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Global Ressources

Overview

Global resources are in a way similar to global logics. They are intended to assign single audio sources in a studio complex with several DHD systems exclusively to certain users. Typical scenarios may be an on air switch or a central phone line, the return line of which can be fed selectively by two or more studios. But only one studio can own the line at a time. The following figure illustrates such a situation. Here, the `CONTROL` device is the master, in which the global resources are coordinated. All other devices are subscribers that access the resources alternating.
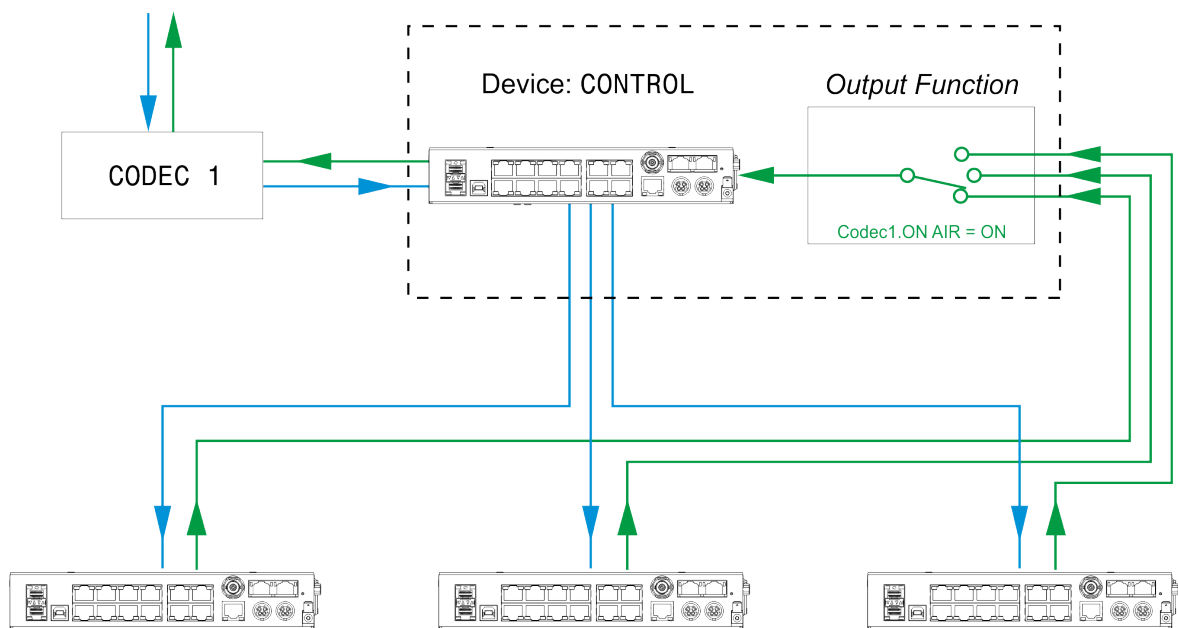
Subsciber	ON AIR	PROD 1	PROD 2
Globale Ressourcen	Codec 1. ON AIR	Codec 1. PROD 1	Codec 1. PROD 2
Logischer Zustand	✓ ON	✗ OFF	✗ OFF

Global Resource (CODEC1) with three subscribers. Device CONTROL is the master, device ONAIR owns the codec at present.

Global resources offer the functions which are necessary to enable the exclusive ownership of a resource and the change of the owner on request. The functions are based on the following design principles:

1. A global resource is offered or published by exactly one master. One or more subscribers are defined and can own this resource. You can define up to 20 global resources.
2. A resource can either be idle (no subscriber) or owned by exactly one subscriber. You can define which condition a global resource can have after switching on or resetting a device. It can either be idle or assigned to a certain subscriber.

3. Master and subscriber are different devices in the same project. But it is possible to define master and subscriber on the same device.

4. The master is only defined to determine the device responsible for managing the global resource. It has no additional function.

5. Global resources are implemented as special logic signals. For each subscriber of a logic source, there is exactly one global logic signal that can be accessed by all devices in the project. This logic signal is active if the corresponding subscriber owns the resource. At the same time, the logic signals of all other subscribers are inactive.

6. Toggling between the different subscribers is done using special key functions. These have to be assigned to keys on the console, which will be explained in detail later on.

7. Global resources only enable the toggling of logic signals. The audio signals themselves are controlled using output functions or super output functions, while the logic signals of the global resources are controlling these output functions.

You can define up to 20 global resources that all can be used by the same project. Therefore, the devices must be connected by Ethernet and able to exchange UDP messages.
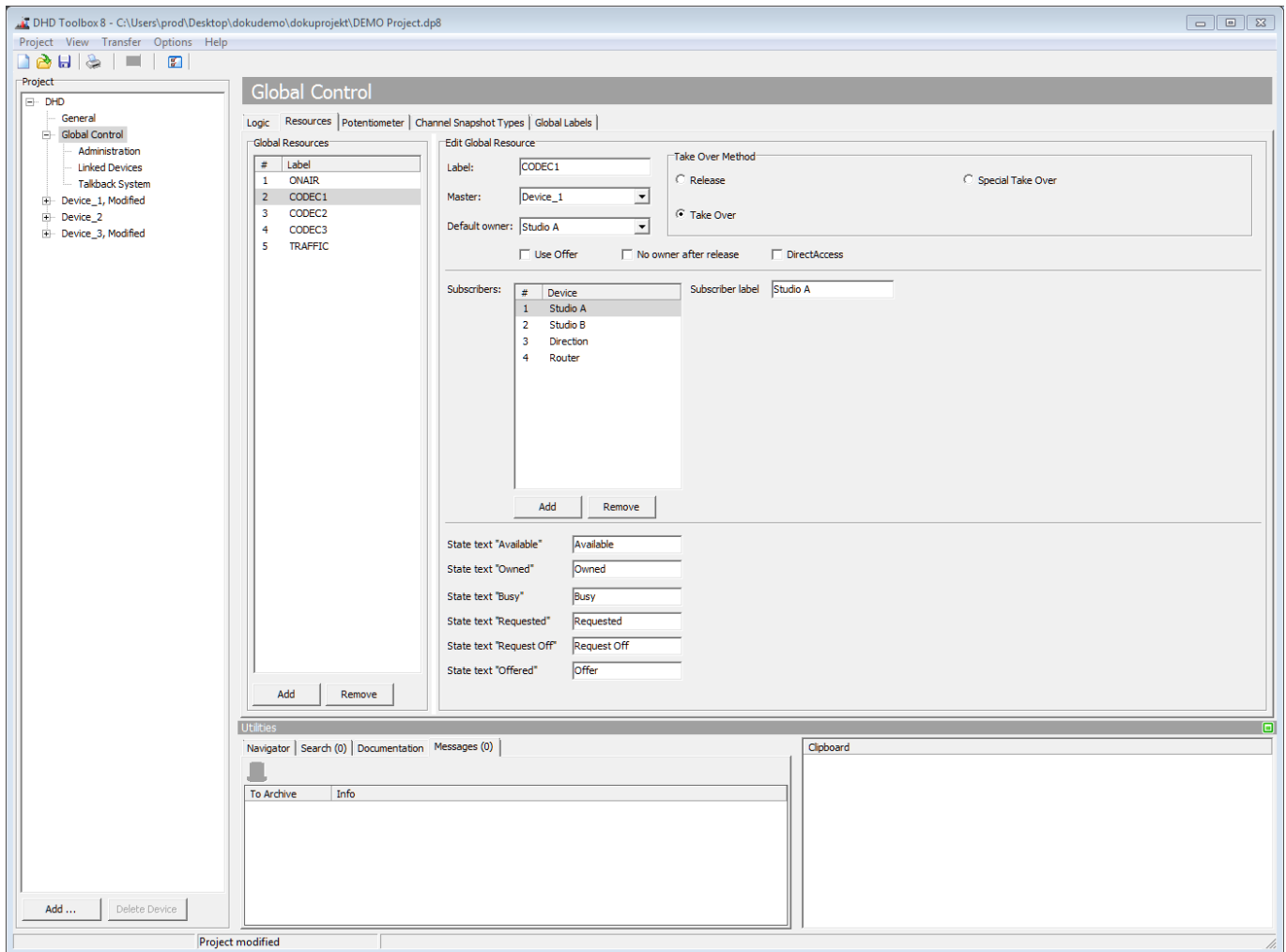
> ⚠️ **Important**
> Make sure all devices have the same project ID! Otherwise, you are not able to exchange UDP messages and the global resources do not work.

Defining Global Resources

To define global resources, in the project tree select `Global Control` and click on the `Resources` tab.

Configuration Dialog for global resources.

Now follow these steps to define a global resource:

1. In the `Global Resources` area, click `Add`, to set up a new resource. In the `Label` box, type a distinctive name.
2. In the `Master` list, select the device that is to manage the global resource. It is not necessary to define a subscriber on the device as well - but you can if it makes sense.

> **Note**
> You can define any device as master. But we recommend to choose the device that the resource (e.g., the phone line) is really connected to. This way, you make sure the line is also available if the master device is active.

3. Now determine which devices have subscriber access to the global resource. Under the `Subscribers` list, click `Add` to create a new subscriber. In the `Subscriber label` box, enter a distinctive name.
4. Set a default owner in the `Default Owner` list. This is the subscriber that owns the global resource by default after switching on or reset the master device. The default subscriber is also assigned if a subscriber releases a global resource without being requested by another subscriber. It is possible to deactivate this function by selecting the `No owner after release` check box. If you select the `Use`

offer check box, the owner of the resource is able to provide the resource to the other subscribers. That means, the owner presses the resource key and OK once. Afterwards the resource key of all subscribers starts flashing. Now, one of the subscribers only needs to press the resource key and OK once to take over the resource.

5. The new global resource is instantly available as a logic function. It can be accessed by all devices in the project. It is shown in the Logic Sources window (F5 key) under the node Global Resources. Its name follows the scheme <Name of the Global Resource>.<Name of the Subscriber>. There is exactly one logic function for each subscriber assigned. This is always active if the subscriber owns the global resource.
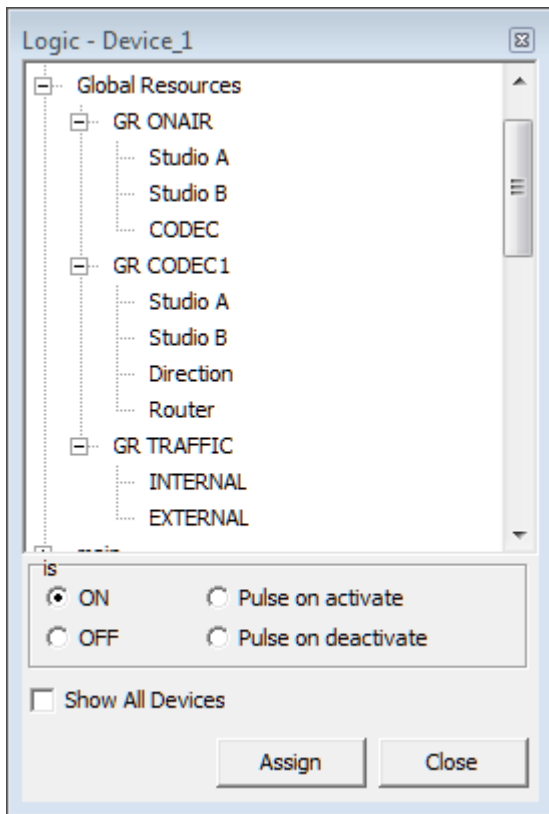
Global resources in the Logic Sources window.

You can only access a global resource if the corresponding keys for requesting the resource are defined on the console.

> **Important**
> On each global resource you want to access, you have to define a special key in a control module or TFT view. In addition, in the same operating desk, keys with the system functions OK and Cancel must be defined.

To define a key for requesting a global resource, follow these steps:

> **Tip**
> If you are using a 52/XC or 52/XS core, it is necessary to select the Use control

Network Option check box to have access to the Resource Request key function.

1. Select the key (Console or TFT Button) you want to use to request the global resource. The Key Functions window opens.
2. Drag the Resource Request function from the Key Functions window to the desired key. Two drop-down menus appear below the Label text box.
3. In the Resource menu, select the global resource which is requested by the key.
4. In the Reserve for menu, select the device for which subscriber the global resource is requested.

Tip
It makes sense to request global resources for another subscriber, if the corresponding key is located in the control room, from which lines or phone codecs are assigned to different studios. If you use routing panels with LCD keys, assigning to different devices is also useful.

5. Assign the key colors you prefer. The color Available is shown if the resource is available. The color Owned is shown if the devices owns the global resource. The color Busy is shown, if the global resource is taken by another subscriber.

If a global resource is taken by a device, other authorised subscribers can request this global resource. To request a resource, to take it or to acknowledge or deny requests, in each device the system functions OK and Cancel have to be configured as key functions.

There are three procedures to take over a global resource:

1. Release: The resource is taken by a device; now this device is called the Owner. Another device requests the resource. The owner can deny this request or approve. In case of approval, the resource is released (Release). This procedure requires that the appropriate keys are to be pressed on the operating desks of both devices.
2. Take Over: The resource is taken, if it is requested. The requester itself approves to the request and takes over the resource. Alternatively, the owner can release the resource or deny the request.
3. Special Take Over: The resource is taken by the owner, if it is requested. If the request is not approved by the owner, the requester can force a take over. Therefore, the requester has to push the request key and the OK key at the same time for 5 seconds. Alternatively, the owner can also release the resource or deny the request.

A resource is always handed over in two steps: the request and the approval. The colors of the corresponding keys and the LED displays inform about the current status.

1. The resource is requested (Request). Therefore, the request key and the OK key have to be pressed at the same time on the console of the requester.
2. In the second step, the resource is released by the owner (Release) or taken over by the requester (Take Over, Special Take Over).

Tip

> The best way to understand these procedures is to configure a global resource and do a test run with two operating desks.

Examples for a Resource Take Over

The following examples illustrate the different steps and status displays for assigning a return line.

The following settings in the configuration are used for the examples:

Resource Name	CODEC	
Default Owner	(none)	
Take Over Mode	Release	
Subscriber Name	Stud1	Stud2
Reserve for	Stud1	Stud2
Key Color Available	Green	Green
Key Color Owned	Red	Red
Key Color Busy	Yellow	Yellow

Situation 1: The resource is available and is taken over by **Stud1**.

	Stud1	Stud2	Switching Panel
Status readout	Key CODEC = green	Key CODEC = green	Key CODEC = green, line 1 shows: CODEC
Request for resource	Key CODEC pressed + Key OK	-	-
Status readout	Key CODEC = yellow	Key CODEC = off	Key CODEC = yellow, line 3 shows: Rq Device Stud1
Checking status of the resource	Key CODEC pressed	Key CODEC pressed	-
Status readout	Display (Rq = Request): CODEC Rq Stud1	Display (Rq = Request): CODEC Rq Stud1	-
Resource take over	Key CODEC pressed + Key OK	-	-
Status readout	Key CODEC = red	Key CODEC = off	Key CODEC = red, line 2 shows: Ow Device Stud1
Checking status of the resource	Key CODEC pressed	Key CODEC pressed	-
Status readout	Display (Ow = Owner): CODEC Ow Stud1	Display (Ow = Owner): CODEC Ow Stud1	-

Situation 2: The resource is owned by **Stud1** and released by **Stud1**.

	Stud1	Stud2	Switching Panel
Status readout	Key CODEC = red	Key CODEC = off	Key CODEC = red, line 2 shows: Ow Device Stud1
Checking status of the resource	Key CODEC pressed	Key CODEC pressed	-

	Stud1	Stud2	Switching Panel
Status readout	Display (Ow = Owner): `CODEC Ow Stud1`	Display (Ow = Owner): `CODEC Ow Stud1`	-
Initialise release	Key `CODEC` pressed + Key `OK`	-	-
Status readout	Key `CODEC` = yellow	Key `CODEC` = off	Key `CODEC` = red, line 3 shows: off
Checking status of the resource	Key `CODEC` pressed	Key `CODEC` pressed	-
Status readout	Display (Rq = Request): `CODEC Rq Off`	Display (Rq = Request): `CODEC Rq Off`	-
Carry out release	Key `CODEC` pressed + Key `OK`	-	-
Status readout	Key `CODEC` = green	Key `CODEC` = green	Key `CODEC` = green

Situation 3: The resource is owned by **Stud1** and requested by **Stud2**.

	Stud1	Stud2	Switching Panel
Status readout	Key `CODEC` = red	Key `CODEC` = off	Key `CODEC` = red, line 1 shows: `CODEC`, line 2 shows: `Ow Device Stud1`
Checking status of the resource	Key `CODEC` pressed	Key `CODEC` pressed	-
Status readout	Display (Ow = Owner): `CODEC Ow Stud1`	Display (Ow = Owner): `CODEC Ow Stud1`	-
Request for resource	-	Key `CODEC` pressed + Key `OK`	-
Status readout	Key `CODEC` = yellow	Key `CODEC` = yellow	Key `CODEC` = yellow, line 3 shows: `Rq Device Stud2`
Checking status of the resource	Key `CODEC` pressed	Key `CODEC` pressed	-
Status readout	Display (Rq = Request): `CODEC Rq Stud2`	Display (Rq = Request): `CODEC Ow Stud1`	-
Take over resource	Key `CODEC` pressed + Key `OK`	-	-
Status readout	Key `CODEC` = green	Key `CODEC` = red	Key `CODEC` = green, line 2 shows: `Ow Device Stud2`
Checking status of the resource	Key `CODEC` pressed	Key `CODEC` pressed	-
Status readout	Display (Ow = Owner): `CODEC Ow Stud2`	Display (Ow = Owner): `CODEC Ow Stud2`	-

Finally, you have to link the logic conditions of the resource with audio signals in an output function. (See Output Functions)

To do this, create the output functions in the device that physically owns the signal `CODEC1`. This signal must also be made available to the second device at the same time, for example via APC Link. The second device sends the return signal CODEC2 to the first device that is connected with `CODEC1`.

After that, the output function connected with the physical output to CODEC1 looks like this:

Condition	Source 1	Level 1	Source 2	Level 2
Default	CF CODEC1 (local)	Off	CF CODEC2 (APC Link)	Off

Condition	Source 1	Level 1	Source 2	Level 2
CODEC1.Stud1	CF CODEC1 (local)	0 dB	CF CODEC2 (APC Link)	Off
CODEC1.Stud2	CF CODEC1 (local)	Off	CF CODEC2 (APC Link)	0 dB

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