

USER'S MANUAL



CRT1081IRD-S2-MX
Compact size 8-channel multiplexing DVB-S2 IRD

CRT1081IRD-S2-MX

USER'S MANUAL



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1 General information

1.1 Description

CRT1081IRD-S2-MX – is a compact size eight channel DVB-S2 integrated receiver decoder with embedded four channel DVB remultiplexer. The device consists of 8 full featured DVB-S/S2 receivers, 4 DVB-ASI input interfaces, flexibly configurable 8-channel Common Interface for descrambling services and 4-channel DVB remultiplexer with DVB EPG processor, DVB-ASI and DVB-over-IP outputs, all in one 19-inch, 1U case. Such a compact and high integrated solution lets you build your network central station with an exceptional efficiency. WEB control interface lets you control all the system no matter where you are at the moment.

1.2 Packaging contents

| | |
|------------------|---|
| CRT1081IRD-S2-MX | 1 |
| AC power cord | 1 |
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1.3 Technical specifications

| | |
|--------------------------------------|---------------------------------|
| DVB-S/S2 receivers | |
| Number of channels | 8 |
| Receiving frequency range | 950-2150 MHz |
| Input signal level | -65...-25 dBm |
| Nominal RF input impedance | 75 Ohm |
| Connector type | IEC, F-type |
| Max. LNB power | 13/18 V, 400 mA |
| Symbol rate | 1-45 Mbaud(QPSK, 8PSK) |
| FEC | auto |
| Common Interface | |
| Number of channels | 8 |
| Specifications | EN50221, ETSI TS 101699 |
| DVB-ASI inputs | |
| Number of channels | 4 |
| Specifications | EN 50083-9 |
| Connector type | IEC 169-8, BNC-type |
| Operation modes | auto detect |
| Max. input bitrate, Mbit/s | 213 (packet), 72 (byte) |
| DVB multiplexers | |
| Number of input channels | 12 |
| Number of output channels | 4 |
| Specifications | ISO IEC 13818-1 |
| Max. output bitrate(all channels On) | 300 Mbit/s(IP), 400 Mbit/s(ASI) |
| PID restamping | Yes |
| SI/PSI processing | Yes |
| DVB EPG server | Yes(embedded) |
| DVB NIT server | Yes(embedded) |
| PCR jitter | < 500 ns |
| DVB-ASI outputs | |
| Number of output channels | 4 |
| Specifications | EN 50083-9 |
| Connector type | IEC 169-8, BNC-type |
| Operation modes | Byte/Package, 188 byte |
| Max. output bitrate, Mbit/s | 213 (packet), 72 (byte) |
| DVB-over-IP | |
| Specification | ETSI TS 102034 |
| Streaming protocol | UDP |
| Streaming type | Multicast/Unicast |
| Number of DVB-over-IP streams | 4 (ASI bound MPTS) |
| Network interface | 1 Gbit Ethernet |
| Control software | HTTP server (Web) |
| Control interface | 100 Mbit Ethernet, TCP/IP |
| Supply voltage | 100-240 V |
| Max. power | 60 W |
| Operational conditions | |

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|-------------------|----------------------------------|
| Temperature | 10...30 °C |
| Relative Humidity | Up to 95 %, without condensation |
| Dimensions | |
| Width, mm | 440 |
| Depth, mm | 356 |
| Height, mm | 44 |

2 Safety guidelines

2.1 General safety guidelines

Use the following guidelines when unsafe conditions exist or when potentially hazardous voltages are present:

- Always use caution and common sense.
- To reduce the risk of electrical shock, do not operate equipment with the cover removed.
- Repairs must be performed by qualified service personnel only.
- Remember that voltages higher than 60 V DC or 30 V AC rms are dangerous.

2.2 Device Safe Operation Guidelines

- Use only specified power supply and signals.
- Have device power off when doing connections.
- Proper cable types must be used.
- Use the device under the specified environmental conditions.
- Do not obstruct the ventilation system.

3 Installation and setup

3.1 Physical Description

3.1.1 Front view

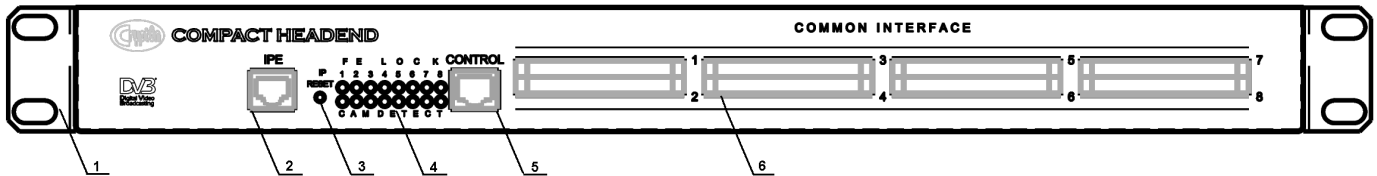


Fig. 1 Front view

1. Front panel with mounting holes;
2. 1Gbit Ethernet port for IP streaming of DVB services;
3. Device network/factory settings RESET button;
4. LEDs for tuners lock and CAM modules insertion indication;
5. 100Mbit Ethernet port for device control;
6. Common Interface slots for CAM modules.

3.1.2 Rear view

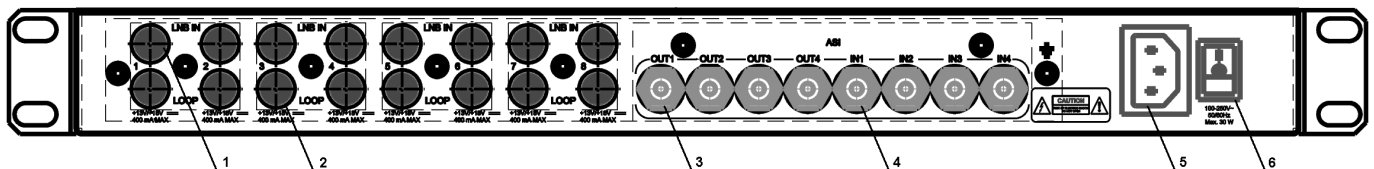


Fig. 2 Rear view

1. 8 DVB-S/S2 receiver LNB inputs;
2. 8 DVB-S/S2 receiver Loop outputs;
3. 4 DVB-ASI outputs from multiplexers;
4. 4 DVB-ASI multiplexers inputs;
5. Power socket;
6. Power switch.

3.2 Hardware Installation

The following sequence of operations is recommended.

1. Unpack the device and check that all components are safe. If the device was taken to the installation room from a colder place wait at least one hour until condensed damp is dry.
2. Put the device at the place of operation and fix it properly. Special telecom rack is the best choice for multiple devices installation.
3. Provide necessary connections of LNB inputs, ASI inputs and outputs.
4. Connect the device Ethernet port to the same type port of the host PC with cross cord or use patch cord when Ethernet switch is used.
5. Connect the power supply cord to an AC outlet. Only specified voltage should be used. Pay a special attention to use power cords and plugs with a ground wire. The chassis is grounded through the three prong AC receptacle.
6. Insert CAM Modules into Common Interface slots. To prevent damage of the interface only use EN50221 specified CAM Modules, push them gently no exceeding effort is required.
7. Switch the device power on. Short period LED lights signal the device is ready to operate.

3.3 Hardware setup

3.3.1 Default network settings

The following default network settings are usually appear when fist time device power on. Please check that your Host PC network settings match to those default settings to make the the device connection.

| | |
|--------------------|-------------------|
| MAC address | 00:01:00:15:xx:xx |
| IP address | 192.168.0.100 |
| Subnet Mask | 255.255.255.0 |
| Gateway IP address | 0.0.0.0 |
| Login | admin |
| Password | admin |

Note. Please see your device MAC address information attached to the accompanying documentation.

3.3.2 Network and authorization settings reset

You can reset the device network setting and access rights to the default any time you need. When the device is operating please carefully press IP RESET button on the front panel and hold for 1-2 seconds. The device will automatically start reboot for new settings to take effect. Use the default network and authorizatuin settings to access the device.

3.3.3 Reset the device configuration to the factory settings

You can reset the device configuration to the factory settings. When the device is operating please carefully press IP RESET button on the front panel and hold at least 20 seconds antil LEDs start blinking. The device will automatically start reboot for new settings to take effect. Factory configuration appears after reboot.

4 Configuring the device using WEB interface

4.1 Logging in to the WEB interface

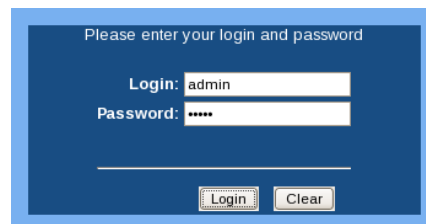
Before you start please check the following.

- An IP address that identifies the CRT1081IRD-S2-MX Ethernet interface on the LAN, and the Subnet Mask for the LAN segment.
- A 10BaseT or 100BaseT network connection.
- A grounded AC power outlet.
- A PC or other workstation with a web browser connected to the network to access the Web Interface to configure the unit for operation. It is recommended to use the following list of current or later Browser versions:

Google Chrome 3.0
Firefox 3.5
Opera 10
Internet Explorer 8.0

Note. 192.168.0.100 – is the default IP address

Enter current Login and Password to access the device settings.



The image shows a web browser window with a dark blue background. At the top, it says "Please enter your login and password". Below this, there are two input fields: "Login:" with the text "admin" entered, and "Password:" with five asterisks "*****" entered. At the bottom of the form, there are two buttons: "Login" and "Clear".

Fig. 3 Authorization page

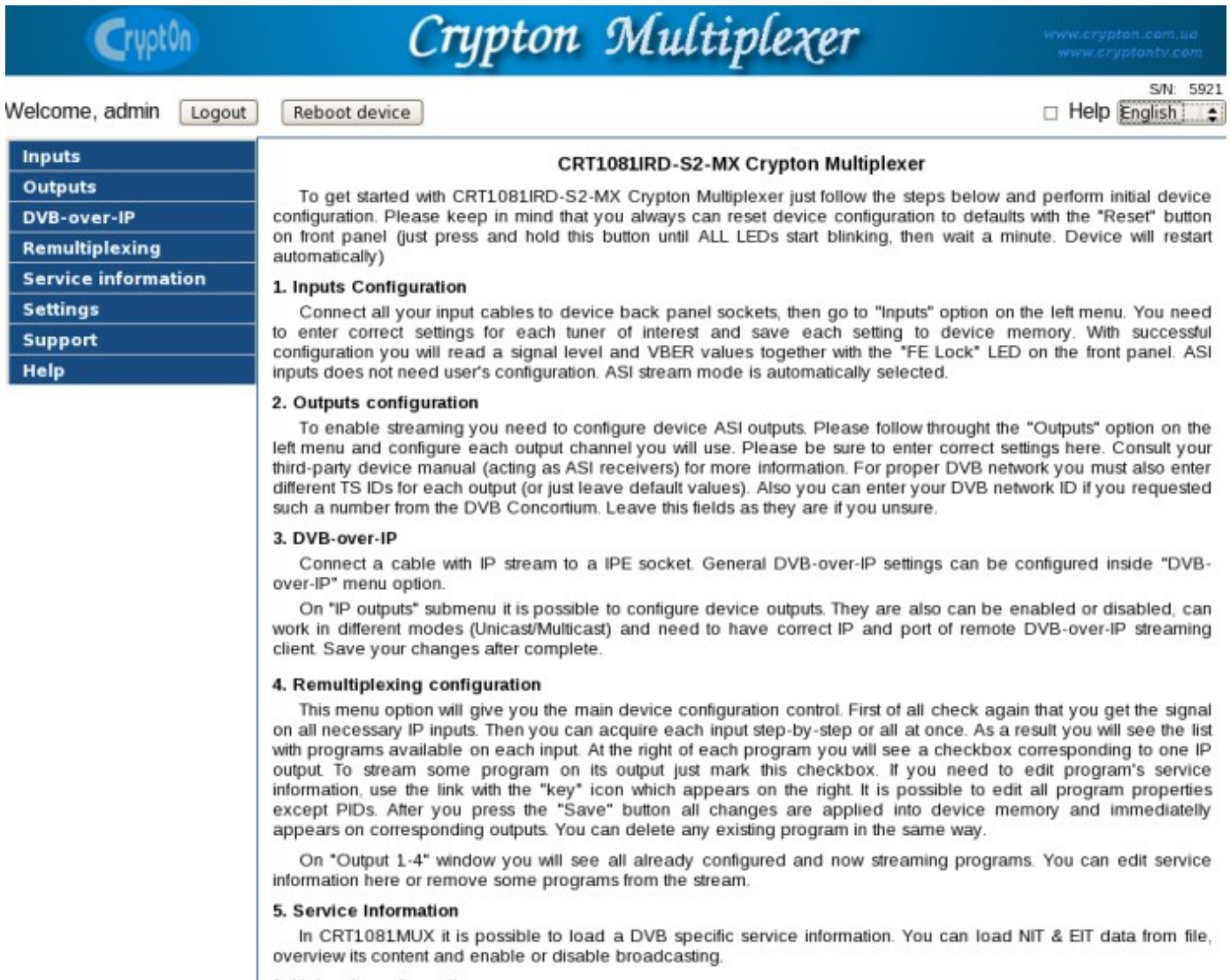
Note. Default password is **admin**.

Note. See 4.8.4 for authorization rights change.

Note. After 15 minutes of inactivity the device will disconnect automatically.

4.2 Main Page.

After Logging process is successfully finished CRT1082IPE Main page opens, as shown in the following example.



CRT1081IRD-S2-MX Crypton Multiplexer

To get started with CRT1081IRD-S2-MX Crypton Multiplexer just follow the steps below and perform initial device configuration. Please keep in mind that you always can reset device configuration to defaults with the "Reset" button on front panel (just press and hold this button until ALL LEDs start blinking, then wait a minute. Device will restart automatically)

- 1. Inputs Configuration**

Connect all your input cables to device back panel sockets, then go to "Inputs" option on the left menu. You need to enter correct settings for each tuner of interest and save each setting to device memory. With successful configuration you will read a signal level and VBER values together with the "FE Lock" LED on the front panel. ASI inputs does not need user's configuration. ASI stream mode is automatically selected.
- 2. Outputs configuration**

To enable streaming you need to configure device ASI outputs. Please follow through the "Outputs" option on the left menu and configure each output channel you will use. Please be sure to enter correct settings here. Consult your third-party device manual (acting as ASI receivers) for more information. For proper DVB network you must also enter different TS IDs for each output (or just leave default values). Also you can enter your DVB network ID if you requested such a number from the DVB Consortium. Leave this fields as they are if you unsure.
- 3. DVB-over-IP**

Connect a cable with IP stream to a IPE socket. General DVB-over-IP settings can be configured inside "DVB-over-IP" menu option.

On "IP outputs" submenu it is possible to configure device outputs. They are also can be enabled or disabled, can work in different modes (Unicast/Multicast) and need to have correct IP and port of remote DVB-over-IP streaming client. Save your changes after complete.
- 4. Remultiplexing configuration**

This menu option will give you the main device configuration control. First of all check again that you get the signal on all necessary IP inputs. Then you can acquire each input step-by-step or all at once. As a result you will see the list with programs available on each input. At the right of each program you will see a checkbox corresponding to one IP output. To stream some program on its output just mark this checkbox. If you need to edit program's service information, use the link with the "key" icon which appears on the right. It is possible to edit all program properties except PIDs. After you press the "Save" button all changes are applied into device memory and immediately appears on corresponding outputs. You can delete any existing program in the same way.

On "Output 1-4" window you will see all already configured and now streaming programs. You can edit service information here or remove some programs from the stream.
- 5. Service Information**

In CRT1081MUX it is possible to load a DVB specific service information. You can load NIT & EIT data from file, overview its content and enable or disable broadcasting.

Fig. 4 Main Page

- Use menu on the left to select different device components such as Tuner/ASI inputs, IPE/ASI outputs, Service filter etc.
- Use **Logout** button in the left up corner to disconnect the device from your PC.
- **Reboot** is used to restart the device software;
- Find language selector and context help switch button in the right up corner.
- You can find the component configuration window in the center of the screen or brief device configuration instructions immediately after logging in.

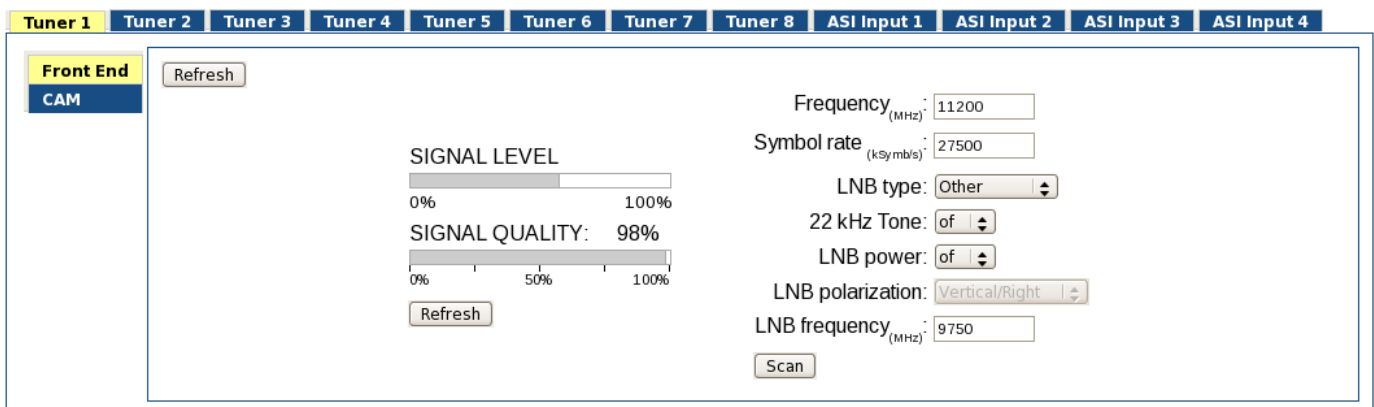
4.3 Inputs page

4.3.1 Tuners setting up

CRT1081IRD-S2-MX take signal from 8 DVB-S/S2 receivers (tuners) and 4 DVB-ASI inputs. The following tuner settings are available.

- **Frequency** – Transponder frequency MHz;
- **Symbol rate** – DVB-S/S2 modulation symbol rate Msym/s;
- **LNB type** – Universal and other LNB convertor types are available;
- **22 kHz Tone** – If **other** LNB type is selected 22 kHz tone signal can be On/Off to switch high or low (below 11700 MHz) Ku Band frequencies;
- **LNB power** – If on 13/18v power up to 400 mA can be supplied to the LNB;
- **LNB polarization** – If **other** LNB type is selectet and LNB power is set ON 13 or 18 v can be supplied to the LNB to select proper polarization;
- **LNB frequency** – For **other** LNB type you can enter required LO frequency.

Press **Scan** to apply new tuner settings or **Refresh** to udate Signal level and Signal Quality information.



The screenshot displays the 'Tuner 1' configuration page. At the top, there is a navigation bar with tabs for Tuner 1 through Tuner 8 and ASI Input 1 through ASI Input 4. The 'Front End' section is active, showing a 'CAM' sub-section. A 'Refresh' button is located at the top left. The 'SIGNAL LEVEL' is shown as a horizontal bar graph with a value of approximately 80% and 'SIGNAL QUALITY' is shown as a horizontal bar graph with a value of 98%. Below these are two 'Refresh' buttons. On the right side, there are several configuration fields: 'Frequency (MHz)' set to 11200, 'Symbol rate (ksymb/s)' set to 27500, 'LNB type' set to 'Other', '22 kHz Tone' set to 'of', 'LNB power' set to 'of', 'LNB polarization' set to 'Vertical/Right', and 'LNB frequency (MHz)' set to 9750. A 'Scan' button is located at the bottom right.

Fig. 5 Tuner setting up page

Note. After reset to the factory settings (4.3.2) your current configuration data will be lost. Export your current settings if you need them later.

4.3.2 Common Interface setting up for CAM descrambling

When reception quality is good list of all scanned programs can be seen on CAM page.

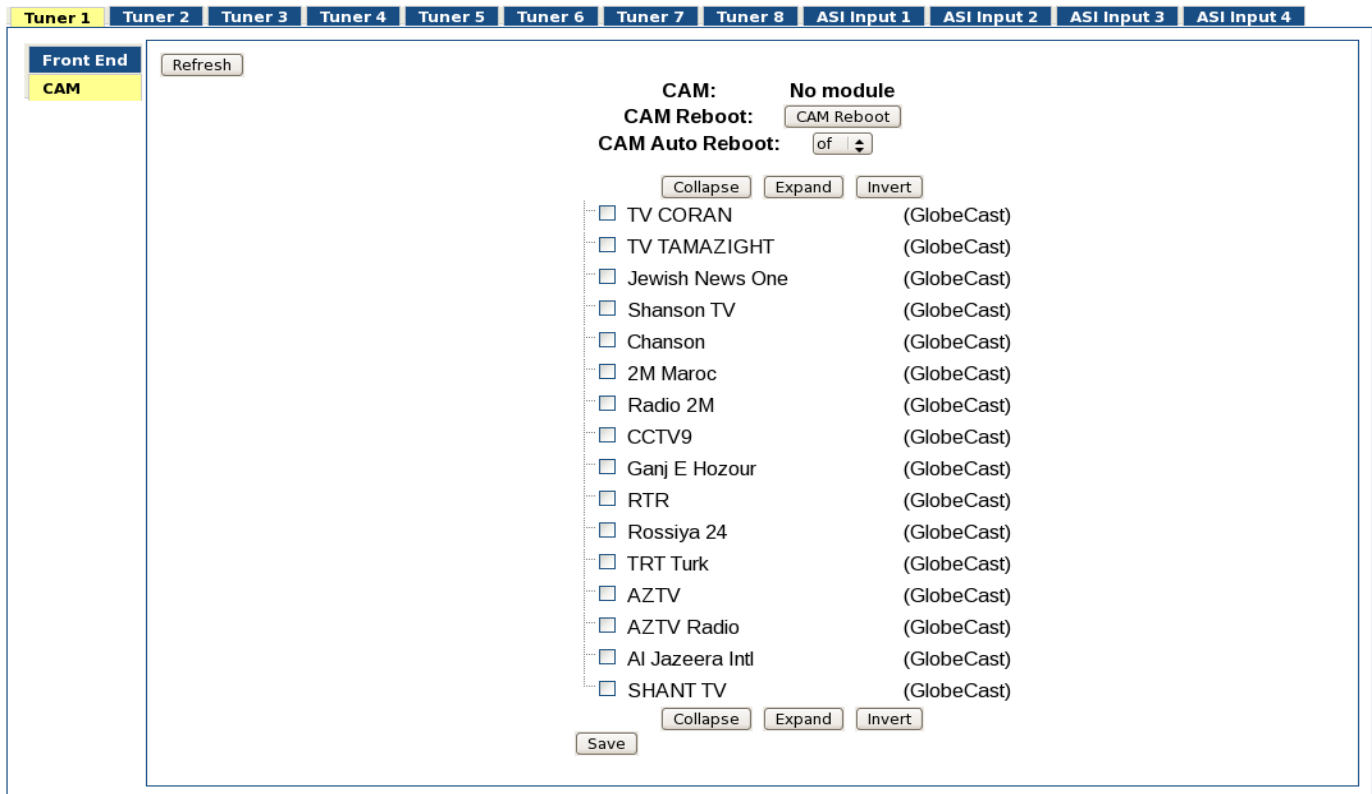


Fig. 6 CAM descrambling page

- CAM Reboot - press the button if you need to reboot the current CAM distantly .
- CAM Auto Reboot - if **on** program descrambling detector is active. Automatic CAM reboot is started every time descrambling at least one of the selected programs is stopped.
- Collapse - press the button to see brief transponder information.
- Expand - use the button if you need to see all program CA_descriptors information.
- Invert - let you switch brief and expanded information modes.
- Save - used **Save** to apply and store new descrambling settings.

For scrambled programs all their CA_Descriptors are listed against the program name. To configure CAM Module for descrambling a program or an elementary stream select proper descriptors(all must be selected if CAM supports standard CI operation mode) from the list. If you don't know exactly your CAM descrambling capabilities try all possible descriptor combinations to discover the reliable program descrambling settings. Press **Save** to start descrambling.

Note. Multiple program descrambling is supported with CRT1081IRD-S2-MX CI interface. Only CA Modules supporting that mode can be used to open several programs.

4.3.3 ASI input state monitor

CRT1081IRD-S2-MX has four DVB-ASI inputs that automatically tune to proper operation mode. You can see current ASI input interface state on the ASI input page.

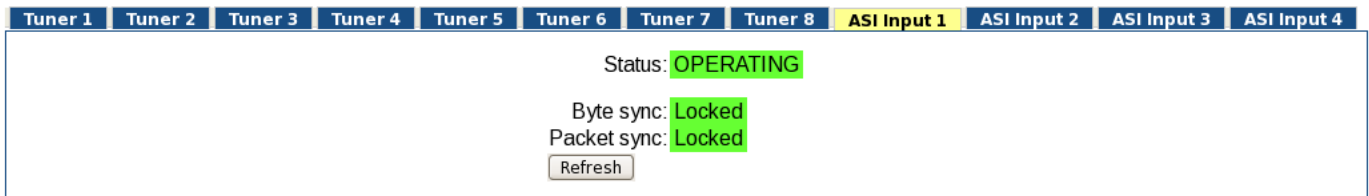


Fig. 7 ASI input page.

4.4 ASI output configuration

CRT1081-S2-MX has up to four embedded DVB remultiplexers. Every multiplex bitrate is set independently on the ASI output configuration page. Set those parameters properly for stable and reliable device operation.

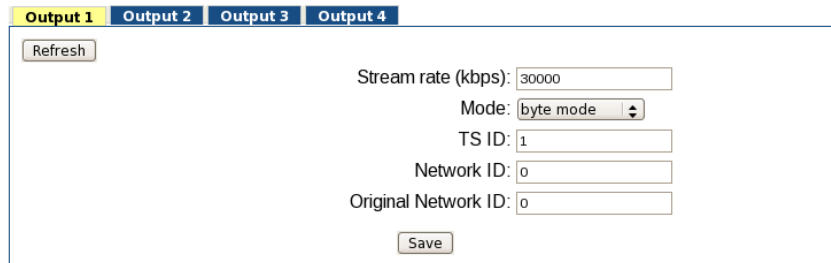


Рис. 9 Настройка ASI выхода

- **Stream rate** - Let you set bitrate of the selected multiplexer output. 0 kbps means that multiplexer is inactive.
- **Mode** - You can select byte or packet DVB-ASI operation mode. Reffer to the user's manual of the device you fead output TS to.
- **TS ID** – DVB transport stream identifier. It must be unique within your network. 0 to 65535 number can be set. Leave default if you are not sure what to set;
- **Network ID** – DVB identifier of you broadcast network(0 to 65535). Please reffer to the latest version of DVB specification ETSI TS 101162 to select correct number;
- **Original Network ID** – DVB identifier the original broadcast network(0 to 65535) the service is taken from. Please reffer to the latest version of DVB specification ETSI TS 101162 to select correct number.

4.5 DVB-over-IP configuration

4.5.1 Device control IP configuration

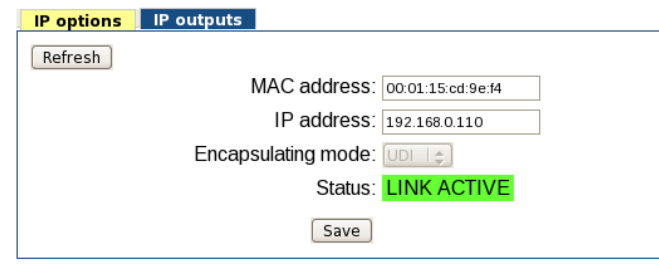


Fig. 9 Device IP options page

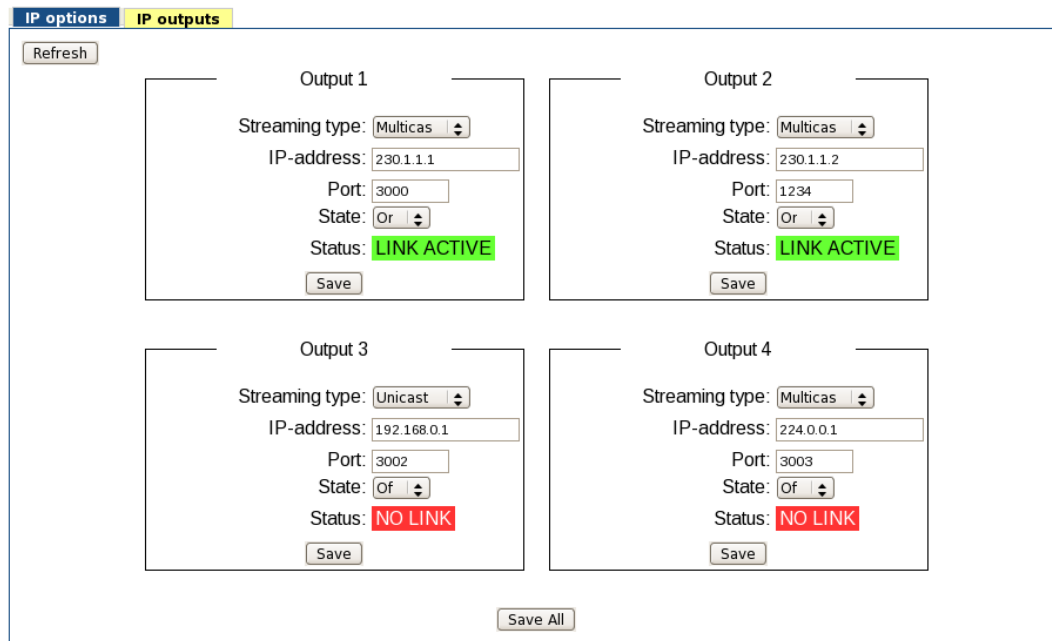
- **MAC address** – Unique Ethernet network address of CRT1081IRD-S2-MX IPE (1Gbit) port.
- **IP address** – Unique sourcr IP address of the device IPE port;
- **IP encapsulation mode** – Only UDP encapsulation is supported;
- **Status** – Shows the current state of the device DVB-to-IP Encapsulation (1Gbit Ethernet)port.

Note. After reset to the factory settings (4.3.2) your current configuration data will be lost. Export your

current settings if you need them later.

4.5.2 DVB-over-IP streaming configuration

Each of four CRT1081IRD-S2-MX embedded multiplexers can deliver output CBR MPTS over IP.



The screenshot shows the 'IP outputs' configuration page. It features a 'Refresh' button at the top left. Below it are four output configuration panels, each with a 'Save' button. The panels are arranged in a 2x2 grid. The top-left panel is for 'Output 1', the top-right for 'Output 2', the bottom-left for 'Output 3', and the bottom-right for 'Output 4'. Each panel contains the following fields: 'Streaming type' (a dropdown menu), 'IP-address' (a text input field), 'Port' (a text input field), 'State' (a dropdown menu), and 'Status' (a text label). A 'Save All' button is located at the bottom center of the page.

| Output | Streaming type | IP-address | Port | State | Status |
|----------|----------------|-------------|------|-------|-------------|
| Output 1 | Multicas | 230.1.1.1 | 3000 | Or | LINK ACTIVE |
| Output 2 | Multicas | 230.1.1.2 | 1234 | Or | LINK ACTIVE |
| Output 3 | Unicast | 192.168.0.1 | 3002 | Of | NO LINK |
| Output 4 | Multicas | 224.0.0.1 | 3003 | Of | NO LINK |

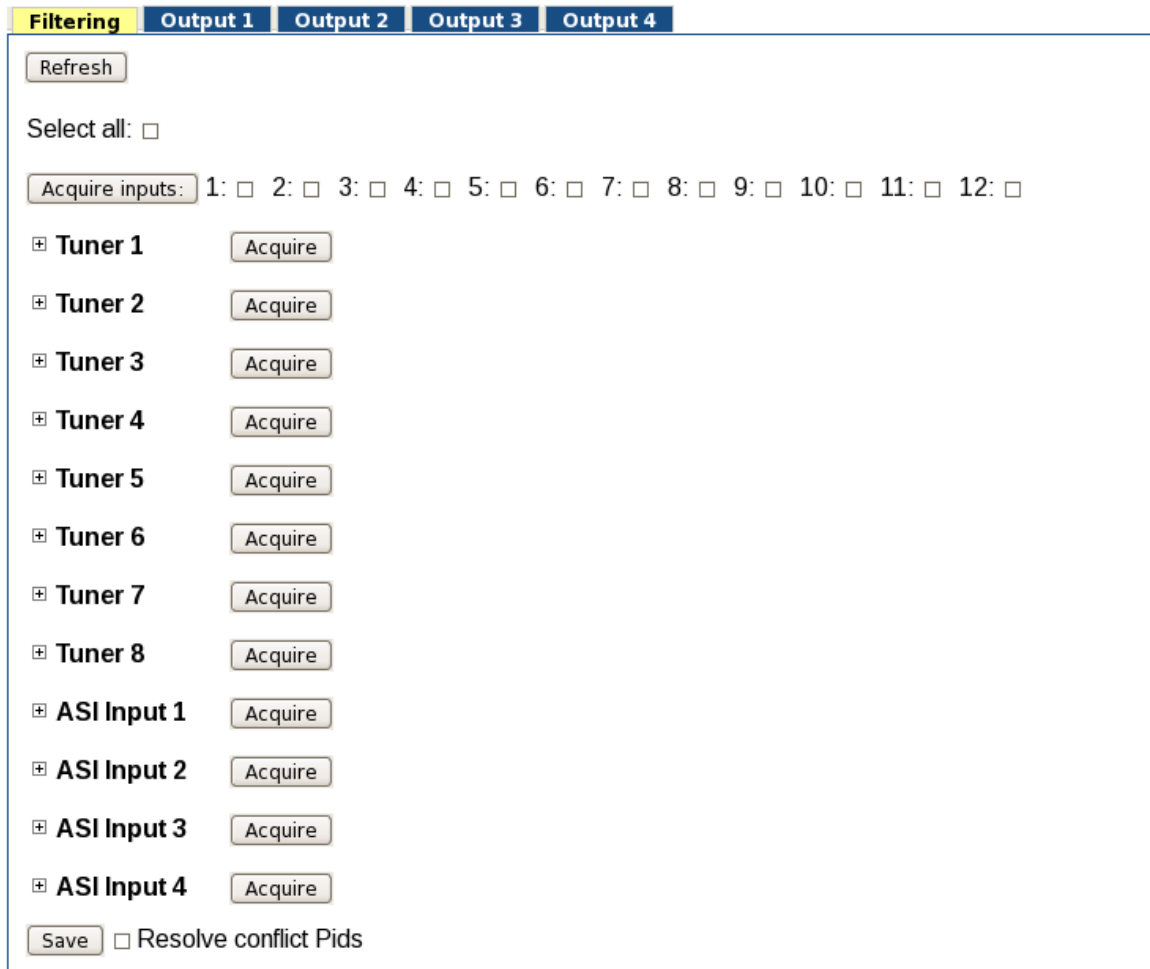
Fig. 10 IP outputs page

The following settings can be made.

- **Streaming type** – Unicast or Multicast ip delivery can be selected;
- **IP-address** – Destination IP address. Any unicast IP address within your network subnet address space or multicast address (224.0.0.1 - 239.255.255.255).
- **Port** – UDP port of the stream receiver (1 – 65535);
- **State** – You can use this switch to stop or resume output TS cast streaming;
- **Status** – LINK ACTIVE shows that connection of the stream transmitter and receiver is set in unicast mode or physical connection with any other 1Gbit Ethernet port is activated in multicast mode.

Note. It is very important to have DVB-over-IP stream receiver active in the moment if unicast mode is selected. Make sure all unicast destination media are properly operating for optimal system performance.

4.6 Program filtering



Filtering | Output 1 | Output 2 | Output 3 | Output 4

Refresh

Select all:

Acquire inputs: 1: 2: 3: 4: 5: 6: 7: 8: 9: 10: 11: 12:

+ Tuner 1

+ Tuner 2

+ Tuner 3

+ Tuner 4

+ Tuner 5

+ Tuner 6

+ Tuner 7

+ Tuner 8

+ ASI Input 1

+ ASI Input 2

+ ASI Input 3

+ ASI Input 4

Resolve conflict Pids

Fig. 11 Program Filtering page

You can use this page to set program filters for all device inputs. Only filtered programs will be maintained by CRT1081IRD-S2-MX stream processor no other programs can be got on the device outputs. The following actions can be done.

- Acquire stream service information independently for the selected input or for all inputs.
- Select only required for post processing programs;
- View or edit program PSI/SI for each of programs;
- View or edit output multiplexes map information;

Note. Press **Save** for new settings to take effect.

4.6.1 Input PSI/SI acquiring

Press Acquire next to the interested Input, select list of Inputs to acquire information from or use Select all to get PSI/SI from all inputs. Wait until inquiry process is finished or press Close to interrupt. The list off all programs on the Input/Inputs appears every time PSI/SI filtering is successfully finished.

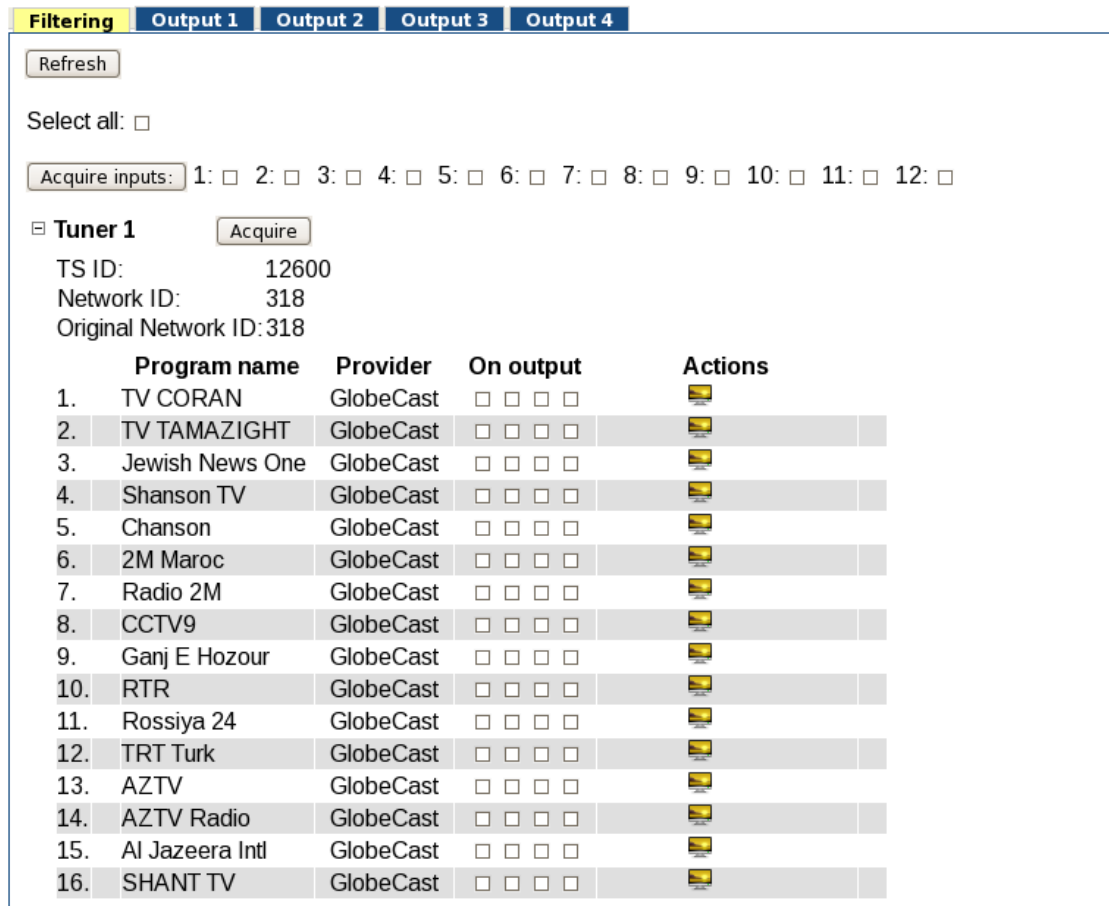


Fig. 12 Acquired Input TS information

No signal message shows that there is no reliable connection on the requested Input/Inputs.

Note. If list of Inputs or All Inputs Acquire is selected it can take rather long time to get information. Scan time is also depends of how much services contains the selected transponder.

4.6.2 Program service information preview.







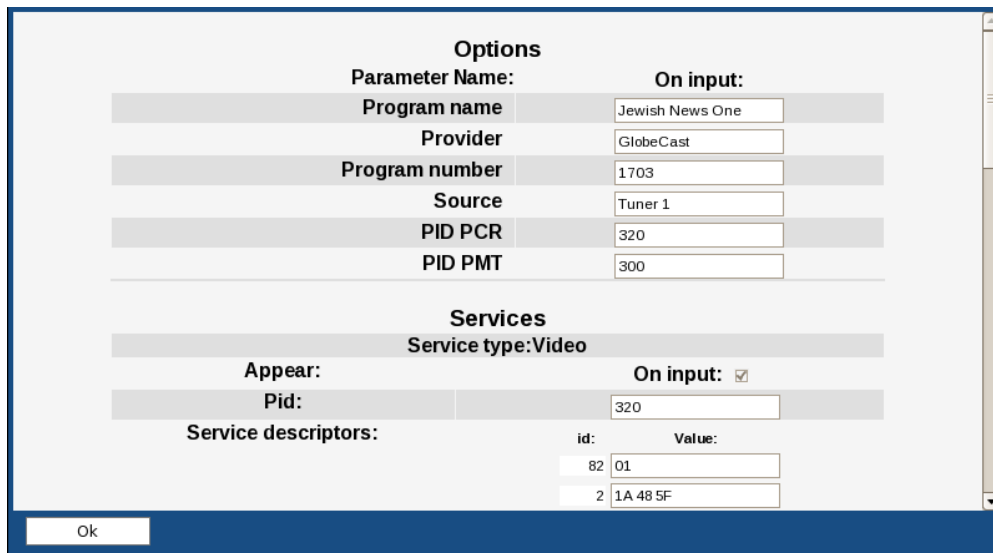
| | Program name | Provider | On output | Actions |
|----|-----------------|-----------|---|--|
| 1. | TV CORAN | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |  |
| 2. | TV TAMAZIGHT | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |  |
| 3. | Jewish News One | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |  |
| 4. | Shanson TV | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |  click to view |
| 5. | Chanson | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |  |
| 6. | 2M Maroc | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |  |

Fig. 13 Click to open PSI information input

The following PSI information window appears.



The screenshot shows a window titled 'Options' and 'Services'. Under 'Options', there are fields for Program name (Jewish News One), Provider (GlobeCast), Program number (1703), Source (Tuner 1), PID PCR (320), and PID PMT (300). Under 'Services', the service type is Video, and it is checked for 'On input'. The 'Appear:' section shows the Pid as 320. The 'Service descriptors:' section lists two descriptors: id 82 with value 01, and id 2 with value 1A 48 5F. An 'Ok' button is at the bottom left.

Fig. 14 PSI information window

Program name. The name that program comes to the system with.

Provider. Program provider information.

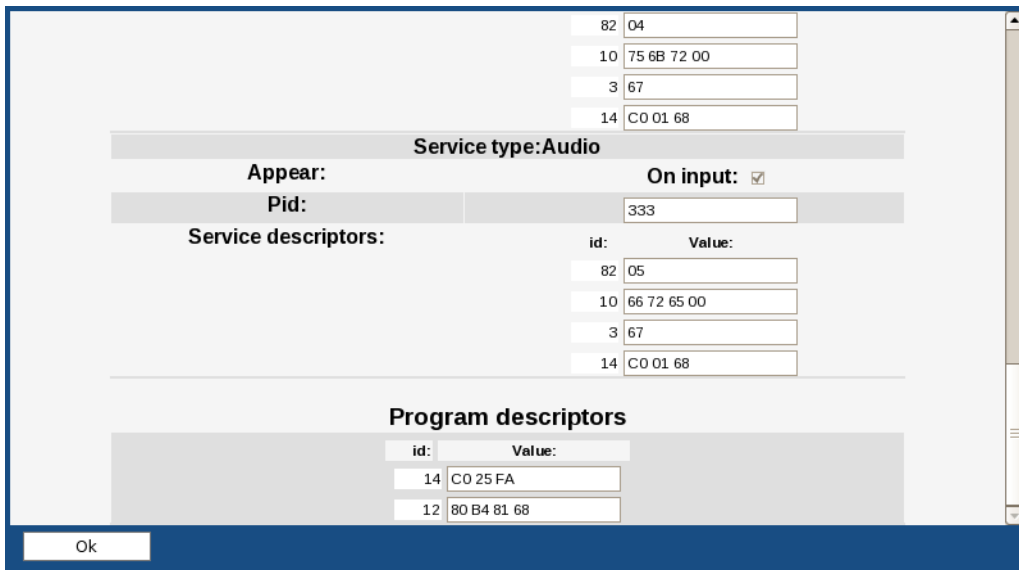
Program number. Unique for the current transponder program number.

Source. Input information the program received from.

PID PCR. Current program reference time stamp PID

PID PMT. Current program PMT table PID

Every program consists of services (Video, Audio, data etc.)



The screenshot shows a software window titled "PSI information window (continued)". It contains several sections:

- Service type:** Audio
- Appear:** (empty field)
- On input:**
- Pid:** 333
- Service descriptors:** A table with columns "id:" and "Value:" containing:

| id: | Value: |
|-----|-------------|
| 82 | 04 |
| 10 | 75 6B 72 00 |
| 3 | 67 |
| 14 | C0 01 68 |
- Program descriptors:** A table with columns "id:" and "Value:" containing:

| id: | Value: |
|-----|-------------|
| 14 | C0 25 FA |
| 12 | 80 B4 81 68 |

An "Ok" button is located at the bottom left of the window.

Fig. 15 PSI information window (continued)

Service type. Type of a service the selected program consists of.

Pid. Service ID.

Service descriptors. List of descriptors for the current service.

Program descriptors. List of descriptors for the current program.

Use this information to plan your network DTV network. Press OK to close information window.

4.6.3 Program assignment to multiplexes

☐ **Tuner 1** Acquire

TS ID: 12600
 Network ID: 318
 Original Network ID: 318

| | Program name | Provider | On output | Actions |
|-----|-----------------|-----------|--|---------|
| 1. | TV CORAN | GlobeCast | <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |
| 2. | TV TAMAZIGHT | GlobeCast | <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |
| 3. | Jewish News One | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> | |
| 4. | Shanson TV | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | |
| 5. | Chanson | GlobeCast | <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |
| 6. | 2M Maroc | GlobeCast | <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |
| 7. | Radio 2M | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> | |
| 8. | CCTV9 | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | |
| 9. | Ganj E Hozour | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |
| 10. | RTR | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |
| 11. | Rossiya 24 | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |
| 12. | TRT Turk | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |
| 13. | AZTV | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |
| 14. | AZTV Radio | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |
| 15. | Al Jazeera Intl | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |
| 16. | SHANT TV | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | |

Fig. 16 Program assignment to multiplexes

Any program of the selected input can be assigned to one of four CRT1081IRD-S2-MX output multiplexes. Only point the multiplex the program have to be distributed in. You can only map a program with only one multiplex. Press **Save** to store and apply remultiplexer configuration.

Note. After reset to the factory settings (4.3.2) your current configuration data will be lost. Export your current settings if you need them later.

4.6.4 PSI/SI edit

CRT1081IRD-S2-MX let you edit service information of each multiplex. Right after you save programs to multiplexes mapping information new edit option appears on the program filter page. Click this new link to enter PSI/SI edit window.

Tuner 1 Acquire
 TS ID: 12600
 Network ID: 318
 Original Network ID: 318













| | Program name | Provider | On output | Actions |
|----|-----------------|-----------|--|---|
| 1. | TV CORAN | GlobeCast | <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |   |
| 2. | TV TAMAZIGHT | GlobeCast | <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |   |
| 3. | Jewish News One | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> |   |
| 4. | Shanson TV | GlobeCast | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> |   |
| 5. | Chanson | GlobeCast | <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |   |
| 6. | 2M Maroc | GlobeCast | <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |   |

Fig. 17 Click to edit PSI/SI

Options

| Parameter Name: | On input: | On output: |
|-----------------|--|--|
| Program name | <input type="text" value="Jewish News One"/> | <input type="text" value="Jewish News One"/> |
| Provider | <input type="text" value="GlobeCast"/> | <input type="text" value="GlobeCast"/> |
| Program number | <input type="text" value="1703"/> | <input type="text" value="1703"/> |
| Source | <input type="text" value="Tuner 1"/> | <input type="text" value="Tuner 1"/> |
| PID PCR | <input type="text" value="320"/> | <input type="text" value="320"/> |
| PID PMT | <input type="text" value="300"/> | <input type="text" value="300"/> |

Services

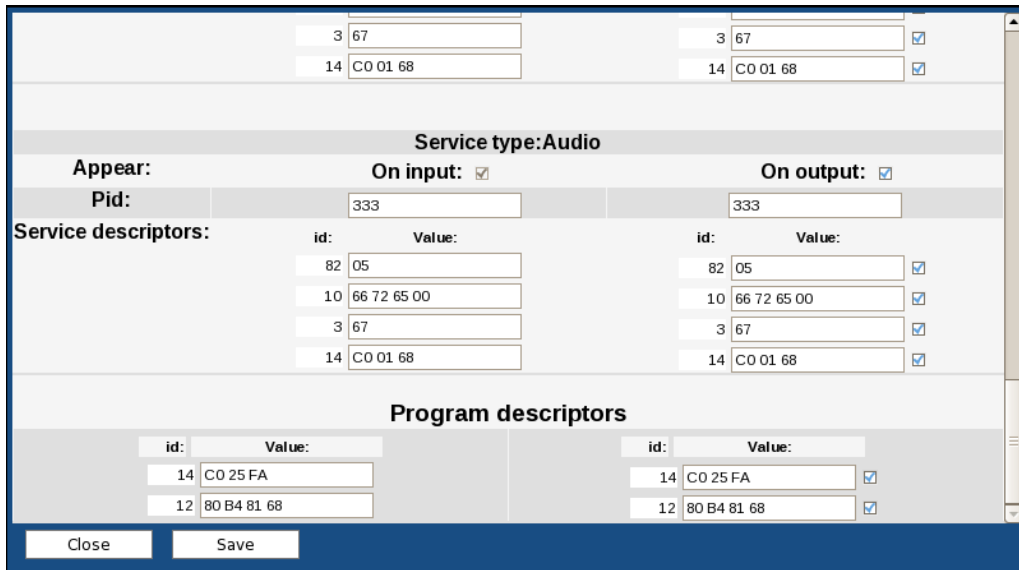
Service type: Video

| Appear: | On input: <input checked="" type="checkbox"/> | On output: <input checked="" type="checkbox"/> |
|---------|---|--|
| Pid: | <input type="text" value="320"/> | <input type="text" value="320"/> |

Service descriptors:

| id: | Value: | id: | Value: |
|-----|--------|-----|--------|
| 82 | 01 | 83 | 03 |

Fig. 18 PSI/SI edit information window.



| Service type: Audio | |
|-----------------------------|--|
| Appear: | On input: <input checked="" type="checkbox"/> On output: <input checked="" type="checkbox"/> |
| Pid: | 333 |
| Service descriptors: | |
| id: 82 | Value: 05 <input type="checkbox"/> |
| id: 10 | Value: 66 72 65 00 <input type="checkbox"/> |
| id: 3 | Value: 67 <input type="checkbox"/> |
| id: 14 | Value: CO 01 68 <input type="checkbox"/> |
| Program descriptors | |
| id: 14 | Value: CO 25 FA <input type="checkbox"/> |
| id: 12 | Value: 80 B4 81 68 <input type="checkbox"/> |

Fig. 19 PSI/SI edit information window (continued)

You can see both **input** (for information only) and **output** (can be edited) interface parts.

- **Program name** – current program name up to 256 symbols;
- **Provider** – current program provider name up to 256 symbols;;
- **Program number** – unique for current multiplex number, any from 0 to 65535;
- **Source** – Information about the program comes from;
- **PID PCR** – PID PCR in decimal;
- **PID PMT** – PID of PMT (Program Map Table) associated with the program;
- **Program descriptors** – List of descriptors of the edited program . Don't change those descriptors if you are not sure you are really need it. Unmark a descriptor if you want it to delet.
- **PID** – Service PID(elementary stream, private information etc.), any from 1 to 8190.
- **Service descriptors** – List of descriptors of the service. Don't change those descriptors if you are not sure you are really need it. Unmark a descriptor if you want it to delet.

Note. Unmark service if wont it to be blocked on the output.

Note. If you have Video PID the same as PCR PID, PCR stream is leaft with it's PID but Video elementary stream is blocked.

Press **Save** to apply new PSI/SI data.

4.6.5 CRT1081IRD-S2-MX output configuration

After CRT1081IRD-S2-MX outputs were set up you can open output page make some extra settings. Only list of programs for the current multiplexer appears in the window as below.

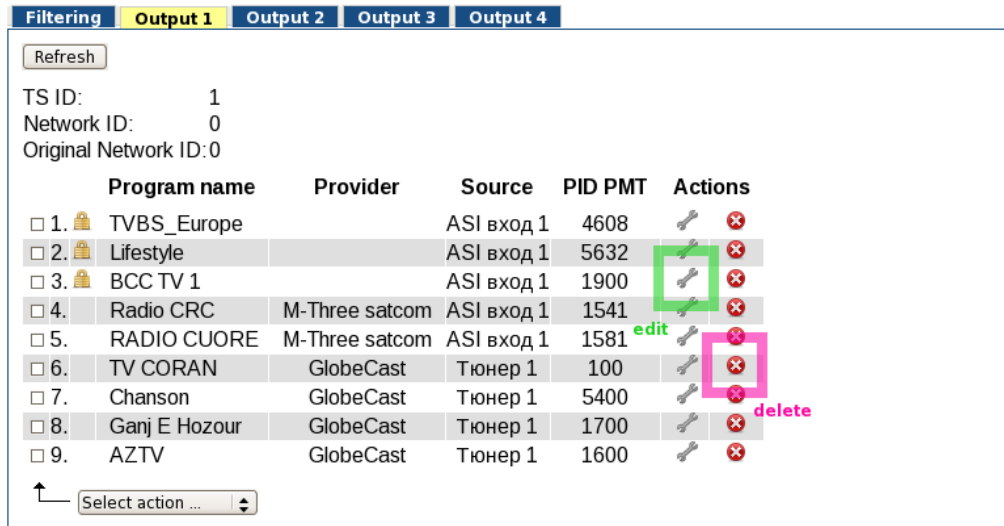


Рис. 20 Output configuration window

Only brief information is presented when you select the window. You can edit program data the same way as when programs were filtered first time. An other **delete** option appears to remove program from the output interface.

Select action... Let you select an action for a list of multiplex programs.

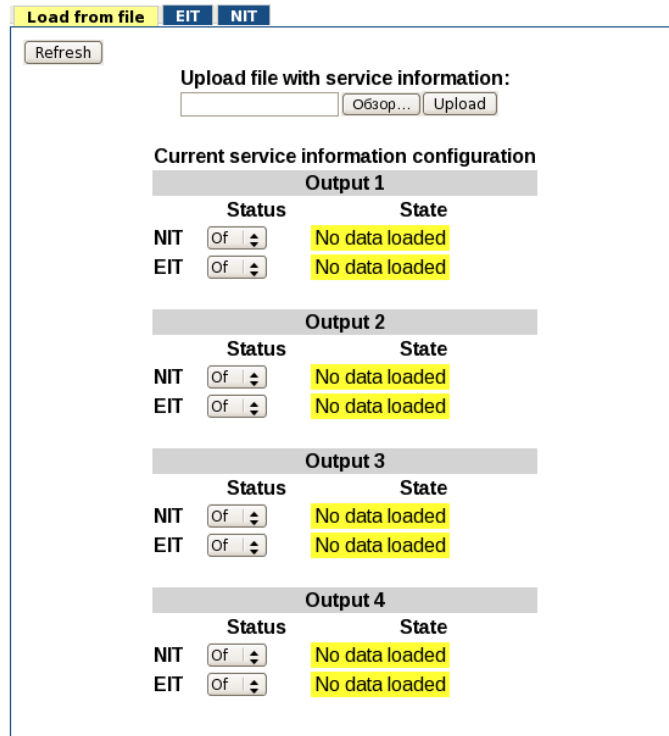
Note. Any change on this page takes effect right after apply an action or new data.

Note. Be careful to remove a program. You are not able to restore it back so new program mapping routine have to be done in the case. Please export important device settings before you make changes.

Note. After reset to the factory settings (4.3.2) your current configuration data will be lost. Export your current settings if you need them later.

4.7 NIT & EIT Insertion

CRT1081IRD-S2-MX supports NIT and EIT injection technology independently for every of the device four multiplexes. You can see if SI data uploaded into the device. Upload new data or download current data into information window to see the content.



The screenshot shows a web interface for configuring NIT and EIT. At the top, there are tabs for 'Load from file', 'EIT', and 'NIT'. Below the tabs is a 'Refresh' button and a section titled 'Upload file with service information:' containing a file input field and 'Upload' and 'O63op...' buttons. The main area is titled 'Current service information configuration' and contains four sections, one for each output (Output 1 to Output 4). Each section has a 'Status' column with 'NIT' and 'EIT' entries, each with a dropdown menu currently set to 'Of'. The 'State' column for each entry shows 'No data loaded' in yellow text.

| Output 1 | |
|----------|----------------|
| Status | State |
| NIT Of | No data loaded |
| EIT Of | No data loaded |

| Output 2 | |
|----------|----------------|
| Status | State |
| NIT Of | No data loaded |
| EIT Of | No data loaded |

| Output 3 | |
|----------|----------------|
| Status | State |
| NIT Of | No data loaded |
| EIT Of | No data loaded |

| Output 4 | |
|----------|----------------|
| Status | State |
| NIT Of | No data loaded |
| EIT Of | No data loaded |

Fig. 21 EIT/NIT tables are not uploaded to the device

You can use EPGEitor and NITEitor service programs from Crypton Software Suite to make EIT/NIT data files to be downloaded to a SI generator of a proper multiplex. All necessary details You can find in CSS_UserManual.

4.7.1 EIT program scadule broadcast.

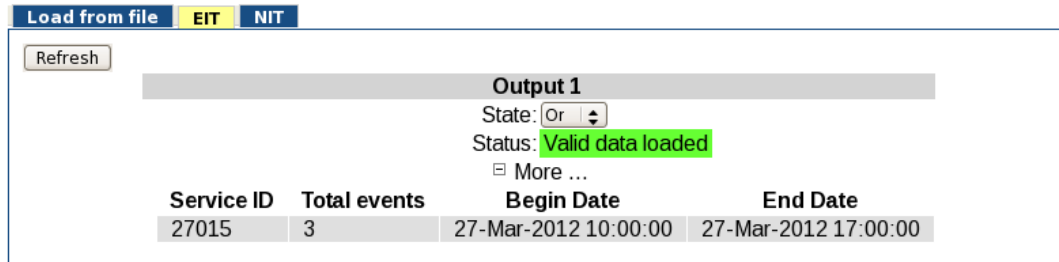


Fig. 22 EID data information page

Every time EIT data is uploaded you can see it in proper information window.

State: **On** make the EIT information visible in the TS.

Status: Shows if valid data present.

Note. Please make sure system time, STB time and EIT data are synchronizied for correct events visualization.

4.7.2 NIT broadcast.

The same way as for EIT NIT editor let you prepare network information data to be presented in your broadcast network for automatic service discovery. After NIT data are uploaded to the device proper information window shows current information.

State: **On/Off** let you stop or release network information injection.

Status: Shows if correct data are uploaded for the current multiplex.

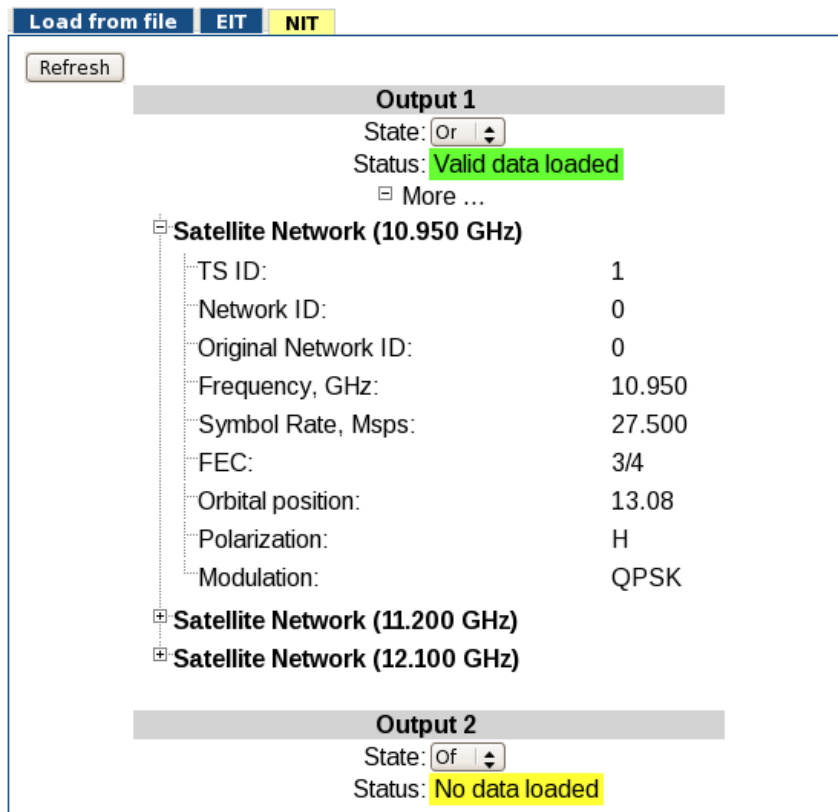


Fig. 23 Satellite transponder information

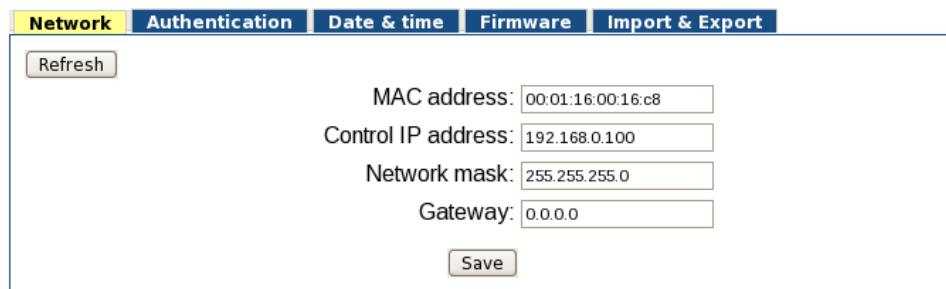
Note. For reliable service discovery STB needs that all information of NIT exactly reflected your device settings.

4.8 Options menu

Options menu let you configure common device control and identification data.

4.8.1 Network configuration

You can control CRT1081IRD-S2MX from a distant PC with WEB browser over embedded HTTP server. All network settings required to access the device you can edit on the Network page.



| Network | Authentication | Date & time | Firmware | Import & Export |
|-----------------------------------|----------------|-------------|----------|-----------------|
| Refresh | | | | |
| MAC address: 00:01:16:00:16:c8 | | | | |
| Control IP address: 192.168.0.100 | | | | |
| Network mask: 255.255.255.0 | | | | |
| Gateway: 0.0.0.0 | | | | |
| Save | | | | |

Fig. 24 Device control network settings

Please follow below instructions for reliable device control:

- Only use MAC address appointed to the device;
- It could be the best if you use common network classes (A, B, C). Default IP address 192.168.0.100 is a class C address and usually successfully interoperate with most of network equipments;
- Always use correct subnet mask. 255.255.255.0 class C local network subnet mask. You can lose device connection in case of net and subnet mismatch;
- Use gateway address to access the device from internet, for local network you can leave it 0.0.0.0.

Note. After reset to the factory settings (4.3.2) your network setting will reset to default.

Note. MAC address change may result connection loss for a long period of time (it depends of PC operation system settings) for new ARP routine accomplishing.

4.8.2 Authentication

CRT1081IRD-S2-MX can be managed over internet. To prevent illegal device access user authentication is required.

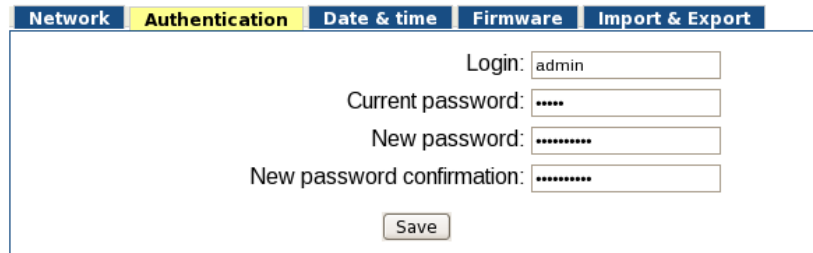


Fig. 25 User accounts settings

Enter your Current Login and password before you set new password. Press Save to store new account settings.

Note. For Login use only legal symbols: a-z A-Z 0-9 _ -. Symbol register is applied. Min. Login length – 1 symbol, Max. – 32.

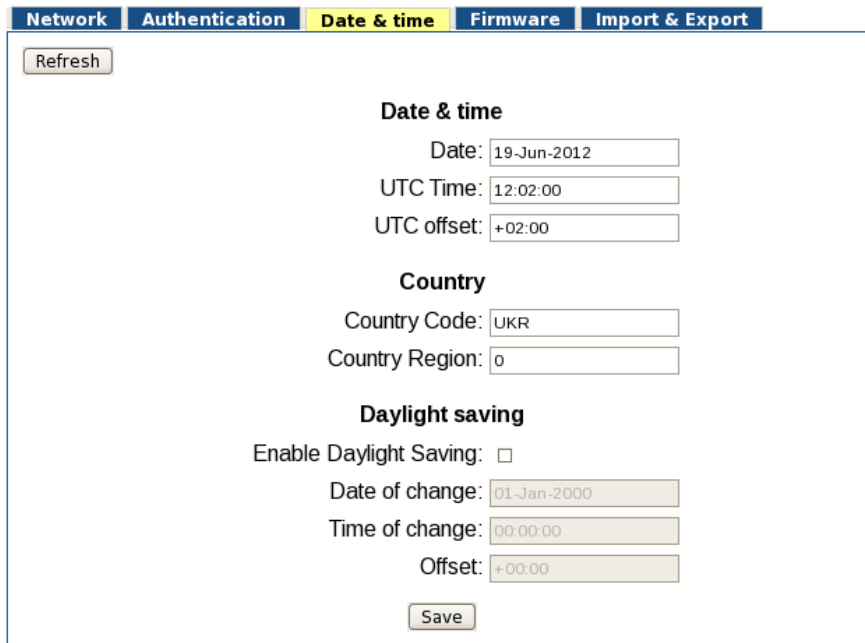
Use following set of password symbols: a-z A-Z 0-9 . _ - ~ ! @ # \$ % ^ & * () + = < > ' / \ ? " ; [] { } ` .
Min. password length - 5 symbols, Max – 32.

Note. Default login and password is **admin**. Change these words for safe device control.

Note. After reset to the factory settings (4.3.2) your current Login and password will be reset to default.

4.8.3 Time and Data settings

For CRT1081IRD-S2-MUX time related services(TOT, TDT, EIT) correct time and time offset is required. Greenwich Mean Time (UTC) is basic system time. UTC offset is used for local time network operation. You can also set Country Code and Country Region. Daylight saving mode is also supported.



Network | **Authentication** | **Date & time** | **Firmware** | **Import & Export**

Refresh

Date & time

Date: 19-Jun-2012

UTC Time: 12:02:00

UTC offset: +02:00

Country

Country Code: UKR

Country Region: 0

Daylight saving

Enable Daylight Saving:

Date of change: 01-Jan-2000

Time of change: 00:00:00

Offset: +00:00

Save

Fig. 26 Date and Time setting up

Note. After power off please update date and time settings to synchronize network services.

Note. After reset to the factory settings (4.3.2) current Date and Time will be reset to default.

4.8.4 Firmware update

CRT1081IRD-S2-MX supports firmware update capability. Use this feature only if you are shure that the device really needs to be upgraded.



Fig. 27 Firmware update main page

Current device F/W version is seen on the main Firmware page.

Firmware update normally takes three main stage:

- F/W upload to the device;
- F/W integrity check and current configuration back-up;
- F/W download to the device volatile memory.

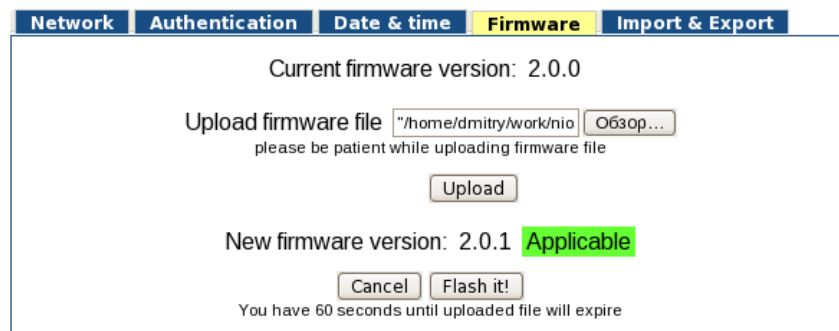


Fig. 28 Upload new F/W

After you select F/W file upload process start automatically. As a result new F/W version is shown and **Cancel** or **Flash it!** action is offered.

Note. You have 60 sec. to decide to Flash ne F/W. After 60 sec. is over you have to start F/W update again.

Press Flash it! to start real F/W download.

Note. Be carefull to preserve power supply from being OFF. This can cause extra problems.

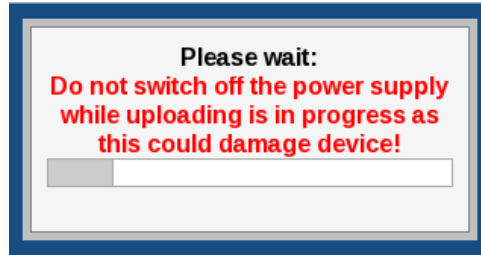


Fig. 29 Device volatile memory write process

Note. In case you face sudden flashing problems **Do Not** power off the device and try to restart the process again.

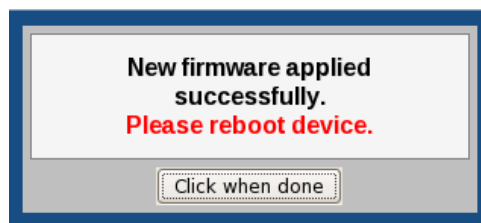


Fig. 30 New F/W successfully downloaded

To start CRT1081IRD-S2-MX operate with new F/W turn the device power off at least for 30 sec and power On it again.

4.8.5 Firmware recovery.

CRT1081IRD-S2-MX is capable to withstand to F/W upgrade accidental failure due to power off or connection loss. F/W recovery process starts automatically every time you turn the device power On after base device F/W is damaged.

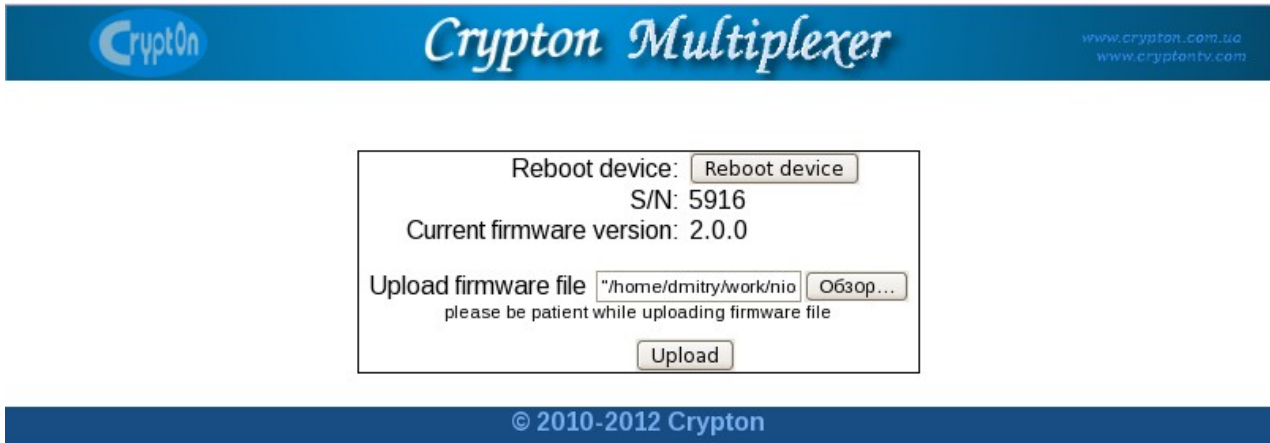


Fig. 31 F/W recovery page

Select F/W you have to download and press Upload. Do the same(4.8.4) routine as if you'd make ordinary F/W upgrade.

4.8.6 Import and export configuration information.

CRT1081IRD-S2-MX can export all configuration information to be imported with an other device. This feature is exceptionally important when you build realtime broadcast network where hardware reservation is absolutly obligatory.

Export data to the file and save it until reserve device is required or F/W update is made.

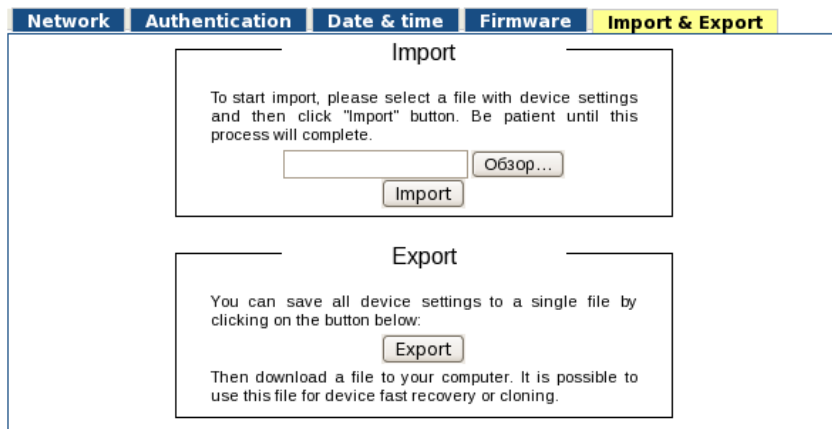


Fig. 32 Export and import of configuration data

Note. After configuration is imported to an other device it operates as an functional clone with the exeption of authorization data. Please escape the situation when the donor and accepting devices both operate in the same network due to MAC and IP address conflicts can arise.

Note. The device automatically reboots after new configuration is downloaded.