog mode you have to use the SERVICE MANAGEMENT for handling the decryption. The analog output service selection is made in the output menu, and when a CI source has been set, the list of available services for analogue output will include the services routed via the CAM.



10.3 Remultiplexing and PSI/SI

Remultiplexing

In a Chameleon, remultiplexing is automatically done as services are selected from the inputs to the outputs. As such, all remultiplexing is managed in **SERVICE MANAGEMENT**.

PSI/SI management

The PSI/SI of the outputs are automatically generated as services are assigned to the outputs. Selecting services from a single input, or selecting services from several inputs both result in the updating of the PSI/SI tables of the outputs.

The screenshot displays the 'SERVICE MANAGEMENT' interface with the following components:

- Navigation Tabs:** STATUS, INPUTS, OUTPUTS, SERVICE MANAGEMENT (active), SETTINGS.
- INPUTS Section:**
 - Table with columns: NAME, TYPE. Rows: CI Module #2 (CI), CI Module #1 (CI).
 - Sub-section: SERVICES (columns: NAME, SID). Rows: ORF1 HD (4911), ORF2 HD (4912), PVoD (4915), ServusTV HD Deutschland (4914), ServusTV HD Osterreich (4913), SGI_1007 (4919).
 - Bottom: Astra 11303H Tuner.
- OUTPUTS Section:**
 - Table with columns: NAME, TSID, ONID, NID, LCN. Row: ASI out (101, 0, 2117, EACEM). Network Name: Charlie.
 - Sub-section: SERVICES (columns: NAME, PROVIDER, SID, LCN). Rows: arte HD alt (ARD, 11120, 1), arte HD alt (ARD, 11121, Not set), ServusTV HD Deutschland (ServusTV, 4914, 2), ZDF HD (ZDFvision, 11110, 3), zdf.kultur HD (ZDFvision, 11140, 4).
 - Bottom: C out 1 (103, 32, 2117, ITC). Network Name: Charlie.
 - Sub-section: SERVICES (columns: NAME, PROVIDER, SID, LCN).

DVB-Network PSI/SI management

To create a DVB-network-wide correct PSI/SI structure, all Chameleons in the same DVB network must be able to share PSI/SI information. The interconnection between the Chameleons is enabled by the HEADEND SYSTEM MANAGEMENT functionality, see §10.6.

Further, the GNSYMUX SW option must be active to allow the interchange.

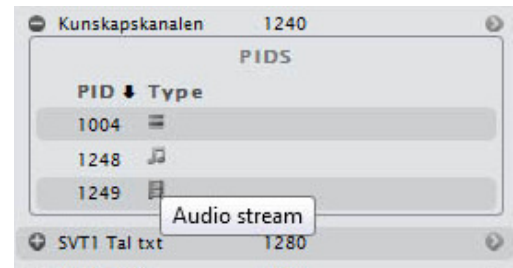
CHAMELEON

10.4 PIDs and PID management

PIDs, PID listing and PID types

The PIDs of an input or output service can be displayed by clicking the . PID or stream types are indicated with icons, and the PID type is displayed in a pop-up if the mouse pointer is left over the icon.

In the example to the right, the service “Kunskapskanalen”, with service_id 1240 contains 3 PIDs: PID 1004 (Subtitle stream), PID 1248 (Audio stream) and PID 1249 (Video stream).

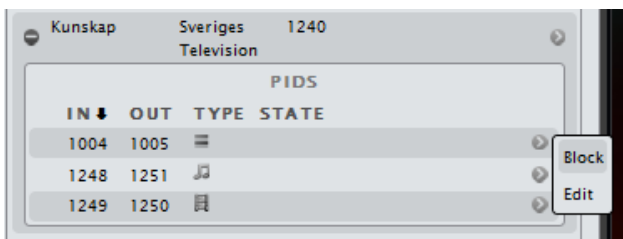


Kunskapskanalen 1240

PIDS	
PID	Type
1004	
1248	
1249	

Audio stream

For outputs, the incoming as well as the outgoing PID number is listed in the columns IN and OUT. Often the outgoing PID number is the same as the incoming PID number, but if the PID number already exist in the system, there is an automatic PID remapping to avoid PID clashes. Just as for the PIDs of the input services, the stream (PID) types are indicated with icons.



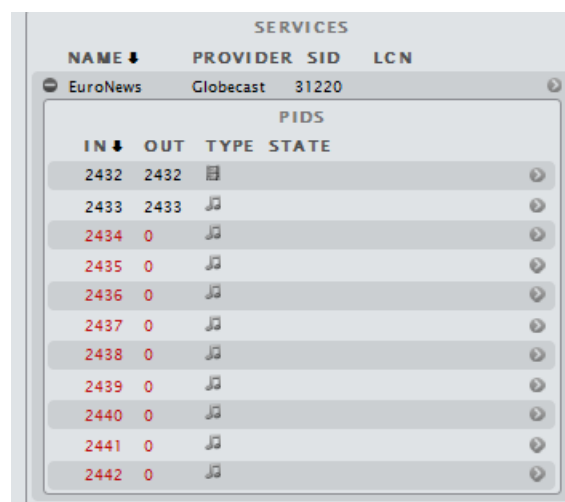
Kunskap Sveriges Television 1240

PIDS			
IN	OUT	TYPE	STATE
1004	1005		
1248	1251		
1249	1250		

Block
Edit

PID dropping (blocking)

The PIDs in the outputs can be blocked (PID dropping) by clicking the edit arrow and selecting “Block”. A blocked PID is marked with red text, and the PID number becomes 0. In the example to the right, all audio PIDs except PID 2433 is blocked, and in the output there will only be one audio stream.

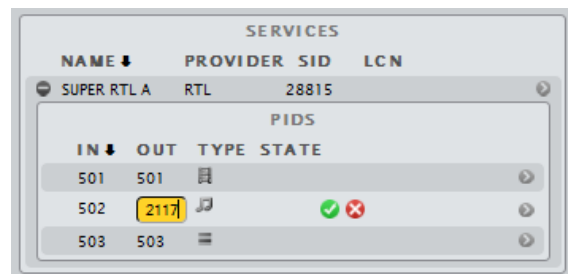


EuroNews Globecast 31220

PIDS			
IN	OUT	TYPE	STATE
2432	2432		
2433	2433		
2434	0		
2435	0		
2436	0		
2437	0		
2438	0		
2439	0		
2440	0		
2441	0		
2442	0		

PID editing (remapping)

Clicking the edit arrow of an output service, and selecting Edit, allows you to manually set the PID number for the outgoing PID. Click the green confirm button to save the changes.




SUPER RTL A RTL 28815

PIDS			
IN	OUT	TYPE	STATE
501	501		
502	2117		
503	503		



10.5 Outputs TS network settings

TSID, ONID, NID, LCN type and Network Name

Each outgoing TS has a set of identifiers: TSID (transport stream ID), ONID (original network ID), NID (network ID), LCN (logical channel numbering type) and Network Name. These identifiers are listed for all outputs. All identifiers can be edited by clicking the edit arrow  .

OUTPUTS				
NAME	TSID	ONID	NID	LCN
ASI out	101	0	2117	EACEM
C out 1	103	32	2117	ITC
Network Name		Charlie		

TSID

The transport_stream_id (TSID) is a 16-bit field which serves as a label for identification of this TS from any other multiplex within the delivery system. Hence, the TSID has to be unique within a DVB Network.

ONID and NID

The SI uses two labels related to the concept of a delivery system, namely the network_id (NID) and the original_network_id (ONID). The latter is intended to support the unique identification of a service, contained in a TS, even if that TS has been transferred to another delivery system than the delivery system where it originated.

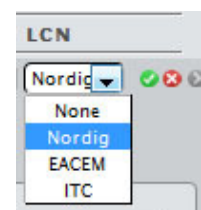
Network Name

A string of characters that specify the name of the delivery system about which the NIT informs. A change of the Network Name is propagated to all TS with the same NID.

LCN

LCN type

The LCN type specifies which LCN implementation to use. For a DVB-Network, the LCN type should be the same for all outgoing muxes. Available LCN types are Nordig, EACEM and ITC (Independent Television).



LCN number

The LCN number, which will be used by a receiver to make a channel list, is edited for each service in each outgoing mux. For correct functionality, the LCN number must be unique for each service within a DVB network.

SERVICES			
NAME	PROVIDER	SID	LCN
SUPER RTL A	RTL	28815	16



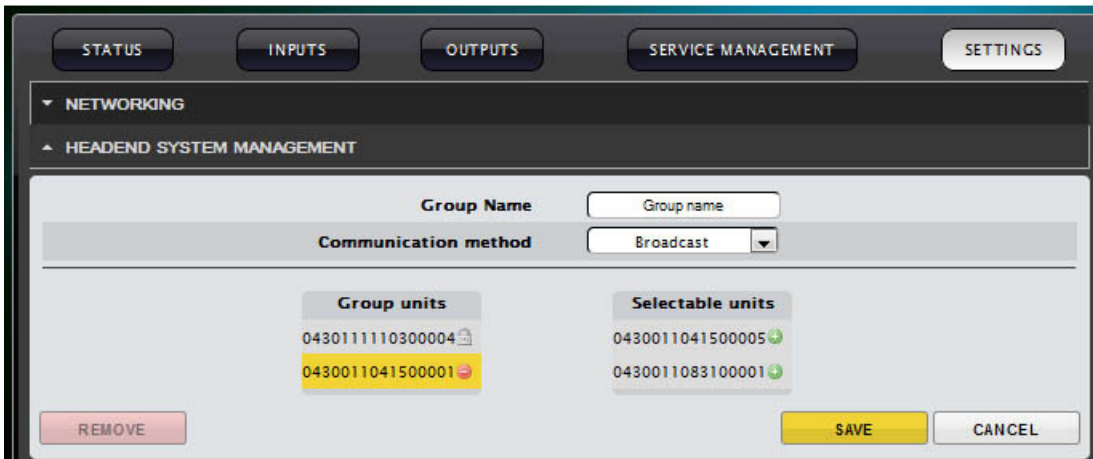


10.6 HE system management and DVB Network PSI/SI

For creation of a network-wide correct PSI/SI structure in a DVB Network, information about PSI/SI has to be shared between the Chameleon modules in the same network. The basis for such a sharing is that the Chameleons are connected via a switch, and that a communication is set up between the Chameleons.

Headend system management

Under SETTINGS, in the HEADEND SYSTEM MANAGEMENT menu, you can select Chameleons in the same IP network to be members in the same group.



When clicking EDIT, all Chameleon in the IP network will be listed by their serial number. To add a Chameleon to a DVB network, click the green + in the list of Selectable units. Please note that the settings done in one Chameleon will automatically update the headend system management settings also for all Chameleons in the same group.

DVB network and PSI/SI sharing – network settings

When setting up a system where PSI/SI information is shared, you must also select network settings for all outgoing transport streams. The Network ID (NID) must be identical for all outgoing transport streams, and all the transport streams must have different Transport Stream ID (TSID), see also §10.5.



10.7 Transmodulation and transparent outputs

Connect input to output transparently

An input can be sent transparently to an output by selecting “Connect transparently to”. When an input is “connected” to an output, there is no change of the content of the transport stream from input to output:

- All services, with all PIDs are sent from the input to the output
- The PSI/SI tables are sent from input to output without any change or modification

The transparent/transmodulation mode can be used e.g. when a complete MPTS for QAM modulation is created for a transport via IP to another Headend.

INPUS		OUTPUTS				
NAME	TYPE	NAME	TSID	ONID	NID	LCN
Astra11362H	Tuner				2117	EACEM
Astra 11303H	Tuner				2117	ITC
CI Module #1	CI					
CI Module #2	CI					

OUTPUTS				
NAME	TSID	ONID	NID	LCN
DVB-T out E26	17001	0	No id	None
DVB-T out transparent				

Type: Transparent Connected To: Astra 10744H

CHAMELEON

11. Encryption - DVB_CSA scrambling and SimulCrypt

Encryption overview

Scrambling of services, or PIDs in services, requires a connection to a CA Server (CAS). Chameleon can connect to the CAS via the management IP interface or via the streaming interface.

Setting up encryption in Chameleon includes the following steps:

- Create your outputs, and add the services you want to have in your outputs
- (Set up your CAS for EMM and ECM generation)
- Add EMM Generator connections to the Chameleon SimulCrypt interface
- Add EMM connection to the output(s)
- Add ECM Generator(s) to the Chameleon SimulCrypt interface
- Add “ECM streams” to the ECM Generator(s)
- Create Scrambling Control Groups (SCG) and connect SCG to ECM Streams
- Connect the service(s) to be scrambled to an Scrambling Control Group (SCG)

Notes

- In the FW version 1.5, you can encrypt DVB-C, DVB-T and ASI outputs.
- The maximum number of PIDs that can be encrypted is 64 PIDs per output
- The maximum number of encryption keys is 64.
- Each SCG (see §11.5) can only be connected to one output. Create separate SCGs for each output.

The screenshot displays the SimulCrypt configuration interface, which is organized into several sections:

- EMM Generators:** A table with columns: NAME, CLIENT ID, PORT, PID, PRIVATE, BW, STATUS. It shows one entry: EMMg 1 with CLIENT ID 08000000, PORT 1500, PID 2222, PRIVATE 100, and STATUS Running.
- ECM Generators:** A table with columns: NAME, SUPER CAS ID, IP ADDRESS, PORT, CHANNEL ID. It shows one entry: ECMg 1 with SUPER CAS ID 08000000, IP ADDRESS 172.19.99.70, PORT 3333, and CHANNEL ID 1.
- Streams:** A table with columns: NAME, STREAM ID, ECM ID, ACCESS CRITERIA, PRIVATE, GROUP. It shows two entries: Stream 1-1 (ECM ID 1, ACCESS CRITERIA 0x00000000, GROUP 1) and Stream 1-2 (ECM ID 1, ACCESS CRITERIA 0x4B000000, GROUP 2).
- Details:** A sub-section for Stream 1-1 showing: Name (Stream 1-1), Stream state (CW PROVISION), Access criteria (0x00000000), Connected (Yes), Period (EVEN), and Private data.
- Groups:** A section for Scrambling Control Groups. It shows Group 1 and Group 2. Under Group 1, there is a CONNECTIONS table with columns ECM and STREAM, showing a connection between ECMg 1 and Stream 1-1.




11.1 Add EMM Generator connections

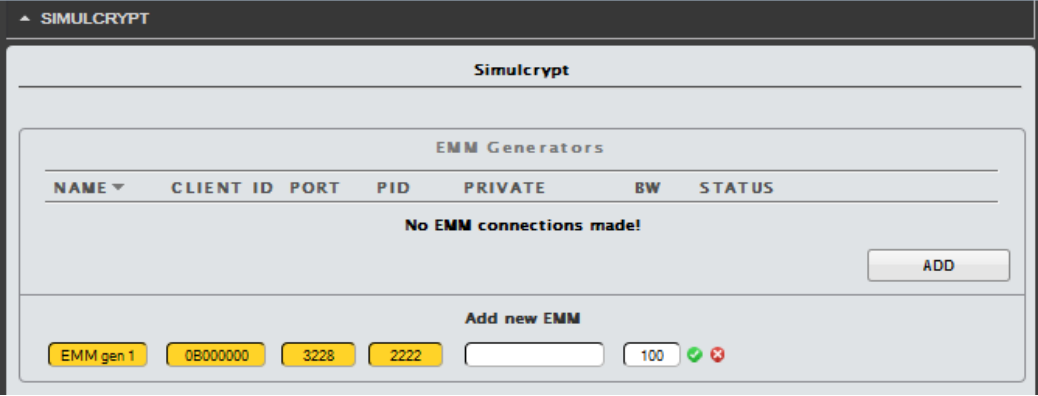
The CA Server set-up for EMM and ECM generation is not covered by this manual. Please contact your CAS supplier for information.

The IP address to be entered in the CAS is the management IP address of the Chameleon or the IP address of the streaming port of the Chameleon.

Adding an EMM Generator connection

In the SimulCrypt menu under SETTINGS, click ADD in the EMM Generators box.


1. Enter a name for the EMM generator connection
2. Enter the Client ID and port (*info from CAS supplier*)
3. If required, enter Private Data (*info from CAS supplier*)
4. Enter the maximum EMM bandwidth (BW) (kbit/s)
5. Click the green confirmation symbol , or press enter

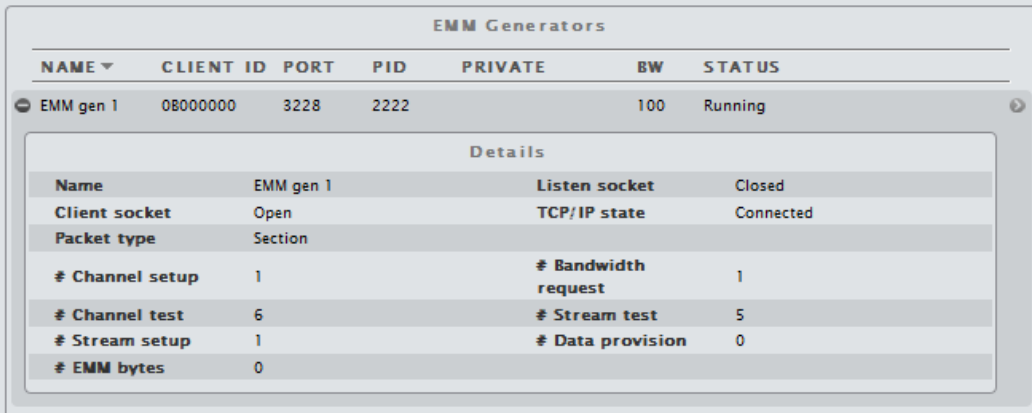


The screenshot shows the 'Simulcrypt' window with the 'EMM Generators' section. A table lists the current EMM generators, which is empty. Below the table is an 'Add new EMM' form with the following fields: Name (EMM gen 1), Client ID (0B000000), Port (3228), PID (2222), Private (empty), and BW (100). A green checkmark icon is visible next to the BW field.

NAME	CLIENT ID	PORT	PID	PRIVATE	BW	STATUS
No EMM connections made!						

Add new EMM

EMM gen 1 0B000000 3228 2222 100 



The screenshot shows the 'EMM Generators' section with one entry: 'EMM gen 1' with Client ID '0B000000', Port '3228', PID '2222', BW '100', and Status 'Running'. Below the table is a 'Details' section with the following information:

Details			
Name	EMM gen 1	Listen socket	Closed
Client socket	Open	TCP/IP state	Connected
Packet type	Section		
# Channel setup	1	# Bandwidth request	1
# Channel test	6	# Stream test	5
# Stream setup	1	# Data provision	0
# EMM bytes	0		

Adding another EMM Generator connection

Repeat the steps above.





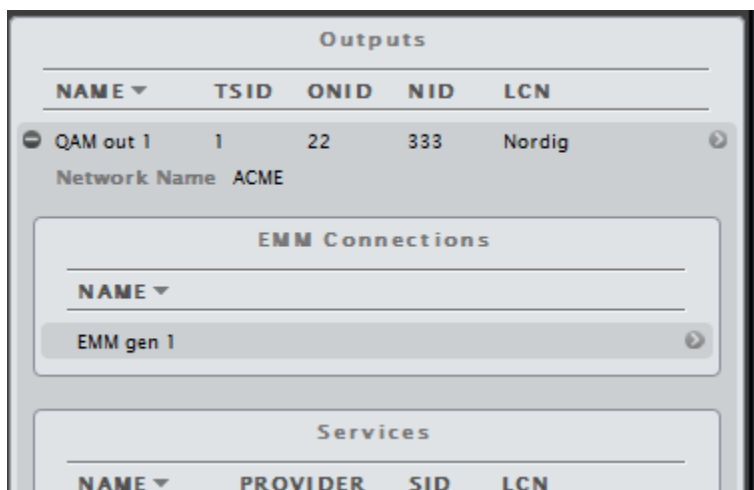
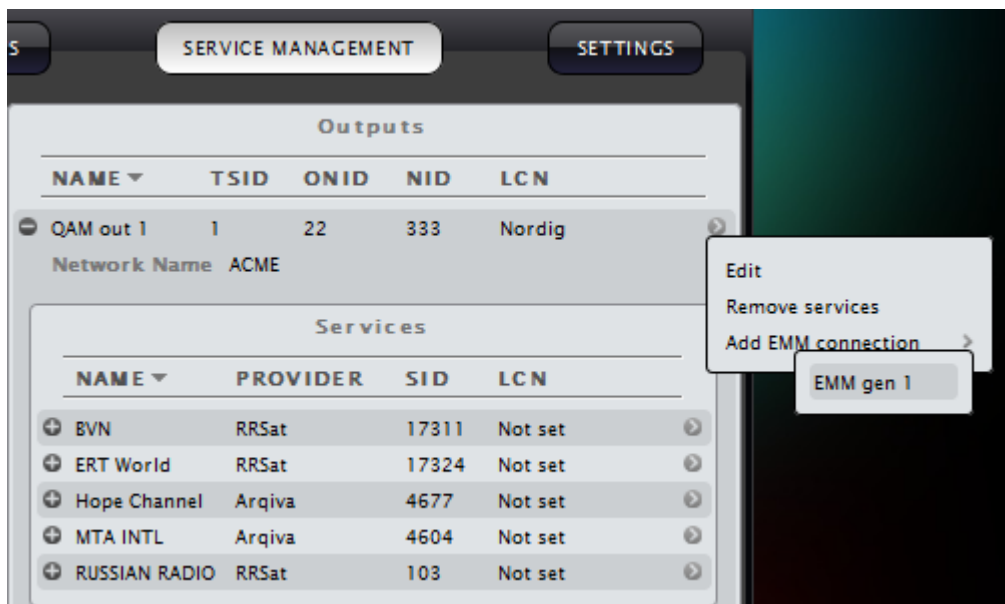
11.2 Add EMM connection to the output(s)

Connecting an EMM Generator to an output

In SERVICE MANAGEMENT, for an output, click the grey arrow to the right of an output.

In the pop-up menu, select “Add EMM connection”

Select the EMM generator you want to use for this output.




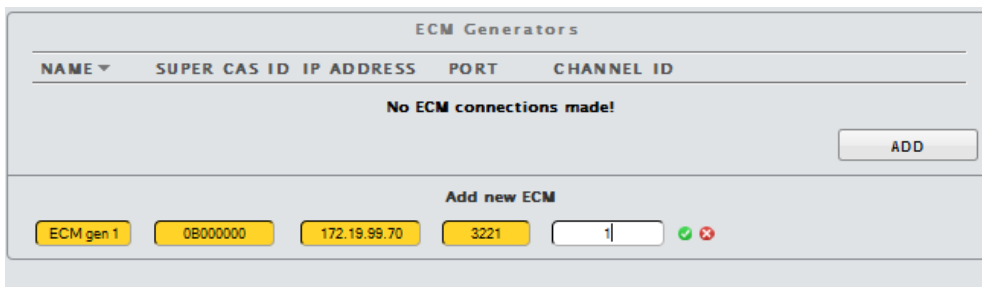
11.3 Add ECM Generator connections

The CA Server set-up for EMM and ECM generation is not covered by this manual. Please contact your CAS supplier for information.

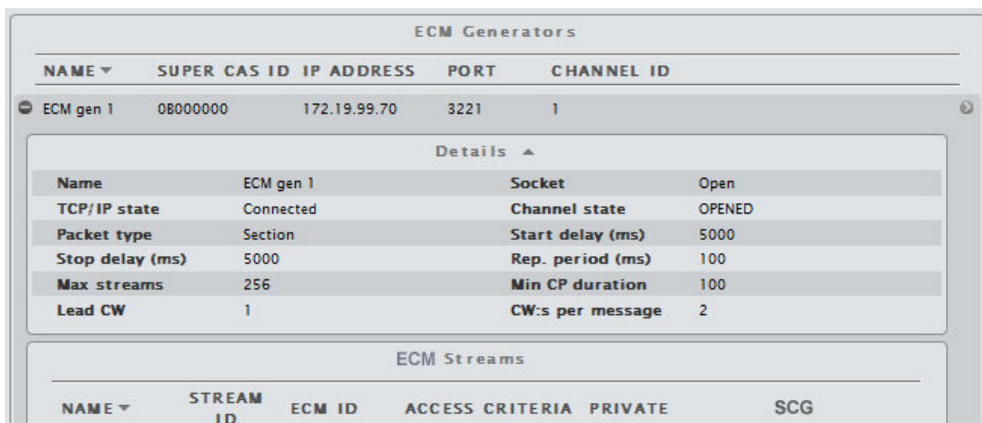
Adding an ECM Generator connection

In the SimulCrypt menu under SETTINGS, click ADD in the ECM Generators box.

1. Enter a name for the ECM generator connection
2. Enter the Super CAS ID (*info from CAS supplier*)
3. Enter the IP address of the CA Server (*info from CAS supplier*)
4. Enter the ECM port (*info from CAS supplier*)
5. Enter the Channel ID
6. Click the green confirmation symbol , or press enter



NAME	SUPER CAS ID	IP ADDRESS	PORT	CHANNEL ID
No ECM connections made!				
<input type="button" value="ADD"/>				
Add new ECM				
ECM gen 1	0B000000	172.19.99.70	3221	1



NAME	SUPER CAS ID	IP ADDRESS	PORT	CHANNEL ID	
ECM gen 1	0B000000	172.19.99.70	3221	1	
Details					
Name	ECM gen 1	Socket	Open		
TCP/IP state	Connected	Channel state	OPENED		
Packet type	Section	Start delay (ms)	5000		
Stop delay (ms)	5000	Rep. period (ms)	100		
Max streams	256	Min CP duration	100		
Lead CW	1	CW:s per message	2		
ECM Streams					
NAME	STREAM ID	ECM ID	ACCESS CRITERIA	PRIVATE	SCG

Adding another ECM Generator connection

Repeat the steps above.



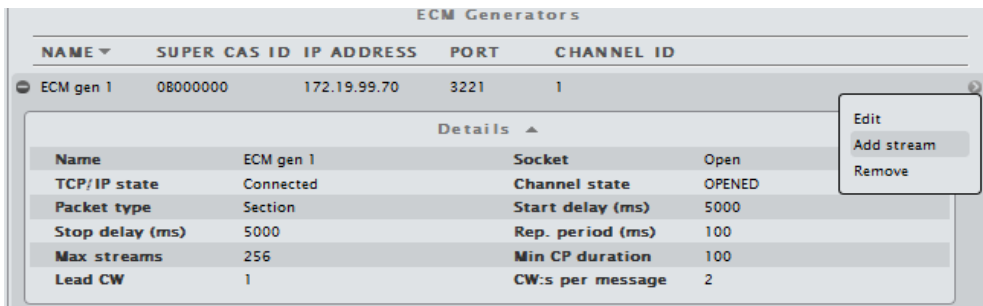



11.4 Add ECM streams to the ECM Generator(s)

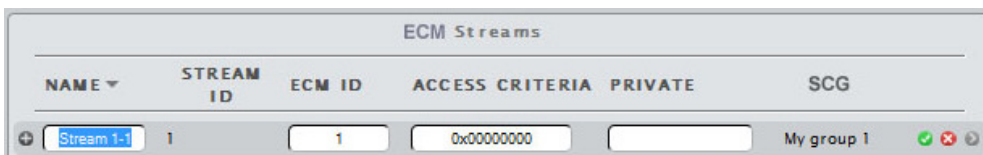
The concept of “ECM streams” is used to enable connection of the ECM generators to the Scrambling Control Groups (SCG), and this is where you enter the access criteria giving smart cards rights to descramble services.

Adding an ECM stream to the ECM Generator

In the SimulCrypt menu under SETTINGS, click the grey arrow to the right of an ECM generator. Select “Add stream”.

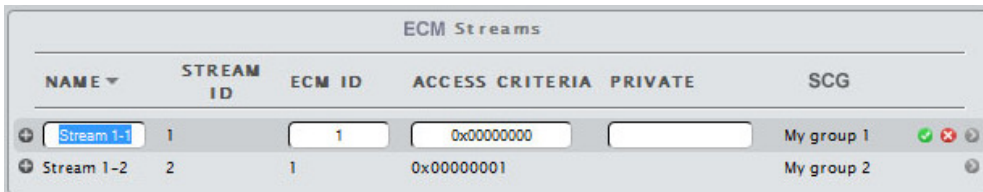


1. Enter a name for the ECM stream
2. Enter the STREAM ID and ECM ID (*local identifiers*)
3. Enter the access criteria (*info from CAS supplier*)
4. If required, enter Private Data (*info from CAS supplier*)
5. Click the green confirmation symbol  , or press enter



Adding another ECM stream to an ECM Generator

Repeat the steps above.




11.5 Scrambling Control Groups & connect to ECM Streams

Scrambling Control Group (SCG) (ETSI TS 103 197 V1.5.1): data structure gathering together in one same logical set the list of A/V streams scrambled at the same time with the same control word and the list of ECMs that are going to be generated with the identifier of their CA system and with their respective Access Criteria


Adding a Scrambling Control Group (SCG)

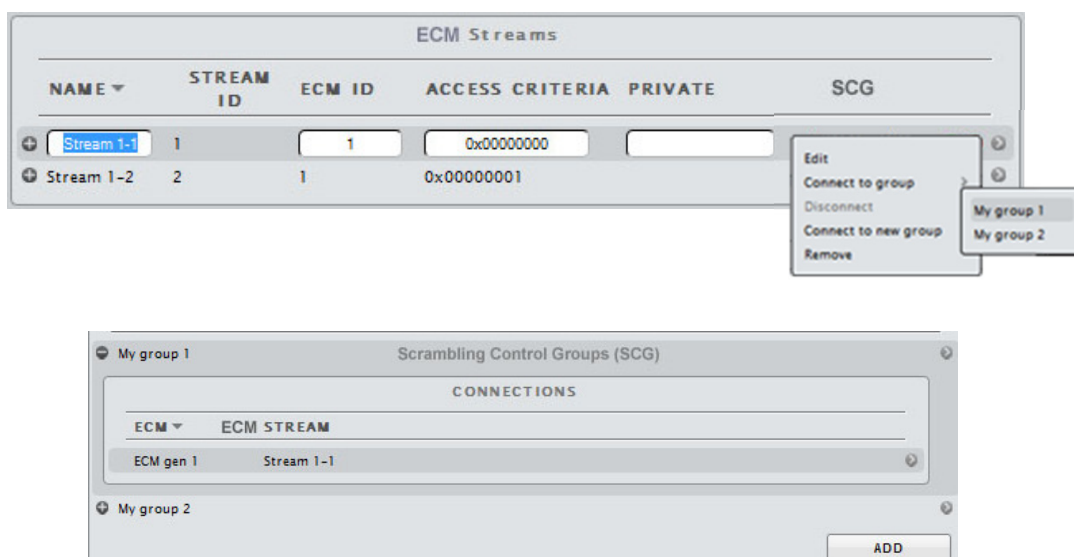
In the SimulCrypt menu under SETTINGS, click ADD in the SimulCrypt Control Groups box.

1. Enter a group name
2. Click the green confirmation symbol , or press enter



Connecting ECM Streams to Scrambling Control Groups

In the SimulCrypt menu under SETTINGS, click the grey arrow  to the right of an ECM stream. In the pop-up menu, select "Connect to group", and select the scrambling control group (SCG) to connect to.



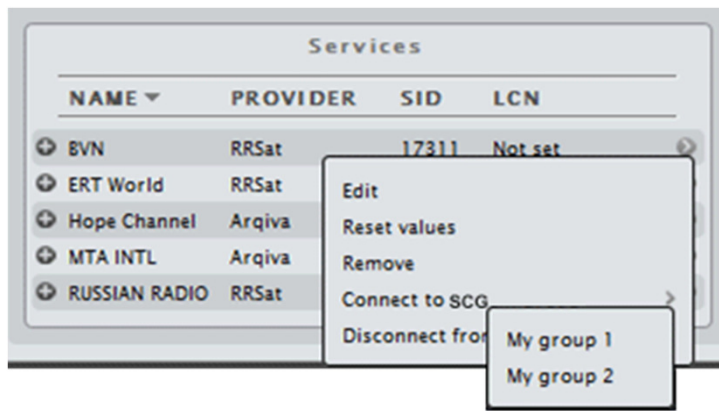


11.6 Connect the service to be scrambled to an SCG

Connecting a service to a Scrambling Control Group (SCG)

In SERVICE MANAGEMENT, Outputs, click the grey arrow ➤ to the right of a service.

In the pop-up menu, select “Connect to SCG”, and select the Scrambling Control Group you want to connect to.



When an output service connected to a Scrambling Control Group is expanded (clicking the leading ➤), the SCG it is connected to is displayed below the service name.

Services that are scrambled are indicated with a padlock 🗝️.

For the services connected to an SCG, all video and audio PIDs will be scrambled.



12. Settings: Managing the Chameleon module

Under **SETTINGS**, all module specific setting are managed.

NETWORKING: Networking settings IP interfaces, see §12.1.

HEADEND SYSTEM MANAGEMENT: for Chameleon interconnection, see §10.6

OPERATION MODE: selection of output mode, see §7

COMMON INTERFACE: In the COMMON INTERFACE menu, you select the input source for the CI, and you have access to the menu from the inserted CAM or CAMs. See § 10.2

SIMULCRYPT: for setting up EMM and ECM connections to a CA Server, and connecting ECM streams to Scrambling Control Groups, see §11 and sub-paragraphs.

DATE AND TIME: Settings for TDT source, and connection to NTP server. See § 12.2

SCHEDULER: Task scheduling for scripts, see § 12.3

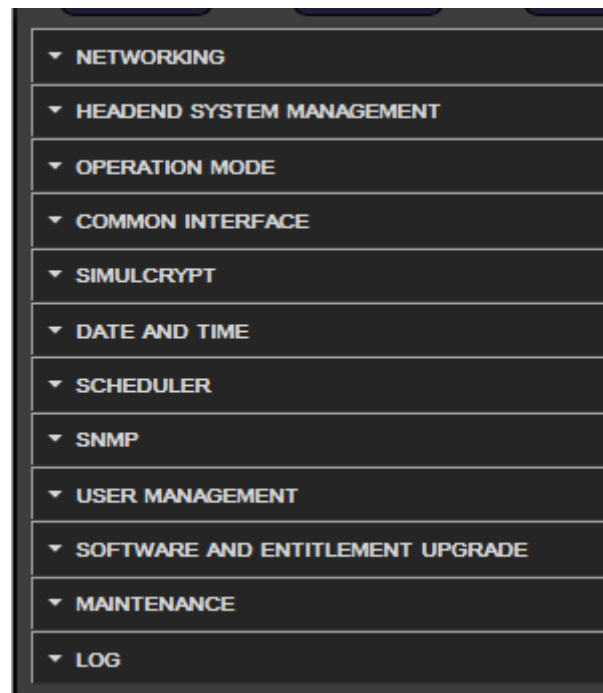
SNMP: settings for SNMP, traps etc., see § 12.4

USER MANAGEMENT: password protection for UI access, see § 12.5

SOFTWARE AND ENTITLEMENT UPGRADE: Software upgrade, used both for uploading new FW and for uploading SW options (entitlement files), see §12.6

MAINTENANCE: For software reboot, reboot in rescue mode, factory reset and configuration backup and restore, see § 12.7 and §12.8

LOG, for displaying logged data.



CHAMELEON

12.1 Add and configure Network interfaces

Adding network interface for streaming

1. Click on NETWORKING in the **SETTINGS** tab
2. Click Add new interface
3. Type a name for the interface
4. Enter the IPv4 address, the Netmask and the Gateway
5. Select the capabilities needed for the interface (e.g. Streaming)
6. Click SAVE

The screenshot shows a configuration window titled "Streaming" with a status of "CONNECTED" and MAC address "00:02:98:07:04:4d". Below the title bar is a section "Add new interface" with a minus sign icon. The configuration fields are as follows:

Field	Value
Interface name	My streaming interface
Use DHCP	OFF
IPv4	192.168.21.17
Netmask	255.255.255.0
Gateway	192.168.0.1
Use VLAN	OFF
System management	OFF
Web management	OFF
SNMP	OFF
Simulcrypt	OFF
Streaming	OFF
Command line interface	OFF

At the bottom right of the configuration area are "SAVE" and "CANCEL" buttons. At the bottom left, there is a plus sign icon and the text "Str 81".

Note: Chameleon has 2 IP ports, a 10/100 Ethernet management port, and a GigE port for streaming. As default, there are no IP interfaces defined for the streaming port. When connecting a PC to the streaming port, the Ethernet port of the PC must have GigE capability.



12.2 Date and time (NTP server access and Time sources)

The DATE AND TIME menu allows you to connect the Chameleon to an NTP server for establishing a valid UTC time reference. The time reference can be used as a time source for the creation of the TDT table. The TDT and TOT is used to enable receivers to detect correct time, and is also the time basis for the EPG (EIT).

The connection to an NTP server requires Internet connection to the Chameleon.

As an alternative, TDT information from incoming streams from the input sources can be used as a time source.

NTP server connection for UTC time reference

In the DATE AND TIME menu under SETTINGS, click Edit

- Select your Time zone in the drop down list
- Select daylight saving time ON/OFF
- Enter a valid URL to an NTP server (e.g. ntp.pool.org)
- Click save

The added NTP server will be shown under Time sources. The UTC time from the NTP server is displayed, and if there are other valid time sources, their times will also be displayed.

As default, the NTP time reference is used for the TDT.

Time sources			
NAME ▾	TIME	USED	ENABLED
Hotbird 10723H	2012-11-02 13:55:10	NO	On
Hotbird 10815 H	2012-11-02 12:55:27	NO	On
NTP	2012-11-02 12:55:27	YES	On

Selecting Time source for the TDT manually

- Click the grey edit arrow to the right of the Time source that is indicated as YES under USED
- Select OFF in the drop-down list under ENABLAD
- Click the green confirmation symbol , or click enter

The Time reference will automatically switch to another Timer source.




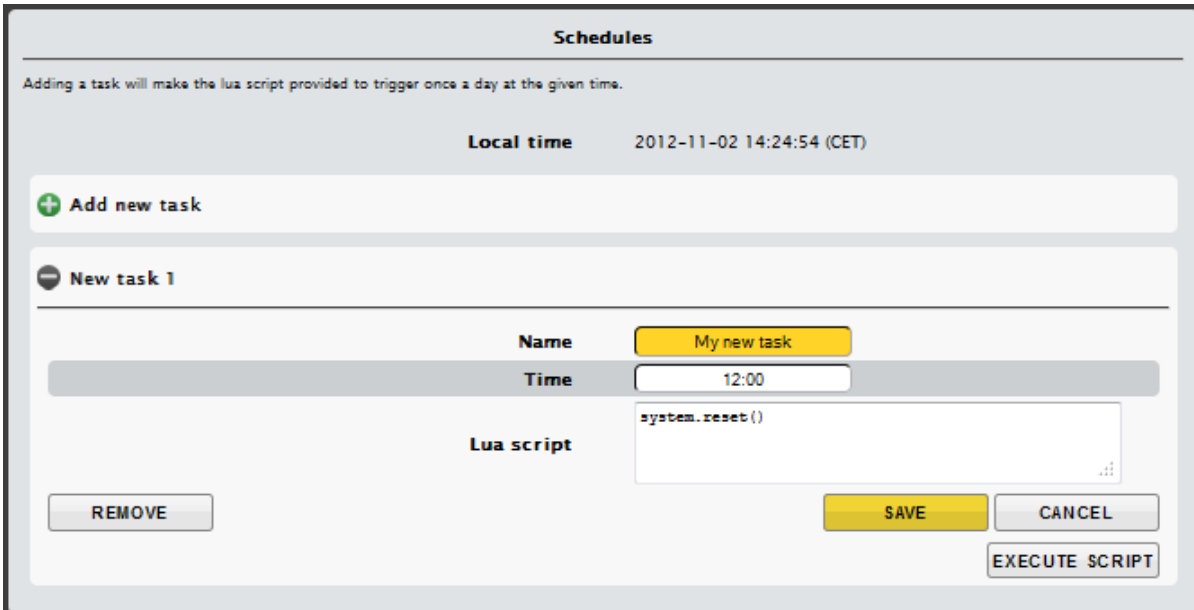
CHAMELEON

12.3 Scheduler – commands scripting

The SCHEDULER is a task scheduler that can be used to run LUA commands from the UI of the Chameleon. The triggering of the tasks (set of commands) are based on local time (hour and minute), with the time source in DATE AND TIME as reference.

Adding a new task

- Click the green plus  , or Add new task.
- Enter a name for the task
- Set the time the task should be run (hh:mm)
- Enter the LUA commands in the Lua script window
- Click SAVE



The screenshot shows the 'Schedules' interface. At the top, it says 'Schedules' and 'Adding a task will make the lua script provided to trigger once a day at the given time.' Below this, the 'Local time' is displayed as '2012-11-02 14:24:54 (CET)'. There is a '+ Add new task' button. Below that, a task named 'New task 1' is shown. The task configuration form includes a 'Name' field with 'My new task', a 'Time' field with '12:00', and a 'Lua script' field with 'system.reset()'. At the bottom of the form, there are buttons for 'REMOVE', 'SAVE', 'CANCEL', and 'EXECUTE SCRIPT'.

Running (testing) a task

You can test a task / the LUA commands manually by clicking EXECUTE SCRIPT

LUA commands for scripting

For information about available LUA commands, please contact Support.



12.4 SNMP

SNMP	
Enable agent	ON OFF
Agent port	161
Agent community read string	public
Agent community write string	private
Enable traps	ON OFF
Traps address	192.168.21.17
Traps port	162
Traps community string	public
Traps SNMP Version	SNMPv2c

SNMP, Simple Network Management Protocol

SNMP can be used for alarms (traps/notifications) or to read (Get) or write (Set) information from/to a Chameleon.

To use SNMP, you need an NMS (Network Management System) that is connected to the Chameleon.

SNMP settings

- Enable agent: for turning the SNMP agent in Chameleon ON/OFF
- Agent port: UDP listen port (161 is the standard port used)
- Agent community read string: a “password” that has to be set in the NMS. The standard default string is “public”.
- Agent community write string: a “password” that has to be set in the NMS. The standard default string is “private”.
- Enable traps: for turning ON/OFF the alarm functionality
- Traps address: destination address of the NMS receiving the traps
- Destination port: destination port of the NMS receiving the traps
- Traps Community string: a “password”. Should be stated in the NMS. Default standard: “public”

MIB, MIB structure and NMS integration

Please contact Support for information about the MIB.






12.5 User management – password protection

A screenshot of a web application window titled "USER MANAGEMENT". The window has a sub-header "User management". Below the header, there is a note: "Enabled/disable user authentication on this page." and two more notes: "Note: To be able to enable user authentication you must first create a user." and "Note: It is not possible to remove the last user without disabling user authentication first." There is a toggle switch for "User authentication" currently set to "OFF". Below this are "SAVE" and "CANCEL" buttons. A section titled "Add new user" with a green plus icon contains three input fields: "User name" with the text "Per", "Password" with masked characters "*****", and "Password again" with masked characters "*****". There are "SAVE" and "CANCEL" buttons at the bottom right of this section.

The USER MANAGEMENT allows settings of password for the UI. You can add users, and create passwords for each user.

Adding a user and password

- Click Add new user, or the green plus 
- Enter a user name
- Enter a password
- Confirm the password by entering it again
- Click SAVE

Enabling password control

- Select User authentication ON
- Click SAVE

The web UI will respond with a "Authentication Required" where you should enter the user name and password.

A screenshot of a dialog box titled "Authentication Required". It contains a question mark icon and the text: "A user name and password are being requested by http://172.18.71.84. The site says: 'Password protected web interface'". Below this text are two input fields: "User Name:" and "Password:". At the bottom of the dialog are "OK" and "Cancel" buttons.

Note: make sure to remember your user names and passwords!

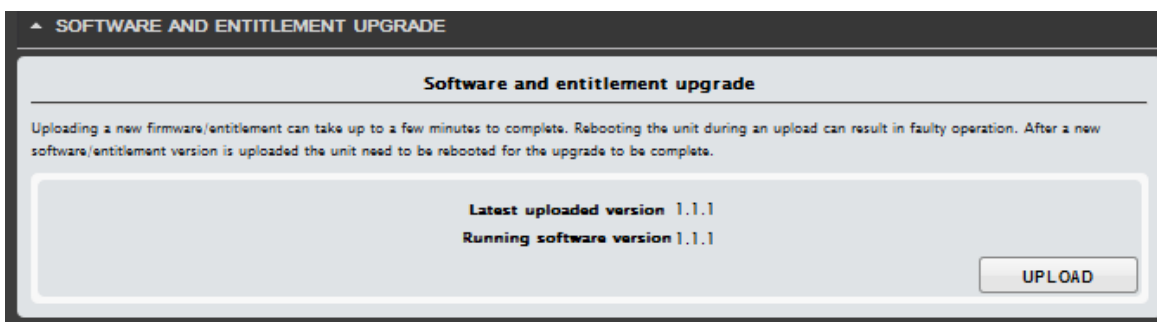
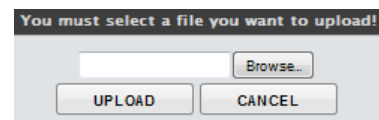


12.6 Software and SW options (entitlement) upgrade

Both FW and SW options are uploaded via the SOFTWARE AND ENTITLEMENT UPGRADE in the **SETTINGS** tab. Additionally, there is status information about the running software version, and, if a new software is uploaded, also about the latest (not running) software version.

Uploading Firmware

1. Click UPLOAD. Click Browse... in the pop-up, and select the software file (*.bin file) to be uploaded from your PC
2. Click the Upload button
3. After upload complete message, reboot the module



Uploading software options

1. Click UPLOAD. Click Browse... in the pop-up to browse for the software options file (*.ent) for this specific Chameleon module

Note: The SW options file will have the format <serial number>.ent. If you need to, you can download the entitlement file from the chameleonconnect.tv portal, see §4.

2. Locate the software options file on your PC, and select it
3. Click the Upload button
4. Reboot the module

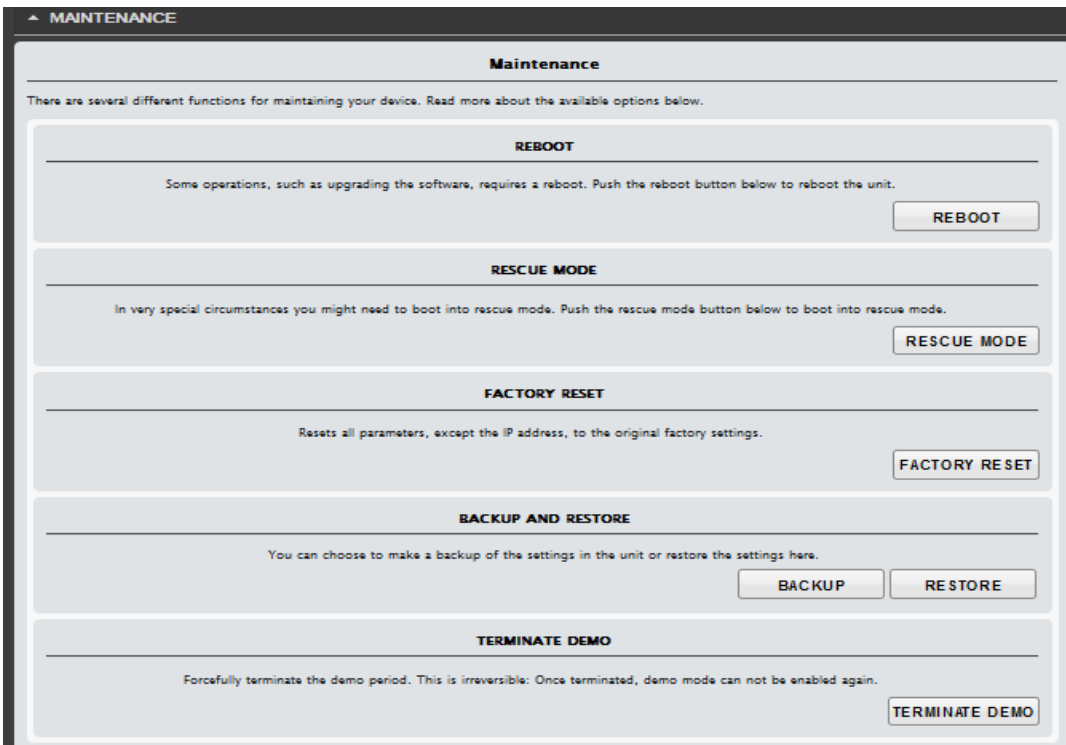
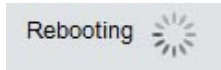


12.7 Module maintenance

Reboot

Some operations, such as upgrading the software, requires a reboot. Click the **Reboot** button to reboot the unit.

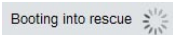
During the rebooting process, Rebooting will be shown.



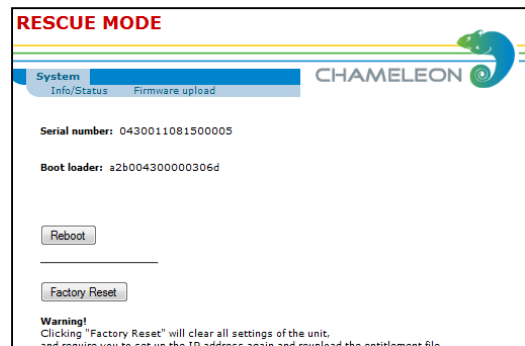
Rescue mode

In very special circumstances you might need to boot into rescue mode. Push the **Rescue mode** button to boot into rescue mode.

During the rebooting process, Booting into rescue will be shown.



In the rescue more, you can access basic functionality, and upload new software and software options.



Returning to normal mode

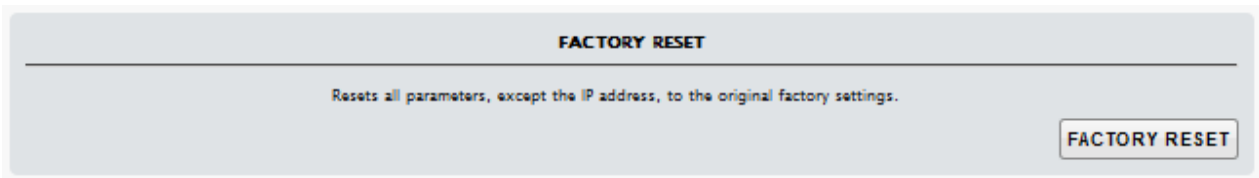
Click the **Reboot** button in the rescue mode to return to normal mode. *Note:* re-enter the IP address of your Chameleon in the address field of you browser to access the normal mode web GUI.



12.8 Factory reset & Backup / Restore

Factory reset

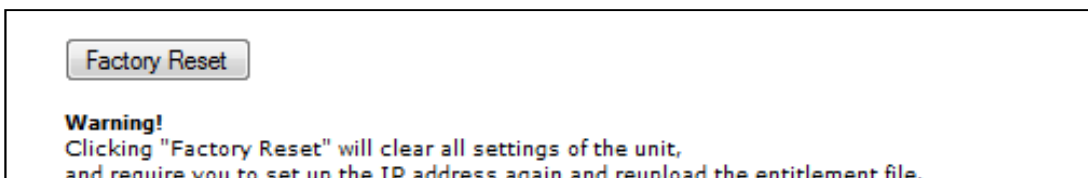
The Chameleon module can be reset to the same status as when delivered from the factory, apart from the SW option that will remain as before factory reset, and the management IP address that will be kept. Go to the SETTINGS tab, and MAINTENANCE. Click on FACTORY RESET.



Factory reset from the rescue interface

There is a factory reset button in the rescue mode UI.

WARNING! Factory reset from the rescue mode will remove all settings, remove the entitlement file enabling the SW options, and will reset the IP address to the default 192.168.0.20.

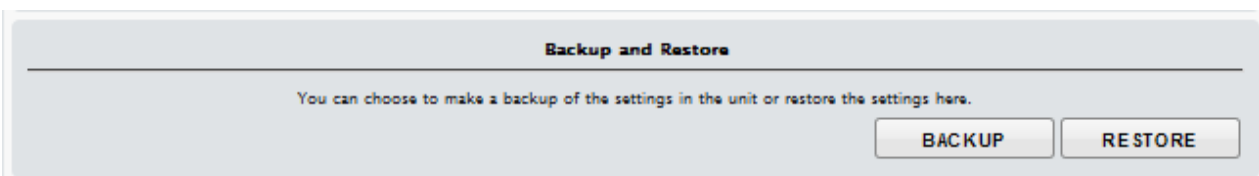


Backup and restore (saving configuration)

The backup and restore functionality gives you the possibility to save the complete configuration of a Chameleon to your PC. The stored file is in xml format.

The backup file can be used for e.g. copying configurations between different installations, or keeping a possibility to upload the original configuration to a Chameleon if you have tested a different configuration.

Additionally, the backup file is useful for support purposes, since it gives the support team a possibility to set up an identical installation.



CHAMELEON

13. Status information

The **STATUS** tab gives a general overview over the Chameleon module. This page is also the starting page for the web GUI.

MODULE IDENTIFICATION

Serial number and the HW version is shown. Further, there are 3 editable fields; Name, Location and Description. Clicking **EDIT** below the box enables you to save your own selected information about this Chameleon module.

CONFIGURATION

The configuration box shows you the Operation mode, the Software version, and the enabled SW options. A warning will be shown if no operation mode is selected.

STATUS

Uptime (from last reboot), and current module temperature.

SERVICE LICENCE AGREEMENT

Shows if the Chameleon is registered at the chameleonconnect.tv portal, and the expiry date of the service level agreement. If the demo/trial period is still on, the remaining demo uptime is displayed. If not, Demo Expired will be show.

MODULE IDENTIFICATION	
Serial	0430011083100001
Hardware revision	1102
Name	Foxtrot
Location	Mjärdevi
Description	Test module
<input type="button" value="EDIT"/>	

CONFIGURATION	
Operation mode	Analog mode
Software version	1.4
Software options	CNHWUA, GNS2, GNDT, GNDC, GNQCMOD, GNDTMOD, GNDVMOD, GNOCFTM, GNDASI, GNSDI, GNHSDI, GNDCI, GNSTR, CNMUX, GNSYMUX

STATUS	
Uptime	10d 0h 9m 53s
Temperature	50.5 °C

SERVICE LICENSE AGREEMENT (SLA)	
Demo	Expired
Registered	Yes
Expires	2015-11-30



CHAMELEON

14. SW options

Chameleon “products” range from receiver, to edge, to streamer and to scrambler. The different “products” realisations are controlled by the SW options enabled in any specific Chameleon module.

To get an overview of all different SW options currently available, please contact your sales representative at A2B or Wisi, or contact the Chameleon Support, see §14.

List of uploaded SW options

Under the Status tab, all enabled SW options are listed.

NOTE! During DEMO trial period all SW options are enabled. Don't forget to order SW options needed for the actual installation.

How to get and upload additional SW options

Please contact your sales representative at A2B or Wisi to get information.



WISI Communications
Inland: +49 7233-66-0
Export: +49 7233-66-280
E-Mail: info@wisi.de
Internet: www.wisi.de



A2B Electronics AB
Phone: +46 141 22 91 00
E-Mail: market@a2b.se
Internet: www.a2b.se



