

SIRC

Server-Software: Sat Inband Remote Control

Sat Inband Remote Control User Guide V10.02

SIRC v2.00 – 3.14

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1. Symbols in this manual

1.1. References and Hyperlinks in this PDF File

The original text document of this manual uses bookmarks for reference purposes. If you read this manual as a non-print version, please note that this PDF file also contains all bookmarks! So you can navigate through the document via the content overview in your PDF viewing software if you activate "bookmarks view".

All references to pages, sections, figures and tables as well as hyperlinks in the text identify a location within this PDF file. Just click the reference to find the referred passage in the text!

1.2. Warning signs and their meaning

The following warning signals are used in this user manual:



Warning of general danger location



Warning of electric shock



Warning of hot surface



Warning of fire hazard

1.3. Tags and their meaning

The following signal words are used in the product documentation in order to warn the reader about risks and dangers. The tags described here are always used only in connection with the related product documentation and the related product.



Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

NOTICE

Describes precautions necessary to protect the equipment.



NOTE: Useful information for the user.

2. Introduction

2.1. Overview

SIRC

SIRC

The **Satellite Inband Remote Control**

is a web based software system developed by 2wcom Systems which can be used to remotely configure and control multiple SIRC capable devices over a satellite link (see Figure 1).

Functions

This includes among other things the **switching of relays** or presets, upload and activation of new **firmware** or **configuration files** and device settings. If SIRC capable devices are equipped with internal memory, SIRC can also be used to upload **data files** (firmware, audio, reports and configuration) to the internal memory for immediate use or use at a later point of time.

Another feature of the SIRC is that the contents of remote devices **internal memory** (where applicable) are mirrored within the SIRC, so that network operators can always keep track of the state of each devices internal memory, without the need of a physical connection to the device. If a file is scheduled to be uploaded to a device, it will also be stored in the local mirror for that device. Each devices storage space is accessible via **web interface** and also via **FTP** (see Figure 1). This can be used to upload files directly to the system via FTP to be distributed via satellite. Alternatively SIRC capable devices with physical access to the SIRC can use FTP to synchronize the content of their internal memory with the SIRC's mirror of it, useful in cases where greater amounts of data need to be distributed and there is no satellite capacity left for it.

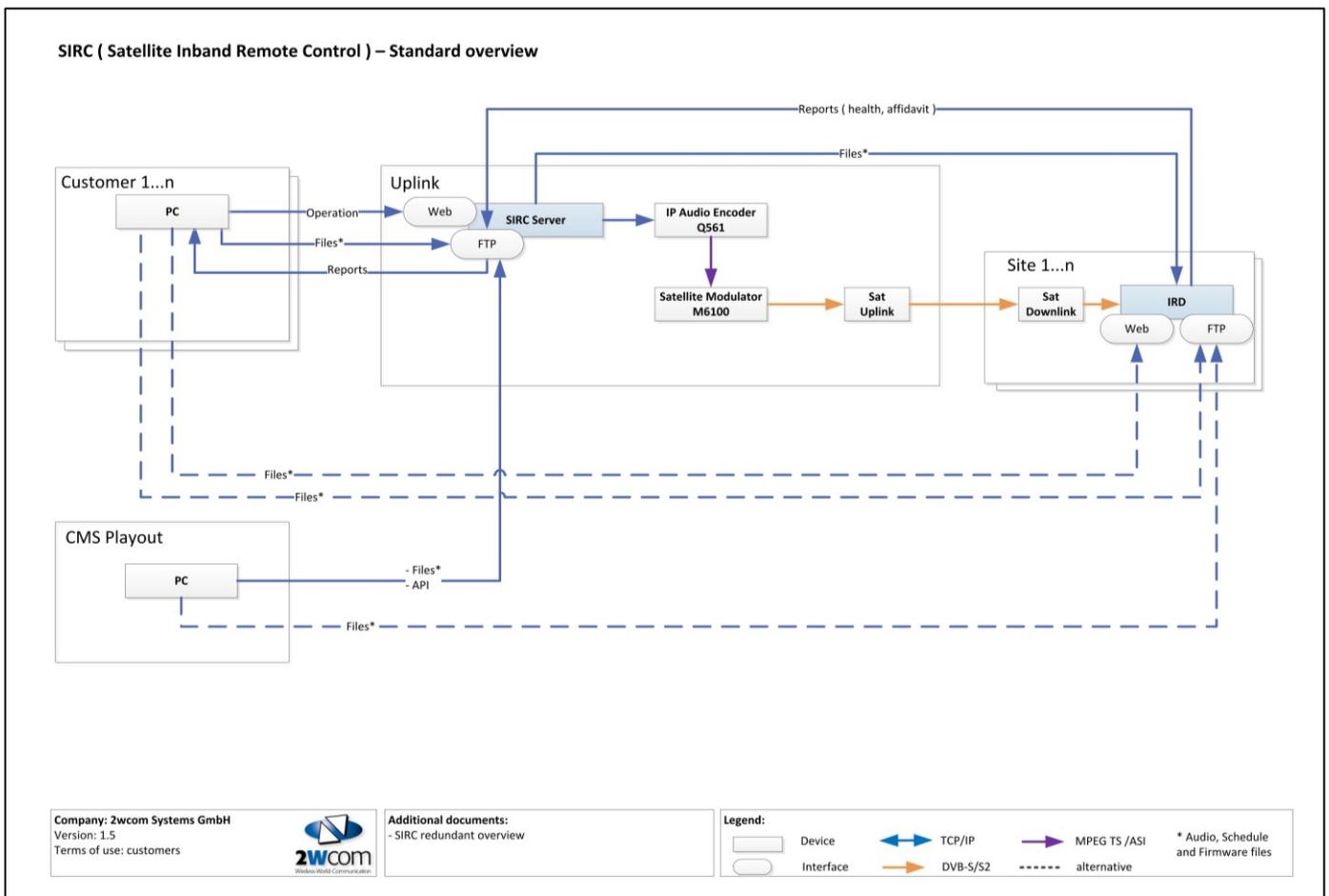


Figure 1: 2wcom Systems SIRC - Data flow

Addressing

Devices are addressed either individually, based on the device type or in logical groups which are managed within the SIRC system. SIRC data is then injected into the satellite transport stream via IP multiprotocol encapsulation (MPE), private PID or ancillary data (MPEG or AAC).

Server

Depending on the scale of the system to be handled via SIRC, the software is either run on a **Dell PowerEdge RS320** Rack-Server or in a virtual environment for those systems that heavily rely on the file upload and management feature.

i **NOTE:** Note that for the ease of use of this manual the RS320 will be referred to as the SIRC Server (device) unless a device specific reference is needed.

i **NOTE:** Read this instruction manual carefully before attempting to operate the SIRC Server. Save this instruction manual for future reference – it contains important safety and operating instructions for the device.

2.2. Hardware

The SIRC Server software can run on the Dell PowerEdge RS320 Rack-Server.

2.2.1. Dell PowerEdge RS320 Rack-Server

For more extensive data transmissions use the Dell PowerEdge RS320 Rack-Server with the 2wcom SIRC software. Consider the following technical specifications of the Dell Rack-Server that are necessary for the proper functioning of the SIRC system:

Technical specifications:

Feature	Specification
Form factor	1U rack
Embedded NIC	4 Ports

More technical information you will find on the official DELL internet site <http://www.dell.com/>

2.2.2. Operating system

Open BSD, a linux derivative, is used as operating system. To be able to run the SIRC server system the following packages are pre-installed:

- Apache web-server,
- MySQL database,
- PHP server language,
- XML library.

3. Safety Instructions

For a secure operation of the device the user should read and hold on all safety instructions mentioned in this manual before the first operation.

 WARNING	Non-compliance with the safety instructions can lead to serious injury.
---	---

Any changes on the device or operation of the parts not having been proved and released by the manufacturer can lead to unforeseen damage.

Every improper use of the device and all actions on the device not mentioned in this user manual are regarded as a not allowed misuse outside the statutory limits for liability of the manufacturer.

If you sell the device or give it to another person, attach this user manual to the device.

Never operate the device, if it does not function properly. If the device or its part is out of order, put it out of operation. Never repair the device by yourself. If there are any damages in the device, send it immediately to 2wcom Systems for maintenance or dispose it professionally according to the regional disposal regulations.

Keep the device away from unauthorized persons.

DANGER

	<p>DANGER of electric shock</p> <p>Plug the device into a grounded power socket only. Never remove the grounding wire/contact.</p> <p>Never open the housing of the device by yourself. Never touch open electrical parts.</p> <p>Dangerously high voltages are present inside the housing. Even after disconnecting the mains supply, dangerously high voltage levels may be present for a certain time.</p> <p>Do not touch the device with wet hands.</p> <p>Never expose the device to liquids. If any liquid comes inside the housing, immediately disconnect the device completely from the power supply. Do not continue operating the device.</p>
	<p>FIRE HAZARD of overheating or electric shock</p> <p>Ensure sufficient heat dissipation during operation. Avoid following when installing the device:</p> <ul style="list-style-type: none">- non-ventilated environment, for example a narrow shelf or built-in rack;- extremely warm or cold place;

	<ul style="list-style-type: none"> - direct sunlight exposure; - too high or too low temperature; - extremely wet or dusty environment. <p>Do not operate the device in the presence of flammable gases.</p> <p>Do not cover the ventilation openings of the device to avoid heat accumulation.</p> <p>Do not put objects with open flames such as burning candles on the device.</p> <p>Do not put heavy objects on the supply cord. A damaged cord can lead to fire or electric shock hazards.</p> <p>To disconnect the supply cord, drag always the plug and never the cable to avoid the cord damage.</p>
--	--

 WARNING	
	<p>WARNING of explosive atmosphere</p> <p>Risk of the explosion hazard.</p> <p>Do not use the device in an explosive environment.</p>
	<p>WARNING of hot surface</p> <p>The surface of the device can heat up during operation. The device is equipped with a passive cooling system.</p> <p>Do not touch the surface of the device during operation.</p>

<h2 style="margin: 0;">NOTICE</h2>	
	<p>CAUTION: Risk of equipment damage</p> <p><i>Before the first operation:</i></p> <p>Check the housing, the front panel, the supply cord and the plug for visible damage (e.g. scratches, cracks, damaged isolation and abrasion)</p> <p>In case of damage, unplug immediately the supply cord. Never operate device with a damaged supply cord.</p> <p>All damaged components must be replaced immediately.</p>

Installation:

Use only a grounded three-wire power supply cord and -plug that complies with the national regulations.

If necessary, another than the supplied supply cord has to be used, in compliance with the regulations of the country where the device is operated.

Make sure that the AC power outlet is next to the device and readily accessible to the user.

Installation of other devices:

External devices which are connected to the device could be damaged by the device or damage the device itself if the output levels exceed the specified limits.

Cleaning:

Do not use corrosive detergents on the device such as benzine, thinner, alcohol or acetone. Clean the surface of the device only with a soft dry cloth.

4. Supplied Parts

- PowerEdge RS320 Rack-Server with preinstalled SIRC system
- Power supply cord
- User manual in PDF format to download; on request by paper



NOTE: The scope of delivery may deviate in special cases.

5. Manufacturer

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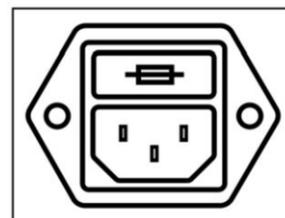
6. Installation

Best setup location

The device should be installed in a 19" rack. Avoid direct sunlight, proximity to radiators and air conditioning, dust, water, and chemicals. Choose a rack location that permits a clear view of the indicators on the device and ensure a sufficient heat dissipation of the device.

Mains supply connection

The device is designed for operation with 100 to 240 V AC, 50 to 60 Hz. Check the corresponding device labeling for compatibility to the domestic line voltage and frequency before connecting the IEC power connector to the mains supply!



No power switch is available; unplug mains supply connector to remove power. Keep the mains supply plug readily accessible to the user.

WARNING



WARNING

Disconnect mains power plug before you open the housing.
Repair of the equipment must only be carried out by authorized and qualified personnel.
Read also Section „Safety Instructions“.

7. First Steps

The following section contains instructions for quick start.

✓ You have already unpacked and installed the device in an appropriate place

7.1. Power supply

NOTICE

Make sure that the device and the contained cords are compatible to the domestic line voltage and frequency!

If the device is compatible, connect the power supply cord fully to the IEC power connector at the back panel of the device and a mains power outlet.

The "Power" LED will then turn on.

7.2. Network configuration

Set up your computer in that way, that it matches the network address of the SIRC Server. For the first connection via the IP interface configure your network as follows:

1. Set up the default IP address of the SIRC Server: **192.168.1.1**.
2. Set up the default net mask: **255.255.255.0**.
3. Try the following command from a DOS prompt / shell: `ping 192.168.1.1` to check if you can reach the SIRC Server via your network.

If you cannot reach the SIRC Server device please get help from your local network administrator and/or read the troubleshooting section of this document.

7.3. Preferred workflow for system data setup

The following workflow is the preferred method of system setup of the SIRC Server. It is only an abbreviated list. Refer to the corresponding chapters for more information on the specific tasks.

1. Login as *admin* at **http://192.168.1.1**
2. Adjust IP and Network settings and reboot (**System → System Overview**)
3. Check if Message Handler is running (**System → System Overview**)
4. Set date format and time zone (**System → Configuration**)
5. Check local time after 5 seconds (**Schedule → System Overview** "Last Update:...")
6. Add Customer (**System → Customer**)

7. Add User for Customer (**System** → **User**)
8. Add Devices (**Devices**)
9. Add Groups (**Groups**)
10. Add Devices to Device Groups (**Groups** → **Select Group** → **Manage Devices**)
11. Add Audio Output Groups to Devices (**Devices** → **Edit** → **Group Configuration**)
12. Test system with Action (**Actions**)

8. Web-Interface

8.1. Login

The SIRC software allows you and your customers to control the devices remotely using different access authorization.

To access the system as an administrator proceed as follows:

- ✓ Your computer is successfully connected to the SIRC server via your network.
 - Open your web browser (Firefox 3+ or Google Chrome recommended).
 - Enter the default IP address <http://192.168.1.1> in the address bar of your browser for the first connection with the SIRC Server.
 - Enter the default user name "**admin**" with password "**admin**" into the login prompt (see Figure 2)



Figure 2: SIRC login screen

- Change your login data or create new users selecting "**System → User Administration**".
- ⇒ After a successful login the actual user information and the main menu will be displayed (see Figure 3).

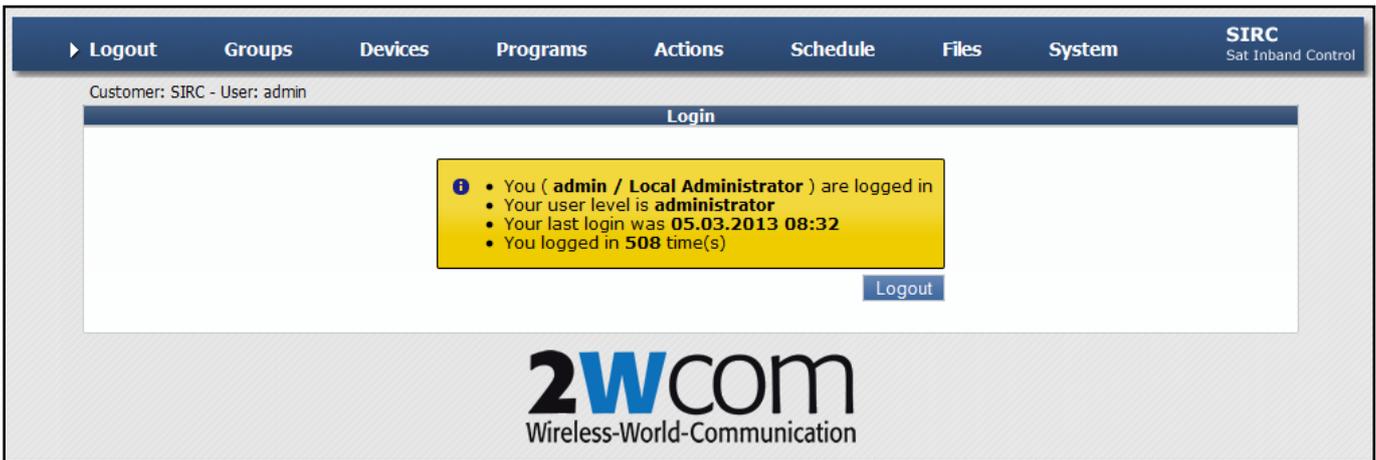


Figure 3: SIRC main screen

The *customer name* and the *login name* will always be shown on the left side under the menu. The *customer SIRC* is the default "pseudo" customer and represents the highest administration level with no limits. Normal customers and users should be assigned to a previously added customer (see **System → Customer**).

8.2. Devices

The SIRC server offers a convenient way to manage your devices. You can enter parameter like device type, connection parameter or comments to name just a few.

Selecting the *Device* menu item loads the device overview. By entering a search string you can filter the listing. Clicking the row header orders the display depending on the row.

The screenshot shows the SIRC Device List interface. It includes a navigation menu, a search bar, and a table of devices. The table has the following data:

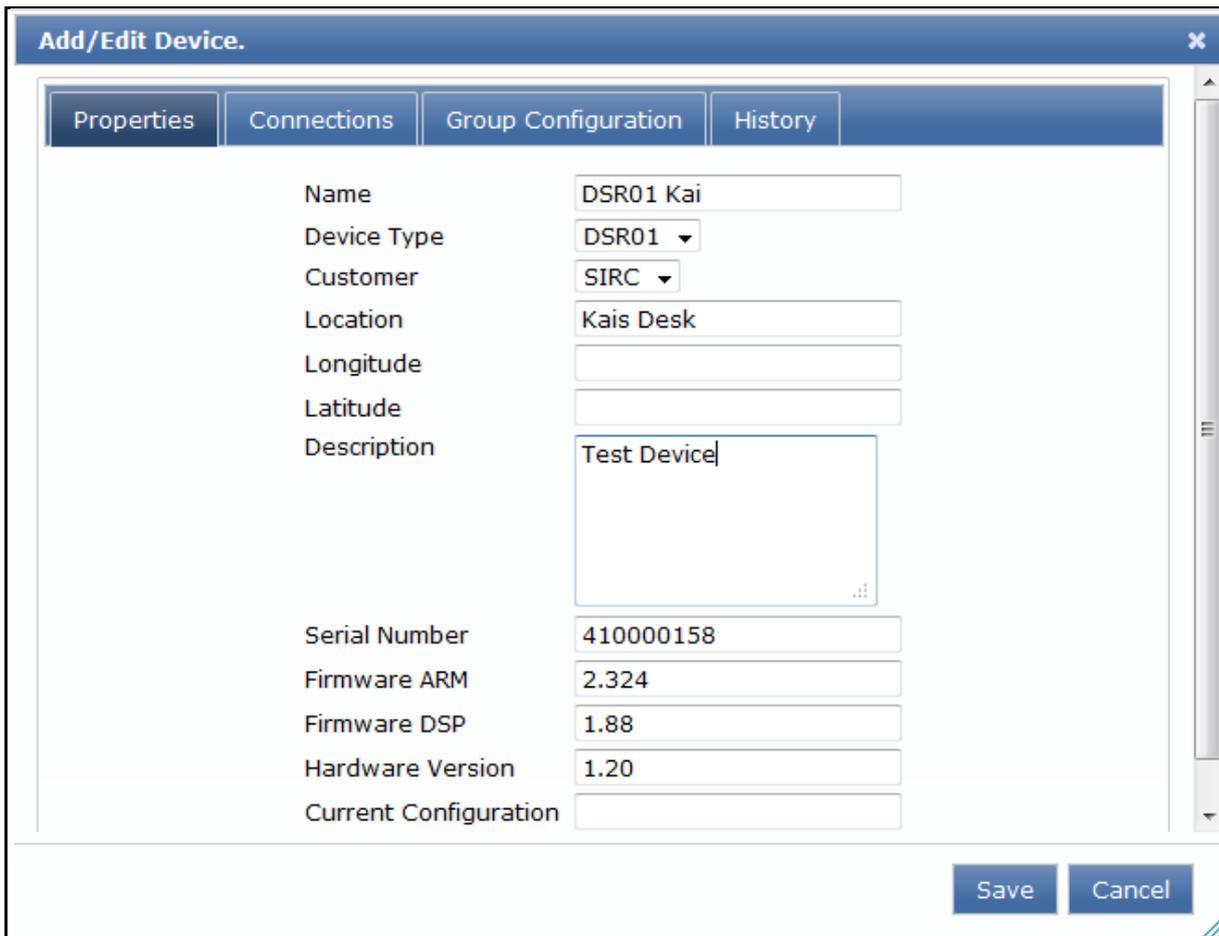
Action	Device Name	Device Type	Serial #	Firmware
Edit DELETED	2wcom DSR 1	DSR01	410000000	2.32/1.82
Edit DELETED	2wcom DSR 2	DSR01	410000457	2.28/1.72
Edit DELETED	DSR01 Kai	DSR01	410000158	2.324/1.88
Edit DELETED	DSR02 Ralf	DSR02	430000185	2.53/1.98
Edit DELETED	Octo PC	DSR01		-/-
Edit DELETED	QBit	DSR02	123	-/-

At the bottom of the table, it says "Showing 1 to 6 of 6 entries" and includes navigation buttons: First, Previous, 1, Next, Last.

Figure 4: Device List

Clicking on the *Edit* button opens the device property dialog. Clicking the *Add Device* Button opens the device property dialog, ready to enter a new device.

8.2.1. Add / Edit Device



The screenshot shows a web-based form titled "Add/Edit Device." with a blue header bar. Below the header are four tabs: "Properties", "Connections", "Group Configuration", and "History". The "Properties" tab is active. The form contains the following fields:

Name	DSR01 Kai
Device Type	DSR01
Customer	SIRC
Location	Kais Desk
Longitude	
Latitude	
Description	Test Device
Serial Number	410000158
Firmware ARM	2.324
Firmware DSP	1.88
Hardware Version	1.20
Current Configuration	

At the bottom right of the form are two buttons: "Save" and "Cancel".

Figure 5: Device Properties

Name, Device Type, Location, Longitude, Latitude, Description, Firmware and configuration versions are parameter to describe your device. You should use 'speaking' names so you can identify your device for later use.

A mandatory and important parameter is the *Serial Number*. The SIRC server uses the serial number to address a single device. If the entered serial number does not match to the stored serial number in the device, your device will probably receive no data from the SIRC server. Note that the serial number must not contain any dots or spaces.

The serial number is printed on a label on the back of your DSR01/02 or can be found in the web interface of the DSR01/02 in the section 'System Settings → Global'.

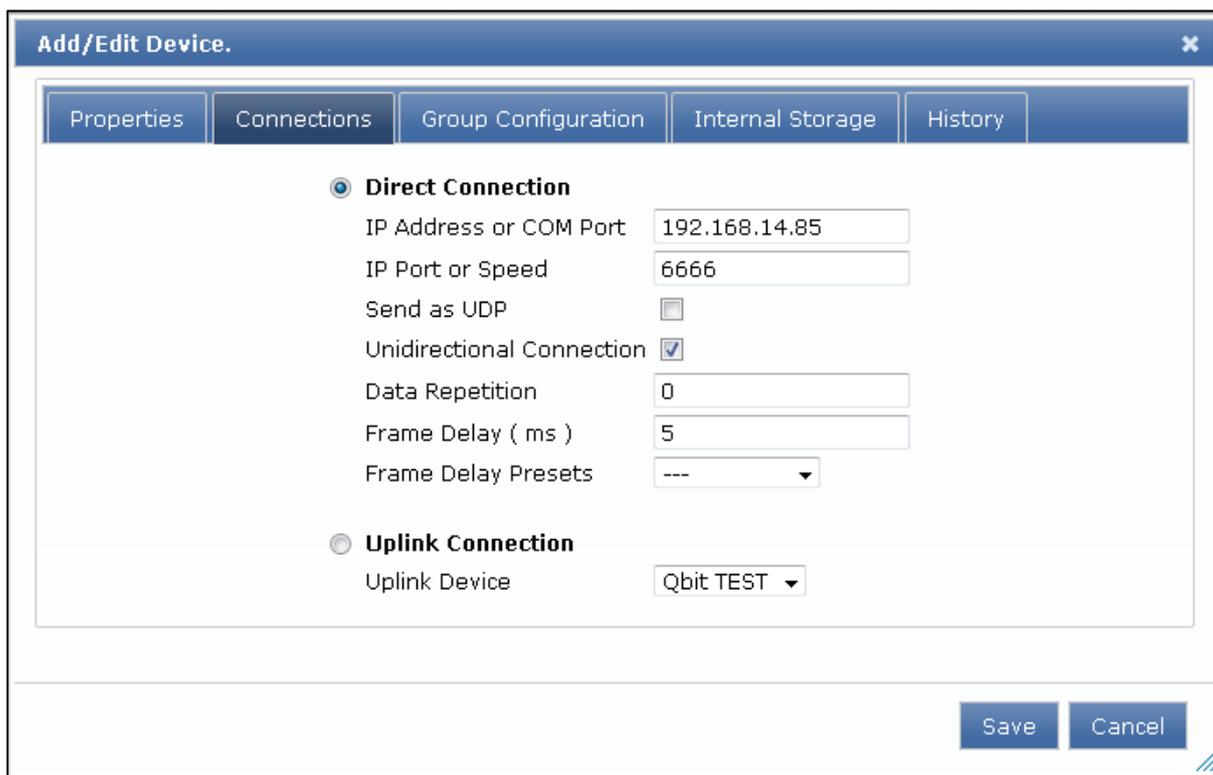


Figure 6: Device connection parameter

Enter the connection parameter in this dialog.

IP Address or COM Port – if you use an IP connection enter the IP address of your device or your uplink here.

IP Port or Speed – if you use an IP connection enter the IP target port here. If you use the serial line, enter the desired speed i.e. 9600.

Send as UDP – In case you use the IP connection you can chose to send the data via UDP connection as protocol. Otherwise a TCP/IP connection is used to transmit the data.

Unidirectional Connection – In case you send the data directly to a 2wcom device, you can use a bidirectional connection. The advantage is, that the device (i.e. DRSR02) can acknowledge each data frame and the system can detect transmission errors. In all other cases you can use an unidirectional connection. UDP transmissions are always unidirectional.

Data Repetition – If the quality of the transmission chain is doubtful, the data can be transmitted redundant. Note that the transmission time increases with each repetition.

Frame Delay – The frame delay is the delay (in milliseconds) inserted after each data packet. The data packet size is set to 188 byte. Even though the physical speed is set to 9600 baud or a 100MB TCP connection is available – with this settings it is possible to throttle down the bandwidth to a desired value.

Instead of using the '*Direct Connection*' you can use a predefined '*Uplink Connection*'. You can add one or more Uplink-Devices to the system. Usually this will be a DVB IP Audio Encoder which will be shared by all IRD devices. This Uplink Device acts like a kind of proxy for your IRDs.

8.2.2. Device and Audio Groups

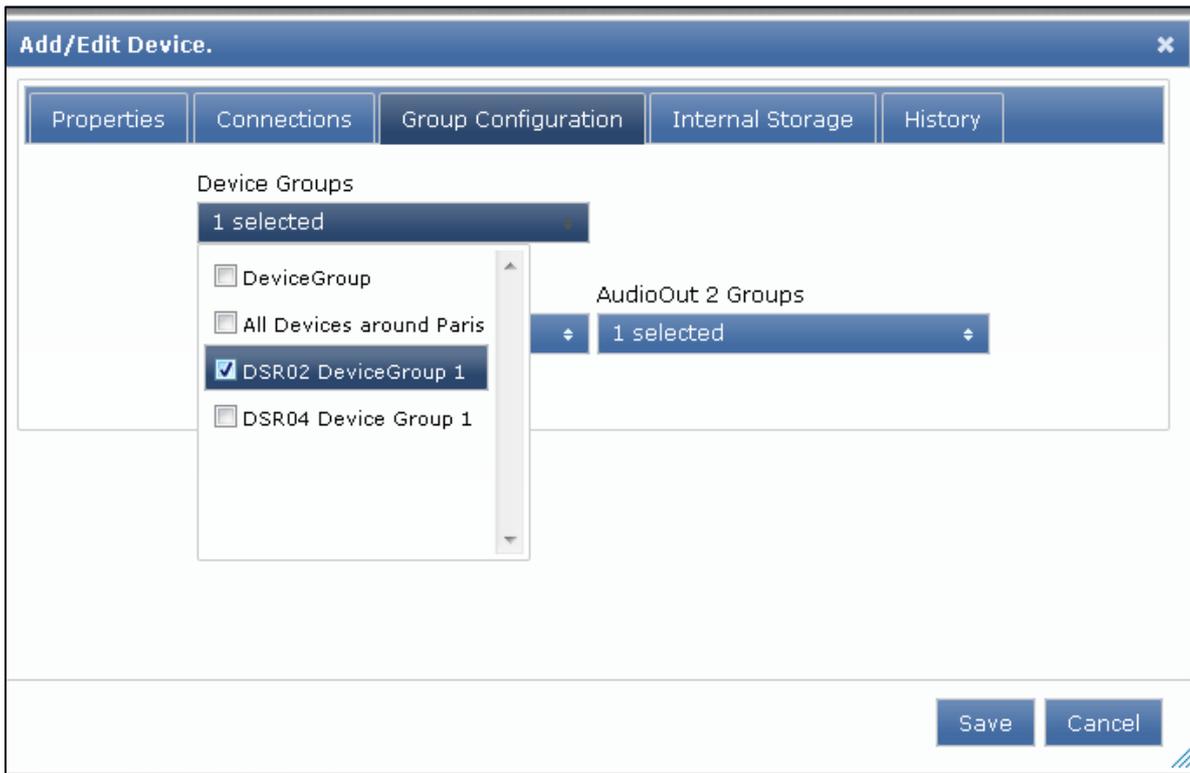


Figure 7: Device Group Configuration

The configuration dialog shows 2 types of lists.

The *Device Group* is used to assign the device to all selected groups. This will be used to group devices as targets for actions like *firmware update*, *reboot* or *ftp commands*.

The *AudioOut 1 Groups ... AudioOut 4 Groups* are used to assign up to 4 audio channels of the receiver to one or more corresponding predefined *AudioOut Groups*. Normally used for addressing a group of devices for program related actions like *switch audio source* or *change PID*. Please refer to the specification of the device to determine the maximum amount of implemented AudioOut Channels.

To add new groups to the system see also the section *Groups (Devices and Audio Outputs)*.

8.2.3. Internal Storage

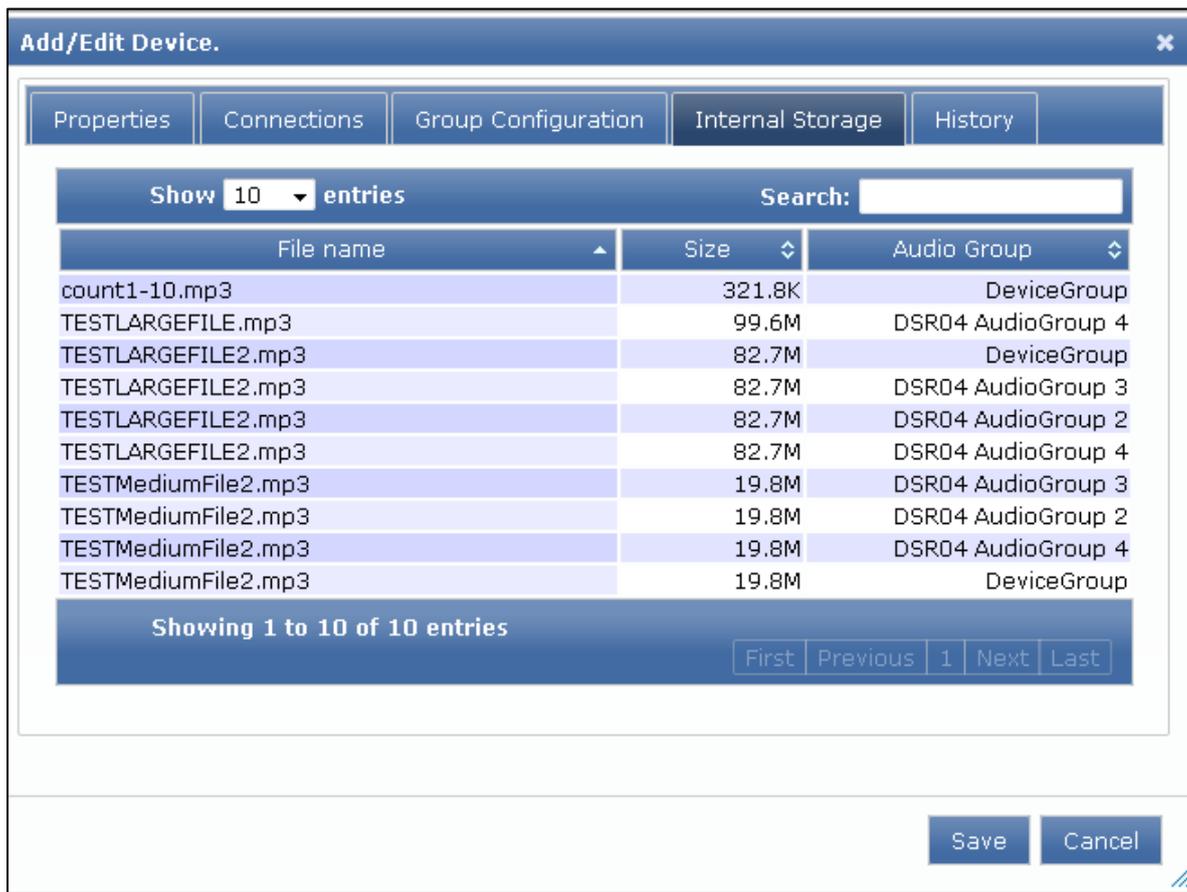


Figure 8: Internal Storage

In case your IRD is equipped with a SD card, all audio uploads and audio deletions that are initiated by the SIRC system, are tracked. You can review the content and group relation of the audio files, stored on the SD card, in this place.

8.2.4. Device History

The screenshot shows the 'Add/Edit Device' window with the 'History' tab selected. The window has a title bar with a close button. Below the title bar are tabs for 'Properties', 'Connections', 'Group Configuration', 'Internal Storage', and 'History'. The 'History' tab is active and contains a 'Clear History' button. Below this is a 'Show 10 entries' dropdown and a 'Search:' input field. The main area is a table with the following data:

▲	Date/Time	Action	State
	02.15.2013 13:16	Switch Relay	Sent (OK)
	02.15.2013 13:05	Switch Relay	Sent (OK)
	02.11.2013 10:14	Switch Relay	Sent (OK)
	02.11.2013 10:14	Switch Relay	Sent (OK)
	02.01.2013 12:26	Switch Relay	Sent (OK)

Below the table is a 'Showing 1 to 5 of 5 entries' message and a pagination bar with buttons for 'First', 'Previous', '1', 'Next', and 'Last'. At the bottom right of the window are 'Save' and 'Cancel' buttons.

Figure 9: Device History

The *History* tab contains a summary of all actions sent to the corresponding device. If you delete a processed entry from the *Schedule* a new entry will be generated.

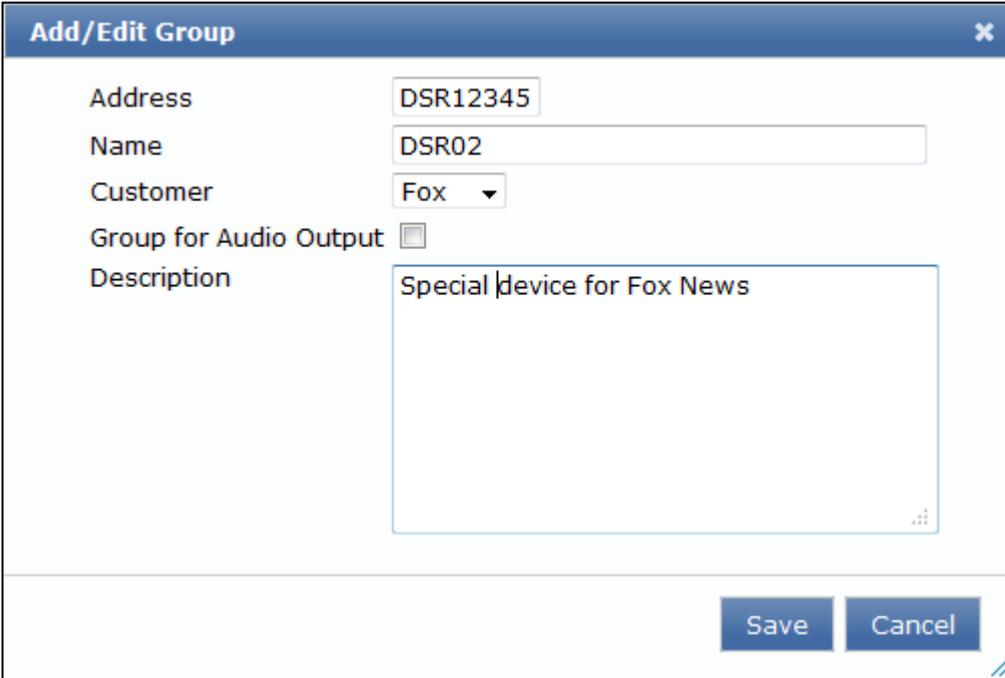
8.3. Groups (Devices and Audio Outputs)

The screenshot shows the 'Group Overview' page in the SIRC interface. The page has a navigation menu with 'Logout', 'Groups', 'Devices', 'Programs', 'Actions', 'Schedule', 'Files', and 'System'. The 'Groups' section is expanded, showing a list of groups: 'All Devices [100]', 'All DSR01 of NDR [DSR01]', 'QBIT Group [12345678]', 'Ralfs Testgroup [FOXGROUP]', 'Test DSR on desk [12345678]', and 'NDR1 [abcdef]'. An 'Add Group' button is visible in the top right corner. The page also shows 'Customer: SIRC - User: admin' and the SIRC logo.

Figure 10: Group Overview

2 types of groups will be shown: the Device Groups and a special type of groups the Audio Output Groups at the end of the list. These groups are marked with the audio icon  in front of the name.

8.3.1. Add a new Group



The screenshot shows a dialog box titled "Add/Edit Group". It contains the following fields and values:

- Address: DSR12345
- Name: DSR02
- Customer: Fox (dropdown menu)
- Group for Audio Output:
- Description: Special device for Fox News

At the bottom right of the dialog are two buttons: "Save" and "Cancel".

Figure 11: Edit Group Data

Press the Add Group Button to add a new group. You can assign a Group Name and a Description. The Group Address has to match with one of the group addresses stored in the DSR, which should be reached through this group. For Group Address only printable ASCII characters (0x20 up to 0x7E) are allowed. The special characters `_`, `/`, `\`, `:`, `*`, `?`, `"`, `|`, `>`, `<` should not be used. The maximum size is 8 characters.

A checked Group for Audio Output checkbox will define the group as an Audio Output Group (see Audio Output Groups for detailed information).

The group type can only be applied by Add Group.

8.3.2. Device Groups

You can organize multiple devices in *Device Groups*. Using device groups can help reducing overall bandwidth. You can assign up to 12 group addresses to a DSR01/02. Please refer to the DSR manual or the configuration web front end (section '*Remote Control*') of the DRS for further information. Using device groups, you can modify several DSRs with just 1 command.

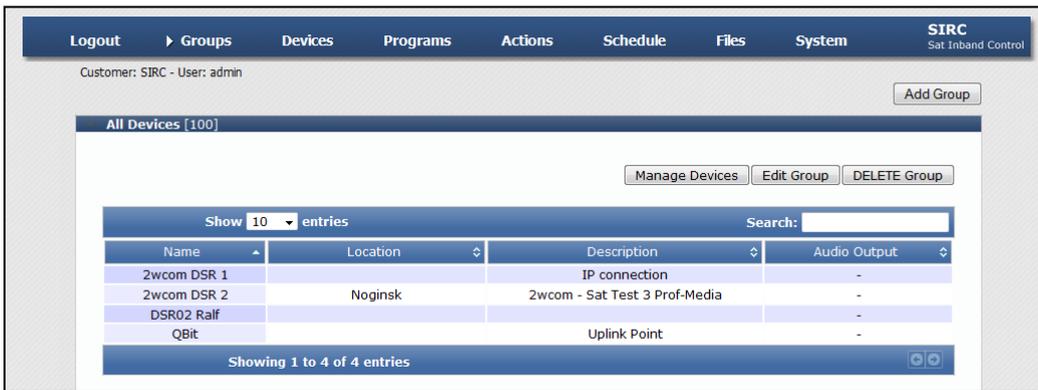


Figure 12: Device Group Properties

Select one group from the 'Accordion view' to modify, delete and manage (add or remove) the devices of the group.

8.3.3. Manage devices of groups

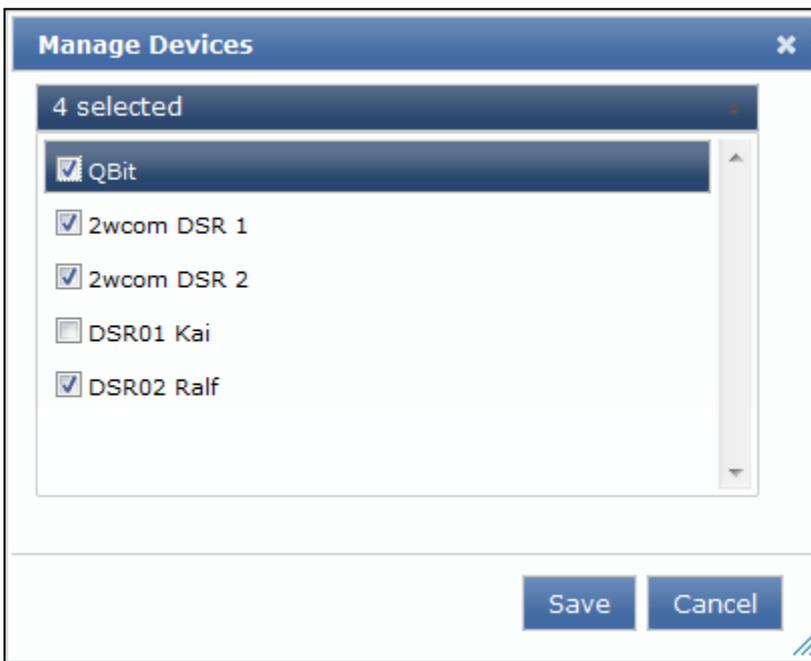


Figure 13: Manage Devices

Click the '*Manage Devices*' button to choose a set of devices belonging to the selected group. In case you use an uplink to feed your data to the DSRs, just use the uplink as a group member. See also Section "**Additional Information → Device and Group Addressing**" below.

8.3.4. Audio Output Groups

The *Audio Output Groups*  will be used to address a specified Audio Output channel of one or more devices instead of a group of whole devices. This for example allows the user to change an audio program of all devices of a chosen program (grouped by an *Audio Output Group*) even if the

devices have different Audio Output channels for that specified program (see *Add/Edit Devices – Group Configuration*).

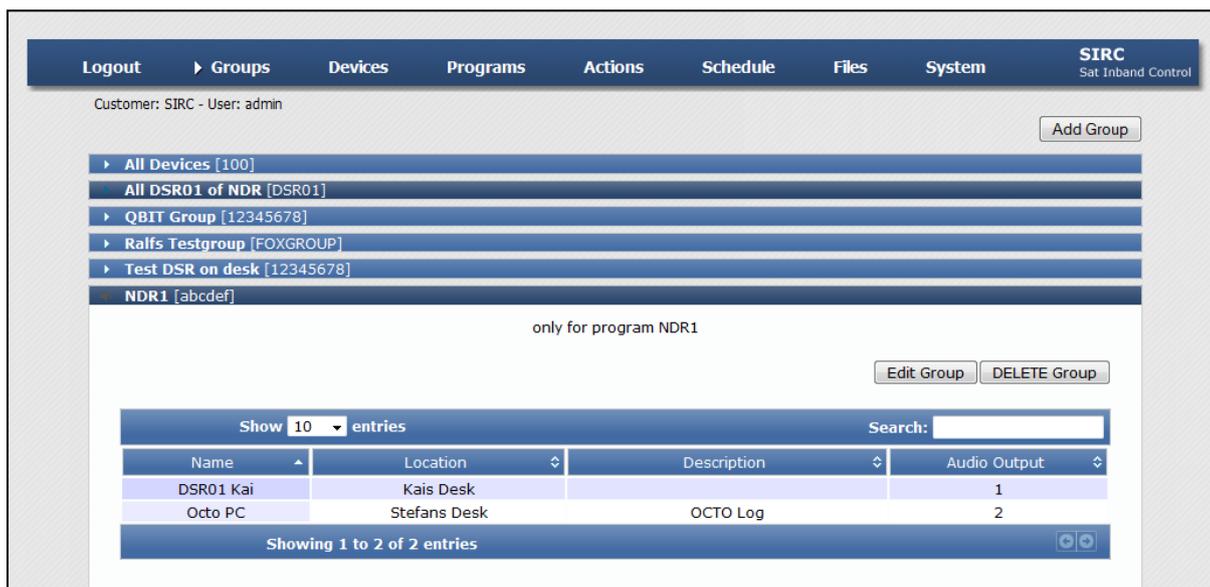


Figure 14: Audio Output Group Properties

Device audio output channel assignment to *Audio Output Groups* can only be done in the *Add/Edit Devices – Group Configuration* dialog.

8.4. Programs

It shows a list of predefined program configuration data like *Name*, *PID*, *IP* or *port* address depending on the type of the program source.

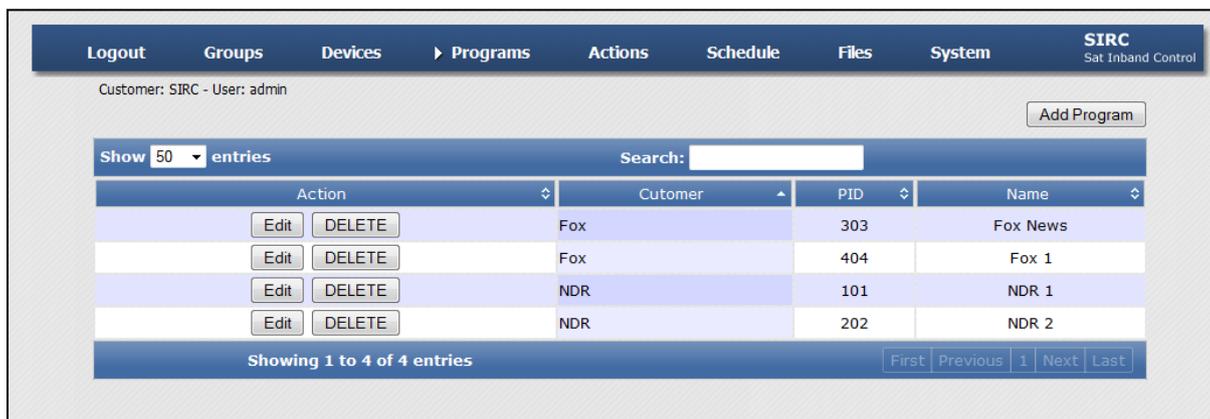


Figure 15: Programs list

Assignment to actions could not be done in SIRC 2.0. This feature implementation will be finished in SIRC version 2.1.

8.5. Actions

Use the 'Actions' menu item to define a job you would like to add to the schedule. You can add several actions and targets to a job. You have to follow 4 steps to setup the parameters.

1. Select Destination Targets

The screenshot shows the SIRC web interface for 'Sat Inband Control'. The user is logged in as 'admin' for customer 'SIRC'. The interface is in 'Step 1 - Choose a Target' of a 4-step process. A yellow banner highlights 'Step 1 - Select Destination Targets'. Below this, there is a button 'Select Action from Template>>' and three tabs: 'Audio Groups', 'Device Groups', and 'Devices'. A table displays a list of target groups with columns for 'Group Name', 'Address', and 'Description'. The table shows 11 entries, with 'DSR04 AudioGroup 1' selected. Navigation buttons for 'First', 'Previous', '1', 'Next', and 'Last' are at the bottom of the table.

	Group Name	Address	Description
<input type="checkbox"/>	DeadGroup	DEAD	
<input type="checkbox"/>	DSR02 Audio Group 1 TEST	DSR02AG1	
<input type="checkbox"/>	DSR02 AudioGroup 2 Test	DSR02AG2	
<input checked="" type="checkbox"/>	DSR04 AudioGroup 1	DSR04AG1	
<input type="checkbox"/>	DSR04 AudioGroup 2	DSR04AG2	
<input type="checkbox"/>	DSR04 AudioGroup 3	DSR04AG3	
<input type="checkbox"/>	DSR04 AudioGroup 4	DSR04AG4	

Figure 16: Select possible targets from Audio Groups, Device Groups or Devices

First choose one of 3 types of targets (*Audio Groups*, *Device Groups* or *Devices*) and select all needed targets by clicking the checkboxes. *Select Action from Template* will load a predefined configuration for 1.) and 2.). Note that depending on the target (*'Audio Group'* or *'Device Group'* / *'Device'*) the available action on the next page varies.

See section „**Appendix – Actions**“ for available commands.

2. Choose one or more actions

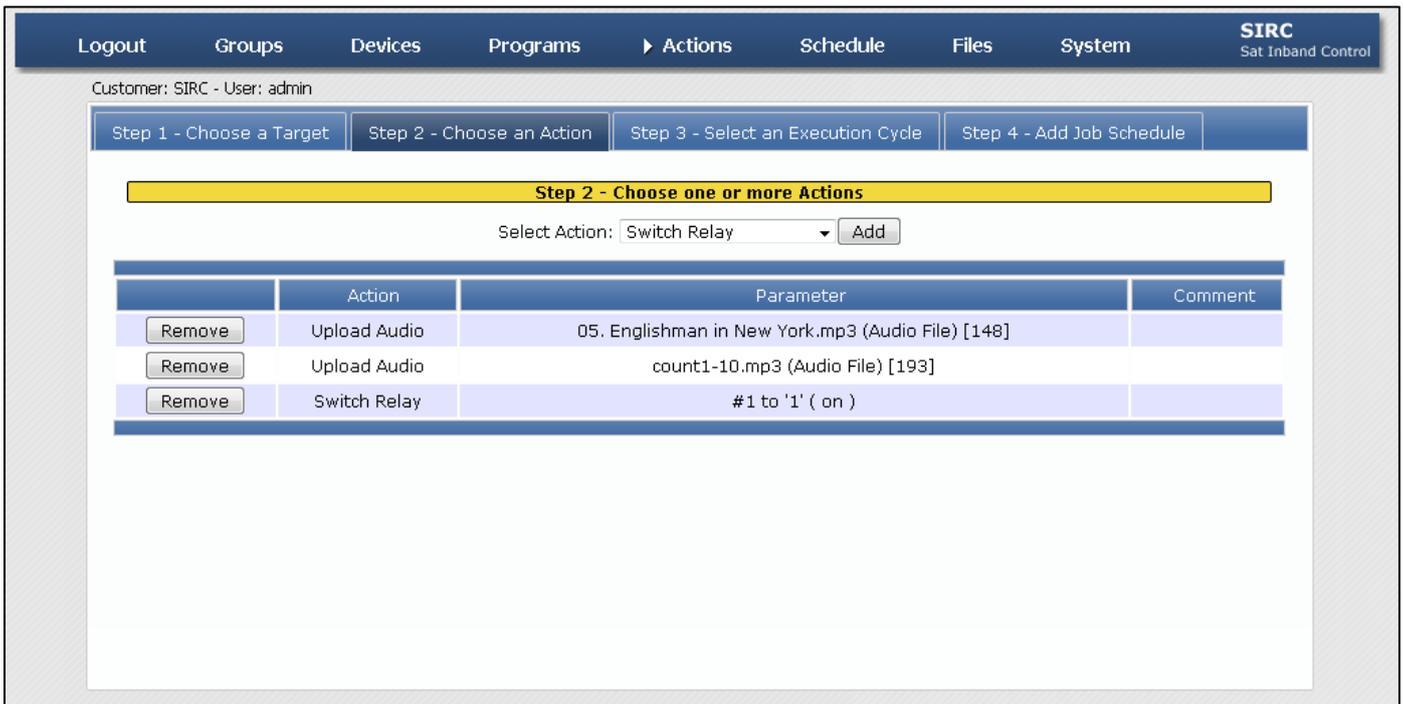


Figure 17: Actions

You can add multiple actions to the job. Each action will be send to each target you have defined. Press the *Remove* button to remove an action from the list. The possible actions vary depending on the target type selected in 1.).

Every action has its own configuration dialog which will be opened by pressing *add*.

3. Select an Execution Cycle

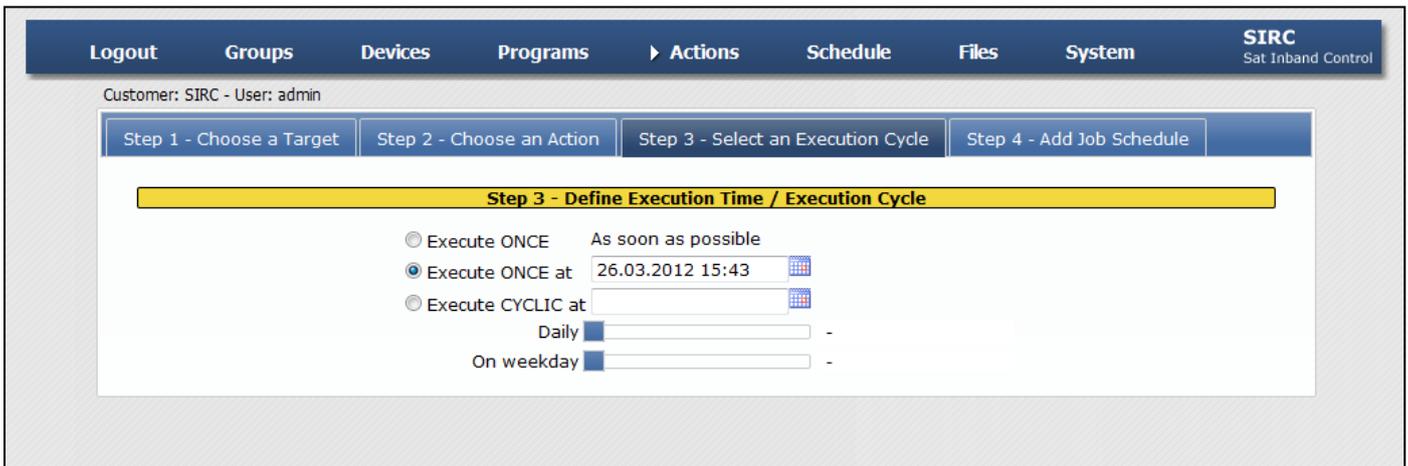


Figure 18: Execution Cycle

Select an execution cycle. 'Cyclic' will invoke more than one transmission depending on the selected parameters *daily* or *weekday*.

4. Add Job to Schedule

The screenshot shows the SIRC web interface for adding a job to the schedule. The navigation bar includes Logout, Groups, Devices, Programs, Actions, Schedule, Files, and System. The user is logged in as admin. The interface is divided into four steps: Step 1 - Choose a Target, Step 2 - Choose an Action, Step 3 - Select an Execution Cycle, and Step 4 - Add Job Schedule. Step 4 is currently active and highlighted in yellow. The configuration details for Step 4 are as follows:

- Target Groups / Receiver:** DSR04 AudioGroup 1. Button: Edit Targets
- Actions:** Upload Audio:05. Englishman in New York.mp3 (Audio File) [148], Upload Audio:count1-10.mp3 (Audio File) [193], Switch Relay:#1 to '1' (on). Button: Edit Actions
- Execution Time / Cycle:** Execute ONCE at 06.03.2013 14:00. Button: Edit Execution Time
- Job Repetition:** When this job was processed, reschedule it: 2 Times with a delay of 3 Hours.
- Description:** Enter a Job Description: Initial Audio Upload and Default Relay Setting. Button: Add Job to Schedule
- Save Job as Template:** Button: Save this Job as Template >>

Figure 19: Job Summary

Before you finally add your job to the schedule, review all your data carefully and add a 'speaking' description to your job. If you need to make any changes, you might use the 'Edit Targets' / 'Edit Actions' buttons. If you checked all the data you can finally add the job to the schedule by pressing the 'Add Job to schedule' button.

To maximize the chance the IRDs will receive the file upload, you can specify a 'Job Repetition'. The job will be rescheduled according to the given parameters.

Alternatively pressing on *Save this Job as Template* the parameter will be stored for later use.

8.6. Schedule



	Job Description	Schedule	State	Est. Duration	Progress
Cancel	Upload Audio	ASAP	Sending	00:45:32	
Delete	Upload Audio	ASAP	06.03.2013 15:03	-	Done
Delete	Upload Audio	ASAP	06.03.2013 15:02	-	Done
Delete	Upload Audio	ASAP	06.03.2013 14:00	-	Done
Delete	Upload Audio	ASAP	06.03.2013 14:22	-	Done
Delete	Switch Relay	ASAP	06.03.2013 13:00	Unknown	Done
Delete	Switch Relay	ASAP	06.03.2013 12:51	Unknown	Done
Delete	Switch Relay	ASAP	06.03.2013 12:41	Unknown	Done
Delete	Upload Audio	ASAP	06.03.2013 12:00	-	Done
Delete	Upload Audio	ASAP	06.03.2013 12:21	-	Done
Delete	Switch Relay	ASAP	06.03.2013 11:25	Unknown	Done

Figure 20: Schedule Overview

The schedule overview is the place where you can check your jobs status. You can see an 'Estimated Duration' for file uploads. These times are just a rough estimation. Also the 'Job Description' you entered before is listed. Since one job can contain multiple actions and targets you can click on the **i** symbol to see the job details.

8.6.1. Schedule Detail

The *Schedule Detail* contains the target, action and more details about the job. File uploads list the duration of the upload and the final state (see Figure 21).



Targets
• TestGroupAudio (TESTA)

Actions
• Upload Audio: TESTMediumFile2.mp3 - 00:00:06 (OK)
• Upload Audio: TESTLARGEFILE2.mp3 - 00:00:01 (OK)
• Upload Audio: Test.bin - 00:00:01 (OK)

Schedule
• Generated from Schedule: Daily 21:00

Figure 21: Schedule Detail

In case of errors, more information about the error is displayed in Figure 22 below.



Figure 22: Schedule Detail – a job with an error

If a job contains multiple files, the state (*OK*, *sending*, *pending*) of each file is listed after the filename (see Figure 23).

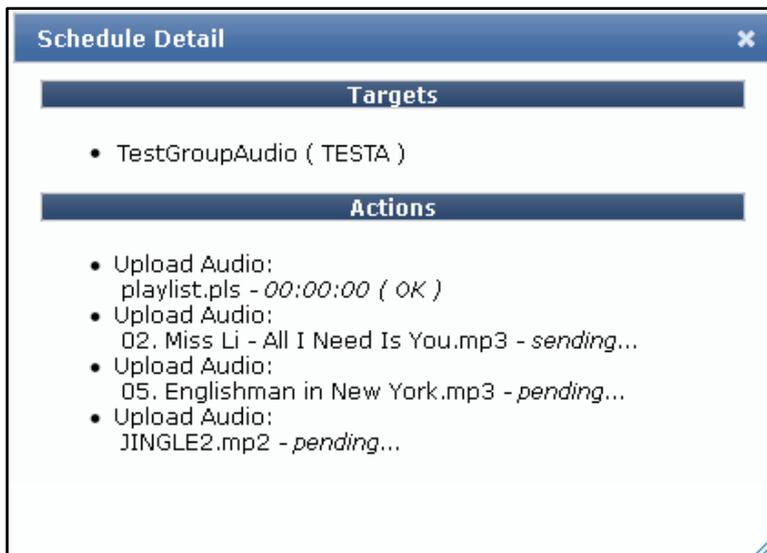


Figure 23: Schedule Detail – the state of a proceeding file

8.6.2. Cancel/Delete a Job

You can delete jobs from the schedule. Processed and waiting jobs can be removed directly. To give the system time to shut down a running job gracefully, you need to cancel the job first. When the job is ready to be deleted the button label changes from 'Cancel' to 'Delete'.

8.6.3. Resend a Job

Finished jobs can be resend by pressing the  button. This will send the job immediately. If the communication port is blocked by another job, the job will be send as soon as possible.

Old entries in the schedule will be automatically removed. You can specify the timespan the jobs will remain in the list. See '**System -> Configuration**' menu

8.7. Files



Customer: SIRC - User: admin

Upload a new File

Show 10 entries Search:

	Description	Name	Size	Type	Uploaded
Delete	MP2_48kHz192kbps.mp2	MP2_48kHz192kbps.mp2	5.3M	Audio File	05.03.13 15:41
Delete	count1-10.mp3	count1-10.mp3	321.8K	Audio File	05.03.13 15:37
Delete	TESTLARGEFILE.mp3	TESTLARGEFILE.mp3	99.6M	Audio File	05.03.13 09:33
Delete	FlexDSR02+ ARM-web-image-V03.13.bin	FlexDSR02+ ARM-web-image-V03.13.bin	2.7M	Firmware ARM	05.03.13 09:02
Delete	FlexDSR02+ ARM-web-image-V03.19.bin	FlexDSR02+ ARM-web-image-V03.19.bin	2.7M	Firmware ARM	05.03.13 09:02
Delete	FlexDSR02+ ARM-web-image-V03.18.bin	FlexDSR02+ ARM-web-image-V03.18.bin	2.7M	Firmware ARM	05.03.13 09:01
Delete	FlexDSR02+ ARM-web-image-V03.17.bin	FlexDSR02+ ARM-web-image-V03.17.bin	2.7M	Firmware ARM	05.03.13 09:00
Delete	FlexDSR02+ ARM-web-image-V03.16.bin	FlexDSR02+ ARM-web-image-V03.16.bin	2.7M	Firmware ARM	05.03.13 09:00
Delete	FlexDSR02+ ARM-web-image-V03.15.bin	FlexDSR02+ ARM-web-image-V03.15.bin	2.7M	Firmware ARM	05.03.13 08:59
Delete	FlexDSR02+ DSP-web-image-V03.32.bin	FlexDSR02+ DSP-web-image-V03.32.bin	1.0M	Firmware DSP	05.03.13 08:59

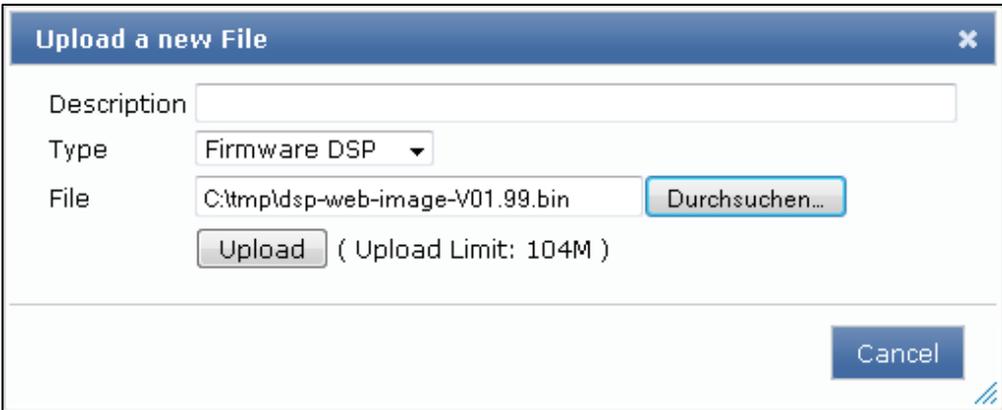
Showing 1 to 10 of 27 entries

First Previous 1 2 3 Next Last

Figure 24: File Summary

Before you can upload a file to your IRDs, you need to upload the file from your local PC to the SIRC server. The overview lists all imported files: ARM firmware, DSP firmware, FPGA firmware, configuration and audio files. Along with the file name, size and upload date a file description is listed. Since the files are quite huge, you should remove unused files from the system. You can re-download the files from the SIRC server by clicking on the file name.

8.8. Upload a new File



Upload a new File

Description

Type Firmware DSP

File C:\tmp\dsp-web-image-V01.99.bin

Durchsuchen...

Upload (Upload Limit: 104M)

Cancel

Figure 25: Upload a new File

'Upload a new File' opens the above dialog. Enter a description and browse your local computer for the file you want to upload. Make sure you select the correct type of the file. If the type does not match the file content the later upload will fail. Finally press the 'Upload' button. The file size is limited to 100MB.

8.9. System

8.9.1. System Overview- System Information

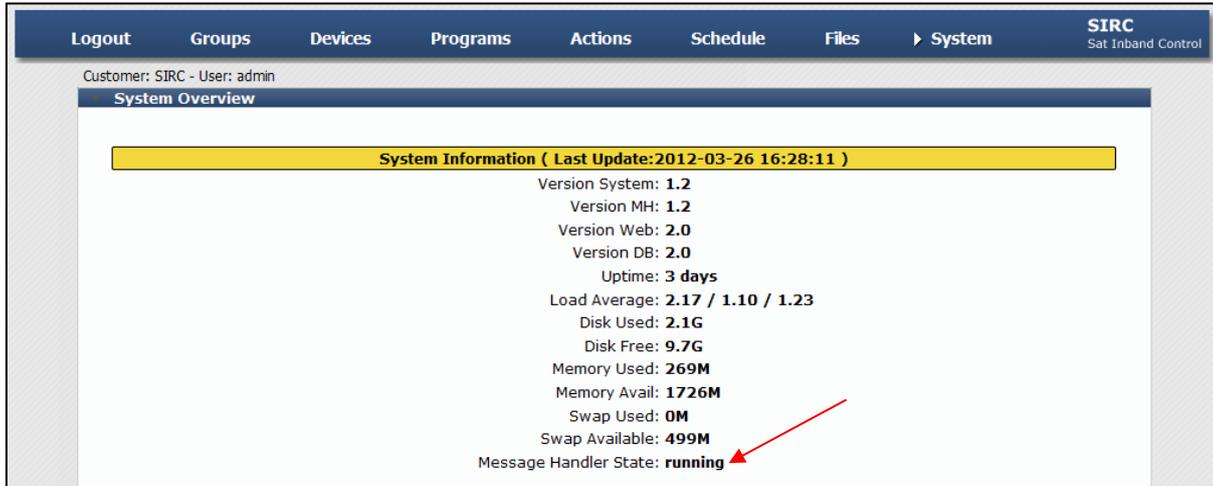
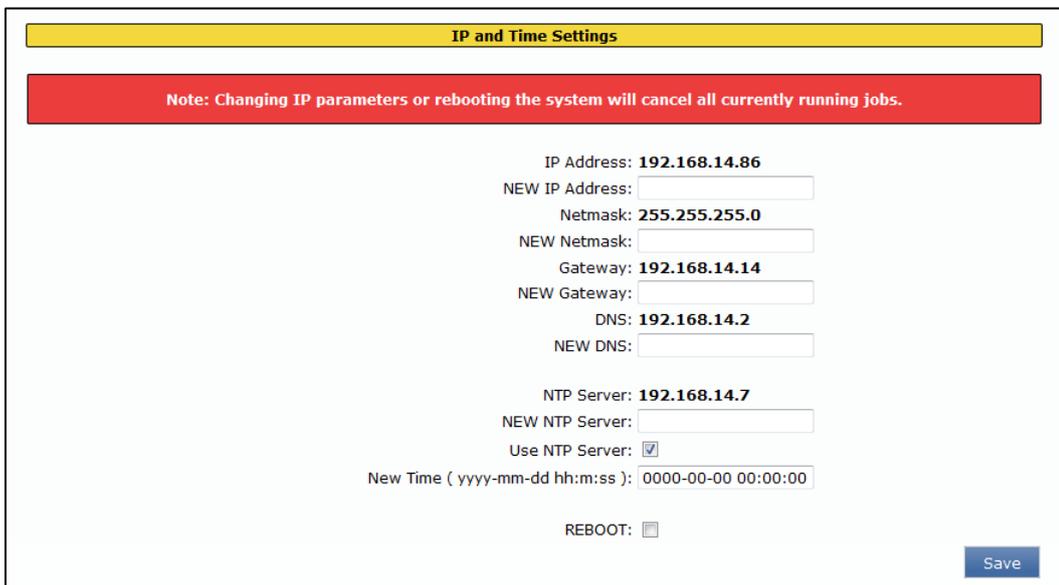


Figure 26: System Overview

Beside several system parameters you can see the state of the *Message Handler* (MH). The MH is responsible for scheduling and sending the data to the target devices. If for some reasons the MH is not running, **the system will not work**.

8.9.2. System Overview- IP and Time Settings



The screenshot shows the SIRC IP and Time Settings page. It features a yellow header for 'IP and Time Settings' and a red warning box that reads: 'Note: Changing IP parameters or rebooting the system will cancel all currently running jobs.' Below the warning, the following settings are displayed: IP Address: 192.168.14.86, NEW IP Address: [input field], Netmask: 255.255.255.0, NEW Netmask: [input field], Gateway: 192.168.14.14, NEW Gateway: [input field], DNS: 192.168.14.2, NEW DNS: [input field], NTP Server: 192.168.14.7, NEW NTP Server: [input field], Use NTP Server: , New Time (yyyy-mm-dd hh:m:ss): 0000-00-00 00:00:00, and REBOOT: . A 'Save' button is located at the bottom right.

Figure 27: IP and Time Settings

Change the IP parameter by entering the new values into the corresponding input fields. If you change the IP address, the netmask or initiate a reboot all currently active jobs will be canceled. It might take up to 5 seconds until the system reflects changes.

8.9.3. Extended Network Configuration

Extended Network Configuration

Additional Network Devices

Device **em1**
IP Address
Netmask
Additional Routing Entry
Enabled

Device **em2**
IP Address
Netmask
Additional Routing Entry
Enabled

Device **em3**
IP Address
Netmask
Additional Routing Entry
Enabled

VLAN Devices

Device **vlan0**
IP Address

Figure 28: Extended Network Configuration

In case you work with the SIRC server on a DELL R320 platform, you have 4 network adapter integrated. The extended 3 network adapter can be configured here. Up to 4 VPN can be configured too. This might be useful if you want to separate web traffic from data traffic.

In case you need additional static routing (different routing that through the default gateway), you can specify a routing rule. This is the exact command line you would enter in an OpenBSD environment to modify the routing table. If you change the static routing it is recommended, that you restart the server.

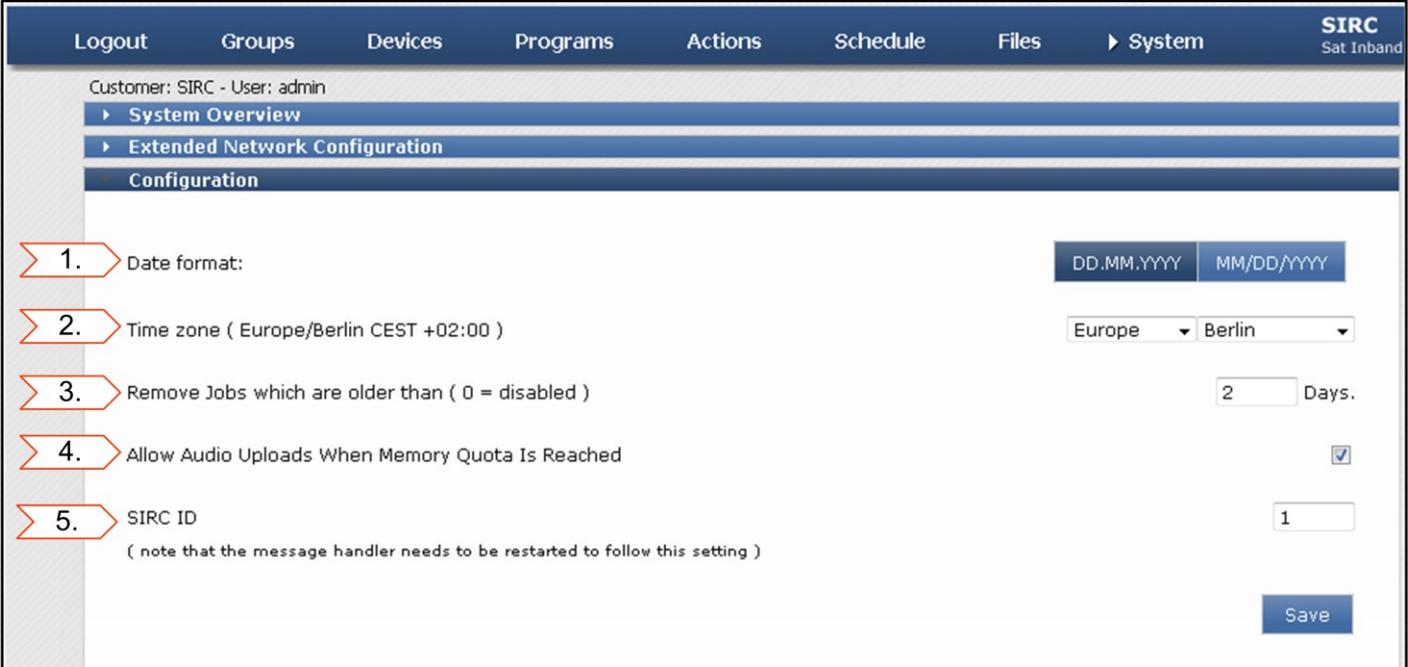
For more information about 'static routs' on OpenBSD see:

<http://www.cyberciti.biz/faq/howto-setup-static-routes-on-openbsd-unix-networking/>

8.9.4. Configuration

Please adjust your local date format and time zone settings before using SIRC.

You can change the following parameters (see Figure 29):



The screenshot shows the SIRC configuration page for user 'admin'. The navigation menu includes Logout, Groups, Devices, Programs, Actions, Schedule, Files, and System. The main content area is titled 'Configuration' and contains the following settings:

- 1. Date format: DD.MM.YYYY / MM/DD/YYYY
- 2. Time zone (Europe/Berlin CEST +02:00): Europe / Berlin
- 3. Remove Jobs which are older than (0 = disabled): 2 Days.
- 4. Allow Audio Uploads When Memory Quota Is Reached:
- 5. SIRC ID: 1 (note that the message handler needs to be restarted to follow this setting)

A 'Save' button is located at the bottom right of the configuration area.

Figure 29: Configuration

1. Change the *date format* and all appearances of date / time data will be changed to the selected format immediately.
2. To adjust the *time zone*:
 - i. change the continental area *Africa* to *Pacific* and the city dropdown box will change its content,
 - ii. select your city,
 - iii. click the -Button,
 - iv. consider the daylight saving time (DST).

⇒ After about 5 seconds the system changes to your chosen settings.
3. Set up the timespan, how long the schedule entries should remain in the schedule list.
4. Set up the behavior of the devices *memory quota*.
5. Set up the *SIRC-ID* here. If you are using more than one SIRC server, it is important that each server get its own unique SIRC-ID. The SIRC-ID is used by the receiving IRD to identify the data source.

8.9.5. Customer Administration

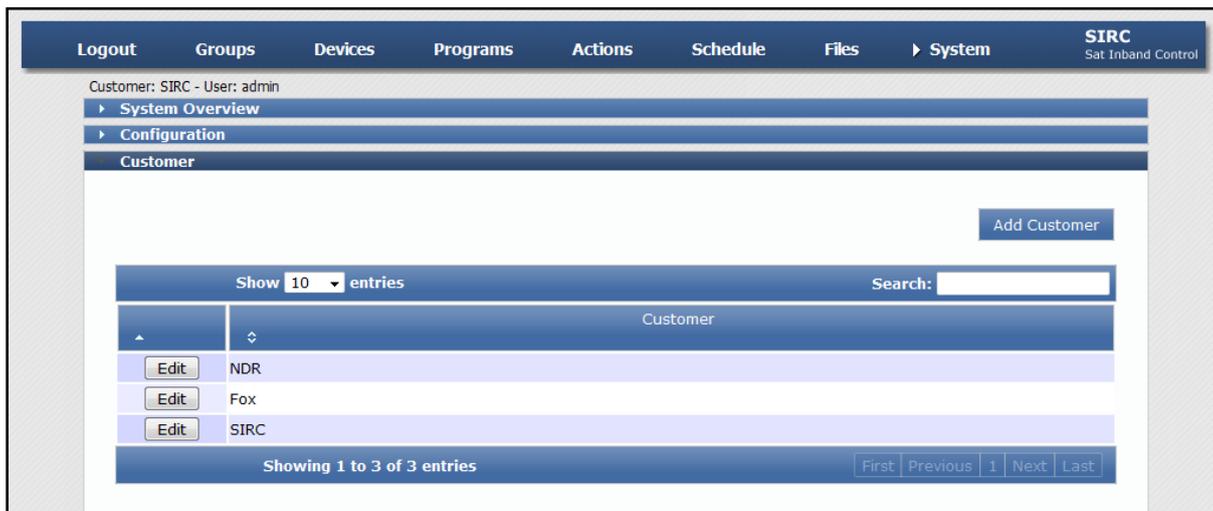


Figure 30: Customer

If the system has to hold more than one *customer*, it's a good idea to add them before adding *Users*, *Devices* or *Groups*. Using more than one customer gives the possibility to limit user access to *Devices*, *Groups*, *Programs* and *Actions*.

The *customer* **SIRC** is the default customer for administration and shouldn't be used for normal users.

8.9.6. User Administration

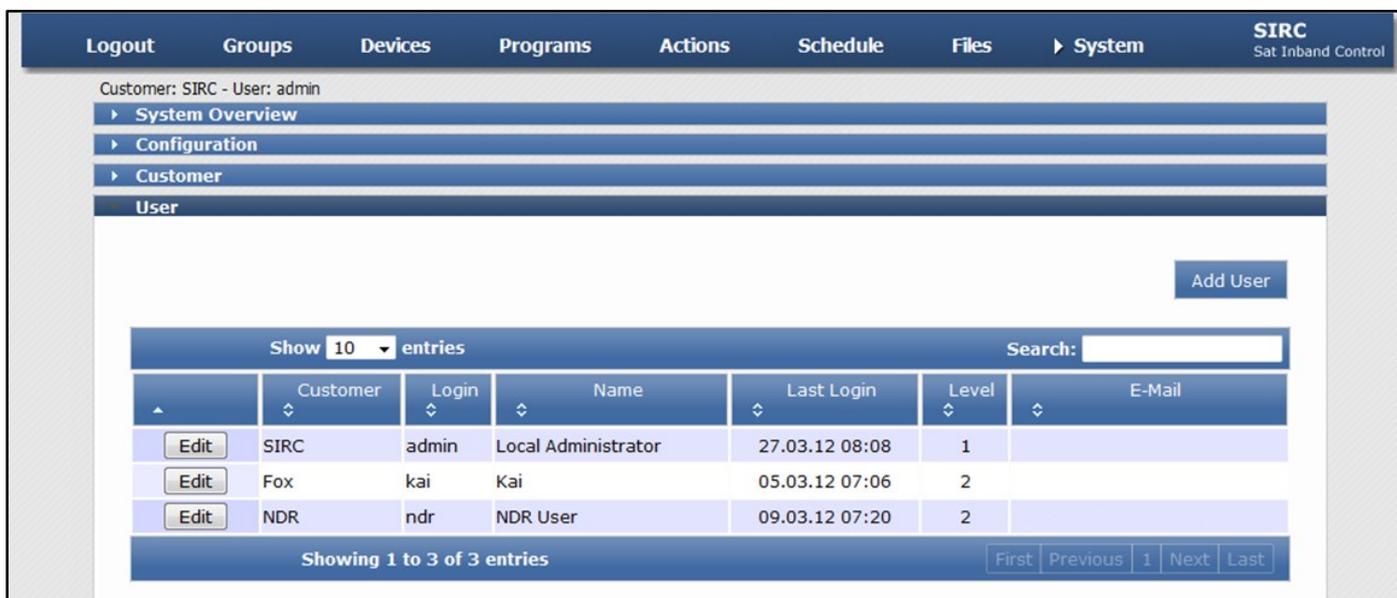


Figure 31: User Overview

The user administration displays an overview of users who have access to the system. Add or edit users by clicking on the corresponding button.

Figure 32: Add/Edit User

Use the *Full Name* and *E-Mail Address* field to identify the user. The *Login Name* must not include any special character. The *Password* and *Password Repetition* field has to match.

Beside the common user data the system supports three different user levels: *Admin*, *User* and *Read Only*. *Admin* level users are not restricted and belong to customer *SIRC*.

User level users are not allowed to change device, group and user data. Only data which belongs to the customer of the corresponding user is accessible.

Read Only users are not allowed to make any changes to the system. Only data which belongs to the customer of the corresponding user is accessible.

You can set a user's state to *Active* or *Locked*. *Locked* users cannot log into the system. The state for *User* level *Admin* can't be *locked*. *User Level*, *Customer* and *State* are sometimes disabled on *Edit User*. *Add User* has no limitations. *Groups allowed* provides a restriction for all customer related groups the user is able to access.

8.9.7. Data Base Backup

The *SIRC* server automatically generates a data base backup once a day. The file history covers a time span of one week.

To see a list of available backups, select **System → Database Backup** (see Figure 33).

Database Backups					
					Create Backup
Show 50 entries		Search: <input type="text"/>			
↑	↓	File	Date	Size	↓
Restore		db_ec01_we.sql.gz	April 17 2013 23:00:01	29.2K	Delete
Restore		db_ec01_th.sql.gz	April 18 2013 23:00:01	29.3K	Delete
Restore		db_ec01_fr.sql.gz	April 19 2013 23:00:01	29.3K	Delete
Restore		db_ec01_sa.sql.gz	April 20 2013 23:00:01	27.0K	Delete
Restore		db_ec01_so.sql.gz	April 21 2013 23:00:01	26.8K	Delete
Restore		db_ec01_mo.sql.gz	April 22 2013 23:00:01	26.8K	Delete
Restore		db_ec01_tu.sql.gz	April 23 2013 23:00:01	27.1K	Delete
Restore		db_ec01_04-16-2013.sql.gz	April 16 2013 16:33:08	27.6K	Delete
Restore		db_ec01_04-24-2013.sql.gz	April 24 2013 12:50:56	27.5K	Delete

Showing 1 to 9 of 9 entries [First](#) [Previous](#) [1](#) [Next](#) [Last](#)

Upload Database Backup File

Figure 33: Example for available Backups

The automatically generated backups follow the name convention:

- `db_exc01_weekday.sql.gz`

You can trigger a database snapshot of the current data base by clicking on the [Create Backup](#) - button. It might take a few seconds until the snapshot is available. The name of the snapshot is:

- `db_ec01_mm-dd-yyyy.sql.gz`

The backupfiles can be downloaded for archive purpose by *right mouse click -> save as*. The file will be deleted from the SIRC server by pressing the [Delete](#) -button.

All backup files that are listed here can be restored by pressing the [Restore](#) -button. If you want to recover a database from an older, previous downloaded file you need to upload the file by using **Upload Database Backup File** field. The uploaded file will be available in the list for a restore operation.



NOTE: By pressing the [Restore](#) -button you delete ALL data from your current database.

8.9.8. System Maintenance

The SIRC Server offers some system maintenance functions. Select **System -> System Maintenance** and you should see a screen similar to this:

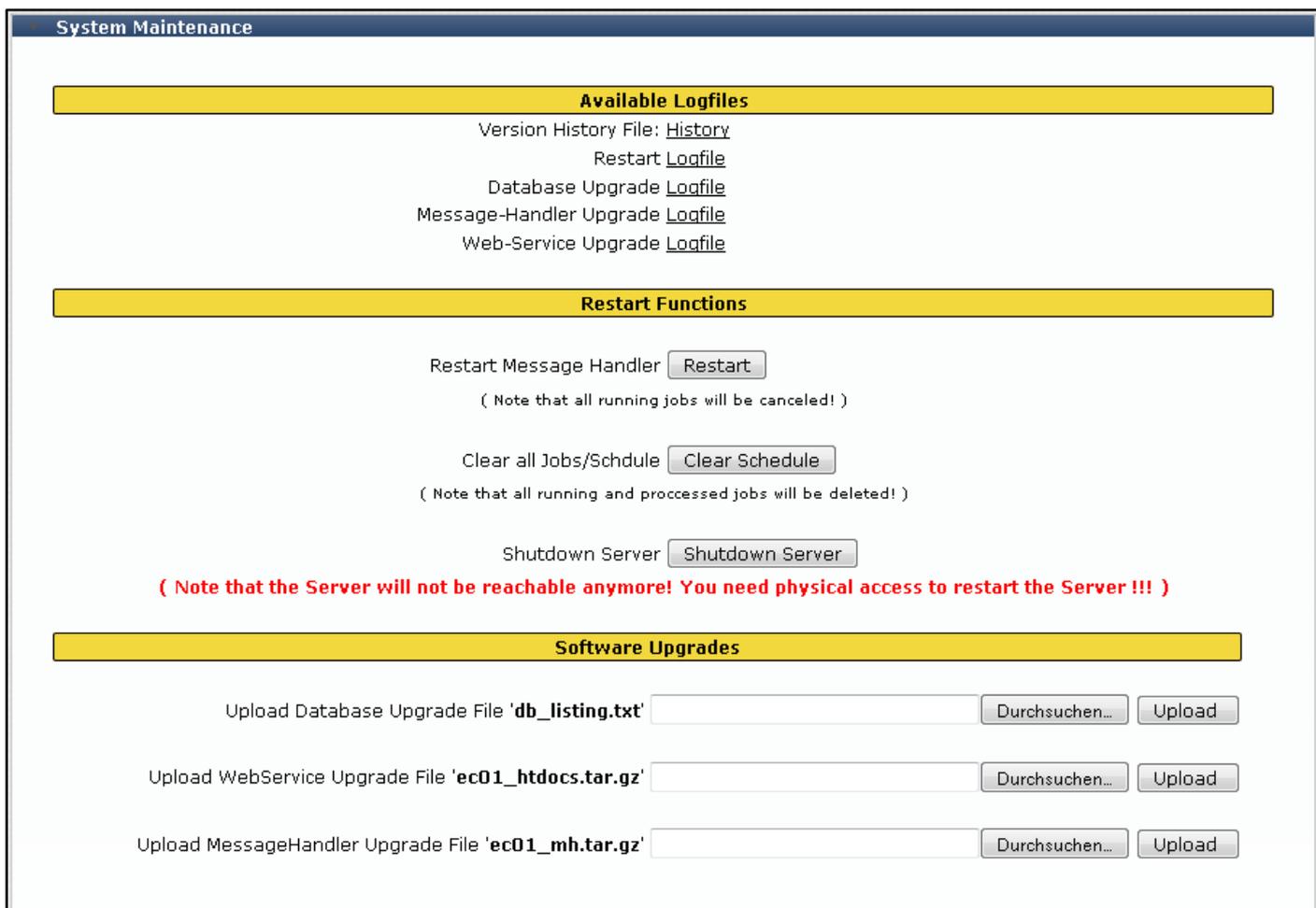


Figure 34: Example for System Maintenance Menu

8.9.8.1. Available Logfiles

This section displays a link to system log files. Click on the link to open a log.

History The history log contains information about the software history of the server. New features, bugfixes and the current version number are listed here.

Restart Whenever the Message Handler or the 'SystemInfo' script is restarted, a log entry with a timestamp is listed here. A restart can be forced by the user interface. If the process terminates due to an unforeseen circumstance, the processes will be restarted automatically. Both possibilities will result a log entry

Database Upgrade If a software upgrade has been done, this log contains information about the upgrade process of the data base.

Message Handler Upgrade If a software upgrade has been done, this log contains information about the upgrade process of the *Message Handler*.

Web Service Upgrade If a software upgrade has been done, this log contains information about the upgrade process of the *Web Service*.

8.9.8.2. Restart Functions

Restart Message Handler	This function stops and starts the Message Handler. In case of an unforeseen circumstance, this action puts the Message Handler back into a defined state.
Clear All Jobs/Schedule	This function deletes all jobs from the <i>Schedule</i> page. This includes currently running jobs. 'Once' or 'cyclic' scheduled jobs will not be deleted.
Shutdown Server	This function will shut-down and power off the server safely.



NOTE: The Sever will NOT restart. You need physical access to the server to restart it!

8.9.8.3. Software Upgrades

Software upgrades consists of three parts:

Data Base upgrade file which is named `db_listing.txt`

This file contains the new database structure. By uploading and executing the upgrade, the system will patch the existing database. Existing data will be untouched.

Web Service upgrade file which is named `ec01_htdocs.tar.gz`

This file contains the visual front end. By uploading and executing the upgrade, the current frontend will be replaced by the new one.

Message Handler upgrade file which is named `ec01_mh.tar.gz`

This file contains the Message Handler which is responsible for the data transmission. By uploading and executing the upgrade, the current Message Handler will be replaced by the new one.

You can verify the successful upgrade process by checking the log files (see above).

9. System overview diagrams

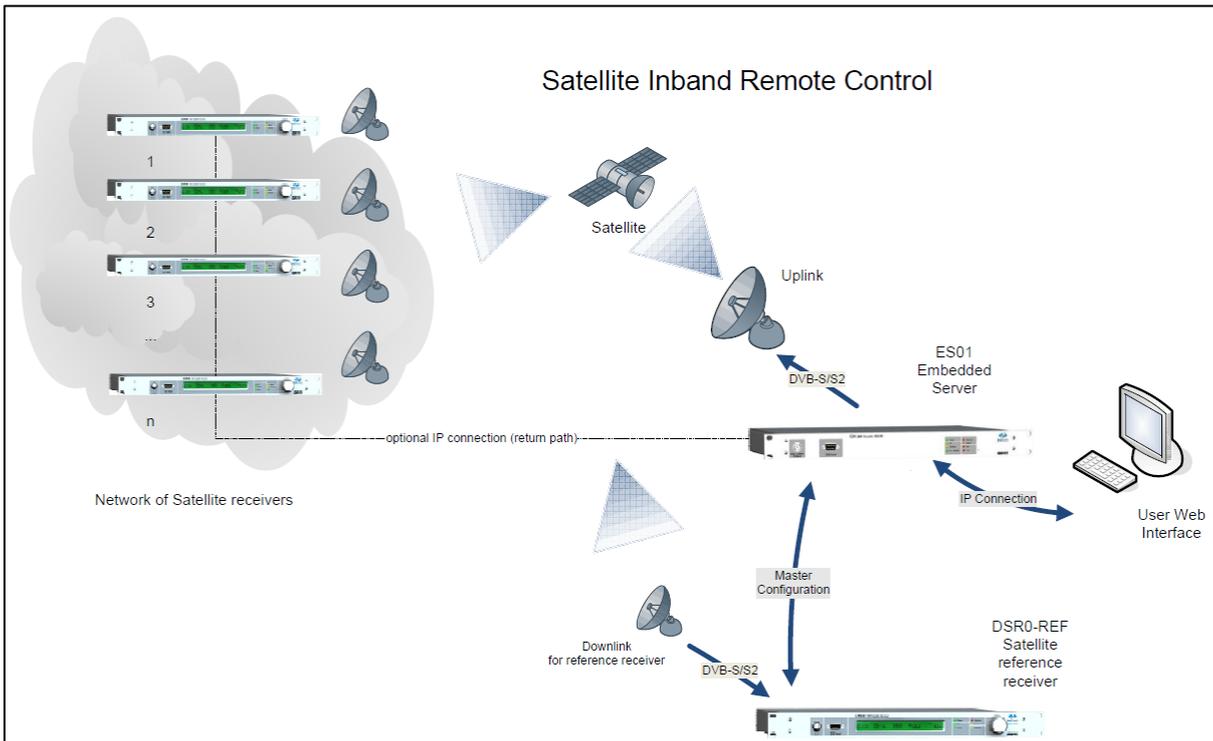


Figure 35: System overview

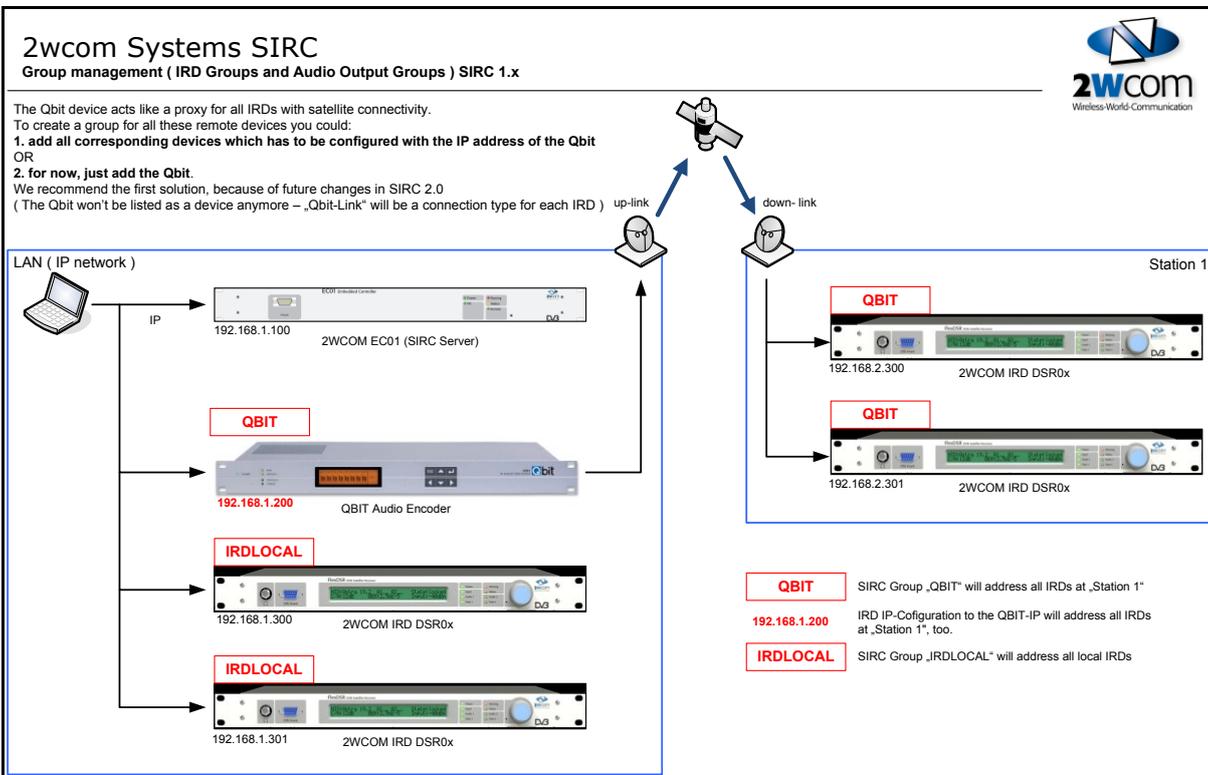
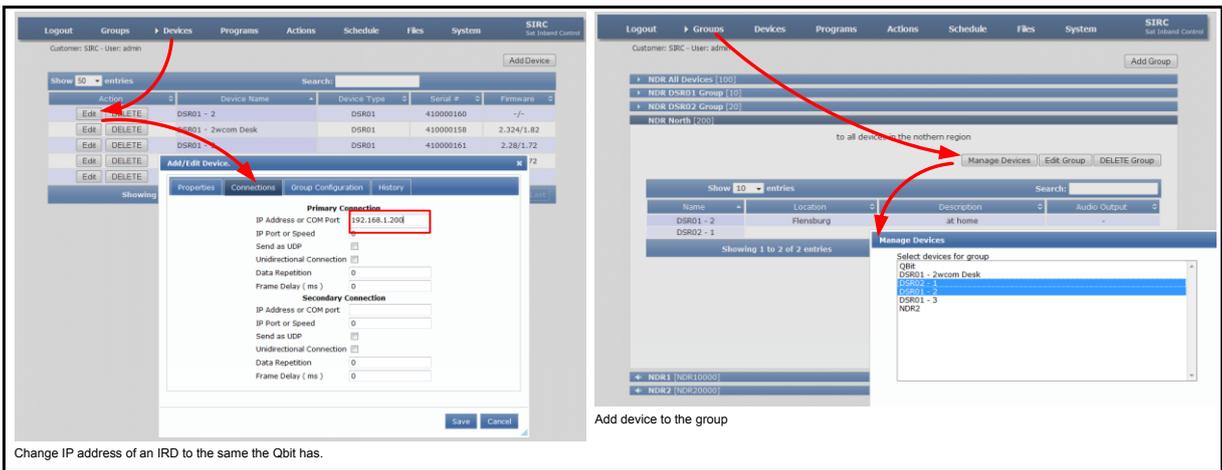


Figure 36: Overview of Group Addressing System structure



Change IP address of an IRD to the same the Qbit has.

Figure 37: Example of IRDs Group Address

10. Automatic Upload via FTP

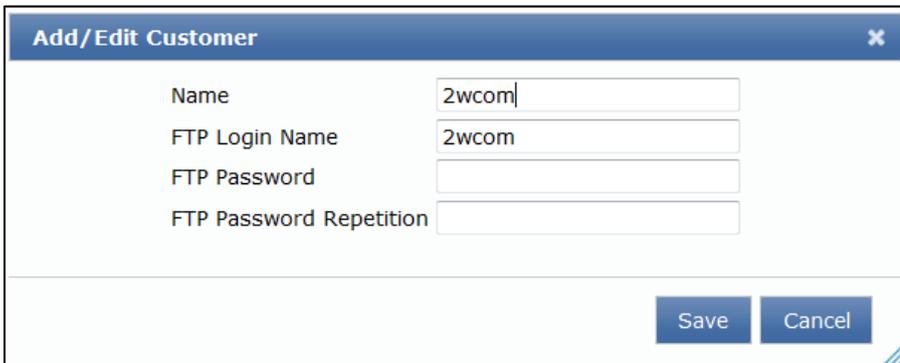
10.1. Setup FTP access for a customer

The SIRC server offers you a convenient way to upload files (audio and auto-config files) without using the web interface. You can add and configure an FTP access for each customer.

✓ You are logged in as administrator to the web interface of the SIRC server.

To set up an FTP access for a customer:

1. Select **System → Customer**.
2. Click on "Add Customer" to create a new account or "Edit" to change an access to existing customer.
3. Specify the FTP login name and password in the dialog window (see Figure 38)



Name	<input type="text" value="2wcom"/>
FTP Login Name	<input type="text" value="2wcom"/>
FTP Password	<input type="password"/>
FTP Password Repetition	<input type="password"/>

Save Cancel

Figure 38: Edit Customer Settings

10.2. Add Files for automatical uploading via FTP

The customer can use an **FTP client** like **WinSCP** to connect to the SIRC server using the FTP protocol (note: not SFTP) and the specified login data.

To upload the files via FTP protocol handle as follows:

1. Start your FTP client.
2. Login with your FTP login name and password.
3. Alternatively open the link <ftp://user:password@192.168.14.85/> to accede your FTP directory structure (see Figure 39).
4. Search your FTP directory structure for an automatically generated folder 'sircupload'
5. Add files to be uploaded via FTP into this folder.

NOTICE

The filename must consist out of the **group name** (audio or device group) followed by an **'_'** (**underscore**) followed by the **filename**: **GroupName_FileName**. Example:
2WCOMP1_WhenWeDance30s.mp3

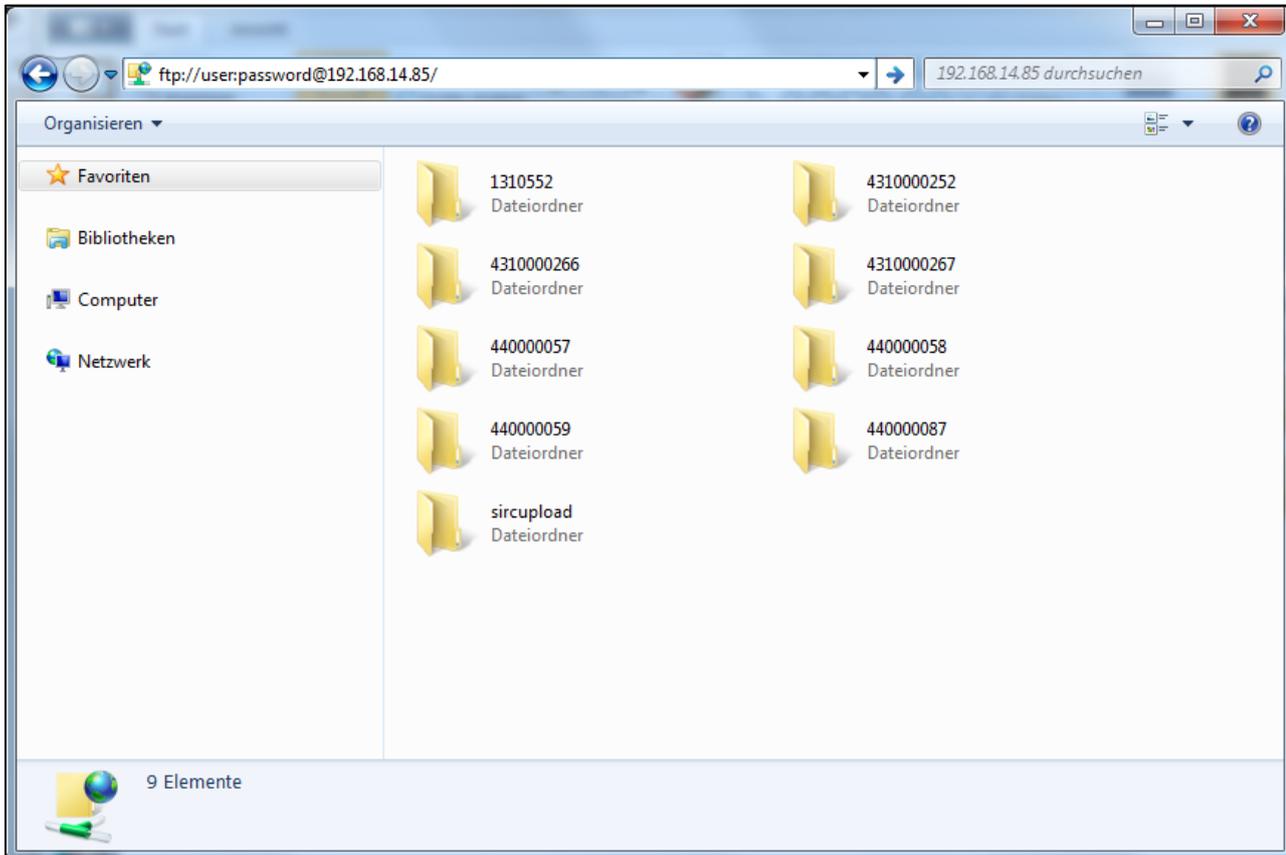


Figure 39: SIRC FTP-Windows Explorer

10.3. File Processing

- ⇒ The SIRC server picks up all files uploaded from the local PC to the folder 'sircupload' and sends them automatically to the specified target group:
 - When the SIRC server picks up the file, it extracts the group name (for example **2WCOMP1**) and checks if this group belongs to the customer.
 - If the group belongs to the customer, the SIRC server transmits the file (**WhenWeDance30s.mp3**) to the specified group.
- ⇒ The SIRC server will generate a new schedule entry with the comment '*Generated from Upload*' (see Figure 40).

Customer: SIRC - User: admin

Show All Show Scheduled Remove all executed Jobs

Show 10 entries Search:

	Job Description	Schedule	State	Est.Duration	Progress
Delete	Generated from Upload	ASAP	✓ 14.11.2012 13:13	0:00	Done
Delete	Generated from Upload	ASAP	✓ 14.11.2012 12:30	0:00	Done

Showing 1 to 2 of 2 entries First Previous 1 Next Last

Figure 40: Schedule: files uploaded via FTP

- ⇒ The SIRC server might take up to one minute to schedule a new upload.
- ⇒ During the file processing
 - the file is moved to `'sircupload/send/'` folder, if the SIRC server successfully processed the new file;
 - the file is moved to `'sircupload/failed/'` folder, if the specified group does not exist or any other error occurs;
- ⇒ After the job has been executed, the file is no longer present inside the `'sircupload'` folder.

10.4. Special Files

The IRD (Integrated Receiver Decoder) recognizes some special filenames. These files are 'executed' from the IRD when they were received correctly.

Schedule file

A schedule file can contain special action like a playlist (for more information on schedule files see section 8.6). The filename convention is:

`filename.shd`

Auto Configuration file

An auto configuration file can contain ASCII commands to control or setup parameters for an IRD (for more information on auto-configuration files see section 11.3). The filename is:

`auto.cfg`

Audio Synchronization file

You can synchronize received audio files sending so called "keep audio files in synchronization" files to the IRD. These files prescribe which audio files should be deleted and which should be kept. They contain a list of the audio files that belong to the target group and therefore should be kept. The IRD compares the filenames listed in the file with the directory structure of the audio group. If the audio group contains a file that is not listed in the `keep.lst` file, it will be deleted from the audio group. The filename is:

`keep.lst`

10.5. FTP SIRC upload folder structure

The SIRC server offers a convenient way to upload files (audio and auto-config files) without using the web interface. The SIRC server offers a FTP access for each customer. The FTP login name and password can be specified by the administrator in the 'System -> Customer' menu.

The screenshot shows a web-based dialog box titled "Add/Edit Customer". It features a search bar at the top right. The main area contains four labeled input fields: "Name" (containing "SIRC"), "FTP Login Name" (containing "admin"), "FTP Password" (empty), and "FTP Password Repetition" (empty). Below these fields are "Save" and "Cancel" buttons. At the bottom left of the dialog, there is a link labeled "Edit Customer Settings".

The customer can use a FTP client like WinSCP to connect to the SIRC server using the FTP protocol and the specified login data. Depending on the login the customer will only have access to the files belonging to this customer. Inspecting the directory structure after a successful login the customer will find the following folders:

1. The "sircupload" folder:
All uploads to the SIRC Server shall be done via this folder.
Depending on the type of upload the SIRC Server will pick up the files and will execute and move these files to the corresponding target.
2. The "send" folder:
If files shall be sent to IRDs, the currently executed files will be passed to this folder. After successful upload to IRDs the files will be passed on to the corresponding IRD folders. If a file upload to IRDs cannot be done successfully because of wrong group configuration, the files will be passed on to the "failed" folder.
3. The "failed" folder:
A user can decide to resend them after solving the problem by using the scheduler resend button on the right.
4. IRD folders:
Every IRD will have a folder named with its UID (for now serial number – will be changed in future release) showing the content of the internal storage of this IRD.
5. Log folder: (planned for future release)
File uploads via SIRC will get logged to this folder. So user could check the status of file uploads.

10.6. External File Upload types

10.6.1. Upload to SIRC repository

For some cases it might be necessary to upload files to the SIRC Server that might be used for a later time.

Example:

- To use the files later via the GUI
- To do a later upload scheduled externally

For this reason files can be uploaded to the SIRC repository folder by uploading them to the FTP SIRC-upload folder of the SIRC Server with the prefix "SIRC_".

If single files are uploaded to the SIRC-upload folder with having a prefix "SIRC_" in front of the file name, they will be directly forwarded to the repository folder of the SIRC Server. The file will be stored without the prefix.

Example:

Original name of file: Commercial.mp3

Upload name of file: SIRC_Commercial.mp3

10.6.2. Upload to IRDs using group names

If files shall be send to IRDs using the SIRC server, this can also be done by simply uploading these files to the SIRC upload folder. But in this case, the target group (destination of the file) must be put in front of the file name.

The filename has to consist out of the group name (audio or device group) followed by an '_' (underscore) followed by the filename.

Example:

2WCOMP1_WhenWeDance30s.mp3

When picking up the file, the SIRC server will extract the group name (2WCOMP1), checks if this group is a valid IRD group for this customer, and if so, transmits the file (*WhenWeDance30s.mp3*) to the specified group. The SIRC server will generate a new schedule entry with the comment '*Generated from Upload*'.

All kinds of files like in the SIRC GUI can be uploaded via this method.

The same restrictions like using the SIRC GUI are valid for this method.

E.g. an audio file can only be send to an audio group.

10.6.2.1. Special files

The IRD recognizes some special filenames. These files will be 'executed' by the IRD on reception.

- Schedule file
- Auto configuration file
- Audio synchronization file (keep.lst)

For more information please have a look at section 10.8 "File types" on page 50.

10.6.3. Upload to IRDs using FileDescription files (zipped bundle)

To upload files to one IRD, one group or multiple groups of IRDs or to execute actions remotely on IRDs the **FileDescription file** (see corresponding Appendix) can be used. These **FileDescription file** can be used to do the following actions:

1. Upload of a zipped set of files to IRDs or groups of IRDs
2. Upload of existing files from the repository folder of the SIRC to IRDs or groups of IRDs (planned in future release)
3. Remote execution of actions on IRDs or groups of IRDs
(A lot of actions available via SIRC GUI plus other actions can be done using this method)

The workflow will be like that:

1. The files (e.g. *audio*, *schedule* and *playlist files*) along with a **FileDescription file** will be uploaded to the SIRC via FTP encapsulated in a ZIP-file.
(The files have to be "zipped" because the SIRC has to ensure the upload of all corresponding files to the SIRC have been finished. And this way we ensure that another upload to the SIRC with audio files with the same name won't replace existing audio file at the SIRC server)
 - a. The zip file name has to be unique.
 - b. The **FileDescription file** can have any name but must be unique (It will be saved in IRDs and multiple files shall not overwrite each other unintended).
 - c. The UploadCode inside of a XML file must be unique and is used for File differentiation and tracking.
2. The SIRC will expand it in a separated directory.
3. The file description XML file will be parsed and sent to the IRDs using the "EVERYIRD" as target.
4. The IRDs will parse the **FileDescription file** to check if the following audio files will belong to it.
5. The SIRC will send all corresponding files to the IRDs using the "XMLGROUP" as target.
6. The IRDs will store the sent files to local storage, if the IRDs are addressed via the XML file.
7. The SIRC server will copy the files sent to the IRDs to the corresponding IRD folders in the SIRC Server.

⇒ Now all files are delivered to the correct IRDs.

Additional to define which files shall be sent to which IRDs, the **FileDescription file** can define a maximum life time of files. By telling the maximum life time of a file automatic housekeeping functionality can be performed in the IRDs. Means, the IRDs can automatically delete files after a certain period of time to remove old files that are not used anymore and save the local storage from being saturated.

Housekeeping in IRDs and SIRC will be done using the **FileDescription file**.

10.6.4. Upload to IRDs from the SIRC repository (planned for future release)

To upload a set of already existing files on the SIRC repository folder to IRDs, the following actions have to be performed.

The workflow will be like that:

1. The files to be delivered (e.g. *audio*, *schedule* and *playlist files*) have to be available at the SIRC repository Server
2. A file description XML file has to be uploaded to the SIRC via FTP
3. The SIRC Server will parse the file description XML file and sends it to the IRDs using the "EVERYIRD" as target
4. The IRDs will parse the file description XML file to check, if the following audio files will belong to it.
5. The SIRC will send all corresponding files (extracted from SIRC repository folder) to the IRDs using the "XMLGROUP" as target
6. The IRDs will store the sent files to local storage, if the IRDs are addressed via the XML file
7. The SIRC server will copy the files sent to the IRDs to the corresponding IRD folders in the SIRC Server.

⇒ Now all files are delivered to the correct IRDs.

The XML description file will be the same than in section 10.6.3 "Upload to IRDs using FileDescription files (zipped bundle)" on page 49.

10.7. Remote execution of actions on IRDs or groups of IRDs

To remotely execute actions to IRDs XML action files can be uploaded to the SIRC Server. A lot of actions available via SIRC GUI plus other actions can be done using this method. The exact action can be seen in the ASCII command specification document

The workflow will be like that:

1. An action description XML file has to be uploaded to the SIRC via FTP
2. The SIRC Server will parse the action description XML file and sends it to the IRDs using the "EVERYIRD" as target
3. The IRDs will parse the action description XML file and check if the actions are addressed to it.
4. If the actions are addressed to an IRD, the IRD will execute it.

10.8. File types

10.8.1. Audio files

Files with suffix **mp2**, **mp3** or **aac** audio files are supported. The format of aac files has to be ADTS (Audio Data Transport Stream).

10.8.2. Playlist file

The suffix of the playlist file has to be **.pls**. Detailed description can be found in the DSR0x manual

10.8.3. Scheduling file

The suffix of the schedule file has to be **.shd** or with an expiration date like **schedule_260214**. Detailed description can be found in the DSR0x manual

10.8.4. Keep.lst file

The name of the file has to be **keep.lst**. It is an ASCII file and can contain a list of filenames. As soon as the file arrived at the IRD all files inside the IRD storage will be deleted except of the listed files. After that the file itself will be deleted.

10.8.5. Auto Config file

The name of the file has to be **auto.cfg**. It can contain all known IRD ASCII commands. As soon as the file arrived at the IRD these commands will be executed in the order they are listed. After that the file itself will be deleted.

10.8.6. FileDescription file

This XML-file describes to which group (group of one or more devices) files shall be delivered and the expiration date of these files. The groups "SQY01RMC" and "PAR01RMC" are an example of two unique audio groups each available at only one IRD. The filename is not important because every uploaded XML file will be parsed by the IRD, so the suffix of the filename has to be **.xml**. The tag **<FileDescriptions>** will mark this file as a **FileDescription file**. The tag **<UploadCode>** has to be unique for all uploads. This will group the **FileDescription file** and the listed files temporary on the IRD.

Example:

An upload of a zipped set of files will be done together with the following **FileDescription file**.

```

<?xml version="1.0" encoding="iso-8859-1"?>
<FileDescriptions>
  <UploadCode>KSBJ7712</UploadCode>
  <Destinations>
    <Group>SQY01RMC</Group>
    <Group>PAR01RMC</Group>
  </Destinations>
  <Files>
    <File FileName="mo_h1b1ksbj.pls">
      <ExpirationDate>25/08/2013</ExpirationDate>
    </File>
    <File FileName="mo_h12b1ksbj.pls">
      <ExpirationDate>26/08/2013</ExpirationDate>
    </File>
    <File FileName="ksbj_jingle.mp3">
      <ExpirationDate>27/08/2013</ExpirationDate>
    </File>
    <File FileName="ksbj_coke_com.mp3">
      <ExpirationDate>28/08/2013</ExpirationDate>
    </File>
    <File FileName="ksbj_pepsi_com.mp3">
      <ExpirationDate>29/08/2013</ExpirationDate>
    </File>
  </Files>
</FileDescriptions>

```

The following files are sent to the two IRDs with the unique audio groups "SQY01RMC" and "PAR01RMC":

- Two playlist files: "mo_h1b1ksbj.pls", "mo_h12b1ksbj.pls"
- Three audio files: "ksbj_jingle.mp3", "ksbj_coke.mp3", "ksbj_pepsi.mp3"

After the first upload of files, the same method will be repeated to add a regionalized jingle to only one IRD.

The playlist file **mo_h12b1ksbj.pls** will be replaced and the regionalized jingle **"ksbj_jingle_north.mp3"** will be uploaded to the IRD with the unique audio group "PAR01RMC".

```

<?xml version="1.0" encoding="iso-8859-1"?>
<FileDescriptions>
  <UploadCode>KSBJ7713</UploadCode>
  <Destinations>
    <Group>PAR01RMC</Group>
  </Destinations>
  <Files>
    <File FileName="mo_h12b1ksbj.pls">
      <ExpirationDate>31/08/2013</ExpirationDate>
    </File>
    <File FileName="ksbj_jingle_north.mp3">
      <ExpirationDate>31/08/2013</ExpirationDate>
    </File>
  </Files>
</FileDescriptions>

```

10.8.7. ActionDescription file

Example:

The following **ActionDescription file** will forward two play audio commands to two groups of IRDs to play the audio file commercial.mp3 on audio channel 1 and to play the audio file news.mp3 on audio channel.

```
<?xml version="1.0" encoding="iso-8859-1"?>
<ActionDescriptions>
  <Destinations>
    <Group>RMCNORTH</Group>
    <Group>RMCEAST</Group>
  </Destinations>
  <Actions>
    <Action>audio1_play commercial.mp3</Action>
    <Action>audio2_play news.mp3</Action>
  </Actions>
</ActionDescriptions>
```

10.8.8. Report files

The IRD is capable of generating 6 different report files.

- Health report (XML)
- Configuration report (XML)
- Internal storage report (XML)
- Affidavit report (XML)
- Event log report (ASCII)
- Remote control log report (ASCII)

The filename suffix is **.xml** for files with XML structure and **.cvs** for files using the ASCII format.

Detailed description can be found in the in the DSR0x manual.

11. Appendix

11.1.Actions

Via the SIRC web-interface you can assign different tasks ("actions") to separate targets: audio groups or group devices and define the time of execution.

To add a new action, proceed as follows:

✓ You are logged in to the SIRC-system and have added devices or groups.

1. Select **Actions** → **Step 1 – Choose a Target**.
2. Click the button **Audio Groups / Device Groups / Devices** to choose the target.
3. Choose the target group by ticking the correspondent box.
4. Select **Actions** → **Step 2 – Choose an Action**.

Depending on the target (audio group or device group / device) different commands are available. The following sections describe available commands and their configurations. For more information about further steps in the menu **Actions** read Chapter 8.5.

For an assignment of a new action the following Device/Device Group commands are available:

11.1.1. Switch Relay



Figure 41: Actions → Step 2 - Choose an Action → "Switch Relay"

Switch a relay *on*, *off* or *pulse* it. The receiving device will execute this action immediately and sets the internal relay to the chosen state.

11.1.2. Switch Preset



Figure 42: Actions → Step 2 - Choose an Action → "Switch Preset"

The receiving device will execute this action immediately and sets the preset to the selected one.

11.1.3. Upload File (Firmware/Config)

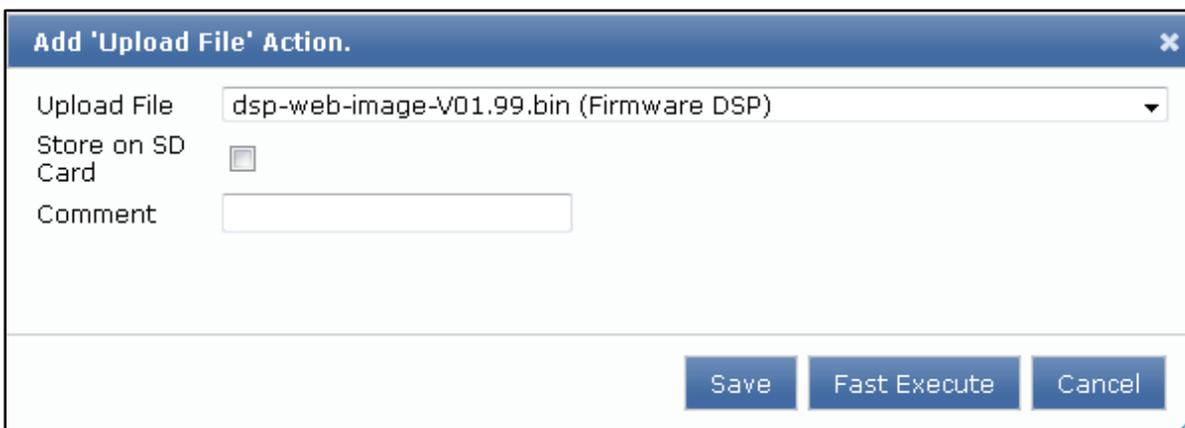


Figure 43: Actions → Step 2 - Choose an Action → "Upload File"

This action will upload a file to the target device. A file can be a firmware (ARM, DSP or FPGA) or a configuration file. You can choose a file from the combo box. The combo box lists all firmware files you uploaded from the menu item *Files*. Note that this operation only uploads the file into the device, it does not activate it. By checking 'Store on SD Card' the receiving IRDs will store the file on the internal SD card for later use.

11.1.4. Activate (Firmware/Config)

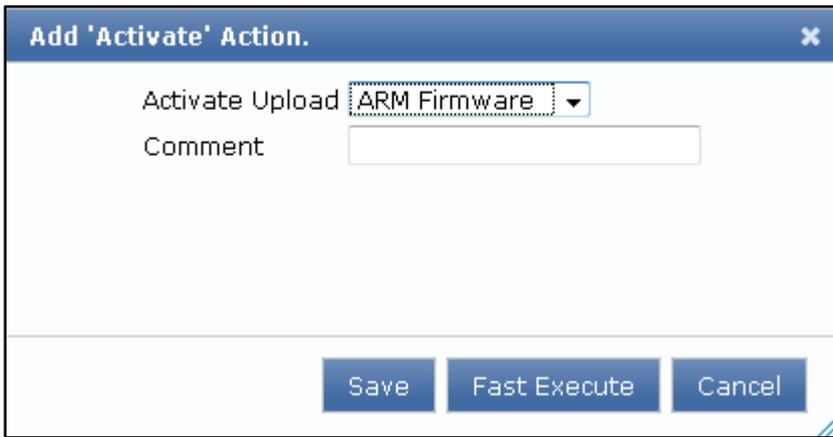


Figure 44: Actions → Step 2 - Choose an Action → "Activate"

After you have uploaded a file, you need to activate it. An activation will reboot the device – so your service will be interrupted for a couple of seconds (approximately 3-5 seconds). If you want to activate a firmware / configuration as soon as it is uploaded, you can add the 'Activate' action right after the 'Upload' action.

11.1.5. Set Time and Date

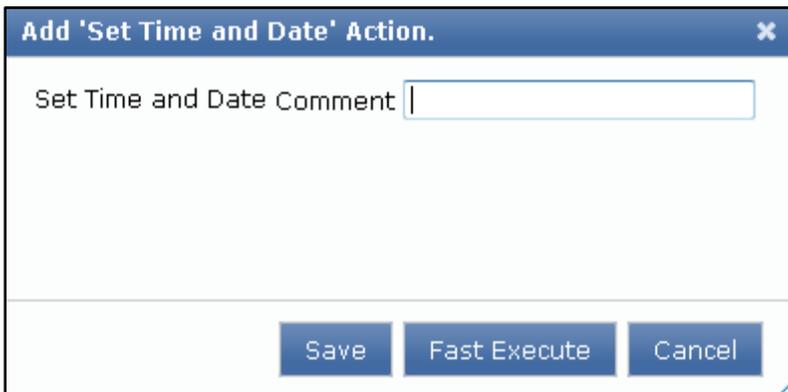


Figure 45: Actions → Step 2 - Choose an Action → "Set Time and Date"

This command sends the time and date to the receiving IRDs. The time of the SIRC server is used as referential time.

11.1.6. Reboot IRD



Figure 46: Actions → Step 2 - Choose an Action → "Reboot IRD"

This command will reboot the receiving IRDs immediately.

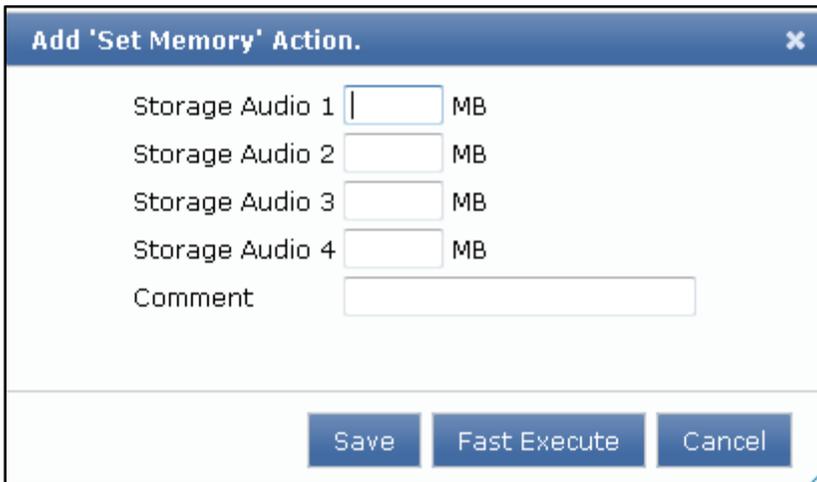
11.1.7. Req. Health Report



Figure 47: Actions → Step 2 - Choose an Action → "Request Health Report"

This command initiates the delivery of a health report on the receiving IRDs. Note that the IRDs need to be setup correctly to deliver health report.

11.1.8. Memory Configuration

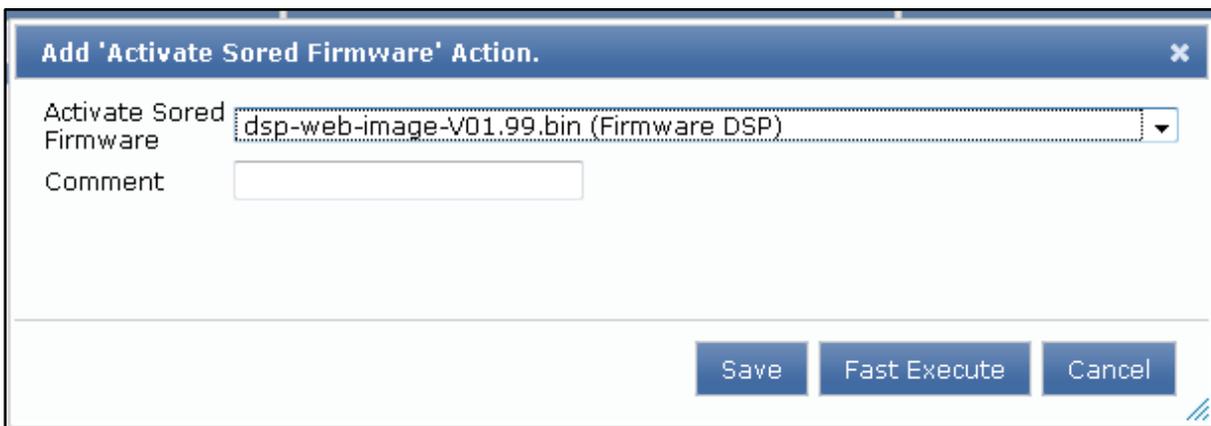


The screenshot shows a dialog box titled "Add 'Set Memory' Action." with a close button (X) in the top right corner. It contains four input fields for "Storage Audio 1", "Storage Audio 2", "Storage Audio 3", and "Storage Audio 4", each followed by "MB". Below these is a "Comment" text box. At the bottom, there are three buttons: "Save", "Fast Execute", and "Cancel".

Figure 48: Actions → Step 2 - Choose an Action → "Set Memory"

This commands set the memory quota for each audio output. The sum of this sizes must not exceed the memory of the IRDs SD card (see also Device Configuration). Sending this command to the IRD will update the device property dialog (*Storage Limit*).

11.1.9. Activate Stored File



The screenshot shows a dialog box titled "Add 'Activate Sored Firmware' Action." with a close button (X) in the top right corner. It contains a dropdown menu for "Activate Sored Firmware" with the selected item "dsp-web-image-V01.99.bin (Firmware DSP)". Below this is a "Comment" text box. At the bottom, there are three buttons: "Save", "Fast Execute", and "Cancel".

Figure 49: Actions → Step 2 - Choose an Action → "Activate Stored Firmware"

This command will activate a previously stored File from the IRDs SD card.

At the time of writing the following Audio Group commands are available:

11.1.10. Upload Audio

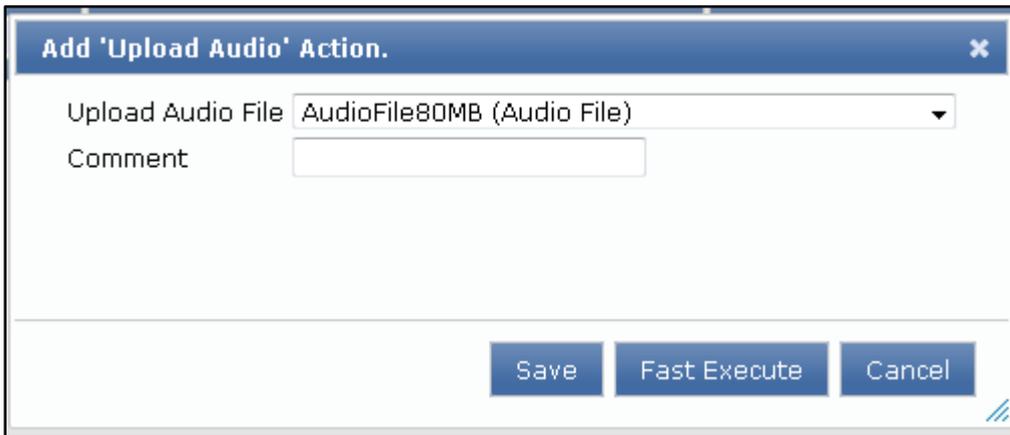


Figure 50: Actions → Step 2 - Choose an Action → "Upload Audio"

This command uploads an audio file to the Audio Group. The combo box displays all files that were uploaded to the SIRC server before.

11.1.11. Play Audio

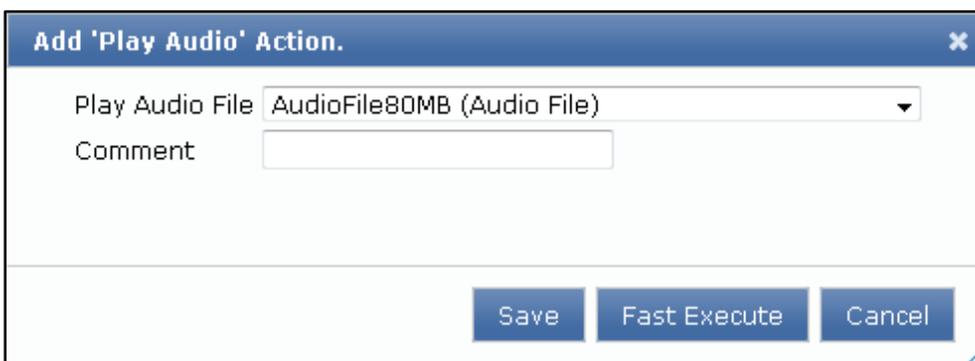


Figure 51: Actions → Step 2 - Choose an Action → "Play Audio"

This command initiates the playback of the specified file. Note that the file needs to be uploaded to the IRDs SD card before it can be played.

11.1.12. Stop Audio

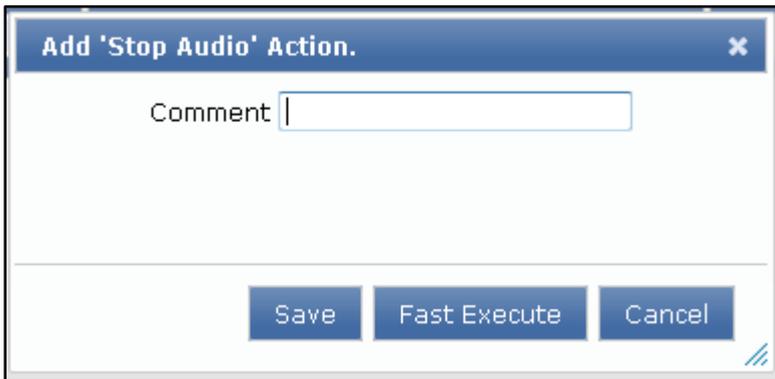


Figure 52: Actions → Step 2 - Choose an Action → "Stop Audio"

This command will stop the current audio file playback.

11.1.13. Set Input Source PID

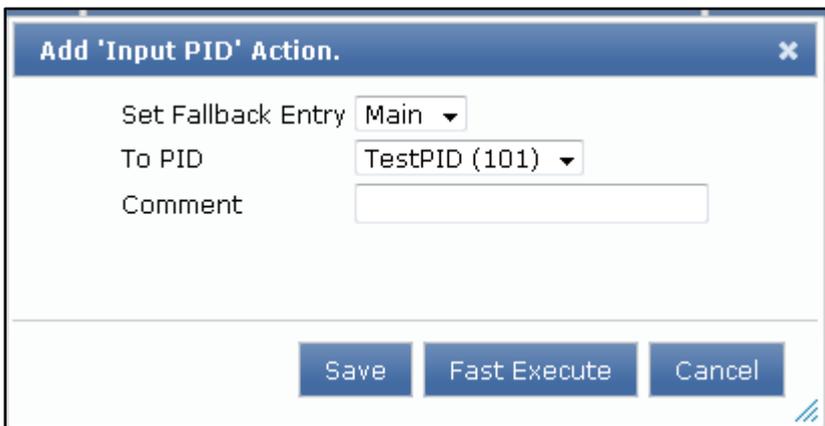


Figure 53: Actions → Step 2 - Choose an Action → "Input PID"

This command sets the PID of the given *Fallback Entry* of the receiving IRDs.

11.1.14. Activate Fallback

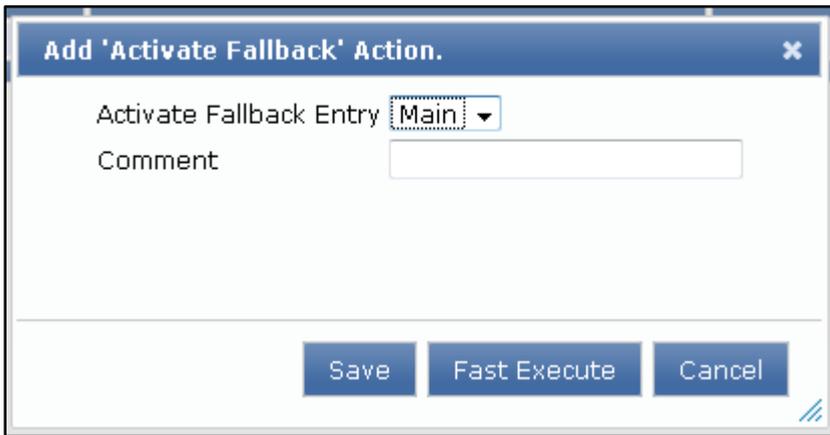


Figure 54: Actions → Step 2 - Choose an Action → "Activate Fallback"

This command instantly activated the specified Fallback Entry of the IRDs.

11.1.15. Delete Audio

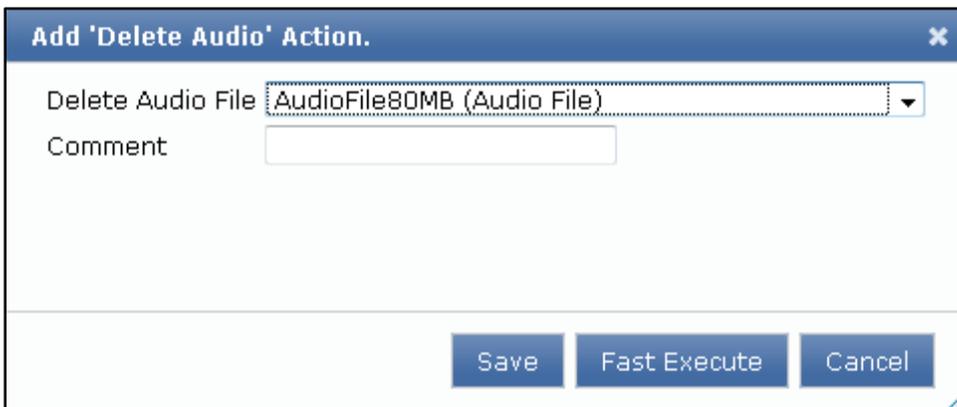


Figure 55: Actions → Step 2 - Choose an Action → "Delete Audio"

This command deletes the specified audio file from the SD card of the IRDs.

11.1.16. Audio Sync.



Figure 56: Actions → Step 2 - Choose an Action → "Audio Sync"

This command sends a list of file names to the IRD. The IRD parses this list and deletes all files from the SD card, which are not in the list. This command acts like a 'keep this files' action.

11.2. SIRC – Addressing mechanism explanations

11.2.1. Principles

As described in 2.1 Overview the SIRC system shall be used to provide 2wcom satellite receiver with certain information via satellite channel. That may be software updates, but also switching relays, putting out serial data and saving e.g. audio commercial files will be possible.

To reach that goal some kind of globally logical thoughts will be necessary. The 2wcom engineers designed a system that is very slim in its architecture and reaches all requirements of provisioning devices via satellite.

To manage and supervise this system it is essential to regard at least the following:

- The system is generally server/client based
- Different Addressing Mechanisms are used (Serial no., device groups, function unit/audio unit groups)
- There have to be a clear concept about group allocation before bringing out the units into field
- All used groups have to be registered within satellite receivers AND SIRC server.
- All used serial numbers (if wanted) have to be registered within SIRC server

An important part of the SIRC – Satellite Inband Remote Control – is the addressing functionality of the system. This Appendix section is intended to explain how IRDs can be targeted on the receiving end of the system using SIRC.

The 2wcom SIRC system offers a complete addressing solution, where IRDs can be organized into groups, but can also be addressed uniquely by their serial number. This enables the user to target single or multiple devices within a system and allows for an easy and straight forward way to organize and manage the system.

11.2.2. Addressing Methods

There are two methods of addressing:

1. Addressing a unique device by use of the serial number
(all serial numbers have to be registered on the SIRC server)
2. Addressing groups of devices by using group labels for
(all logical group label have to be registered on both SIRC server and receiver)
 - i. Device groups
 - ii. Function unit groups/audio groups

11.2.3. Serial Number Addressing

By using the serial number of a device as addressing method it's always possible to target one single device even if no groups have been defined for this device yet.
(There has to be an active connection to the device via satellite or IP)

11.2.4. Group Label Addressing

With using destination group labels it's possible to logically structure a network or combination of IRDs for easy management and control.

A destination group label is a name consisting of a maximum of 8 ASCII characters. (All standard letters and figures can be used)

There are two types of labels

1. Group label to target whole devices
(so called "device groups")
2. Group label to target function units/audio units within the device
(so called "function unit groups/audio unit groups")

This means group labels can be used to define IRDs or parts of IRDs (so called function units/audio units) to belong to a group.

Of course, group labels must be set inside of an IRD before they can be used for addressing.

11.2.5. Function Units

In order to control audio, serial and relay outputs of a receiver there needs to be a mechanism to address these outputs. Additionally it's necessary to control only parts of these.

For this reason groups can target function units/audio units inside of an IRD.

These function units/audio units are logically grouped elements inside of an IRD. One function unit/audio unit is always a buildup of **1 audio output, 2 serial outputs** and **4 Relays**.

The function units can be used to address single production chains inside of a receiver. This means they can be used to control only one audio channel (+ its corresponding DTEs and relays) inside of a receiver without affecting other audio channels.

The picture below (see Figure 57) shows an example of an IRD with one device group label and two functional unit labels.

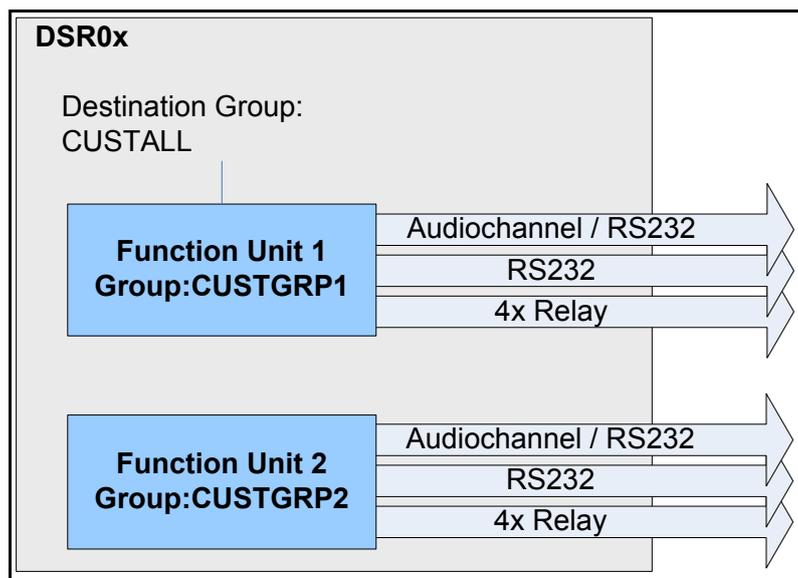


Figure 57: Example of one IRD belonging to one device group address and two function units

11.2.6. Different Commands for Group Usage

Not all commands can be used with both kinds of group types. Some commands are only valid for device groups and some commands are only valid for function unit groups.

Commands valid for Device-Groups:

- Switch Relay
- Switch Preset
- Upload File (Firmware/Config)
- Activate(Firmware/Config)
- Set Time and Date
- Reboot IRD
- Req. Health Report
- Memory Configuration
- Activate Stored File (Firmware/Config)

Commands valid for Function-Unit-Group/Audio-Group:

- Switch Relay
- Upload Audio files
- Play Audio file
- Stop Audio file
- Set Input Source PID
- Activate Fallback
- Delete Audio files
- Audio file content synchronization

11.2.7. IRD Description

Every IRD can be part of multiple groups. 2wcom devices can support up to 12 groups per IRD.

The following picture (see Figure 58) shows an example of a possible group configuration for an IRD in Saint Quentin in Paris:

The screenshot displays the 'Remote control settings' for a 2wcom DSR02 device. The interface is divided into a main configuration area and a right-hand sidebar.

Group assignment table:

Group	Group name (max. 8 char)	Assigned to
1. Group	Flex2	Device
2. Group	Paris	Device
3. Group	StQty	Device
4. Group	NationP1	Audio Output 1
5. Group	NationP2	Audio Output 2
6. Group	ParisP1	Audio Output 1
7. Group	ParisP2	Audio Output 2
8. Group	StQtyP1	Audio Output 1
9. Group	StQtyP2	Audio Output 2

In-Band Control Data PIDs:

PID1 [0 - 8191]: 8191
PID2 [0 - 8191]: 0

Buttons: reset, save

Right Sidebar (DSR02):

- Information
- Input Source
- TS Output Settings
- Interface Settings
- Network Settings
- System Settings
- Remote Control (current page)

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Figure 58: Example for a group configuration for an IRD (here 2wcom DSR02)

11.2.8. SIRC-Server Description

At the SIRC Server **the same** target group addresses as in the devices must be specified.

Theoretically the SIRC Server can support unlimited group entries.

In the picture below (Figure 59) there is a screenshot of one group configuration at the SIRC Server. The **Group name** that is shown in the menu field "**Address**" must be identical with the corresponding **group name** in the IRDs (Figure 58).

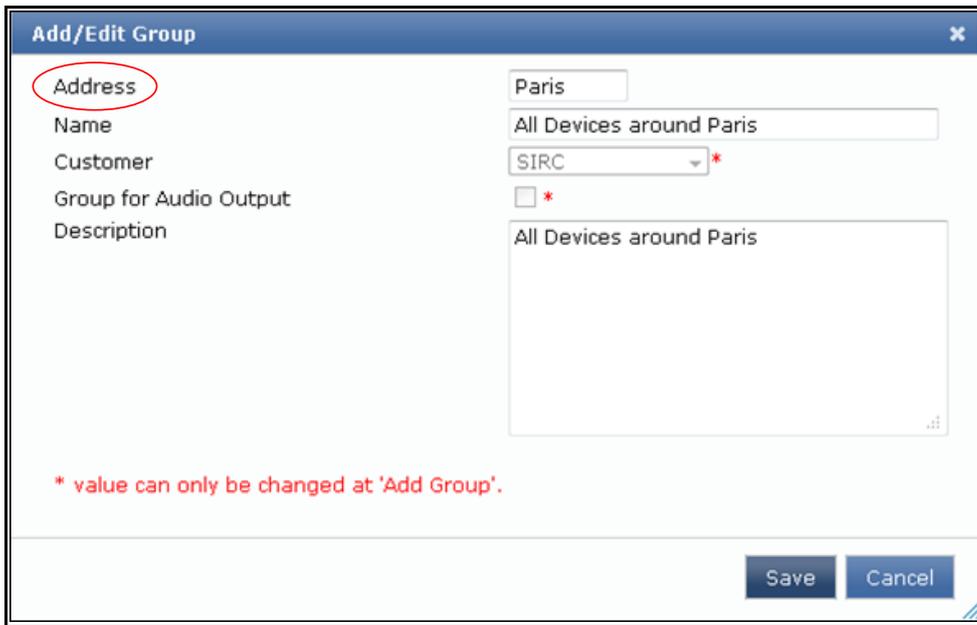


Figure 59: Group name of the IRD in the field "Address" Group configuration in SIRC

NOTE:

 The appropriate field for group name in SIRC software is called "**Address**" (Figure 59).

The correspondent field in the group configuration of the 2wcom IRDs has in contrast the label "**Group Name**" (Figure 58).

Both must contain the same name! Otherwise the SIRC cannot execute the addressed actions.

The following picture (Figure 60) shows an overview about the configured groups that are known by this example SIRC Server.

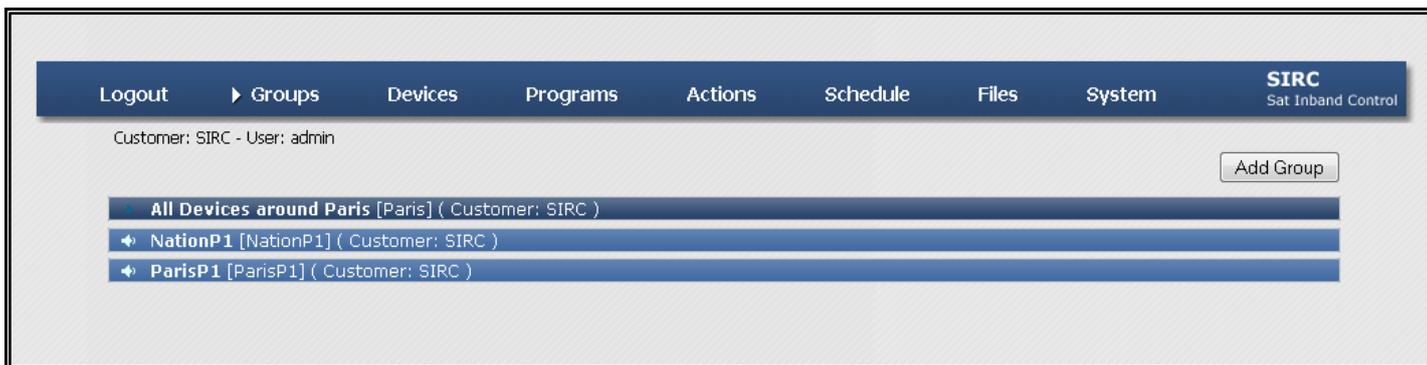


Figure 60: SIRC – example of the configured groups

All group labels must be known (configured) by an IRD **before** it can be used for addressing.

11.2.9. System Address Structure

A well structure of the group addresses inside of all IRDs is the base for a good working system. This is important to use all possible functions of the 2wcom SIRC system.

At least the possibility to address following things should be taken into account:

- Addressing of specific IRDs
 - Per Radio Station
 - Per planned Region
- Addressing of specific types of IRDs (e.g. FlexDSR02+, DSR02, etc.)
 - Per Radio Station
 - Per planned Region
- Addressing of a specific function unit group/audio group
 - Per Radio Station
 - Per planned Region

Two examples:

- Due to a necessary change in the program structure it could be necessary to upload a new configuration to all IRDs in Paris.
- Due to a feature upgrade a new firmware shall be uploaded to all IRDs. Due to safety reasons this could be done region by region.

The following picture (Figure 61) shows an example of how a device group addressing structure could look like.

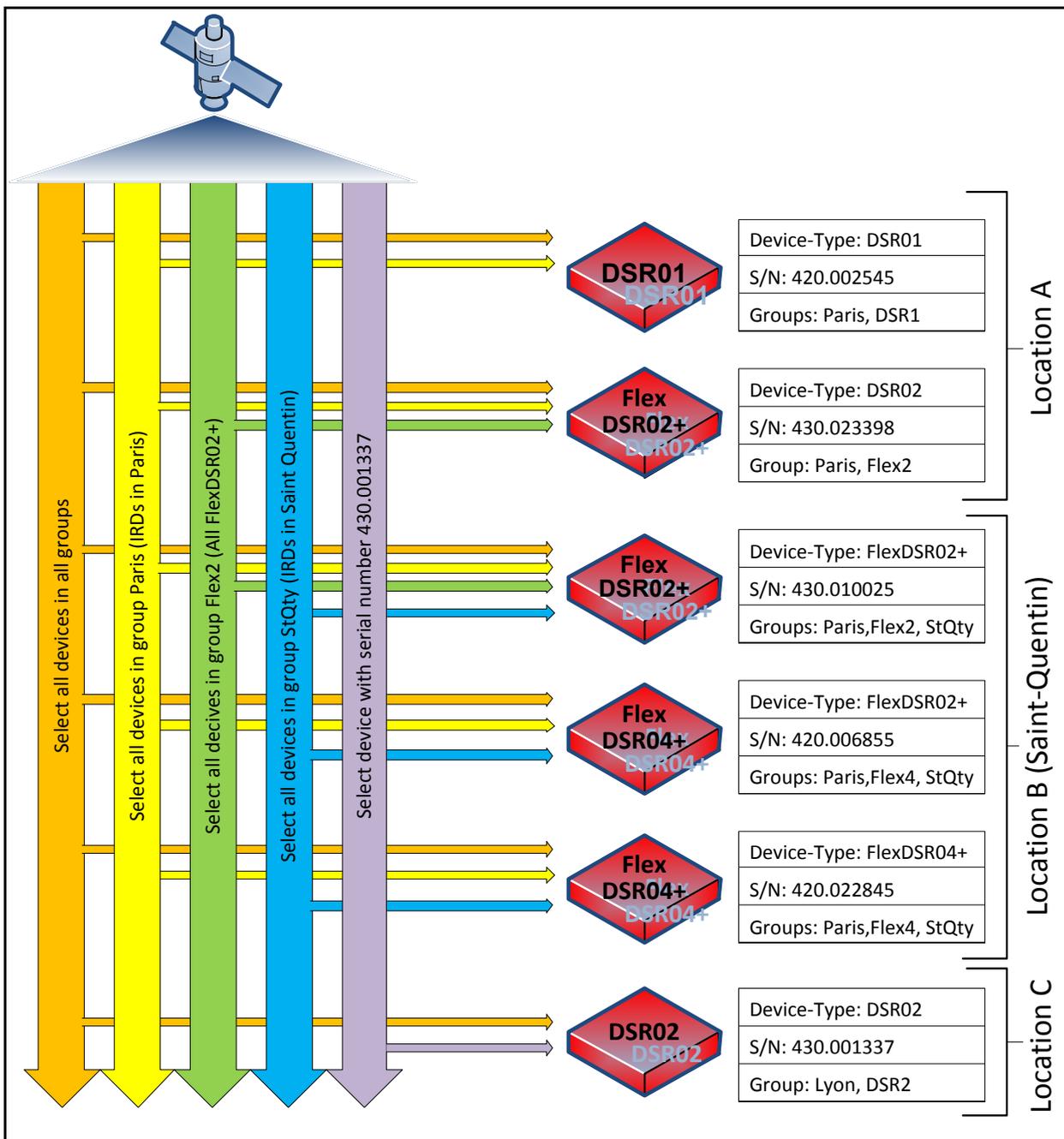


Figure 61: Example for device addressing structure

Function unit address structuring should be done additionally to device address structuring.

At least the following things should be taken into account for function groups:

- Possibility to address all function units of a complete production chain (e.g. this means that nationwide all IRDs with audio outputs that are used for the audio program Fox News can be addressed by a group)
- Possibility to address all function units of a production chain at specific regions (e.g. this means that all IRDs in Paris with audio outputs that are used for the audio program Fox News can be addressed by a group)

Some examples:

- **Nationwide** on all IRDs used for Fox News the **third relay** shall be activated.
- To all IRDs in **Paris** that are used for Fox News **audio files** for local ads shall be uploaded.
- All IRDs in **Paris** that are used for Fox News shall **switch to internal memory** to play local ads.
- The audio program **PID "101"** on all IRDs used for Fox News shall be **switched to a PID "201"** due to a program change

These examples are the minimum that should be taken into account. Of course, the needs for every broadcaster can be different and could not be summarized in this document. Below in Figure 62 you can see some more examples for function unit address structuring:

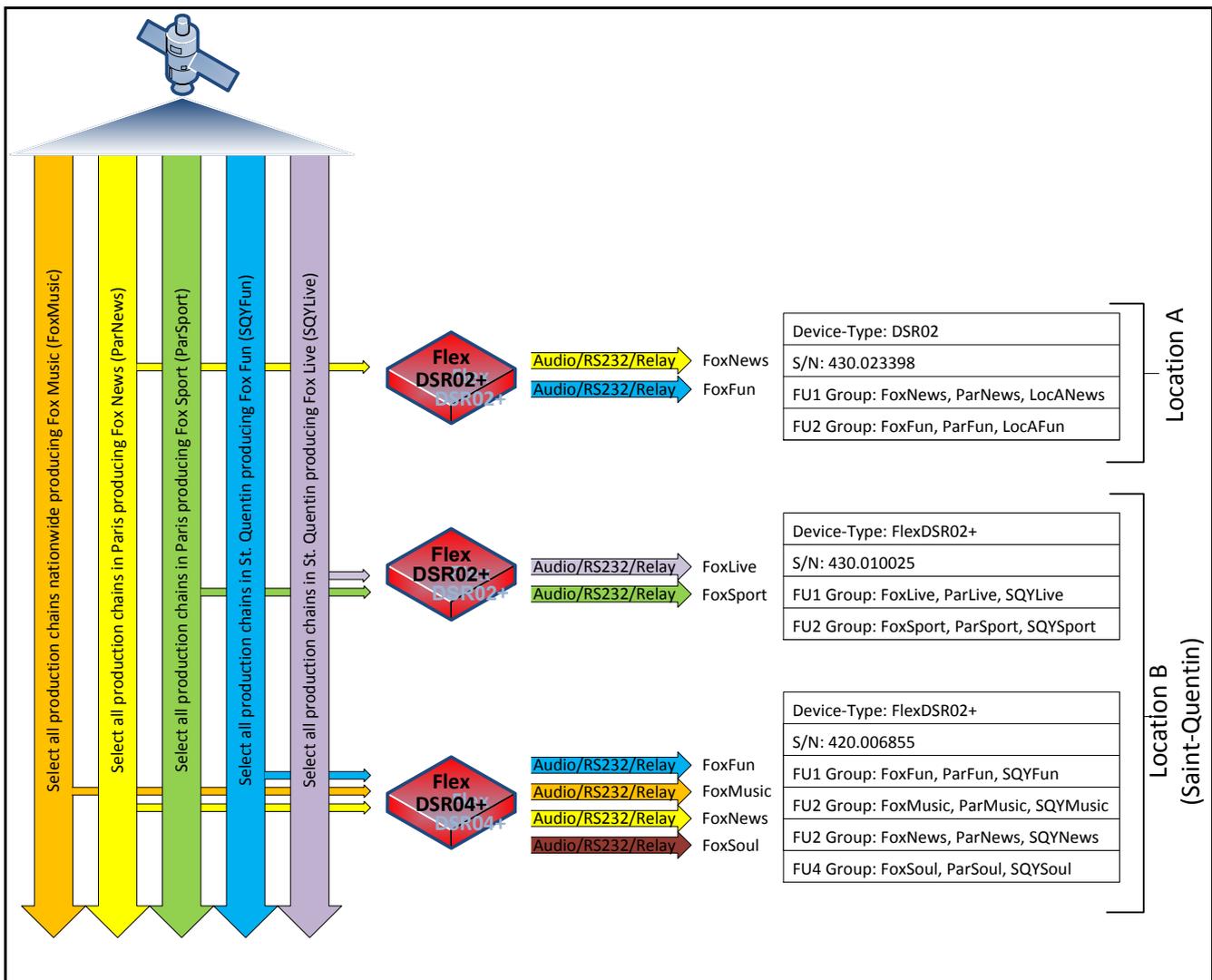


Figure 62: Example for function unit addressing structure

11.3.2wcom IRD ASCII Command Structure

11.3.1. General

2wcom IRDs can decode a set of ASCII commands (clear text) that can be used by automation systems to control and configure certain functions of devices remotely. The commands are sent individually but can also be bundled into sets of one or more commands that are stored in "auto.cfg" files. Commands can be delivered using the following mechanisms:

- Using the web interface of the SIRC Server and creating an action
- Using the web interface of the SIRC Server to upload an "auto.cfg" command set
- Opening a TELNET connection to the IRD and sending commands via TELNET
- Uploading an "auto.cfg" file via FTP directly to the IRD
- Embedding commands in MPEG/AAC ancillary data or private data within a transport stream

Note that the SIRC Server uses an external device, a DVB IP Audio Encoder, to embed SIRC specific content in a transport stream.

11.3.2. Command structure

A command is build up on:

- destination group name (8 characters maximum) followed by an underscore character
- 4 character command code
- (optional) followed by a space character and a so called "optional text" parameter

Example:

The command **CUSTGRP1_RR04** would switch relay number four of all function units belonging to the group called CUSTGRP1.

Each command is checked after being received for validity. Invalid commands or those with invalid parameters will not be executed but instead are ignored altogether.

11.3.3. Function units and destination group labels of IRDs

In order to control audio, serial and relays outputs of a receiver there needs to be a mechanism to address these outputs. To be able to address these outputs with simple commands there are two definitions.

1. Destination group label

A destination group label is a name consisting of a maximum of 8 ASCII characters that can be used to group IRDs or parts of IRDs (so called function units). The underscore character is not allowed in group names, as it is used to separate group names from commands.

2. Function unit

A function unit is a logical summary of IRD output interfaces. One function unit consists of 1 audio output (i.e. XLR analog L and R, as well as XLR digital), 2 RS232 interfaces and 4 or 8 relays.

A destination group can be set inside of an IRD to address this IRD and it can additionally be aligned to a function unit of an IRD. More Information about function units addressing groups of IRDs see section 11.2.5.

11.3.4. Commands

11.3.4.1. Special destination group labels

There are two special destination group labels that can be used instead of or in addition to the standard group labels:

- EVERYIRD** Wildcard, matching every function unit in every IRD. Not all commands are supported within the EVERYIRD group label
- APIDXXXX** Targets IRDs or function units with audio PID XXXX (APIDXXXX could be used if it is necessary to address receivers respectively function units by the PID. Is not as flexible as using groups in combination with function units)

Examples:

- EVERYIRD_STOP** stops file playback on every function unit on all IRDs
- APID101_RL01** latch relay 1 of all function groups with PID 101 in all corresponding IRDs

11.3.4.2. Relays

Relay commands allow for setting, resetting relays in IRDs as well as creating a short pulse with a relay.

- RMxx** momentary relay pulse for relay xx. Pulse duration is an IRD setting. Default value is 500msec
- RLxx** relay latch command – activates relay xx. Relay remains active until an RRxx command or an RMxx command is sent to the same relay number.
- RRxx** relay reset command – de-activates relay xx.

Depending on the number of relays the addressed device is equipped with and that are enabled for remote control, the number of addressable relays varies as follows:

Destination Group	Number of relays in device	Addressable Relays
IRD	7	7
	12	12
	24	24

Destination Group	Number of relays in device	Addressable Relays			
		AUDIO 1	AUDI O2	AUDIO3 (FlexDSR04+ only)	AUDIO4 (FlexDSR04+ only)
Function unit or PID	7	1-4	n/a	n/a	n/a
	12	1-4	1-4	n/a	n/a
	24	1-8	1-8	n/a	n/a

Destination group labels: All destination group types possible for relay commands

11.3.4.3. Fallback entries

The IRD supports up to three fallback entries for each function group, labeled from 0 to 3 where 0 is the primary source and 1-3 are the fallbacks in order of their activation should the primary source fail. Each entry is made up of a set of parameters that describe the fallback source.

There are several sources each fallback can have:

FxIS optional text Set fallback entry to input source. Valid values are **TS_SAT, TS_ASI, TS_IP, UDP_AUDIO, SHOUTCAST_AUDIO** or **FILE**

Example: **CUSTGRP1_F0IS TS_SAT**

Set input source to TS via satellite for fall back zero (primary source) of function unit

CUSTGRP1

If the input source is set to **TS_SAT** the following parameters **FxCM, FxCF, FxCS, FxCC, FxCP** and **FxCV** are needed to describe a valid DVB-S or DVB-S2 carrier and PID as a valid fallback:

FxCT optional text Set fallback entry x tuner input for tuner with A/B switching possibility. Possible values are **A** or **B**. The other tuner carrier related commands like FxCM, FxCF and so on will change the corresponding values of the selected tuner input.

Example: **CUSTGRP1_F1CT A**

Select tuner input A for fall back one of function unit CUSTGRP1

FxCM optional text Set fallback entry x DVB-S standard and modulation type. Valid values are **DVB-S BPSK, DVB-S QPSK** or **DVB-S2 XPSK**.

Example: **CUSTGRP1_F1CM DVB-S2 XPSK**

Set DVB-S standard and modulation type to DVBS2 - XPSK for fall back one of function unit CUSTGRP1

FxCF optional text Set fallback entry x (L-band) frequency. Valid values range from 950.000 to 2150.000 MHz.

Example: **CUSTGRP1_F1CF 1563.145**

Set L-band frequency to 1563.145MHz for fall back one of function unit CUSTGRP1

FxCS optional text Set fallback entry x symbol rate. Valid Values range from 0.05 to 45.0 MSym/s.

Example: **CUSTGRP1_F1CS 1.138652**

Set symbol rate to 1.138652MSym/s for fall back one of function unit CUSTGRP1

FxCC optional text Set fallback entry x carrier coding rate. Valid Values are **1/2, 2/3, 3/4, 5/6, 6/7, 7/8** or **Auto** for DVB-S and **QPSK 1/4, QPSK 1/3, QPSK 2/5, QPSK 1/2, QPSK 3/5, QPSK 2/3, QPSK 3/4, QPSK 4/5, QPSK 5/6, QPSK 8/9, QPSK 9/10, 8PSK 3/5, 8PSK 2/3, 8PSK 3/4, 8PSK 5/6, 8PSK 8/9, 8PSK 9/10, 16APSK 2/3, 16APSK 3/4, 16APSK 4/5, 16APSK 5/6, 16APSK 8/9, 16APSK 9/10, 32APSK 3/4, 32APSK 4/5, 32APSK 5/6, 32APSK 8/9, 32APSK 9/10** or **Auto** for DVB-S2.

Example: **CUSTGRP1_F2CC 32APSK 3/4**

Set carrier coding rate to DVB-S2 32APSK 3/4 for fall back two of function unit CUSTGRP1

FxCP optional text Set fallback entry x audio PID number. Valid values range from 32 to 8190. If one of the three possible PID entries per function unit has already audio output enabled, that entry will be changed. Otherwise the PID number will be set in the first PID entry and audio output will get enabled.

Example: **CUSTGRP1_F0CP 101**

Set audio PID to 101 for fall back zero of function unit CUSTGRP1

FxPy optional text Set fallback entry x PID number of PID entry y. Valid values range from 32 to 8190.

Example: **CUSTGRP1_F0P2 102**

Set PID entry 2 to 102 for fall back zero of function unit CUSTGRP1

FxDy optional text Set fallback entry x assignment of DTEy. Valid range for y depends on the number of DTE ports the device has. Additional parameters are the PID entry, to which the DTE port should get assigned (**PIDx**, where x=1..3) and the DTE data source, which can be one of the following values:

None, MpegAncillary, PrivateData_TS_Adaption, PrivateData_PES_Extension, PrivateData_ES, PrivateData_ES_Tandberg
Be aware, that the **PrivateData_x** data sources can only be used for PID entries with audio output disabled, whereas **MpegAncillary** can only be used for PID entries with enabled audio output.

Example: **CUSTGRP1_F0D2 PID3 PrivateData_ES**

Assign DTE2 to PID entry 3, using PrivateData/ES as data source for fall back zero of function unit CUSTGRP1

FxCV optional text Set fallback entry x polarization (LNB supply voltage) and LNB frequency range (22kHz). Valid values for **POLARIZATION** are **HORIZONTAL, VERTICAL** and **OFF** and for **LNB FREQUENCY RANGE** are **LOWBAND** and **HIGHBAND**.

Example: **CUSTGRP1_F3CV VERTICAL LOWBAND**

Set polarization to vertical and frequency range to low band for fall back one of function unit CUSTGRP1

If the input source is set to **TS_ASI** only the **FxCP** command needs to be set for a valid fallback entry.

If the input source is set to **TS_IP** both the **FxGI** and **FxCP** commands need to be set for a valid fallback entry:

FxGI optional text Set fallback entry x 1000Base-T input parameters for routing scheme, multicast IP address, protocol and port. Valid values for **ROUTING SCHEME** are **UNICAST** or **MULTICAST**, for **MULTICAST IP ADDRESS** addresses ranging from **224.0.0.1** to **239.255.255.254**, for **PROTOCOL** are **UDP** or **RTP** and for **PORT** are values ranging from **1024** to **65535**. The multicast IP address is only needed when the routing scheme is set to multicast.

Example: **CUSTGRP1_F0GI UNICAST RTP 5004**

Set 1000Base-T input parameters to routing scheme unicast, protocol RTP and port

5004 for fall back zero of function unit CUSTGRP1

Example: **CUSTGRP1_F0GI MULTICAST 224.0.1.4 UDP 5004**

Set 1000Base-T input parameters to routing scheme multicast, multicast IP address 224.0.1.4, protocol UDP and port 5004 for fall back zero of function unit CUSTGRP1

If the input source is set to **UDP_AUDIO** the **FxUM**, **FxUP**, **FxUR**, **FxUF** and **FxUD** commands are needed to be set for a valid fallback entry:

FxUM optional text Set fallback entry x IP UDP/RTP audio stream input routing scheme and multicast IP address. Valid values for **ROUTING SCHEME** are **UNICAST** or **MULTICAST**, for **MULTICAST IP ADDRESS** addresses ranging from **224.0.0.1** to **239.255.255.254**. The multicast IP address is only needed when the routing scheme is set to multicast.

Example: **CUSTGRP1_FOUM UNICAST**

Set IP UDP/RTP audio stream input to routing scheme unicast for fall back zero of function unit CUSTGRP1

Example: **CUSTGRP1_FOUM MULTICAST 229.3.0.2**

Set IP UDP/RTP audio stream input to routing scheme multicast and multicast IP address 229.3.0.2 for fall back zero of function unit CUSTGRP1

FxUP optional text Set fallback entry x IP UDP/RTP audio stream input port. Valid values for **PORT** range from **1024** to **65535**.

Example: **CUSTGRP1_FOUP 10000**

Set IP UDP/RTP audio stream input to port 10000 for fall back zero of function unit CUSTGRP1

FxUR optional text Set fallback entry x IP UDP/RTP audio stream input protocol. Valid values for **PROTOCOL** are **UDP** or **RTP**.

Example: **CUSTGRP1_FOUR RTP**

Set IP UDP/RTP audio stream input to protocol RTP for fall back zero of function unit CUSTGRP1

FxUF optional text Set fallback entry x IP UDP/RTP audio stream format. Valid values for **FORMAT** are **MPEG**, **APTX** or **LPCM**. As different audio decoders need different sets of parameters, additional parameters for **APRX** and **LPCM** are needed:
APTX: SAMPLERATE with values of **32000** or **48000** and **BIT DEPTH** with a value of **16**
LPCM: SAMPLERATE with values of **8000**, **16000**, **22050**, **24000**, **32000**, **44100** or **48000**, **BIT DEPTH** with values of **16**, **20** or **24** and **ENDIANESS** with either **L** (little endian) or **B** (big endian).

Example: **CUSTGRP1_FOUF MPEG**

Set IP UDP/RTP audio stream input to MPEG decoder for fall back zero of function unit CUSTGRP1

Example: **CUSTGRP1_FOUF APTX 48000 16**

Set IP UDP/RTP audio stream input to APTX decoder, 48kHz sample rate with 16Bit samples for fall back zero of function unit CUSTGRP1

Example: **CUSTGRP1_FOUF LPCM 32000 20 B**

Set IP UDP/RTP audio stream input to Linear PCM decoder, 32kHz sample rate with 20Bit samples, big endian format for fall back zero of function unit CUSTGRP1

If the input source is set to **SHOUTCAST_AUDIO** only the **FxAS** command is needed for a valid fallback entry:

FxAS optional text Set fallback entry x to Shoutcast/Icecast IP audio stream input. Valid values are a Shoutcast/Icecast server **IP ADDRESS** and a **PORT** number in standard format, separated by a colon.

Example: **CUSTGRP1_F2AS 172.96.5.159:9000**

*Set IP Shoutcast/Icecast IP audio stream input to server IP address 192.96.5.159
port
9000 for fall back two of function unit CUSTGRP1*

If the input source is set to **FILE** only the **FxAF** command is needed for a valid fallback entry:

FxAF optional text Set fallback entry x to playback of an audio file. Valid value is the **AUDIO FILE NAME** of any audio file that is stored on the IRDs internal storage. If **SMART** is used instead of an audio file name, the fallback entry becomes a smart fallback entry (see smart fallback description below). If the file does not exist on the IRD, this entry will be skipped in a fallback situation.

Example: **CUSTGRP1_F3AF Up is down is up.mp3**

*Set audio file playback to file "Up is down is up.mp3" for fall back three of
function
unit CUSTGRP1*

Example: **CUSTGRP1_F3AF SMART**

*Set audio file playback to smart mode for fall back three of function unit
CUSTGRP1*

FBGO optional text Force fallback to fallback entry specified in optionaltext. Valid values are numbers ranging from **0** to **3**, zero being the primary source, 1 to 3 being the fallback options in the order they're used. If the fallback entry specified is not accessible or not valid, the IRD will go into Smart Fallback mode and proceed to the next available valid source.

Example: **CUSTGRP1_FBGO 2**

Set fallback to fallback entry two of function unit CUSTGRP1

ARCG optional text Add group name entry for remote control. Valid values are a **GROUPNAME** of up to 8 characters and a **GROUPTYPE** with values of **IRD**, **AUDIO1**, **AUDIO2**, **AUDIO3** or **AUDIO4**. AUDIO3 and AUDIO4 are only available on FlexDSR04+ devices.

Example: **CUSTALL_ARCG CUSTGRP1 AUDIO1**

*Create group CUSTGRP1 for function unit AUDIO1 on all devices belonging to the
CUSTALL group*

Example: **CUSTGRP1_ARCG NORTH IRD**

Create group NORTH for all devices with function unit CUSTGRP1

RCPx optional text Set Remote Control (SIRC) PID number x. FlexDSR02+ allows 2 different SIRC PIDs, whereas FlexDSR04+ allows 4.

Example: **CUSTALL_RCP1 8189**

Set first SIRC PID to 8189 on all devices belonging to the CUSTALL group

11.3.4.4. FTP

FTP specific commands in red are planned but have not yet been implemented and are mere proposals and subject to change. The FTP server is configured in the IRD and cannot be configured via SIRC commands.

FTPG Command to log into FTP server and get files if accessible.

FTPI optional text Command that sets FTP get interval. The command parameter will be a number of half-hours between check-ins with the FTP server.

Destination group labels: All destination group types possible for FTP commands

11.3.4.5. Logging

Logging specific commands in red are planned but have not yet been implemented and are mere proposals and subject to change. The FTP server is configured in the IRD and cannot be configured via SIRC commands.

LOGR Request log report command – if IRD has access to FTP server, immediately log in and upload log

AFFR Request affidavit log – if IRD has access to FTP server, immediately log in and upload affidavit log.

HLTH Request health log - If IRD has access to FTP server, immediately log in and upload health log.

DIRO Request directory listing – if IRD has access to FTP server, immediately log in and upload storage report.

DIR1 Request enhanced directory listing – if IRD has access to FTP server, immediately log in and upload storage report plus. (Storage report plus the contents of each *.pls file in the folder).

PRGL Purge log. Clears all entries in IRD log.

PRGA Purge affidavit log. Clears all file playback entries in IRD log.

PRGH Purge health log. Clears all IRD health entries in log.

Destination group labels: All destination group types possible for Logging commands

11.3.4.6. Audio file handling

The following commands are intended for the specific use in conjunction with audio files that are stored on the IRDs internal memory.

PLAY optional text Causes IRD to play/execute an audio file from its internal storage of the function unit defined in the destination group of the command. Ignored if the file does not exist. Valid value is the FILE NAME of the corresponding file. File types include audio or playlist files. Playlist and audio files need to be used in conjunction with function groups or PID-addressing.

Example: **CUSTGRP1_PLAY BFFs Foreva.mp3**

Start playback of audio file "BFFs Foreva.mp3" on all devices with a CUSTGRP1 function unit

Example: **CUSTGRP1_PLAY jingles.pls**

Start playback of all audio files that are listed in the playlist file "jingles.pls" on all devices with a CUSTGRP1 function unit

STOP Causes IRD to stop playing a file from its storage in the function unit defined in the destination group of the command.

Example: **CUSTGRP1_STOP**

Stop playback of audio files on all devices with a CUSTGRP1 function unit

DELA optional text Causes IRD to delete an audio file from storage. Valid values are all FILE NAMES that are currently stored on the device in the specific function group. If a file doesn't exist, the command will be ignored. If ALL is used instead of a file name, all files belonging to the function group are purged.

Example: **CUSTGRP1_DELA BFFs Foreva.mp3**

Deletes file "BFFs Foreva.mp3" on all devices with a CUSTGRP1 function unit

Example: **CUSTGRP1_DELA ALL**

Deletes all audio and playlist files belonging to CUSTGRP1 on all devices with a CUSTGRP1 function unit

SIZE
size1 size2 ... sizeN Constrains the maximum storage size of the folder of each channel (AUDIO1-4). Values are given in megabytes. The size command can only be applied on device groups not function unit groups

Example: **CUSTALL_SIZE 1024 1024 2048 2048**

Constrains the audio file folder size for a FlexDSR04+ to 1024MB for AUDIO1 and 2 and to 2048MB for AUDIO3 and 4 on all devices belonging to group CUSTALL

11.3.4.7. Others

This section contains general IRD commands. Commands in red are planned but have not yet been implemented and are mere proposals and subject to change.

FLT1 optional text Sets or resets the state of IRD fault indicator 1. Normal IRD operation may change this state afterward. Valid values are **ON** or **OFF**.

FLT2 optional text Sets or resets the state of IRD fault indicator 2, or if **FLASH** is the parameter, causes the **FAULT2** indicator to flash until turned off by subsequent command. Normal IRD operation may change this state afterward. Valid values are **ON**, **OFF** or **FLASH**.

BOOT Reboot IRD.

ACTF optional text Activate firmware file stored in IRD internal storage

Example: **CUSTALL_ACTF FlexDSR02+ ARM-web-image-V03.12.bin**

Activate the firmware file "FlexDSR02+ ARM-web-image-V03.12.bin"

ACTC optional text Activate configuration file stored in IRD internal storage

Example: **CUSTALL_ACTC FlexDSR02+_20130205_133001.bin**

Activate the configuration file "FlexDSR02+_20130205_133001.bin"

SRPD optional text Set relay pulse duration. Valid values are **DURATIONS** in the range of **1** to **1024** msec. Default is 500msec.

Example: **CUSTALL_SRPD 1024 1024 2048 2048**

Constrains the audio file folder size for a FlexDSR04+ to 1024MB for AUDIO1 and 2 and to 2048MB for AUDIO3 and 4 on all devices belonging to group CUSTALL

Destination group labels: All destination group types possible for cther commands

11.3.5. Autoconfig.cfg File Format

Autoconfig files are simple text files that consist of at least one SIRC command. Multiple SIRC commands can be put into an autoconfig file, one per line. Empty lines can be used for better reading flow and serve as no operation. There is no support for adding user comments to autoconfig files yet, but might be added in the future.

Example (comments were added for this document only and are not part of the file!):

Autoconfig.cfg	Comments
EVERYIRD_ARCG CUSTGRP1 AUDIO1	<i>Create group name CUSTGRP1 for AUDIO 1 on all IRDs</i>
EVERYIRD_ARCG CUSTGRP2 AUDIO2	<i>Create group name CUSTGRP2 for AUDIO 2 on all IRDs</i>
EVERYIRD_ARCG CUSTALL IRD CUSTGRP1_F0CF 1314.0	<i>Create group name CUSTALL on all IRDsSet frequency to 1314MHz for fall back zero on CUSTGRP1 devices</i>
CUSTGRP1_F0CV HORIZONTAL HIGHBAND	<i>Set polarization and band control to horizontal and high band for fall back zero on CUSTGRP1 devices</i>
CUSTGRP1_F0CS 27.500000	<i>Set symbol rate to 27.5 MSym/s for fall back zero on CUSTGRP1 devices</i>
CUSTGRP1_F0CM DVB-S QPSK	<i>Set modulation type to DVB-S QPSK for fall back zero on CUSTGRP1 devices</i>
CUSTGRP1_F0CC Auto	<i>Set forward error correction (FEC) mode to auto for fall back zero on CUSTGRP1 devices</i>
CUSTGRP1_F0CP 239	<i>Set PID to 239 for fall back zero on CUSTGRP1 devices</i>
CUSTGRP1_F1AS 80.237.157.79:80	<i>Set IP audio streaming with IP address 80.237.157.79 and port 80 for fall back one on CUSTGRP1 devices</i>
CUSTGRP1_F2UM MULTICAST 224.0.0.1	<i>Set UDP/RTP audio streaming mode with multicast address 224.0.0.1 for fall back two on CUSTGRP1 devices</i>
CUSTGRP1_F2UP 5001	<i>Set UDP/RTP audio streaming port to 5001 for fall back two on CUSTGRP1 devices</i>
CUSTGRP1_F2UR RTP	<i>Set UDP/RTP audio streaming protocol to RTP for fall back two on CUSTGRP1 devices</i>
CUSTGRP1_F2UF LPCM 44100 20 B	<i>Set UDP/RTP audio streaming format to PCM, 44.1kHz 20Bit, big endian mode for fall back two on CUSTGRP1 devices</i>
CUSTGRP1_F3AF Supersong.mp3	<i>Set audio file to "Supersong.mp3" for fall back three on CUSTGRP1 devices</i>
CUSTGRP1_F0IS TS_SAT	<i>Set input source to satellite for fall back zero on CUSTGRP1 devices</i>
CUSTGRP1_F1IS SHOUTCAST_AUDIO	<i>Set input source to Shoutcast audio for fall back one on CUSTGRP1 devices</i>
CUSTGRP1_F2IS UDP_AUDIO	<i>Set input source to UDP/RTP audio for fall back two on CUSTGRP1 devices</i>
CUSTGRP1_F3IS FILE	<i>Set input source to file (from internal memory) for fall back three on CUSTGRP1 devices</i>

12. Maintenance and servicing

Maintenance

No special maintenance is necessary on the device. Dust can be removed with a dry duster. For cleaning use only neutral, non-corrosive detergents applied to a cloth - not the device.

Servicing

The modules of the device are complex and should be serviced only by authorized personnel.

The 2wcom Systems GmbH is equipped with special measurement and repair kits. Therefore a repair by the user is not intended.

Calibration

Due to the design and construction of the device, no calibration is necessary.